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**CCNA 4: CONNECTING NETWORKS**

**CASE STUD**

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# Introducción

## Resumen

Se nos presenta una solicitud de gestionar la instalación de una infraestructura a una entidad, a continuación, se presentan los planos facilitados a los administradores para llevar a cabo todos los requisitos demandados.

## Requisitos

Los arquitectos de red nos indican que tenemos que implementar y seguir un procedimiento:

1. implementar el diseño físico de la red utilizando el diagrama facilitado.
2. Configure correctamente los enrutadores con una configuración básica del enrutador, todas las credenciales se han asignado acorde con el equipo de seguridad de la empresa.
3. Para acabar de ver completamente el funcionamiento de la infraestructura hemos de configure correctamente las funciones de enrutamiento que describen los requisitos de diseño, incluidos los protocolos de enrutamiento IGP y EGP.
4. Configure correctamente los interruptores con una configuración de interruptor básica.
5. Configure correctamente las funciones de conmutación que describen los requisitos de diseño, incluidas las características de seguridad y las características de redundancia, todos los protocolos que se han de utilizar se indican en el plano facilitado por los arquitectos.
6. Configurar correctamente PPP como protocolo de encapsulación de la capa de enlace de datos, la empresa quiere asegurar el tráfico que circula entre sus entidades.
7. Configure correctamente los protocolos de redundancia como HSRP, dada la carga que tienen los dispositivos enrutadores y la cantidad de los empleados, la empresa quiere una mayor disponibilidad de los equipos de red, nos piden que haya dos enrutadores que forman un standbay entre los dos para una mayor redundancia.
8. Para ver la comunicación entre el exterior en red, se configura la traducción de direcciones de red (NAT) para proporcionar comunicaciones entre redes internas y externas.
9. Para facilitar una comunicación segura entre entidades remotas de la entidad se procede a implementar el túnel GRE.
10. La entidad cuanta con muchos empleados y necesitan una facilitación de ip dinámicamente, se procede a configurar las funciones DHCP para proporcionar direccionamiento, además de reservar las ip correspondientes a los servidores internos.
11. La entidad esta dividida en varios departamentos y como trabajan con muchos datos confidenciales, aparte de contar con vlan’s y permisos de acceso, desde seguridad nos piden implementar algunos controles de acceso, sobre todo para partes de administraciones de IT, configuramos correctamente las listas de control de acceso (ACL) para filtrar parte del tráfico.
12. Configurar correctamente las herramientas de monitorización para facilitar la administración al equipo de IT, la mayor parte de trafico y datos, logs, se gestionarán por herramientas de análisis automatizadas.

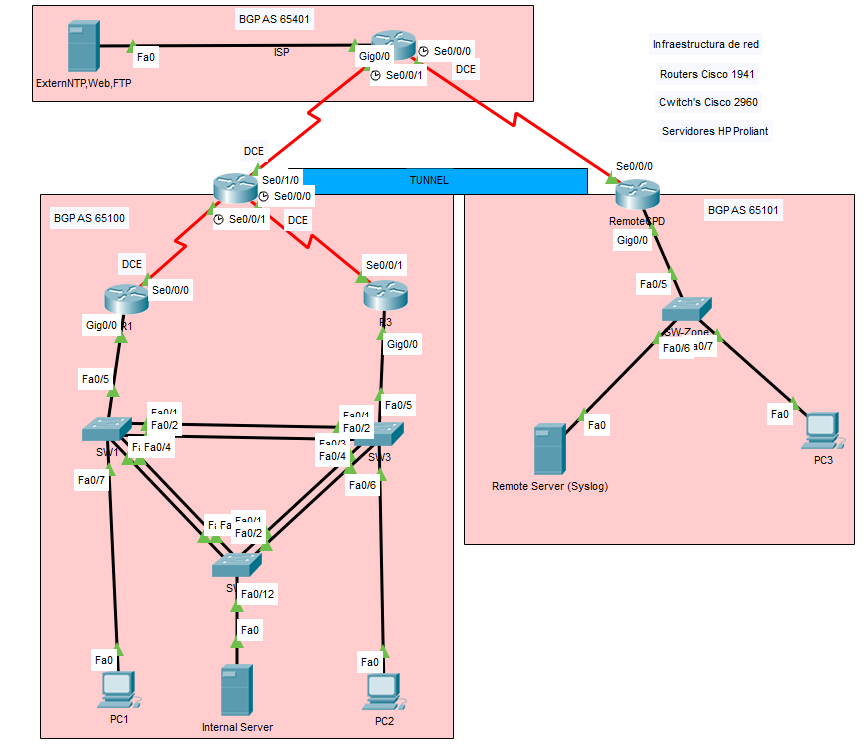
1. Por último, al acabar la instalación, se nos solicita verificar la conectividad como es debido para que la entidad comience a usar la infraestructura implementada, procedemos a solucionar problemas y probar la conectividad entre todos los dispositivos.
2. Proporcionar documentación detallada en un formulario prescrito, un equipo de administradores se encarga de realizar una pequeña memoria donde recoge los aspectos más importantes, para facilitar su mantenimiento en caso de incidencias.

# Planificación

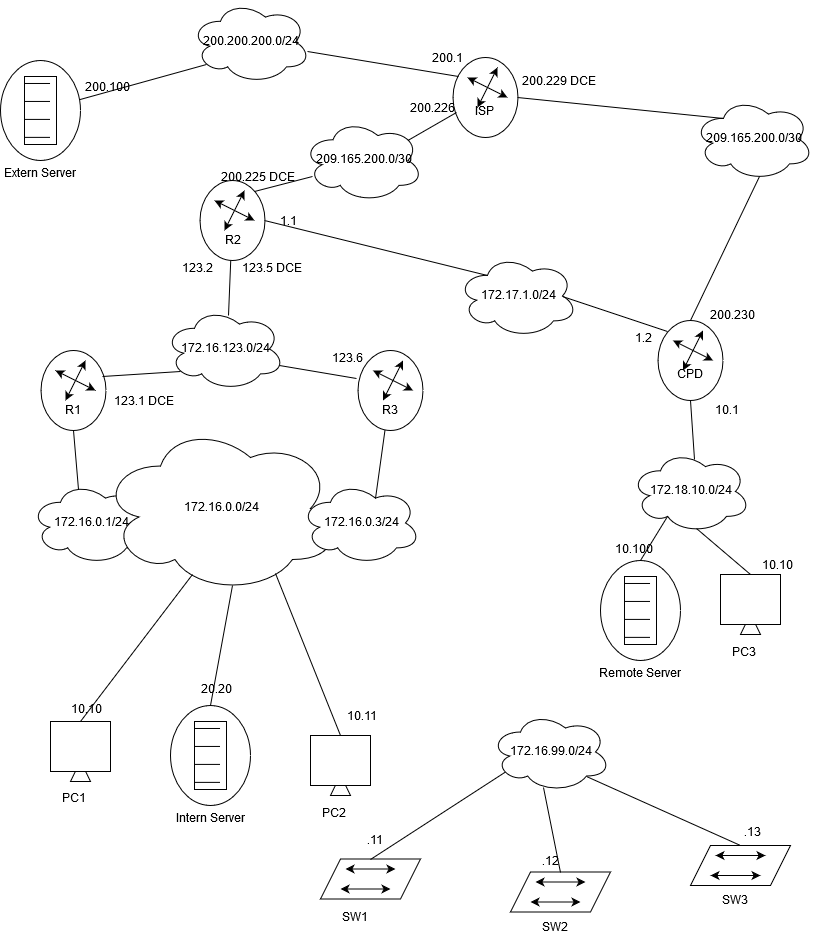
## Planos de la infraestructura

A continuación, se presentan los planos que nos han presentado los arquitectos de la red.

### Físico



### Lógico



# Identificación de los dispositivos

## Física

Se procede a realizar etiquetas con una demo con un número interno que identifica los dispositivos de la red corporativa.

## Lógica

Se ha acordado crear subredes para asignar direcciones ip a los dispositivos, se implementa dhcp para los equipos de trabajo, los servidores tendrán una ip fija reservada.

### Direccionamiento ip

A continuación, observamos las ip asignadas a los dispositivos:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Device** | **Interface** | **IP Address** | **Subnet Mask** | **Default Gateway** |
| **R1** | G0/0 | N/A | N/A | N/A |
| G0/0.10 | 172.16.10.1 | 255.255.255.0 | N/A |
| G0/0.20 | 172.16.20.1 | 255.255.255.0 | N/A |
| G0/0.99 | 172.16.99.1 | 255.255.255.0 | N/A |
| Lo0 | 172.16.1.1 | 255.255.255.0 | N/A |
| Lo1 | 172.16.2.1 | 255.255.255.0 | N/A |
| Lo2 | 172.16.3.1 | 255.255.255.0 | N/A |
| S0/0/0 | 172.16.123.1 | 255.255.255.252 | N/A |
| **R2** | S0/0/0 | 172.16.123.5 | 255.255.255.252 | N/A |
| S0/0/1 | 172.16.123.2 | 255.255.255.252 | N/A |
| S0/1/0 | 209.165.200.225 | 255.255.255.252 | N/A |
| Tunnel0 | 172.17.1.1 | 255.255.255.252 | N/A |
| **R3** | G0/0 | N/A | N/A | N/A |
| G0/0.10 | 172.16.10.3 | 255.255.255.0 | N/A |
| G0/0.20 | 172.16.20.3 | 255.255.255.0 | N/A |
| G0/0.99 | 172.16.99.3 | 255.255.255.0 | N/A |
| Lo4 | 172.16.4.1 | 255.255.255.0 | N/A |
| Lo5 | 172.16.5.1 | 255.255.255.0 | N/A |
| Lo6 | 172.16.6.1 | 255.255.255.0 | N/A |
| S0/0/1 | 172.16.123.6 | 255.255.255.252 | N/A |
| **SW1** | VLAN 99 | 172.16.99.11 | 255.255.255.0 | 172.16.99.2 |
| **SW2** | VLAN 99 | 172.16.99.12 | 255.255.255.0 | 172.16.99.2 |
| **SW3** | VLAN 99 | 172.16.99.13 | 255.255.255.0 | 172.16.99.2 |
| **ISP** | G0/0 | 200.200.200.1 | 255.255.255.0 | N/A |
| S0/0/0 | 209.165.200.229 | 255.255.255.252 | N/A |
| S0/0/1 | 209.165.200.226 | 255.255.255.252 | N/A |
| **RemoteCPD** | G0/0 | 172.18.10.1 | 255.255.255.0 | N/A |
| S0/0/0 | 209.165.200.230 | 255.255.255.252 | N/A |
| Tunnel0 | 172.17.1.2 | 255.255.255.252 | N/A |
| **PC1** | NIC | 172.16.10.10 or DHCP | 255.255.255.0 | 172.16.10.2 |
| **PC2** | NIC | 172.16.10.11 or  DHCP | 255.255.255.0 | 172.16.10.2 |
| **PC3** | NIC | 172.18.10.10 or DHCP | 255.255.255.0 | 172.18.10.1 |
| **Internal**  **Server** | NIC | 172.16.20.20 | 255.255.255.0 | 172.16.20.2 |
| **Remote**  **Server** | NIC | 172.18.10.100 | 255.255.255.0 | 172.18.10.1 |
| **External**  **Server** | NIC | 200.200.200.100 | 255.255.255.0 | 200.200.200.1 |

### Asignación de puertos a Switch’s

|  |  |  |  |
| --- | --- | --- | --- |
| **Switch** | **Ports** | **Assignment** | **Network** |
| SW1 | F0/1 - F0/5 | 802.1q Trunks (Native VLAN 99) | 172.16.99.0/24 |
| F0/6 - F0/11 | VLAN 10 – Sales | 172.16.10.0/24 |
| F0/12 - F0/17 | VLAN 20 – Servers | 172.16.20.0/24 |
| SW2 | F0/1 - F0/4 | 802.1q Trunks (Native VLAN 99) | 172.16.99.0/24 |
| F0/6 - F0/11 | VLAN 10 – Sales | 172.16.10.0/24 |
| F0/12 - F0/17 | VLAN 20 – Servers | 172.16.20.0/24 |
| SW3 | F0/1- F0/5 | 802.1q Trunks (Native VLAN 99) | 172.16.99.0/24 |
| F0/6 - F0/11 | VLAN 10 – Sales | 172.16.10.0/24 |
| F0/12 - F0/17 | VLAN 20 – Servers | 172.16.20.0/24 |

### Información de vlan’s

|  |  |
| --- | --- |
| **VLAN** | **VLAN Name** |
| VLAN 99 (Native) | Management |
| VLAN 10 | Sales |
| VLAN 20 | Servers |

# Configuraciones de dispositivos

## Control de acceso a dispositivos:

Por razones de seguridad se han habilitado todos los controles de acceso a los dispositivos de red, a continuación, se muestran las credenciales de acceso:

|  |  |  |  |
| --- | --- | --- | --- |
| Dispositivo | Nivel de acceso | Usuario | Password |
| Routers | Console | **admin01** | **admin01pass** |
| Switch’s | Console | **admin01** | **admin01pass** |
|  |  |  |  |
| Routers | Privilegiado | **-** | **ciscoenpa55** |
| Switch’s | Console | **-** | **ciscoconpa55** |
|  |  |  |  |
| Routers | Acceso remoto vía ssh | **adminSSH** | **adminSSHpass** |
| Switch’s | Acceso remoto vía telnet | **remote** | **ciscovtypa55** |
| ISP | Console | **--** | **ciscoconpa55** |
| ISP | Privilegiado | **--** | **ciscoenpa55** |

# 

## Dispositivos finales

### Equipos de trabajo

Se les asigna la ip correspondiente según la tabla de direccionamiento mencionada anteriormente, o una configuración que les será facilitada por el servidor DHCP.

### Servidores

Se les asigna una ip estática según la tabla mencionada anteriormente, a demás el servidor dhcp tiene reservado esas ip que corresponden a los servidores.

Información técnica.

### Routers

Se procede a realizar las configuraciones necesarias en los enrutadores, según las necesidades acordadas, se habilitan controles de acceso a todos los dispositivos, a continuación se detallan los resultados de cada apartado:

#### Router 1

* show cdp neighbors

R1#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

SW1 Gig 0/0.99 160 S 2960 Fas 0/5

R2 Ser 0/0/0 160 R C1900 Ser 0/0/1

* show ip interface brief

R1# show ip interface brief

Interface IP-Address OK? Method Status Protocol

GigabitEthernet0/0 unassigned YES unset up up

GigabitEthernet0/0.10 172.16.10.1 YES manual up up

GigabitEthernet0/0.20 172.16.20.1 YES manual up up

GigabitEthernet0/0.99 172.16.99.1 YES manual up up

GigabitEthernet0/1 unassigned YES unset administratively down down

Serial0/0/0 172.16.123.1 YES manual up up

Serial0/0/1 unassigned YES unset administratively down down

Serial0/1/0 unassigned YES unset administratively down down

Serial0/1/1 unassigned YES unset administratively down down

Loopback0 172.16.1.1 YES manual up up

Loopback1 172.16.2.1 YES manual up up

Loopback2 172.16.3.1 YES manual up up

Vlan1 unassigned YES unset administratively down down

* show interface <type\_slot\_port>

R1#show interfaces serial 0/0/0

Serial0/0/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: Link R1 ---------> R2

Internet address is 172.16.123.1/30

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 108 bits/sec, 0 packets/sec

5 minute output rate 108 bits/sec, 0 packets/sec

2304 packets input, 212529 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

2570 packets output, 258295 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

* show versión

R1#show version

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE SOFTWARE (fc2)

Technical Support: http://www.cisco.com/techsupport

Copyright (c) 1986-2007 by Cisco Systems, Inc.

Compiled Wed 23-Feb-11 14:19 by pt\_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)

cisco1941 uptime is 2 hours, 15 minutes, 51 seconds

System returned to ROM by power-on

System image file is "flash0:c1900-universalk9-mz.SPA.151-1.M4.bin"

Last reload type: Normal Reload

This product contains cryptographic features and is subject to United

States and local country laws governing import, export, transfer and

use. Delivery of Cisco cryptographic products does not imply

third-party authority to import, export, distribute or use encryption.

Importers, exporters, distributors and users are responsible for

compliance with U.S. and local country laws. By using this product you

agree to comply with applicable laws and regulations. If you are unable

to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to

export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.

Processor board ID FTX152400KS

2 Gigabit Ethernet interfaces

4 Low-speed serial(sync/async) network interface(s)

DRAM configuration is 64 bits wide with parity disabled.

255K bytes of non-volatile configuration memory.

249856K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

-------------------------------------------------

Device# PID SN

-------------------------------------------------

\*0 CISCO1941/K9 FTX1524MXS3-

Technology Package License Information for Module:'c1900'

----------------------------------------------------------------

Technology Technology-package Technology-package

Current Type Next reboot

-----------------------------------------------------------------

ipbase ipbasek9 Permanent ipbasek9

security disable None None

data disable None None

Configuration register is 0x2102

* show startup-config

R1#show startup-config

Using 3199 bytes

!

version 15.1

service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

security passwords min-length 10

!

hostname R1

!

!

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

username admin01 password 7 0820484300175546020A1F17

username adminSSH password 7 08204843001736243A1B0D1739

!

!

license udi pid CISCO1941/K9 sn FTX1524MXS3-

no ip domain-lookup

ip domain-name CCNA\_CS4.com

!

!

spanning-tree mode pvst

interface Loopback0

ip address 172.16.1.1 255.255.255.0

!

interface Loopback1

ip address 172.16.2.1 255.255.255.0

!

interface Loopback2

ip address 172.16.3.1 255.255.255.0

!

interface GigabitEthernet0/0

no ip address

duplex auto

speed auto

!

interface GigabitEthernet0/0.10

description Lan 10

encapsulation dot1Q 10

ip address 172.16.10.1 255.255.255.0

ip access-group 101 in

standby 1 ip 172.16.10.2

!

interface GigabitEthernet0/0.20

description Lan 20

encapsulation dot1Q 20

ip address 172.16.20.1 255.255.255.0

ip access-group 101 in

standby 2 ip 172.16.20.2

standby 2 priority 101

standby 2 preempt

!

interface GigabitEthernet0/0.99

description Lan 99

encapsulation dot1Q 99 native

ip address 172.16.99.1 255.255.255.0

ip access-group 101 in

standby 3 ip 172.16.99.2

standby 3 priority 101

standby 3 preempt

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Serial0/0/0

description Link R1 ---------> R2

ip address 172.16.123.1 255.255.255.252

ip ospf message-digest-key 1 md5 routingOSPF

ip ospf hello-interval 5

ip ospf dead-interval 20

!

interface Serial0/0/1

no ip address

clock rate 2000000

shutdown

!

interface Serial0/1/0

no ip address

clock rate 2000000

shutdown

!

interface Serial0/1/1

no ip address

clock rate 2000000

shutdown

!

interface Vlan1

no ip address

shutdown

!

router ospf 10

router-id 1.1.1.1

log-adjacency-changes

area 1 range 172.16.0.0 255.255.255.0

area 0 authentication message-digest

redistribute connected

passive-interface GigabitEthernet0/0

passive-interface GigabitEthernet0/0.10

passive-interface GigabitEthernet0/0.20

passive-interface GigabitEthernet0/0.99

network 172.16.1.0 0.0.0.255 area 1

network 172.16.2.0 0.0.0.255 area 1

network 172.16.3.0 0.0.0.255 area 1

network 172.16.10.0 0.0.0.255 area 0

network 172.16.20.0 0.0.0.255 area 0

network 172.16.99.0 0.0.0.255 area 0

network 172.16.123.0 0.0.0.3 area 0

default-information originate

!

ip classless

!

ip flow-export version 9

!

!

access-list 101 deny tcp 172.16.20.0 0.0.0.255 host 172.16.10.1 eq 22

access-list 101 deny tcp 172.16.99.0 0.0.0.255 host 172.16.10.1 eq 22

access-list 101 permit ip any any

access-list 101 deny tcp 172.16.20.0 0.0.0.255 host 172.16.10.1 eq telnet

access-list 101 deny tcp 172.16.99.0 0.0.0.255 host 172.16.10.1 eq telnet

!

banner motd ^Chis is R1 CLI.

^C

!

!

!

!

!

logging 172.18.10.100

line con 0

password 7 0822455D0A1606181C1B0D517F

!

line aux 0

!

line vty 0 4

login local

transport input ssh

transport output ssh

line vty 5 15

login local

transport input ssh

transport output ssh

!

!

ntp server 200.200.200.100

ntp update-calendar

!

end

* show standby

R1#show standby

GigabitEthernet0/0.10 - Group 1

State is Standby

7 state changes, last state change 00:00:38

Virtual IP address is 172.16.10.2

Active virtual MAC address is 0000.0C07.AC01

Local virtual MAC address is 0000.0C07.AC01 (v1 default)

Hello time 3 sec, hold time 10 sec

Next hello sent in 2.119 secs

Preemption disabled

Active router is 172.16.10.3

Standby router is local

Priority 100 (default 100)

Group name is hsrp-Gig-1 (default)

GigabitEthernet0/0.20 - Group 2

State is Active

5 state changes, last state change 00:00:19

Virtual IP address is 172.16.20.2

Active virtual MAC address is 0000.0C07.AC02

Local virtual MAC address is 0000.0C07.AC02 (v1 default)

Hello time 3 sec, hold time 10 sec

Next hello sent in 0.996 secs

Preemption enabled

Active router is local

Standby router is 172.16.20.3

Priority 101 (configured 101)

Group name is hsrp-Gig-2 (default)

GigabitEthernet0/0.99 - Group 3

State is Active

5 state changes, last state change 00:00:22

Virtual IP address is 172.16.99.2

Active virtual MAC address is 0000.0C07.AC03

Local virtual MAC address is 0000.0C07.AC03 (v1 default)

Hello time 3 sec, hold time 10 sec

Next hello sent in 2.196 secs

Preemption enabled

Active router is local

Standby router is 172.16.99.3, priority 100 (expires in 7 sec)

Priority 101 (configured 101)

Group name is hsrp-Gig-3 (default)

* show standby brief

R1# show standby brief

P indicates configured to preempt.

|

Interface Grp Pri P State Active Standby Virtual IP

Gig 1 100 Standby 172.16.10.3 local 172.16.10.2

Gig 2 101 P Active local 172.16.20.3 172.16.20.2

Gig 3 101 P Active local 172.16.99.3 172.16.99.2

* show ip route

R1#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

172.16.0.0/16 is variably subnetted, 16 subnets, 4 masks

C 172.16.1.0/24 is directly connected, Loopback0

L 172.16.1.1/32 is directly connected, Loopback0

C 172.16.2.0/24 is directly connected, Loopback1

L 172.16.2.1/32 is directly connected, Loopback1

C 172.16.3.0/24 is directly connected, Loopback2

L 172.16.3.1/32 is directly connected, Loopback2

O IA 172.16.4.0/22 [110/129] via 172.16.123.2, 00:23:17, Serial0/0/0

C 172.16.10.0/24 is directly connected, GigabitEthernet0/0.10

L 172.16.10.1/32 is directly connected, GigabitEthernet0/0.10

C 172.16.20.0/24 is directly connected, GigabitEthernet0/0.20

L 172.16.20.1/32 is directly connected, GigabitEthernet0/0.20

C 172.16.99.0/24 is directly connected, GigabitEthernet0/0.99

L 172.16.99.1/32 is directly connected, GigabitEthernet0/0.99

C 172.16.123.0/30 is directly connected, Serial0/0/0

L 172.16.123.1/32 is directly connected, Serial0/0/0

O 172.16.123.4/30 [110/128] via 172.16.123.2, 00:23:17, Serial0/0/0

* show ip protocols

R1#show ip protocols

Routing Protocol is "ospf 10"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 1.1.1.1

It is an autonomous system boundary router

Redistributing External Routes from,

connected

Number of areas in this router is 2. 2 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

172.16.1.0 0.0.0.255 area 1

172.16.2.0 0.0.0.255 area 1

172.16.3.0 0.0.0.255 area 1

172.16.10.0 0.0.0.255 area 0

172.16.20.0 0.0.0.255 area 0

172.16.99.0 0.0.0.255 area 0

172.16.123.0 0.0.0.3 area 0

Passive Interface(s):

GigabitEthernet0/0

GigabitEthernet0/0.10

GigabitEthernet0/0.20

* show ip ospf

R1#show ip ospf

Routing Process "ospf 10" with ID 1.1.1.1

Supports only single TOS(TOS0) routes

Supports opaque LSA

It is an autonomous system boundary router

It is an area border router

SPF schedule delay 5 secs, Hold time between two SPFs 10 secs

Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs

Number of external LSA 0. Checksum Sum 0x000000

Number of opaque AS LSA 0. Checksum Sum 0x000000

Number of DCbitless external and opaque AS LSA 0

Number of DoNotAge external and opaque AS LSA 0

Number of areas in this router is 2. 2 normal 0 stub 0 nssa

External flood list length 0

Area 1

Number of interfaces in this area is 3

Area has no authentication

SPF algorithm executed 7 times

Area ranges are

Number of LSA 9. Checksum Sum 0x035b29

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

Area BACKBONE(0)

Number of interfaces in this area is 4

Area has message digest authentication

SPF algorithm executed 9 times

Area ranges are

Number of LSA 8. Checksum Sum 0x04f5ed

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

* show ip ospf neighbors

R1#show ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface

2.2.2.2 0 FULL/ - 00:00:19 172.16.123.2 Serial0/0/0

* show ip ospf database

R1#show ip ospf database

OSPF Router with ID (1.1.1.1) (Process ID 10)

Router Link States (Area 0)

Link ID ADV Router Age Seq# Checksum Link count

1.1.1.1 1.1.1.1 1509 0x8000000a 0x0093bd 5

3.3.3.3 3.3.3.3 1511 0x8000000a 0x00de59 5

2.2.2.2 2.2.2.2 1511 0x80000008 0x007d9b 4

Summary Net Link States (Area 0)

Link ID ADV Router Age Seq# Checksum

172.16.1.1 1.1.1.1 1515 0x80000010 0x00bccf

172.16.2.1 1.1.1.1 1515 0x80000011 0x00afda

172.16.3.1 1.1.1.1 1515 0x80000012 0x00a2e5

172.16.4.0 3.3.3.3 1511 0x80000034 0x00124f

Summary ASB Link States (Area 0)

Link ID ADV Router Age Seq# Checksum

2.2.2.2 1.1.1.1 1521 0x8000000f 0x00e45f

Router Link States (Area 1)

Link ID ADV Router Age Seq# Checksum Link count

1.1.1.1 1.1.1.1 1522 0x80000007 0x0006db 3

Summary Net Link States (Area 1)

Link ID ADV Router Age Seq# Checksum

172.16.10.0 1.1.1.1 1499 0x80000024 0x003b35

172.16.20.0 1.1.1.1 1499 0x80000025 0x00ca9a

172.16.99.0 1.1.1.1 1499 0x80000026 0x0060b4

172.16.123.0 1.1.1.1 1499 0x80000027 0x00bb04

172.16.123.4 1.1.1.1 1495 0x8000002a 0x001068

172.16.4.0 1.1.1.1 1495 0x8000002b 0x00658c

Summary ASB Link States (Area 1)

Link ID ADV Router Age Seq# Checksum

2.2.2.2 1.1.1.1 1495 0x80000028 0x0035b5

3.3.3.3 1.1.1.1 1495 0x80000029 0x00871e

* show ip ospf interface <interface>

R1#show ip ospf interface serial 0/0/0

Serial0/0/0 is up, line protocol is up

Internet address is 172.16.123.1/30, Area 0

Process ID 10, Router ID 1.1.1.1, Network Type POINT-TO-POINT, Cost: 64

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 5, Dead 20, Wait 20, Retransmit 5

Hello due in 00:00:04

Index 4/4, 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 2.2.2.2

Suppress hello for 0 neighbor(s)

Message digest authentication enabled

Youngest key id is 1

* show ip ospf interface brief

(No suportado en PKT)

* show ip bgp summary

(No configurado en el dispositivo)

* show ip bgp

(No configurado en el dispositivo)

* show ip nat statistics

(No configurado en el dispositivo)

* show ip nat translations

(No configurado en el dispositivo)

* show ip dhcp binding

(No configurado en el dispositivo)

* show ip dhcp pool

(No configurado en el dispositivo)

* show ip access-lists

R1#show ip access-lists

Extended IP access list 101

10 deny tcp 172.16.20.0 0.0.0.255 host 172.16.10.1 eq 22

20 deny tcp 172.16.99.0 0.0.0.255 host 172.16.10.1 eq 22

30 permit ip any any (10726 match(es))

40 deny tcp 172.16.20.0 0.0.0.255 host 172.16.10.1 eq telnet

50 deny tcp 172.16.99.0 0.0.0.255 host 172.16.10.1 eq telnet

* show ntp status

R1#show ntp status

Clock is unsynchronized, stratum 16, no reference clock

nominal freq is 250.0000 Hz, actual freq is 249.9990 Hz, precision is 2\*\*24

reference time is 00000000.00000000 (00:00:00.000 UTC Mon Jan 1 1990)

clock offset is 0.00 msec, root delay is 0.00 msec

root dispersion is 0.00 msec, peer dispersion is 0.00 msec.

loopfilter state is 'FSET' (Drift set from file), drift is - 0.000001193 s/s system poll interval is 4, never updated.

* show logging

R1#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 15 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 15 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 15 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

15 message lines logged,

0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

#### Router 2

* show cdp neighbors

R2#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

R1 Ser 0/0/1 162 R C1900 Ser 0/0/0

* show ip interface brief

R2#show ip interface brief

Interface IP-Address OK? Method Status Protocol

GigabitEthernet0/0 unassigned YES unset administratively down down

GigabitEthernet0/1 unassigned YES unset administratively down down

Serial0/0/0 172.16.123.5 YES manual up up

Serial0/0/1 172.16.123.2 YES manual up up

Serial0/1/0 209.165.200.225 YES manual up up

Serial0/1/1 unassigned YES unset administratively down down

Tunnel0 172.17.1.1 YES manual up up

Vlan1 unassigned YES unset administratively down down

* show interface <type\_slot\_port>

R2#show ip interface serial 0/0/0

Serial0/0/0 is up, line protocol is up (connected)

Internet address is 172.16.123.5/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is 150

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

R2#show ip interface serial 0/0/1

Serial0/0/1 is up, line protocol is up (connected)

Internet address is 172.16.123.2/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is 150

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

R2#show ip interface serial 0/1/0

Serial0/1/0 is up, line protocol is up (connected)

Internet address is 209.165.200.225/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

R2#show ip interface tunnel 0

Tunnel0 is up, line protocol is up

Internet address is 172.17.1.1/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1476 bytes

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Local Proxy ARP is disabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is enabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP CEF switching is enabled

IP CEF switching turbo vector

IP Null turbo vector

IP multicast fast switching is enabled

IP multicast distributed fast switching is disabled

IP route-cache flags are Fast, CEF

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Policy routing is disabled

Network address translation is disabled

BGP Policy Mapping is disabled

Input features: MCI Check

WCCP Redirect outbound is disabled

WCCP Redirect inbound is disabled

WCCP Redirect exclude is disabled

* show versión

R2#show version

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE SOFTWARE (fc2)

Technical Support: http://www.cisco.com/techsupport

Copyright (c) 1986-2007 by Cisco Systems, Inc.

Compiled Wed 23-Feb-11 14:19 by pt\_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)

cisco1941 uptime is 2 hours, 35 minutes, 59 seconds

System returned to ROM by power-on

System image file is "flash0:c1900-universalk9-mz.SPA.151-1.M4.bin"

Last reload type: Normal Reload

This product contains cryptographic features and is subject to United

States and local country laws governing import, export, transfer and

use. Delivery of Cisco cryptographic products does not imply

third-party authority to import, export, distribute or use encryption.

Importers, exporters, distributors and users are responsible for

compliance with U.S. and local country laws. By using this product you

agree to comply with applicable laws and regulations. If you are unable

to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to

export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.

Processor board ID FTX152400KS

2 Gigabit Ethernet interfaces

4 Low-speed serial(sync/async) network interface(s)

DRAM configuration is 64 bits wide with parity disabled.

255K bytes of non-volatile configuration memory.

249856K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

-------------------------------------------------

Device# PID SN

-------------------------------------------------

\*0 CISCO1941/K9 FTX1524MXRR-

Technology Package License Information for Module:'c1900'

----------------------------------------------------------------

Technology Technology-package Technology-package

Current Type Next reboot

-----------------------------------------------------------------

ipbase ipbasek9 Permanent ipbasek9

security disable None None

data disable None None

Configuration register is 0x2102

* show startup-config

R2#show startup-config

Using 3564 bytes

!

version 15.1

service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

security passwords min-length 10

!

hostname R2

!

!

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

!

!

!

no ip cef

no ipv6 cef

!

!

!

username ISP password 7 08315C5E393835121C080D14

username admin01 password 7 0820484300175546020A1F17

username adminSSH password 7 08204843001736243A1B0D1739

!

!

license udi pid CISCO1941/K9 sn FTX1524MXRR-

!

!

!

!

!

!

!

!

!

no ip domain-lookup

ip domain-name CCNA4\_CS4.com

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface Tunnel0

ip address 172.17.1.1 255.255.255.252

mtu 1476

tunnel source Serial0/1/0

tunnel destination 209.165.200.230

!

!

interface GigabitEthernet0/0

no ip address

duplex auto

speed auto

shutdown

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Serial0/0/0

description R2 -----------> R3

ip address 172.16.123.5 255.255.255.252

ip ospf message-digest-key 1 md5 routingOSPF

ip ospf hello-interval 5

ip ospf dead-interval 20

ip access-group 150 in

ip nat inside

clock rate 128000

!

interface Serial0/0/1

description R2 -----------> R1

ip address 172.16.123.2 255.255.255.252

ip ospf message-digest-key 1 md5 routingOSPF

ip ospf hello-interval 5

ip ospf dead-interval 20

ip access-group 150 in

ip nat inside

clock rate 2000000

!

interface Serial0/1/0

description R2 -----------> ISP

ip address 209.165.200.225 255.255.255.252

ip nat outside

!

interface Serial0/1/1

no ip address

clock rate 2000000

shutdown

!

interface Vlan1

no ip address

shutdown

!

router ospf 10

router-id 2.2.2.2

log-adjacency-changes

area 0 authentication message-digest

passive-interface default

no passive-interface Serial0/0/0

no passive-interface Serial0/0/1

network 172.16.123.0 0.0.0.3 area 0

network 172.16.123.4 0.0.0.3 area 0

default-information originate

!

router bgp 65100

bgp log-neighbor-changes

no synchronization

neighbor 209.165.200.226 remote-as 65401

network 209.165.200.224 mask 255.255.255.252

redistribute static

!

ip nat pool salesNET 1.1.1.1 1.1.1.2 netmask 255.255.255.248

ip nat inside source list 1 pool salesNET overload

ip nat inside source static 172.16.20.20 1.1.1.4

ip classless

ip route 0.0.0.0 0.0.0.0 209.165.200.226

ip route 172.18.0.0 255.255.0.0 172.17.1.2

ip route 1.1.1.0 255.255.255.248 Null0

!

ip flow-export version 9

!

!

access-list 1 permit 172.16.10.0 0.0.0.255

access-list 100 permit ip 172.16.10.0 0.0.0.255 200.200.200.0 0.0.0.255

ip access-list extended web

deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq www

deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq 443

deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq www

deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq 443

permit ip any any

access-list 150 deny tcp 172.16.10.0 0.0.0.255 host 200.200.200.100 eq 20

access-list 150 deny tcp 172.16.10.0 0.0.0.255 host 200.200.200.100 eq ftp

access-list 150 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq 20

access-list 150 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq ftp

access-list 150 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq ftp

access-list 150 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq 20

access-list 150 permit ip any any

!

banner motd ^Chis is R2 CLI

^C

!

!

!

!

!

logging trap debugging

logging 172.18.10.100

line con 0

login local

!

line aux 0

!

line vty 0 4

login

transport input ssh

line vty 5 15

login

transport input ssh

!

!

ntp server 200.200.200.100

ntp update-calendar

!

end

* show standby

(No configurado en el dispositivo)

* show standby brief

(No configurado en el dispositivo)

* show ip route

R2#show standby brief

P indicates configured to preempt.

|

Interface Grp Pri P State Active Standby Virtual IP

R2#show ip rou

R2#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is 209.165.200.226 to network 0.0.0.0

1.0.0.0/29 is subnetted, 1 subnets

S 1.1.1.0/29 is directly connected, Null0

172.16.0.0/16 is variably subnetted, 11 subnets, 4 masks

O IA 172.16.1.1/32 [110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O IA 172.16.2.1/32 [110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O IA 172.16.3.1/32 [110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O IA 172.16.4.0/22 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

O 172.16.10.0/24 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

[110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O 172.16.20.0/24 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

[110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O 172.16.99.0/24 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

[110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

C 172.16.123.0/30 is directly connected, Serial0/0/1

L 172.16.123.2/32 is directly connected, Serial0/0/1

C 172.16.123.4/30 is directly connected, Serial0/0/0

L 172.16.123.5/32 is directly connected, Serial0/0/0

172.17.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.17.1.0/30 is directly connected, Tunnel0

L 172.17.1.1/32 is directly connected, Tunnel0

S 172.18.0.0/16 [1/0] via 172.17.1.2

209.165.200.0/24 is variably subnetted, 4 subnets, 2 masks

C 209.165.200.224/30 is directly connected, Serial0/1/0

L 209.165.200.225/32 is directly connected, Serial0/1/0

C 209.165.200.226/32 is directly connected, Serial0/1/0

B 209.165.200.228/30 [20/0] via 209.165.200.226, 00:00:00

S\* 0.0.0.0/0 [1/0] via 209.165.200.226

* show ip protocols

R2#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is 209.165.200.226 to network 0.0.0.0

1.0.0.0/29 is subnetted, 1 subnets

S 1.1.1.0/29 is directly connected, Null0

172.16.0.0/16 is variably subnetted, 11 subnets, 4 masks

O IA 172.16.1.1/32 [110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O IA 172.16.2.1/32 [110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O IA 172.16.3.1/32 [110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O IA 172.16.4.0/22 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

O 172.16.10.0/24 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

[110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O 172.16.20.0/24 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

[110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

O 172.16.99.0/24 [110/65] via 172.16.123.6, 4294967295:4294967261:4294967239, Serial0/0/0

[110/65] via 172.16.123.1, 4294967295:4294967261:4294967239, Serial0/0/1

C 172.16.123.0/30 is directly connected, Serial0/0/1

L 172.16.123.2/32 is directly connected, Serial0/0/1

C 172.16.123.4/30 is directly connected, Serial0/0/0

L 172.16.123.5/32 is directly connected, Serial0/0/0

172.17.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.17.1.0/30 is directly connected, Tunnel0

L 172.17.1.1/32 is directly connected, Tunnel0

S 172.18.0.0/16 [1/0] via 172.17.1.2

209.165.200.0/24 is variably subnetted, 4 subnets, 2 masks

C 209.165.200.224/30 is directly connected, Serial0/1/0

L 209.165.200.225/32 is directly connected, Serial0/1/0

C 209.165.200.226/32 is directly connected, Serial0/1/0

B 209.165.200.228/30 [20/0] via 209.165.200.226, 00:00:00

S\* 0.0.0.0/0 [1/0] via 209.165.200.226

R2#show ip pro

R2#show ip protocols

Routing Protocol is "bgp 65100"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

IGP synchronization is disabled

Automatic route summarization is disabled

Neighbor(s):

Address FiltIn FiltOut DistIn DistOut Weight RouteMap

209.165.200.226

Maximum path: 1

Routing Information Sources:

Gateway Distance Last Update

209.165.200.226 20 00:00:00

Distance: external 20 internal 200 local 200

Routing Protocol is "ospf 10"

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:

172.16.123.0 0.0.0.3 area 0

172.16.123.4 0.0.0.3 area 0

Passive Interface(s):

Vlan1

GigabitEthernet0/0

GigabitEthernet0/1

Serial0/1/0

Serial0/1/1

Tunnel0

Routing Information Sources:

Gateway Distance Last Update

1.1.1.1 110 00:00:00

2.2.2.2 110 00:00:00

3.3.3.3 110 00:00:00

Distance: (default is 110)

* show ip ospf

R2#show ip ospf

Routing Process "ospf 10" with ID 2.2.2.2

Supports only single TOS(TOS0) routes

Supports opaque LSA

SPF schedule delay 5 secs, Hold time between two SPFs 10 secs

Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs

Number of external LSA 1. Checksum Sum 0x00e0e9

Number of opaque AS LSA 0. Checksum Sum 0x000000

Number of DCbitless external and opaque AS LSA 0

Number of DoNotAge external and opaque AS LSA 0

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

External flood list length 0

Area BACKBONE(0)

Number of interfaces in this area is 2

Area has message digest authentication

SPF algorithm executed 14 times

Area ranges are

Number of LSA 10. Checksum Sum 0x06c04b

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

* show ip ospf neighbors

R2#show ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface

3.3.3.3 0 FULL/ - 00:00:18 172.16.123.6 Serial0/0/0

1.1.1.1 0 FULL/ - 00:00:18 172.16.123.1 Serial0/0/1

* show ip ospf database

R2#show ip ospf database

OSPF Router with ID (2.2.2.2) (Process ID 10)

Router Link States (Area 0)

Link ID ADV Router Age Seq# Checksum Link count

3.3.3.3 3.3.3.3 0 0x8000000b 0x00dc5a 5

2.2.2.2 2.2.2.2 0 0x8000000c 0x00759f 4

1.1.1.1 1.1.1.1 0 0x8000000d 0x008dc0 5

Summary Net Link States (Area 0)

Link ID ADV Router Age Seq# Checksum

172.16.1.1 1.1.1.1 0 0x80000014 0x00b4d3

172.16.2.1 1.1.1.1 0 0x80000015 0x00a7de

172.16.3.1 1.1.1.1 0 0x80000016 0x009ae9

172.16.4.0 3.3.3.3 0 0x80000041 0x00f75c

Summary ASB Link States (Area 0)

Link ID ADV Router Age Seq# Checksum

2.2.2.2 2.2.2.2 3600 0x80000001 0x00e26b

2.2.2.2 3.3.3.3 0 0x8000004a 0x0032ce

2.2.2.2 1.1.1.1 3600 0x80000013 0x00dc63

Type-5 AS External Link States

Link ID ADV Router Age Seq# Checksum Tag

0.0.0.0 2.2.2.2 3600 0x80000001 0x00e0e9 1

* show ip ospf interface <interface>

R2#show ip ospf interface serial 0/0/0

Serial0/0/0 is up, line protocol is up

Internet address is 172.16.123.5/30, Area 0

Process ID 10, Router ID 2.2.2.2, Network Type POINT-TO-POINT, Cost: 64

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 5, Dead 20, Wait 20, Retransmit 5

Hello due in 00:00:00

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 1 , Adjacent neighbor count is 1

Adjacent with neighbor 3.3.3.3

Suppress hello for 0 neighbor(s)

Message digest authentication enabled

Youngest key id is 1

R2#show ip ospf interface serial 0/0/1

Serial0/0/1 is up, line protocol is up

Internet address is 172.16.123.2/30, Area 0

Process ID 10, Router ID 2.2.2.2, Network Type POINT-TO-POINT, Cost: 64

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 5, Dead 20, Wait 20, Retransmit 5

Hello due in 00:00:01

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)

Message digest authentication enabled

Youngest key id is 1

* show ip ospf interface brief

(No suportado por PKT)

* show ip bgp summary

R2#show ip bgp summary

BGP router identifier 209.165.200.225, local AS number 65100

BGP table version is 12, main routing table version 6

5 network entries using 660 bytes of memory

5 path entries using 260 bytes of memory

1/1 BGP path/bestpath attribute entries using 184 bytes of memory

3 BGP AS-PATH entries using 72 bytes of memory

0 BGP route-map cache entries using 0 bytes of memory

0 BGP filter-list cache entries using 0 bytes of memory

Bitfield cache entries: current 1 (at peak 1) using 32 bytes of memory

BGP using 1208 total bytes of memory

BGP activity 5/0 prefixes, 5/0 paths, scan interval 60 secs

Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd

209.165.200.226 4 65401 176 173 12 0 0 199591902:25:51 4

* show ip bgp

R2#show ip bgp

BGP table version is 12, local router ID is 209.165.200.225

Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,

r RIB-failure, S Stale

Origin codes: i - IGP, e - EGP, ? - incomplete

Network Next Hop Metric LocPrf Weight Path

\*> 0.0.0.0/0 209.165.200.226 0 0 0 65100 ?

\*> 1.1.1.0/29 0.0.0.0 0 0 0 65100 ?

\*> 172.18.0.0/16 172.17.1.2 0 0 0 65100 ?

\*> 209.165.200.224/300.0.0.0 0 0 32768 i

\*> 209.165.200.228/30209.165.200.226 0 0 0 65401 65101 i

* show ip nat statistics

R2#show ip nat statistics

Total translations: 1 (1 static, 0 dynamic, 0 extended)

Outside Interfaces: Serial0/1/0

Inside Interfaces: Serial0/0/0 , Serial0/0/1

Hits: 0 Misses: 4231

Expired translations: 0

Dynamic mappings:

-- Inside Source

access-list 1 pool salesNET refCount 0

pool salesNET: netmask 255.255.255.248

start 1.1.1.1 end 1.1.1.2

type generic, total addresses 2 , allocated 0 (0%), misses 0

* show ip nat translations

R2#show ip nat statistics

Total translations: 1 (1 static, 0 dynamic, 0 extended)

Outside Interfaces: Serial0/1/0

Inside Interfaces: Serial0/0/0 , Serial0/0/1

Hits: 0 Misses: 4231

Expired translations: 0

Dynamic mappings:

-- Inside Source

access-list 1 pool salesNET refCount 0

pool salesNET: netmask 255.255.255.248

start 1.1.1.1 end 1.1.1.2

type generic, total addresses 2 , allocated 0 (0%), misses 0

R2#show ip nat tra

R2#show ip nat translations

Pro Inside global Inside local Outside local Outside global

--- 1.1.1.4 172.16.20.20 --- ---

* show ip dhcp binding

(No configurado en el dispositivo)

* show ip dhcp pool

(No configurado en el dispositivo)

* show ip access-lists

R2#show ip access-lists

Standard IP access list 1

10 permit 172.16.10.0 0.0.0.255

Extended IP access list 100

10 permit ip 172.16.10.0 0.0.0.255 200.200.200.0 0.0.0.255

Extended IP access list web

10 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq www

20 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq 443

30 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq www

40 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq 443

50 permit ip any any

Extended IP access list 150

10 deny tcp 172.16.10.0 0.0.0.255 host 200.200.200.100 eq 20

20 deny tcp 172.16.10.0 0.0.0.255 host 200.200.200.100 eq ftp

30 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq 20

40 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq ftp

50 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq ftp

60 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq 20

70 permit ip any any (5683 match(es))

* show ntp status

R2#show ntp status

Clock is synchronized, stratum 2, reference is 200.200.200.100

nominal freq is 250.0000 Hz, actual freq is 249.9990 Hz, precision is 2\*\*24

reference time is 0C6E0A19.00000374 (20:39:53.884 UTC ju. jul. 11 2019)

clock offset is 0.00 msec, root delay is 2.00 msec

root dispersion is 173.82 msec, peer dispersion is 0.12 msec.

loopfilter state is 'CTRL' (Normal Controlled Loop), drift is - 0.000001193 s/s system poll interval is 4, last update was 1 sec ago.

* show logging

R2#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 19 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 19 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level debugging, 19 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

19 message lines logged,

0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

#### Router 3

* show cdp neighbors

R3#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

R2 Ser 0/0/1 174 R C1900 Ser 0/0/0

SW3 Gig 0/0.99 175 S 2960 Fas 0/5

* show ip interface brief
* show interface <type\_slot\_port>

R3#show ip interface serial 0/0/1

Serial0/0/1 is up, line protocol is up (connected)

Internet address is 172.16.123.6/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

R3#show interfaces gigabitEthernet 0/0.10

GigabitEthernet0/0.10 is up, line protocol is up (connected)

Hardware is PQUICC\_FEC, address is 00e0.b023.46c7 (bia 00e0.b023.46c7)

Internet address is 172.16.10.3/24

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 10

ARP type: ARPA, ARP Timeout 04:00:00,

Last clearing of "show interface" counters never

* show versión

R3#show version

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE SOFTWARE (fc2)

Technical Support: http://www.cisco.com/techsupport

Copyright (c) 1986-2007 by Cisco Systems, Inc.

Compiled Wed 23-Feb-11 14:19 by pt\_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)

cisco1941 uptime is 3 hours, 11 minutes, 6 seconds

System returned to ROM by power-on

System image file is "flash0:c1900-universalk9-mz.SPA.151-1.M4.bin"

Last reload type: Normal Reload

This product contains cryptographic features and is subject to United

States and local country laws governing import, export, transfer and

use. Delivery of Cisco cryptographic products does not imply

third-party authority to import, export, distribute or use encryption.

Importers, exporters, distributors and users are responsible for

compliance with U.S. and local country laws. By using this product you

agree to comply with applicable laws and regulations. If you are unable

to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to

export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.

Processor board ID FTX152400KS

2 Gigabit Ethernet interfaces

4 Low-speed serial(sync/async) network interface(s)

DRAM configuration is 64 bits wide with parity disabled.

255K bytes of non-volatile configuration memory.

249856K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

-------------------------------------------------

Device# PID SN

-------------------------------------------------

\*0 CISCO1941/K9 FTX15241D06-

Technology Package License Information for Module:'c1900'

----------------------------------------------------------------

Technology Technology-package Technology-package

Current Type Next reboot

-----------------------------------------------------------------

ipbase ipbasek9 Permanent ipbasek9

security disable None None

data disable None None

Configuration register is 0x2102

* show startup-config

R3#show startup-config

Using 2780 bytes

!

version 15.1

service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

security passwords min-length 10

!

hostname R3

!

!

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

!

!

!

no ip cef

no ipv6 cef

!

!

!

username admin01 password 7 0820484300175546020A1F17

username adminSSH password 7 08204843001736243A1B0D1739

!

!

license udi pid CISCO1941/K9 sn FTX15241D06-

!

!

!

!

!

!

!

!

!

no ip domain-lookup

ip domain-name CCNA\_CS4.com

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface Loopback4

ip address 172.16.4.1 255.255.255.0

!

interface Loopback5

ip address 172.16.5.1 255.255.255.0

!

interface Loopback6

ip address 172.16.6.1 255.255.255.0

!

interface GigabitEthernet0/0

no ip address

duplex auto

speed auto

!

interface GigabitEthernet0/0.10

description Lan 10

encapsulation dot1Q 10

ip address 172.16.10.3 255.255.255.0

ip helper-address 172.17.1.2

ip helper-address 172.18.10.1

standby 1 ip 172.16.10.2

standby 1 priority 101

standby preempt

!

interface GigabitEthernet0/0.20

description Lan 20

encapsulation dot1Q 20

ip address 172.16.20.3 255.255.255.0

standby 2 ip 172.16.20.2

!

interface GigabitEthernet0/0.99

encapsulation dot1Q 99 native

ip address 172.16.99.3 255.255.255.0

standby 3 ip 172.16.99.2

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Serial0/0/0

no ip address

clock rate 2000000

shutdown

!

interface Serial0/0/1

ip address 172.16.123.6 255.255.255.252

ip ospf message-digest-key 1 md5 routingOSPF

ip ospf hello-interval 5

ip ospf dead-interval 20

!

interface Serial0/1/0

no ip address

clock rate 2000000

shutdown

!

interface Serial0/1/1

no ip address

clock rate 2000000

shutdown

!

interface Vlan1

no ip address

shutdown

!

router ospf 10

router-id 3.3.3.3

log-adjacency-changes

area 2 range 172.16.4.0 255.255.252.0

area 2 authentication message-digest

area 0 authentication message-digest

redistribute connected

passive-interface GigabitEthernet0/0

passive-interface GigabitEthernet0/0.10

passive-interface GigabitEthernet0/0.20

passive-interface GigabitEthernet0/0.99

network 172.16.4.0 0.0.0.255 area 2

network 172.16.5.0 0.0.0.255 area 2

network 172.16.6.0 0.0.0.255 area 2

network 172.16.10.0 0.0.0.255 area 0

network 172.16.20.0 0.0.0.255 area 0

network 172.16.99.0 0.0.0.255 area 0

network 172.16.123.4 0.0.0.3 area 0

default-information originate

!

ip classless

!

ip flow-export version 9

!

!

!

banner motd ^Chis is R3 CLI.

^C

!

!

!

!

!

logging 172.18.10.100

line con 0

login local

!

line aux 0

!

line vty 0 4

login local

transport input ssh

transport output ssh

line vty 5 15

login local

transport input ssh

transport output ssh

!

!

ntp server 200.200.200.100

ntp update-calendar

!

end

* show standby

R3#show standby

GigabitEthernet0/0.10 - Group 1

State is Active

5 state changes, last state change 00:00:28

Virtual IP address is 172.16.10.2

Active virtual MAC address is 0000.0C07.AC01

Local virtual MAC address is 0000.0C07.AC01 (v1 default)

Hello time 3 sec, hold time 10 sec

Next hello sent in 1.117 secs

Preemption disabled

Active router is local

Standby router is 172.16.10.1

Priority 101 (configured 101)

Group name is hsrp-Gig-1 (default)

GigabitEthernet0/0.20 - Group 2

State is Standby

7 state changes, last state change 00:00:38

Virtual IP address is 172.16.20.2

Active virtual MAC address is 0000.0C07.AC02

Local virtual MAC address is 0000.0C07.AC02 (v1 default)

Hello time 3 sec, hold time 10 sec

Next hello sent in 0.824 secs

Preemption disabled

Active router is 172.16.20.1

Standby router is local

Priority 100 (default 100)

Group name is hsrp-Gig-2 (default)

GigabitEthernet0/0.99 - Group 3

State is Standby

9 state changes, last state change 00:00:40

Virtual IP address is 172.16.99.2

Active virtual MAC address is 0000.0C07.AC03

Local virtual MAC address is 0000.0C07.AC03 (v1 default)

Hello time 3 sec, hold time 10 sec

Next hello sent in 0.235 secs

Preemption disabled

Active router is 172.16.99.1, priority 101 (expires in 7 sec)

MAC address is 0000.0C07.AC03

Standby router is local

Priority 100 (default 100)

Group name is hsrp-Gig-3 (default)

* show standby brief

R3#show standby brief

P indicates configured to preempt.

|

Interface Grp Pri P State Active Standby Virtual IP

Gig 1 101 Active local 172.16.10.1 172.16.10.2

Gig 2 100 Standby 172.16.20.1 local 172.16.20.2

Gig 3 100 Standby 172.16.99.1 local 172.16.99.2

* show ip route

R3#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

172.16.0.0/16 is variably subnetted, 18 subnets, 3 masks

O IA 172.16.1.1/32 [110/129] via 172.16.123.5, 02:58:55, Serial0/0/1

O IA 172.16.2.1/32 [110/129] via 172.16.123.5, 02:58:55, Serial0/0/1

O IA 172.16.3.1/32 [110/129] via 172.16.123.5, 02:58:55, Serial0/0/1

C 172.16.4.0/24 is directly connected, Loopback4

L 172.16.4.1/32 is directly connected, Loopback4

C 172.16.5.0/24 is directly connected, Loopback5

L 172.16.5.1/32 is directly connected, Loopback5

C 172.16.6.0/24 is directly connected, Loopback6

L 172.16.6.1/32 is directly connected, Loopback6

C 172.16.10.0/24 is directly connected, GigabitEthernet0/0.10

L 172.16.10.3/32 is directly connected, GigabitEthernet0/0.10

C 172.16.20.0/24 is directly connected, GigabitEthernet0/0.20

L 172.16.20.3/32 is directly connected, GigabitEthernet0/0.20

C 172.16.99.0/24 is directly connected, GigabitEthernet0/0.99

L 172.16.99.3/32 is directly connected, GigabitEthernet0/0.99

O 172.16.123.0/30 [110/128] via 172.16.123.5, 02:58:55, Serial0/0/1

C 172.16.123.4/30 is directly connected, Serial0/0/1

L 172.16.123.6/32 is directly connected, Serial0/0/1

* show ip protocols

R3#show ip protocols

Routing Protocol is "ospf 10"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 3.3.3.3

It is an autonomous system boundary router

Redistributing External Routes from,

connected

Number of areas in this router is 2. 2 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

172.16.4.0 0.0.0.255 area 2

172.16.5.0 0.0.0.255 area 2

172.16.6.0 0.0.0.255 area 2

172.16.10.0 0.0.0.255 area 0

172.16.20.0 0.0.0.255 area 0

172.16.99.0 0.0.0.255 area 0

172.16.123.4 0.0.0.3 area 0

Passive Interface(s):

GigabitEthernet0/0

GigabitEthernet0/0.10

GigabitEthernet0/0.20

GigabitEthernet0/0.99

Routing Information Sources:

Gateway Distance Last Update

1.1.1.1 110 00:24:34

2.2.2.2 110 00:54:36

3.3.3.3 110 00:00:22

Distance: (default is 110)

* show ip ospf

R3#show ip ospf

Routing Process "ospf 10" with ID 3.3.3.3

Supports only single TOS(TOS0) routes

Supports opaque LSA

It is an autonomous system boundary router

It is an area border router

SPF schedule delay 5 secs, Hold time between two SPFs 10 secs

Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs

Number of external LSA 0. Checksum Sum 0x000000

Number of opaque AS LSA 0. Checksum Sum 0x000000

Number of DCbitless external and opaque AS LSA 0

Number of DoNotAge external and opaque AS LSA 0

Number of areas in this router is 2. 2 normal 0 stub 0 nssa

External flood list length 0

Area 2

Number of interfaces in this area is 3

Area has message digest authentication

SPF algorithm executed 3 times

Area ranges are

Number of LSA 11. Checksum Sum 0x066df8

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

Area BACKBONE(0)

Number of interfaces in this area is 4

Area has message digest authentication

SPF algorithm executed 19 times

Area ranges are

Number of LSA 8. Checksum Sum 0x0493b4

Number of opaque link LSA 0. Checksum Sum 0x000000

Number of DCbitless LSA 0

Number of indication LSA 0

Number of DoNotAge LSA 0

Flood list length 0

* show ip ospf neighbors

R3#show ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface

2.2.2.2 0 FULL/ - 00:00:15 172.16.123.5 Serial0/0/1

* show ip ospf database

R3#show ip ospf database

OSPF Router with ID (3.3.3.3) (Process ID 10)

Router Link States (Area 0)

Link ID ADV Router Age Seq# Checksum Link count

3.3.3.3 3.3.3.3 91 0x8000000d 0x00d85c 5

2.2.2.2 2.2.2.2 3345 0x8000000c 0x00759f 4

1.1.1.1 1.1.1.1 1543 0x8000000e 0x008bc1 5

Summary Net Link States (Area 0)

Link ID ADV Router Age Seq# Checksum

172.16.4.0 3.3.3.3 91 0x80000059 0x00c774

172.16.1.1 1.1.1.1 95 0x8000001a 0x00a8d9

172.16.2.1 1.1.1.1 95 0x8000001b 0x009be4

172.16.3.1 1.1.1.1 95 0x8000001c 0x008eef

Summary ASB Link States (Area 0)

Link ID ADV Router Age Seq# Checksum

2.2.2.2 3.3.3.3 1549 0x80000054 0x001ed8

Router Link States (Area 2)

Link ID ADV Router Age Seq# Checksum Link count

3.3.3.3 3.3.3.3 102 0x8000000a 0x0025a0 3

Summary Net Link States (Area 2)

Link ID ADV Router Age Seq# Checksum

172.16.10.0 3.3.3.3 95 0x8000004d 0x00ac92

172.16.20.0 3.3.3.3 95 0x8000004e 0x003cf7

172.16.99.0 3.3.3.3 95 0x8000004f 0x00d112

172.16.123.4 3.3.3.3 79 0x80000051 0x000386

172.16.123.0 3.3.3.3 79 0x80000052 0x00aba0

172.16.1.1 3.3.3.3 79 0x80000053 0x00fec1

172.16.2.1 3.3.3.3 79 0x80000054 0x00f1cc

172.16.3.1 3.3.3.3 79 0x80000055 0x00e4d7

Summary ASB Link States (Area 2)

Link ID ADV Router Age Seq# Checksum

1.1.1.1 3.3.3.3 79 0x80000050 0x005925

2.2.2.2 3.3.3.3 1537 0x8000004c 0x00b00e

* show ip ospf interface <interface>

R3#show ip ospf interface s0/0/1

Serial0/0/1 is up, line protocol is up

Internet address is 172.16.123.6/30, Area 0

Process ID 10, Router ID 3.3.3.3, Network Type POINT-TO-POINT, Cost: 64

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 5, Dead 20, Wait 20, Retransmit 5

Hello due in 00:00:01

Index 4/4, 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 2.2.2.2

Suppress hello for 0 neighbor(s)

Message digest authentication enabled

Youngest key id is 1

* show ip ospf interface brief

(No suportado por PKT)

* show ip bgp summary

(No configurado en el dispositivo)

* show ip bgp

(No configurado en el dispositivo)

* show ip nat statistics

(No configurado en el dispositivo)

* show ip nat translations

(No configurado en el dispositivo)

* show ip dhcp binding

(No configurado en el dispositivo)

* show ip dhcp pool

(No configurado en el dispositivo)

* show ip access-lists

(No configurado en el dispositivo)

* show ntp status

R3#show ntp status

Clock is unsynchronized, stratum 16, no reference clock

nominal freq is 250.0000 Hz, actual freq is 249.9990 Hz, precision is 2\*\*24

reference time is 00000000.00000000 (00:00:00.000 UTC Mon Jan 1 1990)

clock offset is 0.00 msec, root delay is 0.00 msec

root dispersion is 0.00 msec, peer dispersion is 0.00 msec.

loopfilter state is 'FSET' (Drift set from file), drift is - 0.000001193 s/s system poll interval is 4, never updated.

* show logging

R3#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 18 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 18 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 18 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

18 message lines logged,

0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

#### Router ISP

* show cdp neighbors

ISP#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

R2 Ser 0/0/1 130 R C1900 Ser 0/1/0

* show ip interface brief

ISP#show ip interface brief

Interface IP-Address OK? Method Status Protocol

GigabitEthernet0/0 200.200.200.1 YES manual up up

GigabitEthernet0/1 unassigned YES unset administratively down down

Serial0/0/0 209.165.200.229 YES manual up up

Serial0/0/1 209.165.200.226 YES manual up up

Serial0/1/0 unassigned YES unset administratively down down

Serial0/1/1 unassigned YES unset administratively down down

Vlan1 unassigned YES unset administratively down down

* show interface <type\_slot\_port>

ISP#show ip interface s0/0/0

Serial0/0/0 is up, line protocol is up (connected)

Internet address is 209.165.200.229/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

ISP#show ip interface s0/0/1

Serial0/0/1 is up, line protocol is up (connected)

Internet address is 209.165.200.226/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

ISP#show ip interface gigabitEthernet 0/0

GigabitEthernet0/0 is up, line protocol is up (connected)

Internet address is 200.200.200.1/24

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500 bytes

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

BGP Policy Mapping is disabled

Input features: MCI Check

WCCP Redirect outbound is disabled

WCCP Redirect inbound is disabled

WCCP Redirect exclude is disabled

* show versión

ISP#show version

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE SOFTWARE (fc2)

Technical Support: http://www.cisco.com/techsupport

Copyright (c) 1986-2007 by Cisco Systems, Inc.

Compiled Wed 23-Feb-11 14:19 by pt\_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)

cisco1941 uptime is 3 hours, 52 minutes, 36 seconds

System returned to ROM by power-on

System image file is "flash0:c1900-universalk9-mz.SPA.151-1.M4.bin"

Last reload type: Normal Reload

This product contains cryptographic features and is subject to United

States and local country laws governing import, export, transfer and

use. Delivery of Cisco cryptographic products does not imply

third-party authority to import, export, distribute or use encryption.

Importers, exporters, distributors and users are responsible for

compliance with U.S. and local country laws. By using this product you

agree to comply with applicable laws and regulations. If you are unable

to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to

export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.

Processor board ID FTX152400KS

2 Gigabit Ethernet interfaces

4 Low-speed serial(sync/async) network interface(s)

DRAM configuration is 64 bits wide with parity disabled.

255K bytes of non-volatile configuration memory.

249856K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

-------------------------------------------------

Device# PID SN

-------------------------------------------------

\*0 CISCO1941/K9 FTX15244QWZ-

Technology Package License Information for Module:'c1900'

----------------------------------------------------------------

Technology Technology-package Technology-package

Current Type Next reboot

-----------------------------------------------------------------

ipbase ipbasek9 Permanent ipbasek9

security disable None None

data disable None None

Configuration register is 0x2102

* show startup-config

ISP#show startup-config

Using 1482 bytes

!

version 15.1

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname ISP

!

!

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

!

!

!

no ip cef

no ipv6 cef

!

!

!

username R2 password 0 pppPAPencap

username RemoteCPD password 0 pppCHAPencap

!

!

license udi pid CISCO1941/K9 sn FTX15244QWZ-

!

!

!

!

!

!

!

!

!

no ip domain-lookup

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface GigabitEthernet0/0

ip address 200.200.200.1 255.255.255.0

duplex auto

speed auto

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Serial0/0/0

ip address 209.165.200.229 255.255.255.252

encapsulation ppp

ppp authentication chap

clock rate 2000000

!

interface Serial0/0/1

ip address 209.165.200.226 255.255.255.252

encapsulation ppp

ppp authentication pap

ppp pap sent-username ISP password 0 pppPAPencap

clock rate 2000000

!

interface Serial0/1/0

no ip address

clock rate 2000000

shutdown

!

interface Serial0/1/1

no ip address

clock rate 2000000

shutdown

!

interface Vlan1

no ip address

shutdown

!

router bgp 65401

bgp log-neighbor-changes

no synchronization

neighbor 209.165.200.225 remote-as 65100

neighbor 209.165.200.230 remote-as 65101

!

ip classless

!

ip flow-export version 9

!

!

!

banner motd ^Chis is ISP CLI.

^C

!

!

!

!

!

line con 0

password ciscoconpa55

login

!

line aux 0

!

line vty 0 4

login

!

!

ntp server 200.200.200.100

ntp update-calendar

!

end

* show standby

(No configurado en el dispositivo)

* show standby brief

(No configurado en el dispositivo)

* show ip route

ISP#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is 209.165.200.225 to network 0.0.0.0

\* 0.0.0.0/32 is subnetted, 1 subnets

B\* 0.0.0.0/32 [20/0] via 209.165.200.225, 00:00:00

1.0.0.0/29 is subnetted, 1 subnets

B 1.1.1.0/29 [20/0] via 209.165.200.225, 00:00:00

B 172.18.0.0/16 [20/0] via 209.165.200.225, 00:00:00

200.200.200.0/24 is variably subnetted, 2 subnets, 2 masks

C 200.200.200.0/24 is directly connected, GigabitEthernet0/0

L 200.200.200.1/32 is directly connected, GigabitEthernet0/0

209.165.200.0/24 is variably subnetted, 6 subnets, 2 masks

C 209.165.200.224/30 is directly connected, Serial0/0/1

C 209.165.200.225/32 is directly connected, Serial0/0/1

L 209.165.200.226/32 is directly connected, Serial0/0/1

C 209.165.200.228/30 is directly connected, Serial0/0/0

L 209.165.200.229/32 is directly connected, Serial0/0/0

C 209.165.200.230/32 is directly connected, Serial0/0/0

* show ip protocols

ISP#show ip protocols

Routing Protocol is "bgp 65401"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

IGP synchronization is disabled

Automatic route summarization is disabled

Neighbor(s):

Address FiltIn FiltOut DistIn DistOut Weight RouteMap

209.165.200.225

209.165.200.230

Maximum path: 1

Routing Information Sources:

Gateway Distance Last Update

209.165.200.230 20 00:00:00

209.165.200.225 20 00:00:00

Distance: external 20 internal 200 local 200

* show ip ospf

(No configurado en el dispositivo)

* show ip ospf neighbors

(No configurado en el dispositivo)

* show ip ospf database

(No configurado en el dispositivo)

* show ip ospf interface <interface>

(No configurado en el dispositivo)

* show ip ospf interface brief

(No configurado en el dispositivo)

* show ip bgp summary

ISP#show ip bgp summary

BGP router identifier 209.165.200.229, local AS number 65401

BGP table version is 14, main routing table version 6

5 network entries using 660 bytes of memory

5 path entries using 260 bytes of memory

5/3 BGP path/bestpath attribute entries using 736 bytes of memory

2 BGP AS-PATH entries using 48 bytes of memory

0 BGP route-map cache entries using 0 bytes of memory

0 BGP filter-list cache entries using 0 bytes of memory

Bitfield cache entries: current 1 (at peak 1) using 32 bytes of memory

BGP using 1736 total bytes of memory

BGP activity 5/0 prefixes, 5/0 paths, scan interval 60 secs

Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd

209.165.200.225 4 65100 249 239 14 0 0 02:23:02 4

209.165.200.230 4 65101 241 239 14 0 0 02:23:02 4

* show ip bgp

ISP#show ip bgp

BGP table version is 14, local router ID is 209.165.200.229

Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,

r RIB-failure, S Stale

Origin codes: i - IGP, e - EGP, ? - incomplete

Network Next Hop Metric LocPrf Weight Path

\*> 0.0.0.0/32 209.165.200.225 0 0 0 65100 ?

\*> 1.1.1.0/29 209.165.200.225 0 0 0 65100 ?

\*> 172.18.0.0/16 209.165.200.225 0 0 0 65100 ?

\* 209.165.200.224/30209.165.200.225 0 0 0 65100 i

\* 209.165.200.228/30209.165.200.230 0 0 0 65101 i

* show ip nat statistics

(No configurado en el dispositivo)

* show ip nat translations

(No configurado en el dispositivo)

* show ip dhcp binding

(No configurado en el dispositivo)

* show ip dhcp pool

(No configurado en el dispositivo)

* show ip access-lists

(No configurado en el dispositivo)

* show ntp status

ISP#show ntp status

Clock is synchronized, stratum 2, reference is 200.200.200.100

nominal freq is 250.0000 Hz, actual freq is 249.9990 Hz, precision is 2\*\*24

reference time is 0C6DF4FD.000003D1 (19:9:49.977 UTC ju. jul. 11 2019)

clock offset is 0.00 msec, root delay is 0.00 msec

root dispersion is 223.68 msec, peer dispersion is -137269716642187.97 msec.

loopfilter state is 'CTRL' (Normal Controlled Loop), drift is - 0.000001193 s/s system poll interval is 4, last update was 5 sec ago.

* show logging

ISP#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 13 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 13 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 13 message lines logged

#### Router CPD

* show cdp neighbors

RemoteCPD#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

Switch Gig 0/0 145 S 2960 Fas 0/5

ISP Ser 0/0/0 169 R C1900 Ser 0/0/0

* show ip interface brief

RemoteCPD#show ip interface brief

Interface IP-Address OK? Method Status Protocol

GigabitEthernet0/0 172.18.10.1 YES manual up up

GigabitEthernet0/1 unassigned YES unset administratively down down

Serial0/0/0 209.165.200.230 YES manual up up

Serial0/0/1 unassigned YES unset administratively down down

Serial0/1/0 unassigned YES unset administratively down down

Serial0/1/1 unassigned YES unset administratively down down

Tunnel0 172.17.1.2 YES manual up up

Vlan1 unassigned YES unset administratively down down

* show interface <type\_slot\_port>

RemoteCPD#show ip interface serial 0/0/0

Serial0/0/0 is up, line protocol is up (connected)

Internet address is 209.165.200.230/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

WCCP Redirect outbound is disabled

WCCP Redirect exclude is disabled

BGP Policy Mapping is disabled

RemoteCPD#show ip interface tunnel 0

Tunnel0 is up, line protocol is up

Internet address is 172.17.1.2/30

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1476 bytes

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Local Proxy ARP is disabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is enabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP CEF switching is enabled

IP CEF switching turbo vector

IP Null turbo vector

IP multicast fast switching is enabled

IP multicast distributed fast switching is disabled

IP route-cache flags are Fast, CEF

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Policy routing is disabled

Network address translation is disabled

BGP Policy Mapping is disabled

Input features: MCI Check

WCCP Redirect outbound is disabled

WCCP Redirect inbound is disabled

WCCP Redirect exclude is disabled

RemoteCPD#show ip interface gigabitEthernet 0/0

GigabitEthernet0/0 is up, line protocol is up (connected)

Internet address is 172.18.10.1/24

Broadcast address is 255.255.255.255

Address determined by setup command

MTU is 1500 bytes

Helper address is not set

Directed broadcast forwarding is disabled

Outgoing access list is not set

Inbound access list is not set

Proxy ARP is enabled

Security level is default

Split horizon is enabled

ICMP redirects are always sent

ICMP unreachables are always sent

ICMP mask replies are never sent

IP fast switching is disabled

IP fast switching on the same interface is disabled

IP Flow switching is disabled

IP Fast switching turbo vector

IP multicast fast switching is disabled

IP multicast distributed fast switching is disabled

Router Discovery is disabled

IP output packet accounting is disabled

IP access violation accounting is disabled

TCP/IP header compression is disabled

RTP/IP header compression is disabled

Probe proxy name replies are disabled

Policy routing is disabled

Network address translation is disabled

BGP Policy Mapping is disabled

Input features: MCI Check

WCCP Redirect outbound is disabled

WCCP Redirect inbound is disabled

WCCP Redirect exclude is disabled

* show versión

RemoteCPD#show version

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE SOFTWARE (fc2)

Technical Support: http://www.cisco.com/techsupport

Copyright (c) 1986-2007 by Cisco Systems, Inc.

Compiled Wed 23-Feb-11 14:19 by pt\_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)

cisco1941 uptime is 4 hours, 31 minutes, 57 seconds

System returned to ROM by power-on

System image file is "flash0:c1900-universalk9-mz.SPA.151-1.M4.bin"

Last reload type: Normal Reload

This product contains cryptographic features and is subject to United

States and local country laws governing import, export, transfer and

use. Delivery of Cisco cryptographic products does not imply

third-party authority to import, export, distribute or use encryption.

Importers, exporters, distributors and users are responsible for

compliance with U.S. and local country laws. By using this product you

agree to comply with applicable laws and regulations. If you are unable

to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to

export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.

Processor board ID FTX152400KS

2 Gigabit Ethernet interfaces

4 Low-speed serial(sync/async) network interface(s)

DRAM configuration is 64 bits wide with parity disabled.

255K bytes of non-volatile configuration memory.

249856K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

-------------------------------------------------

Device# PID SN

-------------------------------------------------

\*0 CISCO1941/K9 FTX1524S59L-

Technology Package License Information for Module:'c1900'

----------------------------------------------------------------

Technology Technology-package Technology-package

Current Type Next reboot

-----------------------------------------------------------------

ipbase ipbasek9 Permanent ipbasek9

security disable None None

data disable None None

Configuration register is 0x2102

* show startup-config

RemoteCPD#show startup-config

Using 2725 bytes

!

version 15.1

service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

security passwords min-length 10

!

hostname RemoteCPD

!

!

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

ip dhcp excluded-address 172.18.10.1

ip dhcp excluded-address 172.18.10.100

ip dhcp excluded-address 172.16.10.1 172.16.10.3

!

ip dhcp pool cpd

network 172.18.10.0 255.255.255.0

default-router 172.18.10.1

dns-server 200.200.200.100

ip dhcp pool sales

network 172.16.10.0 255.255.255.0

default-router 172.16.10.2

dns-server 200.200.200.100

!

!

!

no ip cef

no ipv6 cef

!

!

!

username ISP password 7 08315C5E2A31242717050F053A

username admin01 password 7 0820484300175546020A1F17

username adminSSH password 7 08204843001736243A1B0D1739

!

!

license udi pid CISCO1941/K9 sn FTX1524S59L-

!

!

!

!

!

!

!

!

!

no ip domain-lookup

ip domain-name CCNA\_CS4.com

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface Tunnel0

ip address 172.17.1.2 255.255.255.252

mtu 1476

tunnel source Serial0/0/0

tunnel destination 209.165.200.225

!

!

interface GigabitEthernet0/0

description Lan Remote Network

ip address 172.18.10.1 255.255.255.0

duplex auto

speed auto

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Serial0/0/0

description Link RemoteCPD -----------> ISP

ip address 209.165.200.230 255.255.255.252

encapsulation ppp

ppp authentication chap

ip nat outside

!

interface Serial0/0/1

no ip address

clock rate 2000000

shutdown

!

interface Serial0/1/0

no ip address

clock rate 2000000

shutdown

!

interface Serial0/1/1

no ip address

clock rate 2000000

shutdown

!

interface Vlan1

no ip address

shutdown

!

router bgp 65101

bgp log-neighbor-changes

no synchronization

neighbor 209.165.200.229 remote-as 65401

network 209.165.200.228 mask 255.255.255.252

!

ip nat inside source list 1 pool cpd overload

ip nat inside source static 172.18.10.100 2.2.2.4

ip classless

ip route 0.0.0.0 0.0.0.0 209.165.200.229

ip route 172.16.0.0 255.255.0.0 172.17.1.1

!

ip flow-export version 9

!

!

access-list 1 permit 172.18.10.0 0.0.0.255

access-list 150 permit ip 172.18.10.0 0.0.0.255 200.200.200.0 0.0.0.255

ip access-list extended RemoteControl

permit ip any any

permit icmp host 172.18.10.100 172.16.10.0 0.0.0.255

deny icmp 172.16.10.0 0.0.0.255 host 172.18.10.100 echo

deny icmp 172.16.10.0 0.0.0.255 host 172.18.10.100 echo-reply

!

banner motd ^Chis is Remote CPD CLI.

^C

!

!

!

!

!

logging 172.18.10.100

line con 0

login local

!

line aux 0

!

line vty 0 4

login local

transport input ssh

transport output ssh

line vty 5 15

login local

transport input ssh

transport output ssh

!

!

ntp server 200.200.200.100

ntp update-calendar

!

end

* show standby

(No configurado en el dispositivo)

* show standby brief

(No configurado en el dispositivo)

* show ip route

RemoteCPD#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is 209.165.200.229 to network 0.0.0.0

\* 0.0.0.0/32 is subnetted, 1 subnets

B\* 0.0.0.0/32 [20/0] via 209.165.200.229, 00:00:00

1.0.0.0/29 is subnetted, 1 subnets

B 1.1.1.0/29 [20/0] via 209.165.200.229, 00:00:00

S 172.16.0.0/16 [1/0] via 172.17.1.1

172.17.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.17.1.0/30 is directly connected, Tunnel0

L 172.17.1.2/32 is directly connected, Tunnel0

172.18.0.0/16 is variably subnetted, 3 subnets, 3 masks

B 172.18.0.0/16 [20/0] via 209.165.200.229, 00:00:00

C 172.18.10.0/24 is directly connected, GigabitEthernet0/0

L 172.18.10.1/32 is directly connected, GigabitEthernet0/0

209.165.200.0/24 is variably subnetted, 4 subnets, 2 masks

B 209.165.200.224/30 [20/0] via 209.165.200.229, 00:00:00

C 209.165.200.228/30 is directly connected, Serial0/0/0

C 209.165.200.229/32 is directly connected, Serial0/0/0

L 209.165.200.230/32 is directly connected, Serial0/0/0

S\* 0.0.0.0/0 [1/0] via 209.165.200.229

* show ip protocols

RemoteCPD#show ip protocols

Routing Protocol is "bgp 65101"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

IGP synchronization is disabled

Automatic route summarization is disabled

Neighbor(s):

Address FiltIn FiltOut DistIn DistOut Weight RouteMap

209.165.200.229

Maximum path: 1

Routing Information Sources:

Gateway Distance Last Update

209.165.200.229 20 00:00:00

Distance: external 20 internal 200 local 200

* show ip ospf

(No configurado en el dispositivo)

* show ip ospf neighbors

(No configurado en el dispositivo)

* show ip ospf database

(No configurado en el dispositivo)

* show ip ospf interface <interface>

(No configurado en el dispositivo)

* show ip ospf interface brief

(No configurado en el dispositivo)

* show ip bgp summary

RemoteCPD#show ip bgp summary

BGP router identifier 209.165.200.230, local AS number 65101

BGP table version is 12, main routing table version 6

5 network entries using 660 bytes of memory

5 path entries using 260 bytes of memory

4/4 BGP path/bestpath attribute entries using 736 bytes of memory

3 BGP AS-PATH entries using 72 bytes of memory

0 BGP route-map cache entries using 0 bytes of memory

0 BGP filter-list cache entries using 0 bytes of memory

Bitfield cache entries: current 1 (at peak 1) using 32 bytes of memory

BGP using 1760 total bytes of memory

BGP activity 5/0 prefixes, 5/0 paths, scan interval 60 secs

Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd

209.165.200.229 4 65401 288 279 12 0 0 03:03:52 4

* show ip bgp

RemoteCPD#show ip bgp

BGP table version is 12, local router ID is 209.165.200.230

Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,

r RIB-failure, S Stale

Origin codes: i - IGP, e - EGP, ? - incomplete

Network Next Hop Metric LocPrf Weight Path

\*> 0.0.0.0/32 209.165.200.229 0 0 0 65401 65100 ?

\*> 1.1.1.0/29 209.165.200.229 0 0 0 65401 65100 ?

\*> 172.18.0.0/16 209.165.200.229 0 0 0 65401 65100 ?

\*> 209.165.200.224/30209.165.200.229 0 0 0 65401 65100 i

\*> 209.165.200.228/300.0.0.0 0 0 32768 i

* show ip nat statistics

RemoteCPD#show ip nat statistics

Total translations: 1 (1 static, 0 dynamic, 0 extended)

Outside Interfaces: Serial0/0/0

Inside Interfaces:

Hits: 0 Misses: 3100

Expired translations: 0

Dynamic mappings:

-- Inside Source

access-list 1 pool cpd refCount 0

* show ip nat translations

RemoteCPD#show ip nat translations

Pro Inside global Inside local Outside local Outside global

--- 2.2.2.4 172.18.10.100 --- ---

* show ip dhcp binding

RemoteCPD#show ip dhcp binding

IP address Client-ID/ Lease expiration Type

Hardware address

172.18.10.2 0090.2112.87B0 -- Automatic

172.16.10.5 0001.43A9.AD8E -- Automatic

172.16.10.6 000A.F3EE.0121 -- Automatic

* show ip dhcp pool

RemoteCPD#show ip dhcp pool

Pool cpd :

Utilization mark (high/low) : 100 / 0

Subnet size (first/next) : 0 / 0

Total addresses : 254

Leased addresses : 1

Excluded addresses : 3

Pending event : none

1 subnet is currently in the pool

Current index IP address range Leased/Excluded/Total

172.18.10.1 172.18.10.1 - 172.18.10.254 1 / 3 / 254

Pool sales :

Utilization mark (high/low) : 100 / 0

Subnet size (first/next) : 0 / 0

Total addresses : 254

Leased addresses : 2

Excluded addresses : 3

Pending event : none

1 subnet is currently in the pool

Current index IP address range Leased/Excluded/Total

172.16.10.1 172.16.10.1 - 172.16.10.254 2 / 3 / 254

* show ip access-lists

RemoteCPD#show ip access-lists

Standard IP access list 1

10 permit 172.18.10.0 0.0.0.255

Extended IP access list 150

10 permit ip 172.18.10.0 0.0.0.255 200.200.200.0 0.0.0.255

Extended IP access list RemoteControl

10 permit ip any any

20 permit icmp host 172.18.10.100 172.16.10.0 0.0.0.255

30 deny icmp 172.16.10.0 0.0.0.255 host 172.18.10.100 echo

40 deny icmp 172.16.10.0 0.0.0.255 host 172.18.10.100 echo-reply

* show ntp status

RemoteCPD#show ntp status

Clock is synchronized, stratum 2, reference is 200.200.200.100

nominal freq is 250.0000 Hz, actual freq is 249.9990 Hz, precision is 2\*\*24

reference time is 0C6DF4E9.00000189 (19:9:29.393 UTC ju. jul. 11 2019)

clock offset is 0.00 msec, root delay is 1.00 msec

root dispersion is 260.59 msec, peer dispersion is -137269716642169.50 msec.

loopfilter state is 'CTRL' (Normal Controlled Loop), drift is - 0.000001193 s/s system poll interval is 4, last update was 7 sec ago.

* show logging

RemoteCPD#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 11 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 11 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 11 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

11 message lines logged,

0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

### Switch’s

Se procede a realizar las configuraciones necesarias en los switch’s según las necesidades acordadas, se habilitan controles de acceso a todos los dispositivos, a continuación, el resultado de cada configuración, protocolo:

#### Switch 1

* show cdp neighbors

SW1#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

R1 Fas 0/5 167 R C1900 Gig 0/0

R1 Fas 0/5 167 R C1900 Gig 0/0.10

R1 Fas 0/5 167 R C1900 Gig 0/0.20

R1 Fas 0/5 167 R C1900 Gig 0/0.99

SW3 Por 1 162 S 2960 Fas 0/2

SW2 Por 2 162 S 2960 Fas 0/3

SW2 Por 2 162 S 2960 Fas 0/4

SW2 Por 2 162 S 2960 Por 2

SW3 Por 1 162 S 2960 Fas 0/1

SW3 Por 1 162 S 2960 Por 1

* show ip interface brief

SW1#show ip interface brief

Interface IP-Address OK? Method Status Protocol

Port-channel1 unassigned YES manual up up

Port-channel2 unassigned YES manual up up

FastEthernet0/1 unassigned YES manual up up

FastEthernet0/2 unassigned YES manual up up

FastEthernet0/3 unassigned YES manual up up

FastEthernet0/4 unassigned YES manual up up

FastEthernet0/5 unassigned YES manual up up

FastEthernet0/6 unassigned YES manual up up

Vlan99 172.16.99.11 YES manual up up

* show versión

SW1#show version

Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX, RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Wed 12-Oct-05 22:05 by pt\_team

ROM: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)

System returned to ROM by power-on

Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.

24 FastEthernet/IEEE 802.3 interface(s)

2 Gigabit Ethernet/IEEE 802.3 interface(s)

63488K bytes of flash-simulated non-volatile configuration memory.

Base ethernet MAC Address : 000A.F378.C865

Motherboard assembly number : 73-9832-06

Power supply part number : 341-0097-02

Motherboard serial number : FOC103248MJ

Power supply serial number : DCA102133JA

Model revision number : B0

Motherboard revision number : C0

Model number : WS-C2960-24TT

System serial number : FOC1033Z1EY

Top Assembly Part Number : 800-26671-02

Top Assembly Revision Number : B0

Version ID : V02

CLEI Code Number : COM3K00BRA

Hardware Board Revision Number : 0x01

Switch Ports Model SW Version SW Image

------ ----- ----- ---------- ----------

\* 1 26 WS-C2960-24TT 12.2 C2960-LANBASE-M

Configuration register is 0xF

* show startup-config

SW1#show startup-config

Using 3117 bytes

!

version 12.2

service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname SW1

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

no ip domain-lookup

!

username remote privilege 1 password 7 0822455D0A1613030B1B0D517F

!

!

spanning-tree mode rapid-pvst

spanning-tree extend system-id

spanning-tree vlan 20,99 priority 24576

spanning-tree vlan 10 priority 28672

!

interface Port-channel1

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface Port-channel2

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface FastEthernet0/1

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 1 mode on

!

interface FastEthernet0/2

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 1 mode on

!

interface FastEthernet0/3

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 2 mode desirable

!

interface FastEthernet0/4

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 2 mode desirable

!

interface FastEthernet0/5

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface FastEthernet0/6

switchport access vlan 10

switchport mode access

spanning-tree portfast

spanning-tree bpduguard enable

!

interface FastEthernet0/7

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/8

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/9

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/10

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/11

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/12

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/13

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/14

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/15

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/16

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/17

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

no ip address

shutdown

!

interface Vlan99

mac-address 000a.f378.c801

ip address 172.16.99.11 255.255.255.0

!

ip default-gateway 172.16.99.2

!

banner motd ^Chis is SW1 CLI.

^C

logging 172.18.10.100

!

!

!

line con 0

login local

!

line vty 0 4

login local

transport input telnet

transport output telnet

line vty 5 15

login local

transport input telnet

transport output telnet

!

!

!

ntp server 200.200.200.100

!

end

* show interfaces trunk

SW1#show interfaces trunk

Port Mode Encapsulation Status Native vlan

Po1 on 802.1q trunking 99

Po2 on 802.1q trunking 99

Fa0/5 on 802.1q trunking 99

Port Vlans allowed on trunk

Po1 10,20,99

Po2 10,20,99

Fa0/5 10,20,99

Port Vlans allowed and active in management domain

Po1 10,20,99

Po2 10,20,99

Fa0/5 10,20,99

Port Vlans in spanning tree forwarding state and not pruned

Po1 10,20,99

Po2 10,20,99

Fa0/5 10,20,99

* show interface vlan <management vlan>

SW1#show interfaces vlan 99

Vlan99 is up, line protocol is up

Hardware is CPU Interface, address is 000a.f378.c801 (bia 000a.f378.c801)

Internet address is 172.16.99.11/24

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

* show vlan brief

SW1#show vlan brief

VLAN Name Status Ports

---- -------------------------------- --------- -------------------------------

1 default active Fa0/18, Fa0/19, Fa0/20, Fa0/21

Fa0/22, Fa0/23, Fa0/24, Gig0/1

Gig0/2

10 Sales active Fa0/6, Fa0/7, Fa0/8, Fa0/9

Fa0/10, Fa0/11

20 Servers active Fa0/12, Fa0/13, Fa0/14, Fa0/15

Fa0/16, Fa0/17

99 Management active

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

* show vtp status

SW1#show vtp status

VTP Version : 2

Configuration Revision : 6

Maximum VLANs supported locally : 255

Number of existing VLANs : 8

VTP Operating Mode : Server

VTP Domain Name : CSCCNA4

VTP Pruning Mode : Disabled

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0x65 0x5F 0x5F 0x93 0x4C 0xE4 0x6C 0xB1

Configuration last modified by 0.0.0.0 at 3-1-93 00:58:58

Local updater ID is 172.16.99.11 on interface Vl99 (lowest numbered VLAN interface found)

SW1#

* show spanning-tree

SW1#show spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 28682

Address 0009.7C18.4B5E

Cost 9

Port 27(Port-channel1)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28682 (priority 28672 sys-id-ext 10)

Address 000A.F378.C865

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/5 Desg FWD 19 128.5 P2p

Fa0/6 Desg FWD 19 128.6 P2p

Po1 Root FWD 9 128.27 Shr

Po2 Desg FWD 9 128.28 Shr

VLAN0020

Spanning tree enabled protocol rstp

Root ID Priority 24596

Address 000A.F378.C865

This bridge is the root

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24596 (priority 24576 sys-id-ext 20)

Address 000A.F378.C865

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/5 Desg FWD 19 128.5 P2p

Po1 Desg FWD 9 128.27 Shr

Po2 Desg FWD 9 128.28 Shr

VLAN0099

Spanning tree enabled protocol rstp

Root ID Priority 24675

Address 000A.F378.C865

This bridge is the root

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24675 (priority 24576 sys-id-ext 99)

Address 000A.F378.C865

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/5 Desg FWD 19 128.5 P2p

Po1 Desg FWD 9 128.27 Shr

Po2 Desg FWD 9 128.28 Shr

* show port-security

(No configurado en el dispositivo)

* show port-security interface <secured port>

(No configurado en el dispositivo)

* show etherchannel

SW1#show etherchannel

Channel-group listing:

----------------------

Group: 1

----------

Group state = L2

Ports: 2 Maxports = 8

Port-channels: 1 Max Port-channels = 1

Protocol: -

Group: 2

----------

Group state = L2

Ports: 2 Maxports = 8

Port-channels: 1 Max Port-channels = 1

Protocol: -

* show etherchannel summary

SW1#show etherchannel summary

Flags: D - down P - in port-channel

I - stand-alone s - suspended

H - Hot-standby (LACP only)

R - Layer3 S - Layer2

U - in use f - failed to allocate aggregator

u - unsuitable for bundling

w - waiting to be aggregated

d - default port

Number of channel-groups in use: 2

Number of aggregators: 2

Group Port-channel Protocol Ports

------+-------------+-----------+----------------------------------------------

1 Po1(SU) - Fa0/1(P) Fa0/2(P)

2 Po2(SU) PAgP Fa0/3(P) Fa0/4(P)

* show logging

SW1#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 25 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 25 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 25 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

25 message lines logged,

0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

#### Switch 2

* show cdp neighbors

SW2#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

SW1 Por 2 174 S 2960 Fas 0/4

SW1 Por 2 174 S 2960 Por 2

SW1 Por 2 174 S 2960 Fas 0/3

SW3 Por 3 143 S 2960 Fas 0/3

SW3 Por 3 143 S 2960 Fas 0/4

SW3 Por 3 143 S 2960 Por 3

* show ip interface brief

SW2#show ip interface brief

Interface IP-Address OK? Method Status Protocol

Port-channel2 unassigned YES manual up up

Port-channel3 unassigned YES manual up up

FastEthernet0/1 unassigned YES manual up up

FastEthernet0/2 unassigned YES manual up up

FastEthernet0/3 unassigned YES manual up up

FastEthernet0/4 unassigned YES manual up up

FastEthernet0/12 unassigned YES manual up up

Vlan99 172.16.99.12 YES manual up up

* show versión

SW2#show version

Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX, RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Wed 12-Oct-05 22:05 by pt\_team

ROM: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)

System returned to ROM by power-on

Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.

24 FastEthernet/IEEE 802.3 interface(s)

2 Gigabit Ethernet/IEEE 802.3 interface(s)

63488K bytes of flash-simulated non-volatile configuration memory.

Base ethernet MAC Address : 0060.2F86.72B3

Motherboard assembly number : 73-9832-06

Power supply part number : 341-0097-02

Motherboard serial number : FOC103248MJ

Power supply serial number : DCA102133JA

Model revision number : B0

Motherboard revision number : C0

Model number : WS-C2960-24TT

System serial number : FOC1033Z1EY

Top Assembly Part Number : 800-26671-02

Top Assembly Revision Number : B0

Version ID : V02

CLEI Code Number : COM3K00BRA

Hardware Board Revision Number : 0x01

Switch Ports Model SW Version SW Image

------ ----- ----- ---------- ----------

\* 1 26 WS-C2960-24TT 12.2 C2960-LANBASE-M

Configuration register is 0xF

* show startup-config

SW2#show startup-config

Using 3240 bytes

!

version 12.2

service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname SW2

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

no ip domain-lookup

!

username remote privilege 1 password 7 0822455D0A1613030B1B0D517F

!

!

spanning-tree mode rapid-pvst

spanning-tree extend system-id

!

interface Port-channel2

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface Port-channel3

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface FastEthernet0/1

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 3 mode passive

!

interface FastEthernet0/2

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 3 mode passive

!

interface FastEthernet0/3

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 2 mode auto

!

interface FastEthernet0/4

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 2 mode auto

!

interface FastEthernet0/5

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface FastEthernet0/6

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/7

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/8

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/9

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/10

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/11

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/12

switchport access vlan 20

switchport mode access

switchport port-security

switchport port-security maximum 3

switchport port-security violation restrict

switchport port-security mac-address 000A.4128.3497

spanning-tree portfast

spanning-tree bpduguard enable

!

interface FastEthernet0/13

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/14

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/15

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/16

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/17

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

no ip address

shutdown

!

interface Vlan99

mac-address 0060.2f86.7201

ip address 172.16.99.12 255.255.255.0

!

ip default-gateway 172.16.99.2

!

banner motd ^Chis is SW2 CLI.

^C

logging 172.18.10.100

!

!

!

line con 0

password 7 0822455D0A1606181C1B0D517F

login local

!

line vty 0 4

login local

transport input telnet

transport output telnet

line vty 5 15

login local

transport input telnet

transport output telnet

!

!

!

ntp server 200.200.200.100

!

end

* show interfaces trunk

SW2#show interfaces trunk

Port Mode Encapsulation Status Native vlan

Po2 on 802.1q trunking 99

Po3 on 802.1q trunking 99

Port Vlans allowed on trunk

Po2 10,20,99

Po3 10,20,99

Port Vlans allowed and active in management domain

Po2 10,20,99

Po3 10,20,99

Port Vlans in spanning tree forwarding state and not pruned

Po2 20,99

Po3 10

* show interface vlan <management vlan>

SW2# show interfaces vlan 99

Vlan99 is up, line protocol is up

Hardware is CPU Interface, address is 0060.2f86.7201 (bia 0060.2f86.7201)

Internet address is 172.16.99.12/24

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

* show vlan brief

SW2#show vlan brief

VLAN Name Status Ports

---- -------------------------------- --------- -------------------------------

1 default active Fa0/5, Fa0/18, Fa0/19, Fa0/20

Fa0/21, Fa0/22, Fa0/23, Fa0/24

Gig0/1, Gig0/2

10 Sales active Fa0/6, Fa0/7, Fa0/8, Fa0/9

Fa0/10, Fa0/11

20 Servers active Fa0/12, Fa0/13, Fa0/14, Fa0/15

Fa0/16, Fa0/17

99 Management active

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

* show vtp status

SW2#show vtp status

VTP Version : 2

Configuration Revision : 6

Maximum VLANs supported locally : 255

Number of existing VLANs : 8

VTP Operating Mode : Client

VTP Domain Name : CSCCNA4

VTP Pruning Mode : Disabled

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0x65 0x5F 0x5F 0x93 0x4C 0xE4 0x6C 0xB1

Configuration last modified by 0.0.0.0 at 3-1-93 00:58:58

* show spanning-tree

SW2#show spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 28682

Address 0009.7C18.4B5E

Cost 9

Port 28(Port-channel3)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)

Address 0060.2F86.72B3

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Po3 Root FWD 9 128.28 Shr

Po2 Altn BLK 9 128.27 Shr

VLAN0020

Spanning tree enabled protocol rstp

Root ID Priority 24596

Address 000A.F378.C865

Cost 9

Port 27(Port-channel2)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)

Address 0060.2F86.72B3

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/12 Desg FWD 19 128.12 P2p

Po3 Altn BLK 9 128.28 Shr

Po2 Root FWD 9 128.27 Shr

VLAN0099

Spanning tree enabled protocol rstp

Root ID Priority 24675

Address 000A.F378.C865

Cost 9

Port 27(Port-channel2)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32867 (priority 32768 sys-id-ext 99)

Address 0060.2F86.72B3

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Po3 Altn BLK 9 128.28 Shr

Po2 Root FWD 9 128.27 Shr

* show port-security

SW2#show port-security

Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action

(Count) (Count) (Count)

--------------------------------------------------------------------

Fa0/12 3 1 0 Restrict

----------------------------------------------------------------------

* show port-security interface <secured port>

SW2#show port-security

Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action

(Count) (Count) (Count)

--------------------------------------------------------------------

Fa0/12 3 1 0 Restrict

----------------------------------------------------------------------

SW2#sh

SW2#show po

SW2#show port-security in

SW2#show port-security interface f0/12

Port Security : Enabled

Port Status : Secure-up

Violation Mode : Restrict

Aging Time : 0 mins

Aging Type : Absolute

SecureStatic Address Aging : Disabled

Maximum MAC Addresses : 3

Total MAC Addresses : 1

Configured MAC Addresses : 1

Sticky MAC Addresses : 0

Last Source Address:Vlan : 000A.4128.3497:20

Security Violation Count : 0

* show etherchannel

SW2#show etherchannel

Channel-group listing:

----------------------

Group: 2

----------

Group state = L2

Ports: 2 Maxports = 16

Port-channels: 1 Max Port-channels = 16

Protocol: LACP

Group: 3

----------

Group state = L2

Ports: 2 Maxports = 16

Port-channels: 1 Max Port-channels = 16

Protocol: LACP

* show etherchannel summary

SW2#show etherchannel summary

Flags: D - down P - in port-channel

I - stand-alone s - suspended

H - Hot-standby (LACP only)

R - Layer3 S - Layer2

U - in use f - failed to allocate aggregator

u - unsuitable for bundling

w - waiting to be aggregated

d - default port

Number of channel-groups in use: 2

Number of aggregators: 2

Group Port-channel Protocol Ports

------+-------------+-----------+----------------------------------------------

2 Po2(SU) PAgP Fa0/3(P) Fa0/4(P)

3 Po3(SU) LACP Fa0/1(P) Fa0/2(P)

* show logging

SW2#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 20 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 20 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 20 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

20 message lines logged,

0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

#### Switch 3

* show cdp neighbors

SW3#show cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID Local Intrfce Holdtme Capability Platform Port ID

SW1 Por 1 130 S 2960 Fas 0/1

SW1 Por 1 130 S 2960 Fas 0/2

SW1 Por 1 130 S 2960 Por 1

R3 Fas 0/5 164 R C1900 Gig 0/0

R3 Fas 0/5 164 R C1900 Gig 0/0.10

R3 Fas 0/5 164 R C1900 Gig 0/0.20

R3 Fas 0/5 164 R C1900 Gig 0/0.99

SW2 Por 3 159 S 2960 Fas 0/1

SW2 Por 3 159 S 2960 Fas 0/2

SW2 Por 3 159 S 2960 Por 3

* show ip interface brief

SW3#show ip interface brief

Interface IP-Address OK? Method Status Protocol

Port-channel1 unassigned YES manual up up

Port-channel3 unassigned YES manual up up

FastEthernet0/1 unassigned YES manual up up

FastEthernet0/2 unassigned YES manual up up

FastEthernet0/3 unassigned YES manual up up

FastEthernet0/4 unassigned YES manual up up

FastEthernet0/5 unassigned YES manual up up

FastEthernet0/6 unassigned YES manual up up

Vlan99 172.16.99.13 YES manual up up

* show versión

SW3# show version

Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX, RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Wed 12-Oct-05 22:05 by pt\_team

ROM: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)

System returned to ROM by power-on

Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.

24 FastEthernet/IEEE 802.3 interface(s)

2 Gigabit Ethernet/IEEE 802.3 interface(s)

63488K bytes of flash-simulated non-volatile configuration memory.

Base ethernet MAC Address : 0009.7C18.4B5E

Motherboard assembly number : 73-9832-06

Power supply part number : 341-0097-02

Motherboard serial number : FOC103248MJ

Power supply serial number : DCA102133JA

Model revision number : B0

Motherboard revision number : C0

Model number : WS-C2960-24TT

System serial number : FOC1033Z1EY

Top Assembly Part Number : 800-26671-02

Top Assembly Revision Number : B0

Version ID : V02

CLEI Code Number : COM3K00BRA

Hardware Board Revision Number : 0x01

Switch Ports Model SW Version SW Image

------ ----- ----- ---------- ----------

\* 1 26 WS-C2960-24TT 12.2 C2960-LANBASE-M

Configuration register is 0xF

* show startup-config

SW3#show running-config

Building configuration...

Current configuration : 3139 bytes

!

version 12.2

service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname SW3

!

enable secret 5 $1$mERr$TfFTxE.mmb5O5BVC56ndL0

!

!

!

!

username remote privilege 1 password 7 0822455D0A1613030B1B0D517F

!

vtp domain CSCCNA4

vtp mode transparent

vtp password VTPccna4pass

!

!

spanning-tree mode rapid-pvst

spanning-tree extend system-id

spanning-tree vlan 10,20,99 priority 28672

!

vlan 10

name Sales

!

vlan 20

name Servers

!

vlan 99

name Management

!

interface Port-channel1

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface Port-channel3

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface FastEthernet0/1

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 1 mode on

!

interface FastEthernet0/2

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 1 mode on

!

interface FastEthernet0/3

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 3 mode active

!

interface FastEthernet0/4

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

channel-group 3 mode active

!

interface FastEthernet0/5

switchport trunk native vlan 99

switchport trunk allowed vlan 10,20,99

switchport mode trunk

!

interface FastEthernet0/6

switchport access vlan 10

switchport mode access

spanning-tree portfast

spanning-tree bpduguard enable

!

interface FastEthernet0/7

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/8

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/9

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/10

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/11

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/12

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/13

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/14

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/15

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/16

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/17

switchport access vlan 20

switchport mode access

interface Vlan1

no ip address

shutdown

!

interface Vlan99

mac-address 0009.7c18.4b01

ip address 172.16.99.13 255.255.255.0

!

ip default-gateway 172.16.99.2

!

banner motd ^Chis in SW3 CLI.

^C

logging 172.18.10.100

!

line con 0

password 7 0822455D0A1606181C1B0D517F

login local

!

line vty 0 4

login local

line vty 5 15

login local

!

!

!

ntp server 200.200.200.100

!

end

* show interfaces trunk

SW3#show interfaces trunk

Port Mode Encapsulation Status Native vlan

Po1 on 802.1q trunking 99

Po3 on 802.1q trunking 99

Fa0/5 on 802.1q trunking 99

Port Vlans allowed on trunk

Po1 10,20,99

Po3 10,20,99

Fa0/5 10,20,99

Port Vlans allowed and active in management domain

Po1 10,20,99

Po3 10,20,99

Fa0/5 10,20,99

Port Vlans in spanning tree forwarding state and not pruned

Po1 10,20,99

Po3 10,20,99

Fa0/5 10,20,99

* show interface vlan <management vlan>

SW3#show interfaces vlan 99

Vlan99 is up, line protocol is up

Hardware is CPU Interface, address is 0009.7c18.4b01 (bia 0009.7c18.4b01)

Internet address is 172.16.99.13/24

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

* show vlan brief

SW3#show vlan brief

VLAN Name Status Ports

---- -------------------------------- --------- -------------------------------

1 default active Fa0/18, Fa0/19, Fa0/20, Fa0/21

Fa0/22, Fa0/23, Fa0/24, Gig0/1

Gig0/2

10 Sales active Fa0/6, Fa0/7, Fa0/8, Fa0/9

Fa0/10, Fa0/11

20 Servers active Fa0/12, Fa0/13, Fa0/14, Fa0/15

Fa0/16, Fa0/17

99 Management active

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

* show vtp status

SW3#show vtp status

VTP Version : 2

Configuration Revision : 0

Maximum VLANs supported locally : 255

Number of existing VLANs : 8

VTP Operating Mode : Transparent

VTP Domain Name : CSCCNA4

VTP Pruning Mode : Disabled

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0xC8 0xBC 0xC6 0x9E 0x6C 0xC4 0xAF 0xC0

Configuration last modified by 0.0.0.0 at 3-1-93 01:10:42

* show spanning-tree

SW3#show spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 28682

Address 0009.7C18.4B5E

This bridge is the root

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28682 (priority 28672 sys-id-ext 10)

Address 0009.7C18.4B5E

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/5 Desg FWD 19 128.5 P2p

Fa0/6 Desg FWD 19 128.6 P2p

Po1 Desg FWD 9 128.27 Shr

Po3 Desg FWD 9 128.28 Shr

VLAN0020

Spanning tree enabled protocol rstp

Root ID Priority 24596

Address 000A.F378.C865

Cost 9

Port 27(Port-channel1)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28692 (priority 28672 sys-id-ext 20)

Address 0009.7C18.4B5E

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/5 Desg FWD 19 128.5 P2p

Po1 Root FWD 9 128.27 Shr

Po3 Desg FWD 9 128.28 Shr

VLAN0099

Spanning tree enabled protocol rstp

Root ID Priority 24675

Address 000A.F378.C865

Cost 9

Port 27(Port-channel1)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28771 (priority 28672 sys-id-ext 99)

Address 0009.7C18.4B5E

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/5 Desg FWD 19 128.5 P2p

Po1 Root FWD 9 128.27 Shr

Po3 Desg FWD 9 128.28 Shr

* show port-security

(No configurado en el dispositivo)

* show port-security interface <secured port>

(No configurado en el dispositivo)

* show etherchannel

SW3#show etherchannel

Channel-group listing:

----------------------

Group: 1

----------

Group state = L2

Ports: 2 Maxports = 8

Port-channels: 1 Max Port-channels = 1

Protocol: -

Group: 3

----------

Group state = L2

Ports: 2 Maxports = 16

Port-channels: 1 Max Port-channels = 16

Protocol: LACP

* show etherchannel summary

SW3#show etherchannel summary

Flags: D - down P - in port-channel

I - stand-alone s - suspended

H - Hot-standby (LACP only)

R - Layer3 S - Layer2

U - in use f - failed to allocate aggregator

u - unsuitable for bundling

w - waiting to be aggregated

d - default port

Number of channel-groups in use: 2

Number of aggregators: 2

Group Port-channel Protocol Ports

------+-------------+-----------+----------------------------------------------

1 Po1(SU) - Fa0/1(P) Fa0/2(P)

3 Po3(SU) LACP Fa0/3(P) Fa0/4(P)

* show logging

SW3#show logging

Syslog logging: enabled (0 messages dropped, 0 messages rate-limited,

0 flushes, 0 overruns, xml disabled, filtering disabled)

No Active Message Discriminator.

No Inactive Message Discriminator.

Console logging: level debugging, 21 messages logged, xml disabled,

filtering disabled

Monitor logging: level debugging, 21 messages logged, xml disabled,

filtering disabled

Buffer logging: disabled, xml disabled,

filtering disabled

Logging Exception size (4096 bytes)

Count and timestamp logging messages: disabled

Persistent logging: disabled

No active filter modules.

ESM: 0 messages dropped

Trap logging: level informational, 21 message lines logged

Logging to 172.18.10.100 (udp port 514, audit disabled,

authentication disabled, encryption disabled, link up),

21 message lines logged,

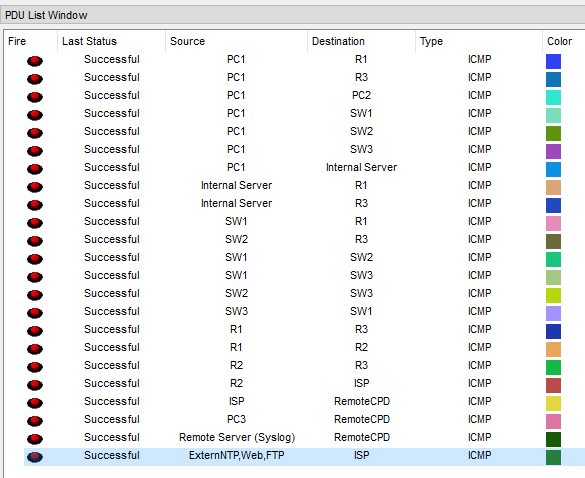
0 message lines rate-limited,

0 message lines dropped-by-MD,

xml disabled, sequence number disabled

filtering disabled

# Test de conectividad

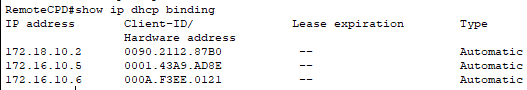


## Configuraciones de DHCP

El DNS que repartirá dhcp será: 200.200.200.100.

Verificación de DHCP

* 1. Note the IP address of PC1: 172.16.10.5
  2. Note the IP address of PC2: 172.16.10.6
  3. Note the IP address of PC3: 172.18.10.2
  4. El pc3 pertenece a un pool distinto que los otros pc.
  5. Conectividad entre los dispositivos.



* los dispositivos envían logs al servidor indicado porque se indicó su ip en la configuración.

## Aplicación de ACL’s

### Router 1

access-list 101 permit ip any any

access-list 101 deny tcp 172.16.20.0 0.0.0.255 host 172.16.10.1 eq 22

access-list 101 deny tcp 172.16.99.0 0.0.0.255 host 172.16.10.1 eq 22

access-list 101 deny tcp 172.16.99.0 0.0.0.255 host 172.16.10.1 eq telnet

access-list 101 deny tcp 172.16.20.0 0.0.0.255 host 172.16.10.1 eq telnet

### Router 2

Standard IP access list 1

10 permit 172.16.10.0 0.0.0.255

Extended IP access list 100

10 permit ip 172.16.10.0 0.0.0.255 200.200.200.0 0.0.0.255

Extended IP access list web

10 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq www

20 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq 443

30 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq www

40 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq 443

50 permit ip any any

Extended IP access list 150

10 deny tcp 172.16.10.0 0.0.0.255 host 200.200.200.100 eq 20

20 deny tcp 172.16.10.0 0.0.0.255 host 200.200.200.100 eq ftp

30 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq 20

40 deny tcp 172.16.20.0 0.0.0.255 host 200.200.200.100 eq ftp

50 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq ftp

60 deny tcp 172.16.99.0 0.0.0.255 host 200.200.200.100 eq 20

70 permit ip any any (8854 match(es))

### CPDRemote

Standard IP access list 1

10 permit 172.18.10.0 0.0.0.255

Extended IP access list 150

10 permit ip 172.18.10.0 0.0.0.255 200.200.200.0 0.0.0.255

Extended IP access list RemoteControl

10 permit ip any any

20 permit icmp host 172.18.10.100 172.16.10.0 0.0.0.255

30 deny icmp 172.16.10.0 0.0.0.255 host 172.18.10.100 echo

40 deny icmp 172.16.10.0 0.0.0.255 host 172.18.10.100 echo-reply