DESARROLLO HABILIDADES PRÁCTICAS CCNP ROUTING Y SWITCH

GIRLESA MOLINA ORTEGON

UNIVERSIDAD NACIONAL ABIERTA Y A DISTANCIA
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CISCO CCNP
MEDELLIN
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Informe prueba de habilidades prácticas Diplomado Cisco CCNP

Tutor

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TABLA DE CONTENIDO

INTRODUCCIÓN

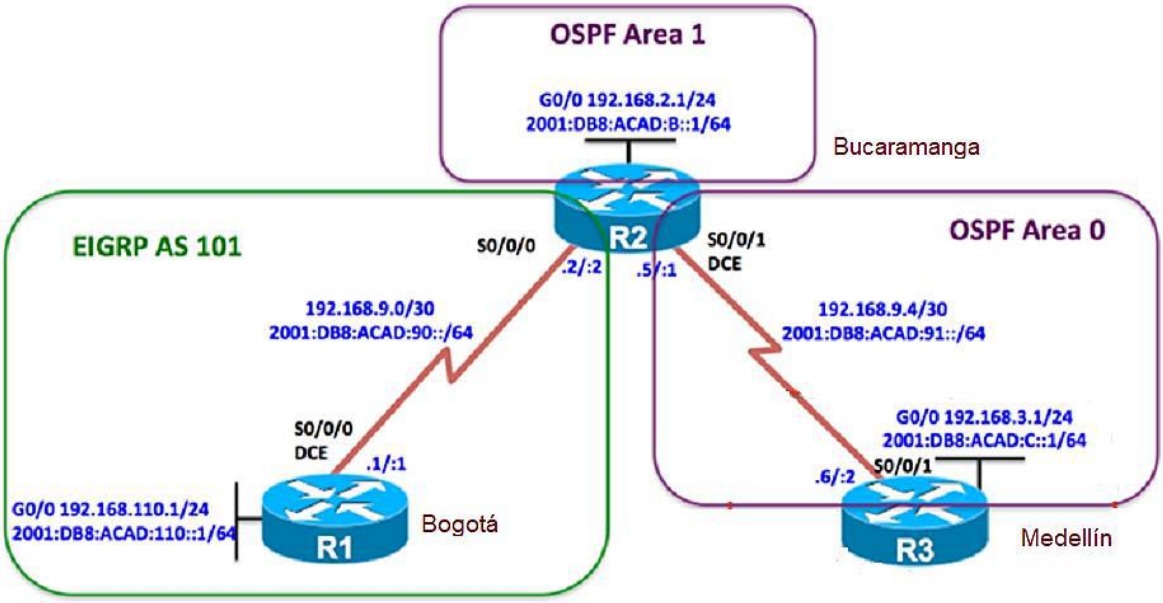
A continuación se presenta el desarrollo de habilidades práctica para el Diplomado de Cisco CCNP SWITCH y ROUTE v7, donde se logra identifcar el Skill en el manejo de los diferentes simuladores, implementación de los comandos adecuados según los escenarios propuestos y la correcta conectividad entre los dispositivos.

En los escenarios propuestos las configuraciones que se implementaran son los protocolos de enrutamiento EIGRP, OSPF, redistribución de rutas y listas de acceso para ROUTE y VLANs y troncales, Spanning Tree, Port-channels LACP, Port-channels PAgP, etherchanels, VTP, HSRP y Servicio de DHCP para SWITCH.

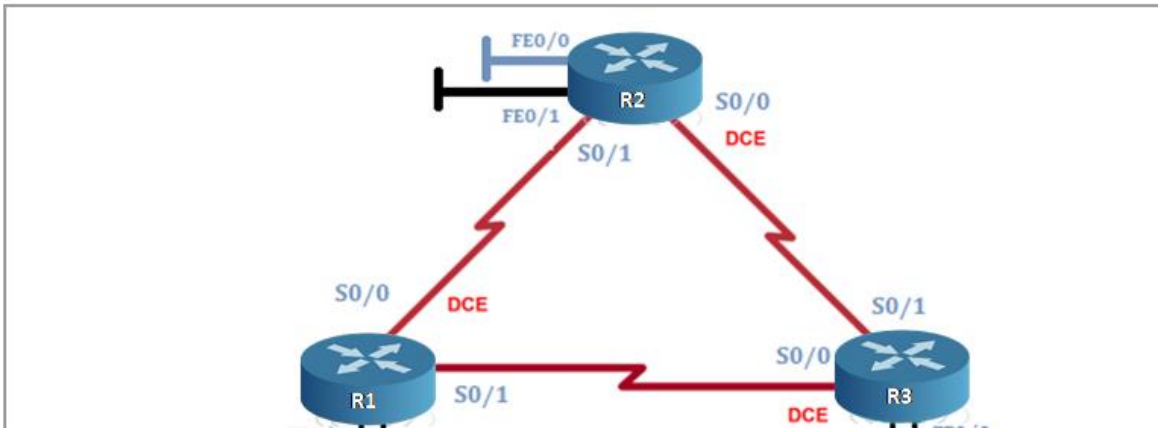
Escenario 1

Una empresa de confecciones posee tres sucursales distribuidas en las ciudades de Bogotá, Medellín y Bucaramanga, en donde el estudiante será el administrador de la red, el cual deberá configurar e interconectar entre sí cada uno de los dispositivos que forman parte del escenario, acorde con los lineamientos establecidos para el direccionamiento IP, protocolos de enrutamiento y demás aspectos que forman parte de la topología de red.

Topología de red



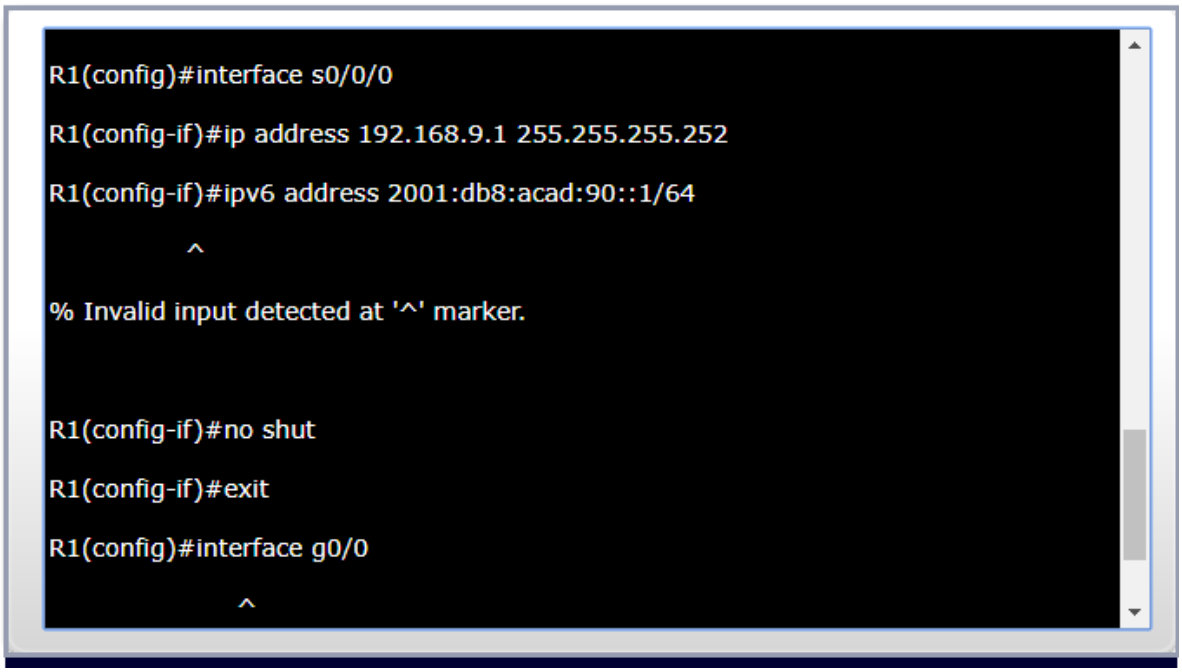
Acceso al POD - Reservado

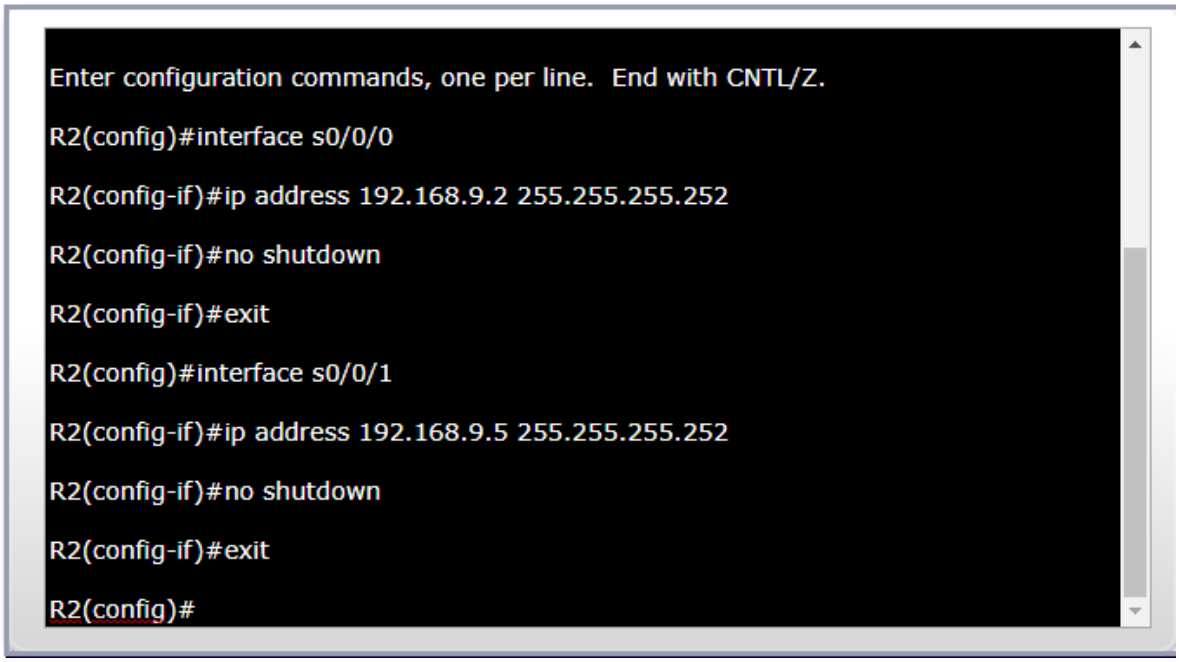


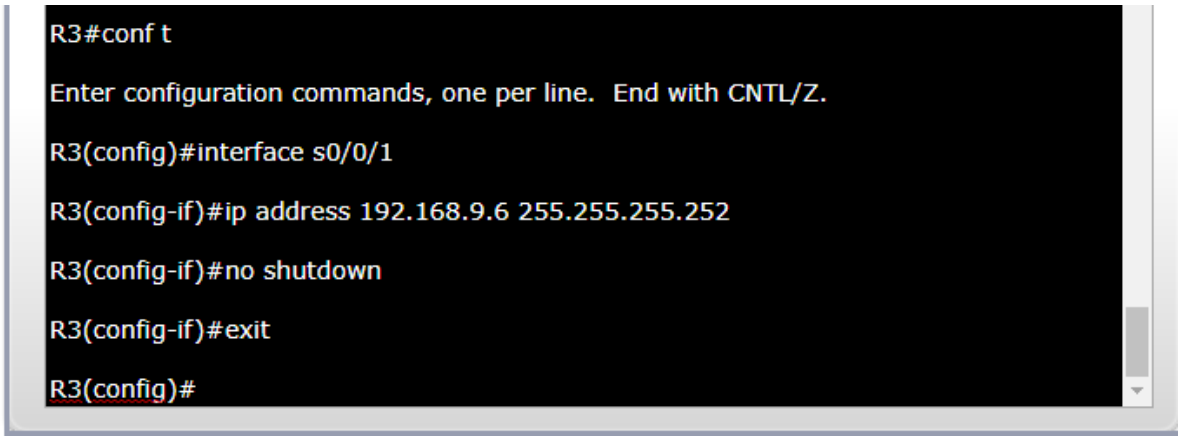
Configurar la topología de red, de acuerdo con las siguientes especificaciones:

Parte 1: Configuración del escenario propuesto

a. Configurar las interfaces con las direcciones IPv4 e IPv6 que se muestran en la topología de red.







Se ingresa a cada interfaz y se configuran las direcciones IP por medio del comando **ip address** y se encienden con el comando **no shutdown**

b. Ajustar el ancho de banda a 128 kbps sobre cada uno de los enlaces seriales ubicados en R1, R2, y R3 y ajustar la velocidad de reloj de las conexiones de DCE según sea apropiado.

```
R1(config)#interface s0/0/0
R1(config-if)#description R1 -- R2
R1(config-if)#bandwidth 128
R1(config-if)#clock rate 64000
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#
```

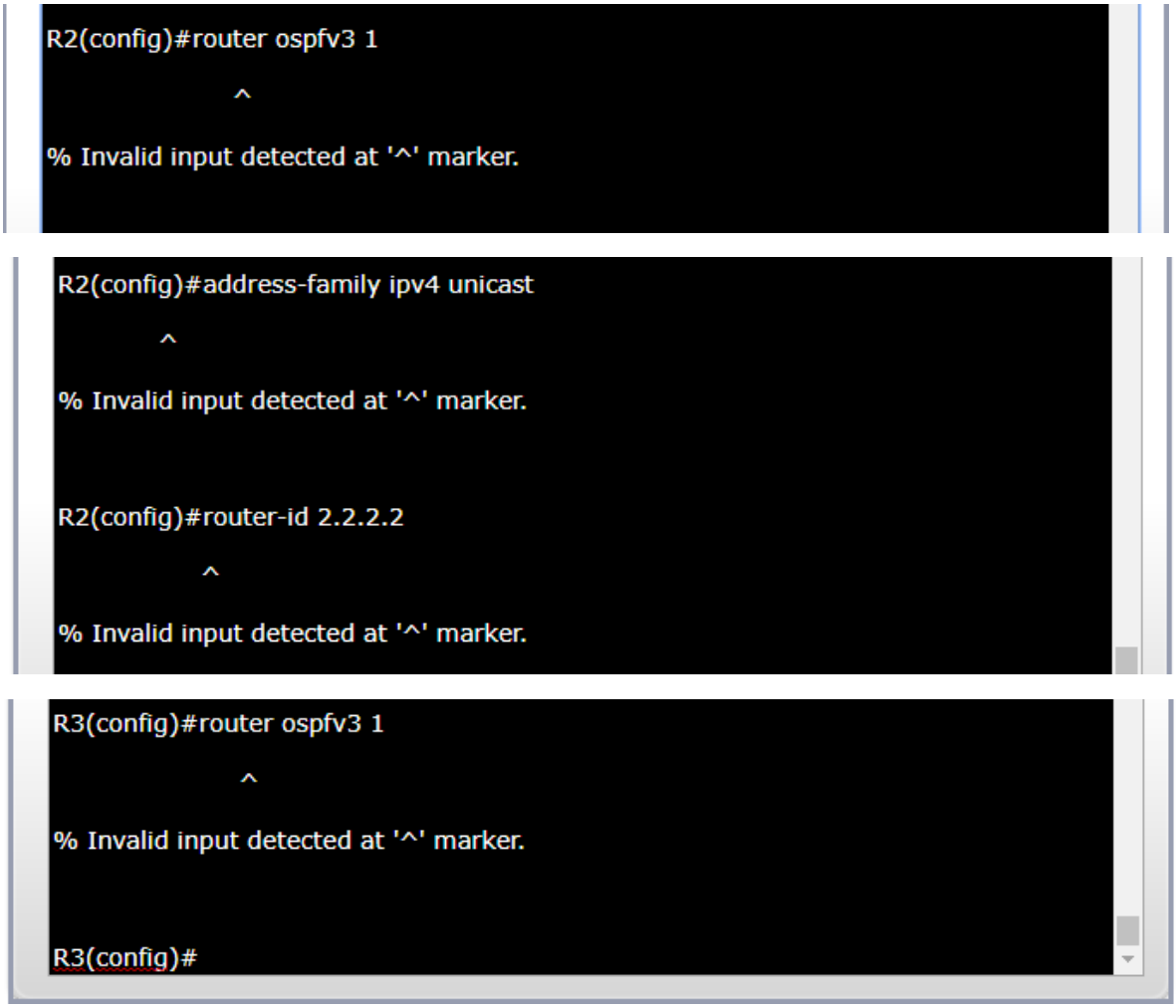
```
R2(config)#interface s0/0/1
R2(config-if)#description R2 -- R3
R2(config-if)#bandwidth 128
R2(config-if)#clock rate 64000
%Error: This command applies only to DCE interfaces
R2(config-if)#no shutdown
R2(config-if)#exit
```

```
R2(config)#interface s0/0/0
R2(config-if)#description R2 -- R1
R2(config-if)#bandwidth 128
R2(config-if)#no shutdown
R2(config-if)#EXIT
R2(config)#
```

```
R3(config)#interface s0/0/1
R3(config-if)#description R3 -- R2
R3(config-if)#bandwidth 128
R3(config-if)#no shutdown
R3(config-if)#exit
R3(config)#
```

Se realiza la configuración del ancho de banda en cada interfaz por medio del comando **bandwidth** a 128 kbps y la velocidad del reloj.

c. En R2 y R3 configurar las familias de direcciones OSPFv3 para IPv4 e IPv6. Utilice el identificador de enrutamiento 2.2.2.2 en R2 y 3.3.3.3 en R3 para ambas familias de direcciones.



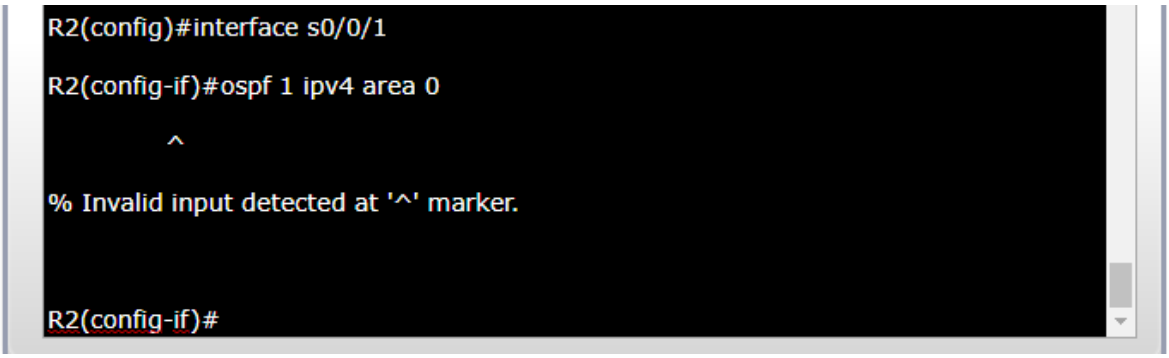
Se intenta realizar la configuración del protocolo ospfv3 con identificador para las familias y no es posible, por lo cual los comandos que se deben implementar son:

Para R2:
router ospfv3 1
address-family ipv4 unicast
redistribute eigrp 101 metric 100 metric-type 1
router-id 2.2.2.2

area 1 stub no-summary
exit-address-family

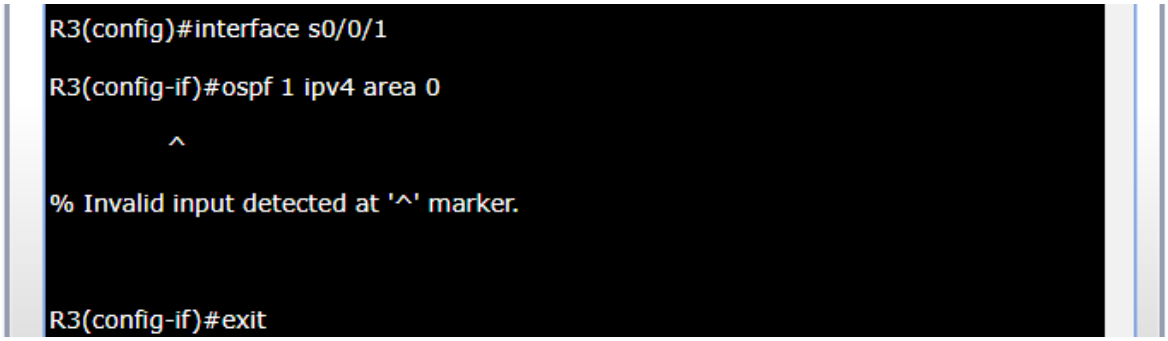
Para R3:
router ospfv3 1
address-family ipv4 unicast
router-id 3.3.3.3
default-information originate always
exit-address-family

d. En R2, configurar la interfaz S0/0 en el área 1 de OSPF y la conexión serial entre R2 y R3 en OSPF área 0.



Se intenta realizarla configuración de la interfaz en el área 1 para OSPF pero no se reconoce el comando.

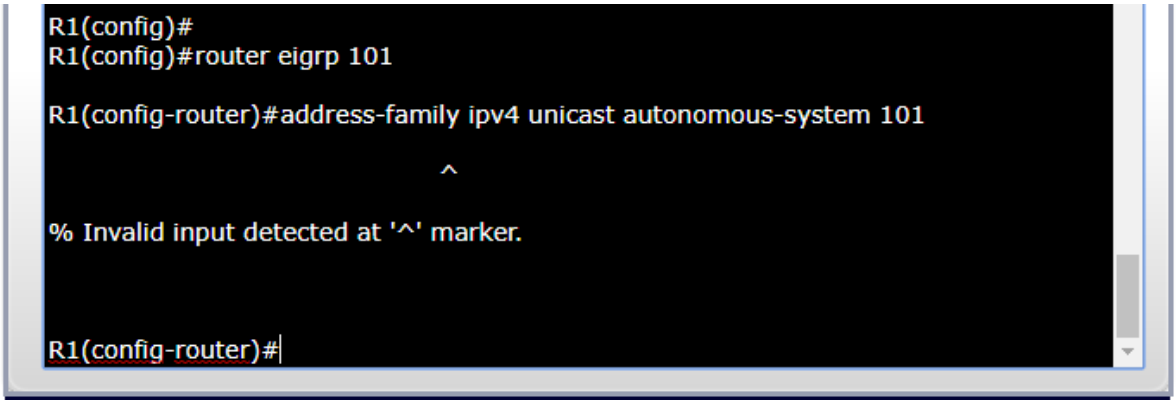
e. En R3, configurar la interfaz S0/0 y la conexión serial entre R2 y R3 en OSPF área 0.



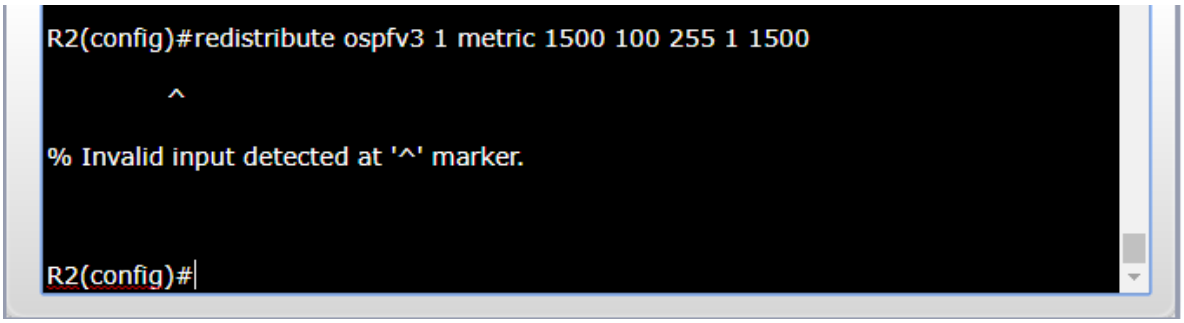
Se intenta realizarla configuración de la interfaz en el área 1 para OSPF pero no se reconoce el comando.

f. Configurar el área 1 como un área totalmente Stubby.

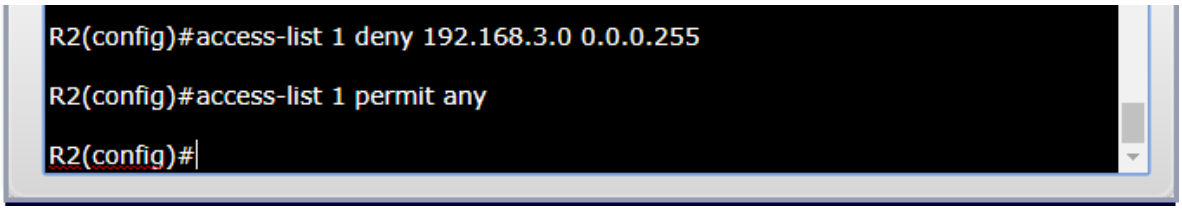
g. Propagar rutas por defecto de IPv4 y IPv6 en R3 al interior del dominio OSPFv3.
   Nota: Es importante tener en cuenta que una ruta por defecto es diferente a la definición de rutas estáticas.
h. Realizar la configuración del protocolo EIGRP para IPv4 como IPv6. Configurar la interfaz F0/0 de R1 y la conexión entre R1 y R2 para EIGRP con el sistema autónomo 101. Asegúrese de que el resumen automático está desactivado.



i. Configurar las interfaces pasivas para EIGRP según sea apropiado.
j. En R2, configurar la redistribución mutua entre OSPF y EIGRP para IPv4 e IPv6. Asignar métricas apropiadas cuando sea necesario.



k. En R2, de hacer publicidad de la ruta 192.168.3.0/24 a R1 mediante una lista de distribución y ACL.



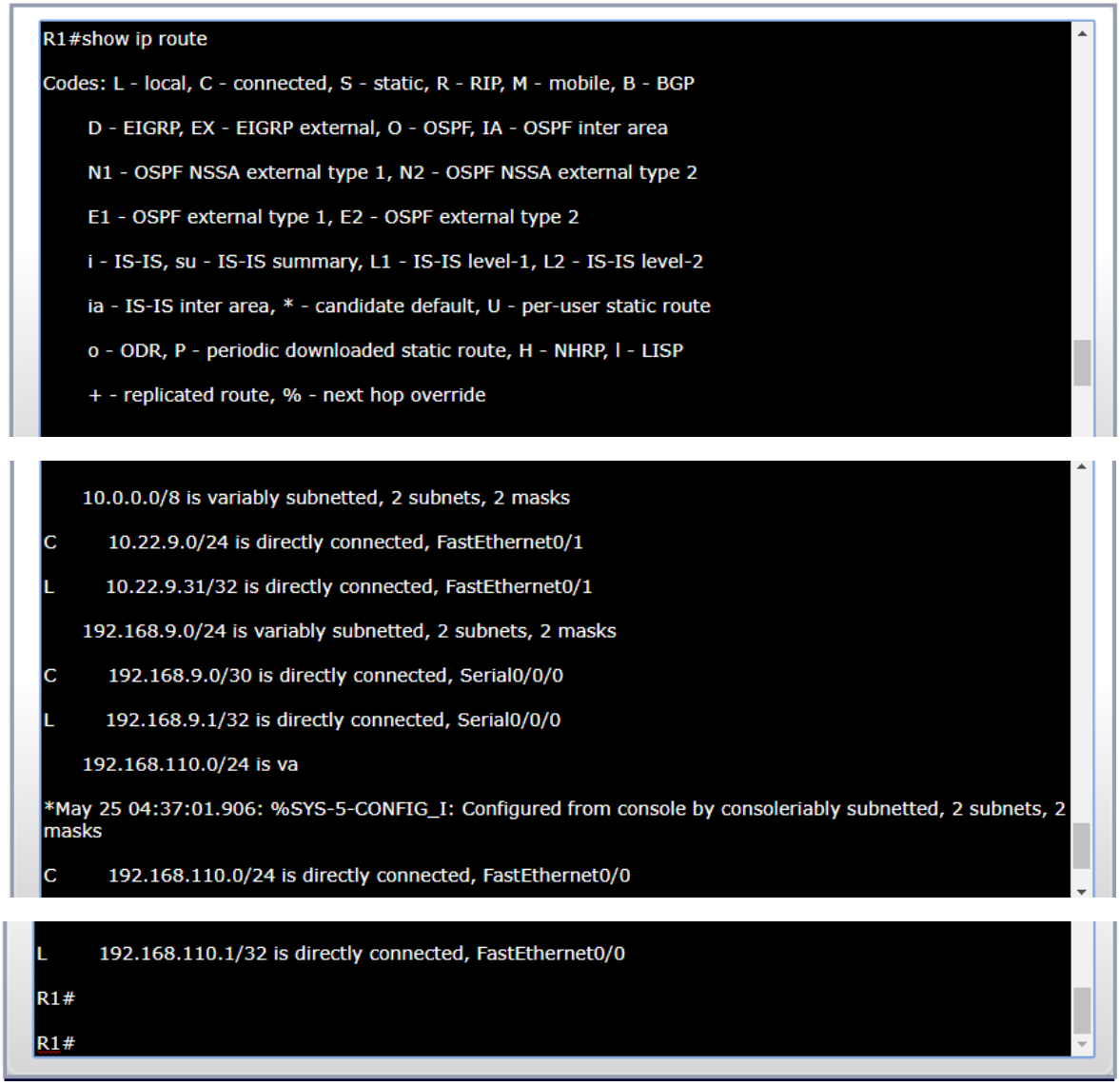
A continuación se describen los comandos para desarrollar los puntos anteriores:

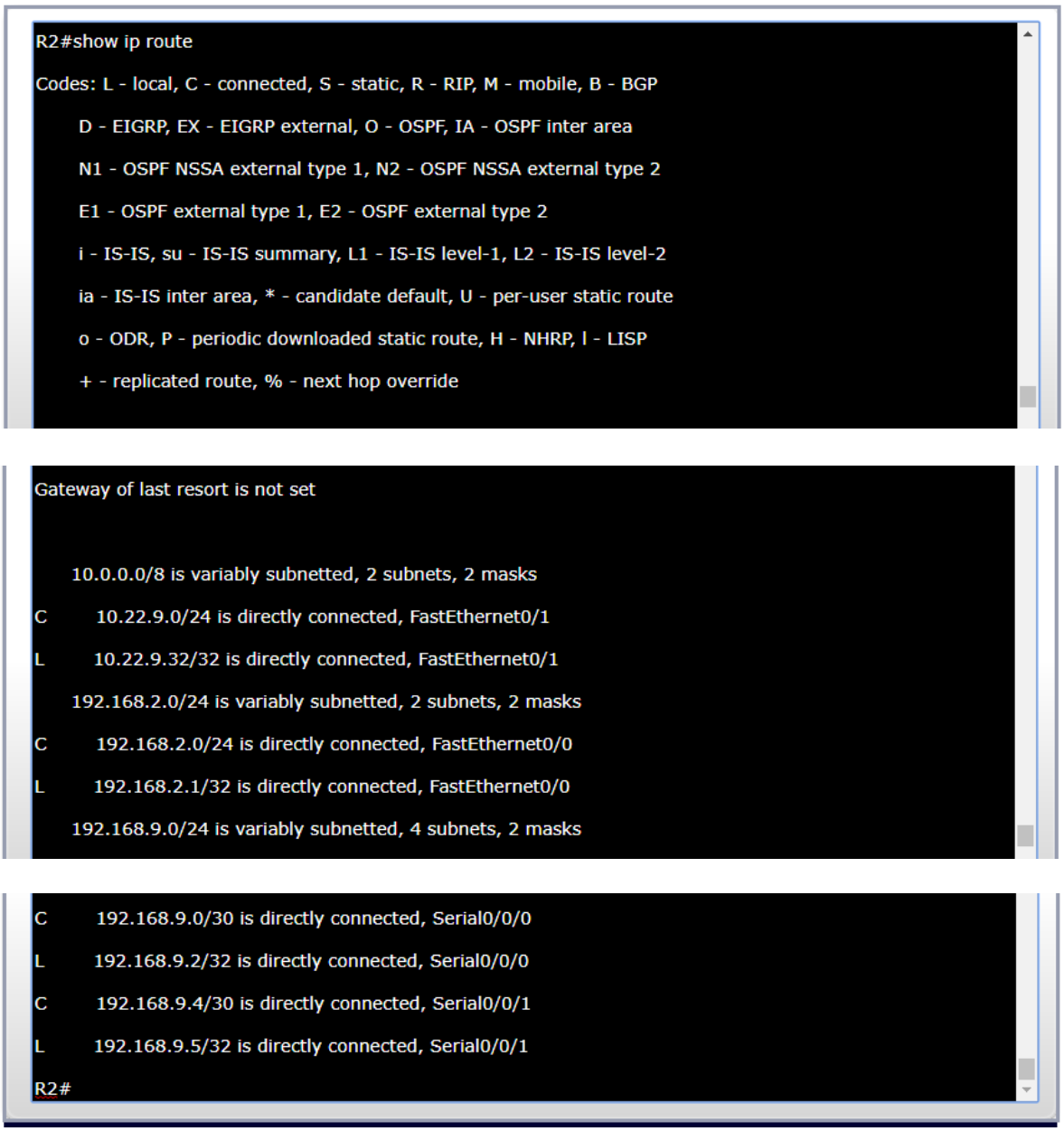
Para R1:
router eigrp
address-family ipv4 unicast autonomous-system 101
eigrp router-id 1.1.1.1
network 192.168.110.0 0.0.0.255
network 192.168.9.0 0.0.0.3
af-interface s0/0/0
authentication key-chain r1-chain
authentication mode hmac-sha-256 secret-1
exit
topology base
no auto-summary
exit
af-interface g0/0
passive-interface
exit

Para R2:
router eigrp
address-family ipv4 unicast autonomous-system 101
eigrp router-id 2.2.2.2
network 192.168.9.0 0.0.0.3
af-interface s0/0/0
authentication key-chain r2-chain
authentication mode hmac-sha-256 secret-1
exit
topology base
distribute-list 1 out
no auto-summary
exit
redistribute ospfv3 1 metric 1500 100 255 1 1500
exit

Parte 2: Verificar conectividad de red y control de la trayectoria.

a. Registrar las tablas de enrutamiento en cada uno de los routers, acorde con los parámetros de configuración establecidos en el escenario propuesto.


R1#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.22.9.0/24 is directly connected, FastEthernet0/1
L 10.22.9.31/32 is directly connected, FastEthernet0/1
192.168.9.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.9.0/30 is directly connected, Serial0/0/0
L 192.168.9.1/32 is directly connected, Serial0/0/0
192.168.110.0/24 is va
*May 25 04:37:01.906: %SYS-5-CONFIG_I: Configured from console by consoleriably subnetted, 2 subnets, 2 masks
C 192.168.110.0/24 is directly connected, FastEthernet0/0
L 192.168.110.1/32 is directly connected, FastEthernet0/0
R1#
R1#

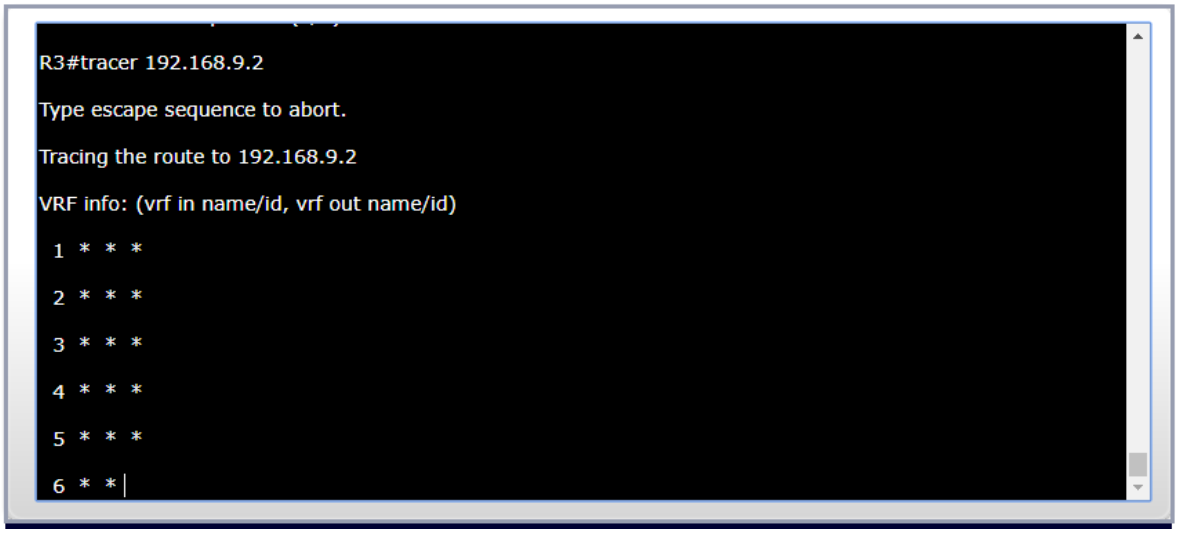

R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.22.9.0/24 is directly connected, FastEthernet0/1
L 10.22.9.32/32 is directly connected, FastEthernet0/1
192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.2.0/24 is directly connected, FastEthernet0/0
L 192.168.2.1/32 is directly connected, FastEthernet0/0
192.168.9.0/24 is variably subnetted, 4 subnets, 2 masks
C 192.168.9.0/30 is directly connected, Serial0/0/0
L 192.168.9.2/32 is directly connected, Serial0/0/0
C 192.168.9.4/30 is directly connected, Serial0/0/1
L 192.168.9.5/32 is directly connected, Serial0/0/1
R2#

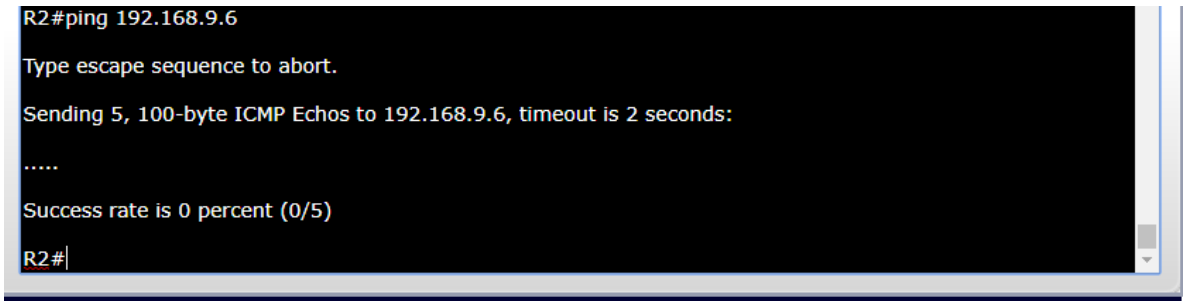
```
R3#show ip route

Codes: L - local, C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP

       + - replicated route, % - next hop override


Gateway of last resort is not set
```

```
     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.22.9.0/24 is directly connected, FastEthernet0/1
L       10.22.9.33/32 is directly connected, FastEthernet0/1
     192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.3.0/24 is directly connected, FastEthernet0/0
L       192.168.3.1/32 is directly connected, FastEthernet0/0
     192.168.9.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.9.4/30 is directly connected, Serial0/0/1
L       192.168.9.6/32 is directly connected, Serial0/0/1
R3#
```

b. Verificar comunicación entre routers mediante el comando ping y traceroute

```
R3#ping 192.168.9.1

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.9.1, timeout is 2 seconds:

.....

Success rate is 0 percent (0/5)

R3#
```





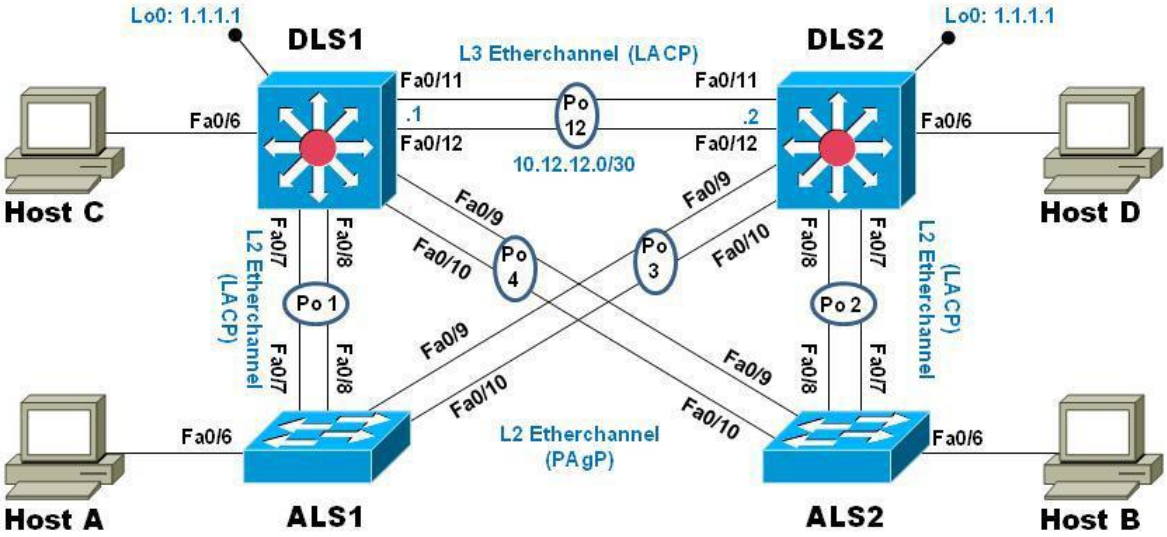
c. Verificar que las rutas filtradas no están presentes en las tablas de enrutamiento de los routers correctas.

Nota: Puede ser que Una o más direcciones no serán accesibles desde todos los routers después de la configuración final debido a la utilización de listas de distribución para filtrar rutas y el uso de IPv4 e IPv6 en la misma red.

Escenario 2

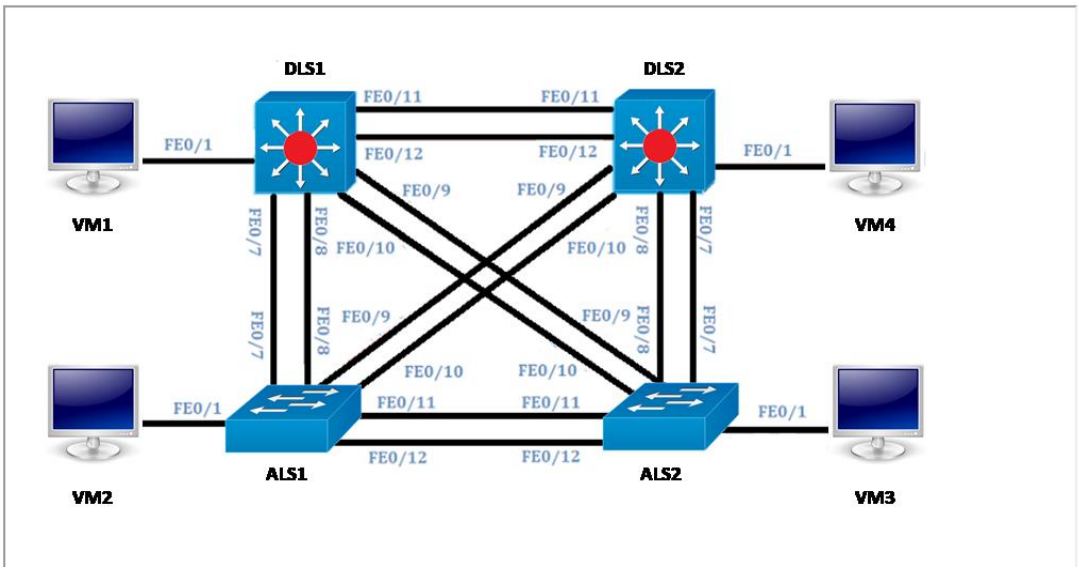
Una empresa de comunicaciones presenta una estructura Core acorde a la topología de red, en donde el estudiante será el administrador de la red, el cual deberá configurar e interconectar entre sí cada uno de los dispositivos que forman parte del escenario, acorde con los lineamientos establecidos para el direccionamiento IP, Etherchannels, VLANs y demás aspectos que forman parte del escenario propuesto.

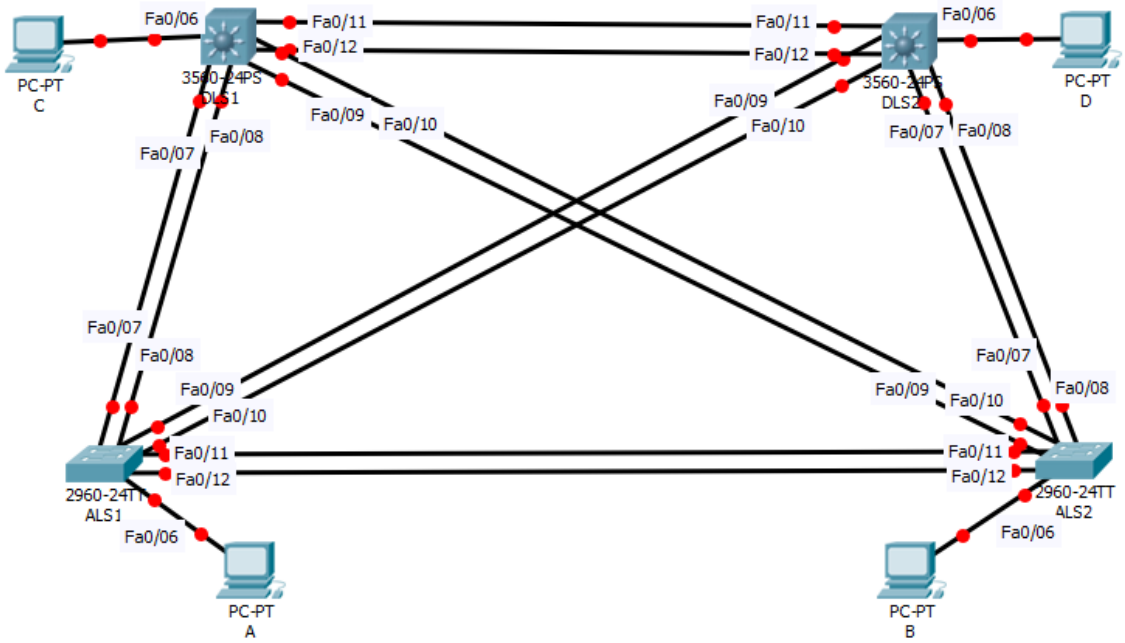
Topología de red



Dashboard ► Miscellaneous ► UNAD ► CP-CCNP-UNAD ► ► Acceso al POD - Reservado

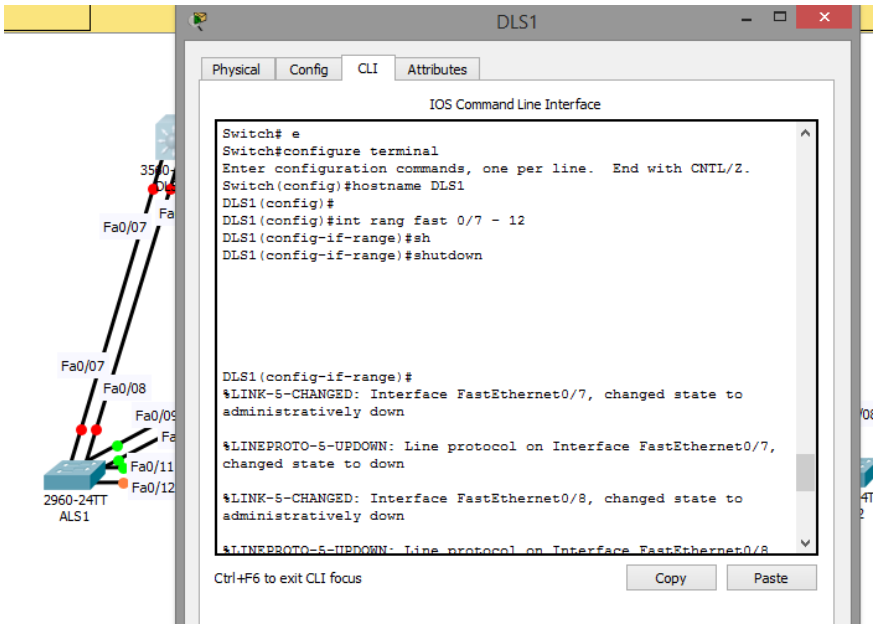
Acceso al POD - Reservado

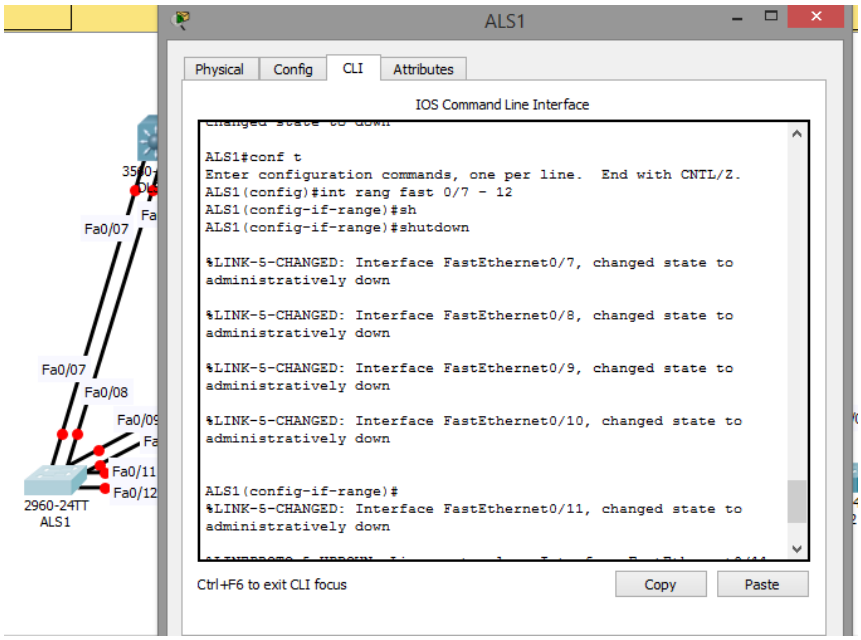




Parte 1: Configurar la red de acuerdo con las especificaciones.

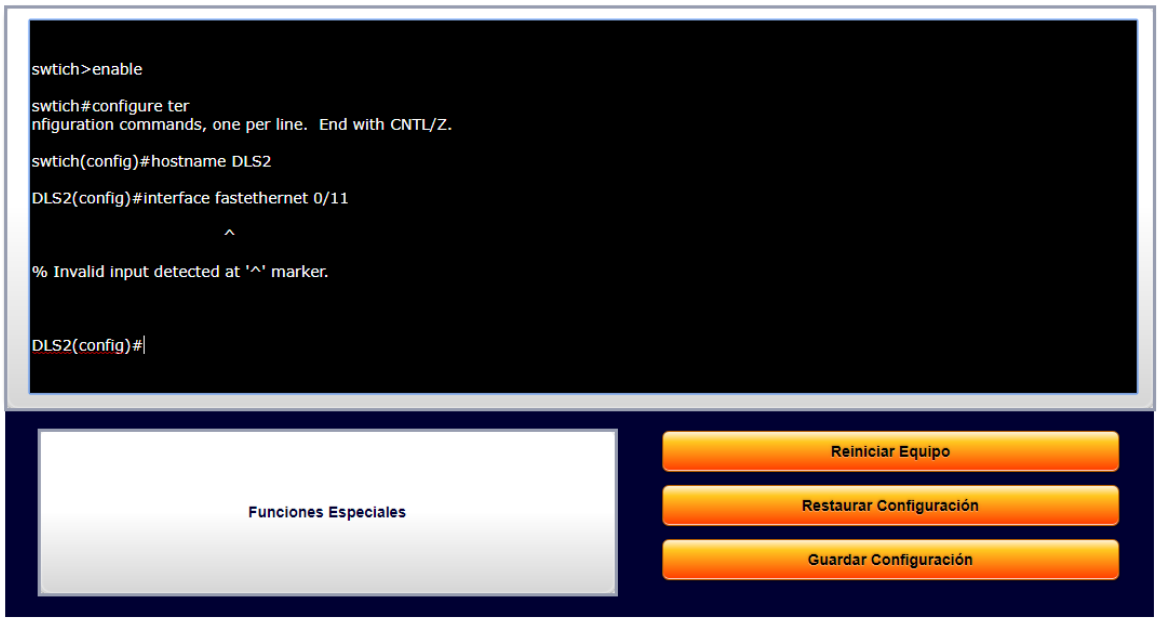
a. Apagar todas las interfaces en cada switch.

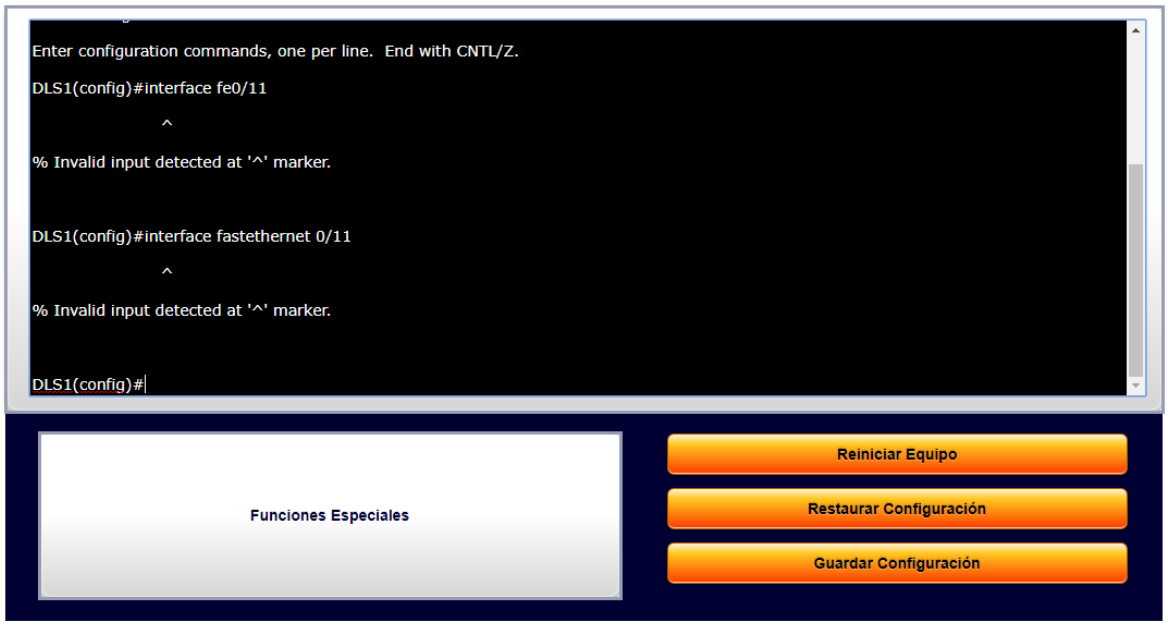


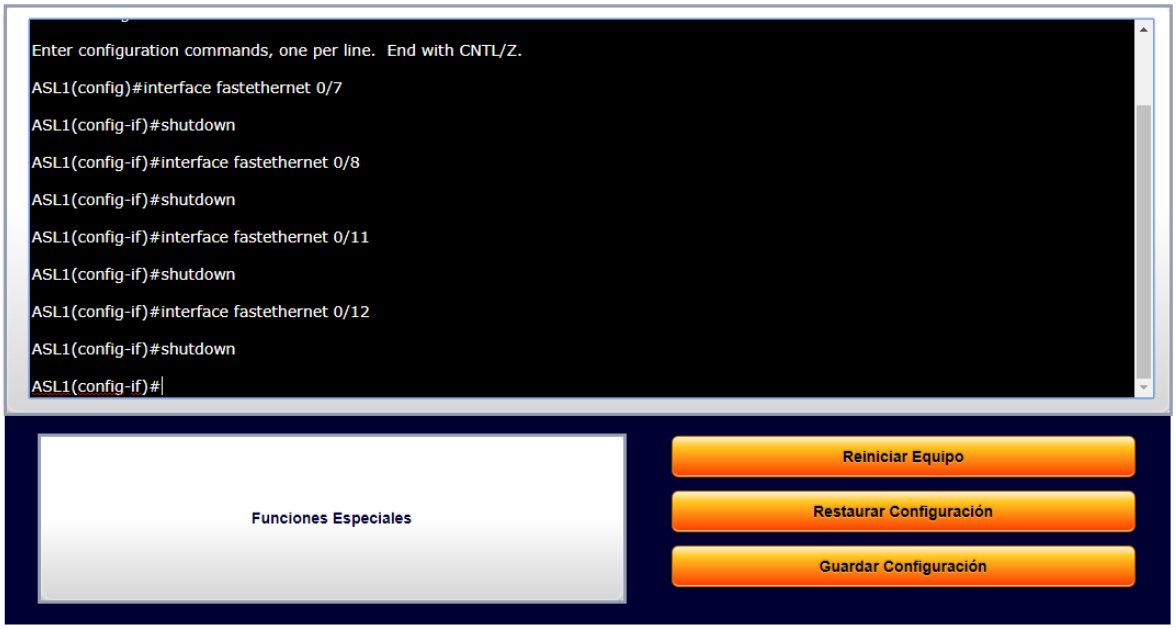


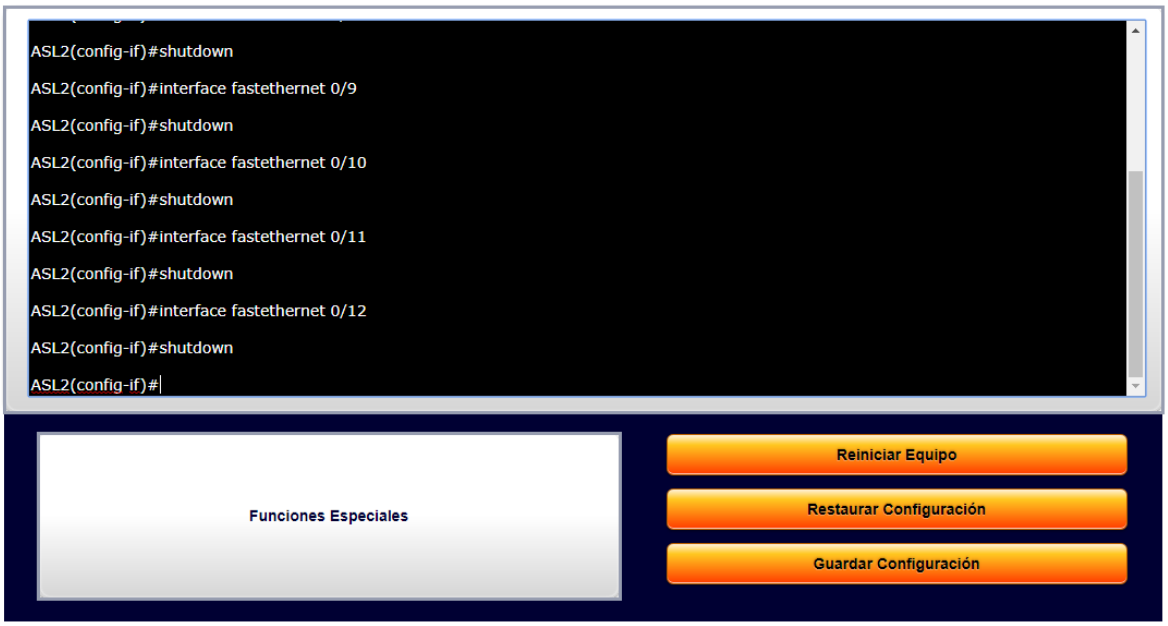
Se ingresa a cada dispositivo y cada interfaz para realizar el apagado de cada una de ellas.

b. Asignar un nombre a cada switch acorde al escenario establecido.


swtich>enable
swtich#configure ter
nfiguration commands, one per line. End with CNTL/Z.
swtich(config)#hostname DLS2
DLS2(config)#interface fastethernet 0/11
^
% Invalid input detected at '^' marker.
DLS2(config)#
Funciones Especiales
Reiniciar Equipo
Restaurar Configuración
Guardar Configuración


Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#interface fe0/11
^
% Invalid input detected at '^' marker.
DLS1(config)#interface fastethernet 0/11
^
% Invalid input detected at '^' marker.
DLS1(config)#
Funciones Especiales
Reiniciar Equipo
Restaurar Configuración
Guardar Configuración

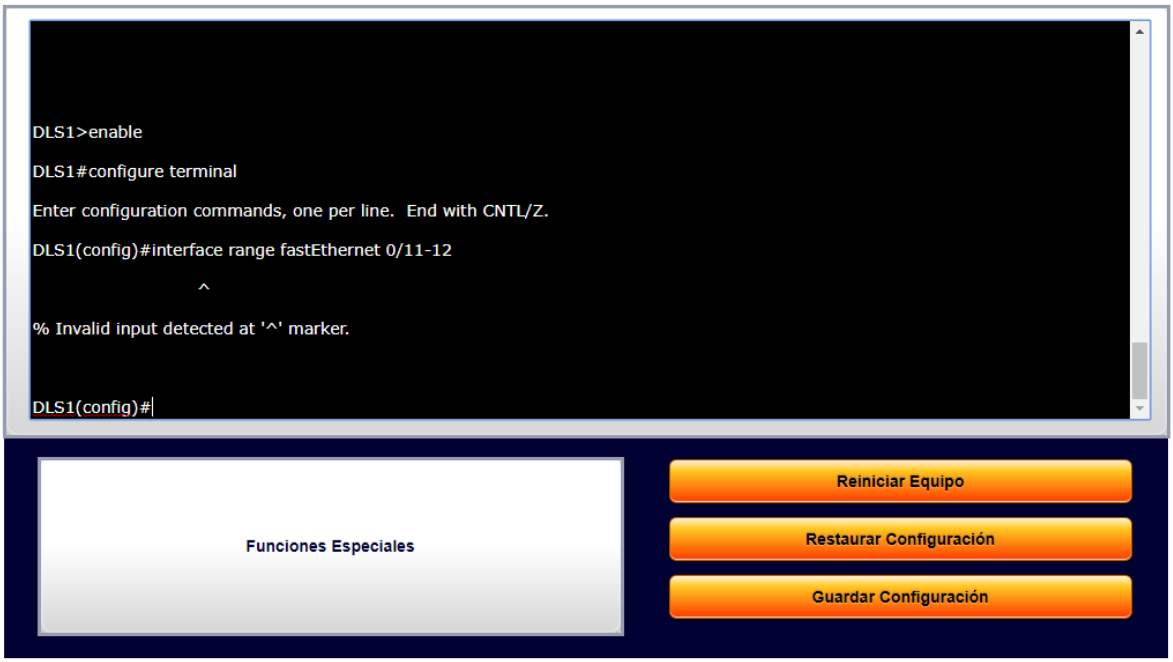


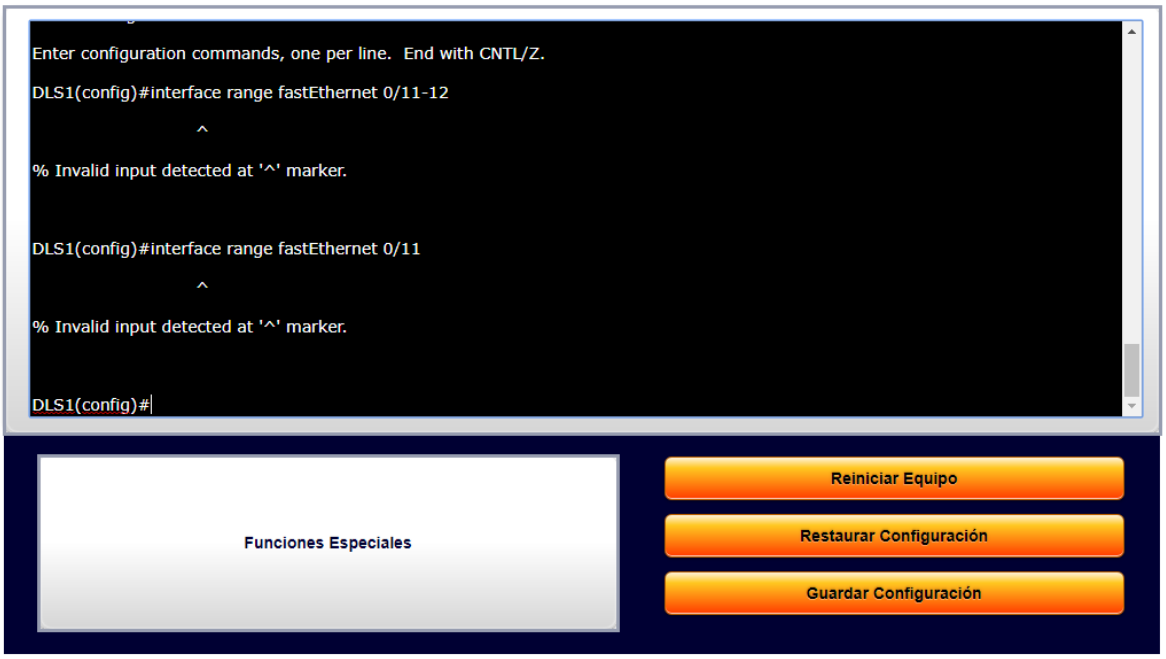



```
Switch# e
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname DLS1
DLS1(config)#
```

```
Switch>
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname ALS2
ALS2(config)#
```

c. Configurar los puertos troncales y Port-channels tal como se muestra en el diagrama.
    1. La conexión entre DLS1 y DLS2 será un capa-3 utilizando LACP. Para DLS1 se utilizará la dirección IP 10.12.12.1/30 y para DLS2 utilizará 10.12.12.2/30.




Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#interface range fastEthernet 0/11-12
^
% Invalid input detected at '^' marker.
DLS1(config)#interface range fastEthernet 0/11
^
% Invalid input detected at '^' marker.
DLS1(config)#
Funciones Especiales
Reiniciar Equipo
Restaurar Configuración
Guardar Configuración


DLS1(config)#interface FastEthernet0/11
^
% Invalid input detected at '^' marker.
DLS1(config)#

```
DLS1>
DLS1>en
DLS1#conf
Configuring from terminal, memory, or network [terminal]? t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS1(config)#int ran f0/11-12
DLS1(config-if-range)#no switchport
Command rejected (Port-channel): Either port is L2 and port-channel is L3, or vice-versa
Command rejected (Port-channel): Either port is L2 and port-channel is L3, or vice-versa
DLS1(config-if-range)#channel-group 12 mode active
DLS1(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11, changed state to down

%EC-5-CANNOT_BUNDLE2: Fa0/11 is not compatible with Po12 and will be suspended  (native vlan of
Fa0/11 is 800, Po12 id 1)

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12, changed state to down

%EC-5-CANNOT_BUNDLE2: Fa0/12 is not compatible with Po12 and will be suspended  (native vlan of
Fa0/12 is 800, Po12 id 1)

DLS1(config-if-range)#no sh
DLS1(config-if-range)#no shutdown


DLS1(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12, changed state to up

DLS1(config-if-range)#exit
DLS1(config)#interface port-channel 12
DLS1(config-if)#ip address 10.12.12.1 255.255.255.252
                   ^
% Invalid input detected at '^' marker.

DLS1(config-if)#
```

```
DLS2>en
DLS2#conf
Configuring from terminal, memory, or network [terminal]? t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS2(config)#int ran f0/11-12
DLS2(config-if-range)#no switchport
Command rejected (Port-channel): Either port is L2 and port-
channel is L3, or vice-versa
Command rejected (Port-channel): Either port is L2 and port-
channel is L3, or vice-versa
DLS2(config-if-range)#channel-group 12 mode active
DLS2(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12,
changed state to up

DLS2(config-if-range)#no sh
DLS2(config-if-range)#interface port-channel 12
DLS2(config-if)#ip address 10.12.12.2 255.255.255.252
                ^
% Invalid input detected at '^' marker.

DLS2(config-if)#
```

Se realiza la configuración de los puertos troncales y Port-channels en las interfaces requeridas y se asigna su respectiva dirección Ip.

2. Los Port-channels en las interfaces Fa0/7 y Fa0/8 utilizarán LACP.

```
DLS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS1(config)#interface range fastEthernet 0/7-8
DLS1(config-if-range)#channel-protocol lacp
DLS1(config-if-range)#channel-group 1 mode active
DLS1(config-if-range)#
Creating a port-channel interface Port-channel 1

DLS1(config-if-range)#no sh
DLS1(config-if-range)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to down
DLS1(config-if-range)#exit
DLS1(config)#interface port-channel 1
DLS1(config-if)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is
"Auto" can not be configured to "trunk" mode.
DLS1(config-if)#
DLS1(config-if)#exit
DLS1(config)#
%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up

%LINK-5-CHANGED: Interface Port-channel1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel1,
changed state to up
```

```
ALS1>en
ALS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ALS1(config)#interface range fastEthernet 0/7-8
ALS1(config-if-range)#channel-protocol lacp
ALS1(config-if-range)#channel-group 1 mode passive
ALS1(config-if-range)#
Creating a port-channel interface Port-channel 1

ALS1(config-if-range)#no sh
ALS1(config-if-range)#no shutdown


ALS1(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up

%LINK-5-CHANGED: Interface Port-channel1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel1,
changed state to up

ALS1(config-if-range)#exit
ALS1(config)#interface port-channel 1
ALS1(config-if)#switchport mode trunk

ALS1(config-if)#exit
ALS1(config)#
```

```
DLS2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS2(config)#interface range fastEthernet 0/7-8
DLS2(config-if-range)#channel-protocol lacp
DLS2(config-if-range)#channel-group 2 mode active
DLS2(config-if-range)#
Creating a port-channel interface Port-channel 2

DLS2(config-if-range)#no sh
DLS2(config-if-range)#no shutdown


DLS2(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up

DLS2(config-if-range)#exit
DLS2(config)#interface port-channel 2
DLS2(config-if)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is
"Auto" can not be configured to "trunk" mode.
DLS2(config-if)#exit
DLS2(config)#
```

```
ALS2(config)#interface range fastEthernet 0/7-8
ALS2(config-if-range)#channel-protocol lacp
ALS2(config-if-range)#channel-group 2 mode passive
ALS2(config-if-range)#
Creating a port-channel interface Port-channel 2

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up

ALS2(config-if-range)#nosh
ALS2(config-if-range)#nosh
                     ^
% Invalid input detected at '^' marker.

ALS2(config-if-range)#no sh
ALS2(config-if-range)#no shutdown
ALS2(config-if-range)#exit
ALS2(config)#interface port-channel 2
ALS2(config-if)#switchport mode trunk
ALS2(config-if)#
%LINK-5-CHANGED: Interface Port-channel2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2,
changed state to up

ALS2(config-if)#exit
```

Se configuran las interfaces indicadas con el protocolo LACP y su respectivo modo según el dispositivo que se está configurando (Activo-Pasivo).

3. Los Port-channels en las interfaces F0/9 y fa0/10 utilizará PAgP.

```
DLS2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS2(config)#interface range fastEthernet 0/9-10
DLS2(config-if-range)#channel-protocol pagp
DLS2(config-if-range)#channel-group 3 mode disarable
                                           ^
% Invalid input detected at '^' marker.

DLS2(config-if-range)#channel-group 3 mode ?
  active     Enable LACP unconditionally
  auto       Enable PAgP only if a PAgP device is detected
  desirable  Enable PAgP unconditionally
  on         Enable Etherchannel only
  passive    Enable LACP only if a LACP device is detected
DLS2(config-if-range)#channel-group 3 mode
% Incomplete command.
DLS2(config-if-range)#channel-group 3 mode desirable
DLS2(config-if-range)#
Creating a port-channel interface Port-channel 3

DLS2(config-if-range)#no sh
DLS2(config-if-range)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to
down
DLS2(config-if-range)#exit
DLS2(config)#interface port-channel 3
DLS2(config-if)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is
"Auto" can not be configured to "trunk" mode.
DLS2(config-if)#exit
DLS2(config)#
```

```
ALS1>en
ALS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ALS1(config)#interface range fastEthernet 0/9-10
ALS1(config-if-range)#channel-protocol pagp
ALS1(config-if-range)#channel-group 3 mode auto
ALS1(config-if-range)#
Creating a port-channel interface Port-channel 3

ALS1(config-if-range)#no sh
ALS1(config-if-range)#no shutdown


ALS1(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10,
changed state to up

%LINK-5-CHANGED: Interface Port-channel3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3,
changed state to up
exit
ALS1(config)#interface port-channel 3
ALS1(config-if)#switchport mode trunk

ALS1(config-if)#exit
ALS1(config)#
```

```
DLS1>en
DLS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS1(config)#interface range fastEthernet 0/9-10
DLS1(config-if-range)#channel-protocol pagp
DLS1(config-if-range)#channel-group 4 mode desirable
DLS1(config-if-range)#
Creating a port-channel interface Port-channel 4

DLS1(config-if-range)#no shutdown


DLS1(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10,
changed state to up

DLS1(config-if-range)#exit
DLS1(config)#interface port-channel 4
DLS1(config-if)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is
"Auto" can not be configured to "trunk" mode.
DLS1(config-if)#exit
DLS1(config)#
DLS1(config)#
```

```
ALS2(config)#interface range fastEthernet 0/9-10
ALS2(config-if-range)#channel-protocol pagp
ALS2(config-if-range)#channel-group 4 mode auto
ALS2(config-if-range)#
Creating a port-channel interface Port-channel 4

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10,
changed state to up

%LINK-5-CHANGED: Interface Port-channel4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel4,
changed state to up

ALS2(config-if-range)#no sh
ALS2(config-if-range)#no sh
ALS2(config-if-range)#no shutdown
ALS2(config-if-range)#exit
ALS2(config)#interface port-channel 4
ALS2(config-if)#switchport mode trunk

ALS2(config-if)#exit
ALS2(config)#
```

Se configuran las interfaces indicadas con el protocolo PAGP y su respectivo modo según el dispositivo que se está configurando.

4. Todos los puertos troncales serán asignados a la VLAN 800 como la VLAN nativa.

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Gi1/0/1, Gi1/0/2, Gi1/0/3
                                                 Gi1/0/4, Gi1/0/5, Gi1/0/6
                                                 Gi1/0/7, Gi1/0/8, Gi1/0/9
                                                 Gi1/0/10, Gi1/0/11, Gi1/0/12
                                                 Gi1/0/13, Gi1/0/14, Gi1/0/15
                                                 Gi1/0/16, Gi1/0/17, Gi1/0/18
                                                 Gi1/0/19, Gi1/0/20, Gi1/0/21
                                                 Gi1/0/22, Gi1/0/23, Gi1/0/24
```

```
                                                 Gi1/0/28
12   EJECUTIVOS                        active
123  MANTENIMIENTO                     active
234  HUESPEDES                         active
434  ESTACIONAMIENTO                   suspended
800  NATIVA                            active
1002 fddi-default                      act/unsup
1003 trcrf-default                     act/unsup
1004 fddinet-default                   act/unsup
1005 trbrf-default                     act/unsup
```

```
DLS1#

DLS1#

DLS1#
DLS1#config t

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

DLS1(config)#int fast 0/11
             ^

% Invalid input detected at '^' marker.


DLS1(config)#
```

```
ALS1>en
ALS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ALS1(config)#vlan 800
ALS1(config-vlan)#name NATIVA
ALS1(config-vlan)#
```

```
DLS1>en
DLS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS1(config)#int ran f0/7-10
DLS1(config-if-range)#switchport trunk encapsulation dot1q
DLS1(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to down

%EC-5-CANNOT_BUNDLE2: Fa0/7 is not compatible with Po1 and will
be suspended  (native vlan of Fa0/7 is 800, Po1 id 1)

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to down

%EC-5-CANNOT_BUNDLE2: Fa0/8 is not compatible with Po1 and will
be suspended  (native vlan of Fa0/8 is 800, Po1 id 1)

%EC-5-CANNOT_BUNDLE2: Fa0/9 is not compatible with Po4 and will
be suspended  (native vlan of Fa0/9 is 800, Po4 id 1)

%EC-5-CANNOT_BUNDLE2: Fa0/10 is not compatible with Po4 and will
be suspended  (native vlan of Fa0/10 is 800, Po4 id 1)

DLS1(config-if-range)#switchport trunk native vlan 800
DLS1(config-if-range)#switchport mode trunk
DLS1(config-if-range)#switchport nonegotiate
DLS1(config-if-range)#no sh
DLS1(config-if-range)#no shutdown


DLS1(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up
%SPANTREE-2-RECV_PVID_ERR: Received BPDU with inconsistent peer
vlan id 1 on FastEthernet0/8 VLAN800.

%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/8 on
VLAN0800. Inconsistent local vlan.

%SPANTREE-2-RECV_PVID_ERR: Received BPDU with inconsistent peer
vlan id 1 on FastEthernet0/7 VLAN800.

%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/7 on
VLAN0800. Inconsistent local vlan.

exit
DLS1(config)#
```

```
DLS2(config-if)#exit
DLS2(config)#int ran f0/7-10
DLS2(config-if-range)#switchport trunk encapsulation dot1q
DLS2(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed
state to down

%EC-5-CANNOT_BUNDLE2: Fa0/7 is not compatible with Fa0/8 and will be
suspended (trunk encap of Fa0/7 is auto, Fa0/8 is dot1q)

%LINK-5-CHANGED: Interface Port-channel2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2, changed state
to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed
state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed
state to up

%LINK-5-CHANGED: Interface Port-channel2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2, changed state
to up

%EC-5-CANNOT_BUNDLE2: Fa0/9 is not compatible with Fa0/10 and will be
suspended (trunk encap of Fa0/9 is auto, Fa0/10 is dot1q)

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed
state to down

%LINK-5-CHANGED: Interface Port-channel3, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3, changed state
to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed
state to up

%LINK-5-CHANGED: Interface Port-channel3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3, changed state
to up

DLS2(config-if-range)#switchport trunk native vlan 800
DLS2(config-if-range)#switchport mode trunk
DLS2(config-if-range)#
```

```
ALS1(config-if-range)#switchport mode trunk
ALS1(config-if-range)#switchport trunk native vlan 800
ALS1(config-if-range)#switchport nonegotiate
ALS1(config-if-range)#no sh
ALS1(config-if-range)#no shutdown
ALS1(config-if-range)#exit
ALS1(config)#
```

```
ALS2#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
ALS2(config)#int ran f0/7-10
ALS2(config-if-range)#switchport mode trunk
ALS2(config-if-range)#%SPANTREE-2-RECV_PVID_ERR: Received BPDU with inconsistent peer
vlan id 800 on Port-channel2 VLAN1.

%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking Port-channel2 on VLAN0001. Inconsistent local
vlan.

%SPANTREE-2-UNBLOCK_CONSIST_PORT: Unblocking Port-channel2 on VLAN0800. Port consistency
restored.

%SPANTREE-2-UNBLOCK_CONSIST_PORT: Unblocking Port-channel2 on VLAN0001. Port consistency
restored.

switchport trunk native vlan 800
ALS2(config-if-range)#%SPANTREE-2-UNBLOCK_CONSIST_PORT: Unblocking FastEthernet0/9 on
VLAN0800. Port consistency restored.

%SPANTREE-2-UNBLOCK_CONSIST_PORT: Unblocking FastEthernet0/9 on VLAN0001. Port
consistency restored.


ALS2(config-if-range)#switchport nonegotiate
ALS2(config-if-range)#no sh
ALS2(config-if-range)#no shutdown
```

Se realiza la configuración de la Vlan 800 como nativa y todos los puertos como troncales.

d. Configurar DLS1, ALS1, y ALS2 para utilizar VTP versión 3
    5. Utilizar el nombre de dominio UNAD con la contraseña cisco123
    6. Configurar DLS1 como servidor principal para las VLAN.
    7. Configurar ALS1 y ALS2 como clientes VTP.

```
DLS1(config)#vtp do
DLS1(config)#vtp domain UNAD
Changing VTP domain name from SWITCHSBAUNAD to UNAD
DLS1(config)#vtp ver 3
                     ^
% Invalid input detected at '^' marker.

DLS1(config)#vtp mode server
Device mode already VTP SERVER.
DLS1(config)#vtp pass
DLS1(config)#vtp password cisco123
Password already set to cisco123
DLS1(config)#
```

```
ALS1>
ALS1>en
ALS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ALS1(config)#vtp domain UNAD
Domain name already set to UNAD.
ALS1(config)#vtp ver 3
                     ^
% Invalid input detected at '^' marker.

ALS1(config)#vtp pa
ALS1(config)#vtp password cos
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/10
(1), with DLS2 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/9
(1), with DLS2 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/10
(1), with DLS2 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/9
(1), with DLS2 FastEthernet0/10 (800).
Setting device VLAN database password to co
ALS1(config)#vtp pa
ALS1(config)#vtp password cisco123
Setting device VLAN database password to cisco123
ALS1(config)#vtp mo
ALS1(config)#vtp mode cl
ALS1(config)#vtp mode client
Setting device to VTP CLIENT mode.
ALS1(config)#
```

Se intenta realizar la respectiva configuración del VTP ver 3 pero no fue posible.

e. Configurar en el servidor principal las siguientes VLAN:

Número de VLAN	Nombre de VLAN	Número de VLAN	Nombre de VLAN
800	NATIVA	434	ESTACIONAMIENTO
12	EJECUTIVOS	123	MANTENIMIENTO
234	HUESPEDES	1010	VOZ
1111	VIDEONET	3456	ADMINISTRACIÓN

f. En DLS1, suspender la VLAN 434.

```
DLS1(config)#vlan 800
DLS1(config-vlan)#name NATIVE
DLS1(config-vlan)#exit
DLS1(config)#vlan 434
DLS1(config-vlan)#name ESTACIONAMIENTO
DLS1(config-vlan)#state suspend
                  ^
% Invalid input detected at '^' marker.

DLS1(config-vlan)#?
VLAN configuration commands:
  exit          Apply changes, bump revision number, and exit mode
  name          Ascii name of the VLAN
  no            Negate a command or set its defaults
  remote-span   Add the Remote Switched Port Analyzer (RSPAN)
feature to the VLAN
DLS1(config-vlan)#
DLS1(config-vlan)#exit
DLS1(config)#vlan 12
DLS1(config-vlan)#name EJECUTIVOS
DLS1(config-vlan)#exit
DLS1(config)#vlan 123
DLS1(config-vlan)#name MANTENIMIENTO
DLS1(config-vlan)#exit
DLS1(config)#vlan 234
DLS1(config-vlan)#name HUESPEDES
DLS1(config-vlan)#exit
```

```
DLS1(config)#vlan 1010
VLAN_CREATE_FAIL: Failed to create VLANs 1010 : extended VLAN(s)
not allowed in current VTP mode
DLS1(config)#name VOZ
                ^
% Invalid input detected at '^' marker.

DLS1(config)#vlan 1111
VLAN_CREATE_FAIL: Failed to create VLANs 1111 : extended VLAN(s)
not allowed in current VTP mode
DLS1(config)#name VIDEONET
                ^
% Invalid input detected at '^' marker.

DLS1(config)#exit
DLS1#
%SYS-5-CONFIG_I: Configured from console by console

DLS1#CONF T
Enter configuration commands, one per line.  End with CNTL/Z.
DLS1(config)#valn 3456
                ^
% Invalid input detected at '^' marker.

DLS1(config)#vlan 3456
VLAN_CREATE_FAIL: Failed to create VLANs 3456 : extended VLAN(s)
not allowed in current VTP mode
DLS1(config)#
```

Se realiza la configuración de las vlan y se suspende la 434, es importante tener en cuenta que algunas vlan y el coman do para suspender no funcionó correctamente, todo esto porque el comendo VTP no funciono en la configuración anterior y solo deja crear pocas vlan.

g. Configurar DLS2 en modo VTP transparente VTP utilizando VTP versión 2, y configurar en DLS2 las mismas VLAN que en DLS1.
h. Suspender VLAN 434 en DLS2.

```
DLS2(config)#vtp mode tr
DLS2(config)#vtp mode transparent
Setting device to VTP TRANSPARENT mode.
DLS2(config)#vlan 800
DLS2(config-vlan)#name NATIVA
DLS2(config-vlan)#EXIT
DLS2(config)#vlan 434
DLS2(config-vlan)#name ESTACIONAMIENTO
DLS2(config-vlan)#EXI
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).

DLS2(config)#exit
DLS2(config)#vlan 12
DLS2(config-vlan)#name EJECUTIVOS
DLS2(config-vlan)#exit
DLS2(config)#vlan 434
DLS2(config-vlan)#state suspend
                  ^
% Invalid input detected at '^' marker.

DLS2(config-vlan)#exti
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).
s
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).
                    ^
% Invalid input detected at '^' marker.

DLS2(config-vlan)#exit
DLS2(config)#vlan 123
DLS2(config-vlan)#name MANTENIMIENTO
DLS2(config-vlan)#exit
DLS2(config)#vlan 234
DLS2(config-vlan)#name HUESPEDES
DLS2(config-vlan)#exit
DLS2(config)#vlan 1010
```

```
DLS2(config)#vlan 1010
DLS2(config-vlan)#name VOZ
DLS2(config-vlan)#exit
DLS2(config)#vlan 1111
DLS2(config-vlan)#n
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).
am
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).

% Incomplete command.
DLS2(config-vlan)#name VIONET
DLS2(config-vlan)#exit
DLS2(config)#vlan 3456
DLS2(config-vlan)#name ADMINISTRACION
DLS2(config-vlan)#EXIT
DLS2(config)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
```

i. En DLS2, crear VLAN 567 con el nombre de CONTABILIDAD. La VLAN de CONTABILIDAD no podrá estar disponible en cualquier otro Switch de la red.

```
DLS2(config)#
DLS2(config)#vlan 567
DLS2(config-vlan)#name CONTABILIDAD
DLS2(config-vlan)#
```

j. Configurar DLS1 como Spanning tree root para las VLAN 1, 12, 434, 800, 1010, 1111 y 3456 y como raíz secundaria para las VLAN 123 y 234.

```
DLS1(config)#spanning-tree vlan 123,234 root secondary
DLS1(config)#
```

k. Configurar DLS2 como Spanning tree root para las VLAN 123 y 234 y como una raíz secundaria para las VLAN 12, 434, 800, 1010, 1111 y 3456.

```
DLS2(config-vlan)#EXIT
DLS2(config)#spanning-tree vlan 1,12,123,234,434,800,1010,3456
root secondary
DLS2(config)#spanning-tree vlan 123,234 root primary
DLS2(config)#
```

l. Configurar todos los puertos como troncales de tal forma que solamente las VLAN que se han creado se les permitirá circular a través de éstos puertos.

```
DLS1(config)#interface port-channel 1
DLS1(config-if)#switchport trunk  allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
DLS1(config-if)#exit
DLS1(config)#interface port-channel 4
DLS1(config-if)#switchport trunk  allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
DLS1(config-if)#exit
DLS1(config)#
```

```
DLS2(config)#interface port-channel 2
DLS2(config-if)#switchport trunk allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
DLS2(config-if)#exit
DLS2(config)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).
interface port-channel 3
DLS2(config-if)#switchport trunk allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
DLS2(config-if)#exit
DLS2(config)#
```

```
ALS1(config)#int ran f0/7-8
ALS1(config-if-range)#channel-group 1 mode active
ALS1(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up

ALS1(config-if-range)#switchport trunk  allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
Command rejected: Bad VLAN list
ALS1(config-if-range)#no sh
ALS1(config-if-range)#no shutdown
ALS1(config-if-range)#exit
ALS1(config)#int ran f0/9-10
ALS1(config-if-range)#channel-group 3 mode desirable
ALS1(config-if-range)#
%LINK-5-CHANGED: Interface Port-channel3, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3,
changed state to down
%SPANTREE-2-RECV_PVID_ERR: Received BPDU with inconsistent peer
vlan id 1 on FastEthernet0/10 VLAN800.

%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/10 on
VLAN0800. Inconsistent local vlan.


ALS1(config-if-range)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (800), with DLS2 Port-channel3 (1).

%LINK-5-CHANGED: Interface Port-channel3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3,
changed state to up

ALS1(config-if-range)#switchport trunk  allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
Command rejected: Bad VLAN list
ALS1(config-if-range)#no sh
ALS1(config-if-range)#no shutdown
ALS1(config-if-range)#exit
ALS1(config)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8,
changed state to up

%LINK-5-CHANGED: Interface Port-channel2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2,
changed state to up

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with DLS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with DLS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with DLS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with DLS2 FastEthernet0/8 (800).

ALS2(config-if-range)#
ALS2(config-if-range)#switchport trunk  allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
Command rejected: Bad VLAN list
ALS2(config-if-range)#no sh
ALS2(config-if-range)#no shutdown
ALS2(config-if-range)#exit
ALS2(config)#int ran f0/9-10
ALS2(config-if-range)#channel-group 4 mode desirable
ALS2(config-if-range)#switchport trunk  allowed vlan
12,123,234,800,1010,1111,3456
Command rejected: Bad VLAN list
Command rejected: Bad VLAN list
ALS2(config-if-range)#no sj
ALS2(config-if-range)#no sh
ALS2(config-if-range)#no shutdown
ALS2(config-if-range)#exit
ALS2(config)#
ALS2(config)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with DLS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with DLS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with DLS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with DLS2 FastEthernet0/8 (800).
```

m. Configurar las siguientes interfaces como puertos de acceso, asignados a las VLAN de la siguiente manera:

Interfaz	DLS1	DLS2	ALS1	ALS2
Interfaz Fa0/6	3456	12 , 1010	123, 1010	234
Interfaz Fa0/15	1111	1111	1111	1111
Interfaces F0 /16-18		567		

```
DLS1(config)#interface f0/6
DLS1(config-if)#switchport host
                          ^
% Invalid input detected at '^' marker.

DLS1(config-if)#switchport access vlan 3456
% Access VLAN does not exist. Creating vlan 3456
DLS1(config-if)#no sh

DLS1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6,
changed state to up

DLS1(config-if)#exit
DLS1(config)#int f0/15
DLS1(config-if)#switchport host
                          ^
% Invalid input detected at '^' marker.

DLS1(config-if)#switchport access vlan 1111
% Access VLAN does not exist. Creating vlan 1111
DLS1(config-if)#no sh
DLS1(config-if)#no shutdown
DLS1(config-if)#
```

Se realiza la configuración de cada interfaz con base a la tabla anterior, pero como en el punto anterior de creación de vlans en DLS1 fallo para algunas, al momento de asignarlas a los puertos no se identifican porque no existen.

```
DLS2(config-if)#switchport voice vlan 1010
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
DLS2(config)#int f0/15
DLS2(config-if)#switchport host
                           ^
% Invalid input detected at '^' marker.

DLS2(config-if)#switchport host
                           ^
% Invalid input detected at '^' marker.

DLS2(config-if)#switchport host
                           ^
% Invalid input detected at '^' marker.

DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/8 (800).
switchport access vlan 1111
DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).

DLS2(config-if)#no sh
DLS2(config-if)#exit
DLS2(config)#int ran f0/16-18
DLS2(config-if-range)#switchport host
                                 ^
% Invalid input detected at '^' marker.

DLS2(config-if-range)#switchport access vlan 567
DLS2(config-if-range)#no sh
DLS2(config-if-range)#no shutdown
DLS2(config-if-range)#exit
DLS2(config)#
```

```
ALS1>
ALS1>en
ALS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ALS1(config)#int f0/6
ALS1(config-if)#switchport host
                               ^
% Invalid input detected at '^' marker.

ALS1(config-if)#switchport access vlan 123
ALS1(config-if)#switchport voice vlan 1010
ALS1(config-if)#no sh
ALS1(config-if)#no shutdown

ALS1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6,
changed state to up

ALS1(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with DLS2 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with DLS2 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with DLS2 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with DLS2 FastEthernet0/10 (800).
exit
ALS1(config)#
ALS1(config)#int f0/15
ALS1(config-if)#switchport host
                               ^
% Invalid input detected at '^' marker.

ALS1(config-if)#switchport access vlan 1111
ALS1(config-if)#no sh
ALS1(config-if)#no shutdown
ALS1(config-if)#exit
ALS1(config)#
```

```
ALS2(config)#int f0/6
ALS2(config-if)#switchport host
                          ^
% Invalid input detected at '^' marker.

ALS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with DLS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with DLS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with DLS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with DLS2 FastEthernet0/8 (800).
switchport access vlan 234
ALS2(config-if)#no sh
ALS2(config-if)#no shutdown

ALS2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6,
changed state to up
exit
ALS2(config)#int f0/15
ALS2(config-if)#switchport host
                          ^
% Invalid input detected at '^' marker.

ALS2(config-if)#switchport access vlan 1111
ALS2(config-if)#no sh
ALS2(config-if)#no shutdown
ALS2(config-if)#exit
ALS2(config)#
```

n. Todas las interfaces que no sean utilizadas o asignadas a alguna VLAN deberán ser apagadas.

```
DLS1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
DLS1(config)#int ran f0/1-5, f0/13-14, f0/16-24, g0/1-2
DLS1(config-if-range)#switchport access vlan 434
DLS1(config-if-range)#sh
DLS1(config-if-range)#shutdown
```

```
DLS2(config)#int ran f0/1-5, f0/13-14, f0/19-24, g0/1-2
DLS2(config-if-range)#switchport access vlan 434
DLS2(config-if-range)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).
sh
DLS2(config-if-range)#shutdown
```

```
ALS1(config)#int ran f0/1-5, f0/13-14, f0/16-24, g0/1-2
ALS1(config-if-range)#switchport access vlan 434
ALS1(config-if-range)#sh
ALS1(config-if-range)#shutdown
```

```
ALS2(config)#
ALS2(config)#int ran f0/1-5, f0/13-14, f0/16-24, g0/1-2
ALS2(config-if-range)#switchport access vlan 434
ALS2(config-if-range)#sh
ALS2(config-if-range)#shutdown
```

En vista de que no se utilizaron todas las interfaces, por seguridad se deben apagar para evitar conexiones no autorizadas.

o. Configurar SVI en DLS1 y DLS2 como soporte de todas las VLAN y de enrutamiento entre las VLAN. Utilice la siguiente tabla para las asignaciones de subred:

VLAN	Nombre de VLAN	subred	VLAN	Nombre de VLAN	subred
12	EJECUTIVOS	10.0.12.0/24	123	MANTENIMIENTO	10.0.123.0/24
234	HUESPEDES	10.0.234.0/24	1010	VOZ	10.10.10.0/24
1111	VIDEONET	10.11.11.0/24	3456	ADMINISTRACIÓN	10.34.56.0/24

- DLS1 siempre utilizará la dirección .252 y DLS2 siempre utilizará la dirección .253 para las direcciones IPv4.
- La VLAN 567 en DLS2 no podrá ser soportada para enrutamiento.

p. Configurar una interfaz Loopback 0 en DLS1 y DLS2. Esta interfaz será configurada con la dirección IP 1.1.1.1/32 en ambos Switch.

```
DLS1(config)#ip routing
DLS1(config)#ipv6 unicast-routing
               ^
% Invalid input detected at '^' marker.

DLS1(config)#int vlan 12
DLS1(config-if)#
%LINK-5-CHANGED: Interface Vlan12, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan12, changed
state to up
ip address 10.0.12.252 255.255.255.0
DLS1(config-if)#no sh
DLS1(config-if)#exit
DLS1(config)#int vlan 123
DLS1(config-if)#
%LINK-5-CHANGED: Interface Vlan123, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan123, changed
state to up
ip address 10.0.123.252 255.255.255.0
DLS1(config-if)#no sh
DLS1(config-if)#exit
DLS1(config)#int vlan 234
DLS1(config-if)#
%LINK-5-CHANGED: Interface Vlan234, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan234, changed
state to up
ip address 10.0.234.252 255.255.255.0
DLS1(config-if)#no sh
DLS1(config-if)#exit
DLS1(config)#int vlan 1010
DLS1(config-if)#ip add 10.10.10.252 255.255.255.0
DLS1(config-if)#no sh
DLS1(config-if)#exit
DLS1(config)#int vlan 1111
DLS1(config-if)#
%LINK-5-CHANGED: Interface Vlan1111, changed state to up
ip add 10.11.11.252 255.255.255.0
DLS1(config-if)#no sh
DLS1(config-if)#exit
DLS1(config)#int vlan 3456
DLS1(config-if)#
%LINK-5-CHANGED: Interface Vlan3456, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan3456, changed
state to up

DLS1(config-if)#ip address 10.34.56.252 255.255.255.0
DLS1(config-if)#no sh
DLS1(config-if)#no shutdown
DLS1(config-if)#exit
DLS1(config)#int loop 0
```

```
DLS1(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0,
changed state to up

DLS1(config-if)#ip address 1.1.1.1 255.255.255.255
DLS1(config-if)#no sh
DLS1(config-if)#no shutdown
DLS1(config-if)#exit
DLS1(config)#
```

```
DLS2(config)#ip routing
DLS2(config)#ipv6 unicast-routing
               ^
% Invalid input detected at '^' marker.

DLS2(config)#int vlan 12
DLS2(config-if)#
%LINK-5-CHANGED: Interface Vlan12, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan12, changed
state to up

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).
ip address 10.0.12.253 255.255.255.0
DLS2(config-if)#no sh
DLS2(config-if)#exit
DLS2(config)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/8 (800).

DLS2(config)#int vlan 123
```

```
%LINK-5-CHANGED: Interface Vlan123, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan123, changed
state to up

DLS2(config-if)#ip address 10.0.123.253 255.255.255.0
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
DLS2(config)#int vlan 234
DLS2(config-if)#
%LINK-5-CHANGED: Interface Vlan234, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan234, changed
state to up

DLS2(config-if)#ip address 10.0.234.253 255.255.255.0
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
DLS2(config)#int vlan 1010
DLS2(config-if)#
%LINK-5-CHANGED: Interface Vlan1010, changed state to up
ip add 10.10.10.253 255.255.255.0
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
DLS2(config)#
```

```
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
DLS2(config)#int vlan 3456
DLS2(config-if)#
%LINK-5-CHANGED: Interface Vlan3456, changed state to up

DLS2(config-if)#ip address 10.34.56.253 255.255.255.0
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
DLS2(config)#int loop 0

DLS2(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0,
changed state to up

DLS2(config-if)#ip address 1.1.1.1 255.255.255.255
DLS2(config-if)#no sh
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
```

q. Configurar HSRP con interfaz tracking para las VLAN 12, 123, 234, 1010, y 1111
    1. Utilizar HSRP versión 2

2. Crear dos grupos HSRP, alineando VLAN 12, 1010, 1111, y 3456 para el primer grupo y las VLAN 123 y 234 para el segundo grupo.
3. DLS1 será el Switch principal de las VLAN 12, 1010, 1111, y 3456 y DLS2 será el Switch principal para las VLAN 123 y 234.
4. Utilizar la dirección virtual .254 como la dirección de Standby de todas las VLAN

```
DLS1(config)#int vlan 12
DLS1(config-if)#standby ver 2
                        ^
% Invalid input detected at '^' marker.

DLS1(config-if)#standby 1 ip 10.0.12.254
DLS1(config-if)#standby 1 preempt
DLS1(config-if)#standby 1 priority 110
DLS1(config-if)#standby 1 track loop 0 30
                                ^
% Invalid input detected at '^' marker.

DLS1(config-if)#exit
DLS1(config)#int vlan 123
DLS1(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS1(config-if)#
%HSRP-6-STATECHANGE: Vlan12 Grp 1 state Speak -> Standby

%HSRP-6-STATECHANGE: Vlan12 Grp 1 state Standby -> Active

DLS1(config-if)#stand 2 ip 10.0.123.254
DLS1(config-if)#standby 2 preempt
DLS1(config-if)#exit
DLS1(config)#int vlan 234
DLS1(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS1(config-if)#stand 2 ip 10.0.234.254
DLS1(config-if)#
%HSRP-6-STATECHANGE: Vlan123 Grp 2 state Speak -> Standby

%HSRP-6-STATECHANGE: Vlan123 Grp 2 state Standby -> Active

DLS1(config-if)#stand 2 preempt
DLS1(config-if)#exit
DLS1(config)#int vlan 1010
%HSRP-6-STATECHANGE: Vlan234 Grp 2 state Speak -> Standby

DLS1(config-if)#
%HSRP-6-STATECHANGE: Vlan234 Grp 2 state Standby -> Active
stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS1(config-if)#stand 1 ip 10.10.10.254
DLS1(config-if)#stand 1 preempt
DLS1(config-if)#stand 1 pri 110
DLS1(config-if)#standby 1 track loop 0 30
                                ^
% Invalid input detected at '^' marker.
```

```
DLS1(config-if)#exit
DLS1(config)#int vlan 1111
DLS1(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS1(config-if)#
DLS1(config-if)#stand 1 ip 10.11.11.254
DLS1(config-if)#stand 1 preempt
DLS1(config-if)#stand 1 pri 110
DLS1(config-if)#standby 1 track loop 0 30
                                ^
% Invalid input detected at '^' marker.

DLS1(config-if)#exit
DLS1(config)#int vlan 3456
DLS1(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS1(config-if)#stand 1 ip 10.34.56.254
DLS1(config-if)#stand 1 preempt
DLS1(config-if)#stand 1 pri 110
DLS1(config-if)#standby 1 track loop 0 30
                                ^
% Invalid input detected at '^' marker.

DLS1(config-if)#
%HSRP-6-STATECHANGE: Vlan3456 Grp 1 state Speak -> Standby

%HSRP-6-STATECHANGE: Vlan3456 Grp 1 state Standby -> Active
exit
DLS1(config)#
```

```
DLS2(config)#int vlan 12
DLS2(config-if)#standby ver 2
                        ^
% Invalid input detected at '^' marker.

DLS2(config-if)#standby 1 ip 10.0.12.254
DLS2(config-if)#standby 1 preempt
DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).

DLS2(config-if)#exit
DLS2(config)#int vlan 123
DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/8 (800).
stand ver 2
                    ^
% Invalid input detected at '^' marker.

DLS2(config-if)#stand 2 ip 10.0.123.254
DLS2(config-if)#standby 2 preempt
DLS2(config-if)#standby 2 priority 110
DLS2(config-if)#standby 2 track loop 0 30
                              ^
% Invalid input detected at '^' marker.

DLS2(config-if)#exit
DLS2(config)#
```

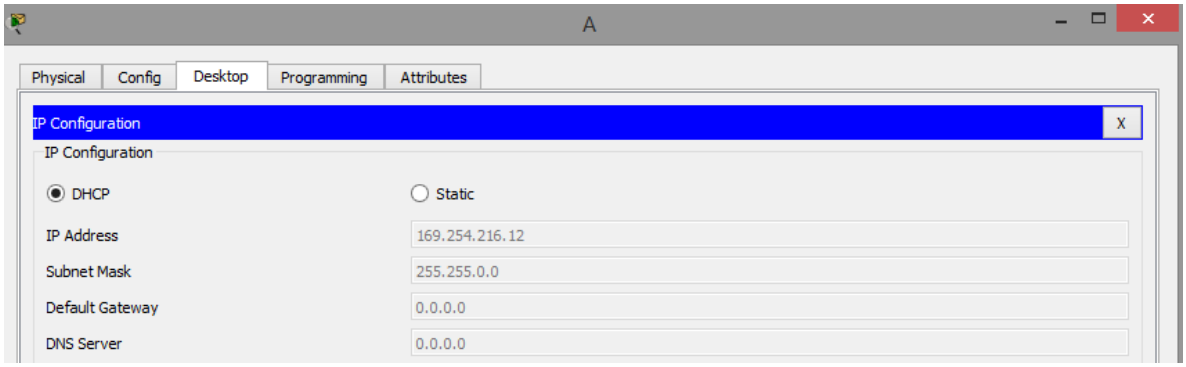
```
DLS2(config)#int vlan 234
DLS2(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS2(config-if)#stand 2 ip 10.0.234.254
DLS2(config-if)#stand 2 preempt
DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).
standby 2 priority 110
DLS2(config-if)#
%HSRP-6-STATECHANGE: Vlan234 Grp 2 state Speak -> Standby

%HSRP-6-STATECHANGE: Vlan234 Grp 2 state Standby -> Active

DLS2(config-if)#standby 2 track loop 0 30
                              ^
% Invalid input detected at '^' marker.

DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/8 (800).

DLS2(config-if)#exit
DLS2(config)#int vlan 1010
DLS2(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS2(config-if)#stand 1 ip 10.10.10.254
DLS2(config-if)#stand 1 preempt
DLS2(config-if)#exit
DLS2(config)#int vlan 1111
DLS2(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.
```

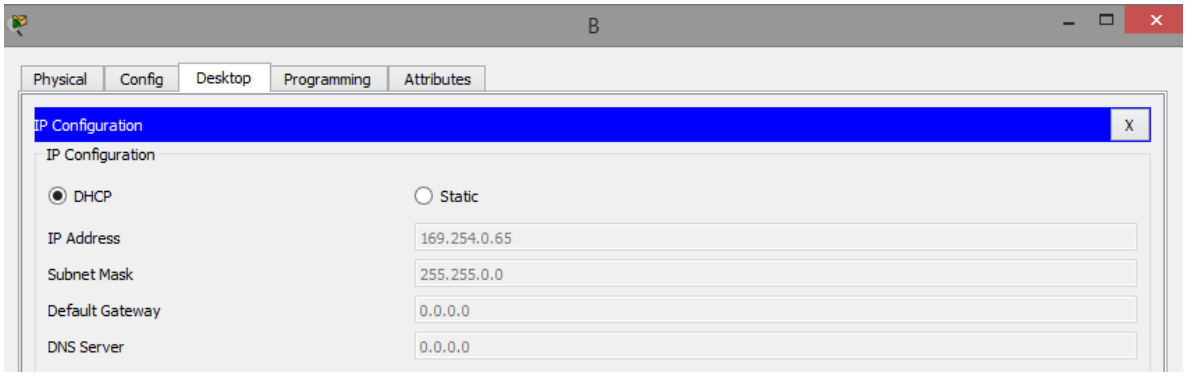
```
DLS2(config-if)#stand 1 ip 10.11.11.254
DLS2(config-if)#stand 1 preempt
DLS2(config-if)#exit
DLS2(config)#int vlan 3456
DLS2(config-if)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/9 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/10 (1), with ALS1 FastEthernet0/10 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/9 (1), with ALS1 FastEthernet0/10 (800).

DLS2(config-if)#stand ver 2
                      ^
% Invalid input detected at '^' marker.

DLS2(config-if)#stand 1 ip 10.34.56.254
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/8 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/7 (1), with ALS2 FastEthernet0/7 (800).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
FastEthernet0/8 (1), with ALS2 FastEthernet0/7 (800).

DLS2(config-if)#stand 1 preempt
DLS2(config-if)#exit
```

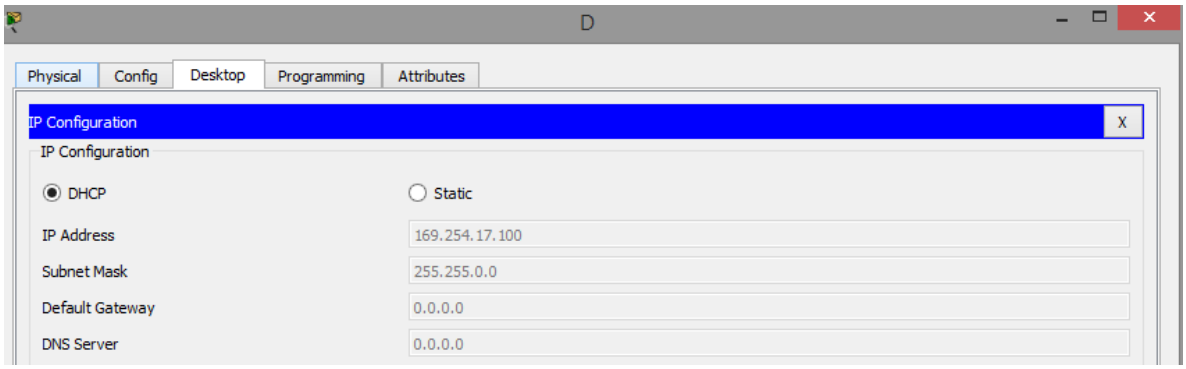
r. Configurar DLS1 como un servidor DHCP para las VLAN 12, 123 y 234
    1. Excluir las direcciones desde .251 hasta .254 en cada subred
    2. Establecer el servidor DNS a 1.1.1.1 para los tres Pool.
    3. Establecer como default-router las direcciones virtuales HSRP para cada VLAN

```
DLS1(config)#ip dhcp pool EXECUTIVES-POOL
DLS1(dhcp-config)#network 10.0.12.0 255.255.255.0
DLS1(dhcp-config)#default-router 10.0.12.254
DLS1(dhcp-config)#dns-server 1.1.1.1
DLS1(dhcp-config)#exit
DLS1(config)#ip dhcp pool CUBES-POOL
DLS1(dhcp-config)#network 10.0.123.0 255.255.255.0
DLS1(dhcp-config)#default-router 10.0.123.254
DLS1(dhcp-config)#dns-server 1.1.1.1
DLS1(dhcp-config)#exit
DLS1(config)#ip dhcp pool GUEST-POOL
DLS1(dhcp-config)#network 10.0.234.0 255.255.255.0
DLS1(dhcp-config)#default-router 10.0.234.254
DLS1(dhcp-config)#dns-server 1.1.1.1
DLS1(dhcp-config)#exit
DLS1(config)#
```

s. Obtener direcciones IPv4 en los host A, B, y D a través de la configuración por DHCP que fue realizada.



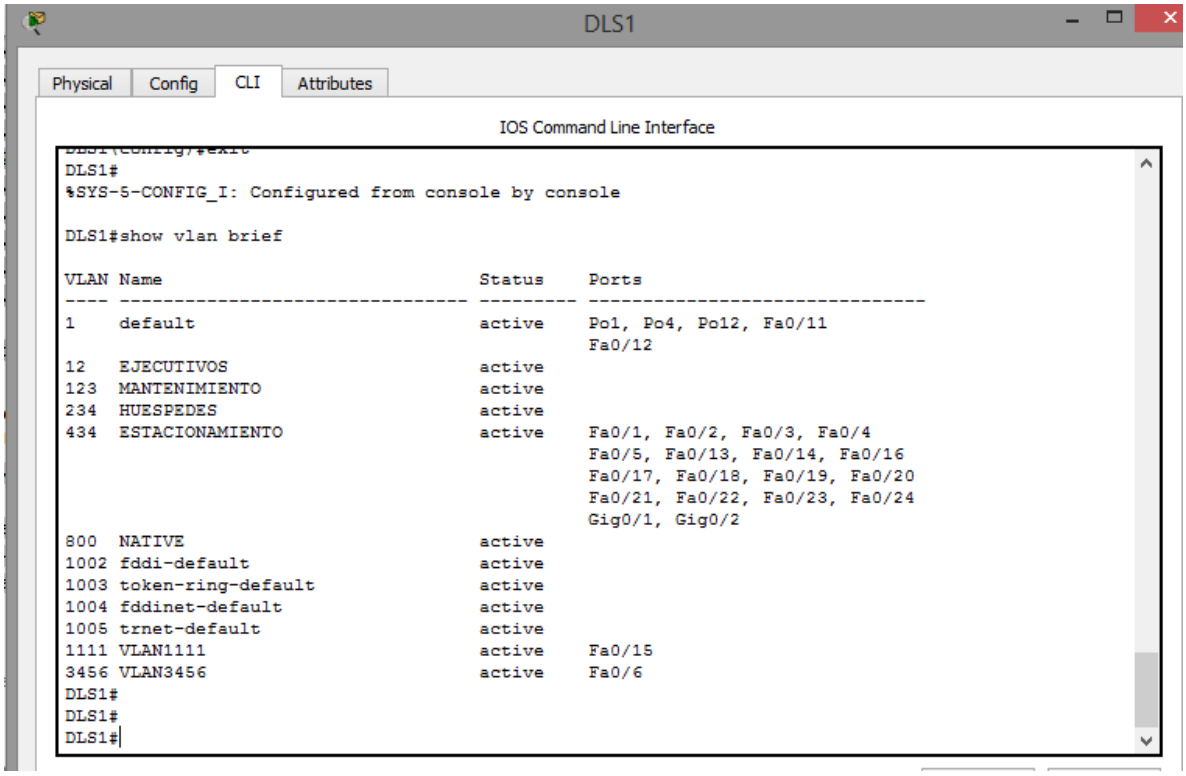


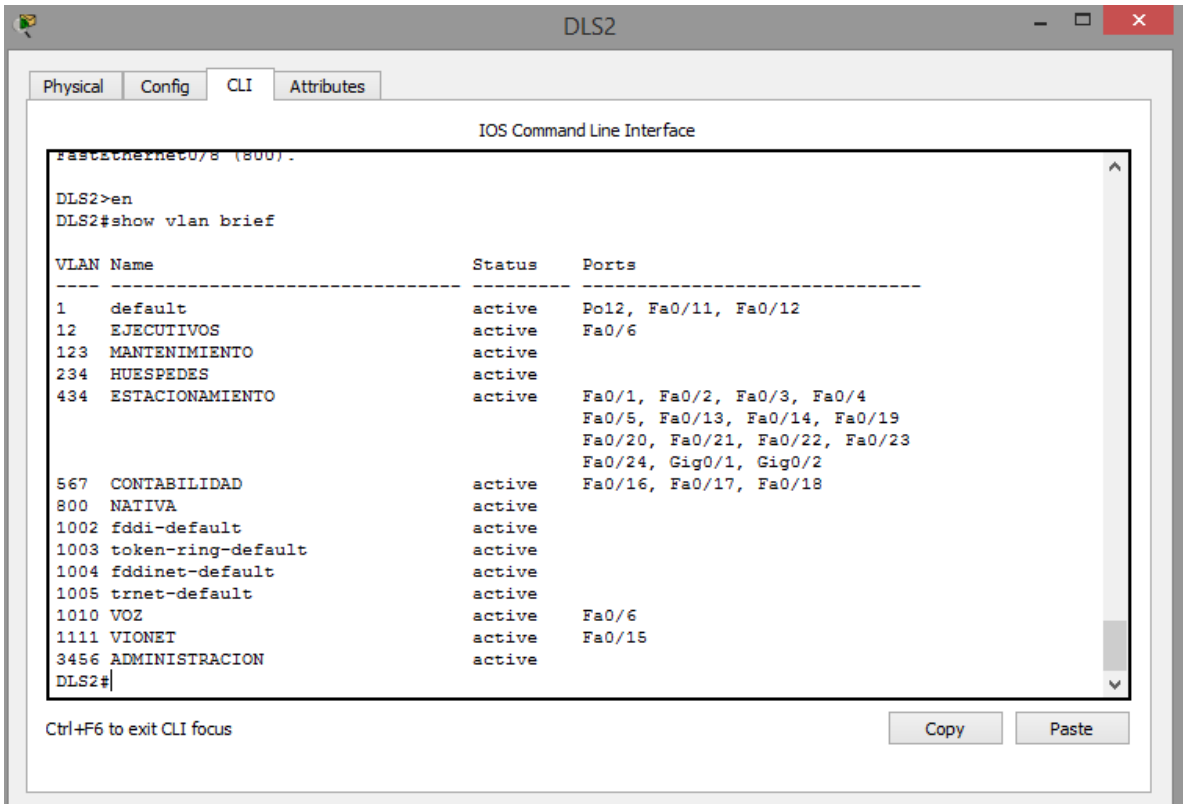


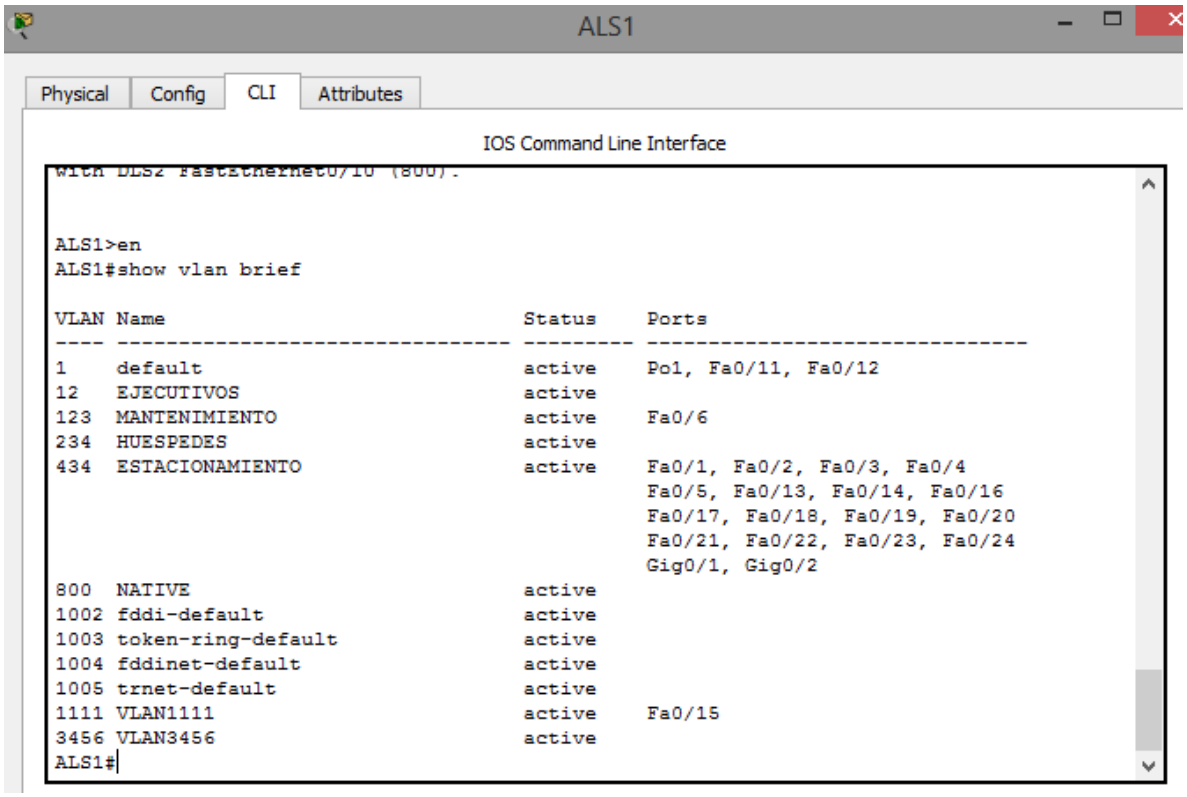
Se identifica que al configurar los equipo con direccionamiento DHCP la conexión a la red le asigno automáticamente la dirección IP a cada uno de ellos.

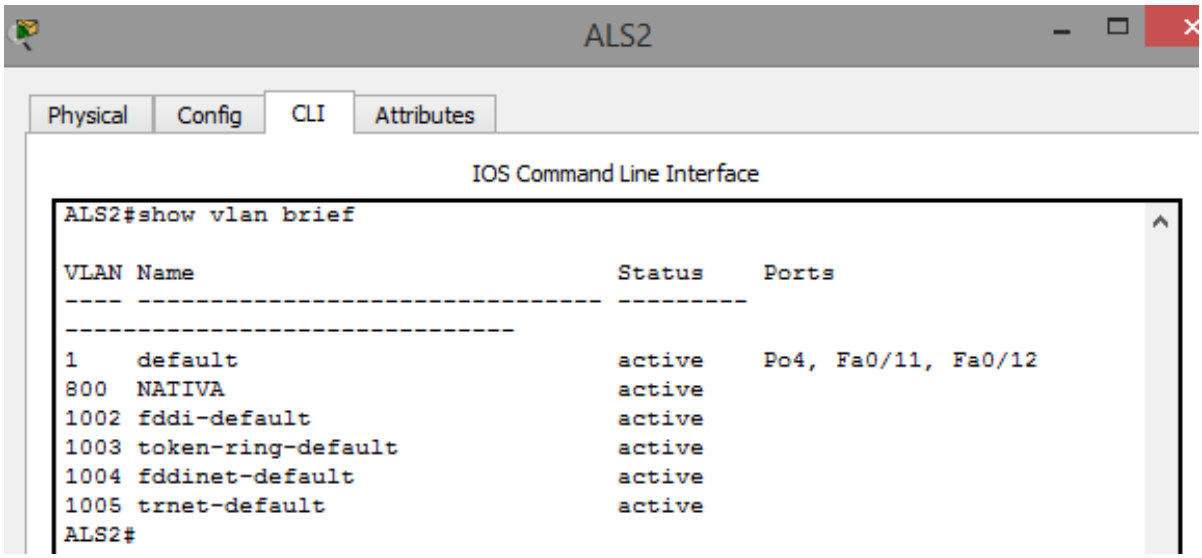
Parte 2: conectividad de red de prueba y las opciones configuradas.

a. Verificar la existencia de las VLAN correctas en todos los switches y la asignación de puertos troncales y de acceso

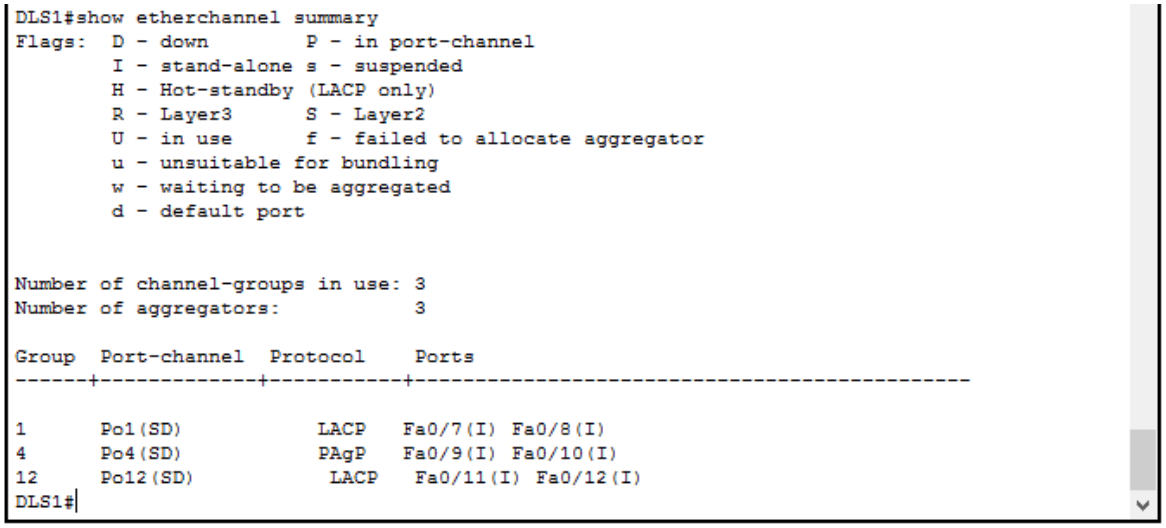



DLS2
Physical
Config
CLI
Attributes
IOS Command Line Interface
FastEthernet0/8 (800).
DLS2>en
DLS2#show vlan brief
VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Po12, Fa0/11, Fa0/12
12 EJECUTIVOS active Fa0/6
123 MANTENIMIENTO active
234 HUESPEDES active
434 ESTACIONAMIENTO active Fa0/1, Fa0/2, Fa0/3, Fa0/4
Fa0/5, Fa0/13, Fa0/14, Fa0/19
Fa0/20, Fa0/21, Fa0/22, Fa0/23
Fa0/24, Gig0/1, Gig0/2
567 CONTABILIDAD active Fa0/16, Fa0/17, Fa0/18
800 NATIVA active
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
1010 VOZ active Fa0/6
1111 VIONET active Fa0/15
3456 ADMINISTRACION active
DLS2#
Ctrl+F6 to exit CLI focus
Copy
Paste


ALS1
Physical
Config
CLI
Attributes
IOS Command Line Interface
With DLS2 FastEthernet0/10 (800).
ALS1>en
ALS1#show vlan brief
VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Po1, Fa0/11, Fa0/12
12 EJECUTIVOS active
123 MANTENIMIENTO active Fa0/6
234 HUESPEDES active
434 ESTACIONAMIENTO active Fa0/1, Fa0/2, Fa0/3, Fa0/4
Fa0/5, Fa0/13, Fa0/14, Fa0/16
Fa0/17, Fa0/18, Fa0/19, Fa0/20
Fa0/21, Fa0/22, Fa0/23, Fa0/24
Gig0/1, Gig0/2
800 NATIVE active
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
1111 VLAN1111 active Fa0/15
3456 VLAN3456 active
ALS1#

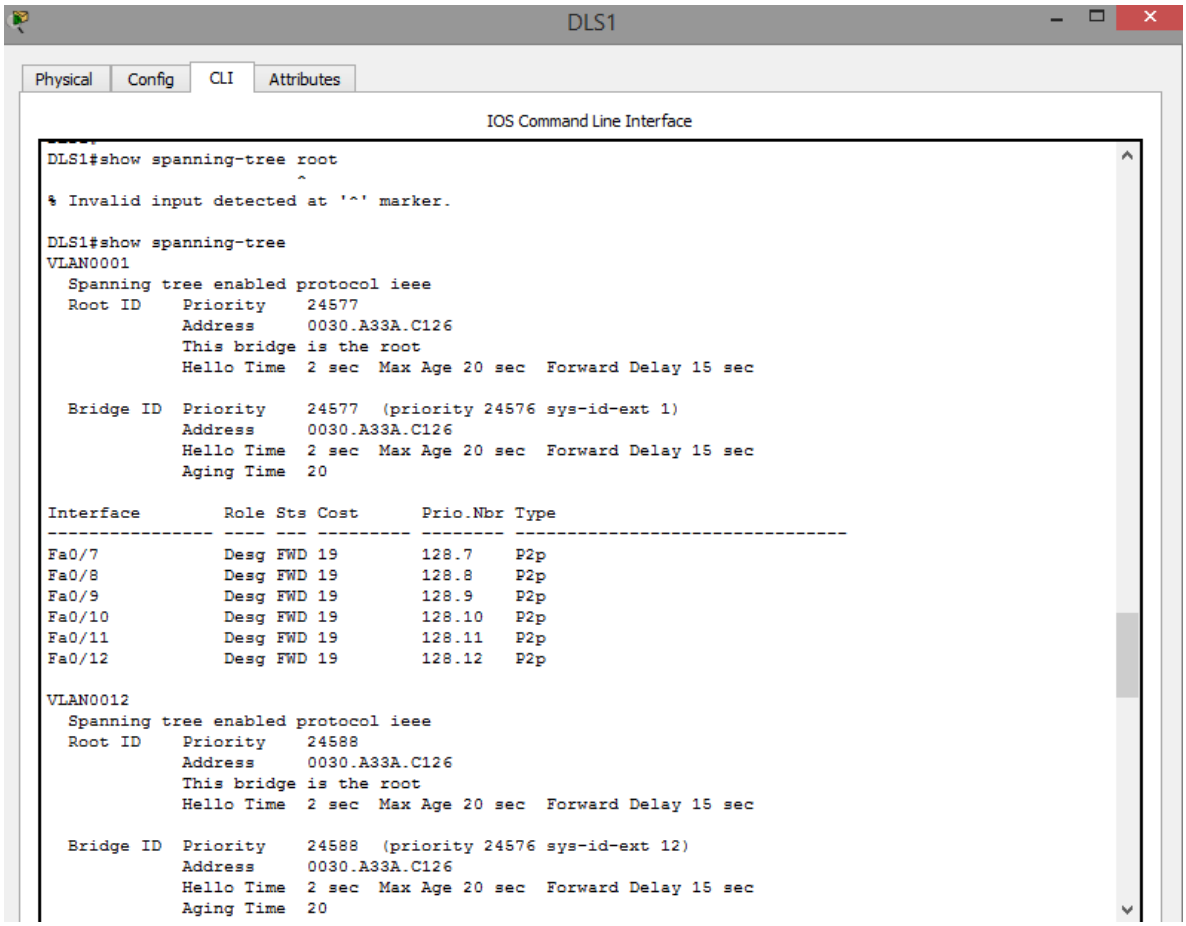


b. Verificar que el EtherChannel entre DLS1 y ALS1 está configurado correctamente



Se identifica que los protocolos de enrutamiento se encuentran configurados correctamente.

c. Verificar la configuración de Spanning tree entre DLS1 o DLS2 para cada VLAN.


DLS1
Physical
Config
CLI
Attributes
IOS Command Line Interface
DLS1#show spanning-tree root
^
% Invalid input detected at '^' marker.
DLS1#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0030.A33A.C126
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID Priority 24577 (priority 24576 sys-id-ext 1)
Address 0030.A33A.C126
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20
Interface Role Sts Cost Prio.Nbr Type
Fa0/7 Desg FWD 19 128.7 P2p
Fa0/8 Desg FWD 19 128.8 P2p
Fa0/9 Desg FWD 19 128.9 P2p
Fa0/10 Desg FWD 19 128.10 P2p
Fa0/11 Desg FWD 19 128.11 P2p
Fa0/12 Desg FWD 19 128.12 P2p
VLAN0012
Spanning tree enabled protocol ieee
Root ID Priority 24588
Address 0030.A33A.C126
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID Priority 24588 (priority 24576 sys-id-ext 12)
Address 0030.A33A.C126
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

```
Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/7            Desg FWD 19        128.7    P2p
Fa0/8            Desg FWD 19        128.8    P2p
Fa0/9            Desg FWD 19        128.9    P2p
Fa0/10           Desg FWD 19        128.10   P2p

VLAN0123
  Spanning tree enabled protocol ieee
  Root ID    Priority    28795
             Address     0001.4273.A8DD
             Cost        28
             Port        7(FastEthernet0/7)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    28795  (priority 28672 sys-id-ext 123)
             Address     0030.A33A.C126
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/7            Root FWD 19        128.7    P2p
Fa0/8            Altn BLK 19        128.8    P2p
Fa0/9            Desg FWD 19        128.9    P2p
Fa0/10           Desg FWD 19        128.10   P2p

VLAN0234
  Spanning tree enabled protocol ieee
  Root ID    Priority    28906
             Address     0001.4273.A8DD
             Cost        28
             Port        7(FastEthernet0/7)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    28906  (priority 28672 sys-id-ext 234)
             Address     0030.A33A.C126
```

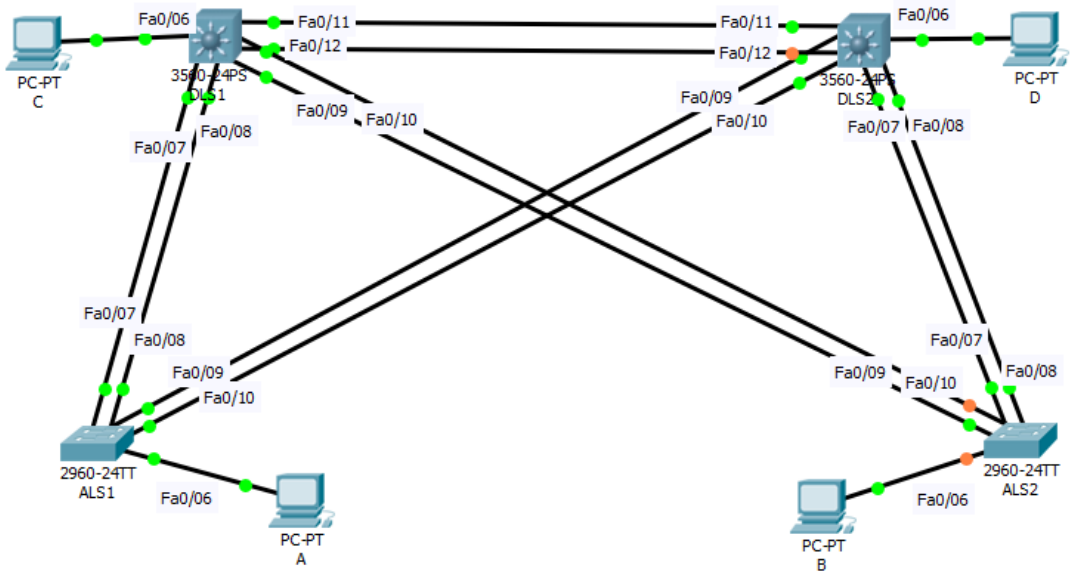
```
             Address     0030.A33A.C126
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/7            Root FWD 19        128.7    P2p
Fa0/8            Altn BLK 19        128.8    P2p
Fa0/9            Desg FWD 19        128.9    P2p
Fa0/10           Desg FWD 19        128.10   P2p

VLAN0434
  Spanning tree enabled protocol ieee
  Root ID    Priority    25010
             Address     0030.A33A.C126
             This bridge is the root
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    25010  (priority 24576 sys-id-ext 434)
             Address     0030.A33A.C126
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/7            Desg FWD 19        128.7    P2p
Fa0/8            Desg FWD 19        128.8    P2p
Fa0/9            Desg FWD 19        128.9    P2p
Fa0/10           Desg FWD 19        128.10   P2p

VLAN0800
  Spanning tree enabled protocol ieee
  Root ID    Priority    25376
             Address     0030.A33A.C126
             This bridge is the root
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
  Bridge ID  Priority    25376  (priority 24576 sys-id-ext 800)
             Address     0030.A33A.C126
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/7            Desg FWD 19        128.7    P2p
Fa0/8            Desg FWD 19        128.8    P2p
Fa0/9            Desg FWD 19        128.9    P2p
Fa0/10           Desg FWD 19        128.10   P2p

DLS1#
```

d. Verificar configuraciones HSRP mediante comandos Show

```
DLS1#show standby brief
                     P indicates configured to preempt.
                     |
Interface   Grp  Pri P State    Active          Standby         Virtual IP
Vl12        1    110 P Active   local           unknown         10.0.12.254
Vl123       2    100 P Active   local           unknown         10.0.123.254
Vl234       2    100 P Active   local           unknown         10.0.234.254
Vl11010     1    110 P Init     unknown         unknown         10.10.10.254
Vl11111     1    110 P Init     unknown         unknown         10.11.11.254
Vl3456      1    110 P Active   local           unknown         10.34.56.254
DLS1#
```

Simulación con las configuraciones realizadas:



CONCLUSIONES

- Gracias a los conocimientos obtenidos a nivel teórico en los temas tratados en cada unidad se logra tener un espectro de análisis más técnico y lógico para el momento en el que se requiera solucionar un problema a nivel de redes o en el momento de un diseño y/o implementación de una nueva. Brindando asi una mayor seguridad y evitando perdida tanto de información como lentitud en la navegación o desconexión.
- Es importante realizar prácticas constantes en la implementación de los comandos de configuración avanzada para lograr la adecuada configuración de una red según la necesidad que se presente.
- Los simuladores son de gran ayuda en el desarrollo y prácticas de laboratorio, ya que con estos no es necesario tener los dispositivos físicos y se evita deterioro de los mismos.

BIBLIOGRAFIA

Teare, D., Vachon B., Graziani, R. (2015). CISCO Press (Ed). Implementing Cisco IP Routing (ROUTE) Foundation Learning Guide CCNP ROUTE 300-101. Recuperado de https://1drv.ms/b/s!AmIJYei-NT1IlnMfy2rhPZHwEoWx

Froom, R., Frahim, E. (2015). CISCO Press (Ed). Implementing Cisco IP Switched Networks (SWITCH) Foundation Learning Guide CCNP SWITCH 300-115. Recuperado de https://1drv.ms/b/s!AmIJYei-NT1IlnWR0hoMxgBNv1CJ