

DIPLOMADO PROFUNDIZACIÓN CISCO (DISEÑO E IMPLEMENTACIÓN DE
SOLUCIONES INTEGRADAS LAN/WAN)
PRUEBA DE HABILIDADES PRÁCTICAS

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UNIVERSIDAD NACIONAL ABIERTA Y A DISTANCIA - UNAD
INGENIERÍA SISTEMAS
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EVALUACIÓN PRUEBA HABILIDADES PRÁCTICAS

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Trabajo de grado para optar al título
INGENIERA DE SISTEMAS

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NOTA DE ACEPTACIÓN

Firma Del Presidente de Jurado

Firma Del Jurado

Firma Del Jurado

DEDICATORIA

Agradezco a Dios por darme la oportunidad de aprender y culminar mi carrera por darme fortaleza y apoyo en todas las dificultades.

A mi familia en general quienes siempre han sido un gran apoyo tanto motivacional como económico. A todos los seres especiales que me acompañaron en esta etapa aportando a mi formación profesional y como ser humano.

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INTRODUCCION

El presente trabajo, hace parte del desarrollo de la prueba de habilidades prácticas, la cual forma parte de las actividades evaluativas de Diplomado de profundización CCNA, la cual busca identificar el nivel de desarrollo de competencias y habilidades que se adquirieron a lo largo del diplomado y a través de la cual se pondrá a prueba los grados de comprensión y solución de problemas relacionados con diversos aspectos de Networking.

1. DEFINICION

La práctica es desarrollado, desde el planteamiento de un escenario problema, en el cual se expone el caso de una empresa de tecnología, a cual posee tres sucursales, distribuidas en las ciudades de Medellín Bogotá y Cali , en donde se es necesario configurar e interconectar entre si 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.

2. JUSTIFICACION

Configurar el direccionamiento IP acorde con la topología de red para cada uno de los dispositivos que forman parte del escenario

Configurar el protocolo de enrutamiento OSPFv2 bajo los criterios dados.

3. OBJETIVOS

3.1. OBJETIVO GENERAL

Configuración de cada uno de los dispositivos en el escenario propuesto mediante el programa PacketTracer.

3.2. OBJETIVOS ESPECÍFICOS

- ✓ Registrar los procesos de verificación de conectividad del uso de comandos ping, tracerouter, show iprouter, entre otros.
- ✓ Documentar la solución al escenario propuesto

4. MARCO TEORICO

Un protocolo de enrutamiento se define como la herramienta que permite la comunicación entre los router. La configuración permite a estos equipos seleccionar la ruta que tomara un paquete entre dos nodos en una red de computadores.

Descripción del escenario propuesto para la prueba de habilidades

Escenario:

Una empresa de Tecnología posee tres sucursales distribuidas en las ciudades de Bogotá, Medellín y Cali, 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.**

5. DESARROLLO

5.1 ESCENARIO 1.

Una empresa posee sucursales distribuidas en las ciudades de Bogotá, Medellín y Cali 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. Los requerimientos solicitados son los siguientes:

Parte 1: Para el direccionamiento IP debe definirse una dirección de acuerdo con el número de hosts requeridos.

Parte 2: Considerar la asignación de los parámetros básicos y la detección de vecinos directamente conectados.

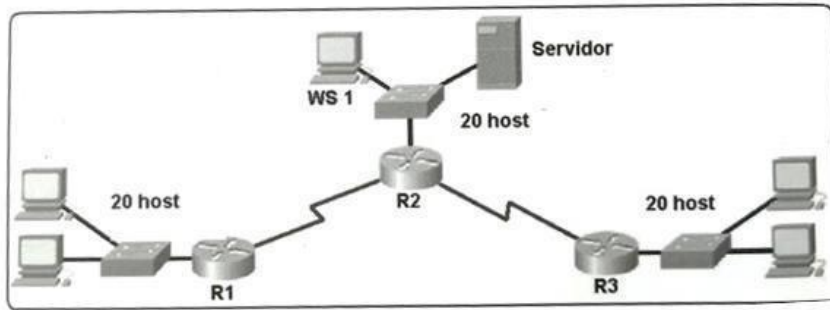
Parte 3: La red y subred establecidas deberán tener una interconexión total, todos los hosts deberán ser visibles y poder comunicarse entre ellos sin restricciones.

Parte 4: Implementar la seguridad en la red, se debe restringir el acceso y comunicación entre hosts de acuerdo con los requerimientos del administrador de red.

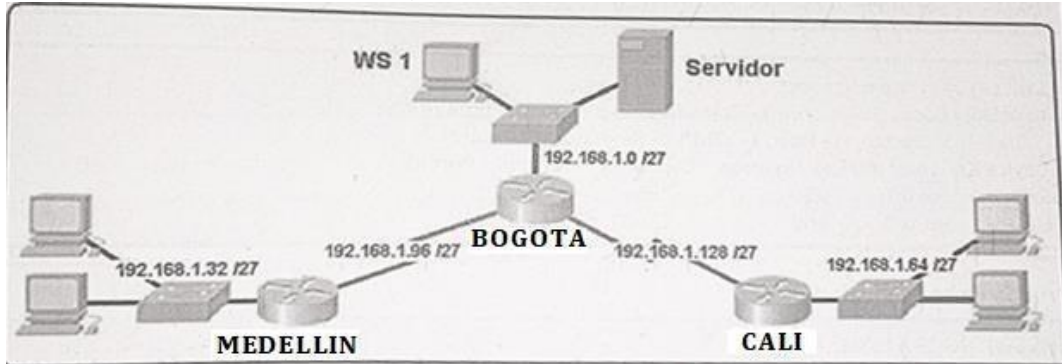
Parte 5: Comprobación total de los dispositivos y su funcionamiento en la red.

Parte 6: Configuración final.

Imagen 1. Guía Escenario uno

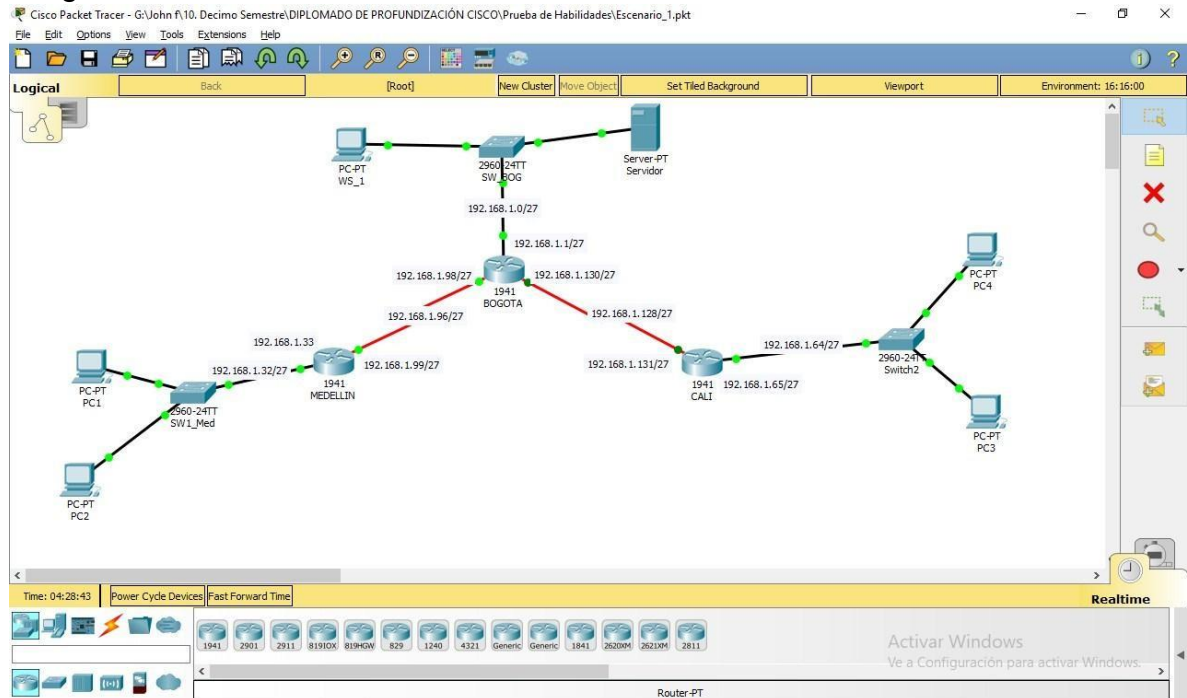


Fuente: Diplomado Cisco Topología de red
Imagen 2. Escenario uno Bogotá. Medellín y Cali



Fuente: Diplomado Cisco

Imagen 3. Desarrollo Escenario 1



Fuente: cisco diseño de red en packet tracer

Desarrollo

Como trabajo inicial se debe realizar lo siguiente.

- ✓ Realizar las rutinas de diagnóstico y dejar los equipos listos para su configuración (asignar nombres de equipos, asignar claves de seguridad, etc).

Asignar Nombres
RTA:
Clave de Ingreso cisco

Configuro Router1 Medellín Nombre, Clave consola y Vty

```
Router>ENABLE
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname MEDELLIN
Router(config)#hostname MEDELLIN
MEDELLIN(config)#no ip domain-lookup
MEDELLIN(config)#service pass
MEDELLIN(config)#service password-encryption
MEDELLIN(config)#line console 0
MEDELLIN(config-line)#password cisco
MEDELLIN(config-line)#login
MEDELLIN(config-line)#line vty 0 4
MEDELLIN(config-line)#password cisco
MEDELLIN(config-line)#login
MEDELLIN(config-line)#exit
MEDELLIN(config)#enable secret cisco
MEDELLIN(config)#do write
MEDELLIN(config)#do write
```

Configuración Switch Medellin Nombre, Clave Consola, Vty y Hora

```
Switch>en
Switch#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S_MEDELLIN-Med
S_MEDELLIN-Med(config)#no ip domain-lookup
S_MEDELLIN-Med(config)#line console 0
S_MEDELLIN-Med(config-line)#password cisco
S_MEDELLIN-Med(config-line)#login
S_MEDELLIN-Med(config-line)#line vty 0 4
```

```
S_MEDELLIN-Med(config-line)#password cisco
S_MEDELLIN-Med(config-line)#login
S_MEDELLIN-Med(config-line)#exit
S_MEDELLIN-Med(config)#service password-encryption
S_MEDELLIN-Med(config)#enable secret cisco
S_MEDELLIN-Med(config)#do write
Building configuration..
S_MEDELLIN-Med(config)#
```

Configuro Router Bogota Nombre, Clave consola, Vty y Hora

```
Router>ENABLE
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Bogota
Bogota(config)#no ip domain-lookup
Bogota(config)#service pass
Bogota(config)#service password-encryption
Bogota(config)#line console 0
Bogota(config-line)#password cisco
Bogota(config-line)#login
Bogota(config-line)#line vty 0 4
Bogota(config-line)#password cisco
Bogota(config-line)#login
Bogota(config-line)#exit
Bogota(config)#enable secret cisco
Bogota(config)#do write
```

Configuro Switch Bogota Nombre, Clave consola, Vty y Hora

```
Switch>en
Switch#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW_BOG
SW_BOG(config)#no ip domain-lookup
SW_BOG(config)#line console 0
SW_BOG(config-line)#password cisco
SW_BOG(config-line)#login
SW_BOG(config-line)#line vty 0 4
SW_BOG(config-line)#password cisco
SW_BOG(config-line)#login
SW_BOG(config-line)#exit
SW_BOG(config)#service password-encryption
SW_BOG(config)#enable secret cisco
SW_BOG(config)#do write
Building configuration..
```

Configuro Router Cali Nombre, Clave consola, Vty y Hora

```
Router>en
Router#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#Hostname CALI
CALI(config)#no ip domain-lookup
CALI(config)#line console 0
CALI(config-line)#password cisco
CALI(config-line)#login
CALI(config-line)#line vty 0 4
CALI(config-line)#password cisco
CALI(config-line)#login
CALI(config-line)#exit
CALI(config)#enable secret cisco
CALI(config)#service password-encryption
CALI(config)#do wr
Building configuration...
[OK]
CALI(config)#
CALI#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
CALI#
```

Configuro Switch Cali Nombre, Clave consola, Vty y Hora

```
Switch>en
Switch#SW_Cali
Translating "SW_Cali"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

Switch#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW_Cali
SW_Cali(config-line)#line vty 0 4
SW_Cali(config-line)#password cisco
SW_Cali(config-line)#login
SW_Cali(config-line)#line console 0
SW_Cali(config-line)#password cisco
SW_Cali(config-line)#login
SW_Cali(config-line)#exit
SW_Cali(config)#enable secret cisco
SW_Cali(config)#service pass
```



```

SW_Cali(config)#service password-
encryption SW_Cali(config)#do write
Building configuration...
[OK]
SW_Cali(config)#

```

✓ Realizar la conexión física de los equipos con base en la topología de red
 Configurar la topología de red, de acuerdo con las siguientes especificaciones.

Parte 1: Asignación de direcciones IP:

- a. Se debe dividir (subnetear) la red creando una segmentación en ocho partes, para permitir crecimiento futuro de la red corporativa.

RTA:

Red Clase C: 192.168.1.0

Crear una segmentación en ocho partes

Tabla 1. Segmentación Uno

Mascara Por default	255	255	255	0
Mascara Por default Binario	11111111	11111111	11111111	00000000

Fuente: Autora Entonces:

Uso formula

Tabla 2. Segmentación dos 2^n
 $2^3 = 8$

Mascara Adaptada –Binario	11111111	11111111	11111111	11100000
Mascara Adaptada	255	255	255	224 o /27

Fuente: Autora

Host Utiles: 30

Uso formula:

$$2^n - 2$$

$$2^5 - 2 = 32 - 2 = 30$$

- b. Asignar una dirección IP a la red.

192.168.1.0

Parte 2: Configuración Básica.

a. Completar la siguiente tabla con la configuración básica de los routers, teniendo en cuenta las subredes diseñadas.

Tabla 3. Direcciones IP

	R1	R2	R3
Nombre de Host	MEDELLIN	BOGOTA	CALI
Dirección de Ip en interfaz Serial 0/0	192.168.1.99	192.168.1.98	192.168.1.131
Dirección de Ip en interfaz Serial 0/1		192.168.1.130	
Dirección de Ip en interfaz FA 0/0	192.168.1.33	192.168.1.1	192.168.1.65
Protocolo de enrutamiento Sistema Autónomo	Eigrp 200	Eigrp 200	Eigrp 200
Afirmaciones de red	192.168.1.0	192.168.1.0	192.168.1.0
Nombre de Host	IP	Masca	Puerta
WS_1	192.168.1.5	255.255.255.224	192.168.1.32
Servidor	192.168.1.3	255.255.255.224	192.168.1.32
Pca	192.168.1.4	255.255.255.224	192.168.1.64
Pcb	192.168.1.3	255.255.255.224	192.168.1.64
Pc1	192.168.1.67	255.255.255.224	192.168.1.96
Pc3	192.168.1.68	255.255.255.224	192.168.1.96

Fuente: Diplomado Cisco

Interface Router Medellin

```
MEDELLIN>en
```

```
Password:
```

```
MEDELLIN#conf ter
```

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

```
MEDELLIN(config)#inter s0/0/0
```

```
%Invalid interface type and number
```

```
MEDELLIN(config)#inter s0
```

```
MEDELLIN(config)#inter
MEDELLIN(config-if)#ip add 192.168.1.99 255.255.255.224
MEDELLIN(config-if)#no shut
```

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

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

```
MEDELLIN(config)#exit
```

```
MEDELLIN#conf ter
```

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

```
MEDELLIN(config)#inter GIGA0/0
```

```
MEDELLIN(config-if)#ip add 192.168.1.33 255.255.255.224
```

```
MEDELLIN(config-if)#no shut
```

```
MEDELLIN(config-if)#
```

%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0,
changed state to up

```
MEDELLIN#
```

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

Building configuration...

[OK]

```
MEDELLIN#
```

Interface Router Bogota

```
Bogota#config ter
```

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

```
Bogota(config)#inter s0/1/0
```

```
Bogota(config-if)#ip add 192.168.1.98 255.255.255.224
```

```
Bogota(config-if)#no shut
```

```
Bogota(config-if)#
```

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

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

```
Bogota(config)#
```

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

```
Bogota(config)#inter s0/1/1
```

```
Bogota(config-if)#ip add 192.168.1.130 255.255.255.224
```

```
Bogota(config-if)#no shut
```

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

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

```
Bogota(config)#inter giga0/0
```

```
Bogota(config-if)#ip add 192.168.1.1 255.255.255.224
Bogota(config-if)#no shut
```

```
Bogota(config-if)#
```

Interface Router Cali

```
CALI>en
```

```
Password:
```

```
CALI#conf ter
```

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

```
CALI(config)#inter s0/1/0
```

```
CALI(config-if)#ip add 192.168.1.131 255.255.255.224
```

```
CALI(config-if)#no shut
```

```
CALI(config-if)#
```

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

```
CALI(config-if)#ext
```

```
^
```

```
% Invalid input detected at '^' marker.
```

```
CALI(config-if)#
```

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

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

```
CALI(config)#inter G0/0
```

```
CALI(config-if)#ip add 192.168.1.55 255.255.255.224
```

```
CALI(config-if)#no shut
```

```
CALI(config-if)#
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
```

```
CALI(config-if)#
```

```
CALI#
```

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

```
Building configuration...
```

```
[OK]
```

b. Después de cargada la configuración en los dispositivos, verificar la tabla de enrutamiento en cada uno de los routers para comprobar las redes y sus rutas.

✓ **Medellin**

```
MEDELLIN>en
```

```
Password:
```

MEDELLIN#sh 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, 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

192.168.1.0 /24 is variably subnetted, 4 subnets, 2 masks
C 192.168.1.32/27 is directly connected, GigabitEthernet0/0
L 192.168.1.33/32 is directly connected, GigabitEthernet0/0
C 192.168.1.96/37 is directly connected, Serial0/0/0
L 192.168.1.99/32 is directly connected, Serial0/0/0

MEDELLIN#

✓ **BOGOTA**

Bogota#sh 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, 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

192.168.1.0 /24 is variably subnetted, 6 subnets, 2 masks
C 192.168.1.0/27 is directly connected, GigabitEthernet0/0
L 192.168.1.1/32 is directly connected, GigabitEthernet0/0
C 192.168.1.96/27 is directly connected, Serial0/0/0
L 192.168.1.98/32 is directly connected, Serial0/0/0
C 192.168.1.128/27 is directly connected, Serial0/0/1
L 192.168.1.130/32 is directly connected, Serial0/0/1

Bogota#

✓ **CALI**

CALI>en

Password:

CALI#sh 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, 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

CALI#

192.168.1.0/24 is variably subnetted, 4 subnets, 2 masks
C 192.168.1.32/27 is directly connected, GigabitEthernet0/0
L 192.168.1.55/32 is directly connected, GigabitEthernet0/0
C 192.168.1.128/27 is directly connected, Serial0/0/1
L 192.168.1.131/32 is directly connected, Serial0/0/1
c. Realizar un diagnóstico de vecinos usando el comando cdp.

```
MEDELLIN MEDELLIN>SH CDP NEIGHBORS
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID Local Infrfce Holdtme Capability Platform Port ID
s_medellin Gig 0/0 156 S 2960 Fas 0/3
s_BOGOTA Ser 0/0/0 156 R C1900 Ser 0/0/0
MEDELLIN>
```

Bogota

```
Bogota#sh cdp neig
Bogota#sh cdp neighbors s_BOGOTA>sh
cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID Local Infrfce Holdtme Capability Platform Port ID
S_BOGOTA Gig 0/0 140 S 2960 Fas 0/1
S_CALI Ser 0/0/1 146 R C1900 Ser 0/0/1
MEDELLIN Ser 0/0/0 150 R C1900 Ser 0/0/0
s_BOGOTA>
```

S_CALI>sh cdp neighbors

```
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID Local Infrfce Holdtme Capability Platform Port ID
S_CALI Gig 0/0 139 S 2960 Fas 0/3 s_BOGOTA
Ser 0/0/1 139 R C1900 Ser 0/0/1
S_CALI>
```

d. Realizar una prueba de conectividad en cada tramo de la ruta usando Ping.
Se realiza ping desde el PC1 Al Servidor
C:\>ping 192.168.1.12

Pinging 192.168.1.12 with 32 bytes of data:

Reply from 192.168.1.12: bytes=32 time=1ms TTL=128
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128
Reply from 192.168.1.12: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.1.12:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>

Se realiza ping desde el PC 2 Al PC1 de la lan 2

C:\>ping 192.168.1.35

Pinging 192.168.1.35 with 32 bytes of data:

Reply from 192.168.1.35: bytes=32 time<1ms TTL=128
Reply from 192.168.1.35: bytes=32 time<1ms TTL=128
Reply from 192.168.1.35: bytes=32 time<1ms TTL=128
Reply from 192.168.1.35: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.35:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>

Se realiza ping desde el PC3 al PC4

C:\>ping 192.168.1.57

Pinging 192.168.1.57 with 32 bytes of data:

Reply from 192.168.1.57: bytes=32 time=9ms TTL=128
Reply from 192.168.1.57: bytes=32 time=1ms TTL=128
Reply from 192.168.1.57: bytes=32 time=6ms TTL=128
Reply from 192.168.1.57: bytes=32 time=14ms TTL=128

Ping statistics for 192.168.1.57:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 14ms, Average = 7ms

C:\>

Parte 3: Configuración de Enrutamiento.

a. Asignar el protocolo de enrutamiento EIGRP a los routers considerando el direccionamiento diseñado.

MEDELLIN

MEDELLIN>en

Password:

MEDELLIN#conf termi

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

MEDELLIN(config)#router eigrp 8

MEDELLIN(config-router)#network 192.168.1.32 0.0.0.31

MEDELLIN(config-router)#network 192.168.1.96 0.0.0.31

MEDELLIN(config-router)#no auto-summary

MEDELLIN(config-router)#exit

MEDELLIN(config)#do write

Building configuration...

[OK]

MEDELLIN(config)#

MEDELLIN#

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

Building configuration...

[OK]

MEDELLIN#

BOGOTA

Bogota>en

Password:

Bogota#conf ter

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

Bogota(config)#router eigrp 8

Bogota(config-router)#network 192.168.1.0 0.0.0.31

Bogota(config-router)#network 192.168.1.96 0.0.0.31

Bogota(config-router)#

%DUAL-5-NBRCHANGE: IP-EIGRP 10: Neighbor 192.168.1.99 (Serial0/1/0) is up:
new adjacency

Bogota(config-router)#network 192.168.1.128 0.0.0.31

Bogota(config-router)#

%DUAL-5-NBRCHANGE: IP-EIGRP 10: Neighbor 192.168.1.131 (Serial0/1/1) is
up:

new adjacency

Bogota(config-router)#no auto-summary


```
Bogota(config-router)#exit
Bogota(config)#do write
Building configuration...
[OK]
Bogota(config)#
Bogota#
```

```
CALI
CALI>en
Password:
CALI#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
CALI(config)#router eigrp 8
CALI(config-router)#network 192.168.1.32 0.0.0.31
CALI(config-router)#network 192.168.1.128 0.0.0.31
CALI(config-router)#no auto-summary
CALI(config-router)#exit
CALI(config)#do write
Building configuration...
[OK]
CALI(config)#exit
CALI#
```

b. Verificar si existe vecindad con los routers configurados con EIGRP.

```
MEDELLIN
MEDELLIN>en
Password:
MEDELLIN#sh ip eigrp neighbors
IP-EIGRP neighbors for process 8
H Address Interface Hold Uptime SRTT RTO Q Seq
(sec) (ms) Cnt Num
0 192.168.1.98 Se0/1/0 12 00:07:30 40 1000 0 4
```

```
MEDELLIN#
```

```
BOGOTA
Bogota#sh ip eigrp neighbors
IP-EIGRP neighbors for process 8
H Address Interface Hold Uptime SRTT RTO Q Seq
(sec) (ms) Cnt Num
0 192.168.1.99 Se0/1/0 12 00:05:11 40 1000 0 5
1 192.168.1.131 Se0/1/1 10 00:03:50 40 1000 0 5
```

```
Bogota#
```

```
Cali
```

```
CALI>en
Password:
CALI#sh ip eigrp neighbors
IP-EIGRP neighbors for process 8
H Address Interface Hold Uptime SRTT RTO Q Seq
(sec) (ms) Cnt Num
0 192.168.1.130 Se0/1/0 11 00:07:45 40 1000 0 6
```

CALI#

c. Realizar la comprobación de las tablas de enrutamiento en cada uno de los routers para verificar cada una de las rutas establecidas.

Medellin:

```
MEDELLIN#sh ip route eigrp
192.168.1.0/24 is variably subnetted, 6 subnets, 2 masks
D 192.168.1.0/27 [90/2170112] via 192.168.1.98, 00:15:03, Serial0/1/0
D 192.168.1.128/27 [90/2681856] via 192.168.1.98, 00:13:41, Serial0/1/0
```

MEDELLIN#

Bogota:

Bogota>en

Password:

```
Bogota#sh ip route eigrp
192.168.1.0/24 is variably subnetted, 7 subnets, 2 masks
D 192.168.1.32/27 [90/2170112] via 192.168.1.99, 00:13:16, Serial0/1/0
[90/2170112] via 192.168.1.131, 00:11:54, Serial0/1/1
```

Bogota#

Cali

```
CALI#sh ip route eigrp
192.168.1.0/24 is variably subnetted, 6 subnets, 2 masks
D 192.168.1.0/27 [90/2170112] via 192.168.1.130, 00:10:53, Serial0/1/0
D 192.168.1.96/27 [90/2681856] via 192.168.1.130, 00:10:53, Serial0/1/0
```

CALI#

d. Realizar un diagnóstico para comprobar que cada uno de los puntos de la red se puedan ver y tengan conectividad entre sí. Realizar esta prueba desde un host de la red LAN del router CALI, primero a la red de MEDELLIN y luego al servidor.

Ping de la LAN Cali (PC4) A LAN Medellin (PC1)

```
C:\>ping 192.168.1.35
```

Pinging 192.168.1.35 with 32 bytes of data:

```
Reply from 192.168.1.35: bytes=32 time=10ms TTL=125
```

```
Reply from 192.168.1.35: bytes=32 time=11ms TTL=125
```

Reply from 192.168.1.35: bytes=32 time=15ms TTL=125
Reply from 192.168.1.35: bytes=32 time=19ms TTL=125

Ping statistics for 192.168.1.35:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:

Minimum = 10ms, Maximum = 19ms, Average = 13ms

C:\>

Ping de la LAN Cali (PC4) A LAN Bogotá (Servidor)

C:\>ping 192.168.1.12

Pinging 192.168.1.12 with 32 bytes of data:

Reply from 192.168.1.12: bytes=32 time=2ms TTL=126

Reply from 192.168.1.12: bytes=32 time=14ms TTL=126

Reply from 192.168.1.12: bytes=32 time=1ms TTL=126

Reply from 192.168.1.12: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.1.12:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 14ms, Average = 4ms

C:\>

Parte 4: Configuración de las listas de Control de Acceso.

En este momento cualquier usuario de la red tiene acceso a todos sus dispositivos y estaciones de trabajo. El jefe de redes le solicita implementar seguridad en la red. Para esta labor se decide configurar listas de control de acceso (ACL) a los routers. Las condiciones para crear las ACL son las siguientes:

- a. Cada router debe estar habilitado para establecer conexiones Telnet con los demás routers y tener acceso a cualquier dispositivo en la red.

```
MEDELLIN
```

```
MEDELLIN >en
```

```
MEDELLIN#config ter
```

```
MEDELLIN(config)#no ip domain-lookup
```

```
MEDELLIN(config-line)#line vty 0 4
```

```
MEDELLIN(config-line)#password cisco
```

```
MEDELLIN(config-line)#login
```

```
MEDELLIN(config-line)#exit
```

```
MEDELLIN(config)#enable secret cisco
```

```
MEDELLIN(config)#service password-encryption
```

```

MEDELLIN(config)#do wr
Building configuration...
[OK]
Bogota(config)#

BOGOTA
Bogota>en
Bogota#config ter
Bogota(config)#no ip domain-lookup
Bogota(config-line)#line vty 0 4
Bogota(config-line)#password cisco
Bogota(config-line)#login
Bogota(config-line)#exit
Bogota(config)#enable secret cisco
Bogota(config)#service password-encryption
Bogota(config)#do wr
Building configuration...
[OK]
Bogota(config)#

CALI
CALIr>en
CALI#config ter
CALI(config)#no ip domain-lookup
CALI(config-line)#line vty 0 4
CALI(config-line)#password cisco
CALI(config-line)#login
CALI(config-line)#exit
CALI(config)#enable secret cisco
CALI(config)#service password-encryption
CALI(config)#do wr
Building configuration...
[OK]
CALI(config)#

```

- b. El equipo WS1 y el servidor se encuentran en la subred de administración. Solo el servidor de la subred de administración debe tener acceso a cualquier otro dispositivo en cualquier parte de la red.

- c. Las estaciones de trabajo en las LAN de MEDELLIN y CALI no deben tener acceso a ningún dispositivo fuera de su subred, excepto para interconectar con el servidor.

LAN Medellin

```
MEDELLIN>en
Password:
MEDELLIN#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
MEDELLIN(config)#acc
MEDELLIN(config)#access-list 2 deny 192.168.1.64 0.0.0.31
MEDELLIN(config)#access-list 2 permit any
MEDELLIN(config)#
MEDELLIN#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
MEDELLIN(config)#inter G0/0
MEDELLIN(config-if)#ip acc
MEDELLIN(config-if)#ip access-group 2 out
MEDELLIN(config-if)#
MEDELLIN #
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
MEDELLIN#sh run
Building configuration...
[OK]
MEDELLIN#
```

```
LAN Cali
CALI>en
Password:
CALI#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
CALI(config)#acc
CALI(config)#access-list 2 deny 192.168.1.32 0.0.0.31
CALI(config)#access-list 2 permit any
CALI(config)#
CALI#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
CALI(config)#inter G0/0
CALI(config-if)#ip acc
CALI(config-if)#ip access-group 2 out
CALI(config-if)#
CALI#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
CALI#sh run
Building configuration...
[OK]
CALI#
```

Ping y telnet de LAN Medellin A router Medellin

- a. Comprobar y Completar la siguiente tabla de condiciones de prueba para confirmar el óptimo funcionamiento de la red e.

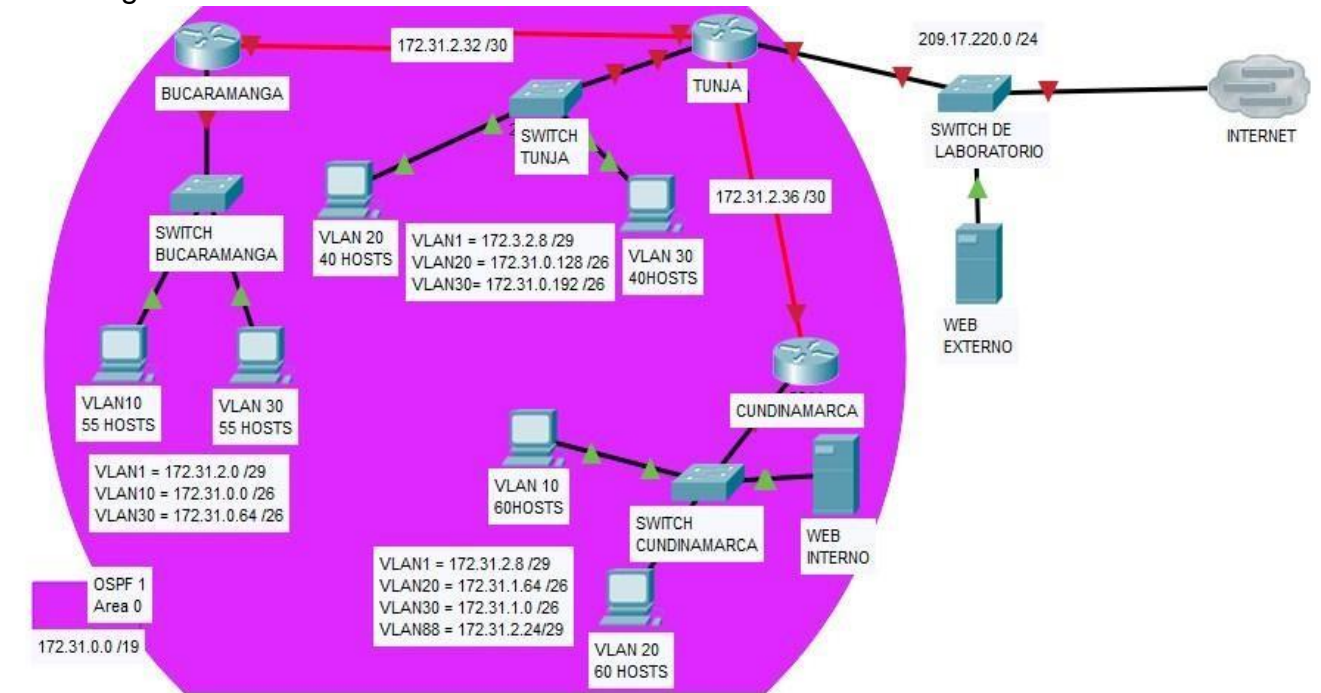
Tabla 4. Direcciones IP 2

	ORIGEN	DESTINO	RESULTADO
TELNET	Router MEDELLIN	Router CALI	EXITOSO
	WS_1	Router BOGOTA	EXITOSO
	Servidor	Router CALI	EXITOSO
	Servidor	Router MEDELLIN	EXITOSO
TELNET	LAN del Router MEDELLIN	Router CALI	EXITOSO
	LAN del Router CALI	Router CALI	EXITOSO
	LAN del Router MEDELLIN	Router MEDELLIN	EXITOSO
	LAN del Router CALI	Router MEDELLIN	EXITOSO
PING	LAN del Router CALI	WS_1	EXITOSO
	LAN del Router MEDELLIN	WS_1	EXITOSO
	LAN del Router MEDELLIN	LAN del Router CALI	EXITOSO
PING	LAN del Router CALI	Servidor	EXITOSO
	LAN del Router MEDELLIN	Servidor	EXITOSO
	Servidor	LAN del Router MEDELLIN	EXITOSO
	Servidor	LAN del Router CALI	EXITOSO
	Router CALI	LAN del Router MEDELLIN	EXITOSO
	Router MEDELLIN	LAN del Router CALI	EXITOSO

Fuente: Diplomado Cisco

5.2 ESCENARIO 2

Imagen 4. Escenario 2



Fuente: Diplomado Cisco topología de red escenario 2

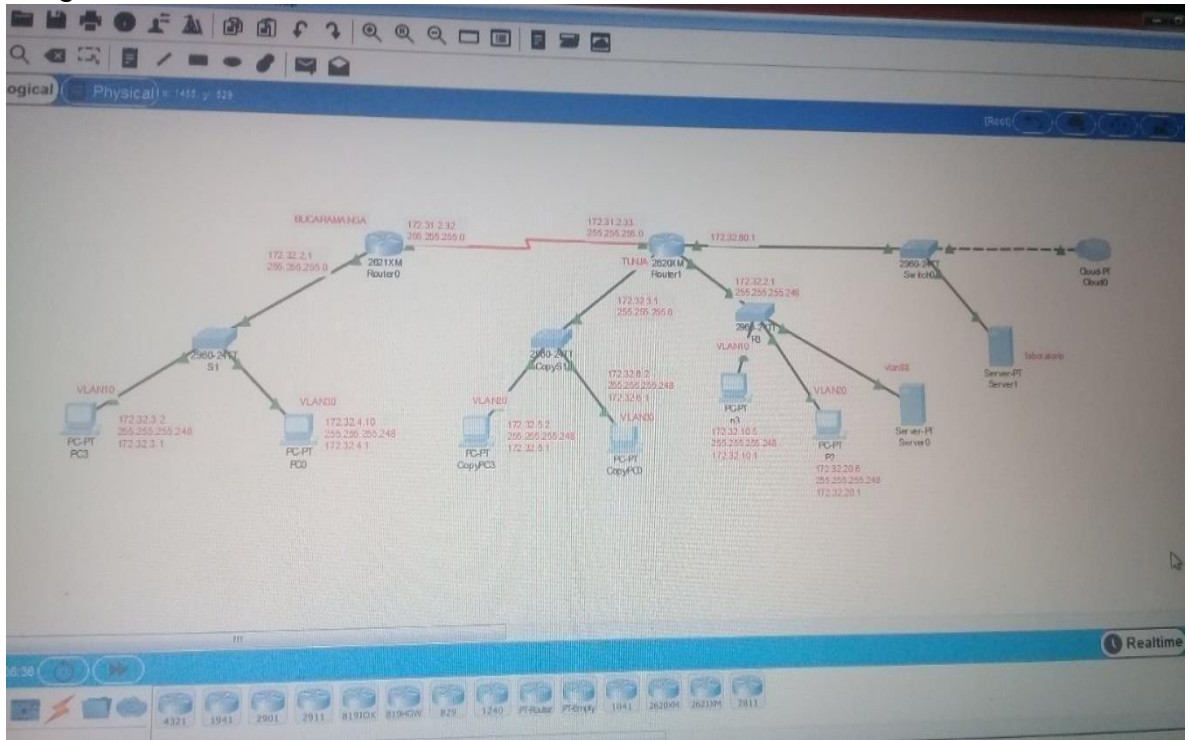
Una empresa tiene la conexión a internet en una red Ethernet, lo cual deben adaptarlo para facilitar que sus routers y las redes que incluyen puedan, por esa vía, conectarse a internet, pero empleando las direcciones de la red LAN original.

Desarrollo

Los siguientes son los requerimientos necesarios:

Parte 1: Todos los routers deberán tener lo siguiente

Imagen 5. Desarrollo Escenario dos



Fuente: topología de red en packet tracer

Configuración básica.

Configuro ip y hostname router Bucaramanga

```
Router>ENABLE
```

```
Router#configure terminal
```

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

```
Router(config)#hostname BUCARAMANGA
```

```
BUCARAMANGA (config)#inter s0/1/0
```

```
BUCARAMANGA (config-if)#ip add 172.31.2.34 255.255.255.252
```

```
BUCARAMANGA (config-if)#no shutdown
```

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

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

```
BUCARAMANGA(config)#inter g0/0
```

```
BUCARAMANGA (config-if)#no shutdown
```

```
BUCARAMANGA(config-if)#
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0,  
changed state to up
```



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

```
BUCARAMANGA #wr
Building configuration...
[OK]
BUCARAMANGA #
```

✓ **Configuro Hostname y IPs Router TUNJA**

```
Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R_TUNJA
R_TUNJA(config)#inter s0/1/0
R_TUNJA(config-if)#ip add 172.31.2.33 255.255.255.252
R_TUNJA(config-if)#no shut
```

```
R_TUNJA(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
```

```
R_TUNJA(config-if)#exit
R_TUNJA(config)#inter s0/1/1
R_TUNJA(config-if)#ip add 172.31.2.37 255.255.255.252
% 172.31.2.36 overlaps with Serial0/1/0
R_TUNJA(config-if)#clock rate 128000
R_TUNJA(config-if)#no shut
R_TUNJA(config-if)#
R_TUNJA#
```

```
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
```

```
R_TUNJA#
R_TUNJA>EN
R_TUNJA#CONF TER
Enter configuration commands, one per line. End with CNTL/Z.
R_TUNJA(config)#inter g0/0
R_TUNJA(config-if)#ip add 209.17.220.5 255.255.255.0
R_TUNJA(config-if)#no shut
```

```
R_TUNJA(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0,
changed state to up
```

```
R_TUNJA(config-if)#exit
R_TUNJA(config)#inter g0/1
R_TUNJA(config-if)#no shu
```

```
R_TUNJA(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to up
```

```
R_TUNJA(config-if)#
R_TUNJA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
R_TUNJA#
```

✓ Configuro Hostname y IPs Router TUNJA

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R_TUNJA
R_TUNJA(config)#inter s0/1/0
R_TUNJA(config-if)#ip add 172.31.2.33 255.255.255.252
R_TUNJA(config-if)#no shut
```

```
R_TUNJA(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
```

```
R_TUNJA(config-if)#exit
R_TUNJA(config)#inter s0/1/1
R_TUNJA(config-if)#ip add 172.31.2.37 255.255.255.252
% 172.31.2.36 overlaps with Serial0/1/0
R_TUNJA(config-if)#clock rate 128000
R_TUNJA(config-if)#no shut
R_TUNJA(config-if)#
R_TUNJA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
R_TUNJA#
R_TUNJA>ENABLE
R_TUNJA#CONF TER
Enter configuration commands, one per line. End with CNTL/Z.
R_TUNJA(config)#inter g0/0
R_TUNJA(config-if)#ip add 209.17.220.5 255.255.255.0
```

```
R_TUNJA(config-if)#no shut
```

```
R_TUNJA(config-if)#
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0,  
changed state to up
```

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

```
R_TUNJA(config)#inter g0/1
```

```
R_TUNJA(config-if)#no shutdown
```

```
R_TUNJA(config-if)#
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,  
changed state to up
```

```
R_TUNJA(config-if)#
```

```
R_TUNJA#
```

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

```
Building configuration...
```

```
[OK]
```

```
R_TUNJA#
```

✓ **Configuro Hostname y IPs Router CUNDINAMARCA**

```
Router>enable
```

```
Router#configure terminal
```

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

```
Router(config)#Hostname R_Cundinamarca
```

```
R_Cundinamarca(config)#inter s0/1/0
```

```
R_Cundinamarca(config-if)#ip add 172.31.2.38 255.255.255.252
```

```
R_Cundinamarca(config-if)#no shut
```

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

```
R_Cundinamarca(config-if)#
```

```
R_Cundinamarca#
```

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

```
Building configuration...
```

```
[OK]
```

```
R_Cundinamarca#
```

```
R_Cundinamarca(config)#inter G0/0
```

```
R_Cundinamarca(config-if)#no shut
```

```
R_Cundinamarca(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0,
changed state to up
```

```
R_Cundinamarca(config-if)#
R_Cundinamarca#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
R_Cundinamarca#
    Activo SSH
Primero Activo SSH y consola Router Tunja
R_TUNJA>enable
R_TUNJA#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_TUNJA(config)#ip domain name escenario.org
R_TUNJA(config)#ip ssh version 2
Please create RSA keys (of at least 768 bits size) to enable SSH v2.
R_TUNJA(config)#crypto key generate rsa
The name for the keys will be: R_TUNJA.escenario.org
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
R_TUNJA(config)#do write
*mar. 1 0:16:59.835: %SSH-5-ENABLED: SSH 2 has been enabled Building
configuration...
[OK]
R_TUNJA(config)#line console 0
R_TUNJA(config-line)#password cisco
R_TUNJA(config-line)#exit
R_TUNJA(config)#service password-encryption
R_TUNJA(config)#enable secret cisco
R_TUNJA(config)#
R_TUNJA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration.
[OK]
R_TUNJA#
```

Tercero Activo SSH Router Bucaramanga

```
BUCARAMANGA>enable
BUCARAMANGA#configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
BUCARAMANGA(config)#ip          domain          name          escenario.org
BUCARAMANGA(config)#ip ssh version 2
Please create RSA keys (of at least 768 bits size) to enable SSH v2.
BUCARAMANGA(config)#crypto key generate rsa
The name for the keys will be: BUCARAMANGA.escenario.org
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.
```

```
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
```

```
BUCARAMANGA(config)#do write
*mar. 1 0:27:53.40: %SSH-5-ENABLED: SSH 2 has been enabled Building
configuration...
[OK]
BUCARAMANGA(config)#
```

Tercero Activo SSH Router Bucaramanga

```
BUCARAMANGA>enable
BUCARAMANGA#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
BUCARAMANGA(config)#ip          domain          name          escenario.org
BUCARAMANGA(config)#ip ssh version 2
Please create RSA keys (of at least 768 bits size) to enable SSH v2.
BUCARAMANGA(config)#crypto key generate rsa
The name for the keys will be: BUCARAMANGA.escenario.org
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take a few
minutes.
```

```
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
```

```
BUCARAMANGA(config)#do wr
*mar. 1 0:27:53.40: %SSH-5-ENABLED: SSH 2 has been enabled Building
configuration...
[OK]
BUCARAMANGA(config)#
```

Tercero Activo SSH Router Bucaramanga

```
BUCARAMANGA>enable
BUCARAMANGA#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.
BUCARAMANGA(config)#ip domain name escenario.org
BUCARAMANGA(config)#ip ssh version 2
Please create RSA keys (of at least 768 bits size) to enable SSH v2.
BUCARAMANGA(config)#crypto key generate rsa
The name for the keys will be: BUCARA.escenario.org
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

BUCARAMANGA(config)#do write
*mar. 1 0:27:53.40: %SSH-5-ENABLED: SSH 2 has been
enabled Building configuration... [OK]
BUCARAMANGA(config)#

✓ Configuro Vlan en Switch y Router

- Router Cundinamarca vlan 20, 30 y

10 R_Cundinamarca>enable Password:
R_Cundinamarca#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_Cundinamarca(config)#inter g0/0
R_Cundinamarca(config-if)#exit
R_Cundinamarca(config)#inter g0/0.20
R_Cundinamarca(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.20,
changed state to up

R_Cundinamarca(config-subif)#encapsulation dot1Q 20
R_Cundinamarca(config-subif)#ip add 172.31.1.65 255.255.255.192
R_Cundinamarca(config-subif)#exit
R_Cundinamarca(config)#inter g0/0.30
R_Cundinamarca(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.30, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.30,
changed state to up

R_Cundinamarca(config-subif)#encapsulation dot1Q 30
R_Cundinamarca(config-subif)#ip add 172.31.1.1 255.255.255.192
R_Cundinamarca(config-subif)#exit
R_Cundinamarca(config)#inter g0/0.88

```

R_Cundinamarca(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.88, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.88,
changed state to up

R_Cundinamarca(config-subif)#encapsulation dot1Q 88
R_Cundinamarca(config-subif)#ip add 172.31.2.25 255.255.255.248
R_Cundinamarca(config-subif)#exit
R_Cundinamarca(config)#inter g0/0.1
R_Cundinamarca(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.1,
changed state to up

R_Cundinamarca(config-subif)#encapsulation dot1Q 1
R_Cundinamarca(config-subif)#ip add 172.31.2.9 255.255.255.248
R_Cundinamarca(config-subif)#exit
R_Cundinamarca(config)#
R_Cundinamarca#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
R_Cundinamarca#

```

- Router Tunja vlan 20, 30 y 10

```

R_TUNJA>enable Password:
R_TUNJA#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_TUNJA(config)#inter g0/1.20
R_TUNJA(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.20,
changed state to up

R_TUNJA(config-subif)#encapsulation dot1Q 20
R_TUNJA(config-subif)#ip add 172.31.0.129 255.255.255.192
R_TUNJA(config-subif)#exit
R_TUNJA(config)#inter g0/1.30
R_TUNJA(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1.30, changed state to up

```

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.30,
changed state to up

```
R_TUNJA(config-subif)#encapsulation dot1Q 30
R_TUNJA(config-subif)#ip add 172.31.0.193 255.255.255.192
R_TUNJA(config-subif)#exit
R_TUNJA(config)#inter g0/1.1
R_TUNJA(config-subif)#
```

%LINK-5-CHANGED: Interface GigabitEthernet0/1.1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.1,
changed state to up

```
R_TUNJA(config-subif)#encapsulation dot1Q 1
R_TUNJA(config-subif)#ip add 172.31.2.9 255.255.255.248
R_TUNJA(config-subif)#exit
R_TUNJA(config)#
R_TUNJA#
```

%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...

[OK]

R_TUNJA#

```
R_TUNJA#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
```

```
R_TUNJA(config)#inter g0/1
R_TUNJA(config-if)#ip add 172.3.2.9 255.255.255.248
R_TUNJA(config-if)#no shut
R_TUNJA(config-if)#exit
R_TUNJA(config)#
R_TUNJA#
```

%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...

[OK]

Router Bucaramanga vlan 10, 30 y 1

BUCARAMANGA>enable

Password:

BUCARAMANGA#configure terminal

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

```
BUCARAMANGA(config)#inter g0/0
BUCARAMANGA(config-if)#no shut
BUCARAMANGA(config-if)#exit
BUCARAMANGA(config)#inter g0/0.10
BUCARAMANGA(config-subif)#
```


%LINK-5-CHANGED: Interface GigabitEthernet0/0.10, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.10,
changed state to up

```
BUCARAMANGA(config-subif)#enca  
BUCARAMANGA(config-subif)#encapsulation dot1Q 10  
BUCARAMANGA(config-subif)#ip add 172.31.0.1 255.255.255.192  
BUCARAMANGA(config-subif)#exit  
BUCARAMANGA(config)#inter g0/0.30  
BUCARAMANGA(config-subif)#  
%LINK-5-CHANGED: Interface GigabitEthernet0/0.30, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.30,
changed state to up

```
BUCARAMANGA(config-subif)#encapsulation dot1Q 30  
BUCARAMANGA(config-subif)#ip add 172.31.0.65 255.255.255.192  
BUCARAMANGA(config-subif)#exit  
BUCARAMANGA(config)#inter g0/0.1  
BUCARAMANGA(config-subif)#  
%LINK-5-CHANGED: Interface GigabitEthernet0/0.1, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.1,
changed state to up

```
BUCARAMANGA(config-subif)#encapsulation dot1Q 1  
BUCARAMANGA(config-subif)#ip add 172.31.2.1 255.255.255.248  
BUCARAMANGA(config-subif)#exit  
BUCARAMANGA(config)#  
BUCARAMANGA#  
%SYS-5-CONFIG_I: Configured from console by console wr  
Building configuration...  
[OK]  
BUCARAMANGA#
```

**- SWITCH CUNDINAMARCA Activo VLAN´s y asigno puertos Vlan 10, 20
y 88**

```
Sw--Cundinamarca#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Sw--Cundinamarca(config)#vlan 88  
Sw--Cundinamarca (config-vlan)#name vlan88  
Sw--Cundinamarca(config-vlan)#exit  
Sw--Cundinamarca(config)#inter f0/1  
Sw--Cundinamarca(config-if)#switchport mode access
```

```

Sw--Cundinamarca(config-if)#switchport access vlan 88
Sw--Cundinamarca(config-if)#exit
Sw--Cundinamarca(config)#vlan 10
Sw--Cundinamarca(config-vlan)#name vlan10
Sw--Cundinamarca(config-vlan)#exit
Sw--Cundinamarca(config)#vlan 20
Sw--Cundinamarca (config-vlan)#name vlan20
Sw--Cundinamarca(config-vlan)#exit
Sw--Cundinamarca(config)#interface range f0/2 - 15
Sw--Cundinamarca(config-if-range)#switchport mode access
Sw--Cundinamarca(config-if-range)#switchport access vlan 10
Sw--Cundinamarca(config-if-range)#no shut
Sw--Cundinamarca(config-if-range)#exit
Sw--Cundinamarca(config)#interface range f0/16 - 22
Sw--Cundinamarca(config-if-range)#switchport mode access
Sw--Cundinamarca(config-if-range)#switchport access vlan 20
Sw--Cundinamarca(config-if-range)#no shutdown
Sw--Cundinamarca(config-if-range)#exit
Sw--Cundinamarca(config)#inter g0/1
Sw--Cundinamarca(config-if)#switchport mode trunk
Sw--Cundinamarca(config-if)#no shutdown
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to up
SW-Cund(config-if)#exit
Sw--Cundinamarca(config)#
Sw--Cundinamarca#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
Switch#

```

SWITCH TUNJA Activo VLAN's y asigno puertos Vlan 20, 30

```

Sw--Tunja>enable Password:
Sw--Tunja#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Sw--Tunja(config)#vlan 20
Sw--Tunja(config-vlan)#name vlan20
Sw--Tunja(config-vlan)#exit
Sw--Tunja(config)#vlan 30
Sw--Tunja(config-vlan)#name vlan30
Sw--Tunja(config-vlan)#exit
Sw--Tunja(config)#inter range f0/1 -12
Sw--Tunja(config-if-range)#switchport mode access
Sw--Tunja(config-if-range)#switchport access vlan 20

```

```

Sw--Tunja(config-if-range)#no shutdown
Sw--Tunja(config-if-range)#exit
Sw--Tunja(config)#inter range f0/13 - 24
Sw--Tunja(config-if-range)#switchport mode access
Sw--Tunja(config-if-range)#switchport access vlan 30
Sw--Tunja(config-if-range)#no shutdown
Sw--Tunja(config-if-range)#exit
Sw--Tunja(config)#inter g0/1
Sw--Tunja(config-if)#switchport mode trunk
Sw--Tunja(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,
changed state to up

Sw--Tunja(config-if)#exit
Sw--Tunja(config)#
%SYS-5-CONFIG_: Configured from console by console wr
Building configuration...
[OK]
Sw--Tunja#

```

SWITCH Bucaramanga Activo VLAN's y asigno puertos Vlan 10, 30

```

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname Sw--BUCARAMANGA
Sw--BUCARAMANGA(config)#vlan 10
Sw--BUCARAMANGA(config-vlan)#name vlan10
Sw--BUCARAMANGA(config-vlan)#exit
Sw--BUCARAMANGA(config)#vlan 30
Sw--BUCARAMANGA(config-vlan)#name vlan30
Sw--BUCARAMANGA(config-vlan)#exit
Sw--BUCARAMANGA(config)#inter range f0/1 - 12
Sw--BUCARAMANGA(config-if-range)#switchport mode access
Sw--BUCARAMANGA(config-if-range)#switchport access vlan 10
Sw--BUCARAMANGA(config-if-range)#no shutdown
Sw--BUCARAMANGA(config-if-range)#exit
Sw--BUCARAMANGA(config)#inter range f0/13 - 24
Sw--BUCARAMANGA(config-if-range)#switchport mode access
Sw--BUCARAMANGA(config-if-range)#switchport access vlan 30
Sw--BUCARAMANGA(config-if-range)#no shutdown
Sw--BUCARAMANGA(config-if-range)#exit
Sw--BUCARAMANGA(config)#inter g0/1

```

```
Sw--BUCARAMANGA(config-if)#switchport mode trunk
Sw--BUCARAMANGA(config-if)#exit
Sw--BUCARAMANGA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
Sw--BUCARAMANGA#
```

Autenticación local con AAA.

Logear usuarios

Usuario Clave cisco Cisco

Cisco1

Cisco1

- **Configuro Router Cundinamarca**

```
R_Cundinamarca>enable
R_Cundinamarca#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_Cundinamarca(config)#ip domain name escenario.org
R_Cundinamarca(config)#ip ssh version 2
Please create RSA keys (of at least 768 bits size) to enable SSH v2.
R_Cundinamarca(config)#crypto key generate rsa
The name for the keys will be: R_Cund.escenario.org
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take a
few minutes.
```

```
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
```

```
R_Cundinamarca(config)#do write
*mar. 1 0:23:36.211: %SSH-5-ENABLED: SSH 2 has been enabled Building
configuration...
[OK]
R_Cundinamarca(config)#aaa new-model
R_Cundinamarca(config)#aaa authentication login Cisco group radius local enable
R_Cundinamarca(config)# radius-server host 172.31.2.2 key 0123456789
R_Cundinamarca(config)#line vty 0 4
R_Cundinamarca(config-line)#transport input ssh
R_Cundinamarca(config-line)#login authentication cisco
R_Cundinamarca(config)#username cisco secret cisco
R_Cundinamarca(config)#username cisco1 secret cisco1
R_Cundinamarca(config)#line console 0
R_Cundinamarca(config-line)#password cisco
```

```

R_Cundinamarca(config-line)#exit
R_Cundinamarca(config)#service password-encryption
R_Cundinamarca(config)#enable secret cisco
R_Cundinamarca(config)#do write
R_Cundinamarca(config)#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration.
[OK]
R_Cundinamarca#

```

CONFIGURANDO SERVIDOR WWW

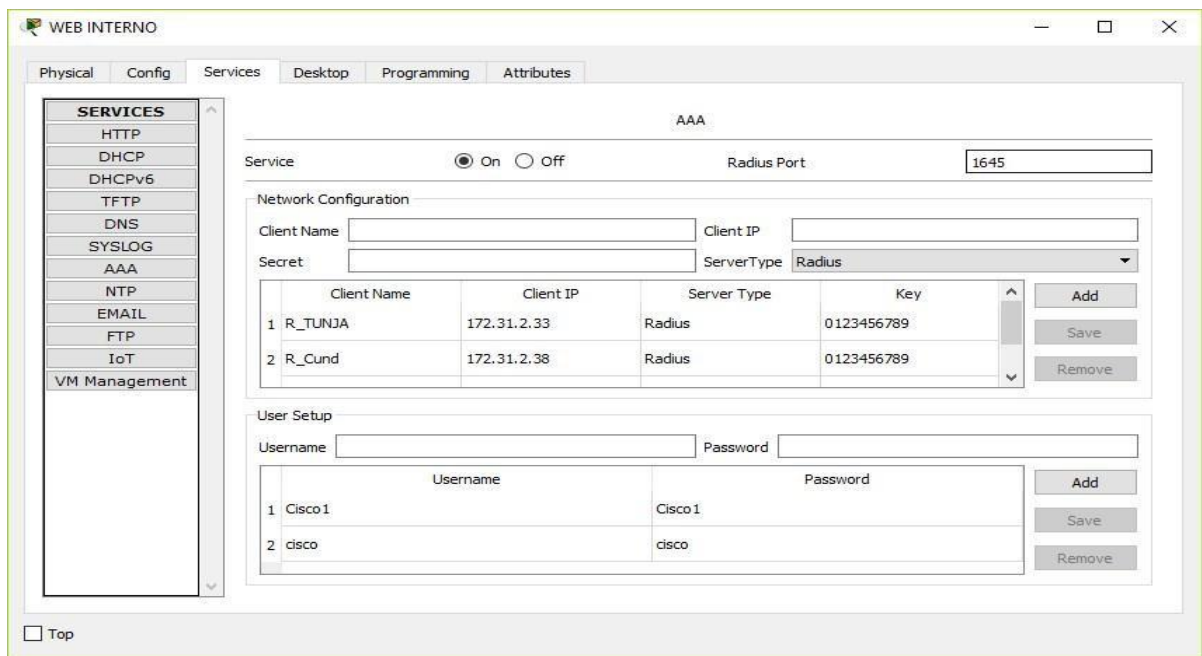


Figura 10 configuracion web interno

Cifrado de contraseñas.

Configuro todos los dispositivos

- Router Cundinamarca

```

R_Cundinamarca#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_Cundinamarca(config)#service password-encryption
R_Cundinamarca(config)#enable secret cisco
R_Cundinamarca(config)#exit

```

R_Cundinamarca#
- **Router TUNJA**

R_TUNJA#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_TUNJA(config)#service password-encryption
R_TUNJA(config)#enable secret cisco
R_TUNJA(config)#exit
R_TUNJA#

- **Router BUCARAMANGA**

BUCARAMANGA#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
BUCARAMANGA(config)#service password-encryption
BUCARAMANGA(config)#enable secret cisco
BUCARAMANGA(config)#exit
BUCARAMANGA#

- **Switch Cundinamarca**

Sw--Cundinamarca (config)#line console 0
Sw--Cundinamarca(config-line)#password cisco
Sw--Cundinamarca(config-line)#exit
Sw--Cundinamarca(config)#service password-encryption
Sw--Cundinamarca(config)#enable secret cisco
Sw--Cundinamarca (config)#
Sw--Cundinamarca#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]

Sw--Cundinamarca#
- **Switch Tunja**

SW-Tunja(config)#line console 0
SW-Tunja(config-line)#password cisco SW-Tunja(config-line)#exit
SW-Tunja(config)#service password-encryption
SW-Tunja(config)#enable secret cisco
SW-Tunja(config)#
SW-Tunja#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]

SW-Tunja#

- **Switch Cundinamarca**

Sw--BUCARAMANGA(config)#line console 0
Sw--BUCARAMANGA(config-line)#password cisco
Sw--BUCARAMANGA(config-line)#login
Sw--BUCARAMANGA(config-line)#exit

```
Sw--BUCARAMANGA(config)#service password-encryption
Sw--BUCARAMANGA(config)#enable secret cisco
Sw-- BUCARAMANGA(config)#
Sw--BUCARAMANGA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
```

- **Router Cundinamarca**

```
R_Cundinamarca(config)#ip ssh authentication-retries 3
R_Cundinamarca(config)#ip ssh time-out 60
R_Cundinamarca(config)#
R_Cundinamarca#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
```

```
R_Cundinamarca#
```

- **Router Tunja**

```
R_TUNJA(config)#ip ssh authentication-retries 3
R_TUNJA(config)#ip ssh time-out 60
R_TUNJA(config)#
R_TUNJA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
```

- **Router Bucaramanga**

```
BUCARAMANGA(config)#ip ssh authentication-retries 3
BUCARAMANGA(config)#ip ssh time-out 60
BUCARAMANGA(config)#
BUCARAMANGA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
BUCARAMANGA#
```

- **Establezca un servidor TFTP y almacene todos los archivos necesarios de los routers.**
- **Configuro router de Cundinamarca**

```
R_Cundinamarca>enable
Password:
R_Cundinamarca#copy running-config tftp
Address or name of remote host []? 172.31.2.26
Destination filename [R_Cund-config]? Backup_R_Cund
```

Writing running-config.....

```
R_Cundinamarca#copy flas tftp
Source filename []? c1900-universalk9-mz.SPA.151-1.M4.bin
Address or name of remote host []? 172.31.2.26
Destination filename [c1900-universalk9-mz.SPA.151-1.M4.bin]?
Backup_c1900universalk9-mz.SPA.151-1.M4.bin
```

R_Cundinamarca#

- **Configuro router de TUNJA**

```
R_TUNJA#copy running-config tftp
Address or name of remote host []? 172.31.2.26
Destination filename [R_TUNJA-config]? Backup_R_Tunja
```

Writing running-config.....

```
R_TUNJA#copy flas tftp
Source filename []? c1900-universalk9-mz.SPA
Address or name of remote host []? 172.31.2.26
Destination filename [c1900-universalk9-mz.SPA]?      Bakup_c1900-
universalk9mz.SPA
```

- **Configuro router de BUCARAMANGA**

```
BUCARAMANGA#copy running-config tftp
Address or name of remote host []? 172.31.2.26
Destination filename [BUCARA-config]? Backup_R_Bucar
```

Writing running-config....

```
R_TUNJA#copy flas tftp
Source filename []? c1900-universalk9-mz.SPA
Address or name of remote host []? 172.31.2.26
Destination filename [c1900-universalk9-mz.SPA]?      Bakup_c1900-
universalk9mz.SPA
```

Parte 2: El DHCP deberá proporcionar solo direcciones a los hosts de Bucaramanga y Cundinamarca.

- **Configuro router de Cundinamarca para DHCP**

```
R_Cundinamarca#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R_Cundinamarca(config)#ip dhcp pool vlan20
R_Cundinamarca(dhcp-config)#network 172.31.1.64 255.255.255.192
```



```

R_Cundinamarca(dhcp-config)#dns-server 8.8.8.8
R_Cundinamarca(dhcp-config)#default-router 172.31.1.65
R_Cundinamarca(dhcp-config)#exit
R_Cundinamarca(config)#ip dhcp excluded-address 172.31.1.65
R_Cundinamarca(config)#ip dhcp pool vlan30
R_Cundinamarca(dhcp-config)#network 172.31.0.192 255.255.255.192
R_Cundinamarca(dhcp-config)#dns-server 172.31.0.193
R_Cundinamarca(dhcp-config)#exit
R_Cundinamarca(config)#ip dhcp excluded-address 172.31.0.193
R_Cundinamarca(config)#ip dhcp pool vlan30
R_Cundinamarca(dhcp-config)#network 172.31.1.0 255.255.255.192
R_Cundinamarca(dhcp-config)#dns-server 8.8.8.8
R_Cundinamarca(dhcp-config)#default-router 172.31.1.1
R_Cundinamarca(dhcp-config)#exit
R_Cundinamarca(config)#ip dhcp excluded-address 172.31.1.1
R_Cundinamarca(config)#
R_Cund#
%SYS-5-CONFIG_I: Configured from console by console

R_Cundinamarca#wr
Building configuration...
[OK]
R_Cundinamarca#%DHCPD-4-PING_CONFLICT: DHCP address conflict: server
pinged 172.31.1.65.
%DHCPD-4-PING_CONFLICT: DHCP address conflict: server pinged 172.31.1.65.
R_Cundinamarca#
%SYS-5-CONFIG_I: Configured from console by console
R_Cundinamarca#

```

Configuro router de Bucaramanga para DHCP

```

BUCARAMANGA#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
BUCARAMANGA(config)#ip dhcp pool vlan10
BUCARAMANGA(dhcp-config)#network 172.31.0.0 255.255.255.192
BUCARAMANGA(dhcp-config)#dns-server 8.8.8.8
BUCARAMANGA(dhcp-config)#default-router 172.31.0.1
BUCARAMANGA(dhcp-config)#exit
BUCARAMANGA(config)#ip dhcp excluded-address 172.31.0.1
BUCARAMANGA(config)#ip dhcp pool vlan30
BUCARAMANGA(dhcp-config)#network 172.31.0.64 255.255.255.192
BUCARAMANGA(dhcp-config)#dns-server 8.8.8.8
BUCARAMANGA(dhcp-config)#default-router 172.31.0.65

```

```
BUCARAMANGA(dhcp-config)#exit
BUCARAMANGA(config)#ip dhcp excluded-address 172.31.0.65
BUCARAMANGA(config)#
```

```
BUCARAMANGA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
BUCARAMANGA#
```

Parte: 3 El web server deberá tener NAT estático y el resto de los equipos de la topología emplearan NAT de sobrecarga (PAT).

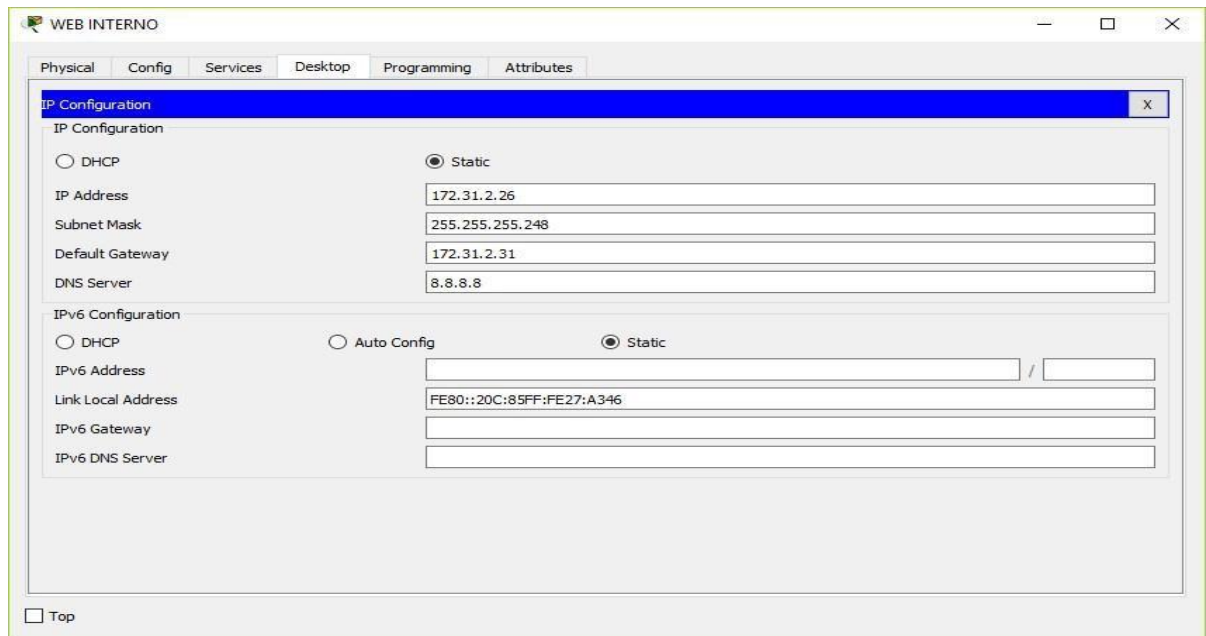


FIGURA 11web interno

Parte 4: El enrutamiento deberá tener autenticación.

- **Configuro OSPF de Cundinamarca**

```
R_Cundinamarca#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
R_Cundinamarca(config)#router ospf 1
R_Cundinamarca(config-router)#network 172.31.2.36 0.0.0.3 area 0
R_Cundinamarca(config-router)#network 172.31.2.0 0.0.0.3 area 0
R_Cundinamarca(config-router)#network 172.31.2.24 0.0.0.7 area 0
R_Cundinamarca(config-router)#network 172.31.1.0 0.0.0.63 area 0
R_Cundinamarca(config-router)#network 172.31.1.64 0.0.0.63 area 0
R_Cundinamarca(config-router)#network 172.3.2.8 0.0.0.7 area 0
```

R_Cundinamarca(config-router)#

03:38:00: %OSPF-5-ADJCHG: Process 1, Nbr 209.17.220.5 on Serial0/1/0 from
LOADING to FULL, Loading Done

R_Cundinamarca(config-router)#network 172.31.2.8 0.0.0.3 area 0

R_Cundinamarca(config-router)#exit

R_Cundinamarca(config)#inter s0/1/0

R_Cundinamarca(config-if)#ip ospf message-digest-key 1 md5 cisco

R_Cundinamarca(config-if)#ip ospf authentication message-digest

R_Cundinamarca(config-if)#exit

R_Cundinamarca(config)#exit

R_Cundinamarca#wr

R_Cundinamarca#

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

Building configuration...

[OK]

R_Cundinamarca#

Configuro OSPF de TUNJA

R_TUNJA#conf ter

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

R_TUNJA(config)#router ospf 1

R_TUNJA(config-router)#network 172.31.0.0 0.0.0.3 area 0

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

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

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface router ospf 1

R_TUNJA(config-router)#network 172.31.2.0 0.0.0.3 area 0

R_TUNJA(config-router)#network 172.31.2.32 0.0.0.3 area 0

R_TUNJA(config-router)#network 172.31.2.36 0.0.0.3 area 0

R_TUNJA(config-router)#network 209.17.220.5 0.0.0.255 area 0

R_TUNJA(config-router)#network 172.31.0.128 0.0.0.63 area 0

R_TUNJA(config-router)#network 172.31.0.192 0.0.0.63 area 0

R_TUNJA(config-router)#network 172.3.2.8 0.0.0.7 area 0

```
R_TUNJA(config-router)#
03:36:36: %OSPF-5-ADJCHG: Process 1, Nbr 172.31.2.34 on Serial0/1/0 from
LOADING to FULL, Loading Done
```

```
R_TUNJA(config-router)#exit
R_TUNJA(config)#inter s0/1/0
R_TUNJA(config-if)#ip ospf message-digest-key 1 md5 cisco
R_TUNJA(config-if)#ip ospf authentication message-digest
R_TUNJA(config-if)#exit
R_TUNJA(config)#inter s0/1/1
R_TUNJA(config-if)#ip ospf message-digest-key 1 md5 cisco
R_TUNJA(config-if)#ip ospf authentication message-digest
R_TUNJA(config-if)#do write
R_TUNJA#wr
Building configuration...
[OK]
```

- **Configuro OSPF de Bucaramanga**

```
BUCARAMANGA#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
BUCARAMANGA(config)#router ospf 1
BUCARAMANGA(config-router)#network 172.31.0.0 0.0.0.3 area 0
BUCARAMANGA(config-router)#network 172.31.2.0 0.0.0.3 area 0
BUCARAMANGA(config-router)#network 172.31.2.32 0.0.0.3 area 0
BUCARAMANGA(config-router)#network 172.31.2.0 0.0.0.7 area 0
BUCARAMANGA(config-router)#network 172.31.0.0 0.0.0.63 area 0
BUCARAMANGA(config-router)#network 172.31.0.64 0.0.0.63 area 0
BUCARAMANGA(config-router)#exit
BUCARAMANGA(config)#inter s0/1/0
BUCARAMANGA(config-if)#ip ospf message-digest-key 1 md5 cisco
BUCARAMANGA(config-if)#ip ospf authentication message-digest
BUCARAMANGA(config-if)#exit
```

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```
BUCARAMANGA(config)#
BUCARAMANGA#
%SYS-5-CONFIG_I: Configured from console by console wr
Building configuration...
[OK]
BUCARAMANGA#
```

Parte 5: Listas de control de acceso:

-Los hosts de VLAN 20 en Cundinamarca no acceden a internet, solo a la red interna de Tunja.

- Configuro Router Cundinamarca

```
R_Cundinamarca(config)#access-list 100 deny ip 172.31.1.64 0.0.0.63 172.31.2.24  
0.0.0.7
```

```
R_Cundinamarca(config)#access-list 100 permit ip any 172.31.2.8 0.0.0.7
```

```
R_Cundinamarca(config)#
```

```
R_Cundinamarca#conf ter
```

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

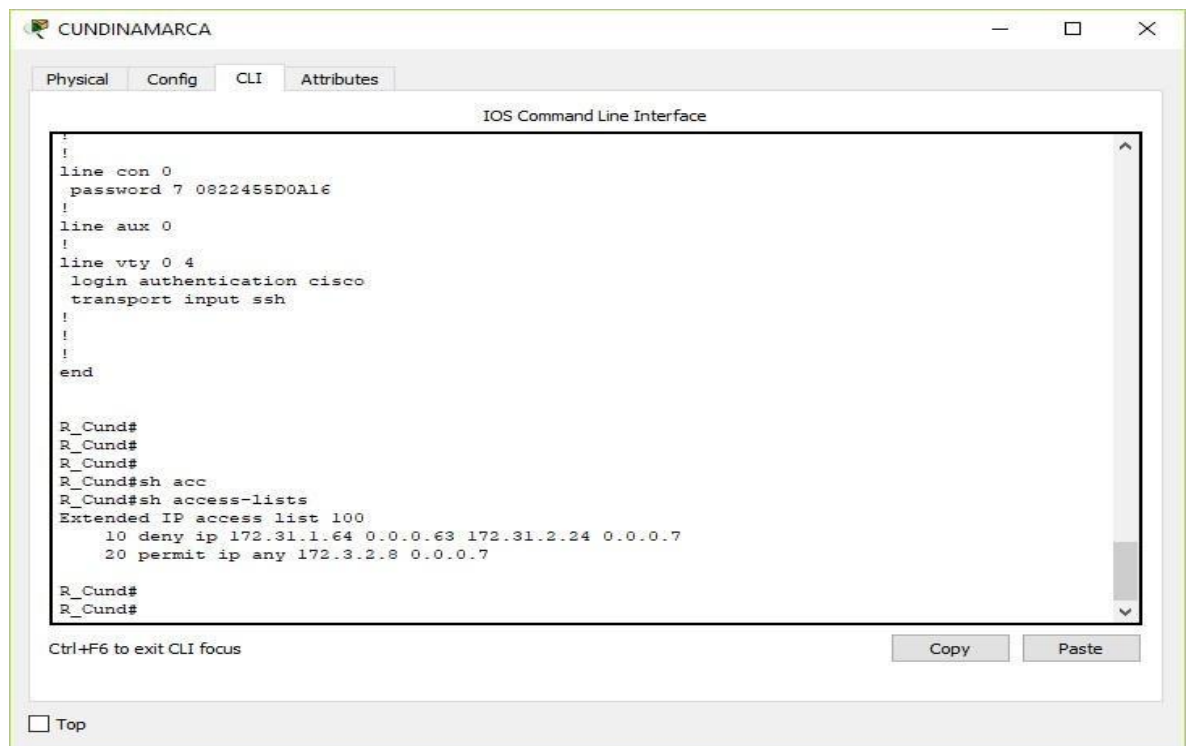
```
R_Cundinamarca(config)#inter g0/0.20
```

```
R_Cundinamarca(config-subif)#
```

% Unknown command or computer name, or unable to find computer address

```
R_Cundinamarca(config-subif)#ip access-group 100 in
```

```
R_Cundinamarca(config-subif)#
```



```
CUNDINAMARCA
Physical Config CLI Attributes
IOS Command Line Interface
!
!
line con 0
  password 7 0822465D0A16
!
!
line aux 0
!
!
line vty 0 4
  login authentication cisco
  transport input ssh
!
!
!
end

R_Cund#
R_Cund#
R_Cund#
R_Cund#sh acc
R_Cund#sh access-lists
Extended IP access list 100
  10 deny ip 172.31.1.64 0.0.0.63 172.31.2.24 0.0.0.7
  20 permit ip any 172.3.2.8 0.0.0.7

R_Cund#
R_Cund#
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

CUNDINAMARCA

Physical Config CLI Attributes

IOS Command Line Interface

```
User Access Verification
Password:
Password:

R_Cund>en
Password:
R_Cund#sh acc
R_Cund#sh access-lists
Extended IP access list 101
 10 deny ip 172.31.1.0 0.0.0.63 172.31.2.8 0.0.0.7
 20 permit ip any 172.31.2.24 0.0.0.7 (1426 match(es))
Extended IP access list 100
 10 deny ip 172.31.1.64 0.0.0.63 172.31.2.24 0.0.0.7 (41
match(es))
 20 permit ip any 172.31.2.8 0.0.0.7

R_Cund#
```

Ctrl+F6 to exit CLI focus

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Top

6. CONCLUSIONES

- ✓ Se configuró la topología de la red con routing OSPFv2, se cambió las asignaciones de ID de router, se configuro interfaces pasivas, se ajustó las métricas de OSPF y se utilizó varios comandos de CLI para ver y verificar la información de routing OSPF.
- ✓ OSPF es un protocolo de enrutamiento sin clase que utiliza el concepto de áreas para realizar la escalabilidad
- ✓ Los routers conectan una red a otra red. El router es responsable de la entrega de paquetes a través de distintas redes.

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