



EVALUACIÓN

PRUEBA DE HABILIDADES PRÁCTICAS CCNA

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Diplomado de profundización Cisco
(diseño e implementación de soluciones integradas Lan / Wan)
Código: 203092A_471
Grupo: 37

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Mayo 2018

CONTENIDO

1. Introducción.
2. Configurar el direccionamiento IP acorde con la topología de red para cada uno de los dispositivos que forman parte del escenario
3. Configurar el protocolo de enrutamiento OSPFv2 bajo los siguientes criterios:
 - ✓ Tabla OSPFv2 area 0
 - ✓ Verificar información de OSPF
4. Configurar VLANs, Puertos troncales, puertos de acceso, encapsulamiento, Inter-VLAN Routing y Seguridad en los Switches acorde a la topología de red establecida.
 - ✓ En el Switch 3 deshabilitar DNS lookup
 - ✓ Asignar direcciones IP a los Switches acorde a los lineamientos.
 - ✓ Desactivar todas las interfaces que no sean utilizadas en el esquema de red.
5. Implement DHCP & NAT for IPv4
 - ✓ Configurar R1 como servidor DHCP para las VLANs 30 y 40.
 - ✓ Reservar las primeras 30 direcciones IP de las VLAN 30 y 40 para configuraciones estáticas.
 - ✓ Tabla DHCP
 - ✓ Configurar NAT en R2 para permitir que los host puedan salir a internet
 - ✓ Verificar el protocolo DHCP y la NAT estática.
6. Configurar y verificar las listas de control de acceso (ACL).
 - ✓ Configurar al menos dos listas de acceso de tipo estándar a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.
 - ✓ Configurar al menos dos listas de acceso de tipo extendido o nombradas a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.
7. Conclusiones
8. Bibliografía

INTRODUCCION

Las redes de datos que usamos en nuestras vidas cotidianas para aprender, jugar y trabajar, varían desde pequeñas LAN hasta interconexiones globales, un usuario puede tener un router conectado a dos o más equipos. En el trabajo, una organización probablemente tenga varios routers o switches para atender las necesidades de comunicación de datos de cientos o hasta miles de computadoras. Los routers reenvían paquetes mediante el uso de la información de la tabla de routing, pueden descubrir las rutas hacia las redes remotas de dos maneras: de forma estática y de forma dinámica. En una red compleja con muchas redes y subredes, la configuración y el mantenimiento de rutas estáticas entre dichas redes conllevan una sobrecarga administrativa y operativa. Esta sobrecarga administrativa es especialmente tediosa cuando se producen cambios en la red, como un enlace fuera de servicio o la implementación de una nueva subred. Desarrollar protocolos de routing dinámico puede aliviar la carga de las tareas de configuración y de mantenimiento, además de proporcionar escalabilidad a la red. Por tanto, los protocolos de routing dinámico, se exploran los beneficios de utilizar esta clase de protocolos, la forma en que se clasifican los distintos protocolos de routing y sus métricas utilizadas para determinar la mejor ruta de tráfico para red. Entre otros temas que se tratarán a lo largo del desarrollo de las prácticas propuestas e implementadas, se encuentran las características de los protocolos de routing dinámico y la forma en que se diferencian.

Los profesionales en telecomunicaciones deben comprender cuáles son los diferentes protocolos de routing disponibles, a fin de decidir fundamentamente cuándo utilizar routing dinámico o estático. También necesitan saber cuál es el protocolo de routing dinámico más adecuado en un entorno de red determinado.

De este modo, en el desarrollo del presente informe trataremos los temas implementados en la segunda parte del curso de certificación de CISCO CP CCNA2 II, en cuanto a los Principios básicos de routing y switching se refiere. Esto, detallado en una compilación de 11 prácticas que permitieron poder adquirir las habilidades necesarias para implementar soluciones a esta evaluación.

Tratando temas fundamentales en nuestro estudio como lo son: Capítulo 7: Routing dinámico; Capítulo 8: OSPF de área única; Capítulo 9: Listas de control de acceso; Capítulo 10: DHCP; Capítulo 11: Traducción de direcciones de red para IPv4.

En las cuales empezaremos con el análisis de una topología propuesta, teniendo en cuenta los objetivos propuestos, como la lectura y comprensión de la situación que se presenta para posteriormente dar una adecuada solución a los interrogantes propuestos y a la implementación o verificación del montaje de la red según esto lo requiera.

Finalmente se concluirá en la práctica de acuerdo con los objetivos planteados y los conocimientos adquiridos en el desarrollo de la misma.

De esta manera, se desarrollará el informe de evaluación de habilidades prácticas presentado al tutor encargado del proceso del curso de certificación, como constancia de la implementación de los conocimientos adquiridos a lo largo del estudio del material que ha brindado la universidad y la plataforma de CISCO.

OBJETIVOS

Objetivo General

- Desarrollar destreza y conocimientos relacionados a la construcción y protección de la Redes LAN / WAN.

Objetivos Específicos

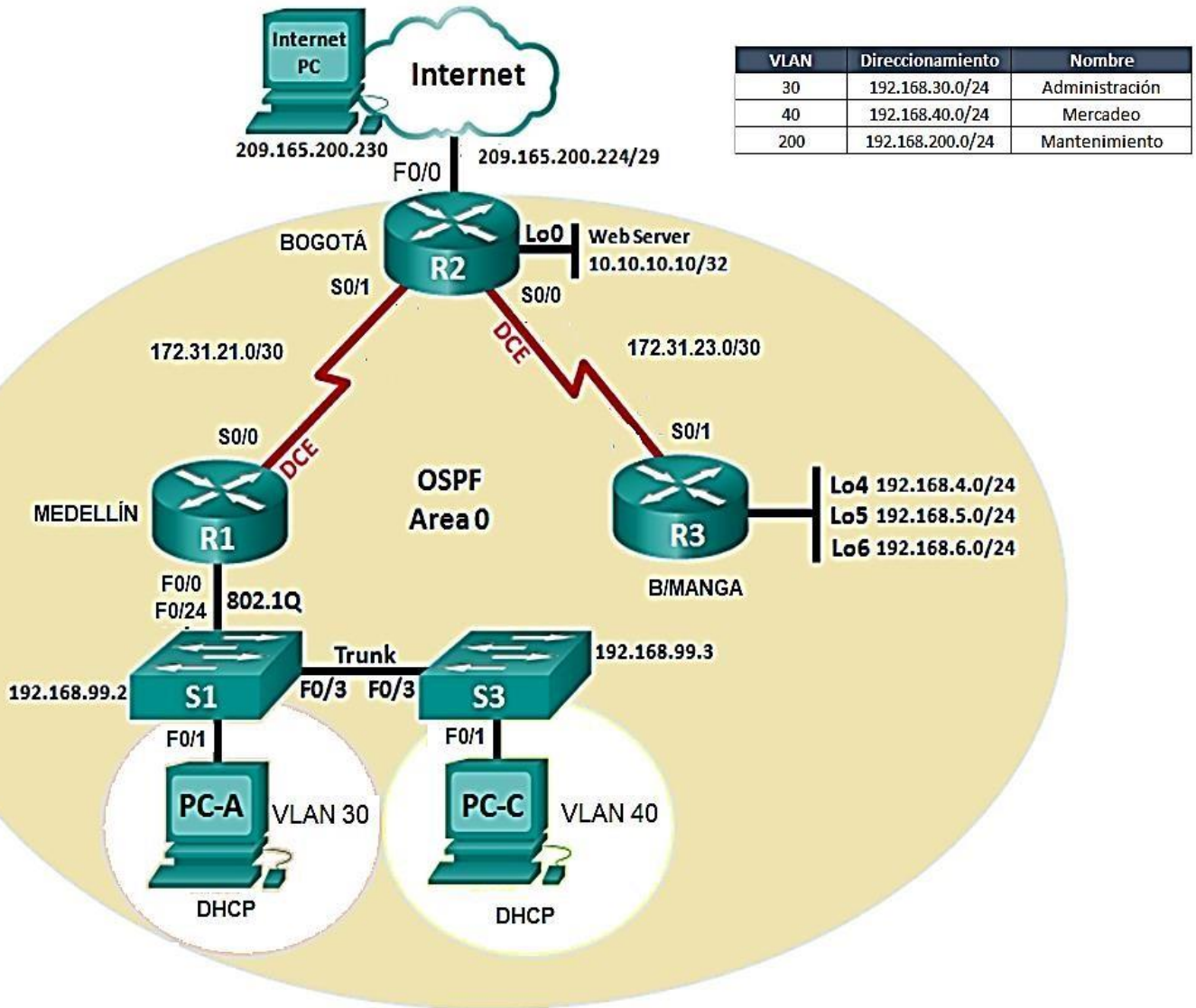
- Adquirir conceptos básicos para implementar configuraciones en una red
- Conocer los componentes necesarios para instalar redes sencillas inicialmente
- Conceptualizar sobre los diferentes protocolos y estándares de seguridad

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 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



ACTIVIDADES

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

2. Configurar el protocolo de enrutamiento OSPFv2 bajo los siguientes criterios:

OSPFv2 area 0

| Configuration Item or Task | Specification |
|---|---------------|
| Router ID R1 | 1.1.1.1 |
| Router ID R2 | 2.2.2.2 |
| Router ID R3 | 3.3.3.3 |
| Configurar todas las interfaces LAN como pasivas | |
| Establecer el ancho de banda para enlaces seriales en | 128 Kb/s |
| Ajustar el costo en la métrica de S0/0 a | 7500 |

Verificar información de OSPF

- Visualizar tablas de enrutamiento y routers conectados por OSPFv2
- Visualizar lista resumida de interfaces por OSPF en donde se ilustre el costo de cada interface
- Visualizar el OSPF Process ID, Router ID, Address summarizations, Routing Networks, and passive interfaces configuradas en cada router.

3. Configurar VLANs, Puertos troncales, puertos de acceso, encapsulamiento, Inter-VLAN Routing y Seguridad en los Switches acorde a la topología de red establecida.

- ✓ En el Switch 3 deshabilitar DNS lookup
- ✓ Asignar direcciones IP a los Switches acorde a los lineamientos.
- ✓ Desactivar todas las interfaces que no sean utilizadas en el esquema de red.

4. Implement DHCP & NAT for IPv4

- ✓ Configurar R1 como servidor DHCP para las VLANs 30 y 40.
- ✓ Reservar las primeras 30 direcciones IP de las VLAN 30 y 40 para configuraciones estáticas.

| | |
|-----------------------------------|--|
| Configurar DHCP pool para VLAN 30 | Name: ADMINISTRACION DNS-Server: 10.10.10.11 Domain-Name: ccna-unad.com Establecer default gateway. |
|-----------------------------------|--|

| | |
|-----------------------------------|--|
| Configurar DHCP pool para VLAN 40 | Name: MERCADEO DNS-Server: 10.10.10.11 Domain-Name: ccna-unad.com Establecer default gateway. |
|-----------------------------------|--|

- ✓ Configurar NAT en R2 para permitir que los host puedan salir a internet
- ✓ Verificar el protocolo DHCP y la NAT estática.

5. Configurar y verificar las listas de control de acceso (ACL)

- ✓ Configurar al menos dos listas de acceso de tipo estándar a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.
- ✓ Configurar al menos dos listas de acceso de tipo extendido o nombradas a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.

Parte 1. Configurar el direccionamiento IP acorde con la topología de red.

Paso 1. Configurar la computadora de Internet.

Las tareas de configuración de la computadora de Internet incluyen lo siguiente (para obtener información de dirección IP, consulte la topología):

Construir la topología de red

- ❖ 3 PCs
- ❖ 2 Swith 2960
- ❖ 3 Router 1941

| Elemento o tarea de configuración | Especificación | Complete |
|-----------------------------------|-----------------|----------|
| Dirección IP | 209.165.200.230 | OK |
| Máscara de subred | 255.255.255.248 | OK |
| Gateway predeterminado | 209.165.200.225 | OK |

Paso 2. Configuración de R1, se realizan las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|--|--|
| Desactive la búsqueda DNS. | <i>no ip domain-lookup</i> |
| Nombre del router | <i>hostname R1</i> |
| Contraseña exec privilegiada encriptada | <i>enable secret class</i> |
| Contraseña de acceso a la consola | <i>line con 0</i> <i>enable password cisco</i> |
| Contraseña de acceso Telnet | <i>line vty 0 4</i> <i>password cisco</i> <i>login</i> |
| Cifrar las contraseñas de texto no cifrado. | <i>service password-encryption</i> |
| Mensaje MOTD | <i>\$Acceso Denegado\$</i> |
| <ul style="list-style-type: none"> • Interfaz S0/0/0 • Establecer la descripción. • Establecer la dirección IPv4 de capa 3. • Establecer la frecuencia de reloj en 128000. • Activar la interfaz. | <i>interface s0/0/0</i> <i>description Conexion a R2</i> <i>ip address 172.31.21.1 255.255.255.252</i> <i>clock rate 128000</i> <i>no shutdown</i> |
| Configurar una ruta predeterminada de salida de S0/0/0. | <i>ip route 0.0.0.0 0.0.0.0 s0/0/1</i> |

Aun no se configura la interfaz G0/0.

```

R1>show ip interface brief
Interface          IP-Address      OK? Method Status
Protocol
GigabitEthernet0/0 unassigned     YES unset  up
up
GigabitEthernet0/0.30 192.168.30.1   YES manual  up
up
GigabitEthernet0/0.40 192.168.40.1   YES manual  up
up
GigabitEthernet0/0.99 192.168.99.1   YES manual  up
up
GigabitEthernet0/1   unassigned     YES unset
administratively down down
Serial0/0/0          172.31.21.1    YES manual  up
up
Serial0/0/1          unassigned     YES unset
administratively down down
Vlan1                unassigned     YES unset
administratively down down
R1>
R1>

```


Paso 3. Configuración de R2, se realizan las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|--|--|
| Desactive la búsqueda DNS. | <i>no ip domain-lookup</i> |
| Nombre del router | <i>hostname R2</i> |
| Contraseña exec privilegiada encriptada | <i>enable secret class</i> |
| Contraseña de acceso a la consola | <i>line con 0 password cisco login</i> |
| Contraseña de acceso Telnet | <i>line vty 0 4 password cisco login</i> |
| Cifrar las contraseñas de texto no cifrado. | <i>service password encryption</i> |
| Habilitar el servidor HTTP. | <i>ip http server</i> |
| Mensaje MOTD | <i>Banner motd \$Acceso Denegado\$</i> |
| <ul style="list-style-type: none"> • Interfaz S0/0/1 • Establecer la descripción. • Establecer la dirección IPv4 de capa 3. • Activar la interfaz. | <i>interface s0/0/1 description Conexion a R1 ip address 172.31.21.2 255.255.255.252 no shutdown</i> |
| <ul style="list-style-type: none"> • Interfaz S0/0/0 • Establecer la descripción. • Establecer la dirección IPv4 de capa 3. • Establecer la frecuencia de reloj en 128000. | <i>interface s0/0/0 description Conexion a R3 ip address 172.31.23.1 255.255.255.252 clock rate 128000 no shutdown</i> |
| <ul style="list-style-type: none"> • Interfaz G0/0 (simulación de Internet) • Establecer la descripción. • Establecer la dirección IPv4 de capa 3. • Activar la interfaz. | <i>Interface g0/0 description Internet ip address 209.165.200.225 255.255.255.248 no shutdown</i> |
| <ul style="list-style-type: none"> • Interfaz loopback 0 (servidor web simulado) • Establecer la descripción. Establecer la dirección IPv4 de capa 3. | <i>interface lo0 description Conexion a Servidor WWW ip address 10.10.10.10 255.255.255.0</i> |

Ruta predeterminada

Configurar una ruta predeterminada de salida de G0/0.

ip route 0.0.0.0 0.0.0.0 g0/0

IOS Command Line Interface

```

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

00:00:10: %OSPF-5-ADJCHG: Process 10, Nbr 3.3.3.3 on Serial0/0/0
from LOADING to FULL, Loading Done
Acceso No Autorizado!

User Access Verification

Password:

R2>show ip interface brief
Interface          IP-Address      OK? Method Status
Protocol
GigabitEthernet0/0 209.165.200.225 YES manual up
up
GigabitEthernet0/1 unassigned      YES unset
administratively down down
Serial0/0/0        172.31.23.2    YES manual up
up
Serial0/0/1        172.31.21.2    YES manual up
up
Loopback0          10.10.10.10    YES manual up
up
Vlan1              unassigned      YES unset
administratively down down
R2>

```

Paso 4. Configuración de R3, se realizan las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|---|
| Desactive la búsqueda DNS. | <i>no ip domain-lookup</i> |
| Nombre del router | <i>hostname R3</i> |
| Contraseña exec privilegiada encriptada | <i>enable secret class</i> |
| Contraseña de acceso a la consola | <i>line con 0 password cisco login</i> |
| Contraseña de acceso Telnet | <i>line vty 0 4 password cisco login</i> |
| Cifrar las contraseñas de texto no cifrado. | <i>service password encryption</i> |
| Mensaje MOTD | <i>Banner motd \$Acceso No Autorizado\$</i> |
| Interfaz S0/0/1 Establecer la descripción. Establecer la dirección IPv4 de capa 3. Utilizar la siguiente dirección disponible en la subred. | <i>interface s0/0/1 description Conexion a R2 ip address 172.31.23.2 255.255.255.252 no shutdown</i> |
| Interfaz loopback 4 Establecer la dirección IPv4 de capa 3 | <i>interface lo4 ip address 192.168.4.1 255.255.255.0</i> |
| Interfaz loopback 5 Establecer la dirección IPv4 de capa 3 | <i>interface lo5 ip address 192.168.5.1 255.255.255.0</i> |
| Interfaz loopback 6 Establecer la dirección IPv4 de capa 3 | <i>interface lo6 ip address 192.168.6.1 255.255.255.0</i> |
| Configurar una ruta predeterminada de salida de S0/0/1. | <i>ip route 0.0.0.0 0.0.0.0 s0/0/1</i> |

```

Serial0/0/1 from LOADING to FULL, Loading Done
Acceso no Autorizado!

User Access Verification

Password:
Password:

R3>show ip int brief
Interface          IP-Address      OK? Method Status
Protocol
GigabitEthernet0/0 unassigned      YES unset
administratively down down
GigabitEthernet0/1 unassigned      YES unset
administratively down down
Serial0/0/0        unassigned      YES unset
administratively down down
Serial0/0/1        172.31.23.1    YES manual up
up
Loopback4          192.168.4.1    YES manual up
up
Loopback5          192.168.5.1    YES manual up
up
Loopback6          192.168.6.1    YES manual up
up
Vlan1              unassigned      YES unset
administratively down down
R3>

```

Paso 5. Configuración de S1, se realizan las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|---|
| Desactive la búsqueda DNS. | <i>no ip domain-lookup</i> |
| Nombre del switch | <i>hostname S1</i> |
| Contraseña exec privilegiada encriptada | <i>enable secret class</i> |
| Contraseña de acceso a la consola | <i>line con 0 password cisco login</i> |
| Contraseña de acceso Telnet | <i>line vty 0 4 password cisco login</i> |
| Cifrar las contraseñas de texto no cifrado. | <i>service password encryption</i> |
| Mensaje MOTD | <i>Banner motd \$Acceso No Autorizado\$</i> |

Paso 6. Configuración de S3, se realizan las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|---|
| Desactive la búsqueda DNS. | <i>no ip domain-lookup</i> |
| Nombre del switch | <i>hostname S3</i> |
| Contraseña exec privilegiada encriptada | <i>enable secret class</i> |
| Contraseña de acceso a la consola | <i>line con 0 password cisco login</i> |
| Contraseña de acceso Telnet | <i>line vty 0 4 password cisco login</i> |
| Cifrar las contraseñas de texto no cifrado. | <i>service password encryption</i> |
| Mensaje MOTD | <i>Banner motd \$Acceso No Autorizado\$</i> |

Paso 7. Verificación de la conectividad de red

Utilizando el comando **ping** para se comprobará la conectividad entre los dispositivos de red.

Tomar medidas correctivas para establecer la conectividad si alguna de las pruebas falla:

| Desde | Hacia | Dirección IP | Resultados de ping |
|------------|------------------------|------------------------|--------------------|
| R1 | R2, S0/0/0 | 172.31.21.2 | 5/5 |
| R2 | R3, S0/0/1 | 172.31.23.2 | 5/5 |
| InternetPC | Gateway predeterminado | 209.165.200.225 | 4/4 |

```
R1#ping 172.31.21.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.21.2, timeout is 2
seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4
ms
```

```
R2#ping 172.31.23.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.23.2, timeout is 2
seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/5
ms
```

```
Packet Tracer PC Command Line 1.0
C:\>ping 209.165.200.225

Pinging 209.165.200.225 with 32 bytes of data:

Reply from 209.165.200.225: bytes=32 time<1ms TTL=255
Reply from 209.165.200.225: bytes=32 time<1ms TTL=255
Reply from 209.165.200.225: bytes=32 time<1ms TTL=255
Reply from 209.165.200.225: bytes=32 time<1ms TTL=255

Ping statistics for 209.165.200.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Parte 2. Configuración de seguridad en el Switch, las VLAN y el routing entre VLAN

Paso 1. configurar S1.

| Elemento o tarea de configuración | Especificación |
|---|--|
| <p>Crear la base de datos de VLAN.</p> <p>Utilizar la tabla de equivalencias de VLAN para topología para crear y nombrar cada una de las VLAN que se indican.</p> | <pre>enable configure terminal vlan 30 name Administracion vlan 40 name Mercadeo vlan 200 name Mantenimiento</pre> |
| Asignar la dirección IPv4 de capa 3 a la VLAN de Administración. | <pre>interface vlan 200 ip address 192.168.200.2 255.255.255.0</pre> |
| Asignar la primera dirección IP en la subred como Gateway predeterminado. | <pre>ip default-gateway 192.168.200.1</pre> |
| <p>Forzar el enlace troncal en la interfaz F0/3.</p> <p>Utilizar la red VLAN 1 como VLAN nativa.</p> | <pre>interface fa0/3 switchport mode trunk switchport trunk native vlan 1</pre> |
| <p>Forzar el enlace troncal en la interfaz F0/24</p> <p>Utilizar la red VLAN 1 como VLAN nativa.</p> | <pre>interface fa0/24 switchport mode trunk switchport trunk native vlan 1</pre> |
| Configurar otros puertos como de acceso (comando interface range). | <pre>interface range fa0/2, fa0/4-23, g0/1-2 switchport mode Access</pre> |
| Asignar F0/1 a la VLAN 30. | <pre>interface fa0/1 switchport mode access switchport access vlan 30</pre> |
| Desactivar todos los puertos sin utilizar. | <pre>interface range fa0/2, fa0/4-23, g0/1-2 shutdown</pre> |

Paso 2. configurar el S3.

La configuración del S3 incluye las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|---|
| Utilizar la tabla de equivalencias de VLAN para topología, crear y nombrar cada una de las VLAN que se indican. | <pre>enable configure terminal vlan 30 name Administracion vlan 40 name Mercadeo vlan 99 name Mantenimiento</pre> |
| Asignar la dirección IPv4 de capa 3 a la VLAN de Mantenimiento | <pre>interface vlan 99 ip address 192.168.99.3 255.255.255.0</pre> |
| Asignar la primera dirección IP en la subred como Gateway predeterminado. | <pre>ip default-gateway 192.168.99.1</pre> |
| Forzar el enlace troncal en la interfaz F0/3. Utilizar la red VLAN 1 como VLAN nativa. | <pre>interface fa0/3 switchport mode trunk switchport trunk native vlan 1</pre> |
| Configurar el resto de los puertos como puertos de acceso. Utilizar el comando interface range. | <pre>interface range fa0/2, fa0/4-24 switchport mode Access</pre> |
| Asignar F0/1 a la VLAN 40. | <pre>interface fa0/1 switchport mode access switchport access vlan 40</pre> |
| Desactivar todos los puertos sin utilizar. | <pre>interface range fa0/2, fa0/4-24, g0/1-2 shutdown</pre> |

Paso 3. Configurar R1

La configuración del R1 incluye las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|---|
| <ul style="list-style-type: none"> Configurar la subinterfaz 802.1Q .30 en G0/0. LAN de Administración Asignar a la VLAN 30. | <pre>interface g0/0.30 encapsulation dot1q 30 description LAN de Administracion ip address 192.168.30.1 255.255.255.0</pre> |
| <ul style="list-style-type: none"> Configurar la subinterfaz 802.1Q .40 en G0/0. LAN de Mercadeo Asignar a la VLAN 40 | <pre>interface g0/0.40 encapsulation dot1q 40 description LAN de Mercadeo ip address 192.168.40.1 255.255.255.0</pre> |
| <ul style="list-style-type: none"> Configurar la subinterfaz 802.1Q .99 en G0/0. LAN de Mantenimiento Asignar a la VLAN 99 | <pre>interface g0/0.99 encapsulation dot1q 99 description LAN de Mantenimiento ip address 192.168.99.1 255.255.255.0</pre> |
| Activar la interfaz G0/0. | no shutdown |

Paso 4. Verificar la conectividad de la red

Utilizando el comando **ping** para probar la conectividad entre los switches y el R1.

Tabla de Verificación:

| Desde | Hacia | Dirección IP | Resp de ping |
|--------------|-----------------------|---------------------|---------------------|
| S1 | R1, dirección VLAN 99 | 192.168.99.1 | 5/5 |
| S3 | R1, dirección VLAN 99 | 192.168.99.1 | 5/5 |
| S1 | R1, dirección VLAN 30 | 192.168.30.1 | 5/5 |
| S3 | R1, dirección VLAN 40 | 192.168.40.1 | 5/5 |


```
S1>ping 192.168.200.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 192.168.200.1, timeout is 2
seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1
ms
```

```
S3>ping 192.168.200.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 192.168.200.1, timeout is 2
seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/4
ms
```

```
S1>ping 192.168.30.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 192.168.30.1, timeout is 2
seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1
ms
```

```
S3>ping 192.168.40.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 192.168.40.1, timeout is 2
seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1
ms
```

Parte 3. Configurar el protocolo de routing dinámico OSPFv2

Paso 1. configurar OSPFv2 en el R1.

La configuración del R1 incluye las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|--|---|
| ID del proceso OSPF | <i>enable</i> <i>configure terminal</i> <i>router ospf 10</i> |
| Id. de router | <i>router-id 1.1.1.1</i> |
| Asignar todas las redes conectadas directamente al área 0. | <i>network 172.31.21.0 0.0.0.3 area 0</i> <i>network 192.168.30.0.0.0.255 area 0</i> <i>network 192.168.40.0.0.0.255 area 0</i> <i>network 192.168.99.0.0.0.255 area 0</i> |
| Establecer todas las interfaces LAN como pasivas. | <i>passive-interface g0/1.30</i> <i>passive-interface g0/1.40</i> <i>passive-interface g0/1.99</i> |
| Cambiar el ancho de banda de referencia de costo predeterminado para admitir cálculos de interfaz Gigabit. | <i>auto-cost reference-bandwidth 1000</i> |
| Establecer el ancho de banda de la interfaz serial. | <i>interface s0/0/0</i> <i>bandwidth 128</i> |
| Ajustar la métrica costo de S0/0/0 (=7500). | <i>ip ospf cost 7500</i> |

Paso 2. configurar OSPFv2 en el R2.

La configuración del R2 incluye las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|--|
| ID del proceso OSPF | Enable configure terminal router ospf 10 |
| Id. de router | router-id 2.2.2.2 |
| Anunciar las redes conectadas directamente. | network 172.31.21.0 0.0.0.3 area 0 network 172.31.23.0 0.0.0.3 area 0 network 10.10.10.0 0.0.0.255 area 0 |
| Establecer la interfaz LAN (loopback) como pasiva. | passive-interface Lo0 |
| Cambiar el ancho de banda de referencia de costo predeterminado para permitir interfaces Gigabit. | auto-cost reference-bandwidth 1000 |
| Establecer el ancho de banda en todas las interfaces seriales. | interface s0/0/0 bandwidth 128 interface s0/0/1 bandwidth 128 |
| Ajustar la métrica de costo de S0/0/1 (=7500) | ip ospf cost 7500 |

```

Neighbor ID      Pri   State           Dead Time   Address
Interface
1.1.1.1          0    FULL/  -         00:00:31   172.31.21.1
Serial0/0/1
3.3.3.3          0    FULL/  -         00:00:35   172.31.23.2
Serial0/0/0
R2#

```

```

Neighbor ID      Pri   State           Dead Time   Address
Interface
2.2.2.2          0    FULL/  -         00:00:37   172.31.23.1
Serial0/0/1
R3#

```

Paso 3. Configurar OSPFv2 en el R3.

| Elemento o tarea de configuración | Especificación |
|--|---|
| ID del proceso OSPF | <i>enable configure terminal router ospf 10</i> |
| Id. de router | <i>router-id 3.3.3.3</i> |
| Anunciar las redes conectadas directamente. Interfaces LAN (loopback). | <i>network 172.31.23.0 0.0.0.3 area 0 network 192.168.4.0 0.0.3.255 area 0</i> |
| Establecer todas las interfaces LAN (loopback) como pasivas. | <i>passive-interface lo4 passive-interface lo5 passive-interface lo6</i> |
| Cambiar el ancho de banda de referencia de costo predeterminado para admitir cálculos de interfaz Gigabit. | <i>auto-cost reference-bandwidth 1000</i> |
| Establecer el ancho de banda de la interfaz serial. | <i>interface s0/0/1 bandwidth 128</i> |

Paso 4. OSPF: Verificar que OSPF funcione como se espera.

| Pregunta | respuesta |
|---|---|
| Mostrar todos los routers OSPFv2 conectados | <i>En R2 show ip ospf neighbor</i> |
| Mostrar una lista resumida de las interfaces OSPF que incluye una columna para el costo de cada interfaz | <i>show ip ospf interface brief</i> |
| Mostrar la ID del proceso OSPF, la ID del router, la sumarización de direcciones, las redes de routing y las interfaces pasivas configuradas en un router | <i>show ip protocols</i> |
| Mostrar solo las rutas OSPF | <i>show ip route ospf</i> |
| Mostrar información detallada sobre las interfaces OSPF, incluido el método de autenticación | <i>show ip ospf interface</i> |
| Mostrar la sección OSPF de la configuración en ejecución | <i>show running-config</i> |

```
R2#show ip ospf interface

GigabitEthernet0/1 is up, line protocol is up
 Internet address is 10.10.10.10/24, Area 0
  Process ID 1, Router ID 2.2.2.2, Network Type BROADCAST, Cost:
  1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 2.2.2.2, Interface address 10.10.10.10
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40,
  Retransmit 5
    No Hellos (Passive interface)
  Index 1/1, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
Serial0/0/1 is up, line protocol is up
 Internet address is 172.31.21.2/30, Area 0
  Process ID 1, Router ID 2.2.2.2, Network Type POINT-TO-POINT,
  Cost: 7500
  Transmit Delay is 1 sec, State POINT-TO-POINT, Priority 0
  No designated router on this network
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40,
  Retransmit 5
    Hello due in 00:00:09
  Index 2/2, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1
  Suppress hello for 0 neighbor(s)
Serial0/0/0 is up, line protocol is up
 Internet address is 172.31.23.1/30, Area 0
  Process ID 1, Router ID 2.2.2.2, Network Type POINT-TO-POINT,
  Cost: 781
  Transmit Delay is 1 sec, State POINT-TO-POINT, Priority 0
  No designated router on this network
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40,
  Retransmit 5
    Hello due in 00:00:01
  Index 3/3, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 3.3.3.3
  Suppress hello for 0 neighbor(s)
R2#
```

```
R2#show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 2.2.2.2
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.31.21.0 0.0.0.3 area 0
    172.31.23.0 0.0.0.3 area 0
    10.10.10.0 0.0.0.255 area 0
  Passive Interface(s):
    GigabitEthernet0/1
  Routing Information Sources:
    Gateway         Distance      Last Update
    1.1.1.1          110          00:07:05
    2.2.2.2          110          00:06:47
    3.3.3.3          110          00:06:13
    209.165.200.225 110          00:09:41
  Distance: (default is 110)
```

```
R2#
--
R2#show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 2.2.2.2
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.31.21.0 0.0.0.3 area 0
    172.31.23.0 0.0.0.3 area 0
    10.10.10.0 0.0.0.255 area 0
  Passive Interface(s):
    GigabitEthernet0/1
  Routing Information Sources:
    Gateway         Distance      Last Update
    1.1.1.1          110          00:07:05
    2.2.2.2          110          00:06:47
    3.3.3.3          110          00:06:13
    209.165.200.225 110          00:09:41
  Distance: (default is 110)
```

```
R2#show ip route ospf
   192.168.4.0/32 is subnetted, 1 subnets
O       192.168.4.1 [110/781] via 172.31.23.2, 00:07:07,
Serial0/0/0
   192.168.5.0/32 is subnetted, 1 subnets
O       192.168.5.1 [110/781] via 172.31.23.2, 00:07:07,
Serial0/0/0
   192.168.6.0/32 is subnetted, 1 subnets
O       192.168.6.1 [110/781] via 172.31.23.2, 00:07:07,
Serial0/0/0
O       192.168.30.0 [110/7510] via 172.31.21.1, 00:08:08,
Serial0/0/1
O       192.168.40.0 [110/7510] via 172.31.21.1, 00:08:08,
Serial0/0/1
O       192.168.200.0 [110/7510] via 172.31.21.1, 00:08:08,
Serial0/0/1
```

```
no#
```

```
Current configuration : 1436 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname R2
!
!
enable secret 5
$1$mERr$9cTjUIEqNGurQiFU.ZeCi1
enable password 7 0822455D0A16
!
!
no ip cef
no ipv6 cef
!
!
license udi pid CISCO1941/K9 sn FTX152417HD
!
!
no ip domain-lookup
!
!
spanning-tree mode pvst
!
!
interface GigabitEthernet0/0
description Internet
ip address 209.165.200.225 255.255.255.248
duplex auto
speed auto
!
interface GigabitEthernet0/1
description Conexion a Servidor WWW
ip address 10.10.10.10 255.255.255.0
duplex auto
speed auto
!
interface Serial0/0/0
description Conexion a R3
bandwidth 128
ip address 172.31.23.1 255.255.255.252
clock rate 128000
!
interface Serial0/0/1
description Conexion a R1
bandwidth 128
ip address 172.31.21.2 255.255.255.252
ip ospf cost 7500
clock rate 128000
!
interface Vlan1
no ip address
shutdown
!
router ospf 10
router-id 2.2.2.2
log-adjacency-changes
passive-interface GigabitEthernet0/1
auto-cost reference-bandwidth 1000
network 172.31.21.0 0.0.0.3 area 0
network 172.31.23.0 0.0.0.3 area 0
network 10.10.10.0 0.0.0.255 area 0
!
ip classless
ip route 0.0.0.0 0.0.0.0 GigabitEthernet0/0
!
ip flow-export version 9
!
!
banner motd ^Acceso Denegado^
!
!
line con 0
password 7 0822455D0A16
login
!
line aux 0
!
line vty 0 4
password 7 0822455D0A16
login
!
!
end
```

Parte 4. implementar DHCP y NAT para IPv4

Paso 1. configurar el R1 como servidor de DHCP para las VLAN 30 y 40.

La configuración del R1 incluye las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|--|---|
| Reservar las primeras 20 direcciones IP en la VLAN 30 para configuraciones estáticas. | Enable configure terminal ip dhcp excluded-address 192.168.30.1 192.168.30.20 |
| Reservar las primeras 20 direcciones IP en la VLAN 40 para configuraciones estáticas. | Enable configure terminal ip dhcp excluded-address 192.168.40.1 192.168.40.20 |
| Crear un pool de DHCP para la VLAN 30. Name: MERCADEO Nombre de dominio: ccna-unad.com Servidor DNS: 10.10.10.11 Establecer el gateway predeterminado. | ip dhcp pool Administracion dns-server 10.10.10.11 domain-name ccna-unad.com default-router 192.168.30.1 |
| Crear un pool de DHCP para la VLAN 40. Nombre: Mercadeo Servidor DNS: 10.10.10.11 Nombre de dominio: ccna-unad.com Establecer el gateway predeterminado. | ip dhcp pool Mercadeo dns-server 10.10.10.11 domain-name ccna-unad.com default-router 192.168.40.1 |

Paso 2. configurar la NAT estática y dinámica en el R2.

La configuración del R2 incluye las siguientes tareas:

| Elemento o tarea de configuración | Especificación |
|---|--|
| Crear una base de datos local con una cuenta de usuario. | Nombre de usuario: webuser Contraseña: cisco12345 Nivel de privilegio: 15 user webuser privilege 15 secret cisco12345 |
| Habilitar el servicio del servidor HTTP. | ip http server (no soportado en PKT) |
| Configurar el servidor HTTP para utilizar la base de datos local para la autenticación. | ip http authentication local |

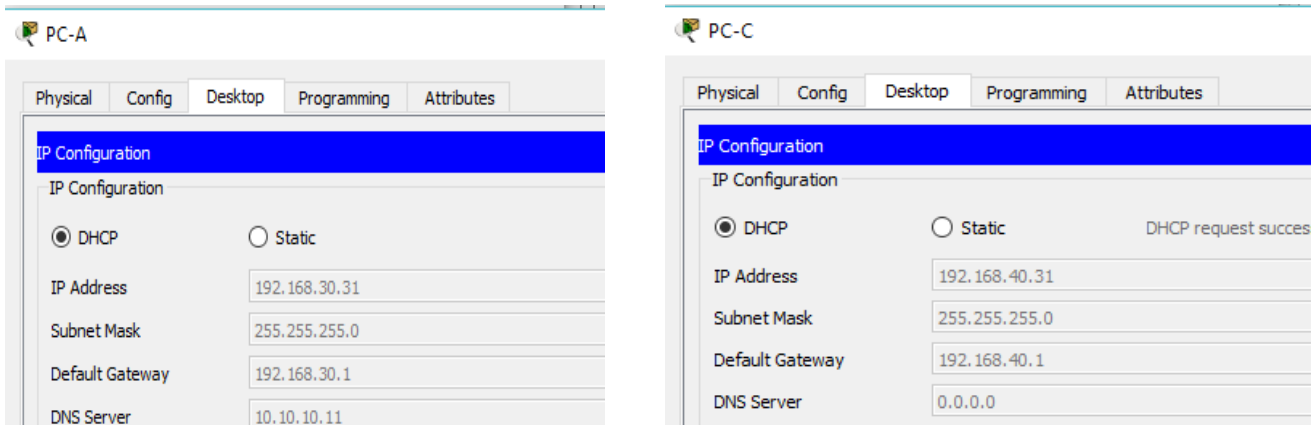
| | |
|---|--|
| <p>Crear una NAT estática al servidor web con dirección global interna:</p> | <pre>ip nat inside source static 10.10.10.11 209.165.200.229</pre> |
| <p>Asignar la interfaz interna y externa para la NAT estática.</p> | <pre>interface g0/1 ip nat outside interface g0/0 ip nat inside</pre> |
| <p>Lista de acceso: 1 Permitir la traducción de las redes de Contabilidad y de Ingeniería en el R1. Permitir la traducción de un resumen de las redes LAN (loopback) en el R3</p> | <pre>access-list 1 permit 192.168.30.0 0.0.0.255 access-list 1 permit 192.168.40.1 0.0.0.255 access-list 1 permit 192.168.4.0 0.0.3.255</pre> |
| <p>Defina el pool de direcciones IP públicas utilizables. Nombre del conjunto: INTERNET</p> | <pre>ip nat pool INTERNET 209.154.200.225 209.165.200.228 netmask 255.255.255.248</pre> |
| <p>Definir la traducción de NAT dinámica.</p> | <pre>ip nat inside source list 1 pool INTERNET</pre> |

Paso 3. Verificar el protocolo DHCP y la NAT estática.

Utilice las siguientes tareas para verificar que las configuraciones de DHCP y NAT estática funcionen de forma correcta. Quizá sea necesario deshabilitar el firewall de las computadoras para que los pings se realicen correctamente.

| Prueba | Resultados |
|--|--|
| Verificar que la PC-A haya adquirido información de IP del servidor de DHCP. | IP: 192.168.30.23 NETMASK: 255.255.255.0 GATEWAY: 192.168.30.1 DNS-SERVER: 10.10.10.11 |
| Verificar que la PC-C haya adquirido información de IP del servidor de DHCP. | IP: 192.168.40.21 NETMASK: 255.255.255.0 GATEWAY: 192.168.40.1 DNS-SERVER: 10.10.10.11 |
| Verificar que la PC-A pueda hacer ping a la PC-C. Nota: quizá sea necesario deshabilitar el firewall de las computadoras. | OK |
| Utilizar un navegador web en la computadora de Internet para acceder al servidor web (209.165.200.229). Iniciar sesión con el nombre de usuario webuser y la contraseña cisco12345 . | <pre>C:\>ping 209.165.200.229 Pinging 209.165.200.229 with 32 bytes of data: Reply from 209.165.200.229: bytes=32 time=29ms TTL=255 Reply from 209.165.200.229: bytes=32 time<1ms TTL=255 Reply from 209.165.200.229: bytes=32 time<1ms TTL=255 Reply from 209.165.200.229: bytes=32 time<1ms TTL=255 Ping statistics for 209.165.200.229: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 29ms, Average = 7ms</pre> |

Nota: la verificación de la NAT dinámica se realizará en la parte 6.



```
C:\>ping 192.168.40.31

Pinging 192.168.40.31 with 32 bytes of data:

Reply from 192.168.40.31: bytes=32 time<1ms TTL=127
Reply from 192.168.40.31: bytes=32 time=13ms TTL=127
Reply from 192.168.40.31: bytes=32 time=9ms TTL=127
Reply from 192.168.40.31: bytes=32 time=10ms TTL=127

Ping statistics for 192.168.40.31:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 8ms

C:\>
```

Parte 5. configurar y verificar las listas de control de acceso (ACL)

Paso 1. restringir el acceso a las líneas VTY en el R2.

| Elemento o tarea de configuración | Especificación |
|--|--|
| Configurar una lista de acceso con nombre para permitir que solamente el R1 acceda al R2 mediante telnet. Nombre de la ACL: ADMIN | <i>enable</i> <i>configure terminal</i> <i>ip access-list standard ADMIN</i> <i>permit host 172.31.21.1</i> |
| Aplicar la ACL con nombre a las líneas VTY. | <i>line vty 0 4</i> <i>access-class ADMIN in</i> |
| Verificar que la ACL funcione como se espera. | <i>telnet 172.31.23.2</i> <i>Connection refused for foreign host</i> <i>telnet 172.31.23.1</i> <i>Connection refused for foreign host</i> |

| <p>proteger la red del tráfico de Internet.</p> <p>Elemento o tarea de configuración</p> | <p>Especificación</p> |
|---|--|
| <p>Configurar ACL 101 extendido para lo siguiente:</p> <ul style="list-style-type: none"> • Permitir que los hosts de Internet tengan acceso WWW al servidor web simulado en el R2 por medio del acceso a la dirección de NAT estática (209.165.200.229) que configuró en la parte 3. • Impedir que el tráfico de Internet haga ping a las redes internas, sin dejar de permitir que las interfaces LAN hagan ping a la computadora de Internet. | <pre>access-list 101 permit tcp any any host 209.165.200.229 eq 80</pre> <pre>access-list 101 permit icmp any any echo-reply</pre> |
| <p>Aplicar la ACL a las interfaces correspondientes.</p> | <pre>interface g0/0 ip access-group 101 in interface s0/0/0 ip access-group 101 out interface s0/0/1 ip access-group 101 out interface g0/1 ip access-group 101 out</pre> |

Verificar que la ACL funcione como se espera.

Desde la computadora de Internet:

- Hacer ping a la PC-A (el resultado de los pings debe ser inalcanzable).

```
C:\>ping 192.168.30.31
Pinging 192.168.30.31 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.30.31:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

- Hacer ping a la PC-C (el resultado de los pings debe ser inalcanzable).

```
Pinging 192.168.40.31 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.40.31:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Desde el R1, hacer ping a la computadora de Internet (los pings se deben realizar correctamente).

```
R1>ping 209.165.200.230

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.230, timeout is 2
seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max =
1/3/14 ms
R1>
```

Configuración S1

```
S1#show interfaces
FastEthernet0/1 is up, line protocol is up (connected)
Hardware is Lance, address is 000c.cf56.1001 (bia 000c.cf56.1001)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/2 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.1002 (bia 000c.cf56.1002)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/3 is up, line protocol is up (connected)
Hardware is Lance, address is 000c.cf56.1003 (bia 000c.cf56.1003)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/4 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.1004 (bia 000c.cf56.1004)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/5 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.1005 (bia 000c.cf56.1005)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
```

FastEthernet0/6 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1006 (bia 000c.cf56.1006)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/7 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1007 (bia 000c.cf56.1007)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/8 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1008 (bia 000c.cf56.1008)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/9 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1009 (bia 000c.cf56.1009)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/10 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.100a (bia 000c.cf56.100a)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/11 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.100b (bia 000c.cf56.100b)

BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/12 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.100c (bia 000c.cf56.100c)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/13 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.100d (bia 000c.cf56.100d)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/14 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.100e (bia 000c.cf56.100e)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/15 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.100f (bia 000c.cf56.100f)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/16 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 000c.cf56.1010 (bia 000c.cf56.1010)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)

Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/17 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1011 (bia 000c.cf56.1011)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/18 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1012 (bia 000c.cf56.1012)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns

0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/19 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1013 (bia 000c.cf56.1013)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/20 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1014 (bia 000c.cf56.1014)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/21 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1015 (bia 000c.cf56.1015)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/22 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1016 (bia 000c.cf56.1016)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/23 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1017 (bia 000c.cf56.1017)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/24 is up, line protocol is up (connected)
Hardware is Lance, address is 000c.cf56.1018 (bia 000c.cf56.1018)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

GigabitEthernet0/1 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.1019 (bia 000c.cf56.1019)
BW 1000000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 1000Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

GigabitEthernet0/2 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 000c.cf56.101a (bia 000c.cf56.101a)
BW 1000000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 1000Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec

```

5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

Vlan1 is administratively down, line protocol is down
Hardware is CPU Interface, address is 0007.ec1d.e25c (bia
0007.ec1d.e25c)
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored

```

```

563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets
0 output buffer failures, 0 output buffers swapped out

Vlan99 is up, line protocol is up
Hardware is CPU Interface, address is 0007.ec1d.e201 (bia
0007.ec1d.e201)
Internet address is 192.168.99.2/24
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets
0 output buffer failures, 0 output buffers swapped out

```

S1#

Configuración S3

```

S3>show interf
FastEthernet0/1 is up, line protocol is up (connected)
Hardware is Lance, address is 00e0.f92d.1101 (bia 00e0.f92d.1101)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/2 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 00e0.f92d.1102 (bia 00e0.f92d.1102)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off

```

```

ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/3 is up, line protocol is up (connected)
Hardware is Lance, address is 00e0.f92d.1103 (bia 00e0.f92d.1103)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles

```

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/4 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.1104 (bia 00e0.f92d.1104)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/5 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.1105 (bia 00e0.f92d.1105)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/6 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.1106 (bia 00e0.f92d.1106)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)

Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/7 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.1107 (bia 00e0.f92d.1107)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/8 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.1108 (bia 00e0.f92d.1108)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns

0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/9 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.1109 (bia 00e0.f92d.1109)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/10 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.110a (bia 00e0.f92d.110a)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/11 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.110b (bia 00e0.f92d.110b)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/12 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.110c (bia 00e0.f92d.110c)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/13 is administratively down, line protocol is down (disabled)
Hardware is Lance, address is 00e0.f92d.110d (bia 00e0.f92d.110d)
BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

FastEthernet0/14 is administratively down, line protocol is down (disabled)
 Hardware is Lance, address is 00e0.f92d.110e (bia 00e0.f92d.110e)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/15 is administratively down, line protocol is down (disabled)
 Hardware is Lance, address is 00e0.f92d.110f (bia 00e0.f92d.110f)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/16 is administratively down, line protocol is down (disabled)
 Hardware is Lance, address is 00e0.f92d.1110 (bia 00e0.f92d.1110)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/17 is administratively down, line protocol is down (disabled)
 Hardware is Lance, address is 00e0.f92d.1111 (bia 00e0.f92d.1111)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/18 is administratively down, line protocol is down (disabled)
 Hardware is Lance, address is 00e0.f92d.1112 (bia 00e0.f92d.1112)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/19 is administratively down, line protocol is down (disabled)
 Hardware is Lance, address is 00e0.f92d.1113 (bia 00e0.f92d.1113)

BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/20 is administratively down, line protocol is down
 (disabled)
 Hardware is Lance, address is 00e0.f92d.1114 (bia 00e0.f92d.1114)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/21 is administratively down, line protocol is down
 (disabled)
 Hardware is Lance, address is 00e0.f92d.1115 (bia 00e0.f92d.1115)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/22 is administratively down, line protocol is down
 (disabled)
 Hardware is Lance, address is 00e0.f92d.1116 (bia 00e0.f92d.1116)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/23 is administratively down, line protocol is down
 (disabled)
 Hardware is Lance, address is 00e0.f92d.1117 (bia 00e0.f92d.1117)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)
 Half-duplex, 100Mb/s
 input flow-control is off, output flow-control is off
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 00:00:08, output 00:00:05, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue :0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 956 packets input, 193351 bytes, 0 no buffer
 Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
 2357 packets output, 263570 bytes, 0 underruns
 0 output errors, 0 collisions, 10 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out

FastEthernet0/24 is administratively down, line protocol is down
 (disabled)
 Hardware is Lance, address is 00e0.f92d.1118 (bia 00e0.f92d.1118)
 BW 100000 Kbit, DLY 1000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)

```

Half-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

```

```

GigabitEthernet0/1 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 00e0.f92d.1119 (bia 00e0.f92d.1119)
BW 1000000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 1000Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

```

```

GigabitEthernet0/2 is administratively down, line protocol is down
(disabled)
Hardware is Lance, address is 00e0.f92d.111a (bia 00e0.f92d.111a)
BW 1000000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 1000Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0

```

```

Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
956 packets input, 193351 bytes, 0 no buffer
Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
0 output errors, 0 collisions, 10 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

```

```

Vlan1 is administratively down, line protocol is down
Hardware is CPU Interface, address is 000c.85d4.c22e (bia
000c.85d4.c22e)
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets
0 output buffer failures, 0 output buffers swapped out

```

```

Vlan99 is up, line protocol is up
Hardware is CPU Interface, address is 000c.85d4.c201 (bia
000c.85d4.c201)
Internet address is 192.168.99.3/24
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets
0 output buffer failures, 0 output buffers swapped out

```

S3>

Configuración R2

```

R2>show ip interface brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 209.165.200.225 YES manual up up

```

```

GigabitEthernet0/1 unassigned YES unset administratively down down
Serial0/0/0 172.31.23.2 YES manual up up
Serial0/0/1 172.31.21.2 YES manual up up

```



```
Loopback0 10.10.10.10 YES manual up up
Vlan1 unassigned YES unset administratively down down
R2>
```

R2 con0 is now available

Press RETURN to get started.

Acceso No Autorizado!

User Access Verification

Password:

Password:

R2>show interfa

```
GigabitEthernet0/0 is up, line protocol is up (connected)
Hardware is CN Gigabit Ethernet, address is 0090.0caa.2301 (bia
0090.0caa.2301)
Description: connection to Internet
Internet address is 209.165.200.225/29
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s, media type is RJ45
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
GigabitEthernet0/1 is administratively down, line protocol is down
(disabled)
Hardware is CN Gigabit Ethernet, address is 0090.0caa.2302 (bia
0090.0caa.2302)
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s, media type is RJ45
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 unknown protocol drops
```

```
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Serial0/0/0 is up, line protocol is up (connected)
Hardware is HD64570
Description: Connection to R3
Internet address is 172.31.23.2/30
MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set, keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 96 kilobits/sec
5 minute input rate 59 bits/sec, 0 packets/sec
5 minute output rate 57 bits/sec, 0 packets/sec
202 packets input, 13844 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
200 packets output, 13664 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
Serial0/0/1 is up, line protocol is up (connected)
Hardware is HD64570
Description: Connection to R1
Internet address is 172.31.21.2/30
MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set, keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 96 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 51 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
191 packets output, 12224 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
Loopback0 is up, line protocol is up (connected)
Hardware is Loopback
Description: connection to Web Server
Internet address is 10.10.10.10/32
MTU 1514 bytes, BW 8000000 Kbit, DLY 5000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation LOOPBACK, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue 0/0, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
```

```

0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
Vlan1 is administratively down, line protocol is down
Hardware is CPU Interface, address is 000b.bea7.3da9 (bia
000b.bea7.3da9)
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
  
```

```

Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets

0 output buffer failures, 0 output buffers swapped out
  
```

Configuración R1

```

R1>show ip interface brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 unassigned YES unset up up
GigabitEthernet0/0.30 192.168.30.1 YES manual up up
GigabitEthernet0/0.40 192.168.40.1 YES manual up up
GigabitEthernet0/0.99 192.168.99.1 YES manual up up
GigabitEthernet0/1 unassigned YES unset administratively down down
Serial0/0/0 172.31.21.1 YES manual up up
Serial0/0/1 unassigned YES unset administratively down down
Vlan1 unassigned YES unset administratively down down
R1>
R1>
  
```

R1 con0 is now available

Press RETURN to get started.

Acceso No Autorizado!

User Access Verification

Password:

```

R1>show int
GigabitEthernet0/0 is up, line protocol is up (connected)
Hardware is CN Gigabit Ethernet, address is 0010.1168.4601 (bia
0010.1168.4601)
MTU 1500 bytes, BW 1000000 Kbit, DLY 100 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s, media type is RJ45
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
  
```

```

0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
GigabitEthernet0/0.30 is up, line protocol is up (connected)
Hardware is PQUICC_FEC, address is 0010.1168.4601 (bia
0010.1168.4601)
Internet address is 192.168.30.1/24
MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 30
ARP type: ARPA, ARP Timeout 04:00:00,
Last clearing of "show interface" counters never
GigabitEthernet0/0.40 is up, line protocol is up (connected)
Hardware is PQUICC_FEC, address is 0010.1168.4601 (bia
0010.1168.4601)
Internet address is 192.168.40.1/24
MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 40
ARP type: ARPA, ARP Timeout 04:00:00,
Last clearing of "show interface" counters never
GigabitEthernet0/0.99 is up, line protocol is up (connected)
Hardware is PQUICC_FEC, address is 0010.1168.4601 (bia
0010.1168.4601)
Internet address is 192.168.99.1/24
MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 99
ARP type: ARPA, ARP Timeout 04:00:00,
Last clearing of "show interface" counters never
GigabitEthernet0/1 is administratively down, line protocol is down
(disabled)
Hardware is CN Gigabit Ethernet, address is 0010.1168.4602 (bia
0010.1168.4602)
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s, media type is RJ45
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  
```

```

0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Serial0/0/0 is up, line protocol is up (connected)
Hardware is HD64570
Description: connection to R2
Internet address is 172.31.21.1/30
MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set, keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 96 kilobits/sec
5 minute input rate 51 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
207 packets input, 13248 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
Serial0/0/1 is administratively down, line protocol is down (disabled)
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set, keepalive set (10 sec)
Last input never, output never, output hang never

```

```

Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 1158 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=down DSR=down DTR=down RTS=down CTS=down
Vlan1 is administratively down, line protocol is down
Hardware is CPU Interface, address is 0040.0b0b.e83d (bia
0040.0b0b.e83d)
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets

0 output buffer failures, 0 output buffers swapped out

```

Configuración R3

```

R3>show ip int brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 unassigned YES unset administratively down down
GigabitEthernet0/1 unassigned YES unset administratively down down
Serial0/0/0 unassigned YES unset administratively down down
Serial0/0/1 172.31.23.1 YES manual up up
Loopback4 192.168.4.1 YES manual up up
Loopback5 192.168.5.1 YES manual up up
Loopback6 192.168.6.1 YES manual up up
Vlan1 unassigned YES unset administratively down down
R3>

```

R3 con0 is now available

Press RETURN to get started.

Acceso no Autorizado!

User Access Verification

Password:

```

R3>show interf
R3>show interfaces
GigabitEthernet0/0 is administratively down, line protocol is down
(disabled)

```

```

Hardware is CN Gigabit Ethernet, address is 0060.2f3d.1001 (bia
0060.2f3d.1001)
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s, media type is RJ45
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier

```

```

0 output buffer failures, 0 output buffers swapped out
GigabitEthernet0/1 is administratively down, line protocol is down
(disabled)
Hardware is CN Gigabit Ethernet, address is 0060.2f3d.1002 (bia
0060.2f3d.1002)
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s, media type is RJ45
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Serial0/0/0 is administratively down, line protocol is down (disabled)
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set, keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 1158 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=down DSR=down DTR=down RTS=down CTS=down
Serial0/0/1 is up, line protocol is up (connected)
Hardware is HD64570
Description: connection to R2
Internet address is 172.31.23.1/30
MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set, keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 96 kilobits/sec
5 minute input rate 54 bits/sec, 0 packets/sec
5 minute output rate 54 bits/sec, 0 packets/sec
229 packets input, 15672 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

```

```

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
227 packets output, 15456 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
Loopback4 is up, line protocol is up (connected)
Hardware is Loopback
Internet address is 192.168.4.1/24
MTU 1514 bytes, BW 8000000 Kbit, DLY 5000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation LOOPBACK, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue 0/0, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
Loopback5 is up, line protocol is up (connected)
Hardware is Loopback
Internet address is 192.168.5.1/24
MTU 1514 bytes, BW 8000000 Kbit, DLY 5000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation LOOPBACK, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue 0/0, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
Loopback6 is up, line protocol is up (connected)
Hardware is Loopback
Internet address is 192.168.6.1/24
MTU 1514 bytes, BW 8000000 Kbit, DLY 5000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation LOOPBACK, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue 0/0, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out

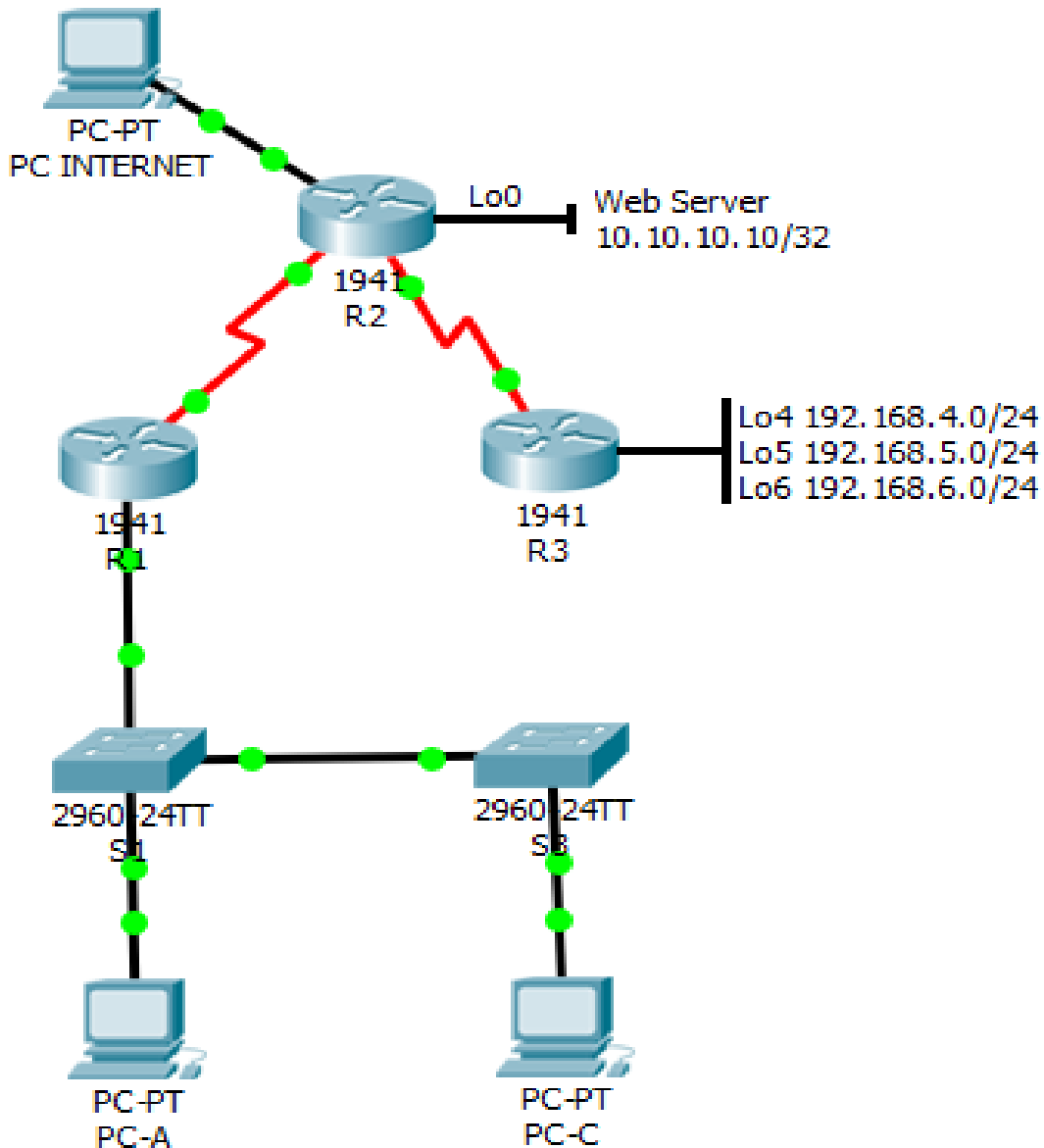
```

Vlan1 is administratively down, line protocol is down
 Hardware is CPU Interface, address is 0001.4286.e60d (bia 0001.4286.e60d)
 MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec, reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 ARP type: ARPA, ARP Timeout 04:00:00
 Last input 21:40:21, output never, output hang never
 Last clearing of "show interface" counters never
 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
 Queueing strategy: fifo
 Output queue: 0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 1682 packets input, 530955 bytes, 0 no buffer
 Received 0 broadcasts (0 IP multicast)
 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 563859 packets output, 0 bytes, 0 underruns
 0 output errors, 23 interface resets
 0 output buffer failures, 0 output buffers swapped out

R3>

Topología



CONCLUSION

Con el anterior trabajo se enfatiza en la estructuración y programación de los dispositivos utilizados en una red empresarial con varias sucursales y Vlan para su interconexión, por el método de desarrollo simulado en Packet Tracer, se tuvo el inconveniente que algunos comandos no son soportados por el simulador y la verificación fue necesario realizar la verificación con el comando ping para comprobar que si tiene conexión entre dispositivos, un ejemplo de dicho error es el comando **ip http serve**, el cual se utilizo para la habilitar el servicio **http** e **ip http authentication local** usado para configurar el servidor HTTP y utilizar la base de datos local para la autenticación, sin embargo Packet Tracer no soporta este comando y al momento de solicitar la pagina web del servidor no fue posible mostrar, la forma de verificación fue enviar un ping desde el equipo local hasta la IP del servidor para saber si tenía conexión.

Otro de las dificultades vistas fue por el direccionamiento IP de una de las Vlan 192.168.200.1 del departamento de Mantenimiento, esta me genero conflictos con las IPs del S1 (192.168.99.2) y S3 (192.168.99.3), realice el cambio de la Vlan 200 por la Vlan99 y así funciono correctamente el direccionamiento de todas Vlans y los Switches, al realizar este cambio fue necesario configurar desde ceros toda la red debido a que presente dificultades al modificar solo la Vlan200, teniendo algunos screenshots con que muestran Vlan200 y no Vlan99.

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