

EVALUACION FINAL
PRUEBA DE HABILIDADES PRACTICA CCNP

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EVALUACIÓN PRUEBA DE HABILIDADES PRÁCTICAS CCNP

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GLOSARIO

Networking: s un anglicismo empleado en el mundo de los negocios para hacer referencia a una actividad socioeconómica en la que profesionales y emprendedores se reúnen para formar relaciones empresariales, crear y desarrollar oportunidades de negocio, compartir información y buscar clientes potenciales.

CCNP: es un plan de capacitación en tecnología de redes informáticas que la empresa Cisco ofrece. Se divide en tres niveles, de menor a mayor complejidad

Vlan: es un acrónimo que deriva de una expresión inglesa: virtual LAN. Esa expresión, por su parte, alude a una sigla ya que LAN significa Local Area Network. De este modo, podemos afirmar que la idea de VLAN refiere a una red de área local (lo que conocemos como LAN) de carácter virtual.

Protocolos de red: Conjunto de normas standard que especifican el método para enviar y recibir datos entre varios ordenadores. Es una convención que controla o permite la conexión, comunicación, y transferencia de datos entre dos puntos finales
Resumen (Con palabras clave)

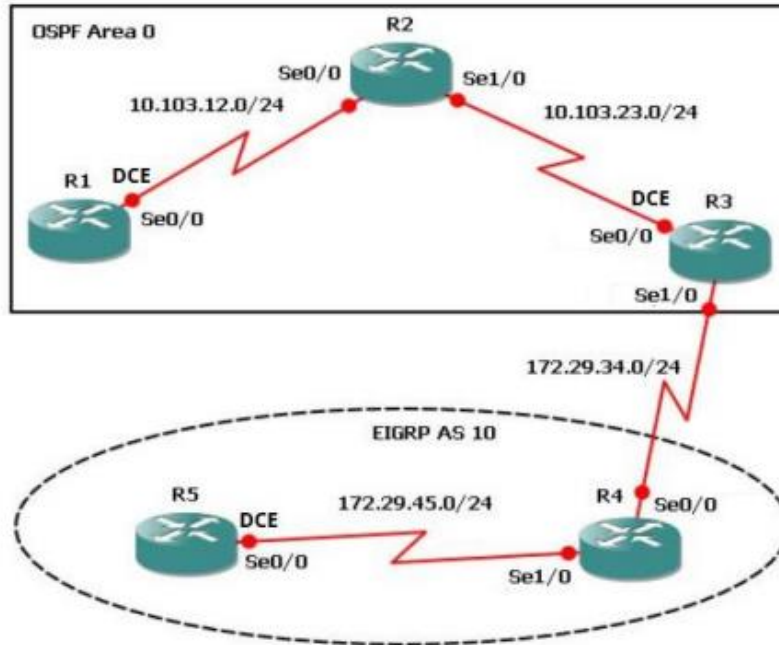
Palabras Clave: CISCO, Networking, Routers, CCNP

INTRODUCCIÓN

En este documento encuentran la solución a la práctica de habilidades que han solicitado en la universidad presentar, este documento tiene un valor muy importante ya que, con la aprobación de este, se otorga el título que se quiere. Al solucionar estas prácticas se plasman cada conocimiento adquirido durante el semestre, dando fe de lo aprendido en cada tarea grupal, los conocimientos hacen parte de nuestros procesos.

Escenario 1

Figura 1. Escenario 1



Aplique las configuraciones iniciales y los protocolos de enrutamiento para los routers R1, R2, R3, R4 y R5 según el diagrama. No asigne passwords en los routers. Configurar las interfaces con las direcciones que se muestran en la topología de red.

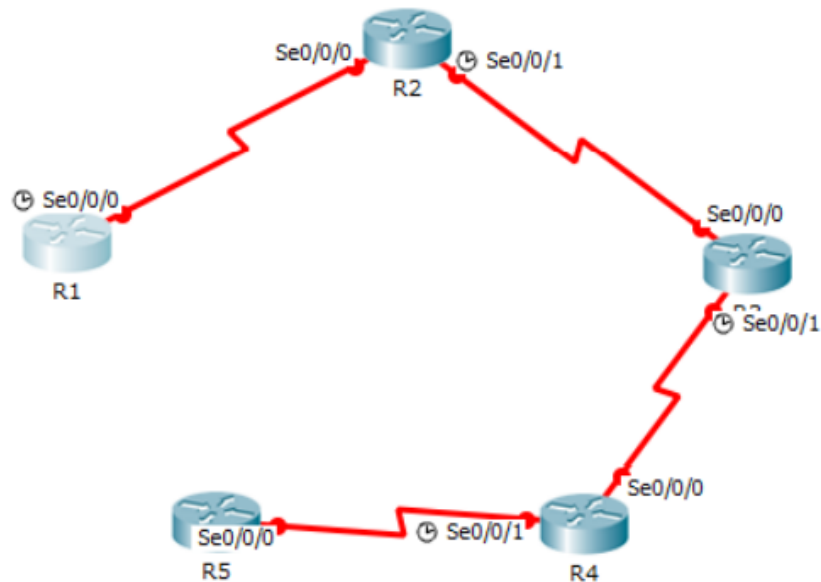


Figura 2

Configuración del Router 1.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#line con 0

line)#logging synchronous
Router(config-line)#exec-timeout 0 0
Router(config-line)#exit
Router(config)#interface loopback 1

Router(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state
to up
Router(config-if)#interface serial 0/0/1
Router(config-if)#ip address 10.103.12.2 255.255.255.0
Router(config-if)#clock rate 128000
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
Router(config)#router ospf 1
Router(config-router)#router-id 1.1.1.1
Router(config-router)#network 10.1.0.0 0.0.3.255 area 0
Router(config-router)#network 10.103.12.0 0.0.0.255 area 0
Router#
%SYS-5-CONFIG_I: Configured from console by console

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state
to up
Router#Router#copy ru st
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

Configuración del Router 2.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#line con 0
Router(config-line)#logging synchronous
Router(config-line)#exec-timeout 0 0
Router(config-line)#exit
Router(config)#interface loopback 2

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback2, changed state
if)#ip address 10.103.12.1 255.255.255.0 if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
Router(config-if)#interface serial 0/0/1
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state
to up
Router(config-if)#interface serial 0/0/1
Router(config-if)#ip address 10.103.23.2 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
Router(config)#router ospf 1
Router(config-router)#router-id 2.2.2.2
Router(config-router)#network 10.103.12.0 0.0.0.255 area 0
Router(config-router)#network 10.103.23.0 0.0.0.255 area 0
Router#

%SYS-5-CONFIG_I: Configured from console by console
Router#copy
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state
to up
Router#copy ru st
Destination filename [startup-config]?
Building configuration...
[OK]
```

Router#

Configuración del Router 3.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#line con 0
Router(config-line)#logging synchronous
Router(config-line)#exec-timeout 0 0
Router(config-line)#exit
Router(config)#interface loopback 3
^
% Invalid input detected at '^' marker.
Router(config)#interface loopback 3

Router(config-if)#
%LINK-5-CHANGED: Interface Loopback3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback3, changed state
if)#ip address 10.103.23.1 255.255.255.0 if)#clock rate 128000
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
Router(config-if)#exit
Router(config)#int
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state
to up

Router(config)#interface loopback 3
Router(config-if)#interface serial 0/0/1
Router(config-if)#ip address 172.29.34.2 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
Router#
Router(config)#router ospf 1
Router(config-router)#router-id 3.3.3.3
Router(config-router)#network 10.103.23.0 0.0.0.255 area 0
```

Router#

%SYS-5-CONFIG_I: Configured from console by console

Router#copy ru

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up

Router#copy ru st

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

Configuración del Router 4.

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#no ip domain-lookup

Router(config)#line con 0

Router(config-line)#logging synchronous

Router(config-line)#exec-timeout 0 0

Router(config-line)#exit

Router(config)#interface loopback 4

Router(config-if)#

%LINK-5-CHANGED: Interface Loopback4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback4, changed state if)#ip address 172.29.34.1 255.255.255.0 if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

Router(config-if)#interface serial 0/0/

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

1

Router(config-if)#interface serial 0/0/1

Router(config-if)#ip address 172.29.45.2 255.255.255.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

Router(config-if)#exit

Router(config)#exit

Router#



%SYS-5-CONFIG_I: Configured from console by console

```
Router#copy ru st
Destination filename [startup-config]?
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state
to up
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

Configuración del Router 5.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#line con 0
Router(config-line)#logging synchronous
Router(config-line)#exec-timeout 0 0
Router(config-line)#exit
Router(config)#interface loopback 5

Router(config-if)#
%LINK-5-CHANGED: Interface Loopback5, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback5,
changed state to up

Router(config-if)#interface serial 0/0/0
Router(config-if)#ip address 172.29.45.1 255.255.255.0
Router(config-if)#clock rate 128000
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#copy ru st
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed
state to up
Router#
```

2. Cree cuatro nuevas interfaces de Loopback en R1 utilizando la asignación de direcciones 10.1.0.0/22 y configure esas interfaces para participar en el área 0 de OSPF.

Cuatro Interfaces Loopback en R1

Loopback11	10.1.0.1/22
Loopback12	10.1.4.1/22
Loopback13	10.1.8.1/22
Loopback14	10.1.12.1/22

Se realiza la configuración Router 1

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface loopback11
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface Loopback11, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback11,
changed state to up
```

```
Router(config-if)#ip address 10.1.0.1 255.255.252.0
Router(config-if)#exit
Router(config)#interface loopback12
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface Loopback12, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback12,
changed state to up
```

```
Router(config-if)#ip address 10.1.4.1 255.255.252.0
Router(config-if)#exit
Router(config)#interface loopback13
```

```
Router(config-if)#
```



%LINK-5-CHANGED: Interface Loopback13, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback13,
changed state to up

```
Router(config-if)#ip address 10.1.8.1 255.255.252.0
Router(config-if)#exit
Router(config)#interface loopback14
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface Loopback14, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback14,
changed state to up
```

```
Router(config-if)#ip address 10.1.12.1 255.255.252.0
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#router-id 1.1.1.1
Router(config-router)#network 10.1.0.0 0.0.3.255 area 0
Router(config-router)#network 10.103.12.0
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 10.103.12.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#copy ru st
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

```
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface loopback11
Router(config-if)#ip ospf network point-to-point
Router(config-if)#exit
Router(config)#interface loopback12
Router(config-if)#ip ospf network point-to-point
Router(config-if)#exit
```



```
Router(config)#interface loopback13
Router(config-if)#ip ospf network point-to-point
Router(config-if)#exit
Router(config)#interface loopback14
Router(config-if)#ip ospf network point-to-point
Router(config-if)#exit
Router(config)#exit
Router#
```

%SYS-5-CONFIG_I: Configured from console by console

```
Router#copy ru st
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

3. Cree cuatro nuevas interfaces de Loopback en R5 utilizando la asignación de direcciones 172.5.0.0/22 y configure esas interfaces para participar en el Sistema Autónomo EIGRP 10.

Cuatro Interfaces Loopback en R5

Loopback51	172.5.0.1
Loopback52	172.5.4.1
Loopback53	172.5.8.1
Loopback54	172.5.12.1

Configuración Router 5.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface loopback51
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface Loopback51, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback51,
changed state to up
```

```
Router(config-if)#ip address 172.5.0.1 255.255.252.0
Router(config-if)#exit
```



```
Router(config)#interface loopback52
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface Loopback52, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback52,  
changed state to up
```

```
Router(config-if)#ip address 172.5.4.1 255.255.252.0
```

```
Router(config-if)#exit
```

```
Router(config)#interface loopback53
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface Loopback53, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback53,  
changed state to up
```

```
Router(config-if)#ip address 172.5.8.1 255.255.252.0
```

```
Router(config-if)#exit
```

```
Router(config)#interface loopback54
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface Loopback54, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback54,  
changed state to up
```

```
Router(config-if)#ip address 172.5.12.1 255.255.252.0
```

```
Router(config-if)#exit
```

```
Router(config)#
```

```
Router(config)#route eigrp 10
```

```
Router(config-router)#auto-summary
```

```
Router(config-router)#network 172.5.0.0 0.0.3.255
```

```
Router(config-router)#network 172.29.45.0 0.0.0.255
```

```
Router#
```



- Analice la tabla de enrutamiento de R3 y verifique que R3 está aprendiendo las nuevas interfaces de Loopback mediante el comando show ip route.

```

C      10.103.23.0/24 is directly connected, Serial0/0/0
      172.29.0.0/24 is subnetted, 1 subnets
C      172.29.34.0 is directly connected, Serial0/0/1

Router#show ip route
Codes: 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

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
O      10.1.0.0/22 [110/129] via 10.103.23.2, 00:04:43, Serial0/0/0
O      10.103.12.0/24 [110/128] via 10.103.23.2, 00:04:43,
Serial0/0/0
C      10.103.23.0/24 is directly connected, Serial0/0/0
      172.29.0.0/24 is subnetted, 1 subnets
C      172.29.34.0 is directly connected, Serial0/0/1

Router#

```

Figura 3

- Configure R3 para redistribuir las rutas EIGRP en OSPF usando el costo de 50000 y luego redistribuya las rutas OSPF en EIGRP usando un ancho de banda T1 y 20,000 microsegundos de retardo.

```

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 10
Router(config-router)#redistribute eigrp 10 subnets
Router(config-router)#exit
Router(config)#router ospf 1
Router(config-router)#redistribute eigrp 10
% Only classful networks will be redistributed
Router(config-router)#redistribute eigrp 10 subnets
Router(config-router)#exit
Router(config)#router eigrp 10
Router(config-router)#redistribute ospf 1 metric 1544 100 255 1 1500
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#show ip route
Codes: 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

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
O 10.1.0.0/22 [110/129] via 10.103.23.2, 00:08:56, Serial0/0/0
O 10.103.12.0/24 [110/128] via 10.103.23.2, 00:08:56, Serial0/0/0
C 10.103.23.0/24 is directly connected, Serial0/0/0
172.29.0.0/24 is subnetted, 1 subnets
C 172.29.34.0 is directly connected, Serial0/0/1

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 172.29.34.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#show ip route
Codes: 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
```

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
O 10.1.0.0/22 [110/129] via 10.103.23.2, 00:10:57, Serial0/0/0
O 10.103.12.0/24 [110/128] via 10.103.23.2, 00:10:57, Serial0/0/0
C 10.103.23.0/24 is directly connected, Serial0/0/0
172.29.0.0/24 is subnetted, 1 subnets
C 172.29.34.0 is directly connected, Serial0/0/1

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
```



```

Router(config-router)#redistribute eigrp 10 subnets
Router(config-router)#log-adjacency-changes
Router(config-router)#redistribute eigrp 7 subnets
Router(config-router)#network 172.29.45.0 area 0
^
% Invalid input detected at '^' marker.
Router(config-router)#network 172.29.45.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#router eigrp 10
Router(config-router)#redistribute ospf 1 metric 50000 200 255 1 1500
Router(config-router)#auto-summary
Router(config-router)#exit
Router(config)#

```

6. Verifique en R1 y R5 que las rutas del sistema autónomo opuesto existen en su tabla de enrutamiento mediante el comando show ip route.

```

Router>enable
Router#show ip route
Codes: 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

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C       10.1.0.0/22 is directly connected, Loopback11
C       10.1.4.0/22 is directly connected, Loopback12
C       10.1.8.0/22 is directly connected, Loopback13
C       10.1.12.0/22 is directly connected, Loopback14
C       10.103.12.0/24 is directly connected, Serial0/0/1
O       10.103.23.0/24 [110/128] via 10.103.12.1, 00:24:06,
Serial0/0/1
O       172.29.0.0/24 is subnetted, 1 subnets
O       172.29.34.0 [110/192] via 10.103.12.1, 00:11:32, Serial0/0/1
Router#

```

Figura 4

```

Router#show ip route
Codes: 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

Gateway of last resort is not set

    172.5.0.0/16 is variably subnetted, 5 subnets, 2 masks
D       172.5.0.0/16 is a summary, 01:56:39, Null0
C       172.5.4.0/22 is directly connected, Loopback52
C       172.5.8.0/22 is directly connected, Loopback53
C       172.5.12.0/22 is directly connected, Loopback54
C       172.5.16.0/22 is directly connected, Loopback51
    172.29.0.0/16 is variably subnetted, 3 subnets, 2 masks
D       172.29.0.0/16 is a summary, 01:56:39, Null0
D       172.29.34.0/24 [90/41024000] via 172.29.45.2, 00:09:41,
Serial0/0/0
C       172.29.45.0/24 is directly connected, Serial0/0/0

Router#

```

Figura 5

Escenario 2.

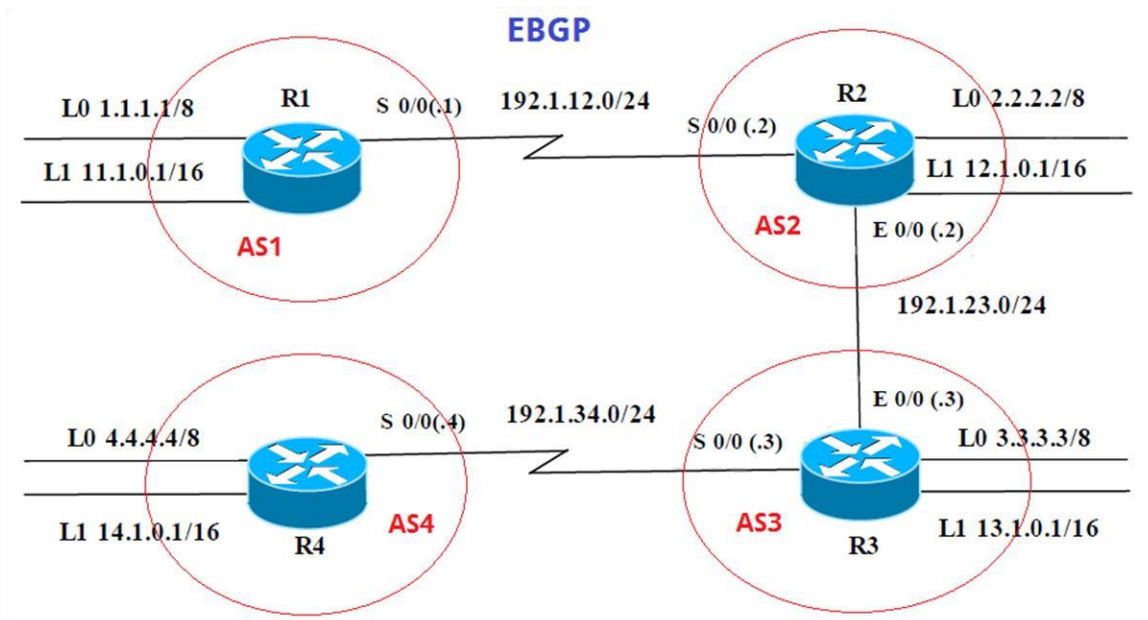


Figura 6

Información para configuración de los Routers

1. Configure una relación de vecino BGP entre R1 y R2. R1 debe estar en AS1 y R2 debe estar en AS2. Anuncie las direcciones de Loopback en BGP.

Codifique los ID para los routers BGP como 11.11.11.11 para R1 y como 22.22.22.22 para R2. Presente el paso a con los comandos utilizados y la salida del comando show ip route.

```
AS1#enable
AS1#configure term
Enter configuration commands, one per line. End with CNTL/Z.
AS1(config)#router bgp 1
AS1(config-router)#exit
AS1(config)#no router bgp 1
AS1(config)#router bgp 1
AS1(config-router)#bgp router-id 11.11.11.11
AS1(config-router)#neighbor 192.1.12.2 remote-as 2
AS1(config-router)#network 1.1.1.1 mask 255.0.0.0
AS1(config-router)#network 11.1.0.1 mask 255.255.0.0
AS1(config-router)#exit
AS1(config)#exit
AS1#
```

```
AS1>enable
AS1#show ip bgp
BGP table version is 6, local router ID is 11.11.11.11
Status codes: s suppressed, d damped, h history, * valid, > best, i
- internal,
              r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop          Metric LocPrf Weight Path
*> 1.0.0.0/8        0.0.0.0           0         0 32768 i
*                   192.1.12.2        0         0         0 2 i
*> 11.1.0.0/16      0.0.0.0           0         0 32768 i

AS1#show ip route
Codes: 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

Gateway of last resort is not set

C      1.0.0.0/8 is directly connected, Loopback0
C      11.0.0.0/16 is subnetted, 1 subnets
C          11.1.0.0 is directly connected, Loopback1
C      192.1.12.0/24 is directly connected, Serial0/0/0

AS1#
```

Figura 7

```

AS2>enable
AS2#config term
Enter configuration commands, one per line. End with CNTL/Z.
AS2(config)#router bgp 2
AS2(config-router)#bgp router-id 22.22.22.22
AS2(config-router)#neighbor 192.1.12.1 remote-as 1
AS2(config-router)#neighbor 192.1.34.3 remote-as 3
AS2(config-router)#neighbor 192.1.23.3 remote-as 3
AS2(config-router)#%BGP-5-ADJCHANGE: neighbor 192.1.12.1 Up
AS2(config-router)#network 1.1.1.0
AS2(config-router)#network 11.1.0.0
AS2(config-router)#exit
AS2(config)#exit
AS2#
%SYS-5-CONFIG_I: Configured from console by console

```

```

inter area
  * - candidate default, U - per-user static route, o - ODR
  P - periodic downloaded static route

Gateway of last resort is not set

B   1.0.0.0/8 [20/0] via 192.1.12.1, 00:00:00
C   2.0.0.0/8 is directly connected, Loopback0
    11.0.0.0/16 is subnetted, 1 subnets
B     11.1.0.0 [20/0] via 192.1.12.1, 00:00:00
    12.0.0.0/16 is subnetted, 1 subnets
C     12.1.0.0 is directly connected, Loopback1
C   192.1.12.0/24 is directly connected, Serial0/0/0
C   192.1.23.0/24 is directly connected, FastEthernet0/0

AS2#show ip bgp
BGP table version is 6, local router ID is 22.22.22.22
Status codes: s suppressed, d damped, h history, * valid, > best, i
- internal,
              r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop          Metric LocPrf Weight Path
*> 1.0.0.0/8        0.0.0.0            0      0      0 2 i
*>                  192.1.12.1         0      0      0 1 i
*> 11.1.0.0/16     192.1.12.1         0      0      0 1 i

AS2#

```

Figura 8

- Configure una relación de vecino BGP entre R2 y R3. R2 ya debería estar configurado en AS2 y R3 debería estar en AS3. Anuncie las direcciones de Loopback de R3 en BGP. Codifique el ID del router R3 como 33.33.33.33. Presente el paso a con los comandos utilizados y la salida del comando show ip route.

```

AS3>enable
AS3#config term
Enter configuration commands, one per line. End with CNTL/Z.
AS3(config)#router bgp 3
AS3(config-router)#neighbor 192.1.12.2 remote-as 2
AS3(config-router)#neighbor 192.1.23.2 remote-as 2
AS3##%BGP-5-ADJCHANGE: neighbor 192.1.23.2 Up
AS3(config-router)#neighbor 192.1.34.4 remote-as 4
AS3(config-router)#network 4.4.4.4 mask 255.0.0.0
AS3(config-router)#network 14.1.0.1 mask 255.255.0.0
AS3(config-router)#network 2.2.2.2 mask 255.0.0.0
AS3(config-router)#network 12.1.0.1 mask 255.255.0.0
AS3(config-router)#network 3.3.3.3 mask 255.0.0.0
AS3(config-router)#network 13.1.0.1 mask 255.255.0.0
AS3(config-router)#exit

```

```

AS3#show ip route
Codes: 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

Gateway of last resort is not set

B    1.0.0.0/8 [20/0] via 192.1.23.2, 00:00:00
C    3.0.0.0/8 is directly connected, Loopback0
     11.0.0.0/16 is subnetted, 1 subnets
B      11.1.0.0 [20/0] via 192.1.23.2, 00:00:00
     13.0.0.0/16 is subnetted, 1 subnets
C      13.1.0.0 is directly connected, Loopback1
C    192.1.23.0/24 is directly connected, FastEthernet0/0
C    192.1.34.0/24 is directly connected, Serial0/0/0

AS3#show ip bgp
BGP table version is 6, local router ID is 13.1.0.1
Status codes: s suppressed, d damped, h history, * valid, > best, i
- internal,
              r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop          Metric LocPrf Weight Path
*> 1.0.0.0/8        192.1.23.2         0         0      0 2 i
*> 3.0.0.0/8        0.0.0.0            0         0 32768 i
*> 11.1.0.0/16      192.1.23.2         0         0      0 2 1 i
*> 13.1.0.0/16      0.0.0.0            0         0 32768 i
* 192.1.23.0/24    192.1.23.2         0         0      0 2 i
AS3#

```

Figura 9

3. Configure una relación de vecino BGP entre R3 y R4. R3 ya debería estar configurado en AS3 y R4 debería estar en AS4. Anuncie las direcciones de Loopback de R4 en BGP. Codifique el ID del router R4 como 44.44.44.44.

Establezca las relaciones de vecino con base en las direcciones de Loopback 0. Cree rutas estáticas para alcanzar la Loopback 0 del otro router. No anuncie la Loopback 0 en BGP. Anuncie la red Loopback de R4 en BGP. Presente el paso a con los comandos utilizados y la salida del comando show ip route.

```
AS4>enable
AS4#config term
Enter configuration commands, one per line. End with CNTL/Z.
AS4(config)#router bgp 4
AS4(config-router)#neighbor 192.1.34.3 remote-as 3
AS4(config-router)#%BGP-5-ADJCHANGE: neighbor 192.1.34.3 Up

AS4(config-router)#neighbor 192.1.23.3 remote-as 3
AS4(config-router)#%BGP-5-ADJCHANGE: neighbor 192.1.23.3 Up

AS4(config-router)#neighbor 192.1.23.2 remote-as 2
AS4(config-router)#neighbor 192.1.12.2 remote-as 2
AS4(config-router)#neighbor 192.1.12.1 remote-as 1
AS4(config-router)#%BGP-5-ADJCHANGE: neighbor 192.1.34.3 Up

AS4(config-router)#network 3.3.3.3 mask 255.0.0.0
AS4(config-router)#network 13.1.0.1 mask 255.255.0.0
AS4(config-router)#network 12.1.0.1 mask 255.255.0.0
AS4(config-router)#network 2.2.2.2 mask 255.0.0.0
AS4(config-router)#network 11.1.0.1 mask 255.255.0.0
AS4(config-router)#network 4.4.4.4 mask 255.0.0.0
AS4(config-router)#network 14.1.0.1 mask 255.255.0.0
AS4(config-router)#exit
AS4(config)#exit
AS4#
%SYS-5-CONFIG_I: Configured from console by console
```

```

AS4>enable
AS4#show ip route
Codes: 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

Gateway of last resort is not set

C     4.0.0.0/8 is directly connected, Loopback0
      14.0.0.0/16 is subnetted, 1 subnets
C       14.1.0.0 is directly connected, Loopback1
C     192.1.34.0/24 is directly connected, Serial0/0/0

AS4#show ip bgp
BGP table version is 11, local router ID is 14.1.0.1
Status codes: s suppressed, d damped, h history, * valid, > best, i
- internal,
              r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop          Metric LocPrf Weight Path
*> 4.0.0.0/8        0.0.0.0            0      0 32768 i
*                   192.1.34.3         0      0      0 3 i
*> 14.1.0.0/16      0.0.0.0            0      0 32768 i
*                   192.1.34.3         0      0      0 3 i
AS4#

```

Figura 10

Escenario 3.

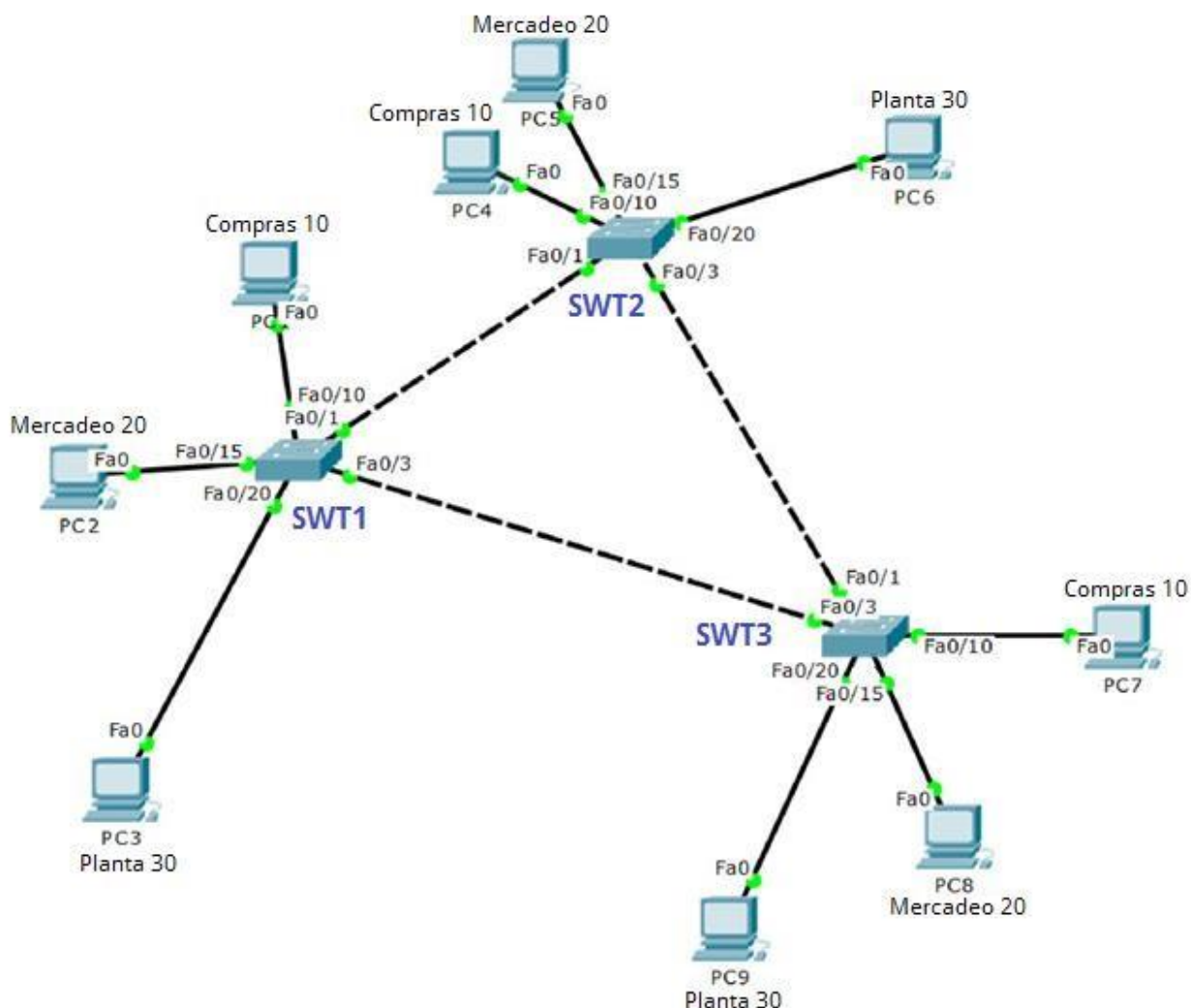


Figura 11

A. Configurar VTP

1. Todos los switches se configurarán para usar VTP para las actualizaciones de VLAN. El switch SWT2 se configurará como el servidor. Los switches SWT1 y SWT3 se configurarán como clientes. Los switches estarán en el dominio VPT llamado CCNP y usando la contraseña cisco.

```
Switch>enable
```

```
Switch#config terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Switch(config)#hostname SWT1
```

```
SWT1(config)#vtp domain CCNP
```

Changing VTP domain name from NULL to CCNP

```
SWT1(config)#vtp version 2
```

```
SWT1(config)#vtp mode client
```

Setting device to VTP CLIENT mode.

```
SWT1(config)#vtp password cisco
```

Setting device VLAN database password to cisco

```
SWT1(config)#
```

```
Switch>enable
```

```
Switch#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Switch(config)#hostname SWT3
```

```
SWT3(config)#vtp domain CCNP
```

Changing VTP domain name from NULL to CCNP

```
SWT3(config)#vtp version 2
```

```
SWT3(config)#vtp mode client
```

Setting device to VTP CLIENT mode.

```
SWT3(config)#vtp password cisco
```

Setting device VLAN database password to cisco

```
SWT3(config)#
```

```
Switch>enable
```

```
Switch#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Switch(config)#hostname SWT2
```

```
SWT2(config)#vtp domain CCNP
```

Changing VTP domain name from NULL to CCNP

```
SWT2(config)#vtp version 2
```

```
SWT2(config)#vtp mode server
```

Device mode already VTP SERVER.

```
SWT2(config)#vtp password cisco
```

Setting device VLAN database password to cisco

```
SWT2(config)#
```

2. Verifique las configuraciones mediante el comando show vtp status.

```

Changing VTP domain name from NONE to CCNP
SWT1(config)#vtp version 2
SWT1(config)#vtp mode client
Setting device to VTP CLIENT mode.
SWT1(config)#vtp password cisco
Setting device VLAN database password to cisco
SWT1(config)#exit
SWT1#
*SYS-5-CONFIG_I: Configured from console by console

SWT1#show vtp status
VTP Version                : 2
Configuration Revision     : 1
Maximum VLANs supported locally : 255
Number of existing VLANs   : 5
VTP Operating Mode         : Client
VTP Domain Name            : CCNP
VTP Pruning Mode           : Disabled
VTP V2 Mode                : Enabled
VTP Traps Generation       : Disabled
MD5 digest                  : 0x09 0x98 0xE3 0x1B 0x58 0xE3 0x69
0x64
Configuration last modified by 0.0.0.0 at 3-1-93 00:09:45
SWT1#

```

Figura 12

```

SWT2(config)#vtp version 2
SWT2(config)#vtp mode server
Device mode already VTP SERVER.
SWT2(config)#vtp password cisco
Setting device VLAN database password to cisco
SWT2(config)#exit
SWT2#
*SYS-5-CONFIG_I: Configured from console by console

SWT2#show vtp status
VTP Version                : 2
Configuration Revision     : 1
Maximum VLANs supported locally : 255
Number of existing VLANs   : 5
VTP Operating Mode         : Server
VTP Domain Name            : CCNP
VTP Pruning Mode           : Disabled
VTP V2 Mode                : Enabled
VTP Traps Generation       : Disabled
MD5 digest                  : 0x0B 0x55 0x88 0xF6 0xE6 0x09 0x7A
0xBB
Configuration last modified by 0.0.0.0 at 3-1-93 00:12:53
Local updater ID is 0.0.0.0 (no valid interface found)
SWT2#

```

Figura 13

```
changing vtp domain name from none to CCNP
SWT3(config)#vtp version 2
SWT3(config)#vtp mode client
Setting device to VTP CLIENT mode.
SWT3(config)#vtp password cisco
Setting device VLAN database password to cisco
SWT3(config)#exit
SWT3#
%SYS-5-CONFIG_I: Configured from console by console

SWT3#show vtp status
VTP Version                : 2
Configuration Revision     : 1
Maximum VLANs supported locally : 255
Number of existing VLANs   : 5
VTP Operating Mode         : Client
VTP Domain Name            : CCNP
VTP Pruning Mode           : Disabled
VTP V2 Mode                 : Enabled
VTP Traps Generation       : Disabled
MD5 digest                  : 0x03 0x36 0x09 0xA7 0xDF 0x90 0xF3
0xD6
Configuration last modified by 0.0.0.0 at 3-1-93 00:11:47
SWT3#
```

Figura 14

B. Configurar DTP (Dynamic Trunking Protocol)

1. Configure un enlace troncal ("trunk") dinámico entre SWT1 y SWT2.
Debido a que el modo por defecto es dynamic auto, solo un lado del enlace debe configurarse como dynamic desirable.

SWT1>enable

SWT1#conf term

Enter configuration commands, one per line. End with CNTL/Z.

SWT1(config)#interface fa

SWT1(config)#interface fastEthernet 0/1

SWT1(config-if)#switchport mode dynamic desirable

SWT1(config-if)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

2. Verifique el enlace "trunk" entre SWT1 y SWT2 usando el comando show interfaces trunk.

```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

SWT1(config-if)#end
SWT1#
%SYS-5-CONFIG_I: Configured from console by console

SWT1#show interface trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     desirable n-802.1q       trunking    1

Port      Vlans allowed on trunk
Fa0/1     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1

SWT1#
VTP Pruning Mode      : Disabled
VTP V2 Mode          : Enabled
VTP Traps Generation : Disabled
MD5 digest           : 0x39 0xF4 0xC4 0x6E 0x60 0xD3 0x5B
0xE8
Configuration last modified by 0.0.0.0 at 3-1-93 00:01:31
Local updater ID is 0.0.0.0 (no valid interface found)
SWT2#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

SWT2#show interface trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     auto      n-802.1q       trunking    1

Port      Vlans allowed on trunk
Fa0/1     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1

SWT2#

```

Figura 15

- Entre SWT1 y SWT3 configure un enlace "trunk" estático utilizando el comando `switchport mode trunk` en la interfaz F0/3 de SWT1

```
SWT1>enable
```

```
SWT1#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
SWT1(config)#interface fa
```

```
SWT1(config)#interface fastEthernet 0/3
```

```
SWT1(config-if)#switchport mode trunk
```

```
SWT1(config-if)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to down
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

4. Verifique el enlace "trunk" el comando show interfaces trunk en SWT1

```
changed state to up

SWT1(config-if)#end
SWT1#
%SYS-5-CONFIG_I: Configured from console by console

SWT1#show interface trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     desirable n-802.1q       trunking    1
Fa0/3     on        802.1q         trunking    1

Port      Vlans allowed on trunk
Fa0/1     1-1005
Fa0/3     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1
Fa0/3     1

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1
Fa0/3     none

SWT1#
```

Figura 16

5. Configure un enlace "trunk" permanente entre SWT2 y SWT3.

```
SWT2>enable
SWT2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT2(config)#interface fa
SWT2(config)#interface fastEthernet 0/3
SWT2(config-if)#switchport mode trunk

SWT2(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to up

SWT2(config-if)#exit
SWT2(config)#
```

```
SWT3>enable
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up
```

```
SWT3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT3(config)#interface fa
SWT3(config)#interface fastEthernet 0/1
SWT3(config-if)#switchport mode trunk
SWT3(config-if)#exit
SWT3(config)#end
SWT3#
```

C. Agregar VLANs y asignar puertos.

1. En STW1 agregue la VLAN 10. En STW2 agregue las VLANs Compras (10), Mercadeo (20), Planta (30) y Admon (99).

```
En STW1
SWT1>enable
SWT1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT1(config)#vlan 10
VTP VLAN configuration not allowed when device is in CLIENT mode.
SWT1(config)#
```

```
En STW2
SWT2>enable
SWT2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT2(config)#vlan 10
SWT2(config-vlan)#name Compras
SWT2(config-vlan)#vlan 20
SWT2(config-vlan)#name Mercadeo
SWT2(config-vlan)#vlan 30
SWT2(config-vlan)#name Planta
SWT2(config-vlan)#vlan 99
SWT2(config-vlan)#name Admon
SWT2(config-vlan)#exit
SWT2(config)#
```

2. Verifique que las VLANs han sido agregadas correctamente.

En SWT1: No se puede crear la vlan 10 ya que en el switch 1 tiene un vtp en modo cliente, lo que no permite crear la Vlan.

En SWT2:

```
SWT2#show vlan
```

VLAN Name	Status	Ports
1 default Fa0/6 Fa0/10 Fa0/13, Fa0/14 Fa0/17, Fa0/18 Fa0/21, Fa0/22	active	Fa0/2, Fa0/4, Fa0/5, Fa0/7, Fa0/8, Fa0/9, Fa0/11, Fa0/12, Fa0/15, Fa0/16, Fa0/19, Fa0/20, Fa0/23, Fa0/24
10 Compras	active	
20 Mercadeo	active	
30 Planta	active	
99 Admon	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode
1	enet	100001	1500	-	-	-	-	0
10	enet	100010	1500	-	-	-	-	0

Figura 17

3. Asocie los puertos a las VLAN y configure las direcciones IP de acuerdo con la siguiente tabla.

4.

Interfaz	VLAN	Direcciones IP de los PCs
F0/10	VLAN 10	190.108.10.X / 24
F0/15	VLAN 20	190.108.20.X / 24
F0/20	VLAN 30	190.108.30.X / 24

X = número de cada PC particular

En SWT1.

```
SWT1>enable
```

```
SWT1#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
SWT1(config)#interface vlan 10
```

```
SWT1(config-if)#
```

```
%LINK-5-CHANGED: Interface Vlan10, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up
```

```
SWT1(config-if)#ip address 190.108.10.1 255.255.255.0
```

```
SWT1(config-if)#exit
```

```
SWT1(config)#interface vlan 20
```

```
SWT1(config-if)#
```

```
%LINK-5-CHANGED: Interface Vlan20, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up
```

```
SWT1(config-if)#ip address 190.108.20.1 255.255.255.0
```

```
SWT1(config-if)#exit
```

```
SWT1(config)#interface vlan 30
```

```
SWT1(config-if)#
```

```
%LINK-5-CHANGED: Interface Vlan30, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up
```

```
SWT1(config-if)#ip address 190.108.30.1 255.255.255.0
```

```
SWT1(config-if)#exit
```

En SWT2.

```
SWT2>enable
```

```
SWT2#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
SWT2(config)#interface vlan 10
```

```
SWT2(config-if)#ip address 190.108.10.2 255.255.255.0
```

```
SWT2(config-if)#exit
```

```
SWT2(config)#interface vlan 20
```

```
SWT2(config-if)#ip address 190.108.20.2 255.255.255.0
```

```
SWT2(config-if)#exit
```

```
SWT2(config)#interface vlan 30
```

```
SWT2(config-if)#ip address 190.108.30.2 255.255.255.0
```

```
SWT2(config-if)#exit
```

```
En SWT3
```

```
SWT3>enable
```

```
SWT3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT3(config)#interface vlan 10
SWT3(config-if)#
%LINK-5-CHANGED: Interface Vlan10, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed
state to up
```

```
SWT3(config-if)#ip address 190.108.10.3 255.255.255.0
SWT3(config-if)#exit
SWT3(config)#interface vlan 20
SWT3(config-if)#
%LINK-5-CHANGED: Interface Vlan20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed
state to up
```

```
SWT3(config-if)#ip address 190.108.20.3 255.255.255.0
SWT3(config-if)#exit
SWT3(config)#interface vlan 30
SWT3(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed
state to up
SWT3(config-if)#ip address 190.108.30.3 255.255.255.0
SWT3(config-if)#exit
```

4. Configure el puerto F0/10 en modo de acceso para SWT1, SWT2 y SWT3 y asígnelo a la VLAN 10.

En SWT1.

```
SWT1>enable
SWT1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT1(config)#interface fa
SWT1(config)#interface fastEthernet 0/10
SWT1(config-if)#switchport mode access
SWT1(config-if)#switchport access vlan 10
SWT1(config-if)#exit
SWT1(config)#exit
SWT1#
%SYS-5-CONFIG_I: Configured from console by console
```

En SWT2.

```
SWT2(config)#interface fa
SWT2(config)#interface fastEthernet 0/10
SWT2(config-if)#switchport mode access
SWT2(config-if)#switchport access vlan 10
SWT2(config-if)#exit
SWT2(config)#
SWT2#
```

En SWT3.

```
SWT3>enable
SWT3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z..
SWT3(config)#interface fa
SWT3(config)#interface fastEthernet 0/10
SWT3(config-if)#switchport mode access
SWT3(config-if)#switchport access vlan 10
SWT3(config-if)#exit
SWT3(config)#exit
SWT3#
%SYS-5-CONFIG_I: Configured from console by console
SWT3#
```

5. Repita el procedimiento para los puertos F0/15 y F0/20 en SWT1, SWT2 y SWT3. Asigne las VLANs y las direcciones IP de los PCs de acuerdo con la tabla de arriba.

En SWT1.

```
SWT1>enable
SWT1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT1(config)#interface fa
SWT1(config)#interface fastEthernet 0/15
SWT1(config-if)#switchport mode access
SWT1(config-if)#switchport access vlan 20
SWT1(config-if)#exit
SWT1(config)#interface fa
SWT1(config)#interface fastEthernet 0/20
SWT1(config-if)#switchport mode access
SWT1(config-if)#switchport access vlan 30
```

```
SWT1(config-if)#exit
SWT1(config)#exit
SWT1#
%SYS-5-CONFIG_I: Configured from console by console
```

En SWT2

```
SWT2>enable
SWT2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT2(config)#interface fa
SWT2(config)#interface fastEthernet 0/15
SWT2(config-if)#switchport mode access
SWT2(config-if)#switchport access vlan 20
SWT2(config-if)#no shut
SWT2(config-if)#exit
SWT2(config)#interface fa
SWT2(config)#interface fastEthernet 0/20
SWT2(config-if)#switchport mode access
SWT2(config-if)#switchport access vlan 30
SWT2(config-if)#end
SWT2#
%SYS-5-CONFIG_I: Configured from console by console
```

En SWT3

```
SWT3>enable
SWT3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT3(config)#interface fa
SWT3(config)#interface fastEthernet 0/15
SWT3(config-if)#switchport mode access
SWT3(config-if)#switchport access vlan 20
SWT3(config-if)#exit
SWT3(config)#interface fa
SWT3(config)#interface fastEthernet 0/20
SWT3(config-if)#switchport mode access
SWT3(config-if)#switchport access vlan 30
SWT3(config-if)#exit
SWT3(config)#exit
SWT3#
%SYS-5-CONFIG_I: Configured from console by console
```

D. Configurar las direcciones IP en los Switches.

1. En cada uno de los Switches asigne una dirección IP al SVI (*Switch Virtual Interface*) para VLAN 99 de acuerdo con la siguiente tabla de direccionamiento y active la interfaz.

Equipo	Interfaz	Dirección IP	Máscara
SWT1	VLAN 99	190.108.99.1	255.255.255.0
SWT2	VLAN 99	190.108.99.2	255.255.255.0
SWT3	VLAN 99	190.108.99.3	255.255.255.0

En SWT1.

```
SWT1>enable
SWT1#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT1(config)#interface vlan99
SWT1(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed
state to up

SWT1(config-if)#ip address 190.108.99.1 255.255.255.0
SWT1(config-if)#exit
SWT1(config)#
```

En SWT2.

```
SWT2>enable
SWT2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT2(config)#interface vlan 99
SWT2(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed
state to up

SWT2(config-if)#ip address 190.108.99.2 255.255.255.0
SWT2(config-if)#exit
```

En SWT3.

```
SWT3>enable
SWT3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SWT3(config)#interface vlan 99
SWT3(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed
state to up

SWT3(config-if)#ip address 190.108.99.3 255.255.255.0
SWT3(config-if)#exit
SWT3(config)#end
SWT3#
%SYS-5-CONFIG_I: Configured from console by console
SWT3#
```

E. Verificar la conectividad Extremo a Extremo

1. Ejecute un Ping desde cada PC a los demás. Explique por qué el ping tuvo o no tuvo éxito.

SOLUCIÓN: El ping entre cada una de las PC es correcto solo si hacen parte de la misma Vlan, de lo contrario el ping es incorrecto como en este caso se evidencia.

2. Ejecute un Ping desde cada Switch a los demás. Explique por qué el ping tuvo o no tuvo éxito.

SOLUCIÓN: Al ejecutar un ping de cada ping a los demás, el resultado es exitoso, debido a que se reconoce el direccionamiento de la Vlan 99, entonces, al realizar un ping desde un switch a la Vlan 99 de otro switch, el pingo es exitoso. A continuación se evidencia:

CONCLUSIONES

Para el escenario 1 se aplicaron las configuraciones básicas y los protocolos de enrutamiento indicados, se crean interfaces loopback con asignación de direcciones

Para el escenario 2, se obtiene información detallada de las direcciones ip, interfaz y máscara de red, allí se implementa la configuración de vecinos BGP

Para el escenario 3, se identifica la topología de red y se configura VTP para actualización de VLAN, se verifica por medio de show vtp status.

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