



Tecnología de Redes

Proyecto Final

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La empresa DISTRIBUIDORA DEL SUR S.A. ha construido un Edificio Principal y arrendado 3 centros de distribución a lo largo del país. Como parte de su plan de modernización instalará lo más novedoso en sistemas de información. Requiere de una consultoría e implementación de una red de datos que sea robusta, escalable, segura y a su vez se ponga en servicio.

Datos Generales

Edificio Principal de 3 Niveles

Nivel 1 – Oficinas de Servicio al cliente, Ventas al Detalle, Bodega

Nivel 2 – Oficinas de Ventas Corporativas, Recursos Humanos, Contabilidad

Nivel 3 – Oficinas de Administración, Marketing, Gerencia General, Gerencia Legal

Se requiere;

- Diseñar, Implementar una red que permita brindar servicios de conectividad para todas las áreas.
 - Elabore esquema de direccionamiento (IP PLAN)
 - La red debe de estar estructurada en un diseño jerárquico de tres capas
 - Segmentar la red con vistas a que cada área funcional tenga su propio direccionamiento de red
 - Seleccionar y Configurar los equipos de acuerdo con la distribución física del local del cliente y configure completamente la red y utilice IPv4 o IPv6.
 - Utilizar Packet Tracer para la simulación de la Red
 - Verificar la conectividad entre todas las estaciones de trabajo. - Asegurar los accesos a los dispositivos de red. Proteja la red con SSH, contraseñas seguras y contraseñas de consola (como mínimo).
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- Revise la red mediante, por lo menos, cinco comandos show. Seleccionar un Proveedor de Internet y Ancho de Banda para satisfacer la necesidad de los usuarios de la empresa

(*Simular internet con un Servidor WEB)

- Brindar como entregable la documentación técnica de la red.

* Direccionamiento IP

* Diagrama de Red

* Configuraciones de Equipo

* Accesos a los equipos.

- Presente su proyecto final (en Power Point) a la clase y esté preparado para responder las preguntas de sus compañeros y del instructor. Subir el entregable en la plataforma.

Entregables:

- Archivo en Packet Tracer
 - Documento con Diseño y Presentación en Power Point
 - Diagramas de Red, configuraciones.
 - Se verificará el 100% de la funcionalidad
-

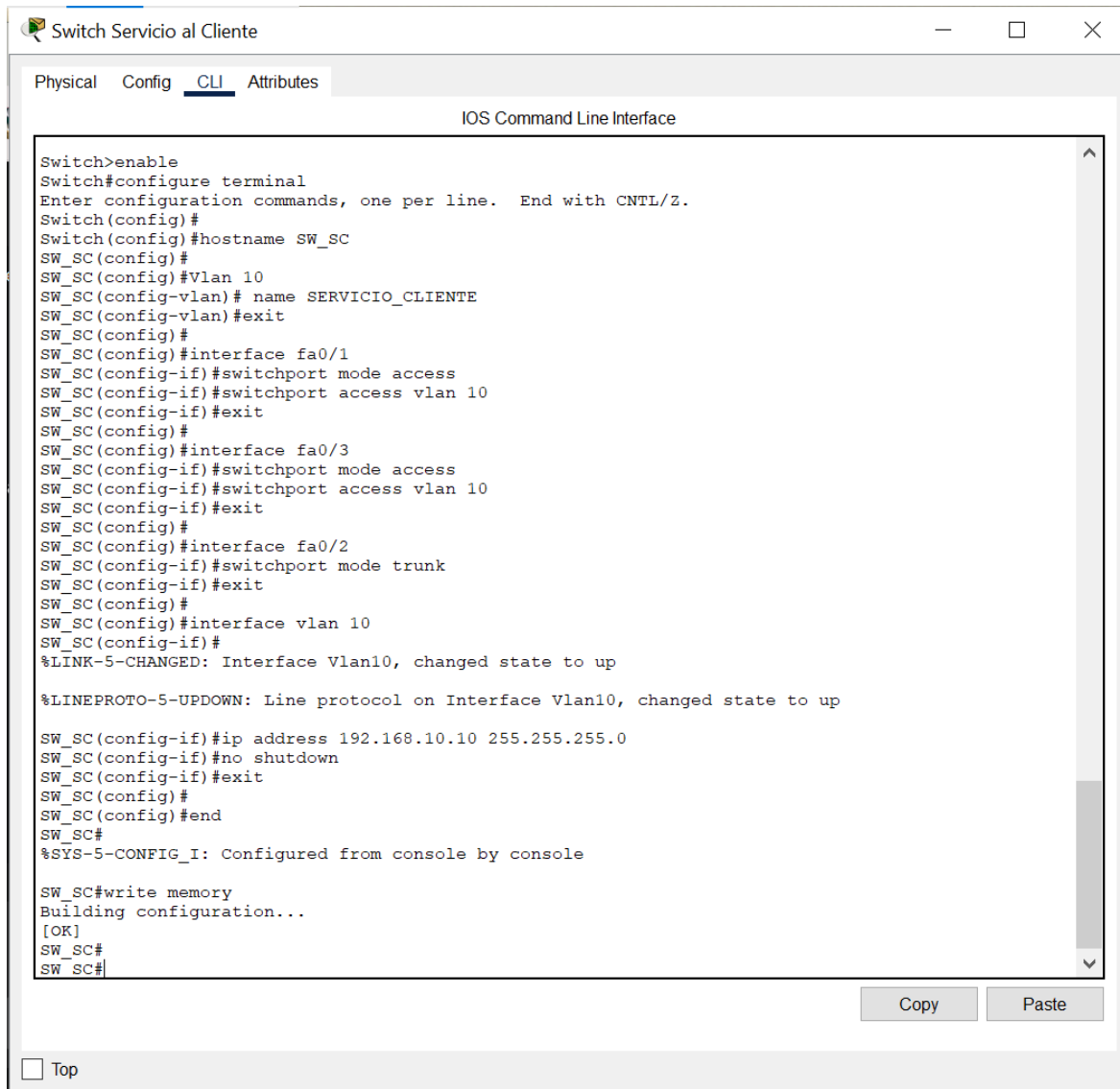
Tablas Primer Piso

Vlan 10

Tabla de direccionamiento Oficina Servicio al Cliente

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
Switch Servicio al Cliente	VLAN 10	192.168.10.0/24	255.255.255.0	192.168.10.1
PC1-Servicio al Cliente	FastEthernet0	192.168.10.0/24	255.255.255.0	192.168.10.1
PC2-Servicio al Cliente	FastEthernet0	192.168.10.0/24	255.255.255.0	192.168.10.1

Configuración del Switch de servicio al cliente



```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
Switch(config)#hostname SW_SC
SW_SC(config)#
SW_SC(config)#vlan 10
SW_SC(config-vlan)# name SERVICIO_CLIENTE
SW_SC(config-vlan)#exit
SW_SC(config)#
SW_SC(config)#interface fa0/1
SW_SC(config-if)#switchport mode access
SW_SC(config-if)#switchport access vlan 10
SW_SC(config-if)#exit
SW_SC(config)#
SW_SC(config)#interface fa0/3
SW_SC(config-if)#switchport mode access
SW_SC(config-if)#switchport access vlan 10
SW_SC(config-if)#exit
SW_SC(config)#
SW_SC(config)#interface fa0/2
SW_SC(config-if)#switchport mode trunk
SW_SC(config-if)#exit
SW_SC(config)#
SW_SC(config)#interface vlan 10
SW_SC(config-if)#
%LINK-5-CHANGED: Interface Vlan10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up

SW_SC(config-if)#ip address 192.168.10.10 255.255.255.0
SW_SC(config-if)#no shutdown
SW_SC(config-if)#exit
SW_SC(config)#
SW_SC(config)#end
SW_SC#
%SYS-5-CONFIG_I: Configured from console by console

SW_SC#write memory
Building configuration...
[OK]
SW_SC#
SW_SC#
```

☐ Top

Copy Paste

Configuración de PC1 de servicio al cliente

The screenshot shows the configuration window for PC1, titled "PC1-Servicio al Cliente". The "Desktop" tab is selected. Under "IP Configuration", the "Interface" is "FastEthernet0". The "Static" radio button is selected. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.10.11
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0

Below the IPv4 section, the "IPv6 Configuration" section is visible, with the "Static" radio button selected. The fields are empty except for the "Link Local Address" which is "FE80::2D0:D3FF:FE6D:6C6C".


Configuración de PC2 de servicio al cliente

The screenshot shows the configuration window for PC2, titled "PC2-Servicio al Cliente". The "Desktop" tab is selected. Under "IP Configuration", the "Interface" is "FastEthernet0". The "Static" radio button is selected. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.10.12
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0

Below the IPv4 section, the "IPv6 Configuration" section is visible, with the "Static" radio button selected. The fields are empty except for the "Link Local Address" which is "FE80::230:F2FF:FE05:A7BC".

Pings para confirmar la conectividad el área

 PC1-Servicio al Cliente

```
Ping statistics for 192.168.10.1:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
C:\>ping 192.168.10.12


Pinging 192.168.10.12 with 32 bytes of data:

Reply from 192.168.10.12: bytes=32 time<1ms TTL=128
Reply from 192.168.10.12: bytes=32 time<1ms TTL=128
Reply from 192.168.10.12: bytes=32 time<1ms TTL=128
Reply from 192.168.10.12: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.12:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

☐ Top

 PC2-Servicio al Cliente

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.11

Pinging 192.168.10.11 with 32 bytes of data:

Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time=4ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.11:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>
```

- Las PCs se ven entre sí

- Están en la VLAN correcta
- Trunk entre switch de acceso y distribución operativo
- Configuración limpia y sin errores

Tabla de direccionamiento Oficina Ventas al Detalle

Vlan 11

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
Switch Ventas al Detalle	VLAN 11	192.168.11.0/24	255.255.255.0	192.168.11.1
PC1-Oficina Ventas al Detalle	FastEthernet0	192.168.11.0/24	255.255.255.0	192.168.11.1
PC2-Oficina Ventas al Detalle	FastEthernet0	192.168.11.0/24	255.255.255.0	192.168.11.1

Configuración PC1 VD

PC1- Ventas Detalle

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.11.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.11.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

Configuración PC2 VD

PC2-Ventas Detalle

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.11.12

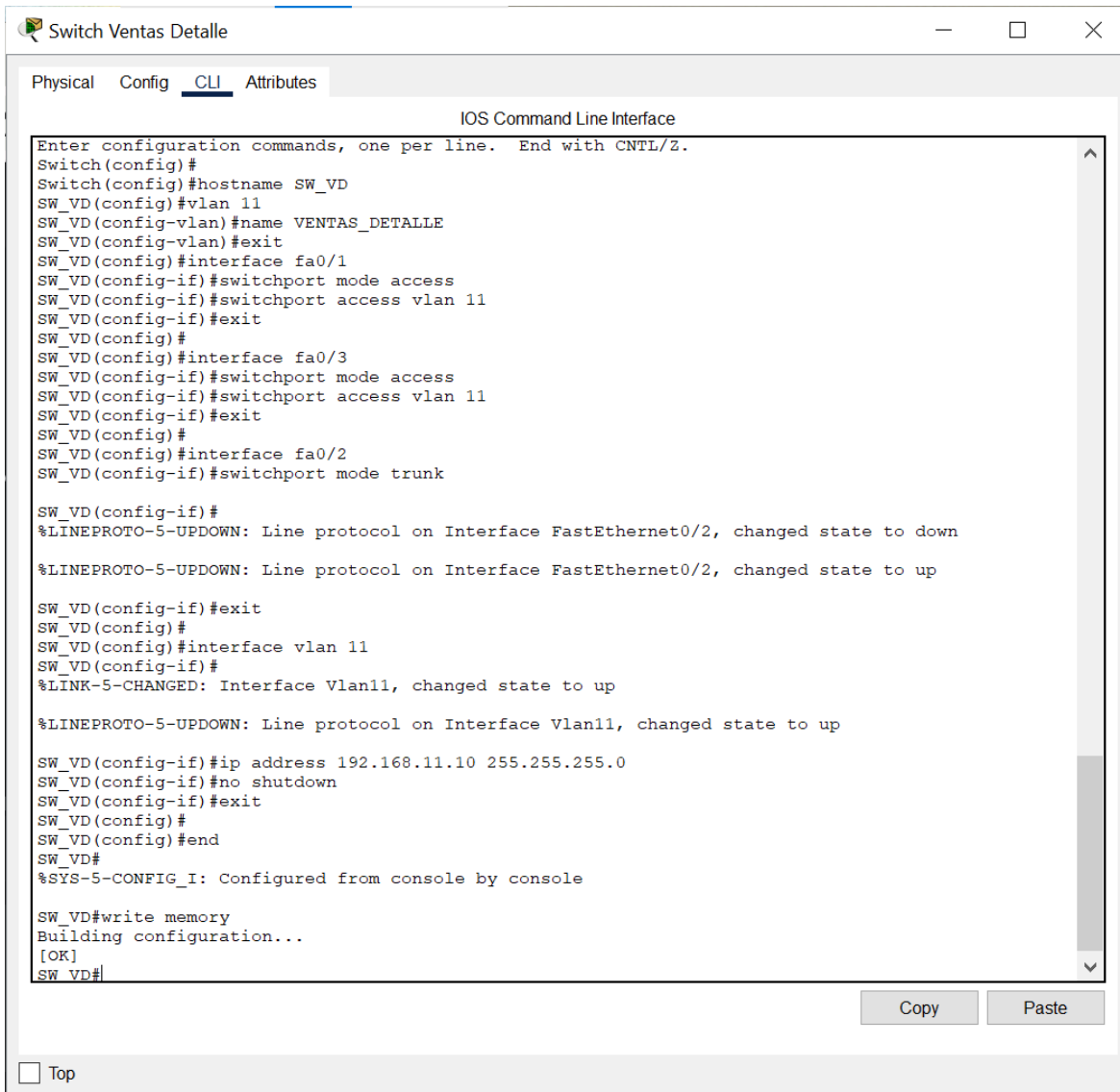
Subnet Mask 255.255.255.0

Default Gateway 192.168.11.1

DNS Server 0.0.0.0

IPv6 Configuration

Configuración switch de VD



The screenshot shows a window titled "Switch Ventas Detalle" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows a series of configuration commands and their outputs for a switch named SW_VD.

```
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
Switch(config)#hostname SW_VD
SW_VD(config)#vlan 11
SW_VD(config-vlan)#name VENTAS_DETALLE
SW_VD(config-vlan)#exit
SW_VD(config)#interface fa0/1
SW_VD(config-if)#switchport mode access
SW_VD(config-if)#switchport access vlan 11
SW_VD(config-if)#exit
SW_VD(config)#
SW_VD(config)#interface fa0/3
SW_VD(config-if)#switchport mode access
SW_VD(config-if)#switchport access vlan 11
SW_VD(config-if)#exit
SW_VD(config)#
SW_VD(config)#interface fa0/2
SW_VD(config-if)#switchport mode trunk

SW_VD(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

SW_VD(config-if)#exit
SW_VD(config)#
SW_VD(config)#interface vlan 11
SW_VD(config-if)#
%LINK-5-CHANGED: Interface Vlan11, changed state to up

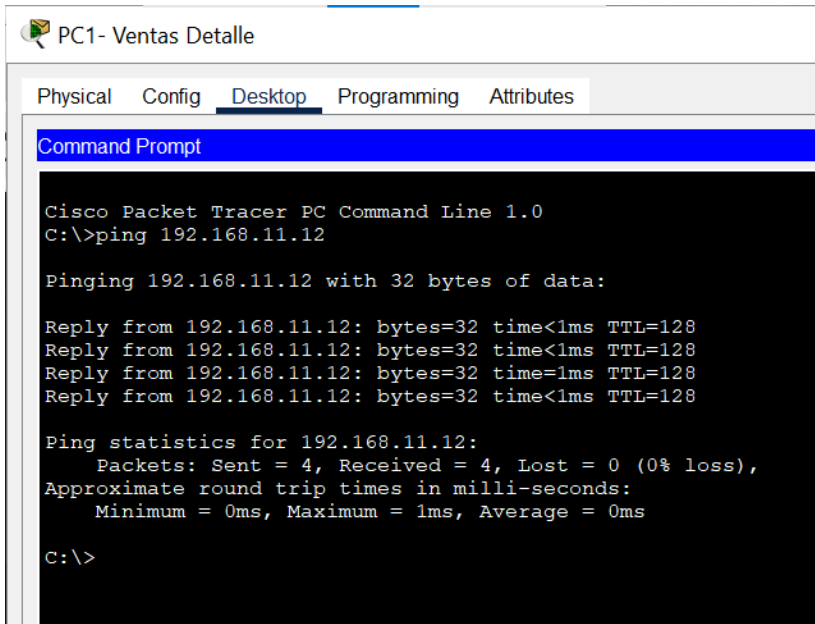
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan11, changed state to up

SW_VD(config-if)#ip address 192.168.11.10 255.255.255.0
SW_VD(config-if)#no shutdown
SW_VD(config-if)#exit
SW_VD(config)#
SW_VD(config)#end
SW_VD#
%SYS-5-CONFIG_I: Configured from console by console

SW_VD#write memory
Building configuration...
[OK]
SW_VD#
```

At the bottom right of the CLI window, there are "Copy" and "Paste" buttons. At the bottom left of the window, there is a "Top" button.

Pings para confirmar la conectividad el área



PC1- Ventas Detalle

Physical Config Desktop Programming Attributes

Command Prompt

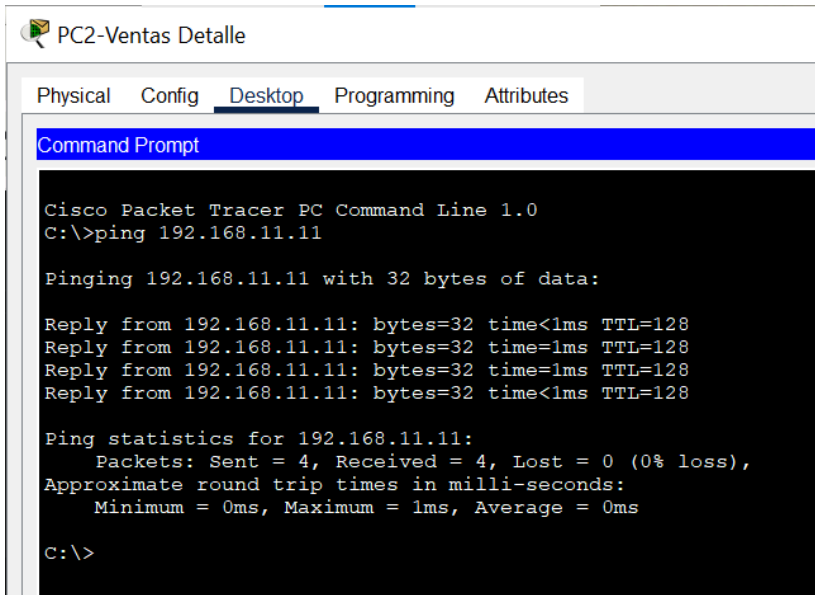
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.11.12

Pinging 192.168.11.12 with 32 bytes of data:

Reply from 192.168.11.12: bytes=32 time<1ms TTL=128
Reply from 192.168.11.12: bytes=32 time<1ms TTL=128
Reply from 192.168.11.12: bytes=32 time=1ms TTL=128
Reply from 192.168.11.12: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.11.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```



PC2-Ventas Detalle

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.11.11

Pinging 192.168.11.11 with 32 bytes of data:

Reply from 192.168.11.11: bytes=32 time<1ms TTL=128
Reply from 192.168.11.11: bytes=32 time=1ms TTL=128
Reply from 192.168.11.11: bytes=32 time=1ms TTL=128
Reply from 192.168.11.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.11.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Tabla de direccionamiento Bodega

Vlan 12

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Bodega	VLAN 12	192.168.12.0/24	255.255.255.0	192.168.12.1
PC2-Bodega	FastEthernet0	192.168.12.0/24	255.255.255.0	192.168.12.1
Switch Ventas al Detalle	FastEthernet0	192.168.12.0/24	255.255.255.0	192.168.12.1

Configuración PC1 bodega

PC1-Bodega

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.12.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.12.1

DNS Server 0.0.0.0

IPv6 Configuration

Configuración PC2 bodega

PC2-Bodega

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.12.12

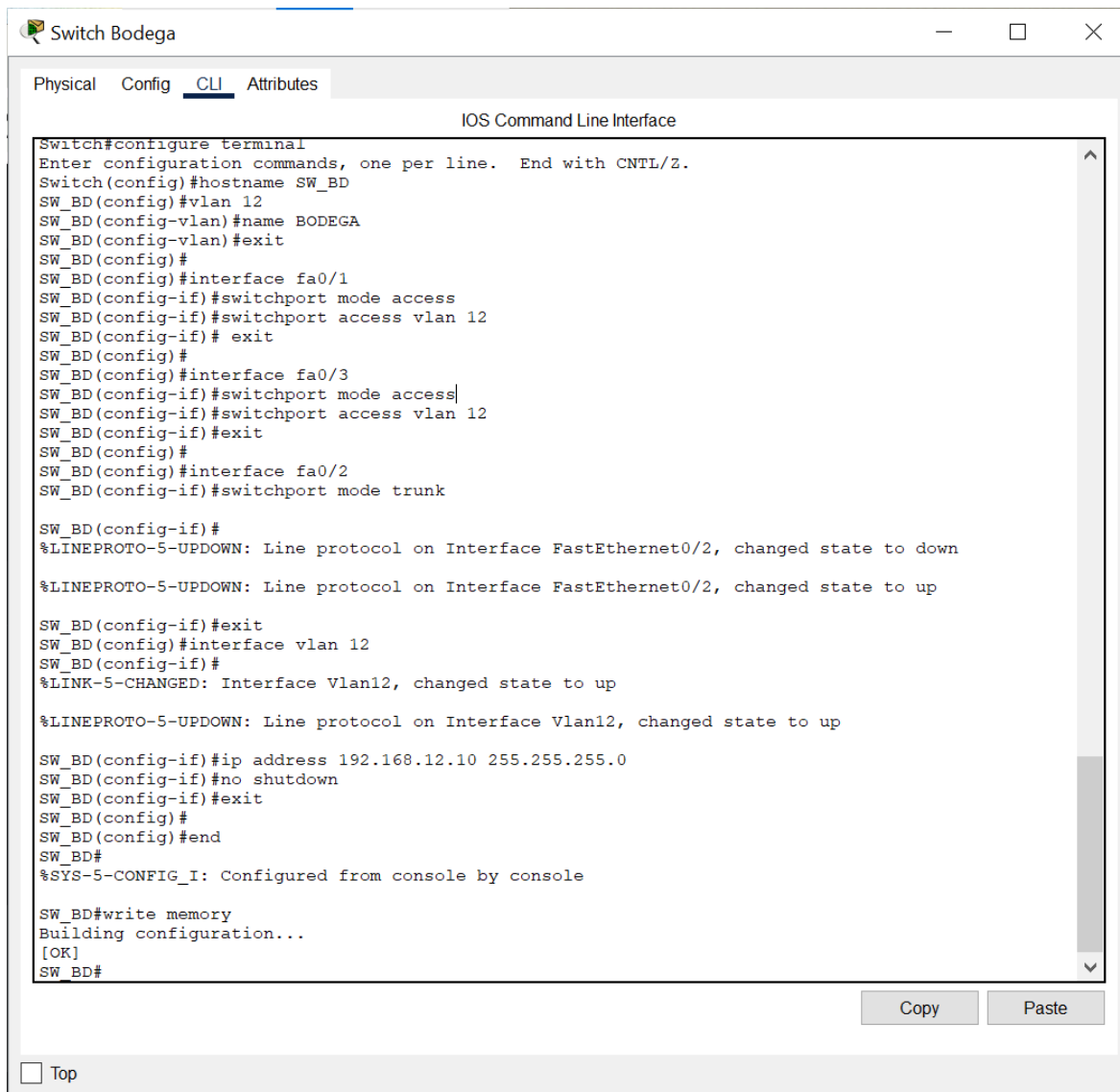
Subnet Mask 255.255.255.0

Default Gateway 192.168.12.1

DNS Server 0.0.0.0

IPv6 Configuration

Configuración de SW_BD



The screenshot shows a window titled "Switch Bodega" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the configuration of SW_BD, including setting the hostname, creating VLAN 12, configuring interfaces fa0/1, fa0/3, and fa0/2, and setting the IP address for VLAN 12. The configuration is saved to memory.

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW_BD
SW_BD(config)#vlan 12
SW_BD(config-vlan)#name BODEGA
SW_BD(config-vlan)#exit
SW_BD(config)#
SW_BD(config)#interface fa0/1
SW_BD(config-if)#switchport mode access
SW_BD(config-if)#switchport access vlan 12
SW_BD(config-if)# exit
SW_BD(config)#
SW_BD(config)#interface fa0/3
SW_BD(config-if)#switchport mode access|
SW_BD(config-if)#switchport access vlan 12
SW_BD(config-if)#exit
SW_BD(config)#
SW_BD(config)#interface fa0/2
SW_BD(config-if)#switchport mode trunk

SW_BD(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

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

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

SW_BD(config-if)#ip address 192.168.12.10 255.255.255.0
SW_BD(config-if)#no shutdown
SW_BD(config-if)#exit
SW_BD(config)#
SW_BD(config)#end
SW_BD#
%SYS-5-CONFIG_I: Configured from console by console

SW_BD#write memory
Building configuration...
[OK]
SW_BD#
```

At the bottom right of the CLI window, there are "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

Tabla de direccionamiento Demás Dispositivos P1

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
Switch de Distribucion Piso 1	VLAN 13	192.168.10.254	255.255.255.0	192.168.10.1

Configuración del switch de distribución del primer piso

Switch de Distribucion Piso 1

Physical Config CLI Attributes

IOS Comma

```
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#! Cambiar el nombre del dispositivo
Switch(config)#hostname SW_DIST_PIS01
SW_DIST_PIS01(config)# vlan 10
SW_DIST_PIS01(config-vlan)#name SERVICIO_CLIENTE
SW_DIST_PIS01(config-vlan)# exit
SW_DIST_PIS01(config)# vlan 11
SW_DIST_PIS01(config-vlan)# name VENTAS_DETALLE
SW_DIST_PIS01(config-vlan)# exit
SW_DIST_PIS01(config)# vlan 12
SW_DIST_PIS01(config-vlan)#name BODEGA
SW_DIST_PIS01(config-vlan)# exit
SW_DIST_PIS01(config)# vlan 13
SW_DIST_PIS01(config-vlan)# name DIST_P1
SW_DIST_PIS01(config-vlan)#exit
SW_DIST_PIS01(config)#
SW_DIST_PIS01(config)# interface vlan 13
SW_DIST_PIS01(config-if)#
%LINK-5-CHANGED: Interface Vlan13, changed state to up

SW_DIST_PIS01(config-if)#ip address 192.168.10.254 255.255.255.0
SW_DIST_PIS01(config-if)#no shutdown
SW_DIST_PIS01(config-if)#exit
SW_DIST_PIS01(config)#
SW_DIST_PIS01(config)#!la asignacion de los troncales ahora
SW_DIST_PIS01(config)# interface range fa0/2 - 4
SW_DIST_PIS01(config-if-range)#switchport trunk encapsulation dot1q
SW_DIST_PIS01(config-if-range)#switchport mode trunk

% Invalid input detected at '^' marker.

SW_DIST_PIS01(config-if-range)#switchport mode trunk

SW_DIST_PIS01(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan13, changed state to up

SW_DIST_PIS01(config-if-range)#exit
SW_DIST_PIS01(config)#show interfaces trunk
SW_DIST_PIS01(config)#
% Invalid input detected at '^' marker.
```

☐ Top

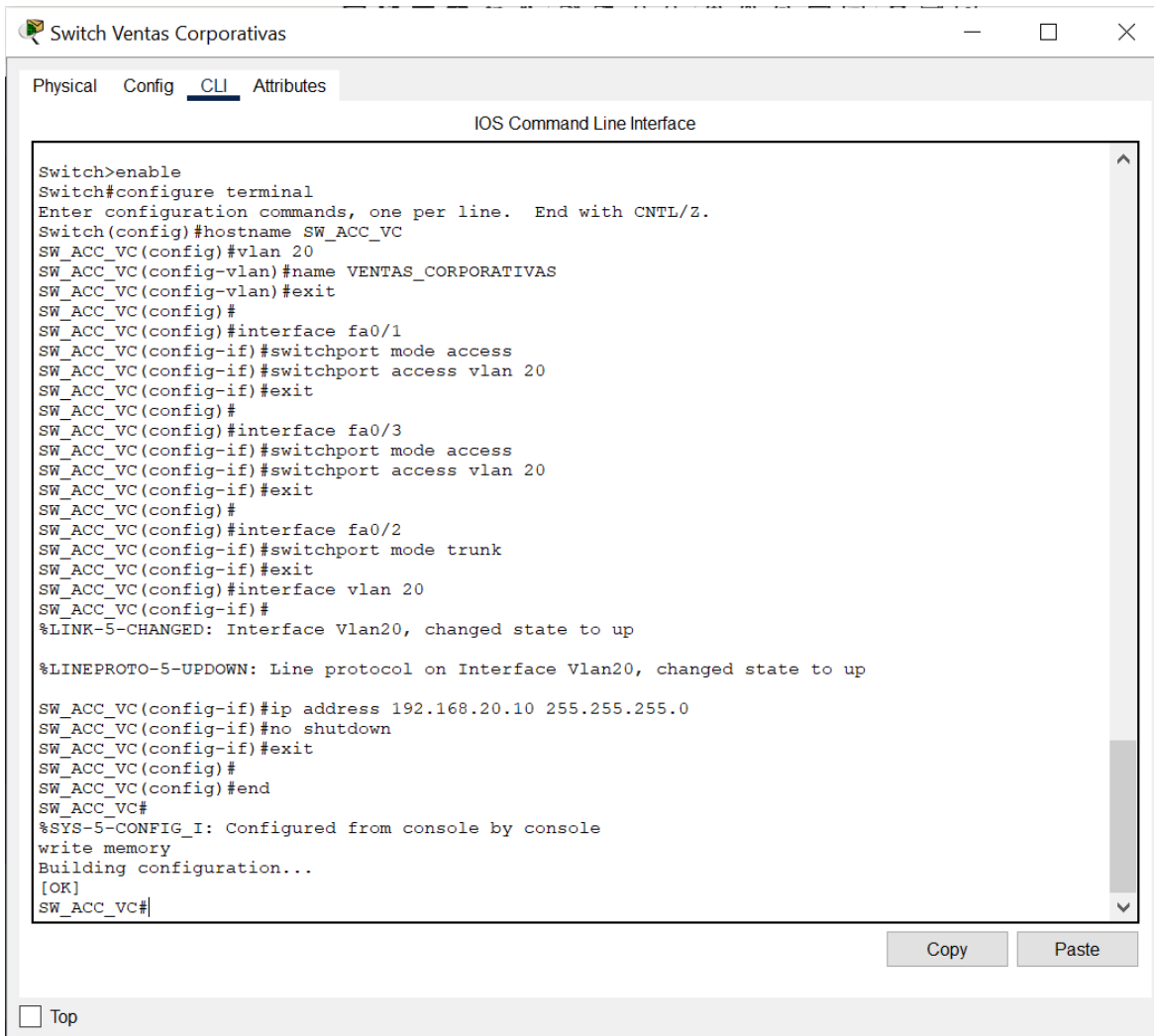
Tablas Segundo Piso

Tabla de direccionamiento Oficina Ventas Corpo

Vlan 20

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Oficina Ventas Corporativas	FastEthernet0	192.168.20.11	255.255.255.0	192.168.20.1
PC2-Oficina Ventas Corporativas	FastEthernet0	192.168.20.12	255.255.255.0	192.168.20.1
Switch Ventas Corporativas	VLAN 20	192.168.20.10	255.255.255.0	192.168.20.1

Configuración de switch VC



```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW_ACC_VC
SW_ACC_VC(config)#vlan 20
SW_ACC_VC(config-vlan)#name VENTAS_CORPORATIVAS
SW_ACC_VC(config-vlan)#exit
SW_ACC_VC(config)#
SW_ACC_VC(config)#interface fa0/1
SW_ACC_VC(config-if)#switchport mode access
SW_ACC_VC(config-if)#switchport access vlan 20
SW_ACC_VC(config-if)#exit
SW_ACC_VC(config)#
SW_ACC_VC(config)#interface fa0/3
SW_ACC_VC(config-if)#switchport mode access
SW_ACC_VC(config-if)#switchport access vlan 20
SW_ACC_VC(config-if)#exit
SW_ACC_VC(config)#
SW_ACC_VC(config)#interface fa0/2
SW_ACC_VC(config-if)#switchport mode trunk
SW_ACC_VC(config-if)#exit
SW_ACC_VC(config)#interface vlan 20
SW_ACC_VC(config-if)#
%LINK-5-CHANGED: Interface Vlan20, changed state to up

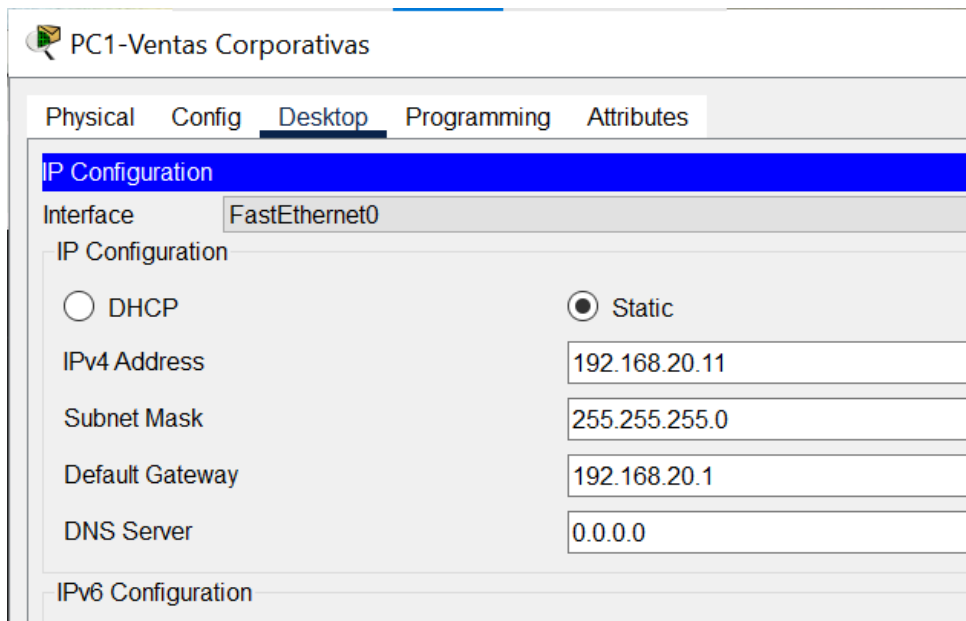
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

SW_ACC_VC(config-if)#ip address 192.168.20.10 255.255.255.0
SW_ACC_VC(config-if)#no shutdown
SW_ACC_VC(config-if)#exit
SW_ACC_VC(config)#
SW_ACC_VC(config)#end
SW_ACC_VC#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
SW_ACC_VC#
```

☐ Top

Copy Paste

Config PC1 VC



PC1-Ventas Corporativas

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.20.11

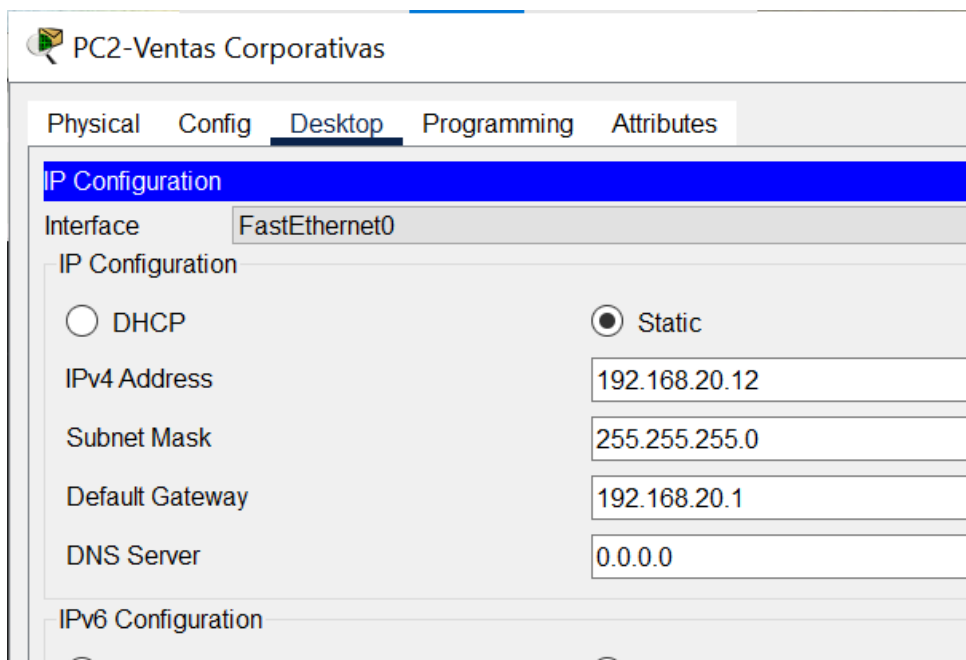
Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0

IPv6 Configuration

Config PC2 VC



PC2-Ventas Corporativas

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.20.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0

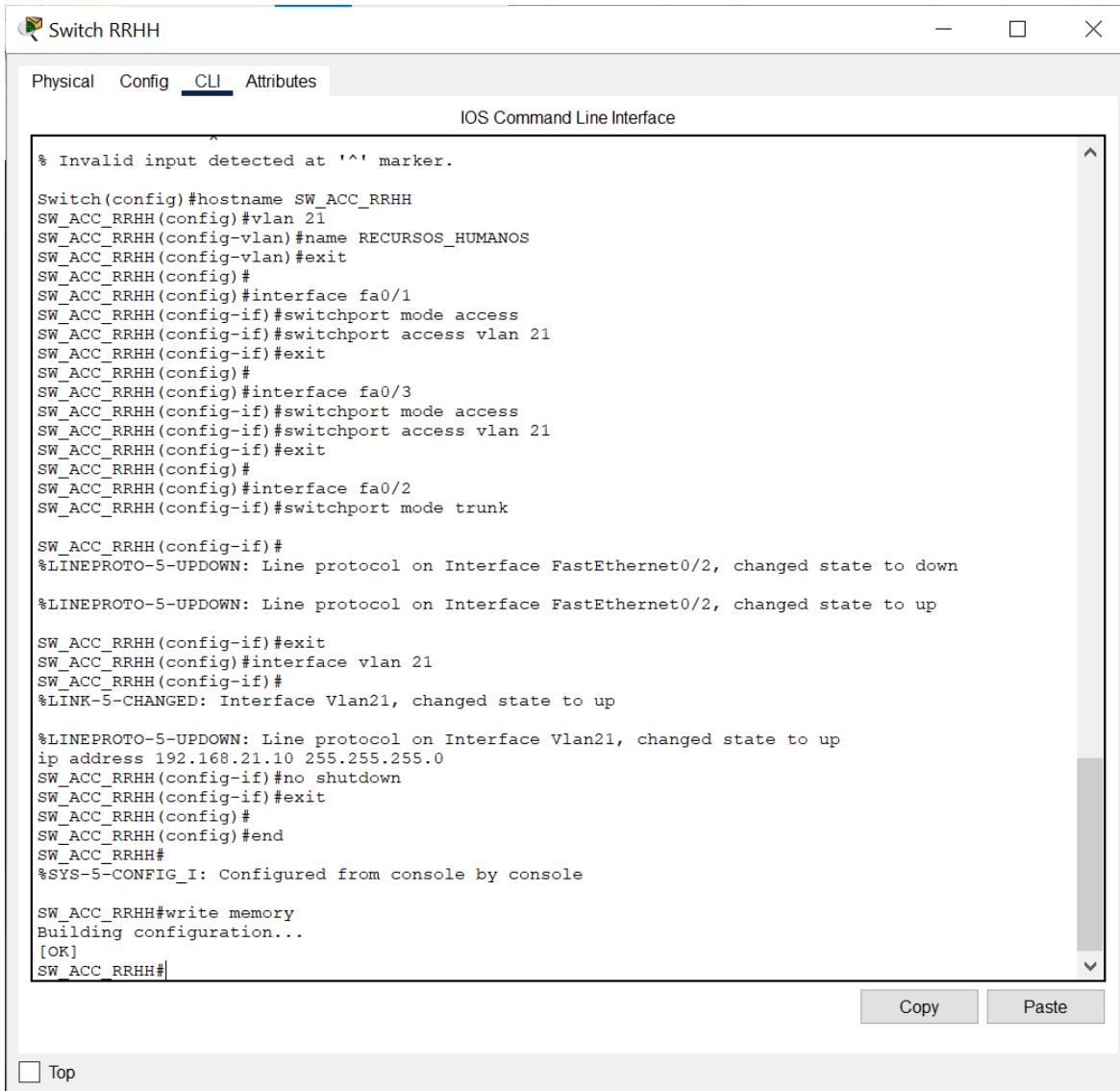
IPv6 Configuration

Tabla de direccionamiento Oficina RRHH

Vlan 21

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-RRHH	FastEthernet0	192.168.21.11	255.255.255.0	192.168.21.1
PC2-RRHHs	FastEthernet0	192.168.21.12	255.255.255.0	192.168.21.1
Switch RRHH	VLAN 21	192.168.21.10	255.255.255.0	192.168.21.1

Configuración del Switch de RRHH



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

Switch(config)#hostname SW_ACC_RRHH
SW_ACC_RRHH(config)#vlan 21
SW_ACC_RRHH(config-vlan)#name RECURSOS_HUMANOS
SW_ACC_RRHH(config-vlan)#exit
SW_ACC_RRHH(config)#
SW_ACC_RRHH(config)#interface fa0/1
SW_ACC_RRHH(config-if)#switchport mode access
SW_ACC_RRHH(config-if)#switchport access vlan 21
SW_ACC_RRHH(config-if)#exit
SW_ACC_RRHH(config)#
SW_ACC_RRHH(config)#interface fa0/3
SW_ACC_RRHH(config-if)#switchport mode access
SW_ACC_RRHH(config-if)#switchport access vlan 21
SW_ACC_RRHH(config-if)#exit
SW_ACC_RRHH(config)#
SW_ACC_RRHH(config)#interface fa0/2
SW_ACC_RRHH(config-if)#switchport mode trunk

SW_ACC_RRHH(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

SW_ACC_RRHH(config-if)#exit
SW_ACC_RRHH(config)#interface vlan 21
SW_ACC_RRHH(config-if)#
%LINK-5-CHANGED: Interface Vlan21, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan21, changed state to up
ip address 192.168.21.10 255.255.255.0
SW_ACC_RRHH(config-if)#no shutdown
SW_ACC_RRHH(config-if)#exit
SW_ACC_RRHH(config)#
SW_ACC_RRHH(config)#end
SW_ACC_RRHH#
%SYS-5-CONFIG_I: Configured from console by console

SW_ACC_RRHH#write memory
Building configuration...
[OK]
SW_ACC_RRHH#
```

☐ Top

Config PC1 rrhh

PC1-RRHH

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.21.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.21.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

Config PC2 rrhh

PC2-RRHH

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.21.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.21.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

Tabla de direccionamiento Oficina Contabilidad

Vlan 22

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Contabilidad	FastEthernet0	192.168.22.11	255.255.255.0	192.168.22.1
PC2-Contabilidad	FastEthernet0	192.168.22.12	255.255.255.0	192.168.22.1
Switch Contabilidad	VLAN 22	192.168.22.10	255.255.255.0	192.168.22.1

Configuración del Switch de Contabilidad (con show)




Switch Contabilidad

Physical Config CLI Attributes

```
SW_ACC_CONT>enable
SW_ACC_CONT#show running-config
Building configuration...

Current configuration : 1269 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname SW_ACC_CONT
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
 switchport access vlan 22
 switchport mode access
!
interface FastEthernet0/2
 switchport mode trunk
!
interface FastEthernet0/3
 switchport access vlan 22
 switchport mode access
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
--More-- |
```

Config PC1 Contabilidad

 PC1-Contabilidad

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.22.11


Subnet Mask 255.255.255.0

Default Gateway 192.168.22.1

DNS Server 0.0.0.0

IPv6 Configuration

Config PC2 Contabilidad

 PC2-Contabilidad

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.22.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.22.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

Tabla de direccionamiento Demás Dispositivos P2

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
Switch de Distribucion Piso 2	VLAN 23	192.168.23.254	255.255.255.252	— (uso interno/adm)

Configuración sw de distribución piso 2

```
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
Switch(config)#hostname SW_DIST_PISO2
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#vlan 20
SW_DIST_PISO2(config-vlan)#name VENTAS_CORPORATIVAS
SW_DIST_PISO2(config-vlan)#exit
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#vlan 21
SW_DIST_PISO2(config-vlan)#name RRHH
SW_DIST_PISO2(config-vlan)#exit
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#vlan 22
SW_DIST_PISO2(config-vlan)#name CONTABILIDAD
SW_DIST_PISO2(config-vlan)#exit
SW_DIST_PISO2(config)#vlan 23
SW_DIST_PISO2(config-vlan)#name DIST_P2
SW_DIST_PISO2(config-vlan)#exit
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#interface vlan 23
SW_DIST_PISO2(config-if)#
%LINK-5-CHANGED: Interface Vlan23, changed state to up
```

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Switch de Distribucion Piso 2

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
SW_DIST_PISO2(config-if)#ip address 192.168.2.254 255.255.255.0
SW_DIST_PISO2(config-if)#no shutdown
SW_DIST_PISO2(config-if)#exit
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#interface range fa0/2 - 4
SW_DIST_PISO2(config-if-range)#switchport mode trunk

SW_DIST_PISO2(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan23, changed state to up

SW_DIST_PISO2(config-if-range)#exit
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#interface fa0/24
SW_DIST_PISO2(config-if)#switchport mode trunk

SW_DIST_PISO2(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

SW_DIST_PISO2(config-if)#exit
SW_DIST_PISO2(config)#
SW_DIST_PISO2(config)#end
SW_DIST_PISO2#
%SYS-5-CONFIG_I: Configured from console by console

SW_DIST_PISO2#write memory
Building configuration...
[OK]
SW_DIST_PISO2#
```

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Tablas Tercer Piso

VLAN 30

Tabla de direccionamiento Oficina Administración

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Administración	FastEthernet0	192.168.30.11	255.255.255.0	192.168.30.1
PC2-Administración	FastEthernet0	192.168.30.12	255.255.255.0	192.168.30.1
Switch Administración	VLAN 30	192.168.30.10	255.255.255.0	192.168.30.1

Config Switch OA

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW_ACC_OA
SW_ACC_OA(config)#vlan 30
SW_ACC_OA(config-vlan)#name OFI_ADMIN
SW_ACC_OA(config-vlan)#exit
SW_ACC_OA(config)#interface fa0/1
SW_ACC_OA(config-if)#switchport mode access
SW_ACC_OA(config-if)#switchport access vlan 30
SW_ACC_OA(config-if)#exit
SW_ACC_OA(config)#interface fa0/3
SW_ACC_OA(config-if)#switchport mode access
SW_ACC_OA(config-if)#switchport access vlan 30
SW_ACC_OA(config-if)#exit
SW_ACC_OA(config)#interface fa0/2
SW_ACC_OA(config-if)#switchport mode trunk
SW_ACC_OA(config-if)#exit
SW_ACC_OA(config)#interface vlan 30
SW_ACC_OA(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up
ip address 192.168.30.10 255.255.255.0
SW_ACC_OA(config-if)#no shutdown
SW_ACC_OA(config-if)#exit
SW_ACC_OA(config)#end
SW_ACC_OA#
%SYS-5-CONFIG_I: Configured from console by console
SW_ACC_OA#write memory
Building configuration...
[OK]
SW_ACC_OA#
```

Config PC1

PC1-Administración

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.30.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.30.12

DNS Server 0.0.0.0

IPv6 Configuration

Config PC2

PC2-Administración

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.30.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.30.1

DNS Server 0.0.0.0

IPv6 Configuration

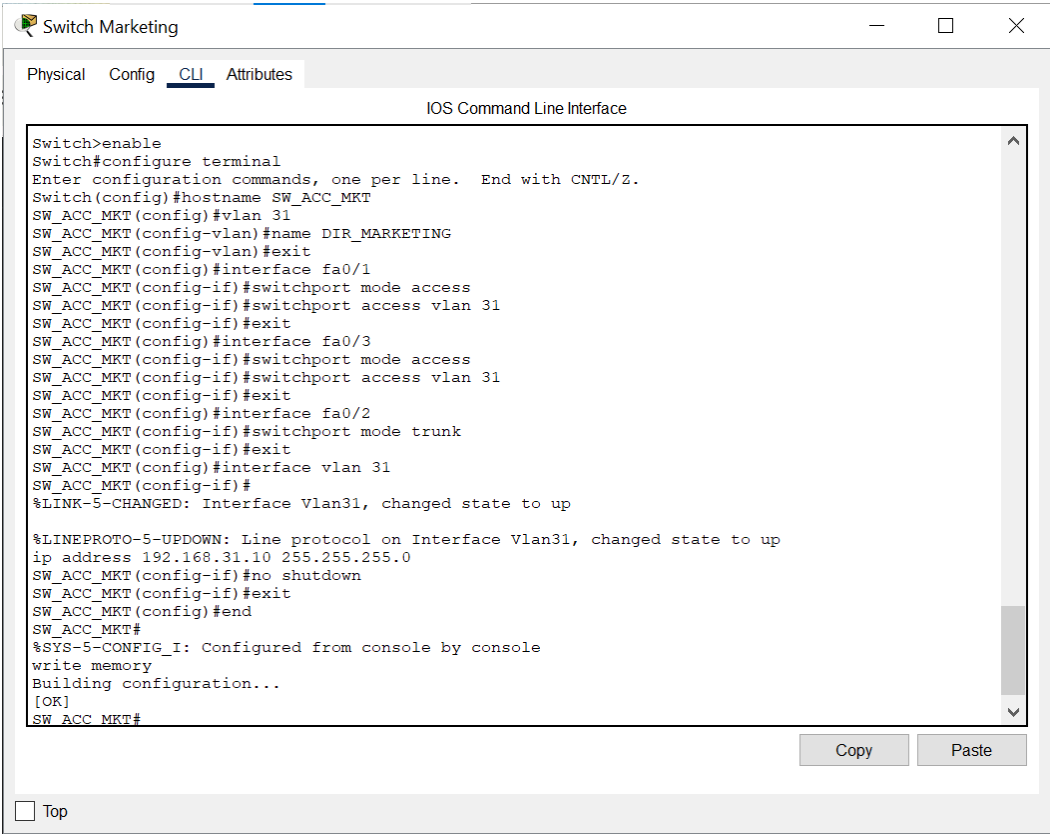
☐ Automatic ☒ Static

Tabla de direccionamiento Marketing

VLAN 31

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Marketing	FastEthernet0	192.168.31.11	255.255.255.0	192.168.31.1
PC2-Marketing	FastEthernet0	192.168.31.12	255.255.255.0	192.168.31.1
Switch Marketing	VLAN 31	192.168.31.10	255.255.255.0	192.168.31.1

Config Switch MKT



```
Switch Marketing
Physical Config CLI Attributes
IOS Command Line Interface

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW_ACC_MKT
SW_ACC_MKT(config)#vlan 31
SW_ACC_MKT(config-vlan)#name DIR_MARKETING
SW_ACC_MKT(config-vlan)#exit
SW_ACC_MKT(config)#interface fa0/1
SW_ACC_MKT(config-if)#switchport mode access
SW_ACC_MKT(config-if)#switchport access vlan 31
SW_ACC_MKT(config-if)#exit
SW_ACC_MKT(config)#interface fa0/3
SW_ACC_MKT(config-if)#switchport mode access
SW_ACC_MKT(config-if)#switchport access vlan 31
SW_ACC_MKT(config-if)#exit
SW_ACC_MKT(config)#interface fa0/2
SW_ACC_MKT(config-if)#switchport mode trunk
SW_ACC_MKT(config-if)#exit
SW_ACC_MKT(config)#interface vlan 31
SW_ACC_MKT(config-if)#
%LINK-5-CHANGED: Interface Vlan31, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan31, changed state to up
ip address 192.168.31.10 255.255.255.0
SW_ACC_MKT(config-if)#no shutdown
SW_ACC_MKT(config-if)#exit
SW_ACC_MKT(config)#end
SW_ACC_MKT#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
SW_ACC_MKT#
```

Config PC1

PC1-Marketing

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.31.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.31.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

Config PC2

PC2-Marketing

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.31.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.31.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

Tabla de direccionamiento Oficina Gerencia General

VLAN 33

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Gerencia General	FastEthernet0	192.168.33.11	255.255.255.0	192.168.33.1
PC2-Gerencia General	FastEthernet0	192.168.33.12	255.255.255.0	192.168.33.1
Switch Gerencia General	VLAN 33	192.168.33.10	255.255.255.0	192.168.33.1

Config Switch

```
Switch Gerencia General
Physical Config CLI Attributes
IOS Command Line Interface

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW_ACC_GG
SW_ACC_GG(config)#vlan 33
SW_ACC_GG(config-vlan)#name GERENCIA_GENERAL
SW_ACC_GG(config-vlan)#exit
SW_ACC_GG(config)#interface fa0/1
SW_ACC_GG(config-if)#switchport mode access
SW_ACC_GG(config-if)#switchport access vlan 33
SW_ACC_GG(config-if)#exit
SW_ACC_GG(config)#interface fa0/3
SW_ACC_GG(config-if)#switchport mode access
SW_ACC_GG(config-if)#switchport access vlan 33
SW_ACC_GG(config-if)#exit
SW_ACC_GG(config)#interface fa0/2
SW_ACC_GG(config-if)#switchport mode trunk
SW_ACC_GG(config-if)#exit
SW_ACC_GG(config)#interface vlan 33
SW_ACC_GG(config-if)#
%LINK-5-CHANGED: Interface Vlan33, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan33, changed state to up
ip address 192.168.33.10 255.255.255.0
SW_ACC_GG(config-if)#no shutdown
SW_ACC_GG(config-if)#exit
SW_ACC_GG(config)#end
SW_ACC_GG#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
SW_ACC_GG#
```

PC1 Config

PC1-GG

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.33.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.33.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

PC2 Config

PC2-GG

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.33.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.33.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

Tabla de direccionamiento Oficina Gerencia Legal

VLAN 34

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
PC1-Gerencia Legal	FastEthernet0	192.168.34.11	255.255.255.0	192.168.34.1
PC2-Gerencia Legal	FastEthernet0	192.168.34.12	255.255.255.0	192.168.34.1
Switch Gerencia Legal	VLAN 34	192.168.34.10	255.255.255.0	192.168.34.1

Config Switch

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW_ACC_GL
SW_ACC_GL(config)#vlan 34
SW_ACC_GL(config-vlan)#name GERENCIA_LEGAL
SW_ACC_GL(config-vlan)#exit
SW_ACC_GL(config)#interface fa0/1
SW_ACC_GL(config-if)#switchport mode access
SW_ACC_GL(config-if)#switchport access vlan 34
SW_ACC_GL(config-if)#exit
SW_ACC_GL(config)#interface fa0/3
SW_ACC_GL(config-if)#switchport mode access
SW_ACC_GL(config-if)#switchport access vlan 34
SW_ACC_GL(config-if)#exit
SW_ACC_GL(config)#interface fa0/2
SW_ACC_GL(config-if)#switchport mode trunk

SW_ACC_GL(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

SW_ACC_GL(config-if)#exit
SW_ACC_GL(config)#interface vlan 34
SW_ACC_GL(config-if)#
%LINK-5-CHANGED: Interface Vlan34, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan34, changed state to up

SW_ACC_GL(config-if)#
SW_ACC_GL(config-if)#ip address 192.168.34.10 255.255.255.0
SW_ACC_GL(config-if)#no shutdown
SW_ACC_GL(config-if)#exit
SW_ACC_GL(config)#end
SW_ACC_GL#
%SYS-5-CONFIG_I: Configured from console by console

SW_ACC_GL#write memory
Building configuration...
[OK]
```

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☐ Top

PC2 Config

PC1-GL

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.34.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.34.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

PC2 Config

PC2-GL

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.34.12

Subnet Mask 255.255.255.0

Default Gateway 192.168.34.1

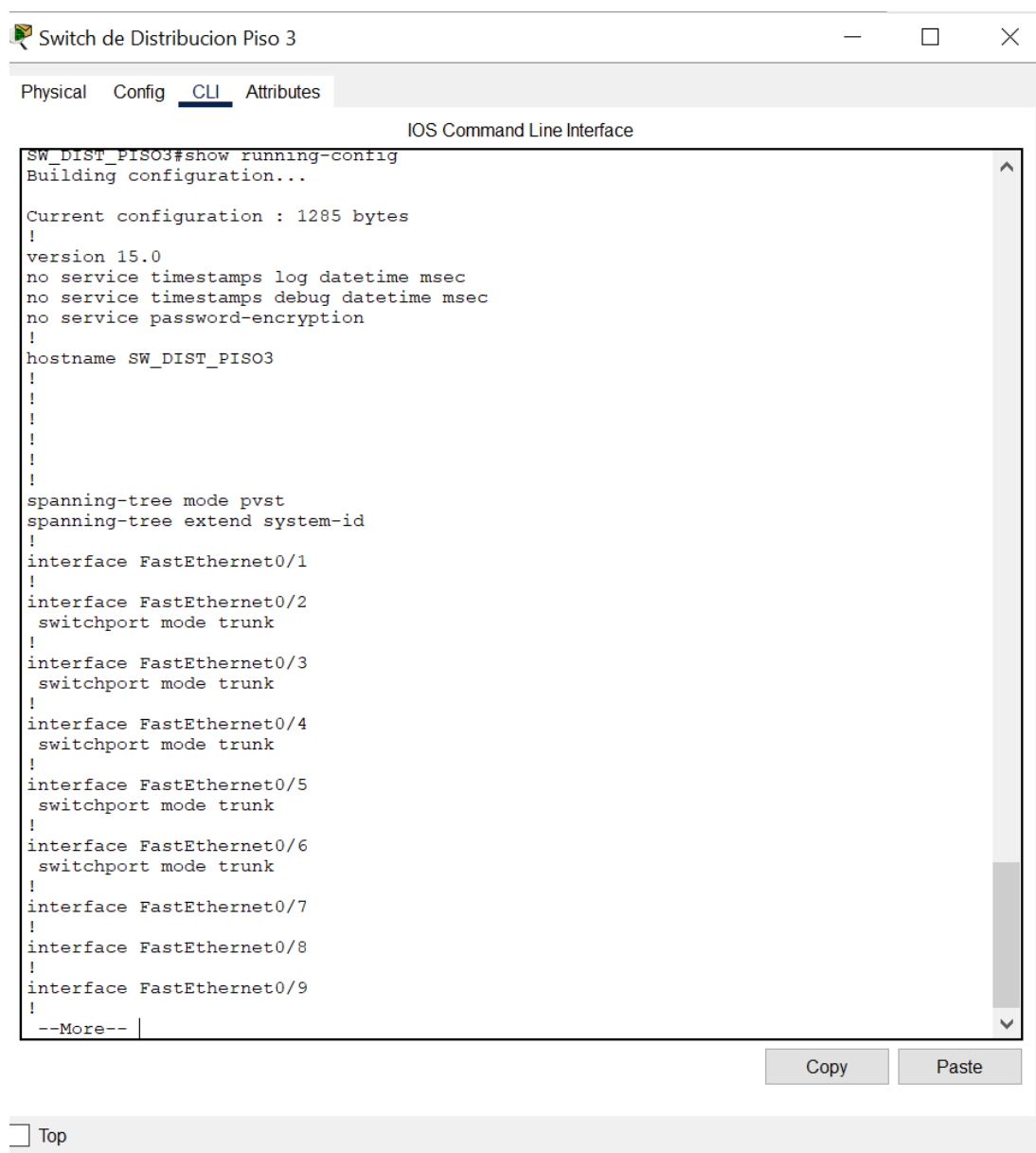
DNS Server 0.0.0.0

IPv6 Configuration

Tabla de direccionamiento Demás Dispositivos P2

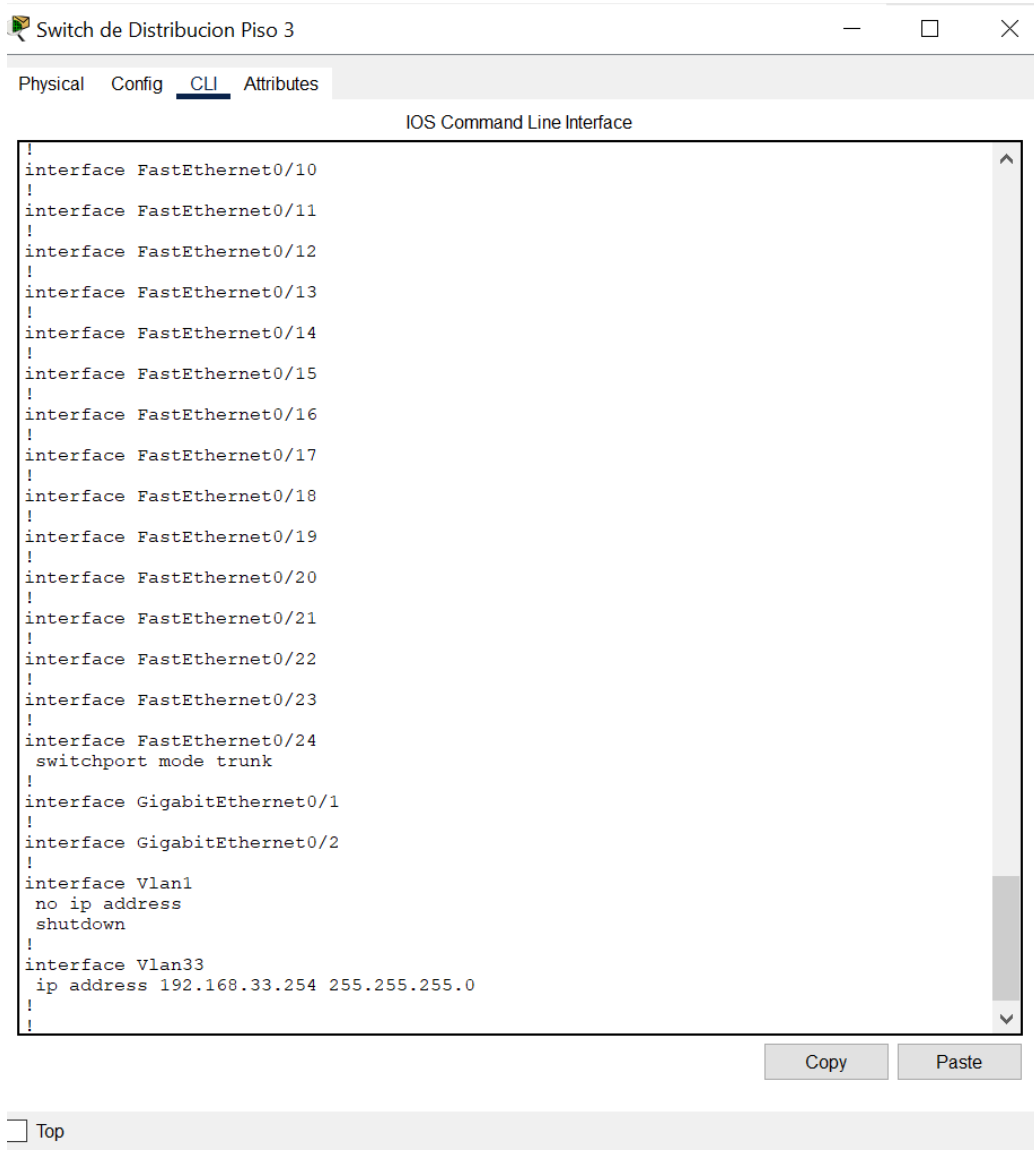
Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway predeterminado
Switch de Distribucion Piso 3	VLAN33	192.168.33.254	255.255.255.0	N/D

Configuración sw de distribución piso 3 (show)



```
SW_DIST_PISO3#show running-config
Building configuration...

Current configuration : 1285 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname SW_DIST_PISO3
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
switchport mode trunk
!
interface FastEthernet0/3
switchport mode trunk
!
interface FastEthernet0/4
switchport mode trunk
!
interface FastEthernet0/5
switchport mode trunk
!
interface FastEthernet0/6
switchport mode trunk
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
--More--
```



Switch de Distribucion Piso 3

Physical Config CLI Attributes

IOS Command Line Interface

```

interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
no ip address
shutdown
!
interface Vlan33
ip address 192.168.33.254 255.255.255.0
!
!
!
!
line con 0
!
line vty 0 4
login
line vty 5 15
login
!
!
!
end

```

Switch Core config

Switch Core

Physical Config CLI Attributes

IOS Command Line Interface

```

SW_CORE#show vlan brief

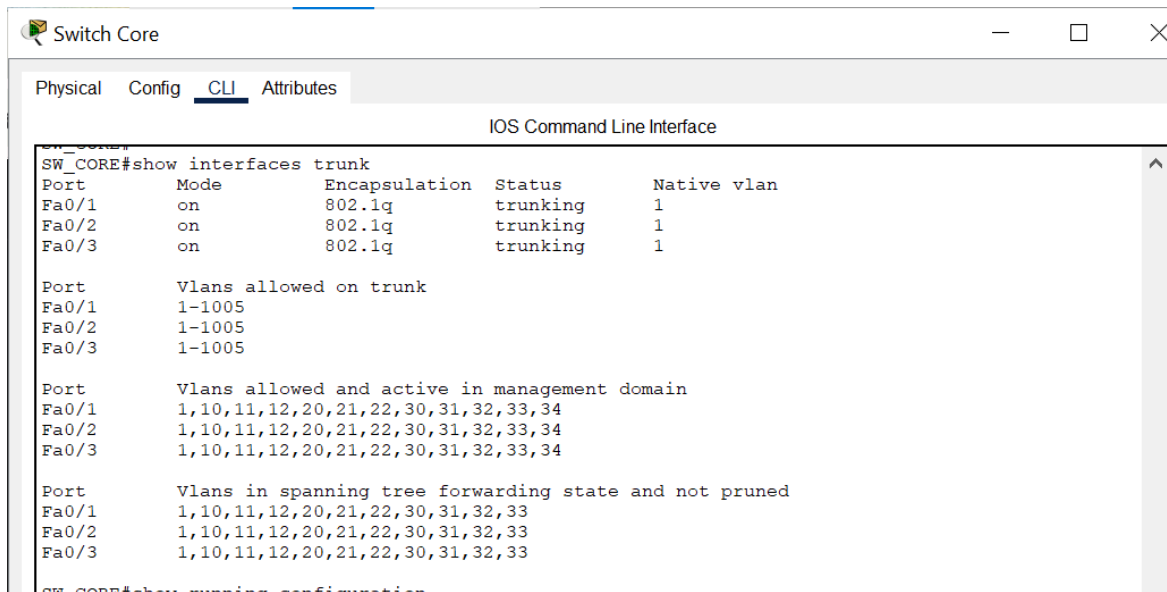
```

VLAN	Name	Status	Ports
1	default	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7 Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15 Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24, Gig0/1, Gig0/2
10	VLAN0010	active	
11	VLAN0011	active	
12	VLAN0012	active	
20	VLAN0020	active	
21	VLAN0021	active	
22	VLAN0022	active	
30	VLAN0030	active	
31	VLAN0031	active	
32	VLAN0032	active	
33	VLAN0033	active	
34	VLAN0034	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

```

SW_CORE#

```



Switch Core

Physical Config CLI Attributes

IOS Command Line Interface

```
SW_CORE#show interfaces trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     on        802.1q         trunking    1
Fa0/2     on        802.1q         trunking    1
Fa0/3     on        802.1q         trunking    1

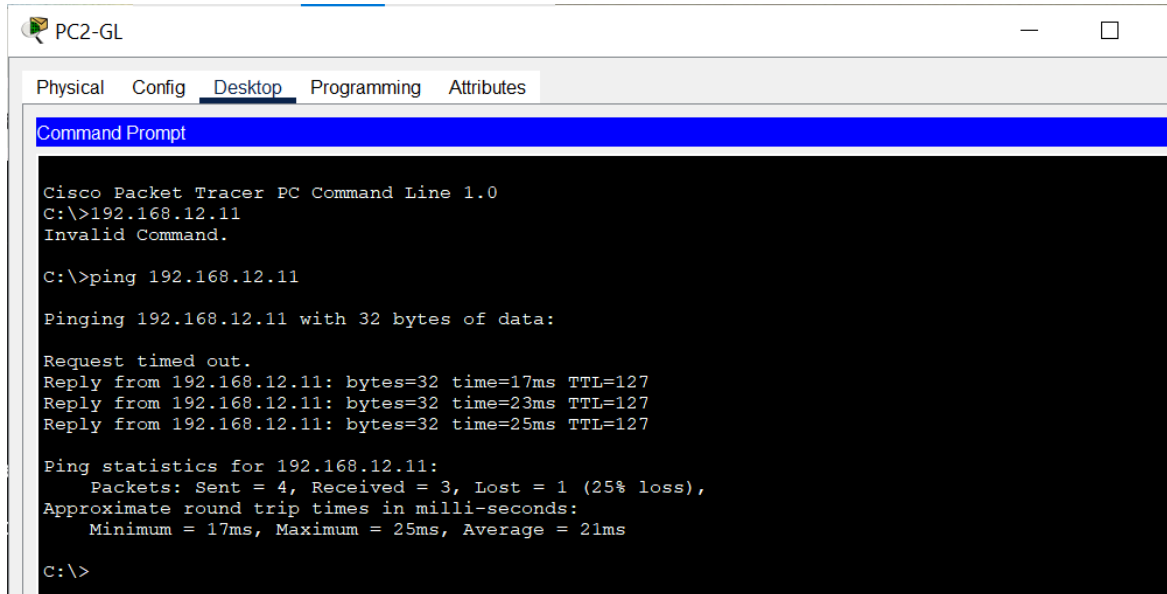
Port      Vlans allowed on trunk
Fa0/1     1-1005
Fa0/2     1-1005
Fa0/3     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1,10,11,12,20,21,22,30,31,32,33,34
Fa0/2     1,10,11,12,20,21,22,30,31,32,33,34
Fa0/3     1,10,11,12,20,21,22,30,31,32,33,34

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1,10,11,12,20,21,22,30,31,32,33
Fa0/2     1,10,11,12,20,21,22,30,31,32,33
Fa0/3     1,10,11,12,20,21,22,30,31,32,33

SW_CORE#show running-configuration
```

Prueba de conectividad entre pisos
(piso 3 a piso 1)



PC2-GL

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>192.168.12.11
Invalid Command.

C:\>ping 192.168.12.11

Pinging 192.168.12.11 with 32 bytes of data:

Request timed out.
Reply from 192.168.12.11: bytes=32 time=17ms TTL=127
Reply from 192.168.12.11: bytes=32 time=23ms TTL=127
Reply from 192.168.12.11: bytes=32 time=25ms TTL=127

Ping statistics for 192.168.12.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 17ms, Maximum = 25ms, Average = 21ms

C:\>
```

Tabla Servidor

Tabla de direccionamiento Dispositivos Centrales

Dispositivo	Interfaz	IP	Máscara	Gateway
Router DDS	Gi0/0	192.168.1.254	255.255.255.0	-
Router DDS	Gi0/1	203.0.113.1	255.255.255.252	-
Servidor DHCP	Fa0	192.168.1.2	255.255.255.0	192.168.1.254
Servidor Web	Fa0	192.168.1.3	255.255.255.0	192.168.1.254
PC Cliente	Eth0	192.168.1.1 (Manual)	255.255.255.0	192.168.1.254
Cloud-PT	Eth0	203.0.113.2	255.255.255.252	-
Servidor DNS	Fa0	192.168.1.4	255.255.255.0	192.168.1.254

Servidor	IP	Gateway
DHCP	192.168.1.2	192.168.1.1 (o 254 según tu diseño)
Web	192.168.1.3	192.168.1.1
DNS	192.168.1.4	192.168.1.1

Server DHCP

Physical Config Services Desktop Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

Server Web

Physical Config Services Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.254

DNS Server 192.168.1.4

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

DNS

Physical Config Services Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.4

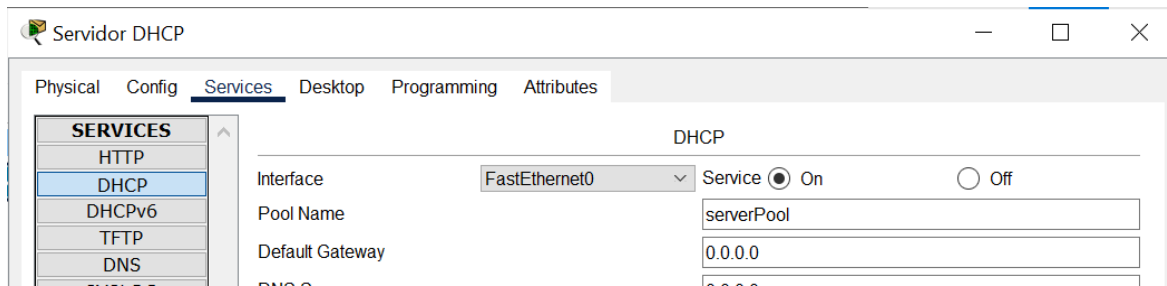
Subnet Mask 255.255.255.0

Default Gateway 192.168.1.254

DNS Server 192.168.1.4

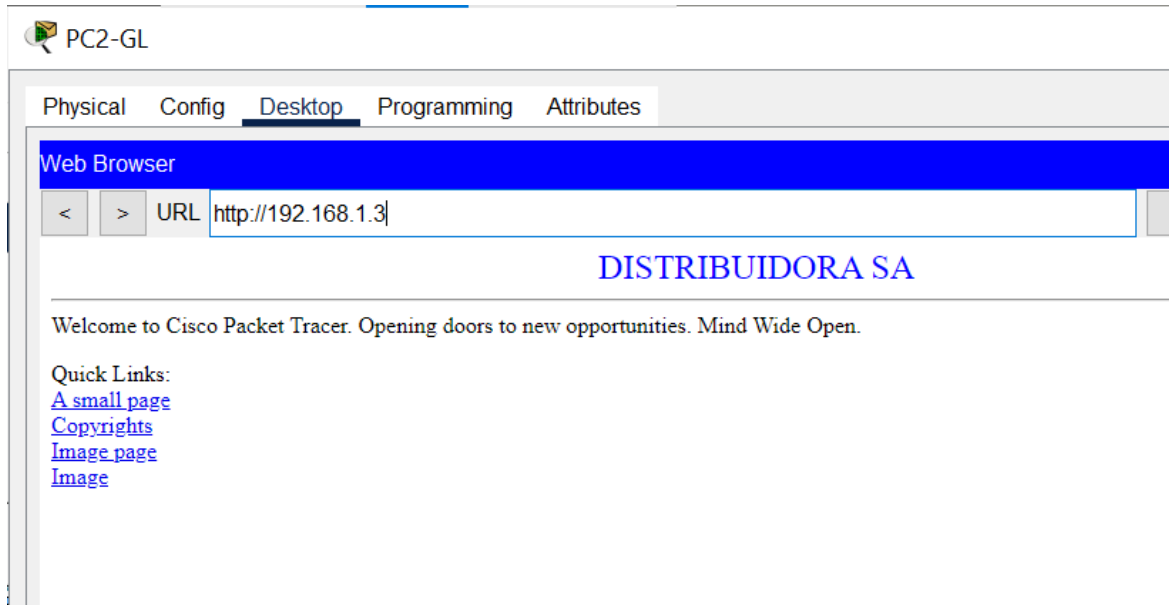
IPv6 Configuration

☐ Automatic ☒ Static

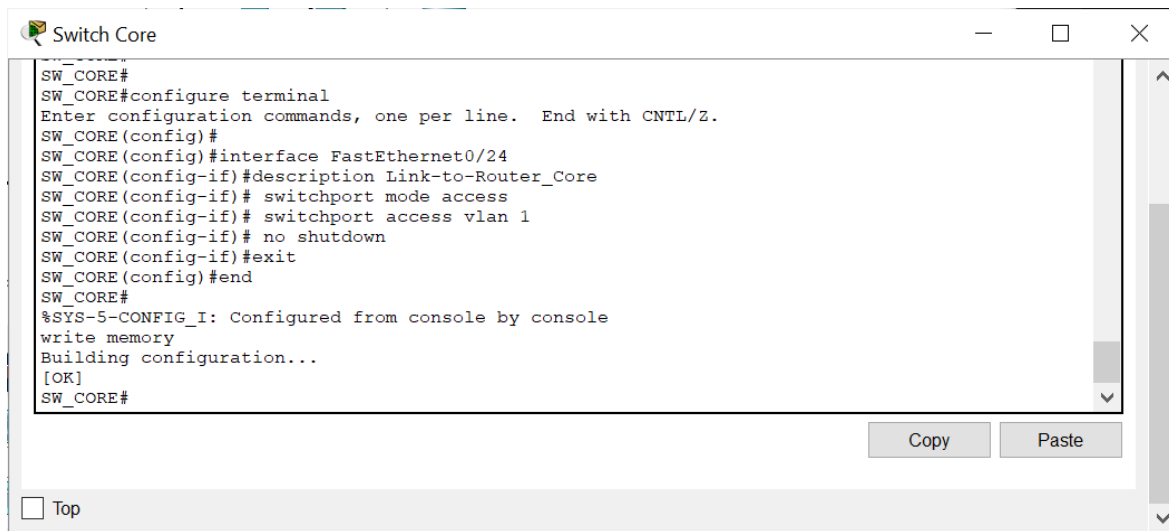


(Se repite el proceso de encendido de los servicios pertinentes para cada servidor)





Pruebas exitosas de acceso a las webs desde pcs de los tres pisos.



Configuración de los routers en SW_CORE

The image shows two separate windows for configuring network routers. The top window, titled 'Router Core', displays a series of CLI commands and their outputs. The commands include entering configuration mode, configuring interface FastEthernet0/1 with a description and IP address, enabling the interface, and setting a static route. The bottom window, titled 'Router ISP', shows similar CLI commands for configuring Router_ISP, including enabling the device, configuring interface FastEthernet0/0, and setting a static route. Both windows have a 'Copy' and 'Paste' button at the bottom right and a 'Top' button at the bottom left.

```
Router Core
Router_Core#configure terminal
Enter Configuration commands, one per line. End with CNTL/Z.
Router_Core(config)#interface FastEthernet0/1
Router_Core(config-if)# description Link-to-Router_ISP
Router_Core(config-if)# ip address 203.0.113.1 255.255.255.252
Router_Core(config-if)#no shutdown

Router_Core(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
Router_Core(config-if)#exit
Router_Core(config)#ip route 0.0.0.0 0.0.0.0 203.0.113.2
Router_Core(config)#end
Router_Core#
%SYS-5-CONFIG_I: Configured from console by console

Router_Core#write memory
Building configuration...
[OK]
Router_Core#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router ISP
Physical Config CLI Attributes
IOS Command Line Interface

Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Router_ISP
Router_ISP(config)#interface FastEthernet0/0
Router_ISP(config-if)# description Link-to-Router_Core
Router_ISP(config-if)#ip address 203.0.113.2 255.255.255.252
Router_ISP(config-if)#no shutdown

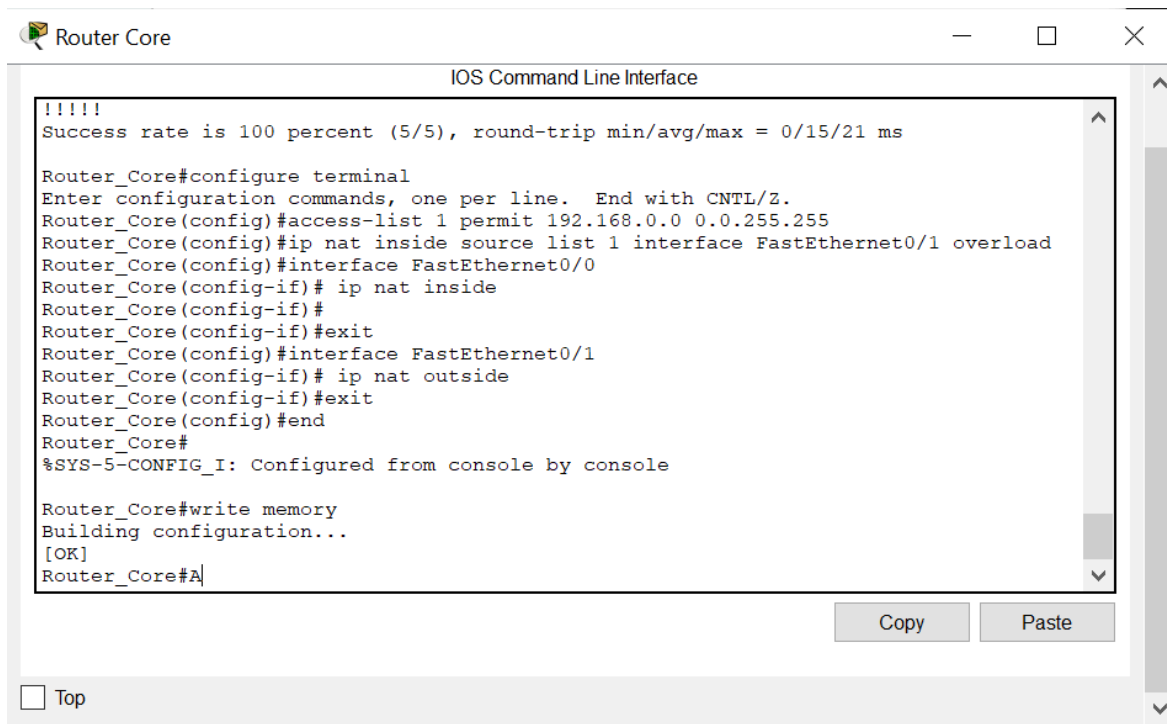
Router_ISP(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router_ISP(config-if)#exit
Router_ISP(config)#ip route 192.168.0.0 255.255.0.0 203.0.113.1
Router_ISP(config)#end
Router_ISP#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
Router_ISP#
Router_ISP#
```

Configuración routers

Las PCs usan IPs privadas (192.168.x.x), pero para salir a Internet deben ser traducidas (NAT) por el Router-Core. Por eso hacemos esta configuración:



The screenshot shows a terminal window titled "Router Core" with a subtitle "IOS Command Line Interface". The terminal output displays a successful ping test followed by the configuration of NAT on the Router-Core. The configuration includes creating an access-list for private IP ranges, enabling NAT on the FastEthernet0/0 interface, and configuring the FastEthernet0/1 interface for NAT overload. The configuration is then saved to memory.

```
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/15/21 ms  
  
Router_Core#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router_Core(config)#access-list 1 permit 192.168.0.0 0.0.255.255  
Router_Core(config)#ip nat inside source list 1 interface FastEthernet0/1 overload  
Router_Core(config)#interface FastEthernet0/0  
Router_Core(config-if)# ip nat inside  
Router_Core(config-if)#  
Router_Core(config-if)#exit  
Router_Core(config)#interface FastEthernet0/1  
Router_Core(config-if)# ip nat outside  
Router_Core(config-if)#exit  
Router_Core(config)#end  
Router_Core#  
%SYS-5-CONFIG_I: Configured from console by console  
  
Router_Core#write memory  
Building configuration...  
[OK]  
Router_Core#A|
```

At the bottom of the terminal window, there are "Copy" and "Paste" buttons. Below the terminal area, there is a "Top" button with a checkbox.

Esto traduce todo tráfico interno saliente a la IP pública del Router-Core (203.0.113.1) usando PAT (Port Address Translation).

Ahora se le configura un pool en el dns a cada una de las vlans que **contienen PCs** (no se necesita pool para las VLAN de administración de los switches).

ervidor DHCP

sical Config **Services** Desktop Programming Attributes

SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
Management
Radius EAP

DHCP

Interface FastEthernet0 Service ☒ On ☐ Off

Pool Name VLAN34_GL

Default Gateway 192.168.34.1

DNS Server 192.168.1.4

Start IP Address : 192 168 34 50

Subnet Mask: 255 255 255 0

Maximum Number of Users : 150

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add

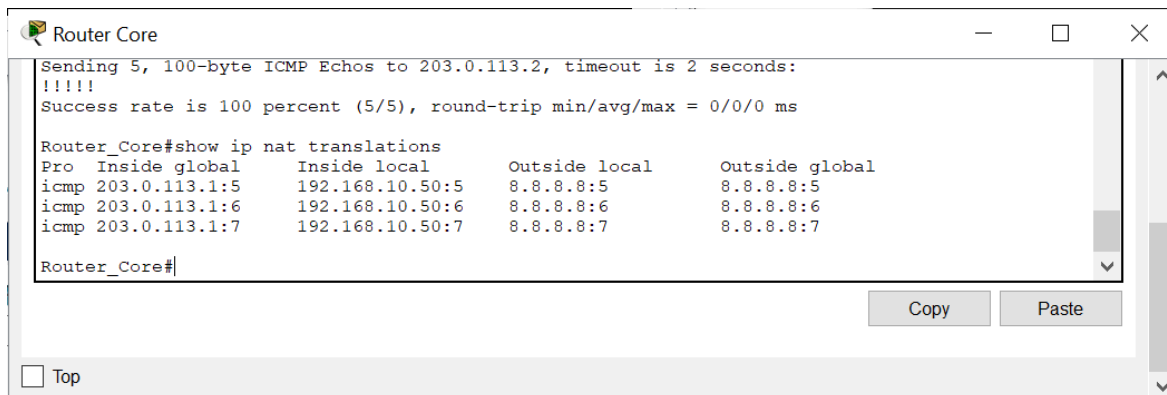
Save

Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
VLAN32_OA	192.168.32.1	192.168.1.4	192.168.32...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN31_MKT	192.168.31.1	192.168.1.4	192.168.31...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN30_ADMIN	192.168.30.1	192.168.1.4	192.168.30...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN22_CONT	192.168.22.1	192.168.1.4	192.168.22...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN21_RRHH	192.168.21.1	192.168.1.4	192.168.21...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN20_VC	192.168.20.1	192.168.1.4	192.168.20...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN12_BD	192.168.12.1	192.168.1.4	192.168.12...	255.255.25...	150	0.0.0.0	0.0.0.0
VLAN11_VD	192.168.11.1	192.168.1.4	192.168.11...	255.255.25...	150	0.0.0.0	0.0.0.0

op

Confirmación de que el router core hace nat



```
Router Core
Sending 5, 100-byte ICMP Echos to 203.0.113.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

Router_Core#show ip nat translations
Pro  Inside global      Inside local    Outside local    Outside global
icmp 203.0.113.1:5       192.168.10.50:5 8.8.8.8:5        8.8.8.8:5
icmp 203.0.113.1:6       192.168.10.50:6 8.8.8.8:6        8.8.8.8:6
icmp 203.0.113.1:7       192.168.10.50:7 8.8.8.8:7        8.8.8.8:7

Router_Core#
```

Resumen de VLANs y gateways por piso:

Piso 1:

VLAN	Área	IP del gateway (SVI en SW_CORE)
10	Servicio al Cliente	192.168.10.1
11	Ventas Detalle	192.168.11.1
12	Bodega	192.168.12.1

Piso 2:

VLAN	Área	IP del gateway
20	Ventas Corporativas	192.168.20.1
21	Recursos Humanos	192.168.21.1
22	Contabilidad	192.168.22.1

Piso 3:

VLAN	Área	IP del gateway
30	Oficina Admin	192.168.30.1
31	Dirección Marketing	192.168.31.1
32	Oficina Admin P3	192.168.32.1
33	Gerencia General	192.168.33.1
34	Gerencia Legal	192.168.34.1

INFORME DE MONTAJE FÍSICO - EDIFICIO PRINCIPAL

1. Resumen de Áreas y Dispositivos

Piso	Áreas Funcionales	Switches Acceso (2960)	Switch Distribución (2960)	PCs
1	<ul style="list-style-type: none">- Servicio al Cliente- Ventas Detalle- Bodega	3 (1 por área)	1	6
2	<ul style="list-style-type: none">- Ventas Corporativas- Recursos Humanos- Contabilidad	3 (1 por área)	1	6
3	<ul style="list-style-type: none">- Administración- Marketing- Gerencia General- Gerencia Legal	4 (1 por área)	1	8

2. Detalle de Montaje por Piso

Piso 1

- **Switches de Acceso (Cisco 2960):**
 - SW_ACC_SC (Servicio al Cliente)
 - SW_ACC_VD (Ventas Detalle)
 - SW_ACC_BD (Bodega)
- **Switch Distribución:** SW_DIST_PIS01 (Cisco 3560-24PS)
- **Dispositivos Finales:**

- PCs:

Servicio Cliente	PC1_SC	PC2_SC
Ventas Detalle	PC1_VD	PC2_VD
Bodega	PC1_BD	PC2_BD

- **Conexiones FastEthernet (straight-through):**

- PCs → Puertos Fa0/1–Fa0/2 de cada switch de acceso
- Uplinks acceso→distribución:
 - SW_ACC_SC Fa0/2 → SW_DIST_PIS01 Fa0/2
 - SW_ACC_VD Fa0/2 → SW_DIST_PIS01 Fa0/3
 - SW_ACC_BD Fa0/2 → SW_DIST_PIS01 Fa0/4

Piso 2

- **Switches de Acceso (Cisco 2960):**

- SW_ACC_VC (Ventas Corporativas)
- SW_ACC_RRHH (Recursos Humanos)
- SW_ACC_CONT (Contabilidad)

- **Switch Distribución: SW_DIST_PIS02**

- **Dispositivos Finales:**

- PCs:

Ventas Corporativas	PC1_VC	PC2_VC
Recursos Humanos	PC1_RRHH	PC2_RRHH
Contabilidad	PC1_CONT	PC2_CONT

- **Conexiones FastEthernet:**

- PCs → Fa0/1–Fa0/2 en cada switch de acceso
- Uplinks acceso→distribución:
 - SW_ACC_VC Fa0/2 → SW_DIST_PIS02 Fa0/2
 - SW_ACC_RRHH Fa0/2 → SW_DIST_PIS02 Fa0/3
 - SW_ACC_CONT Fa0/2 → SW_DIST_PIS02 Fa0/4

Piso 3

- **Switches de Acceso (Cisco 2960):**
 - SW_ACC_ADMIN (Administración)
 - SW_ACC_MARKETING (Marketing)
 - SW_ACC_GG (Gerencia General)
 - SW_ACC_GL (Gerencia Legal)
 - **Switch Distribución: SW_DIST_PIS03**
 - **Dispositivos Finales:**
 - PCs:
-

Administración	PC1_ADMIN	PC2_ADMIN
Marketing	PC1_MARKETING	PC2_MARKETING
Gerencia General	PC1_GG	PC2_GG
Gerencia Legal	PC1_GL	PC2_GL

- **Conexiones FastEthernet:**

- PCs → Fa0/1–Fa0/2 en cada switch de acceso
- Uplinks acceso→distribución:
 - SW_ACC_ADMIN Fa0/2 → SW_DIST_PIS03 Fa0/2
 - SW_ACC_MARKETING Fa0/2 → SW_DIST_PIS03 Fa0/3
 - SW_ACC_GG Fa0/2 → SW_DIST_PIS03 Fa0/4
 - SW_ACC_GL Fa0/2 → SW_DIST_PIS03 Fa0/5

3. Interconexión Vertical (Core y Routers)

Desde	Hacia	Puerto Origen	Puerto Destino
SW_DIST_PIS01	SW_CORE	Fa0/24	Fa0/1
SW_DIST_PIS02	SW_CORE	Fa0/24	Fa0/2
SW_DIST_PIS03	SW_CORE	Fa0/24	Fa0/3
SW_CORE	R_CORE	Fa0/24	Fa0/0
R_CORE	ISP	Fa0/24	Fa0/0
ISP	WEB_SERVER	Fa0/24	Fa0/0

- **Dispositivos centrales nombrados:**

- Core Switch: **SW_CORE** (3560-24PS)
- Router Principal: **R_CORE** (2811)
- Router ISP: **ISP** (1841)
- Servidor Web: **WEB_SERVER** (Server-PT)

Información General de Dispositivos de Red

Dispositivo	Rol/Ubicación	Hostname	Comentarios
Router ISP	Sala de servidores	Router_ISP	Enlace al proveedor de internet
Router Core(2811)	Sala de Servidores	Router_Core	Enrutamiento interior
Switch Core(3560 - 24)	Sala de Servidores	Switch_Core	Switch del nucleo
Switch de distribución Piso 1 (2960)	Primer Piso - Distribución	SW_DIST_PISO1	Vlans: 10-19
Switch de distribución Piso 2 (2960)	Segundo Piso - Distribución	SW_DIST_PISO1	Vlan 20 - 29
Switch de distribución Piso 3	Tercer Piso - Distribución	SW_Piso3	VLAN 30 -39

Configuración de línea de consola

Dispositivo	Línea	Password de consola	Encriptación CMDs (service encrypt)	Tiempo de inactividad (seg)
Router ISP	console0	R!5P_c0ns0l3#24	si	300
Router Core(2811)	console0	Rc0r3#Adm!n@91	si	300
Switch Core(3560 - 24)	console0	SwC0r3_36@24!	si	300
Switch de distribución Piso 1 (2960)	console0	DistP1_2960	si	300
Switch de distribución Piso 2 (2960)	console0	DistP2_2960	si	300
Switch de distribución Piso 3	console0	DistP3_30-39@2960	si	300

Configuración de VTY / SSH

Dispositivo	Línea VTY	Acceso SSH	password
Router ISP	VTY 0 - 15	si	clsc0Adm!n
Router Core(2811)	VTY 0 - 15	si	clsc0Adm!n
Switch Core(3560 - 24)	VTY 0 - 15	si	SwC0re
Switch de distribución Piso 1 (2960)	VTY 0 - 15	si	P1s0
Switch de distribución Piso 2 (2960)	VTY 0 - 15	si	P2s0Dist!
Switch de distribución Piso 3	VTY 0 - 15	si	P3s0Dist!

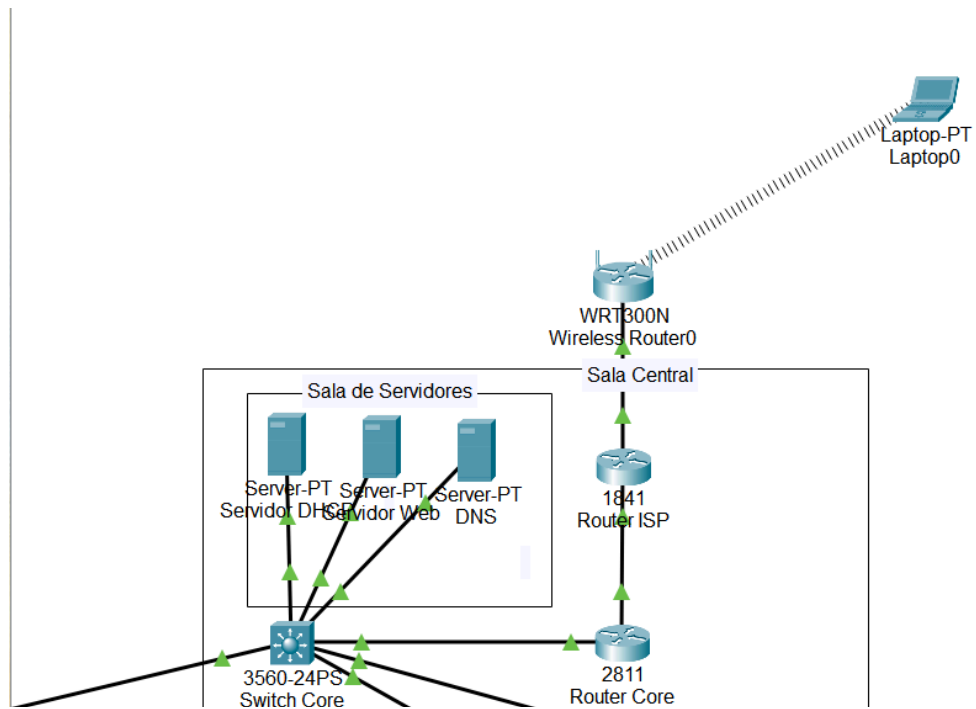
Otros Comandos Parámetros

Dispositivo	Enable secret
Router ISP	en@bleISPP@ss
Router Core(2811)	C0reEn@ble
Switch Core(3560 - 24)	SwC0re3n@ble
Switch de distribución Piso 1 (2960)	Pis01En@ble
Switch de distribución Piso 2 (2960)	P2s0DistEn@#5
Switch de distribución Piso 3	P3s0DistEn@#6

Acceso a Internet – Simulación con ISP y router inalámbrico

- Para simular el acceso a Internet, se añadió un router ISP (modelo 1841) conectado a un router inalámbrico WRT300N, que representa la red externa o "la nube".
 - Este router inalámbrico está enlazado a una laptop que simula un cliente externo, permitiendo realizar pruebas desde "afuera".
 - El router ISP se conecta al Router Core de la empresa mediante direccionamiento público simulado (red 203.0.113.0/30).
 - Se configuró una ruta estática en el Router Core (default route) y NAT para permitir la salida a Internet desde cualquier PC interna.
-

- El router WRT300N es puramente simbólico y no enruta tráfico real, pero sirve para mostrar visualmente la salida hacia Internet desde la red empresarial.



Router ISP

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router_ISP>enable
Router_ISP#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router_ISP(config)#no ip domain-lookup
Router_ISP(config)#line console 0
Router_ISP(config-line)#password R!5P_c0ns0l3#24
Router_ISP(config-line)#login
Router_ISP(config-line)#exit
Router_ISP(config)#enable secret en@bleISPP@ss
Router_ISP(config)#line vty 0 15
Router_ISP(config-line)#password clscoAdm!n
Router_ISP(config-line)#login
Router_ISP(config-line)#exit
Router_ISP(config)#end
Router_ISP#
%SYS-5-CONFIG_I: Configured from console by console

Router_ISP#
Router_ISP#exit
```

Router Core

```
Router_Core>config t
^
% Invalid input detected at '^' marker.

Router_Core>enable
Router_Core#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router_Core(config)#no ip domain-lookup
Router_Core(config)#line console 0
Router_Core(config-line)#password Rc0r3#Adm!n@9l
Router_Core(config-line)#login
Router_Core(config-line)#exit
Router_Core(config)#enable secret C0reEn@ble
Router_Core(config)#line vty 0 15
Router_Core(config-line)#password clscoAdm!n
Router_Core(config-line)#login
Router_Core(config-line)#exit
Router_Core(config)#end
Router_Core#
%SYS-5-CONFIG_I: Configured from console by console

Router_Core#exit
```


Switch Core

```
SW_CORE>enable
SW_CORE# no ip domainin-lookup
      ^
% Invalid input detected at '^' marker.

SW_CORE# conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW_CORE(config)#no ip domain-lookup
SW_CORE(config)#line console 0
SW_CORE(config-line)#password SwC0r3_36@24!
SW_CORE(config-line)#login
SW_CORE(config-line)#exit
SW_CORE(config)#enable secret SwC0re3n@ble
SW_CORE(config)#line vty 0 15
SW_CORE(config-line)#password SwC0re
SW_CORE(config-line)#login
SW_CORE(config-line)#exit
SW_CORE(config)#service password-encryption
SW_CORE(config)#line vty
% Incomplete command.
SW_CORE(config)#line vty 0 15
SW_CORE(config-line)#transport input ssh
SW_CORE(config-line)#exit
SW_CORE(config)#end
SW_CORE#
%SYS-5-CONFIG I: Configured from console by console
```

Switch Piso 1

```
SW_DIST_PIS01>enable
SW_DIST_PIS01#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SW_DIST_PIS01(config)#no ip domain-lookup
SW_DIST_PIS01(config)#line console 0
SW_DIST_PIS01(config-line)#password DistPl_2960
SW_DIST_PIS01(config-line)#login
SW_DIST_PIS01(config-line)#exit
SW_DIST_PIS01(config)# enable secret PisolEn@ble
SW_DIST_PIS01(config)#line vty 0 15
SW_DIST_PIS01(config-line)#password Pls0
SW_DIST_PIS01(config-line)#login
SW_DIST_PIS01(config-line)#exit
SW_DIST_PIS01(config)#end
SW_DIST_PIS01#
%SYS-5-CONFIG_I: Configured from console by console
```

Switch Piso 2

```
SW_DIST_PISO2>
SW_DIST_PISO2>enable
SW_DIST_PISO2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW_DIST_PISO2(config)#no ip domain-lookup
SW_DIST_PISO2(config)#line console 0
SW_DIST_PISO2(config-line)#password DistP2_2960
SW_DIST_PISO2(config-line)#login
SW_DIST_PISO2(config-line)#exit
SW_DIST_PISO2(config)#enable secret P2s0DistEn@#5
SW_DIST_PISO2(config)#service password-encryption
SW_DIST_PISO2(config)#line vty 0 15
SW_DIST_PISO2(config-line)#password P2s0DistEn@#5
SW_DIST_PISO2(config-line)#transport input ssh
SW_DIST_PISO2(config-line)#exit
SW_DIST_PISO2(config)#end
SW_DIST_PISO2#
%SYS-5-CONFIG_I: Configured from console by console

SW_DIST_PISO2#exit
```

Switch Piso 3

```
SW_DIST_PISO3>enable
SW_DIST_PISO3#config t
Enter configuration commands, one per line. End with CNTL/Z.
SW_DIST_PISO3(config)#no ip config domain-lookup
^
% Invalid input detected at '^' marker.

SW_DIST_PISO3(config)#no ip domain-lookup
SW_DIST_PISO3(config)#line console DistP3_30-39@2960^Z
SW_DIST_PISO3#
%SYS-5-CONFIG_I: Configured from console by console

SW_DIST_PISO3#config t
Enter configuration commands, one per line. End with CNTL/Z.
SW_DIST_PISO3(config)#line console 0
SW_DIST_PISO3(config-line)#password DistP3_30-39@2960
SW_DIST_PISO3(config-line)#login
SW_DIST_PISO3(config-line)#exit
SW_DIST_PISO3(config)#service password-encryption
SW_DIST_PISO3(config)# enable secret P3s0DistEn@#6
SW_DIST_PISO3(config)#line vty 0 15
SW_DIST_PISO3(config-line)#password P3s0Dist!
SW_DIST_PISO3(config-line)#login
SW_DIST_PISO3(config-line)#exit
SW_DIST_PISO3(config)#end
SW_DIST_PISO3#
%SYS-5-CONFIG_I: Configured from console by console

SW_DIST_PISO3#exit
```