# Tecnología de Redes

## Proyecto Final

### Nombre:


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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).

- 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 funcionalid

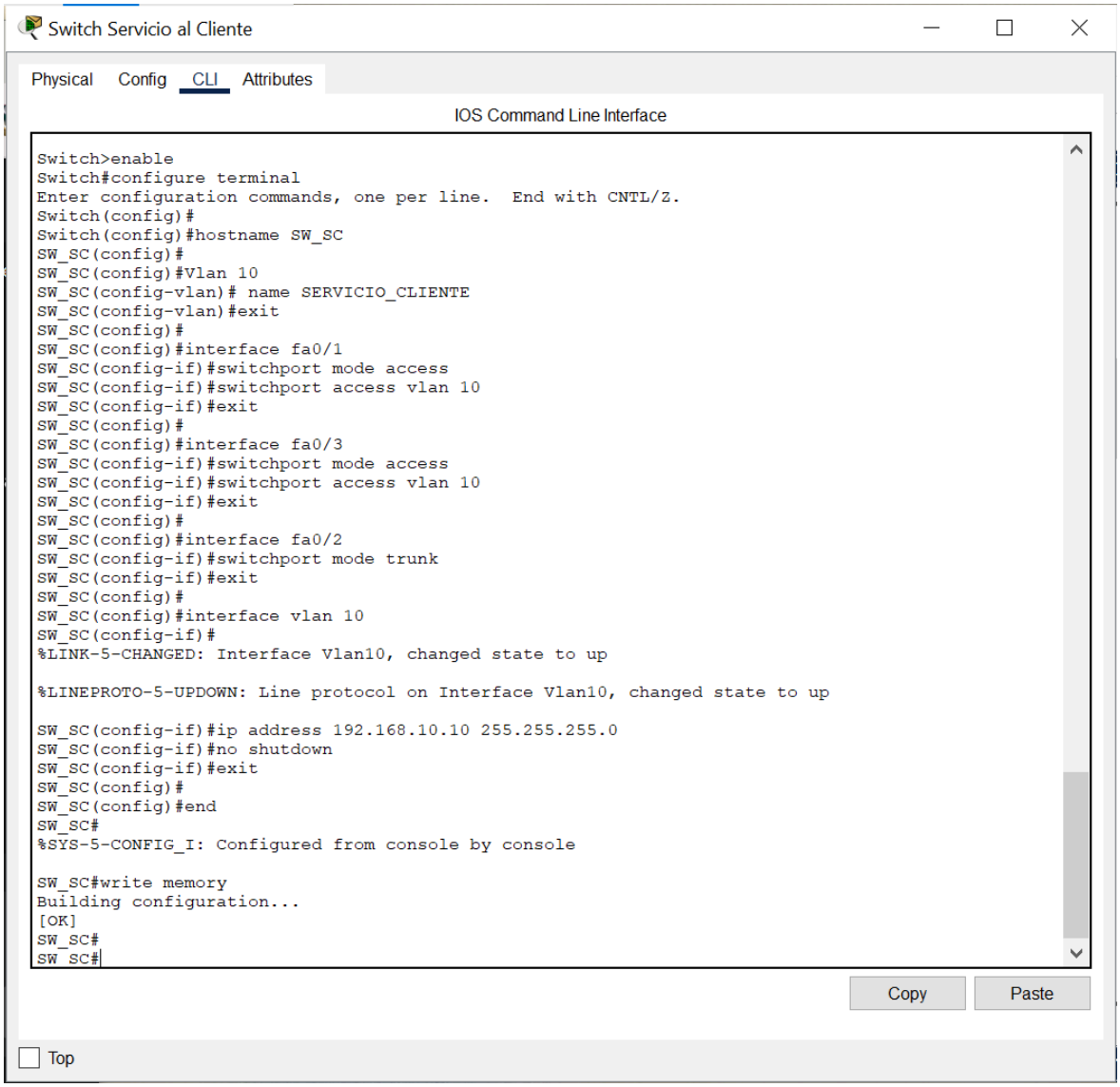
Tablas Primer Piso

## Vlan 10

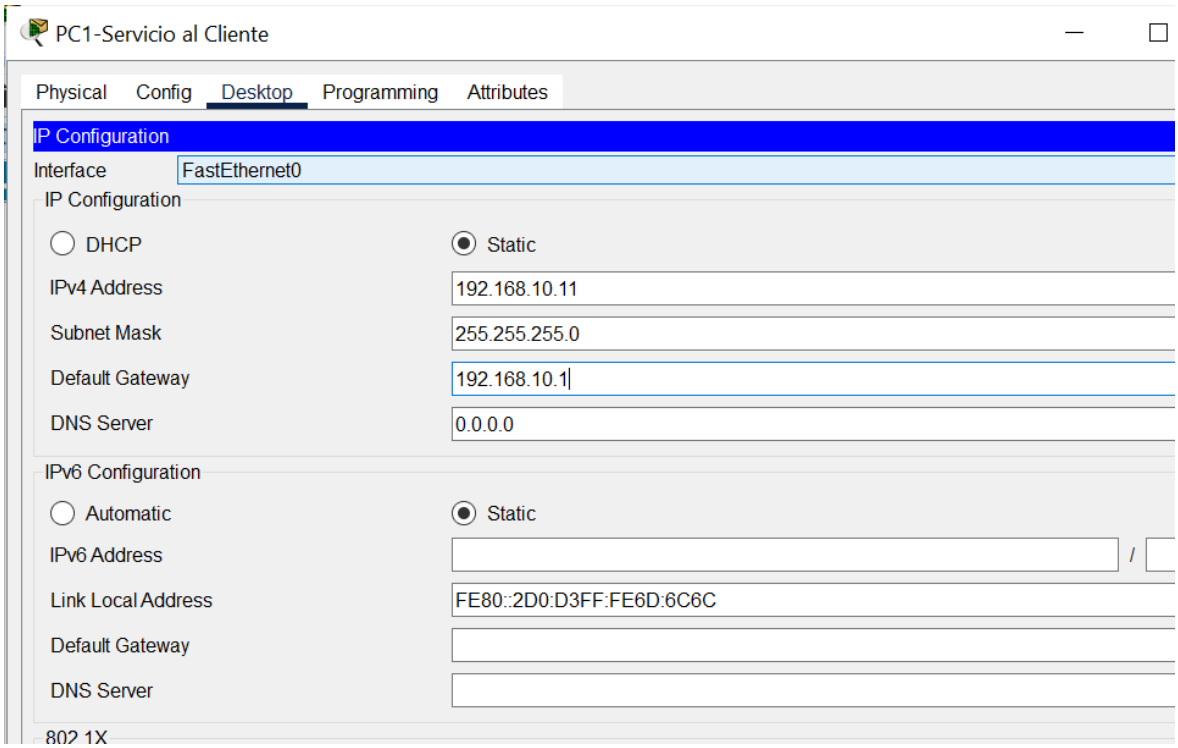
### Tabla de direccionamiento Oficina Servicio al Cliente

| 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 |

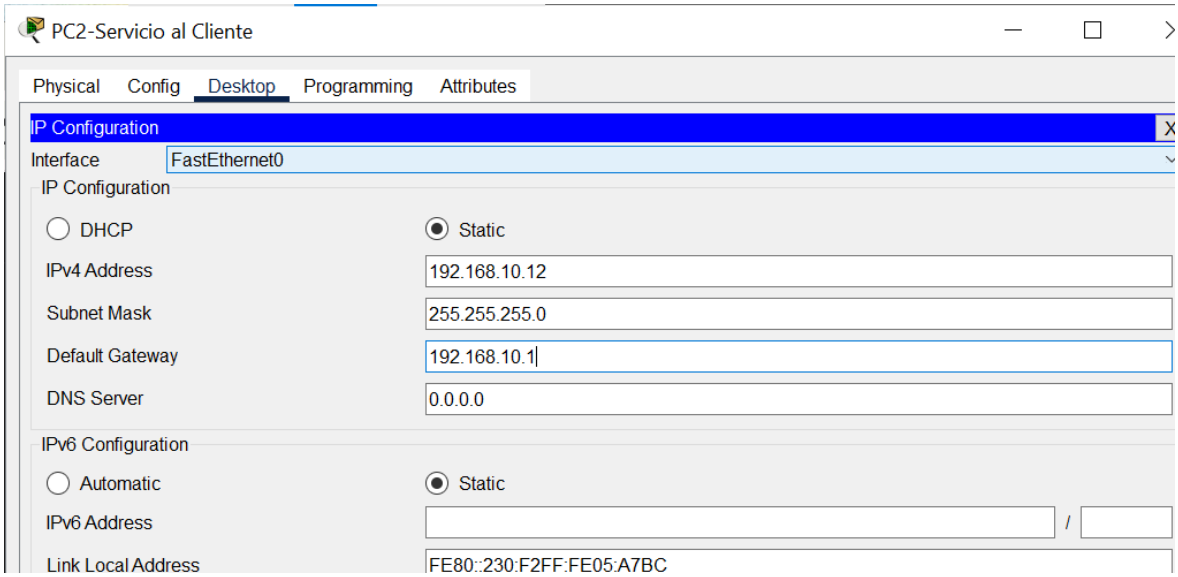
Configuración del Switch de servicio al cliente



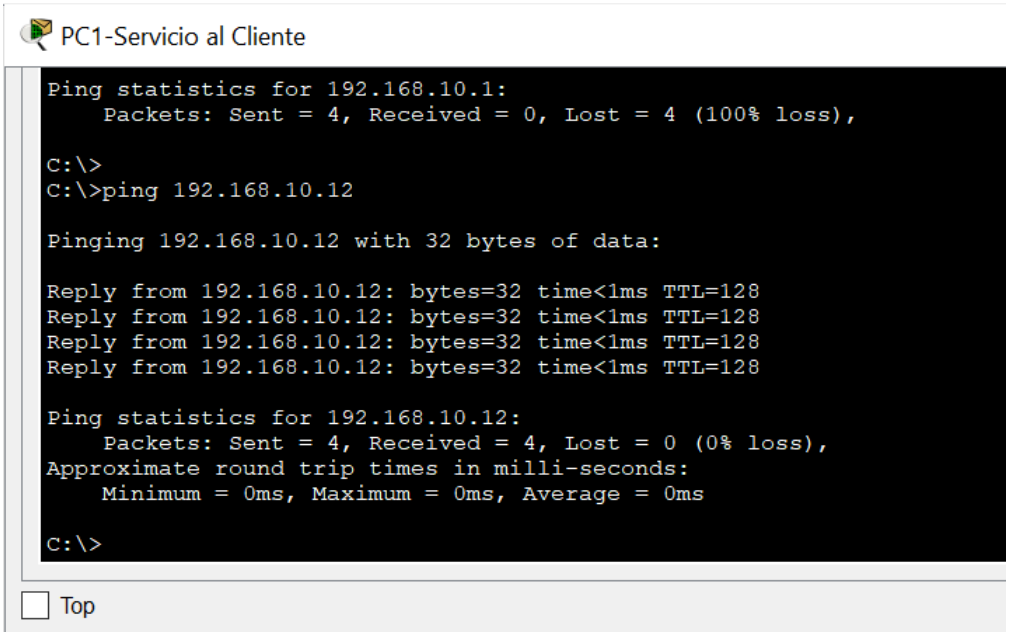
Configuración de PC1 de servicio al cliente

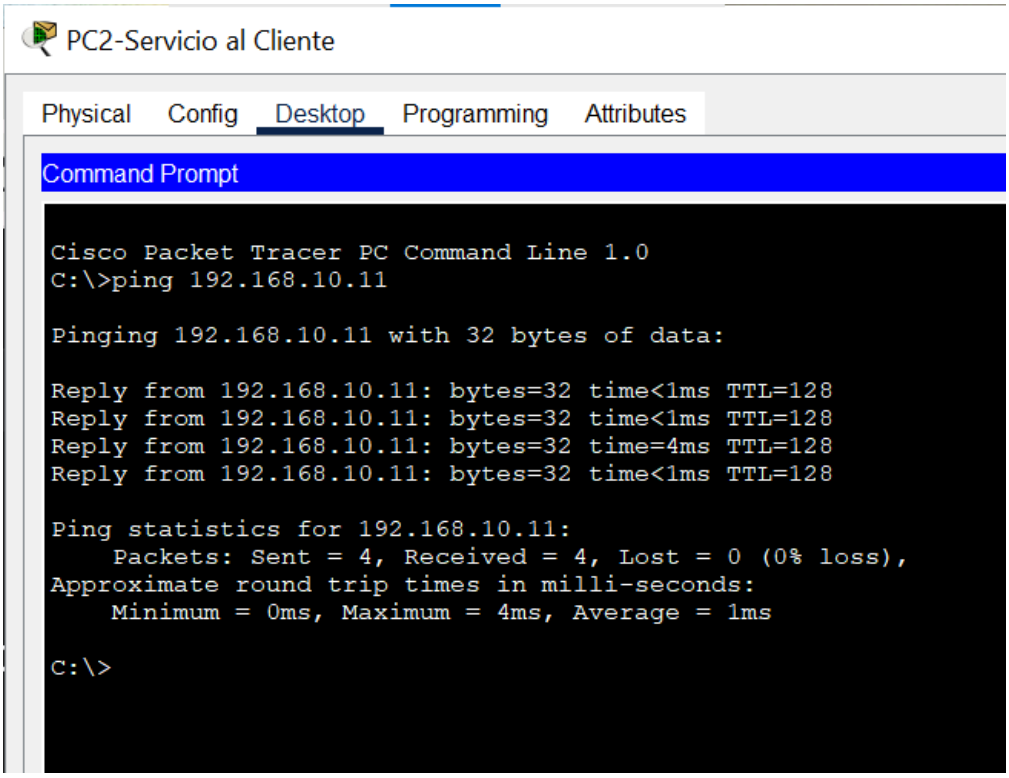



Configuración de PC2 de servicio al cliente



Pings para confirmar la conectividad el área




- Las PCs se ven entre sí

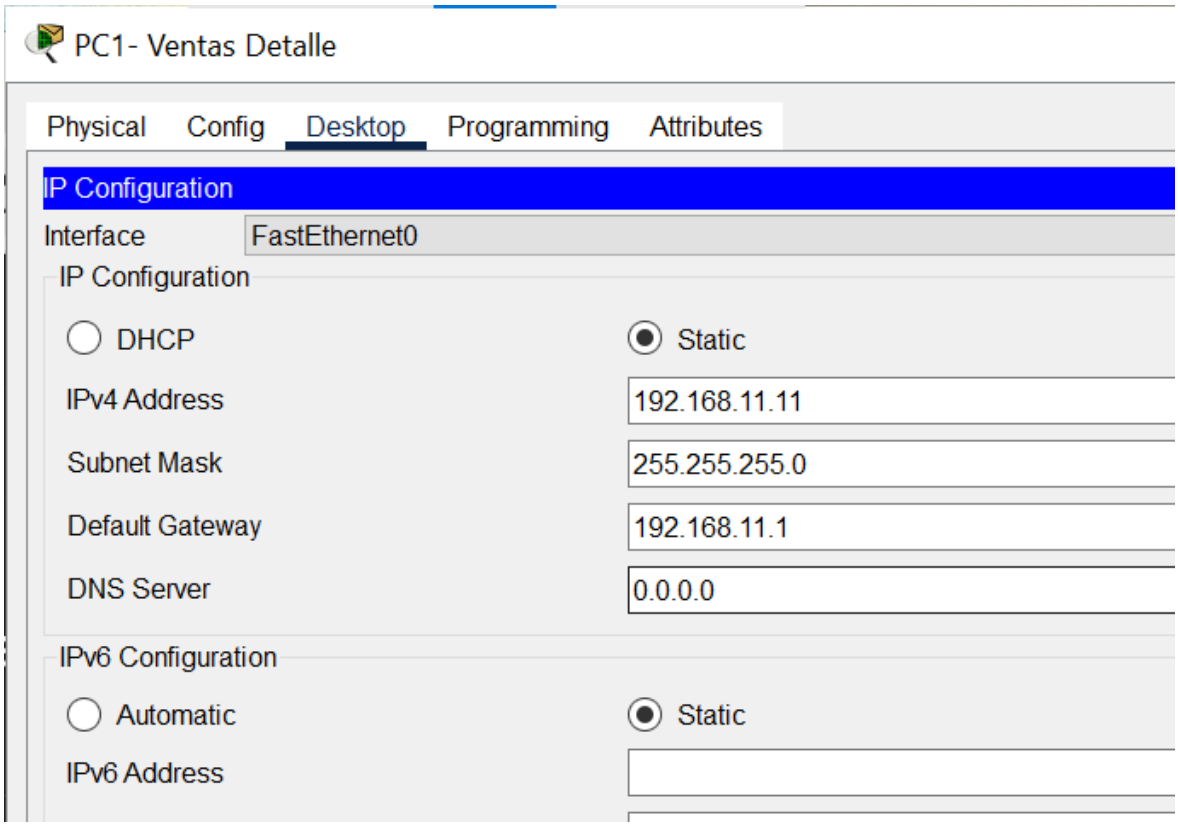
- Están en la VLAN correcta
- Trunk entre switch de acceso y distribución operativo
- Configuración limpia y sin errores

### Tabla de direccionamiento Oficina Ventas al Detalle

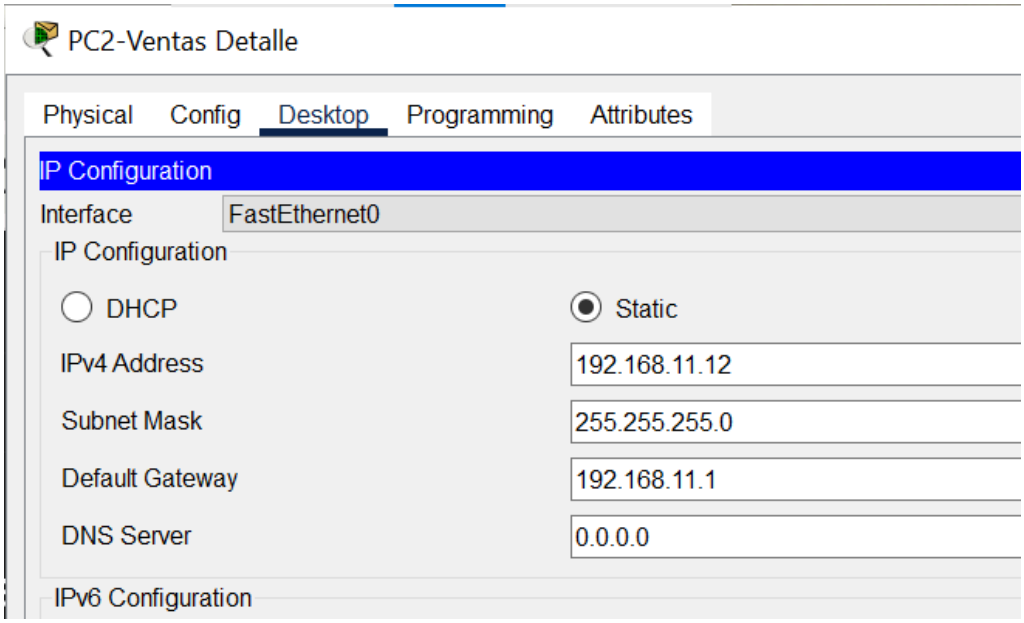
### Vlan 11

| 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 |

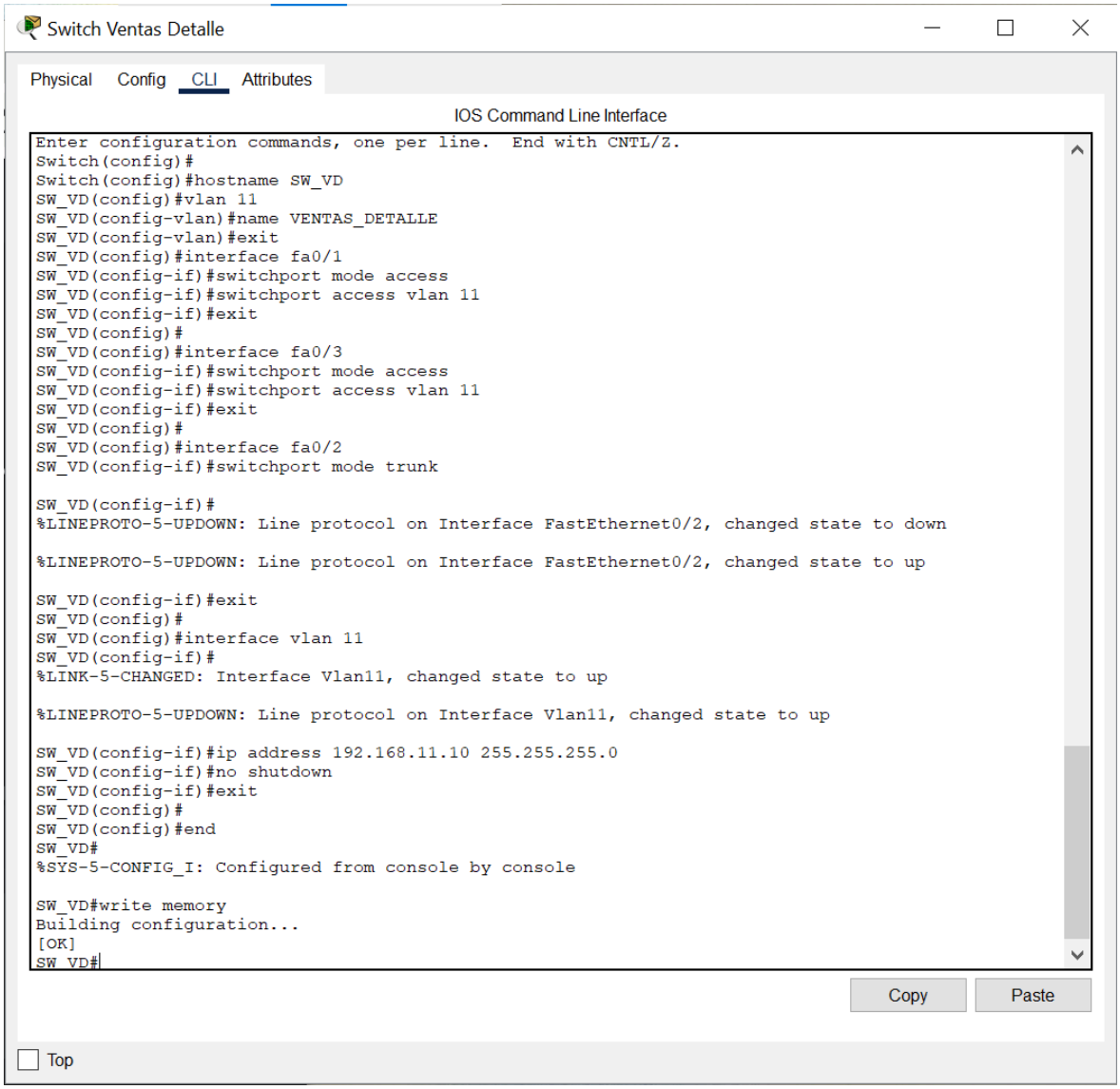
Configuración PC1 VD



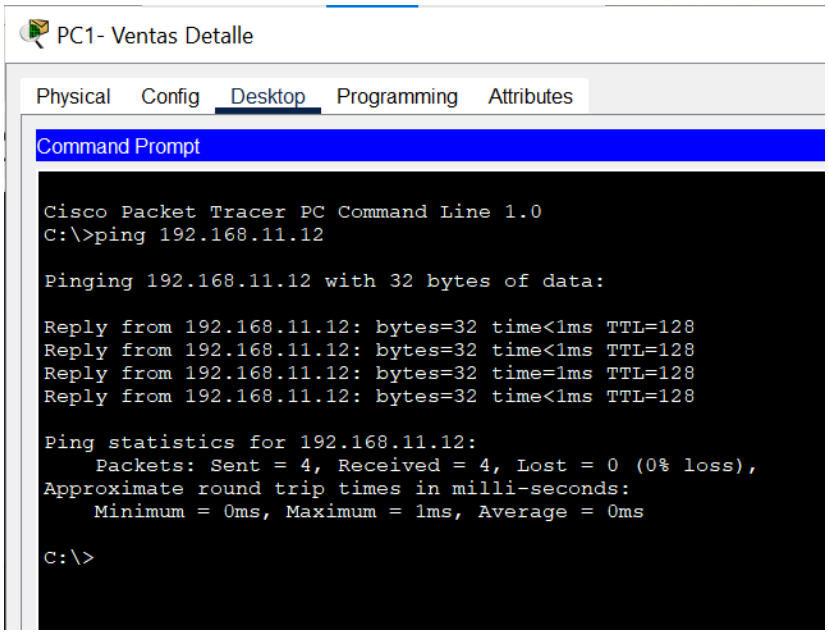

Configuración PC2 VD

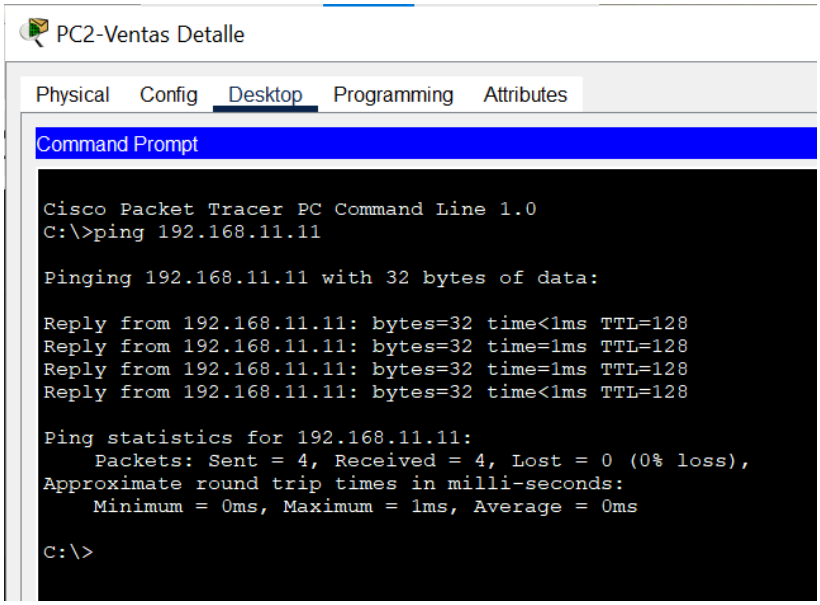


## Configuración switch de VD



Pings para confirmar la conectividad el área



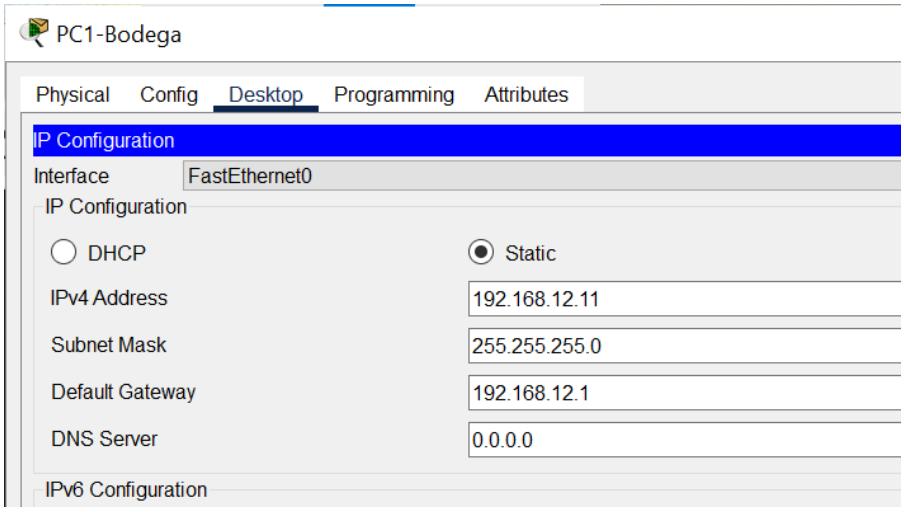



## Tabla de direccionamiento Bodega

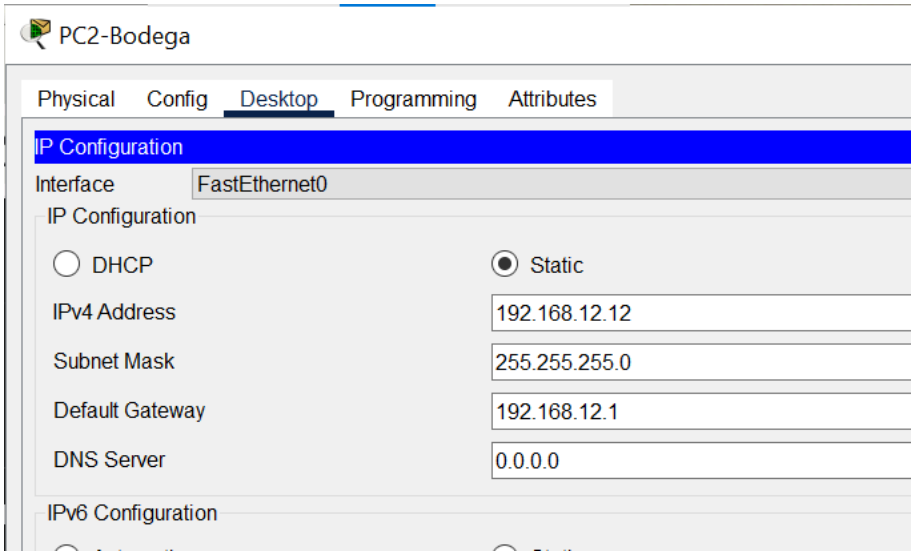
## Vlan 12

| 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 |

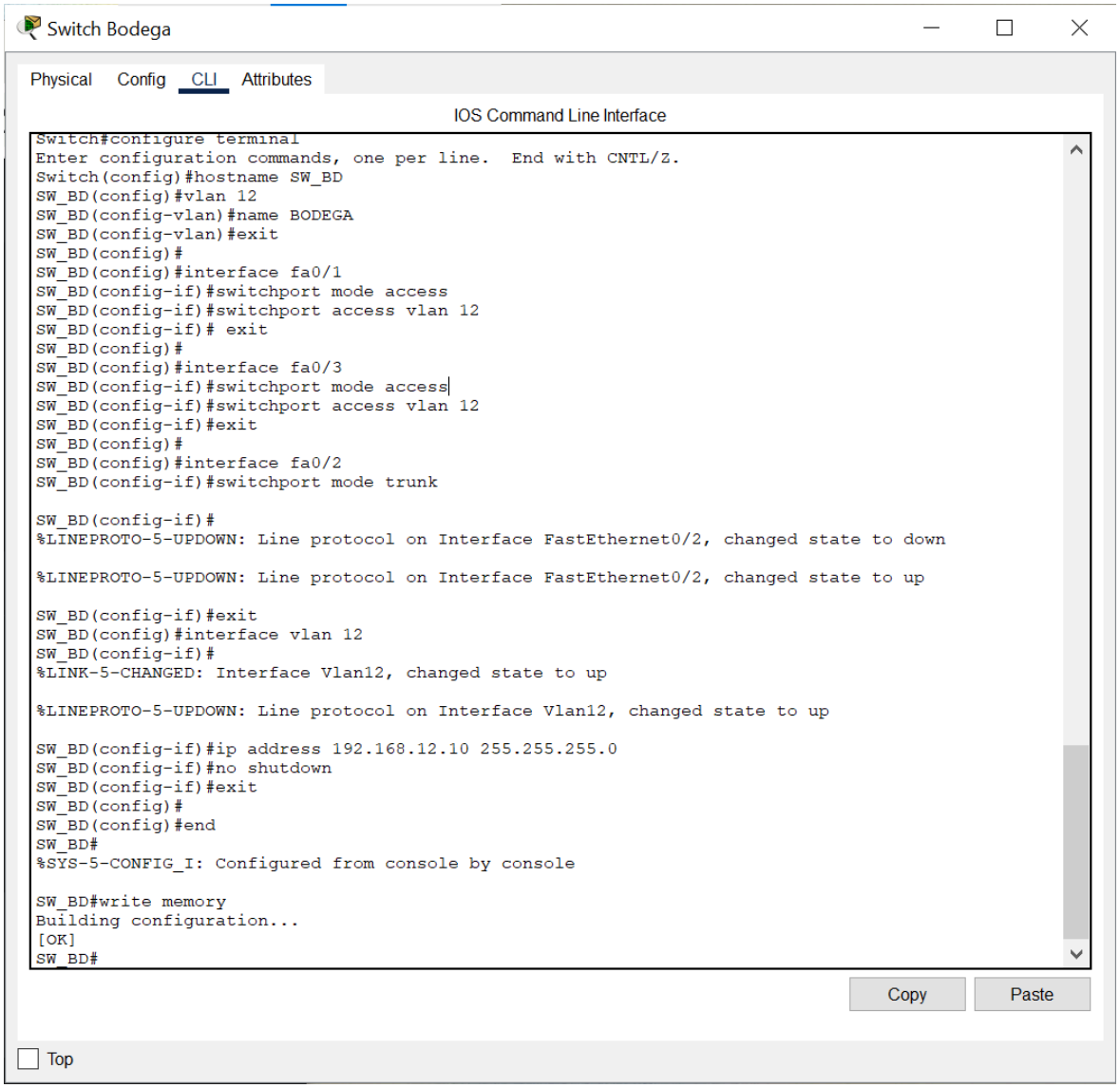
## Configuración PC1 bodega




## Configuración PC2 bodega



## Configuración de SW_BD



## 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_PISO1
SW_DIST_PISO1(config)# vlan 10
SW_DIST_PISO1(config-vlan)#name SERVICIO_CLIENTE
SW_DIST_PISO1(config-vlan)# exit
SW_DIST_PISO1(config)# vlan 11
SW_DIST_PISO1(config-vlan)# name VENTAS_DETALLE
SW_DIST_PISO1(config-vlan)# exit
SW_DIST_PISO1(config)# vlan 12
SW_DIST_PISO1(config-vlan)#name BODEGA
SW_DIST_PISO1(config-vlan)# exit
SW_DIST_PISO1(config)# vlan 13
SW_DIST_PISO1(config-vlan)# name  DIST_P1
SW_DIST_PISO1(config-vlan)#exit
SW_DIST_PISO1(config)#
SW_DIST_PISO1(config)# interface vlan 13
SW_DIST_PISO1(config-if)#
%LINK-5-CHANGED: Interface Vlan13, changed state to up

SW_DIST_PISO1(config-if)#ip address 192.168.10.254 255.255.255.0
SW_DIST_PISO1(config-if)#no shutdown
SW_DIST_PISO1(config-if)#exit
SW_DIST_PISO1(config)#
SW_DIST_PISO1(config)#!la asignacion de los troncales ahora
SW_DIST_PISO1(config)# interface range fa0/2 - 4
SW_DIST_PISO1(config-if-range)#switchport trunk encapsulation dot1q
                                              ^
% Invalid input detected at '^' marker.

SW_DIST_PISO1(config-if-range)#switchport mode trunk

SW_DIST_PISO1(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_PISO1(config-if-range)#exit
SW_DIST_PISO1(config)#show interfaces trunk
                     ^
% Invalid input detected at '^' marker.
```

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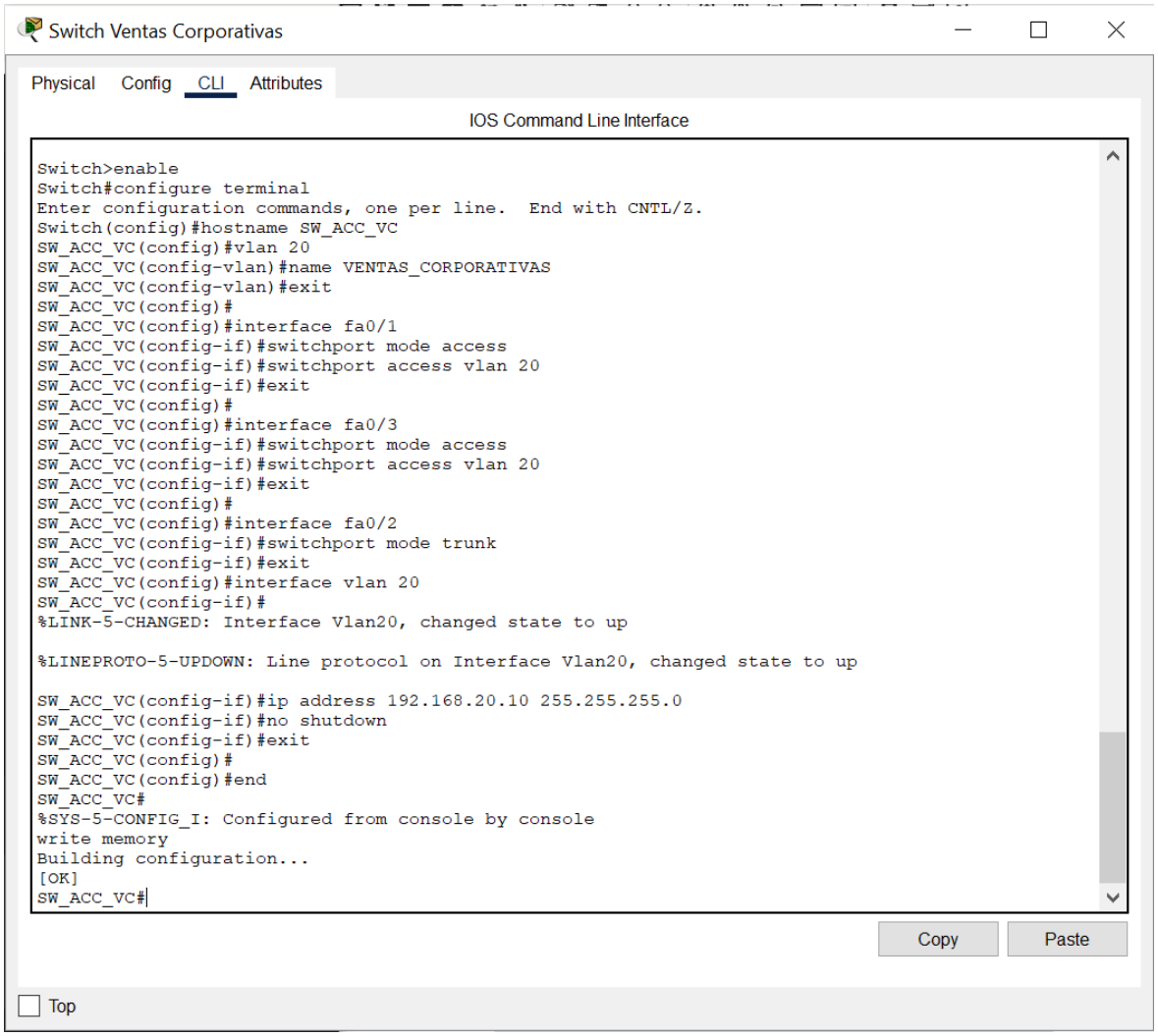
Tablas Segundo Piso

## Tabla de direccionamiento Oficina Ventas Corpo

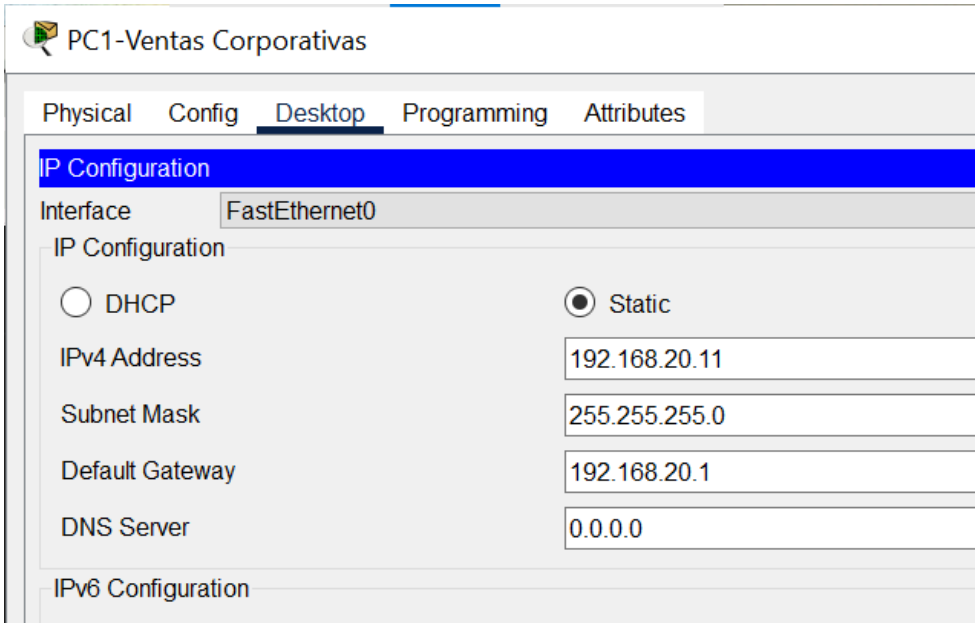
## Vlan 20

| 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 |

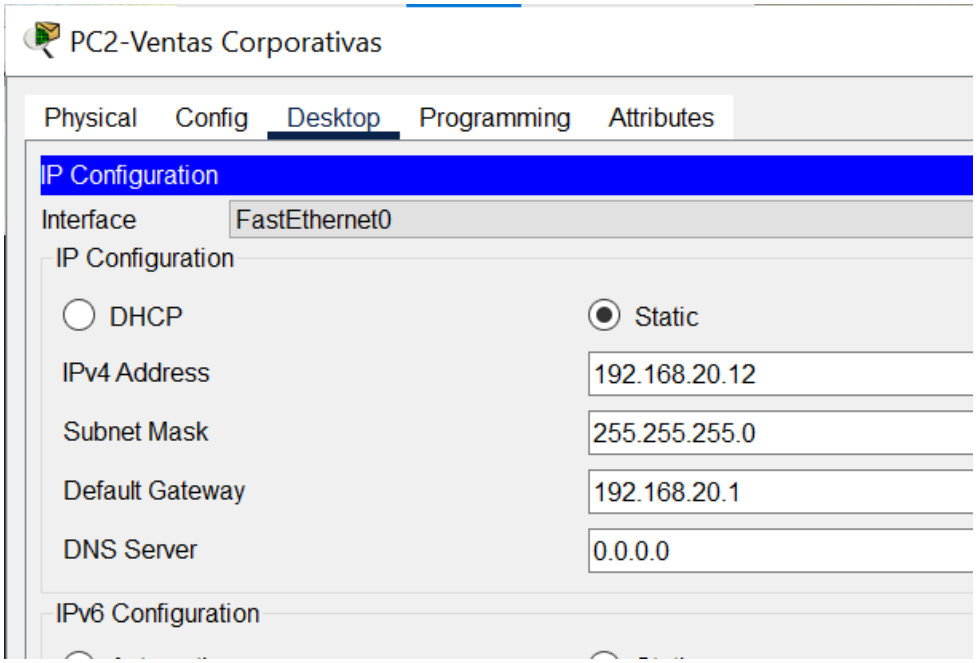
## Configuración de switch VC



Config PC1 VC




Config PC2 VC

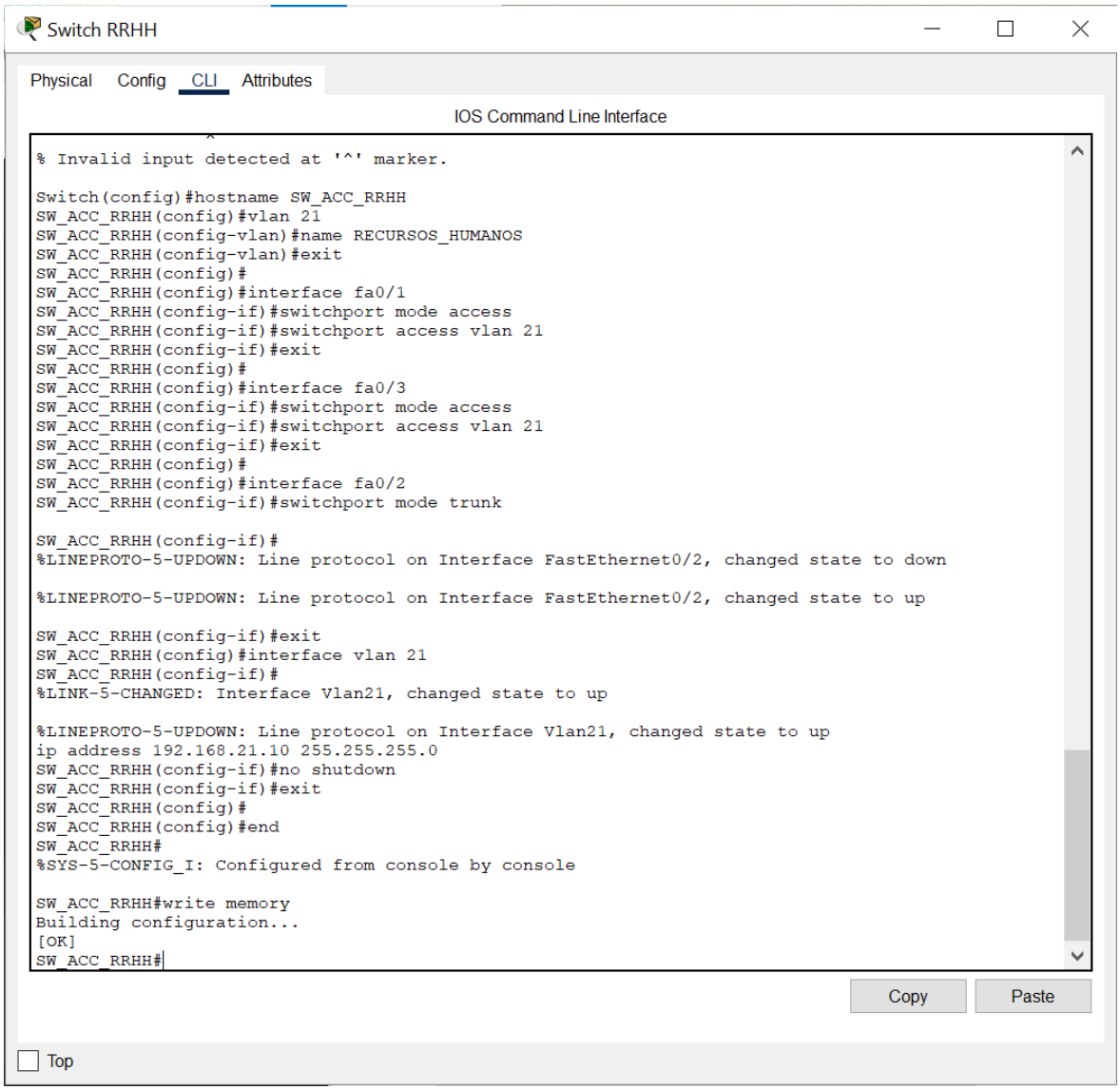


## Tabla de direccionamiento Oficina RRHH

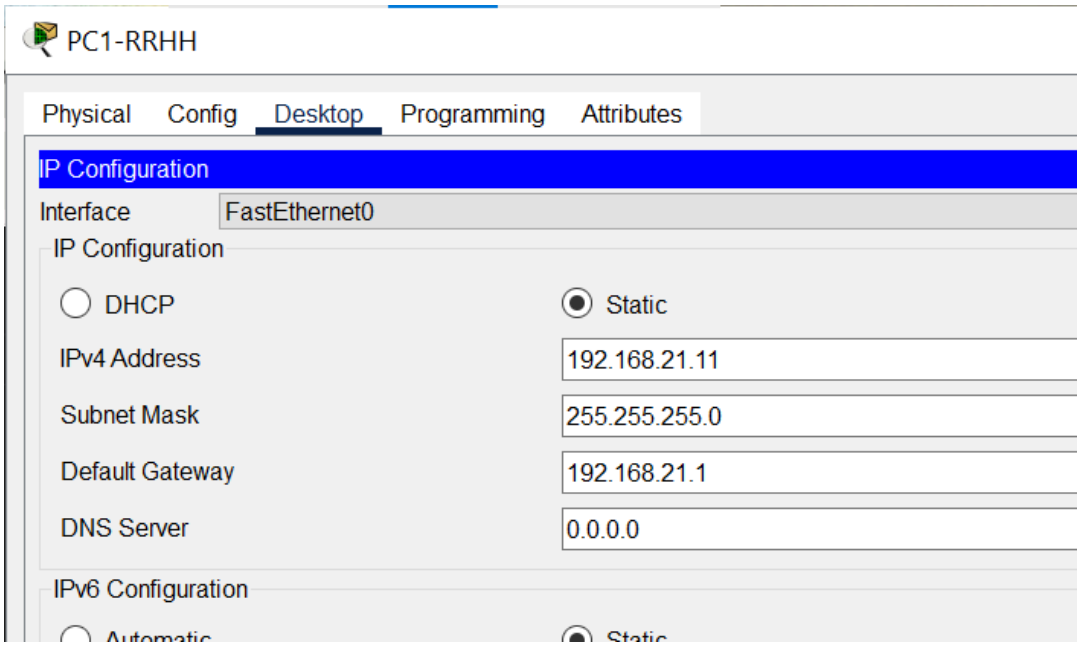
## Vlan 21

| 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 |

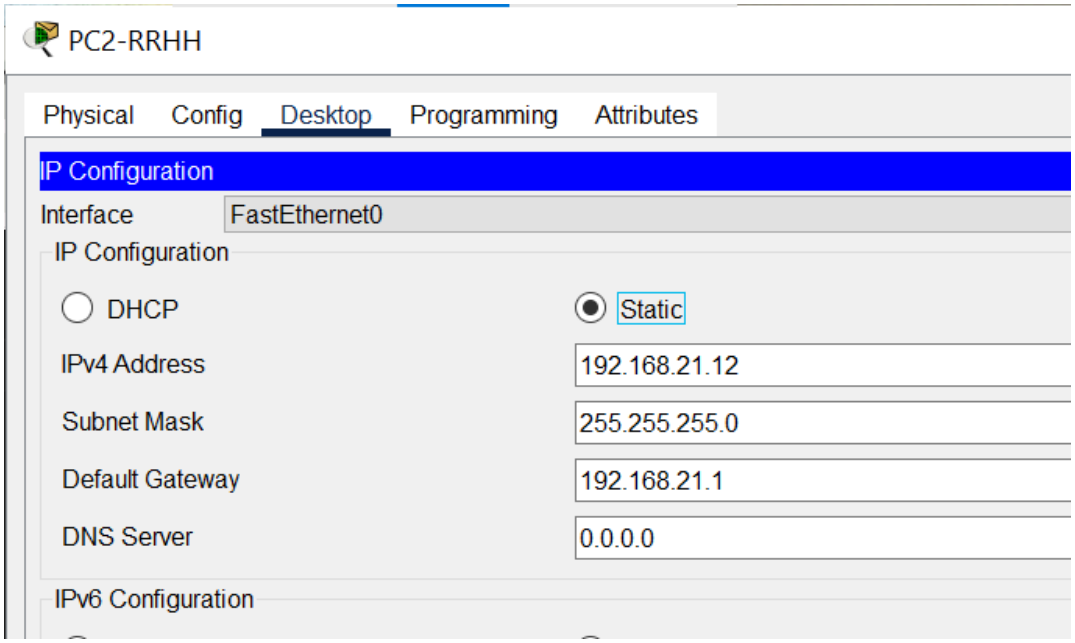
## Configuración del Switch de RRHH



Config PC1 rrhh




Config PC2 rrhh

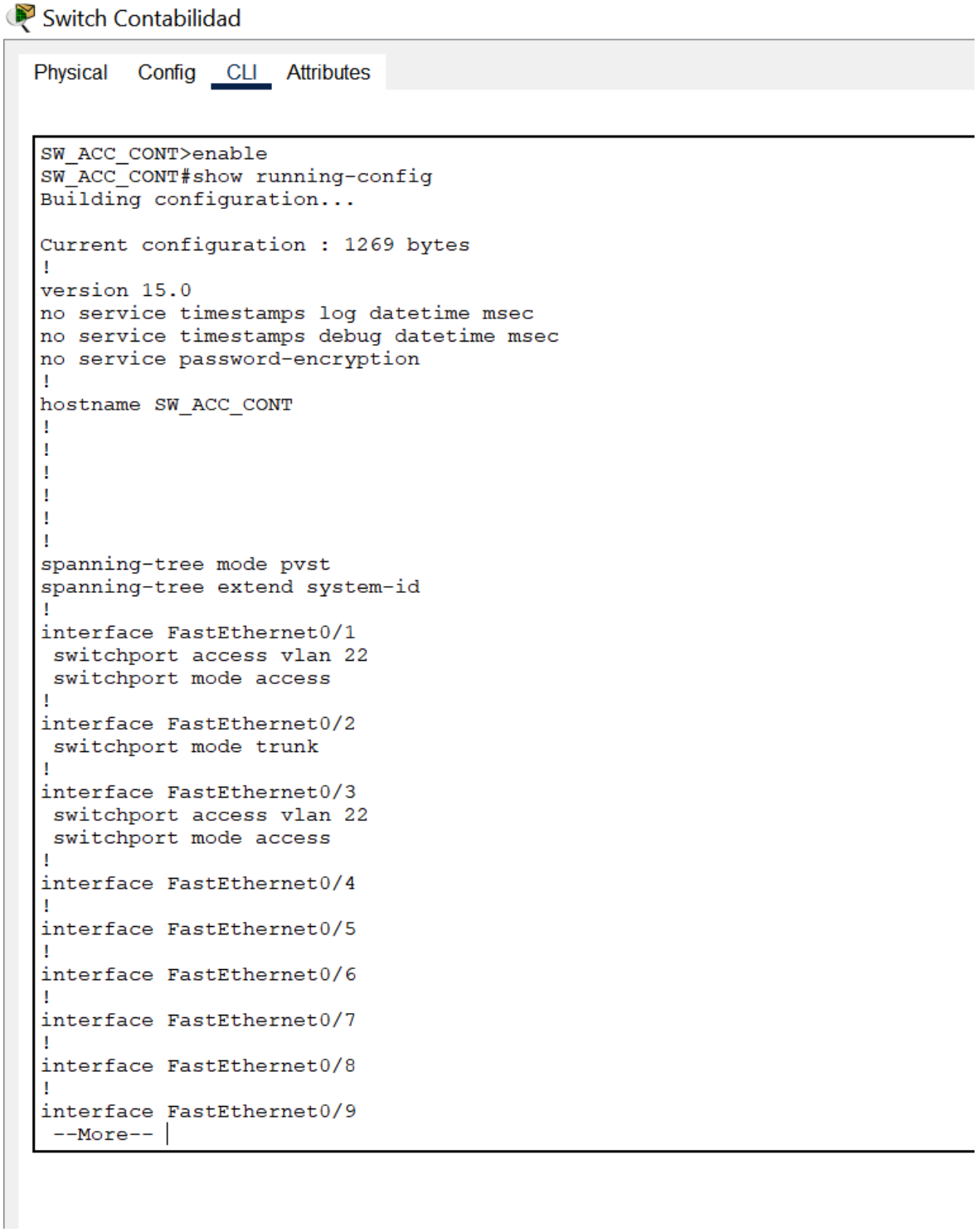


## Tabla de direccionamiento Oficina Contabilidad

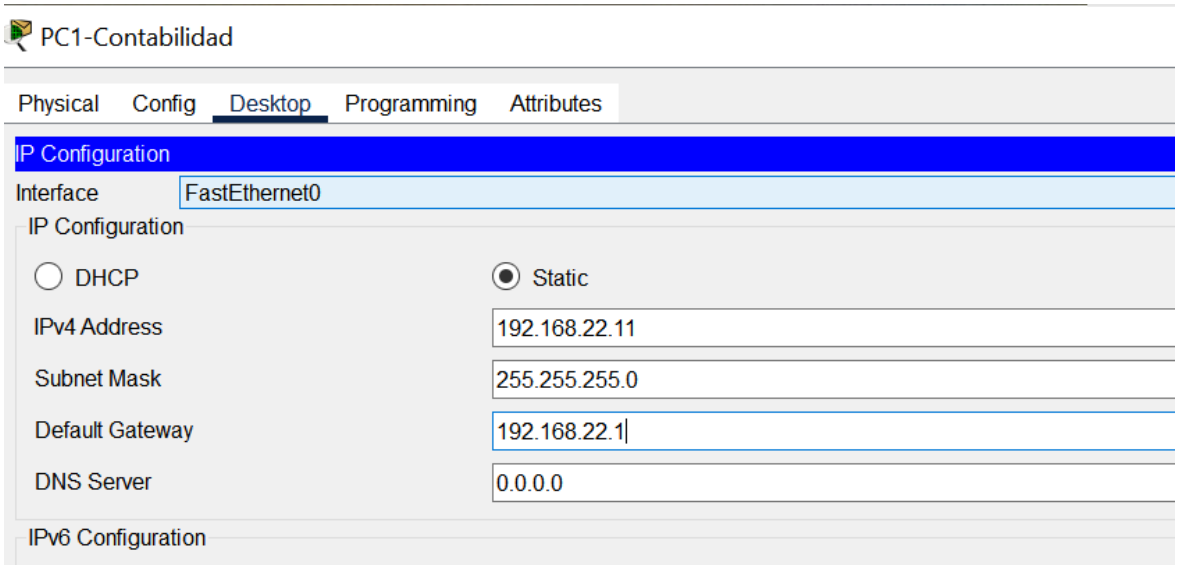
## Vlan 22

| 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 |

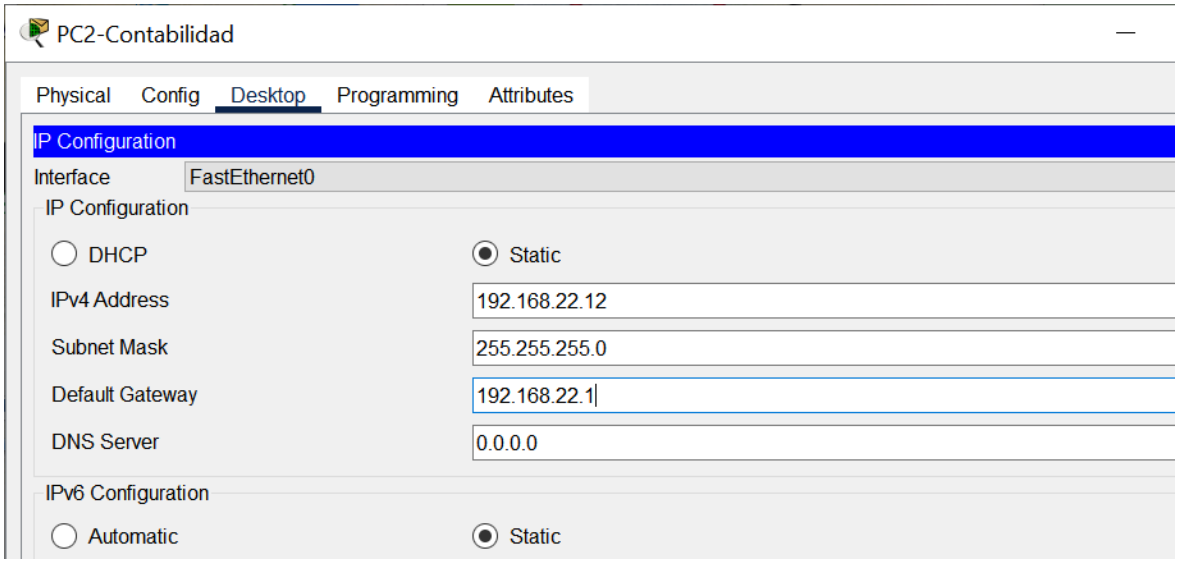
Configuración del Switch de Contabilidad (con show)



## Config PC1 Contabilidad



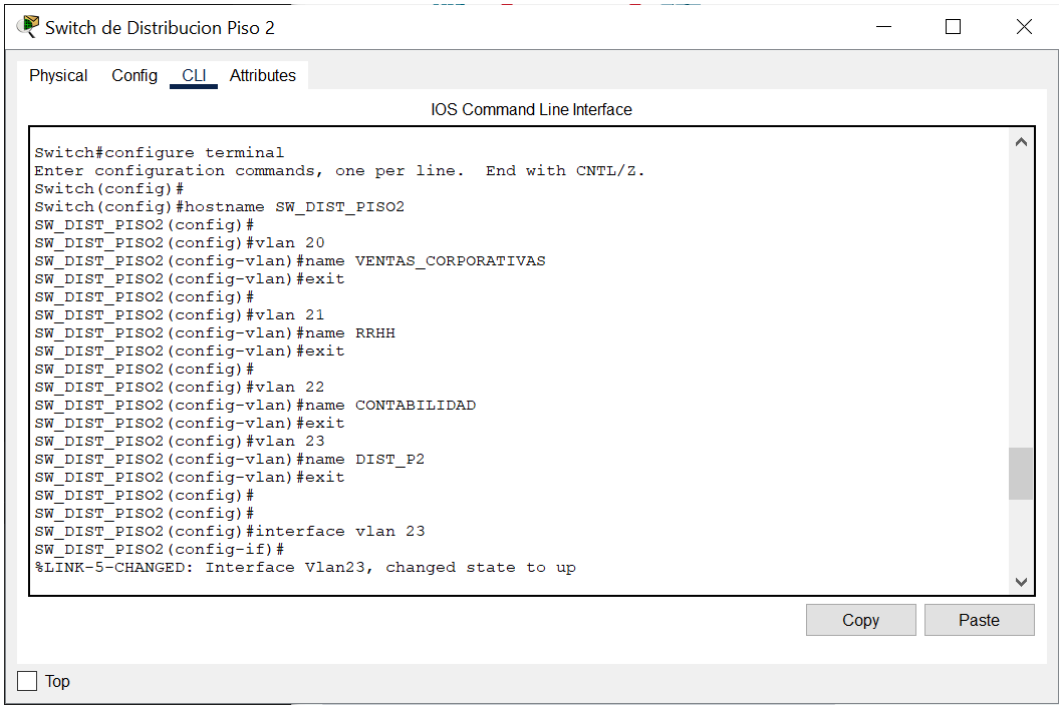

## Config PC2 Contabilidad

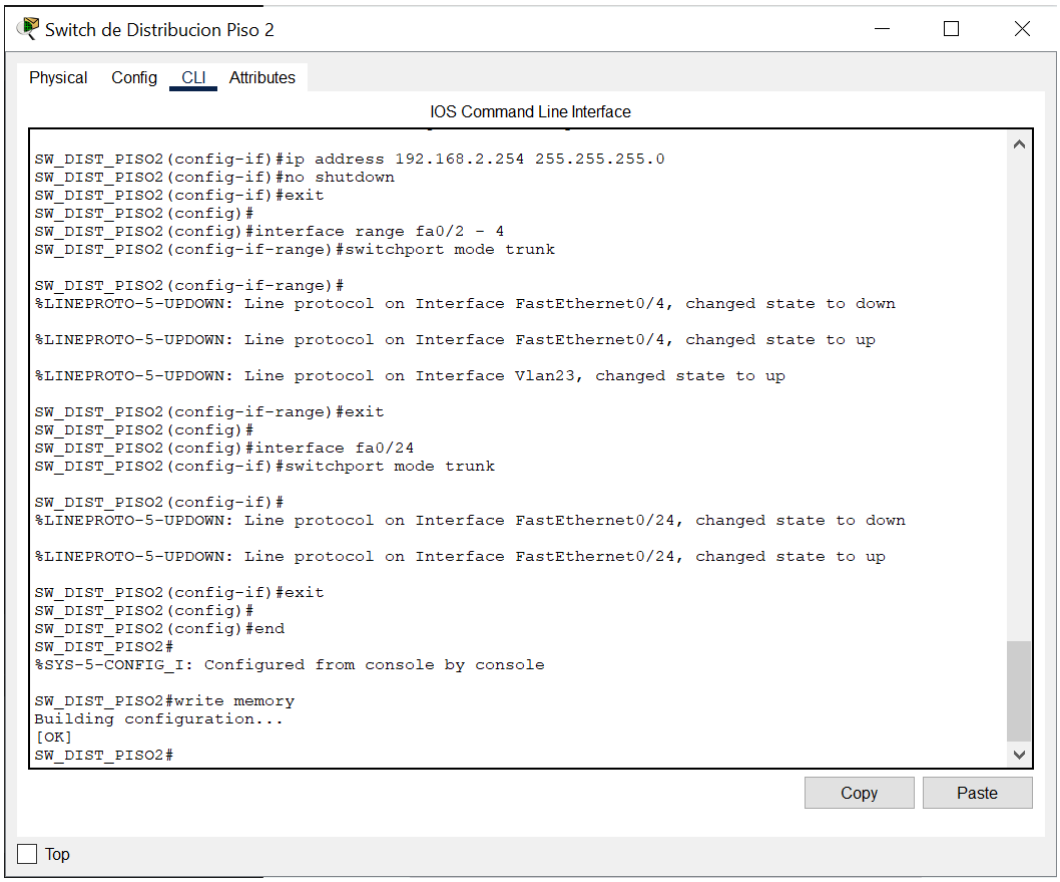


## Tabla de direccionamiento Demás Dispositivos P2

| 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 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#
Copy
Paste
Top

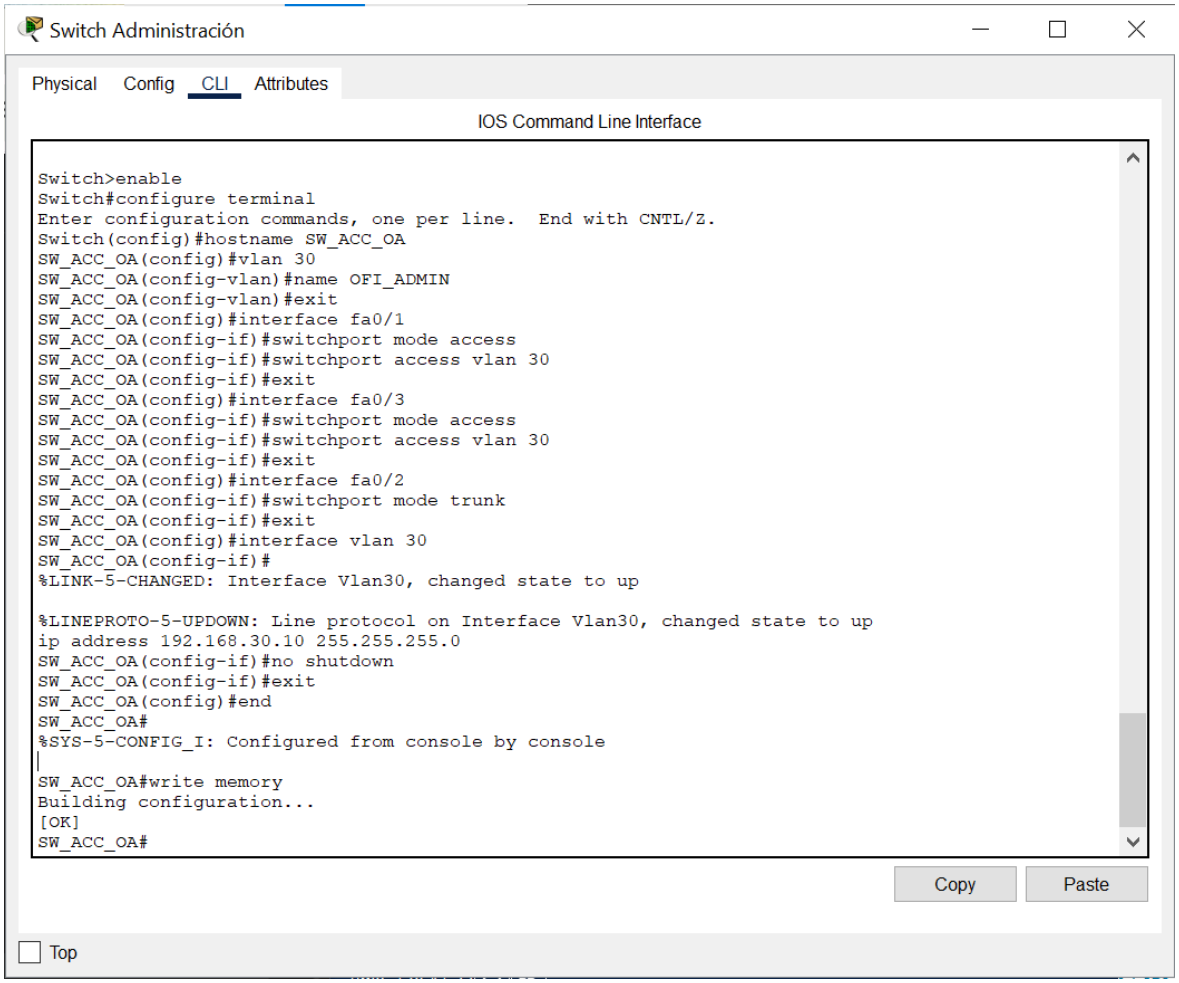
## Tablas Tercer Piso

## VLAN 30

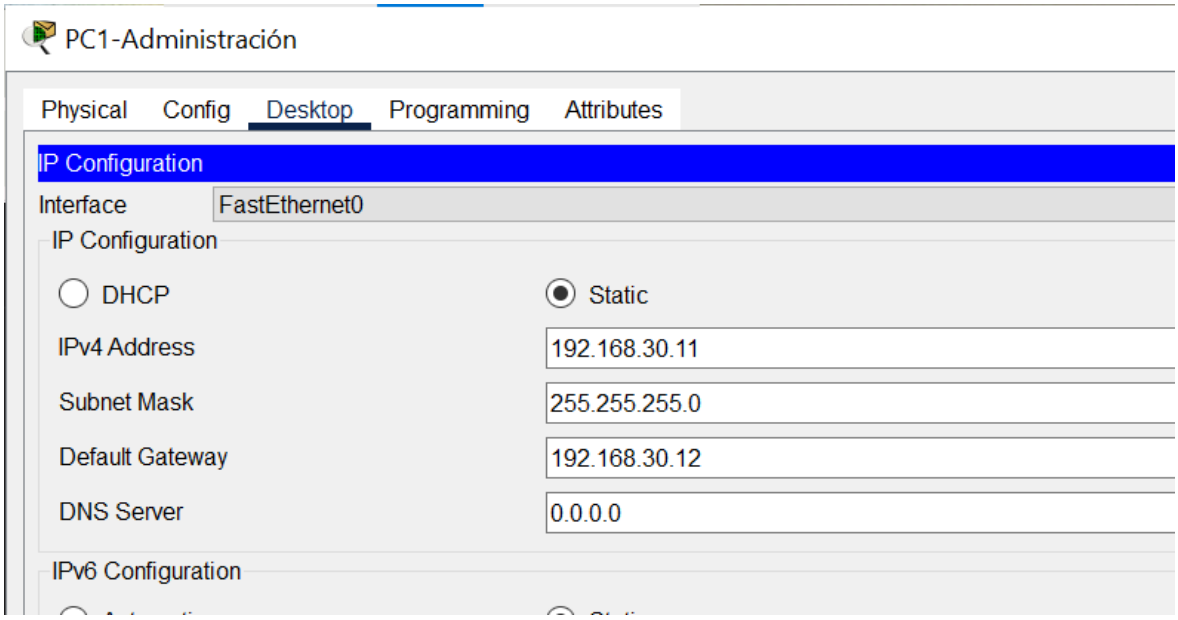
### Tabla de direccionamiento Oficina Administración

| 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 |

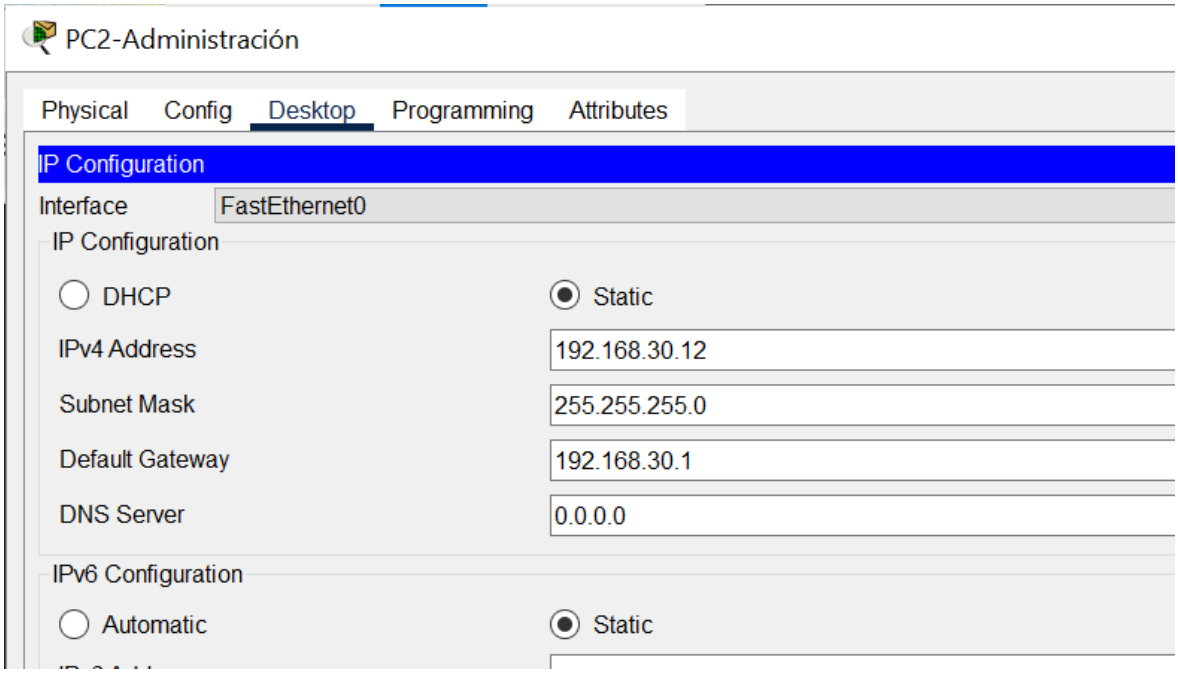
Config Switch OA



Config PC1




Config PC2

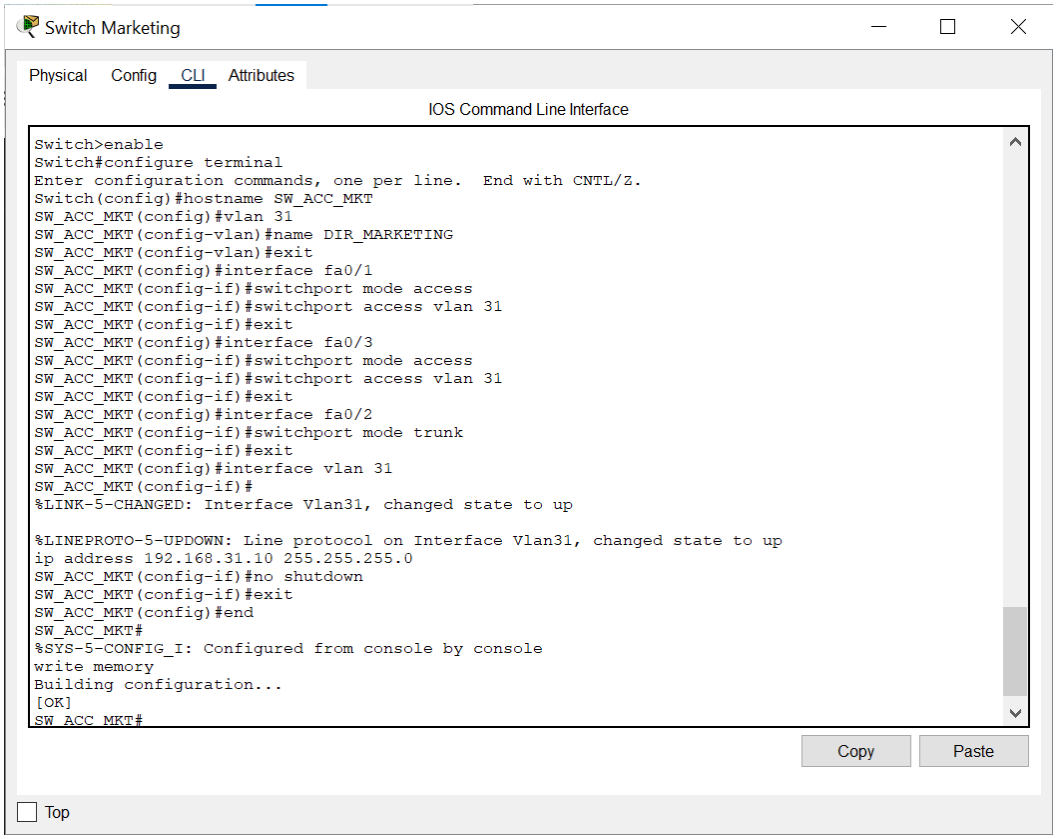


## Tabla de direccionamiento Marketing

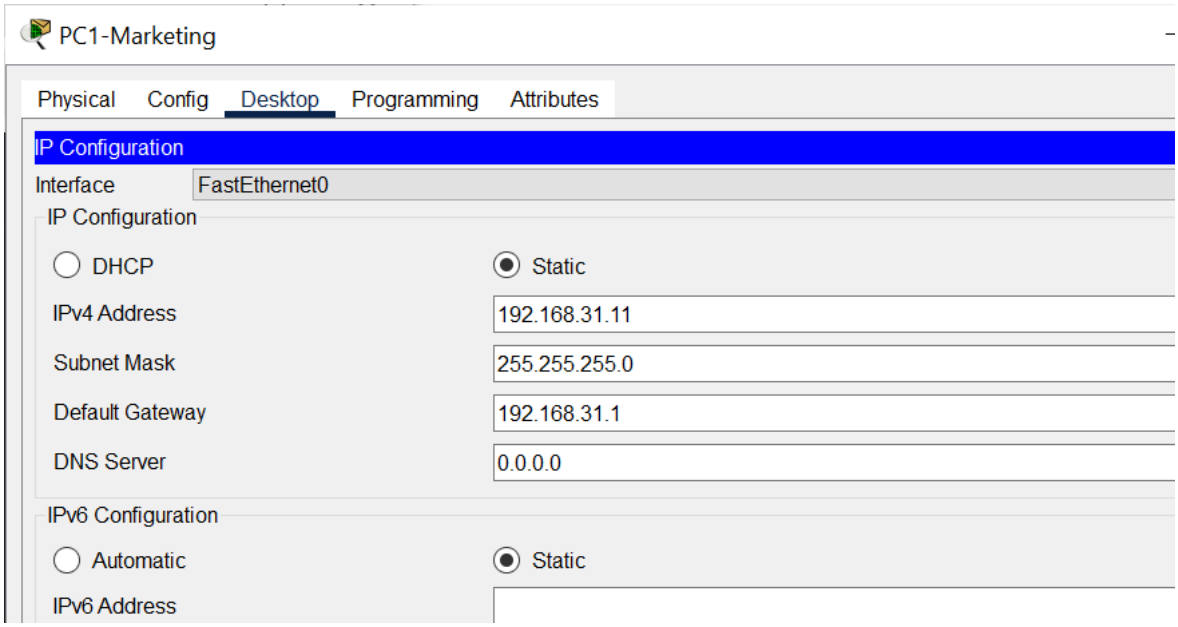
## VLAN 31

| 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 |

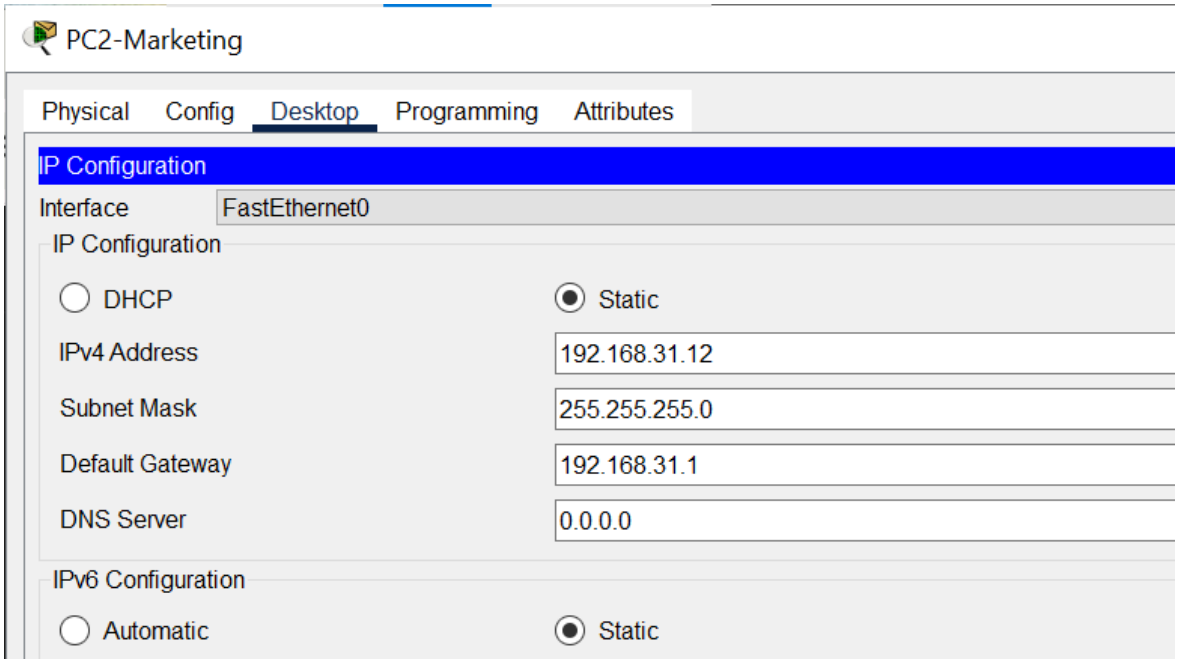
Config Switch MKT



Config PC1




Config PC2

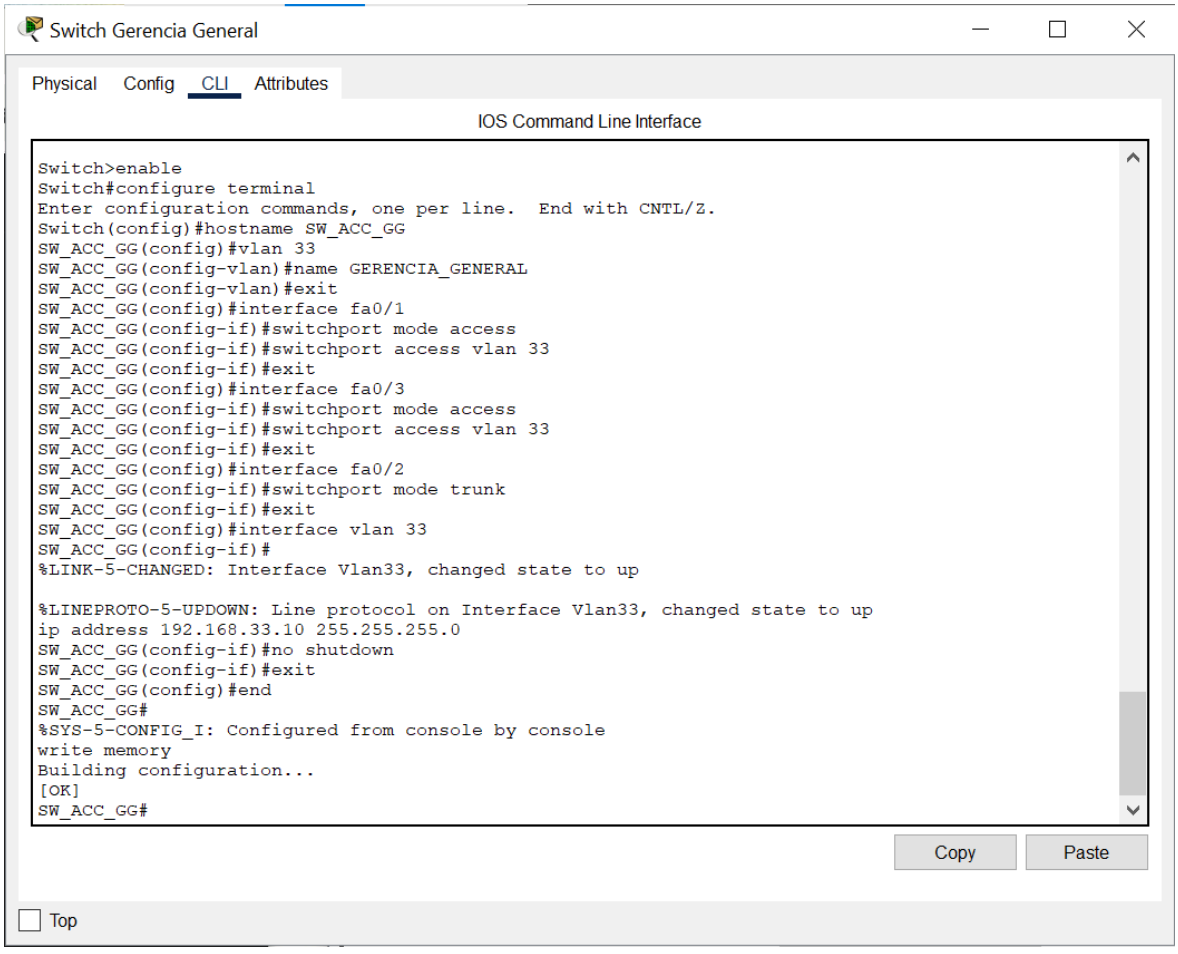


## Tabla de direccionamiento Oficina Gerencia General

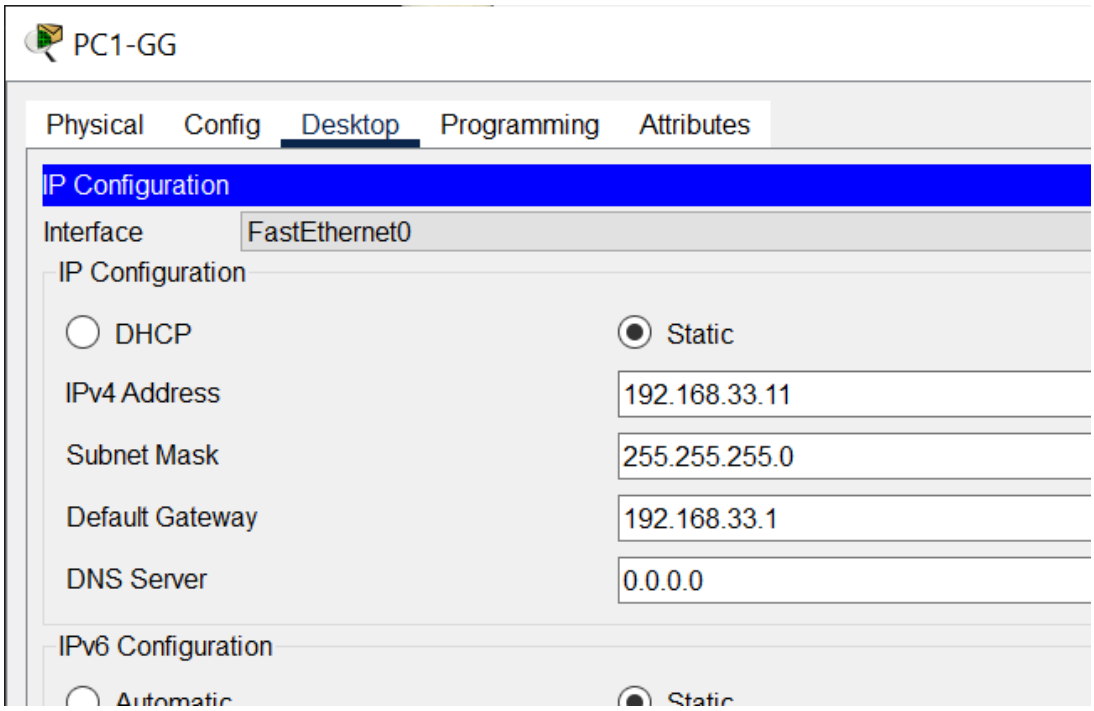
### VLAN 33

| 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 |

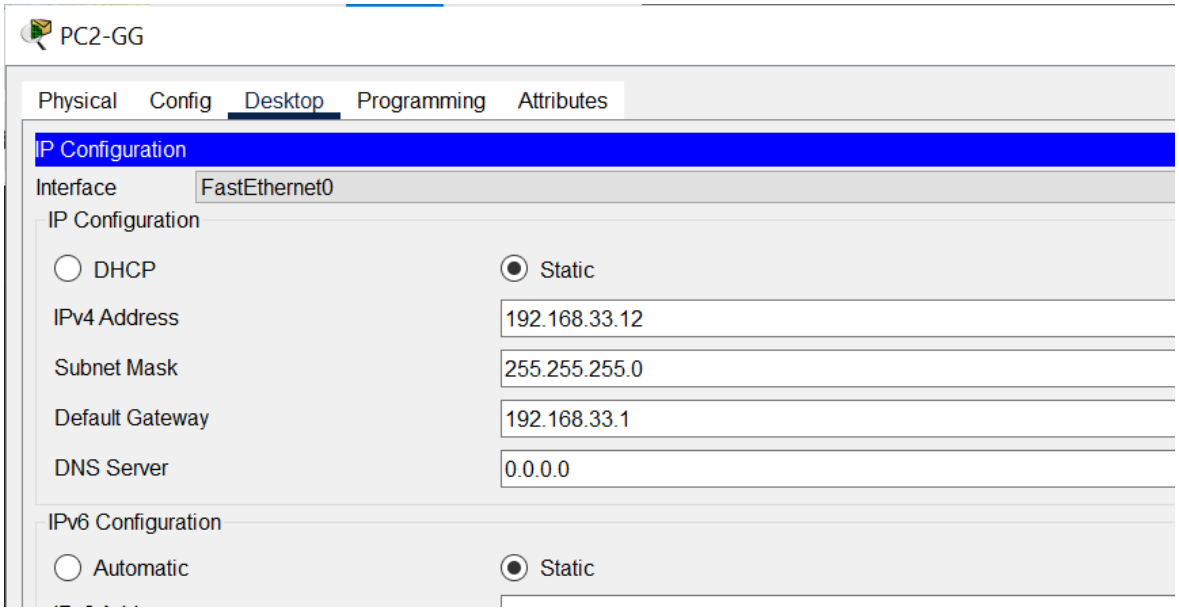
Config Switch



PC1 Config




PC2 Config

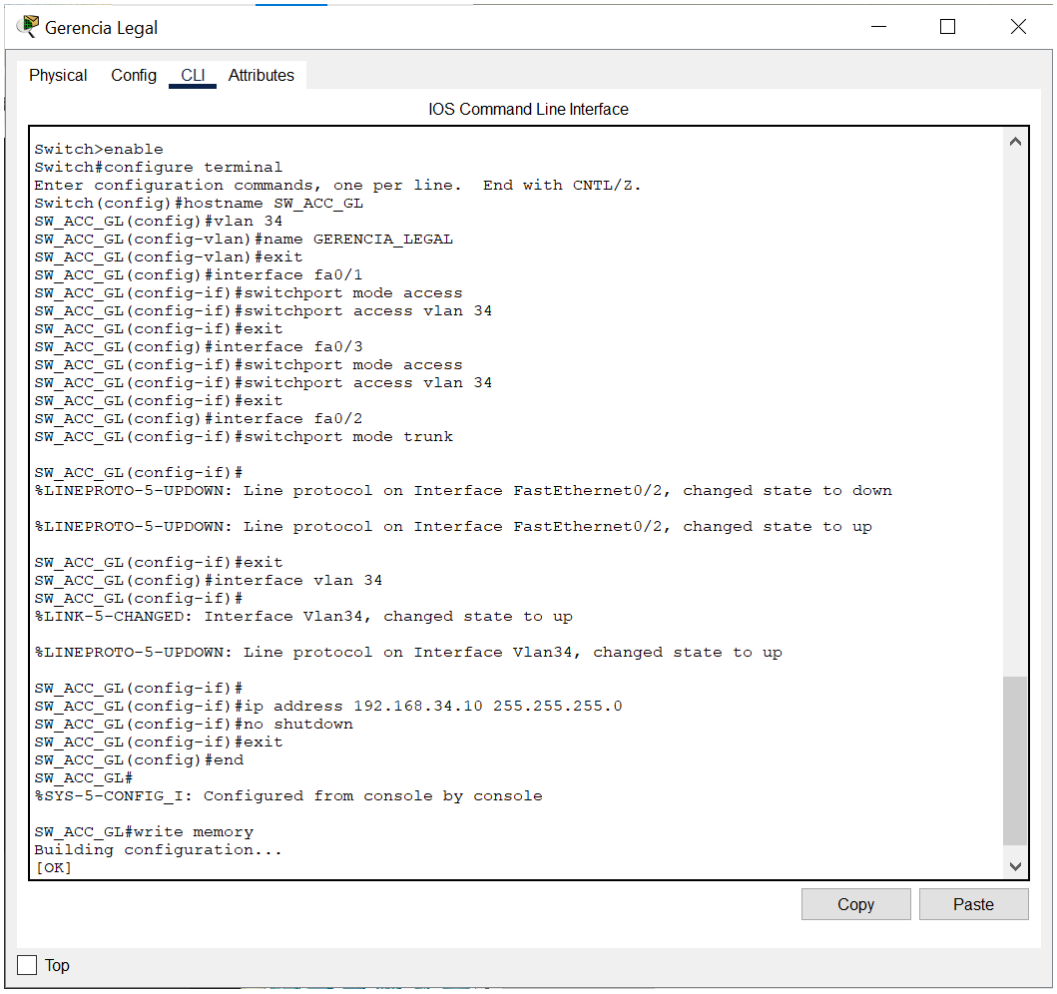


## Tabla de direccionamiento Oficina Gerencia Legal

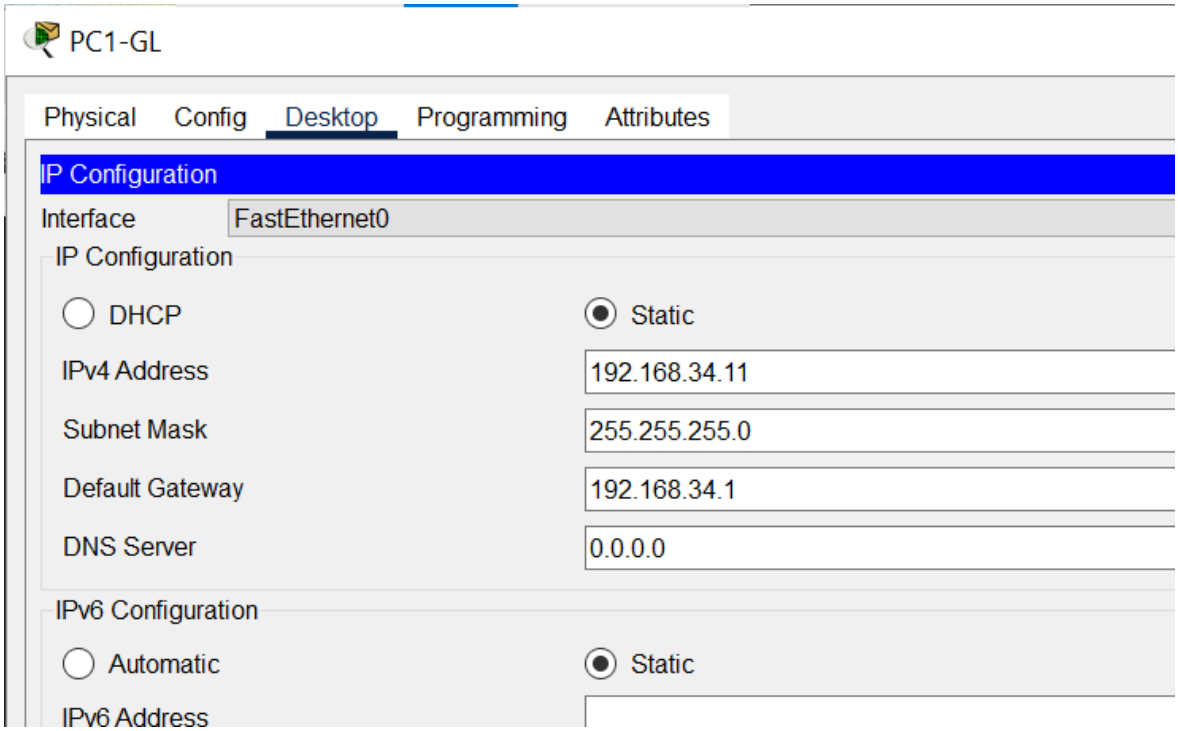
VLAN 34

| 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 |

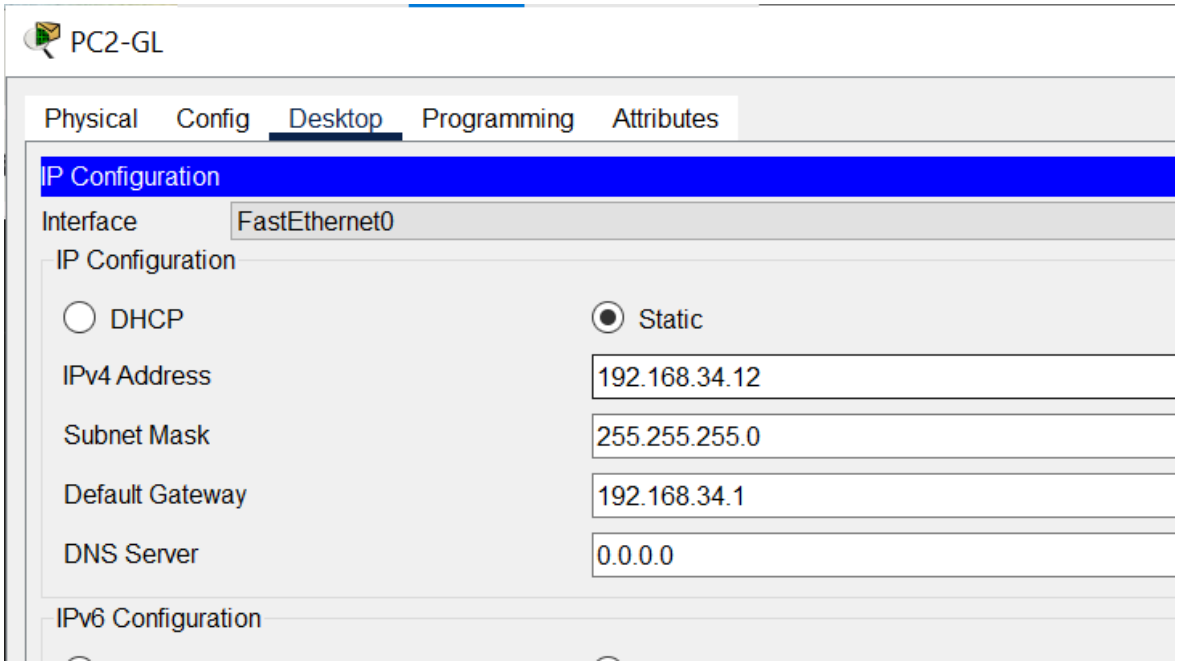
Config Switch



PC2 Config



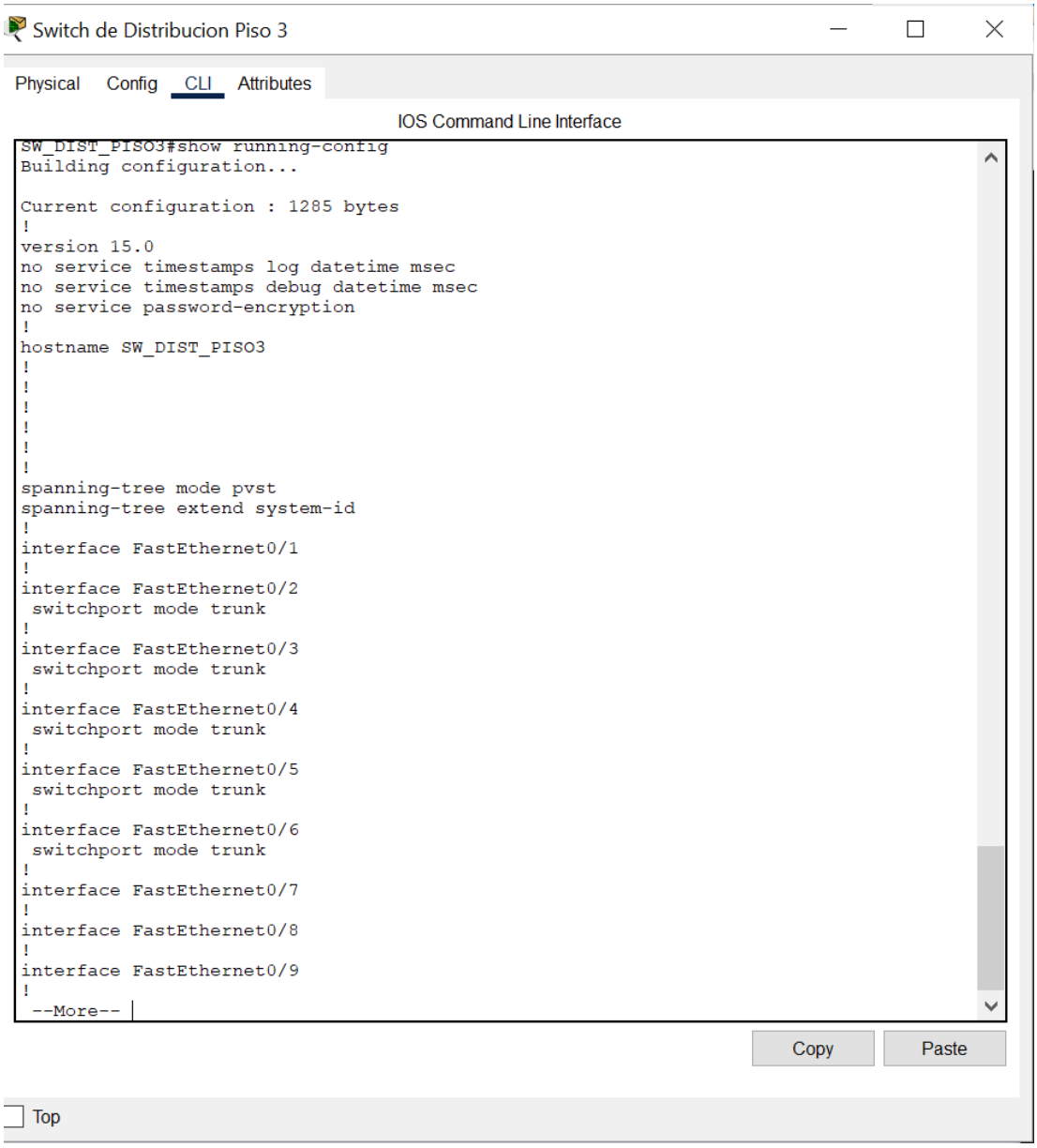

PC2 Config

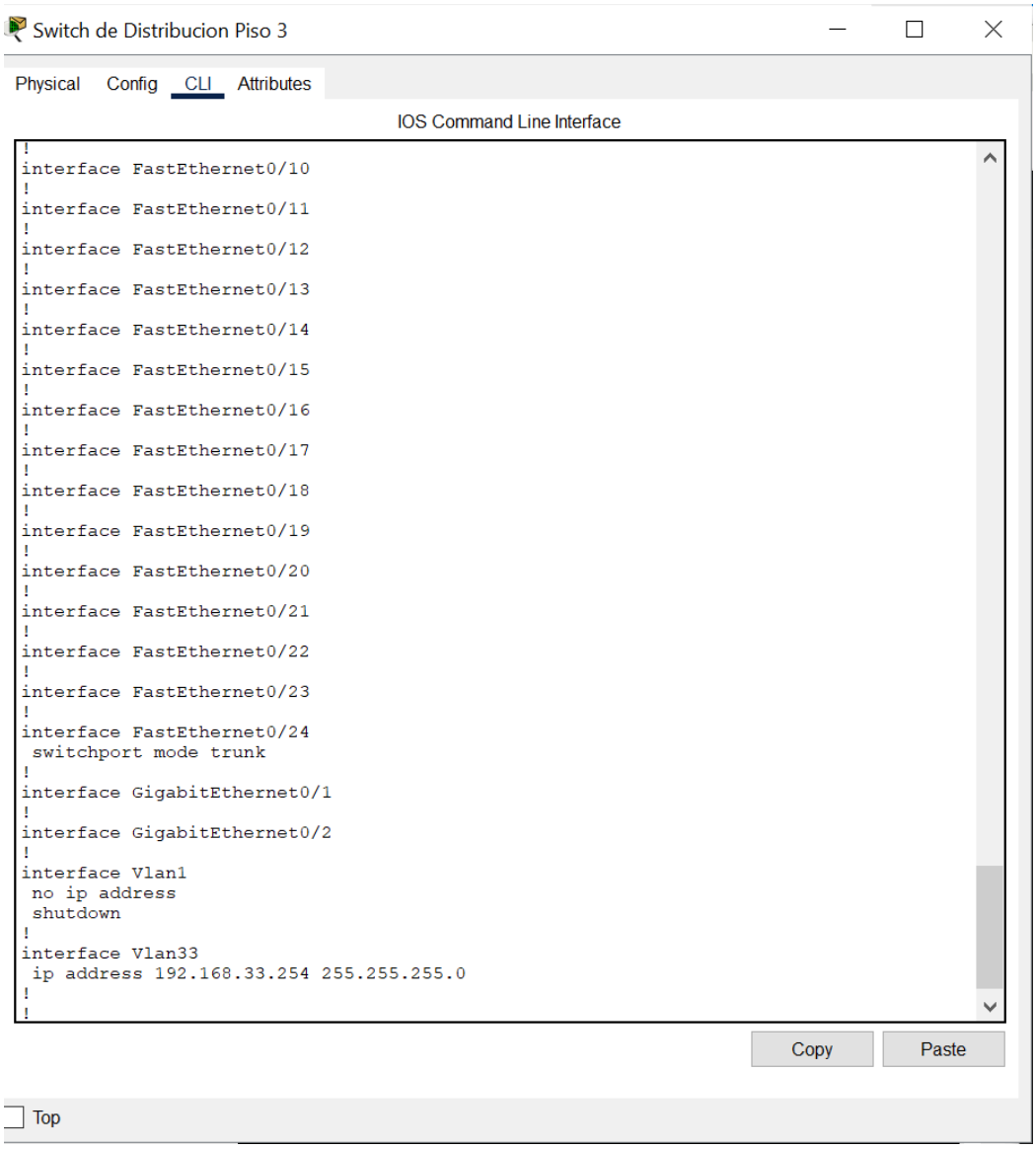


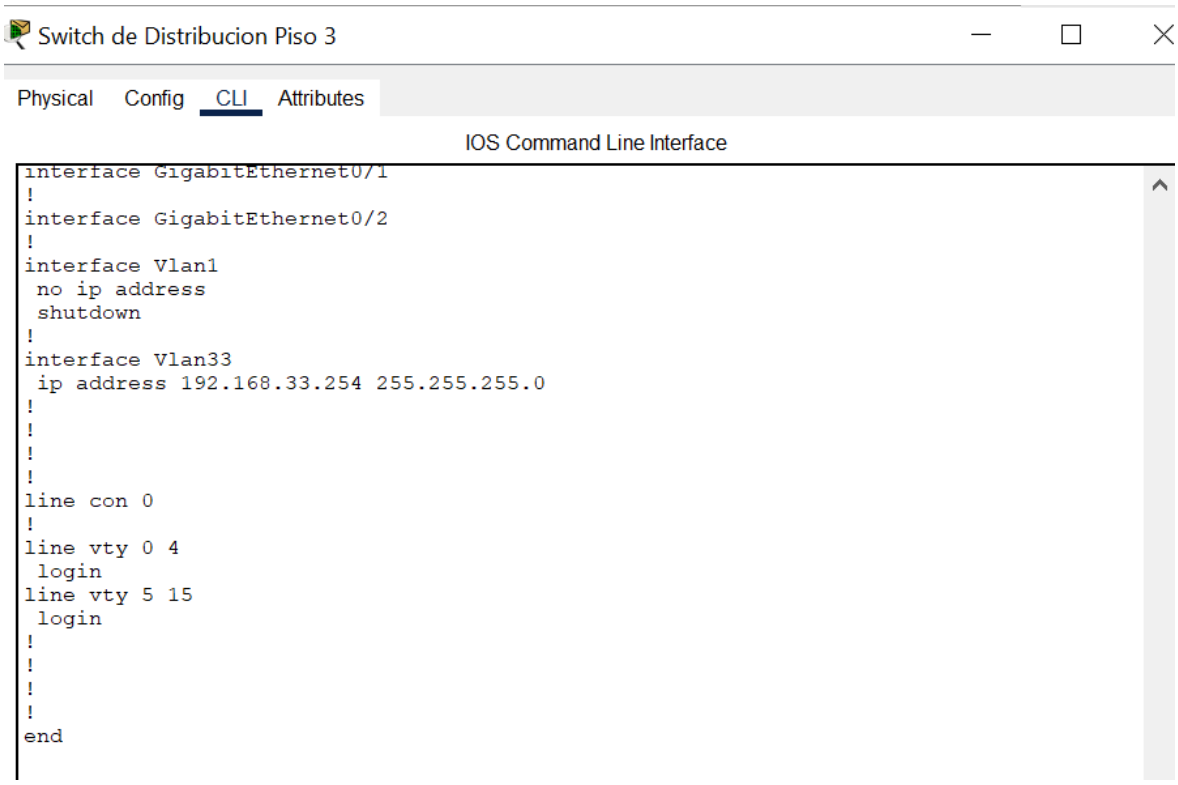
## Tabla de direccionamiento Demás Dispositivos P2

| 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 |

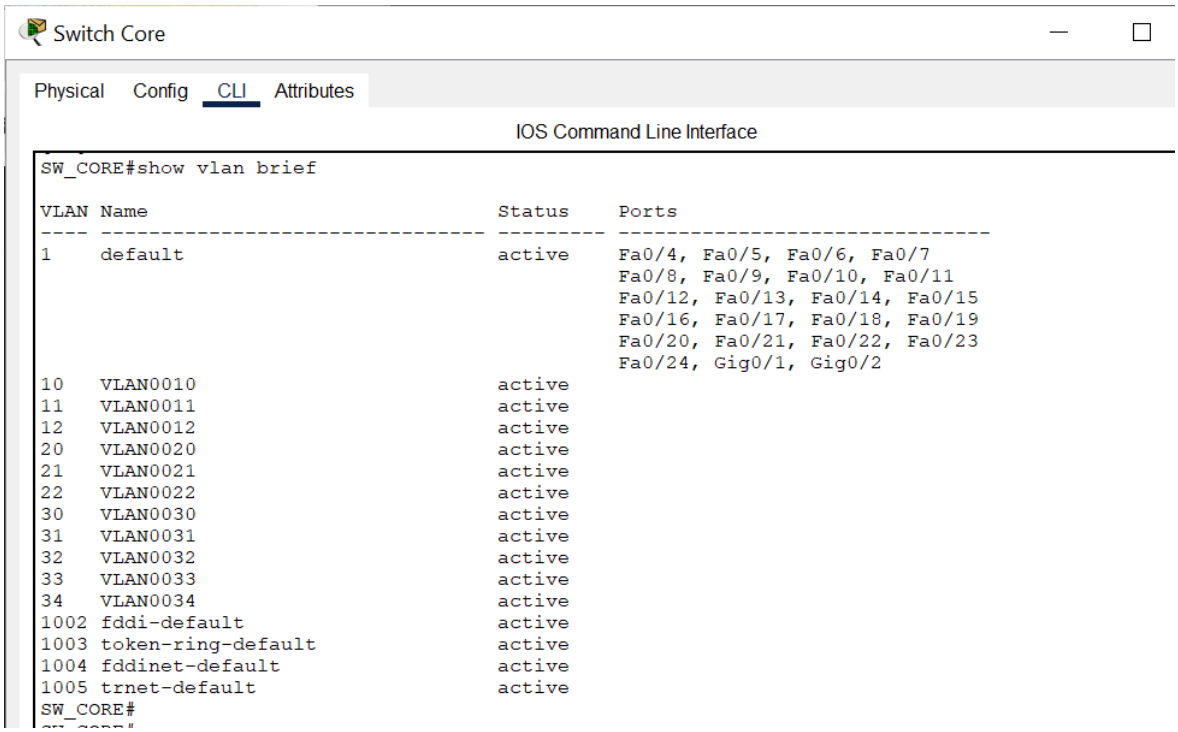
Configuración sw de distribución piso 3 (show)

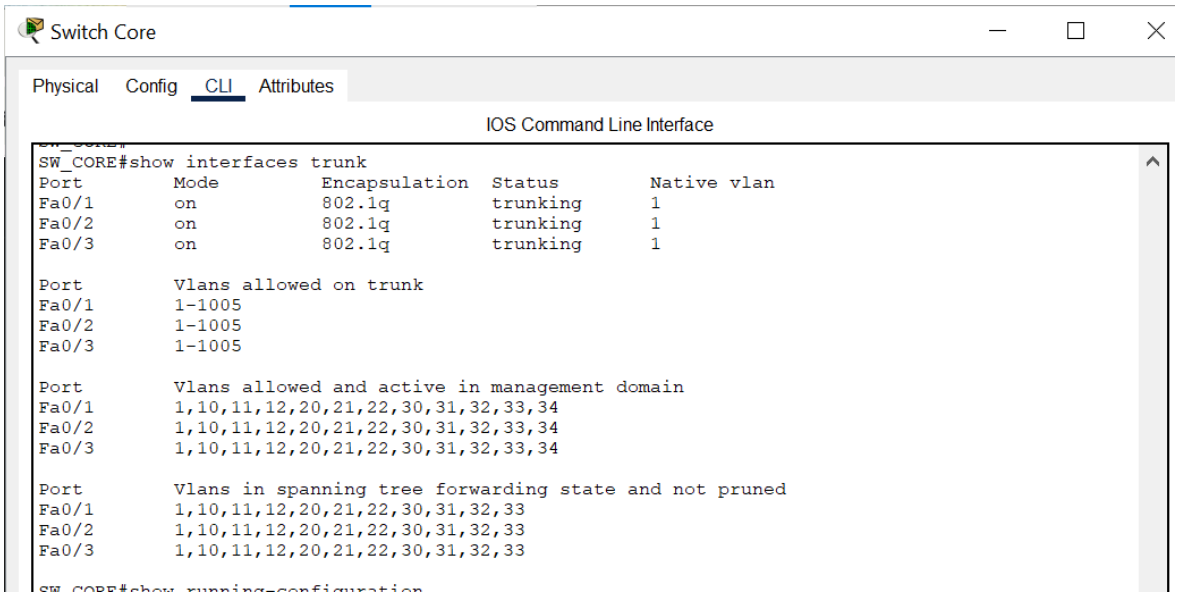



Switch de Distribucion Piso 3
Physical
Config
CLI
Attributes
IOS Command Line Interface
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
 switchport mode trunk
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan33
 ip address 192.168.33.254 255.255.255.0
!
!
Copy
Paste
Top




## Switch Core config






Prueba de conectividad entre pisos

(piso 3 a piso 1)

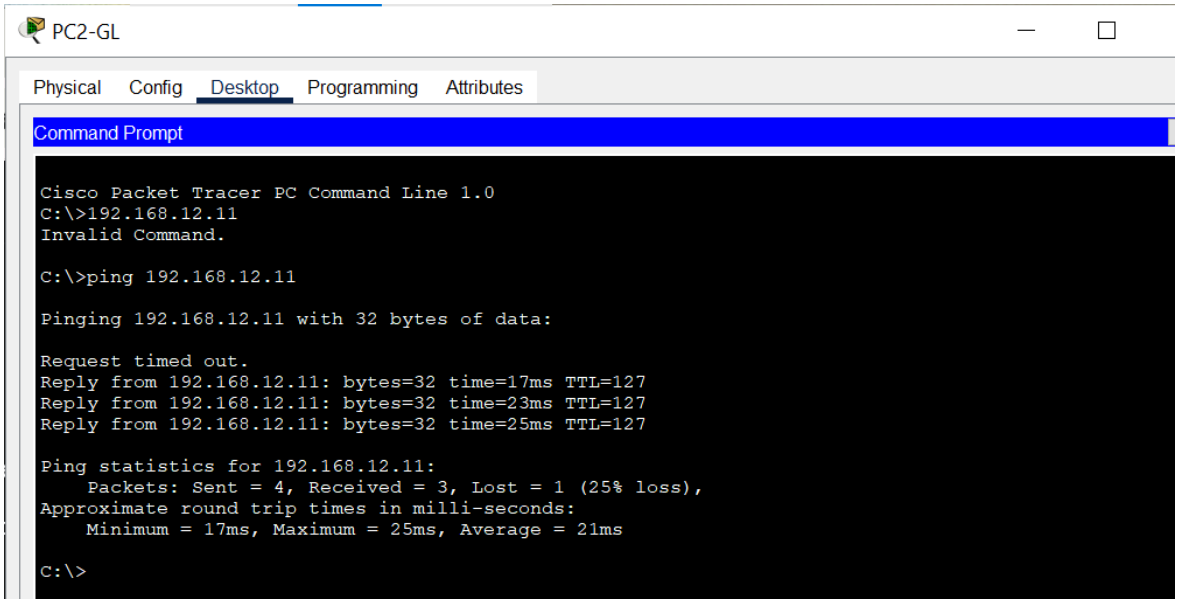
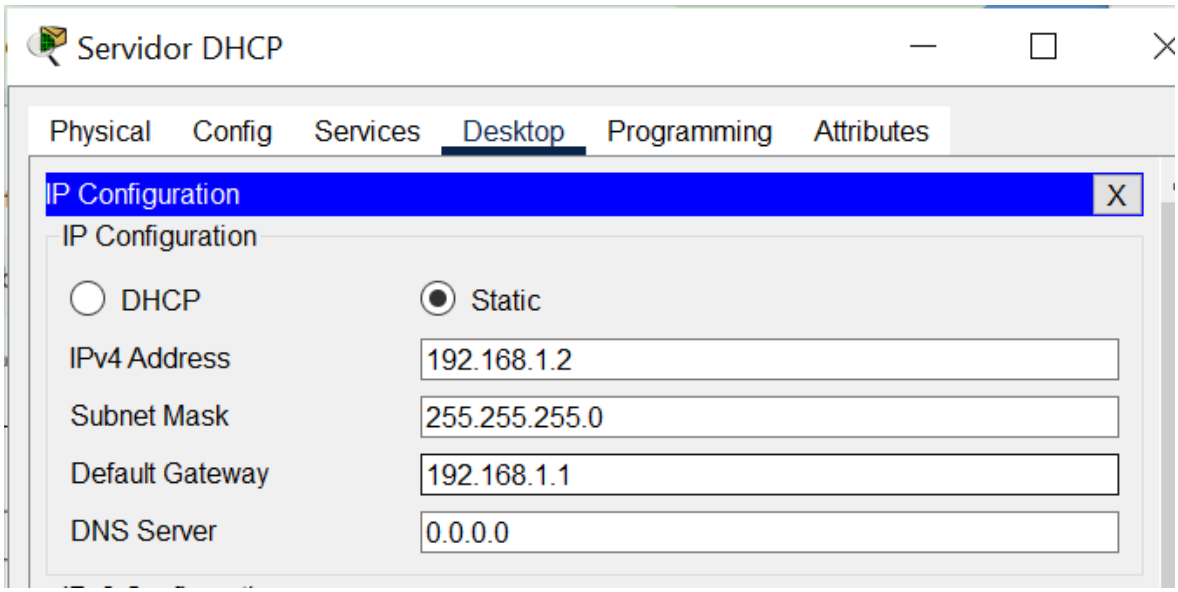


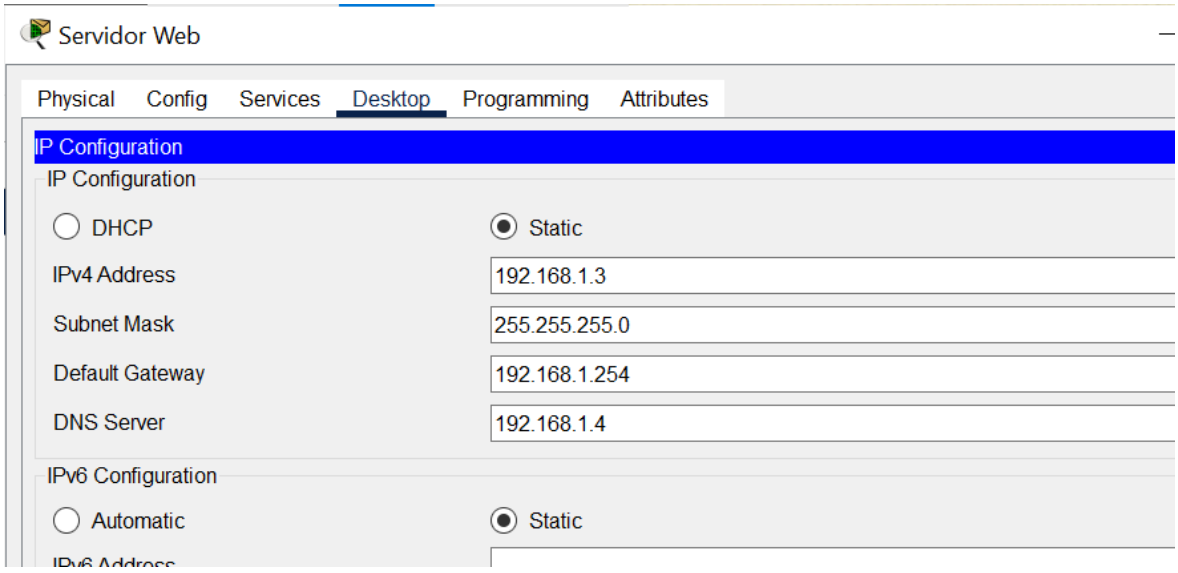
Tabla Servidor

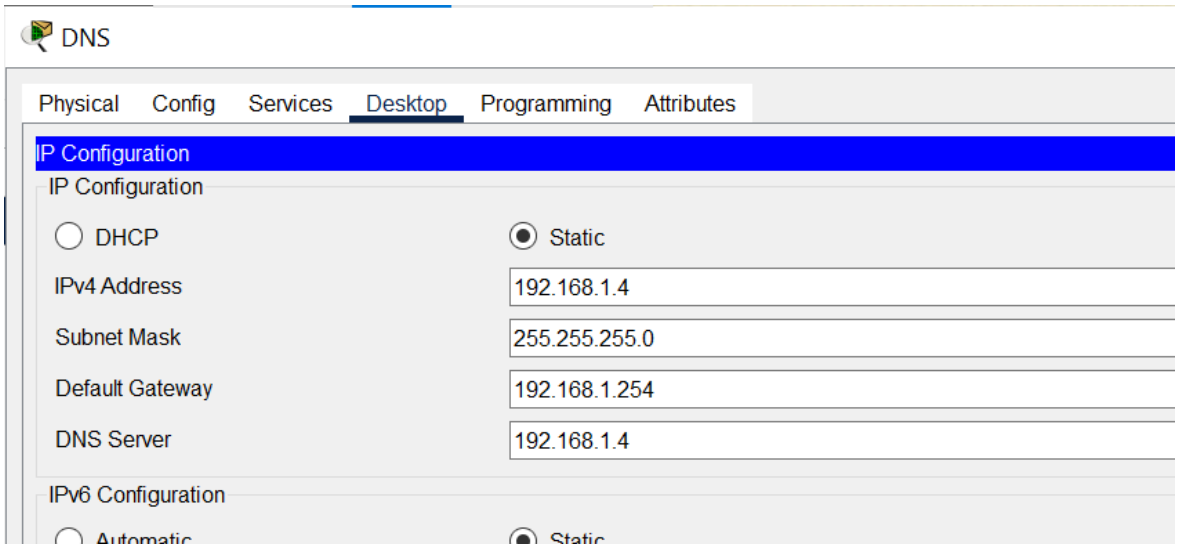
## Tabla de direccionamiento Dispositivos Centrales

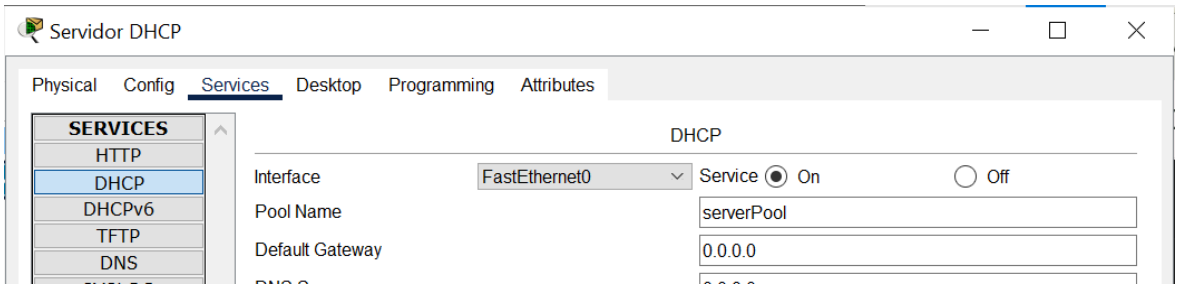
| Dispositivo | Interfaz | IP | Máscara | Gateway |
|---|---|---|---|---|
| Router DDS | Gi0/0 | 192.168.1.254 | 255.255.255.0 | - |
| Router DDS | Gi0/1 | 203.0.113.1 | 255.255.255.252 | - |
| Servidor DHCP | Fa0 | 192.168.1.2 | 255.255.255.0 | 192.168.1.254 |
| Servidor Web | Fa0 | 192.168.1.3 | 255.255.255.0 | 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 |

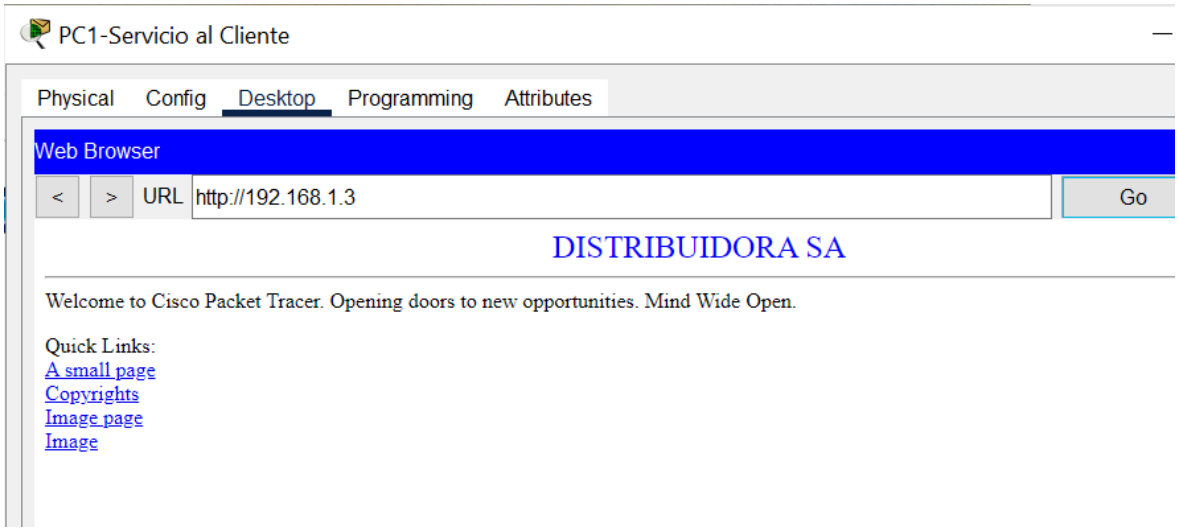

Servidor DHCP
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.1
DNS Server
0.0.0.0

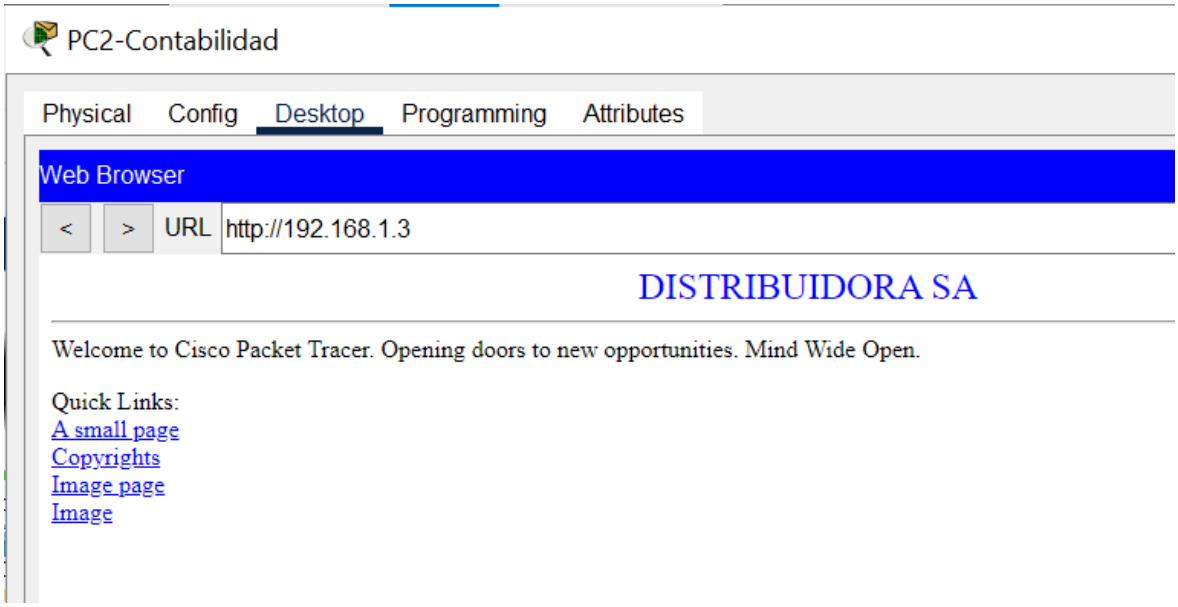

Servidor Web
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.254
DNS Server
192.168.1.4
IPv6 Configuration
Automatic
Static

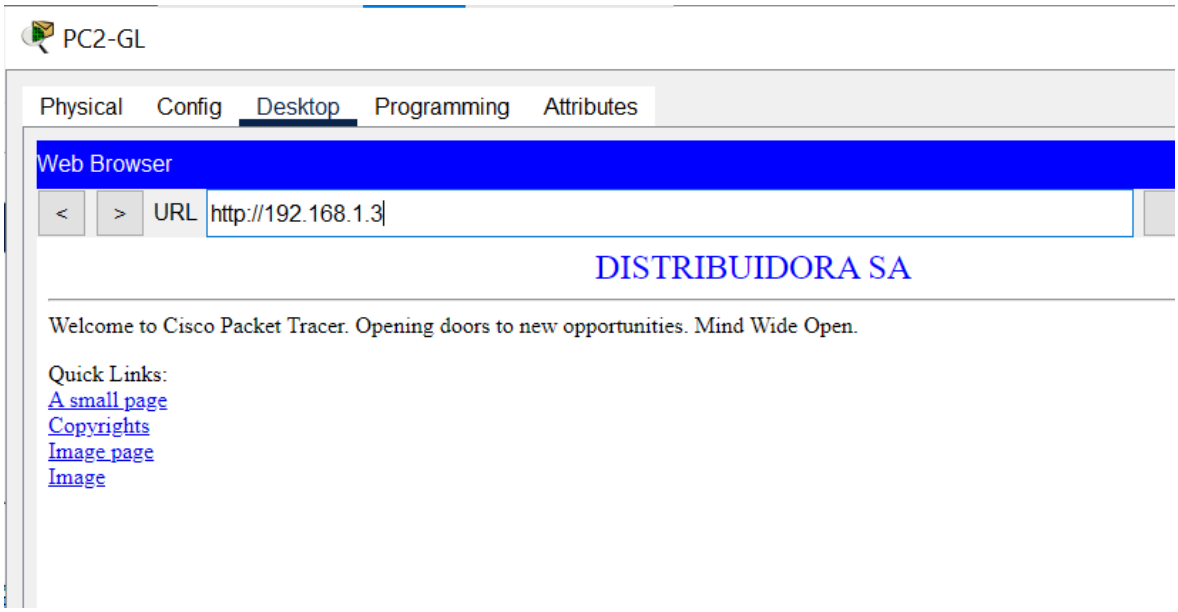

DNS
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.254
DNS Server
192.168.1.4
IPv6 Configuration



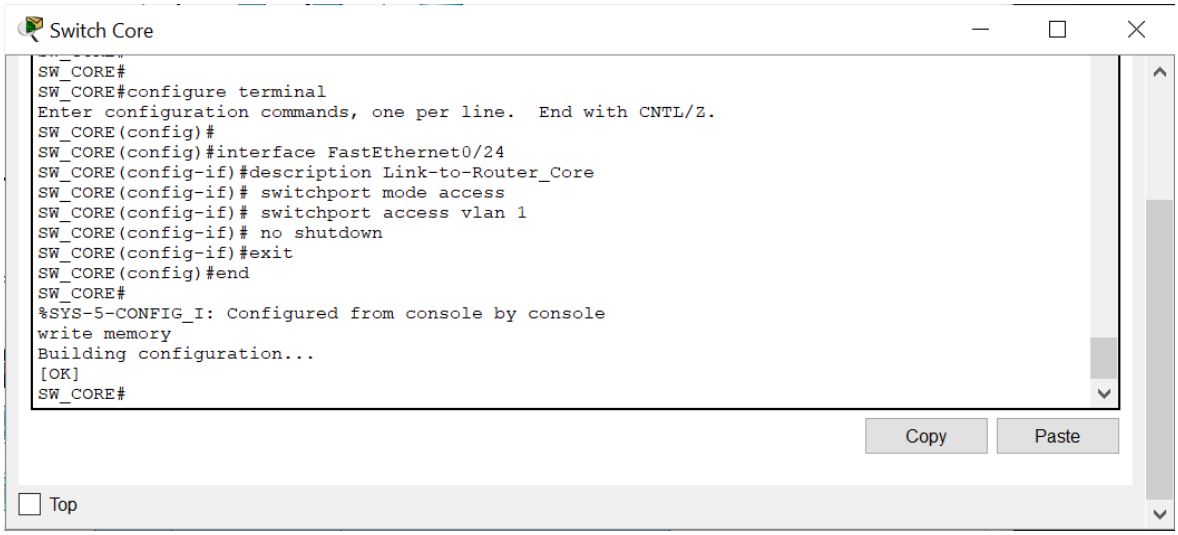

(Se repite el proceso de encendido de los servicios pertinentes para cada servidor)



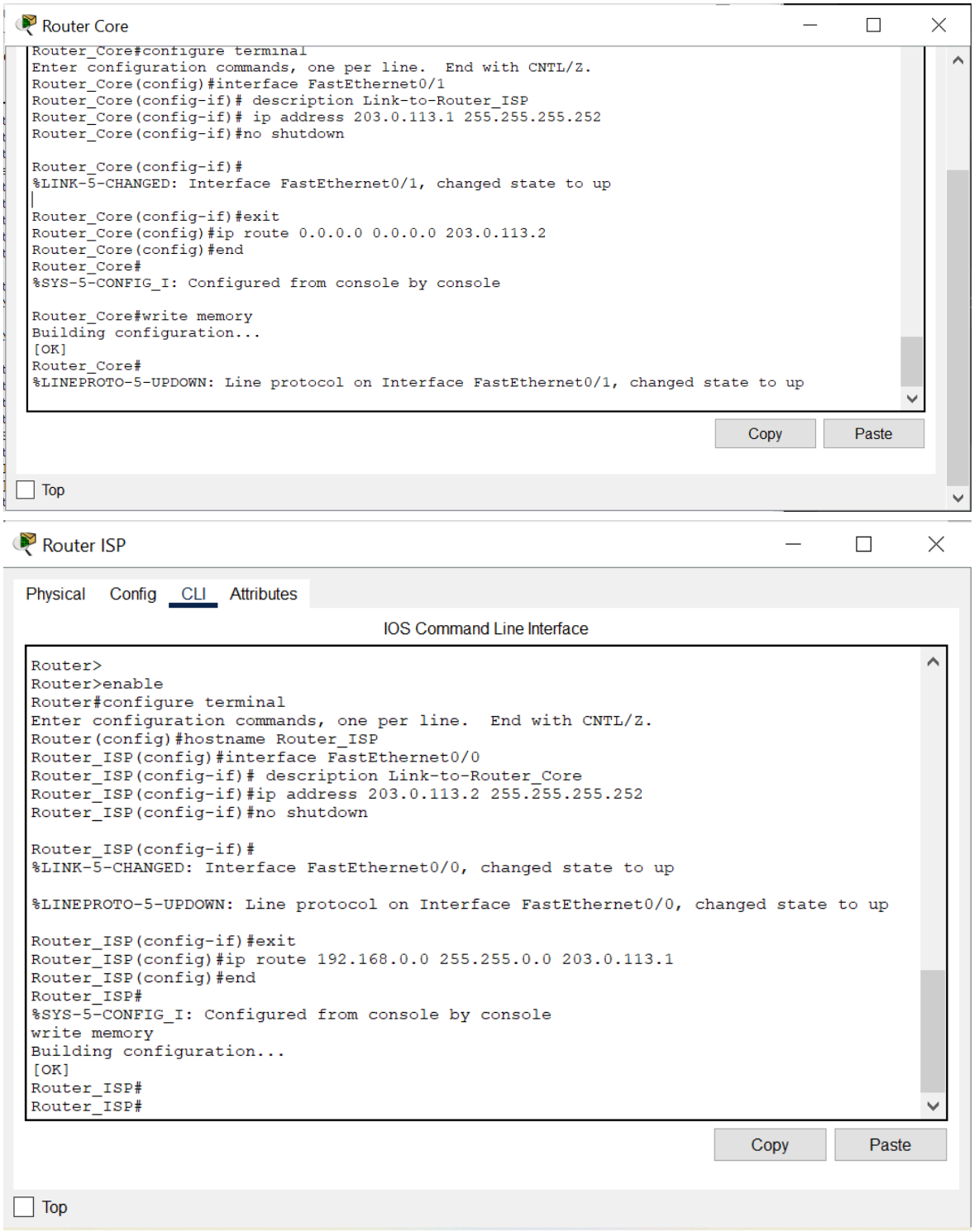






Pruebas exitosas de acceso a las webs desde pcs de los tres pisos.

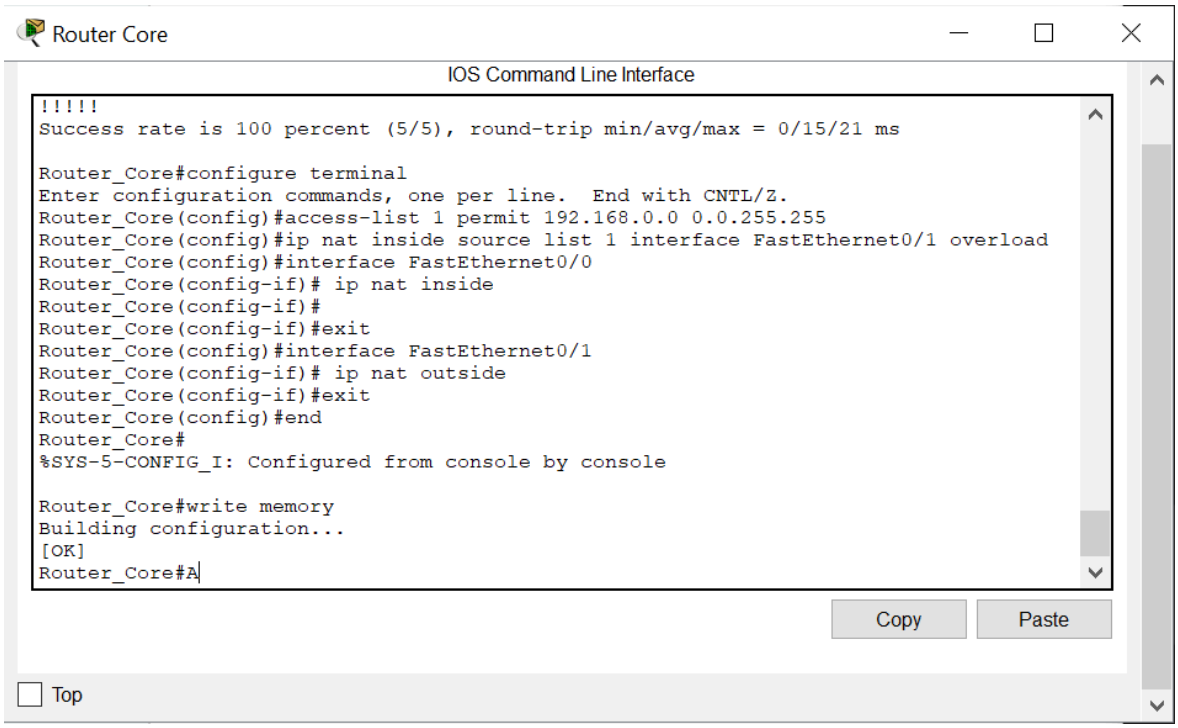



Configuración de los routers en SW_CORE



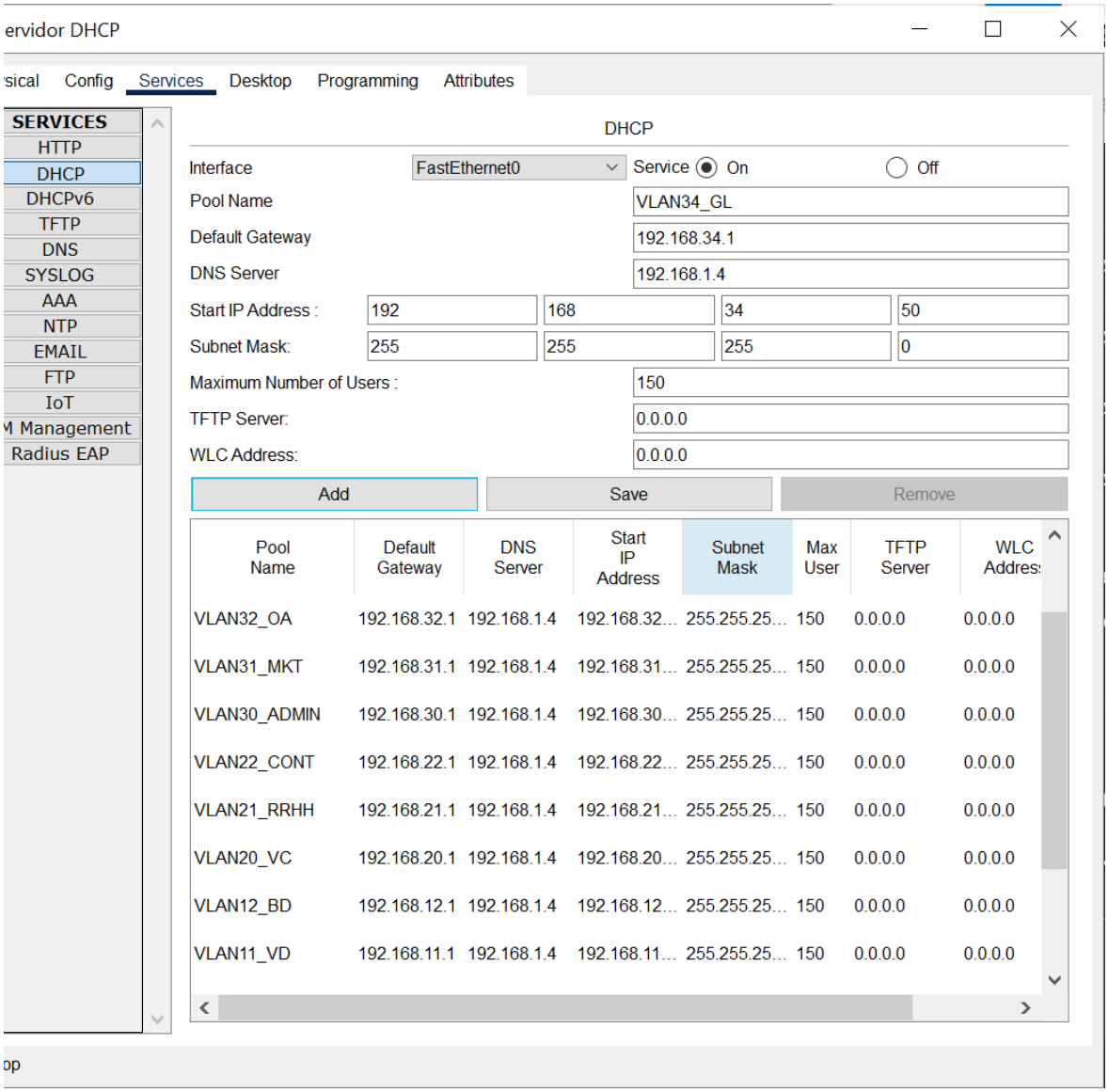

Configuración routers

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:

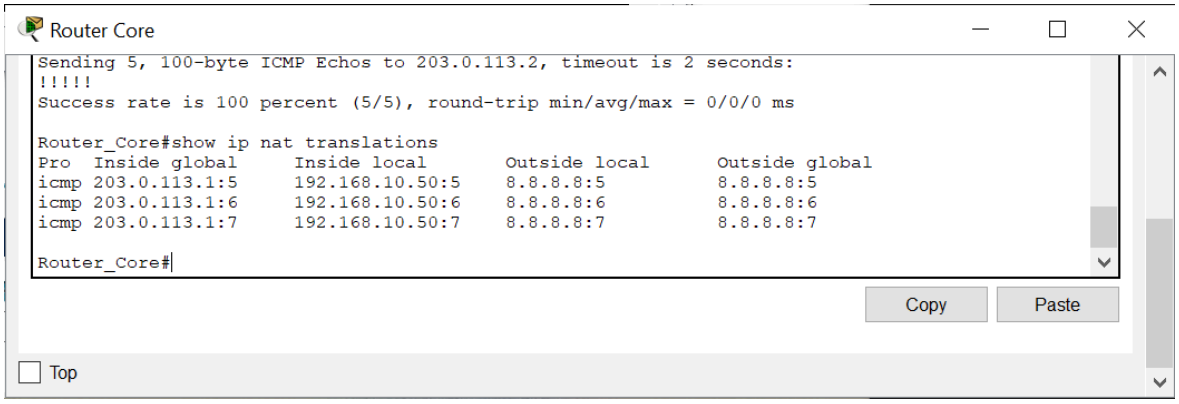



Esto traduce todo tráfico interno saliente a la IP pública del Router-Core (203.0.113.1) usando PAT (Port Address Translation).

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).



Confirmación de que el router core hace nat




**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 | - Servicio al Cliente<br>- Ventas Detalle<br>- Bodega | 3 (1 por área) | 1 | 6 |
| 2 | - Ventas Corporativas<br>- Recursos Humanos<br>- Contabilidad | 3 (1 por área) | 1 | 6 |
| 3 | - Administración<br>- Marketing<br>- Gerencia General<br>- 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_PISO1` (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_PISO1` Fa0/2
    - `SW_ACC_VD` Fa0/2 → `SW_DIST_PISO1` Fa0/3
    - `SW_ACC_BD` Fa0/2 → `SW_DIST_PISO1` 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_PISO2`
- **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_PISO2` Fa0/2
    - `SW_ACC_RRHH` Fa0/2 → `SW_DIST_PISO2` Fa0/3
    - `SW_ACC_CONT` Fa0/2 → `SW_DIST_PISO2` 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_PISO3`
- **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_PISO3 Fa0/2
    - SW_ACC_MARKETING Fa0/2 → SW_DIST_PISO3 Fa0/3
    - SW_ACC_GG Fa0/2 → SW_DIST_PISO3 Fa0/4
    - SW_ACC_GL Fa0/2 → SW_DIST_PISO3 Fa0/5

### 3. Interconexión Vertical (Core y Routers)

| Desde | Hacia | Puerto Origen | Puerto Destino |
|---|---|---|---|
| SW_DIST_PISO1 | SW_CORE | **Fa0/24** | **Fa0/1** |
| SW_DIST_PISO2 | SW_CORE | **Fa0/24** | **Fa0/2** |
| SW_DIST_PISO3 | 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 |

Configuracion de linea 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#Adm1n@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 | c1scoAdm!n |
| Router Core(2811) | VTY 0 - 15 | si | c1scoAdm!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) | Piso1En@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

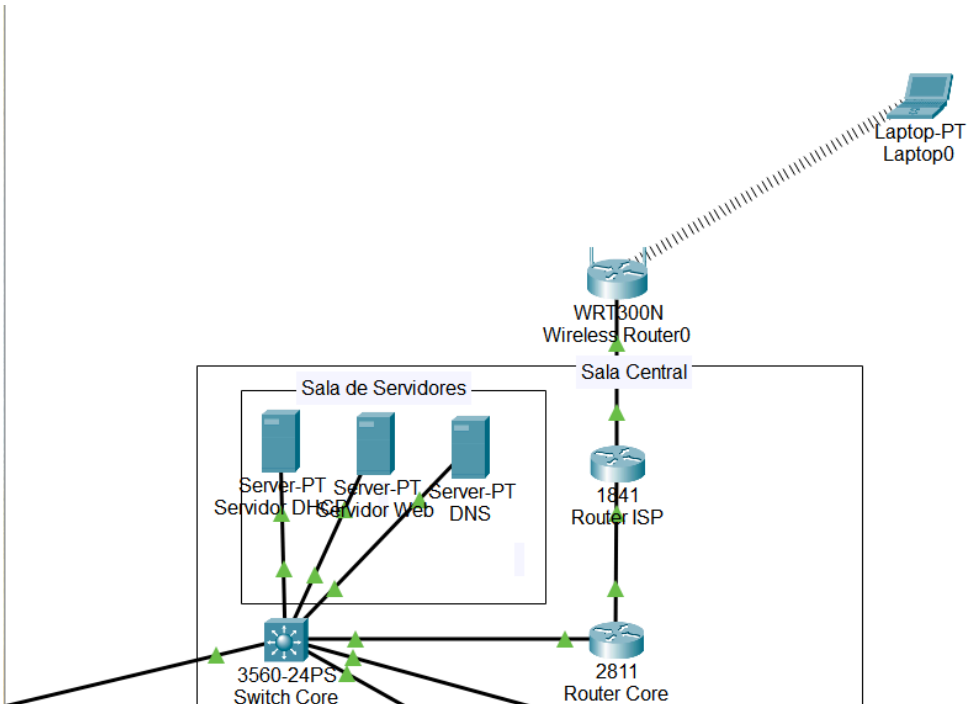
- Para simular el acceso a Internet, se añadió un router ISP (modelo 1841) conectado a un router inalámbrico WRT300N, que representa la red externa o "la nube".

- 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_c0ns013#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#Admln@91
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 domanin-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_PISO1>enable
SW_DIST_PISO1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SW_DIST_PISO1(config)#no ip domain-lookup
SW_DIST_PISO1(config)#line console 0
SW_DIST_PISO1(config-line)#password DistP1_2960
SW_DIST_PISO1(config-line)#login
SW_DIST_PISO1(config-line)#exit
SW_DIST_PISO1(config)# enable secret Piso1En@ble
SW_DIST_PISO1(config)#line vty 0 15
SW_DIST_PISO1(config-line)#password P1s0
SW_DIST_PISO1(config-line)#login
SW_DIST_PISO1(config-line)#exit
SW_DIST_PISO1(config)#end
SW_DIST_PISO1#
%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
```