



**DIPLOMADO DE PROFUNDIZACION CISCO - DISEÑO E IMPLEMENTACION DE
SOLUCIONES INTEGRADAS LAN/WAN**

PRUEBA DE HABILIDADES PRACTICAS

PRESENTADO POR:

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**INGENIERIA DE SISTEMAS
COROZAL (RUBÉN DEL CRISTO MARTÍNEZ)
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INTRODUCCION

La siguiente actividad es el desarrollo de una prueba de habilidades prácticas del diplomado de profundización en cisco con el cual demostramos los conocimientos adquiridos durante el desarrollo del curso, mostrando nuestras habilidades de manejo de packet tracer el cual es un software de mucha ayuda pues nos permite simular situaciones y entornos de red que nos permitirán saber cómo debemos hacer las configuraciones cuando nos encontremos en una situación real.

OBJETIVOS

General

- Realizar informe de la prueba de habilidades practicas del diplomado de cisco

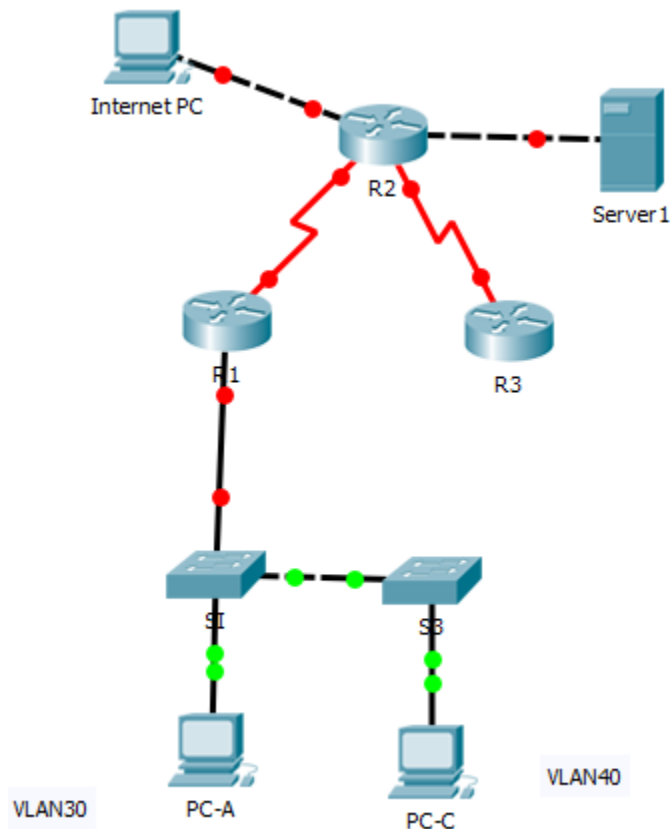
Específicos.

- Solucionar el ejercicio propuesto en la plataforma de cisco llamado prueba de habilidades practicas
- Demostrar los conocimiento adquiridos durante el desarrollo del diplomado de cisco

Prueba de Habilidades Prácticas

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

TOPOLOGIA DE LA RED



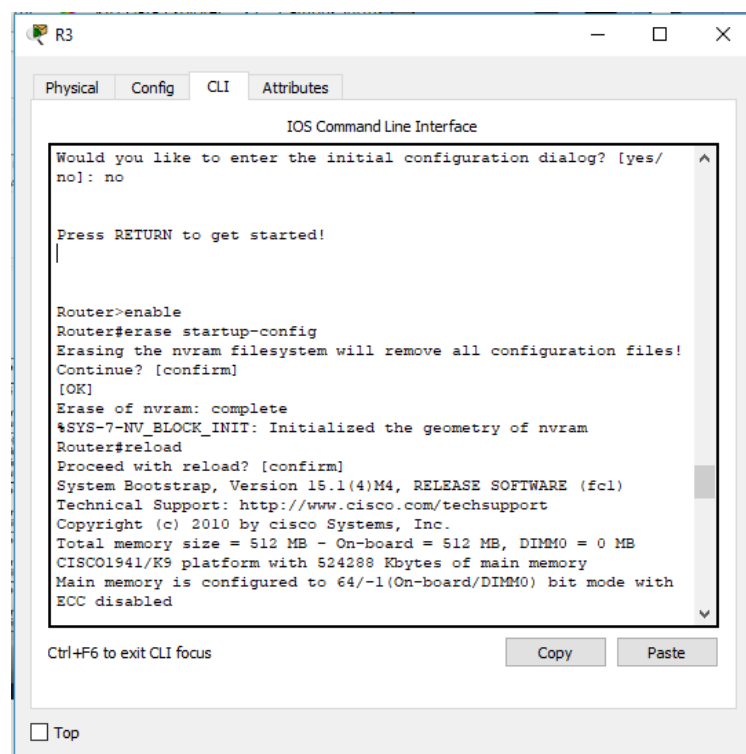
VLAN	Direccionamiento	Nombre
30	192.168.30.0/24	Administración
40	192.168.40.0/24	Mercadeo
200	192.168.200.0/24	Mantenimiento

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

1.1. Reseteo de dispositivos

Se realiza el reseteo de los 3 Router y también de los switch.

```
Router>enable
Router#erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#reload
Proceed with reload? [confirm]
```



1.2. Configuración del Router 1

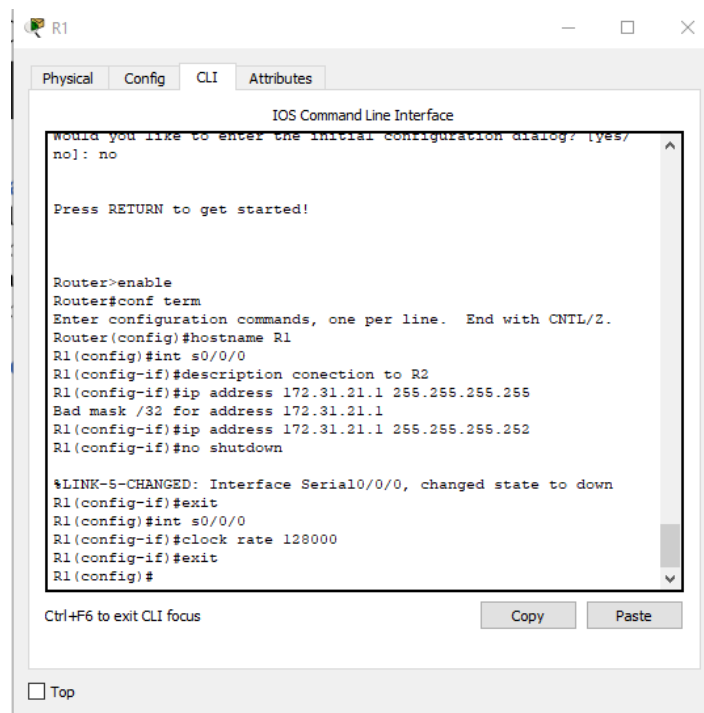
```
Router>enable
Router#conf term
```

```

Router(config)#hostname R1
R1(config)#int s0/0/0
R1(config-if)#description conection to R2
R1(config-if)#ip address 172.31.21.1 255.255.255.252
R1(config-if)#no shutdown

R1>enable
R1#conf term
R1(config)#int g0/0
R1(config-if)#description conection to S1
R1(config-if)#ip address 192.168.99.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#

```



1.3. Configuración del Router 2

```

Router>enable
Router#conf term
Router(config)#hostname R2
R2(config)#int s0/0/1
R2(config-if)#Description conection to R1
R2(config-if)#ip address 172.31.21.2 255.255.255.252
R2(config-if)#no shutdown

R2(config-if)#int s0/0/0

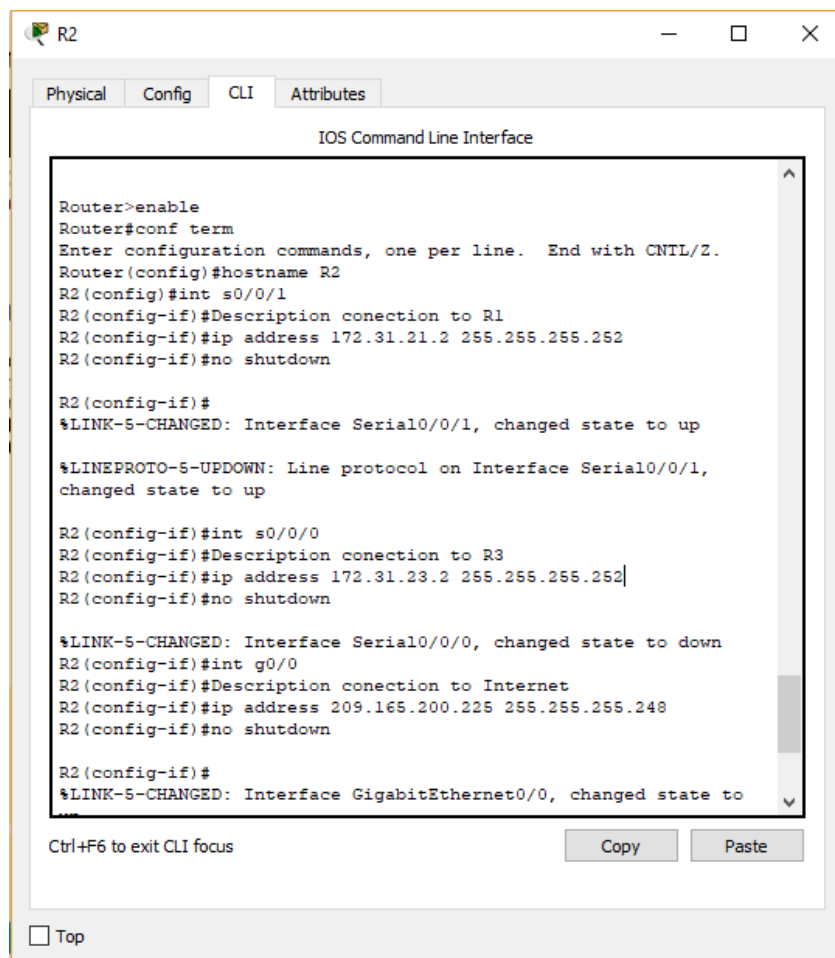
```

```
R2(config-if)#Description conection to R3
R2(config-if)#ip address 172.31.23.2 255.255.255.252
R2(config-if)#no shutdown
```

```
R2(config-if)#int g0/0
R2(config-if)#Description conection to Internet
R2(config-if)#ip address 209.165.200.225 255.255.255.248
R2(config-if)#no shutdown
```

```
R2>enable
R2#conf term
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface loopback 0
R2(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up
R2(config-if)#description Web Service
R2(config-if)#ip address 10.10.10.10 255.255.255.255
```



```
Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
R2 (config)#int s0/0/1
R2 (config-if)#Description conection to R1
R2 (config-if)#ip address 172.31.21.2 255.255.255.252
R2 (config-if)#no shutdown

R2 (config-if)#
%LINK-5-CHANGED: Interface Serial10/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial10/0/1,
changed state to up

R2 (config-if)#int s0/0/0
R2 (config-if)#Description conection to R3
R2 (config-if)#ip address 172.31.23.2 255.255.255.252|
R2 (config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial10/0/0, changed state to down
R2 (config-if)#int g0/0
R2 (config-if)#Description conection to Internet
R2 (config-if)#ip address 209.165.200.225 255.255.255.248
R2 (config-if)#no shutdown

R2 (config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to
```

Ctrl+F6 to exit CLI focus

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1.4. Configuración del Router 3

```
Router>enable
Router#conf term
Router(config)#hostname R3
R3(config)#int s0/0/1
R3(config-if)#Description conection to R2
R3(config-if)#ip address 172.31.23.1 255.255.255.252
R3(config-if)#no shutdown
```

```
R3(config-if)#interface loopback 4
R3(config-if)#
%LINK-5-CHANGED: Interface Loopback4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback4, changed state to up
R3(config-if)#ip address 192.168.4.1 255.255.255.0
```

```
R3(config-if)#interface loopback 5
R3(config-if)#
%LINK-5-CHANGED: Interface Loopback5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback5, changed state to up
R3(config-if)#ip address 192.168.5.1 255.255.255.0
```

```
R3(config-if)#interface loopback 6
R3(config-if)#
%LINK-5-CHANGED: Interface Loopback6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback6, changed state to up
ip address 192.168.6.1 255.255.255.0
R3(config-if)#exit
R3(config)#
```



```

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R3
R3(config)#int s0/0/1
R3(config-if)#Description conection to R2
R3(config-if)#ip address 172.31.23.1 255.255.255.252
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

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

R3(config-if)#interface loopback 4

R3(config-if)#
%LINK-5-CHANGED: Interface Loopback4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback4,
changed state to up

R3(config-if)#ip address 192.168.4.1 255.255.255.0
R3(config-if)#interface loopback 5

R3(config-if)#
%LINK-5-CHANGED: Interface Loopback5, changed state to up

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

R3(config-if)#ip address 192.168.5.1 255.255.255.0
R3(config-if)#interface loopback 6

R3(config-if)#
%LINK-5-CHANGED: Interface Loopback6, changed state to up

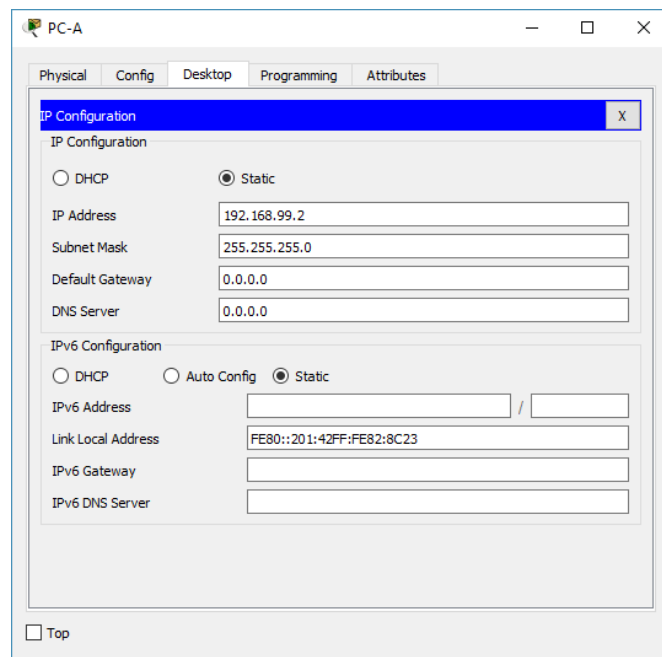
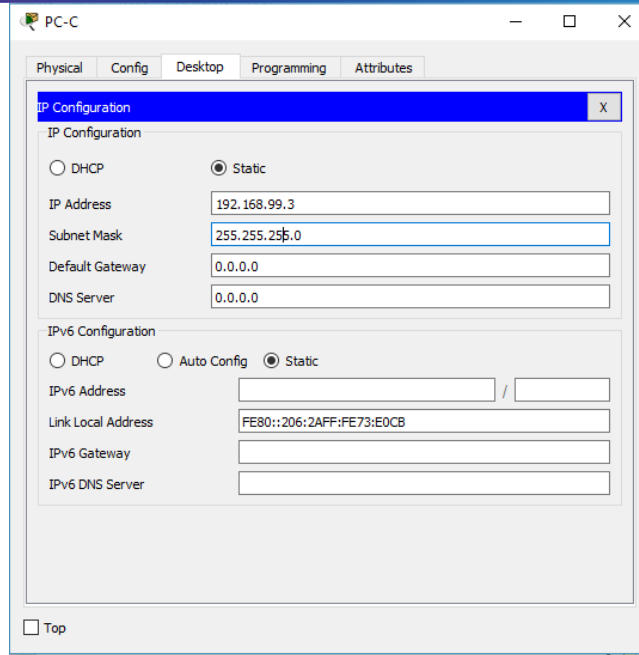
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback6,
changed state to up
ip address 192.168.6.1 255.255.255.0
R3(config-if)#exit
R3(config)#
  
```

Ctrl+F6 to exit CLI focus

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1.5. Configuración del PC A y PC C



2. Configurar el protocolo de enrutamiento OSPFv2 bajo los siguientes criterios:
3. Configurar VLANs, Puertos troncales, puertos de acceso, encapsulamiento, Inter-VLAN Routing y Seguridad en los Switches acorde a la topología de red establecida.

S1>enable

S1#conf term

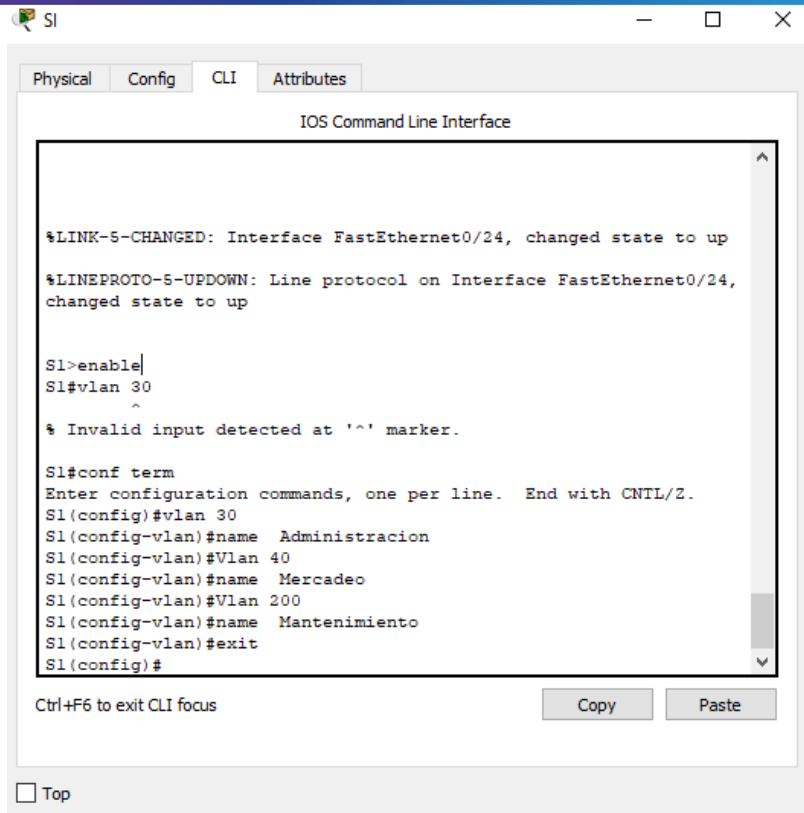
Enter configuration commands, one per line. End with CNTL/Z.

S1(config)#vlan 30

```
S1(config-vlan)#name Administracion
S1(config-vlan)#Vlan 40
S1(config-vlan)#name Mercadeo
S1(config-vlan)#Vlan 200
S1(config-vlan)#name Mantenimiento
S1(config-vlan)#exit
S1(config)#
```

```
S1(config)#int vlan 200
S1(config-if)#
%LINK-5-CHANGED: Interface Vlan200, changed state to up
S1(config-if)#ip address 192.168.99.2 255.255.255.0
S1(config-if)#no shutdown
S1(config-if)#exit
```

```
S1#conf term
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#ip default-gateway 192.168.99.1
S1(config)#int f0/3
S1(config-if)#switchport mode trunk
S1(config-if)#
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int f0/1
S1(config-if)#switchport mode trunk
S1(config-if)#
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int f0/24
S1(config-if)#switchport mode trunk
S1(config-if)#
S1(config-if)#switchport trunk native vlan 1
S1(config-if)#int f0/1
S1(config-if)#switchport access vlan 30
S1(config-if)#int range fa0/2,fa0/4-
S1(config-if)#int range fa0/2,fa0/4-23, g0/1-2
S1(config-if-range)#Shutdown
```



Configuración del S3

```

S3>enable
S3#conf term
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#vlan 31
S3(config-vlan)#name exit
S3(config-vlan)#exit
S3(config)#vlan 30
S3(config-vlan)#name Administracion
S3(config-vlan)#vlan 40
S3(config-vlan)#name Mercadeo
S3(config-vlan)#vlan 200
S3(config-vlan)#name Mantenimiento
S3(config-vlan)#exit
S3(config)#

S3(config)#vlan 30
S3(config-vlan)#exit
S3(config)#int vlan 200
S3(config-if)#
%LINK-5-CHANGED: Interface Vlan200, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan200, changed
state to up

S3(config-if)#ip address 192.168.99.3 255.255.255.0

```

```
S3(config-if)#no shutdown
S3(config-if)#exit
S3(config)#ip default-gateway 192.168.99.1
S3(config)#int f0/3
S3(config-if)#switchport mode trunk
S3(config-if)#switchport trunk native vlan 1
S3(config-if)#int f0/1
S3(config-if)#switchport access vlan 40
S3(config-if)#int range f0/2, f0/4-24, g0/1-2
S3(config-if-range)#shutdown
```

CONFIGIRACION DEL R1

```
R1>enable
R1#conf term
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int g0/0.30
R1(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.30, changed state to up

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

R1(config-subif)#encapsulation dot1q 30
R1(config-subif)#ip address 192.168.30.1 255.255.255.0
R1(config-subif)#description administracion LAN
R1(config-subif)#int g0/0.40
R1(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.40, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0.40, changed state to up

R1(config-subif)#encapsulation dot1q 40
R1(config-subif)#ip address 192.168.40.1 255.255.255.0
R1(config-subif)#description Mercadeo LAN
R1(config-subif)#int g0/0.200
R1(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.200, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0.200, changed state to up

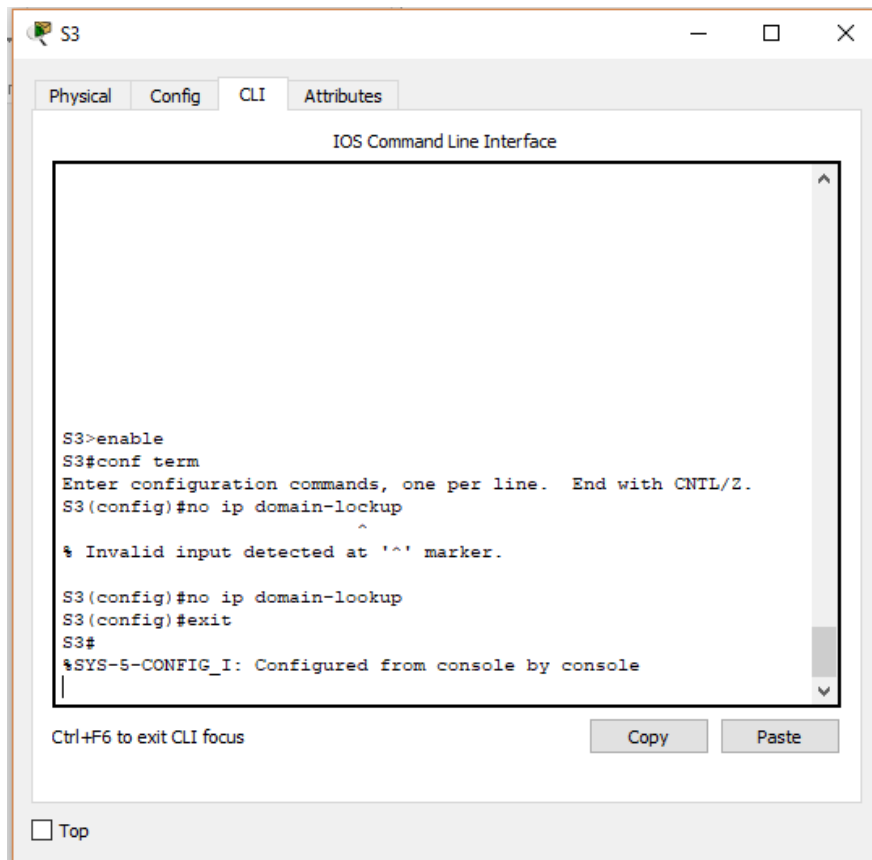
R1(config-subif)#encapsulation dot1q 200
R1(config-subif)#ip address 192.168.200.1 255.255.255.0
R1(config-subif)#description Mantenimiento LAN
R1(config-subif)#int g0/0
R1(config-if)#no shutdown
R1(config-if)#
```

4. En el Switch 3 deshabilitar DNS lookup

```

S3>enable
S3#conf term
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#no ip domain-lookup
S3(config)#exit
S3#

```



BIBLIOGRAFIA

Cisco documentación configuración de switches

https://www.cisco.com/c/es_mx/support/docs/lan-switching/inter-vlan-routing/41860-howto-L3-intervlanrouting.html. Configuración básica del router usando el Cisco

Configuración. https://www.cisco.com/c/es_mx/support/docs/cloud-systems-management/configurationprofessional/111999-basic-router-config-ccp-00.html.