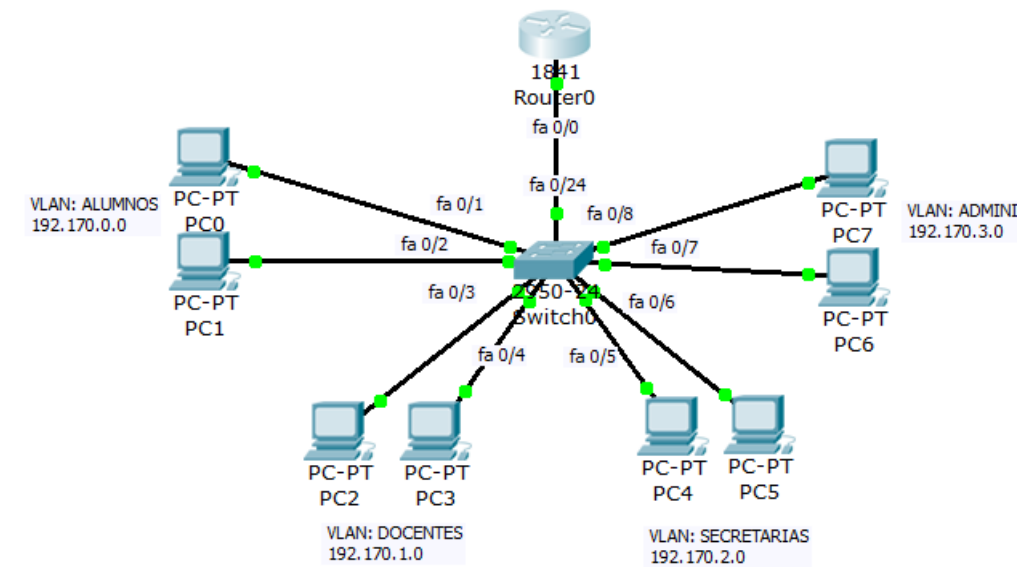


# UD6.Práctica 1. VLANs

## **Ejercicio 1**

Implementa el esquema de la red utilizando el Packet Tracer para construir una red como la indicada



a) Asigna un número para cada una de las VLANs (recuerda que la 1 se usa por defecto y no puede ser asignada) y asigna un nombre a cada una de las VLAN que tienes que crear:

- ALUMNOS: VLAN 5
- DOCENTES: VLAN 6
- SECRETARIAS: VLAN 7
- ADMINISTRATIVOS: VLAN 8

Switch0

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 5
Switch(config-vlan)#name ALUMNOS
Switch(config-vlan)#ex
Switch(config)#vlan 6
Switch(config-vlan)#name DOCENTES
Switch(config-vlan)#ex
Switch(config)#vlan 7
Switch(config-vlan)#name SECRETARIAS
Switch(config-vlan)#ex
Switch(config)#vlan 8
Switch(config-vlan)#name ADMINISTRATIVOS
Switch(config-vlan)#ex
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr
Building configuration...
[OK]
Switch#
```

Copy

Paste

☐ Top

Switch0

Physical
Config
CLI
Attributes

IOS Command Line Interface

```

Switch>en
Switch#show vlan

```

VLAN	Name	Status	Ports
1	default	active	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
5	ALUMNOS	active	
6	DOCENTES	active	
7	SECRETARIAS	active	
8	ADMINISTRATIVOS	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
5	enet	100005	1500	-	-	-	-	-	0	0
6	enet	100006	1500	-	-	-	-	-	0	0
7	enet	100007	1500	-	-	-	-	-	0	0

```

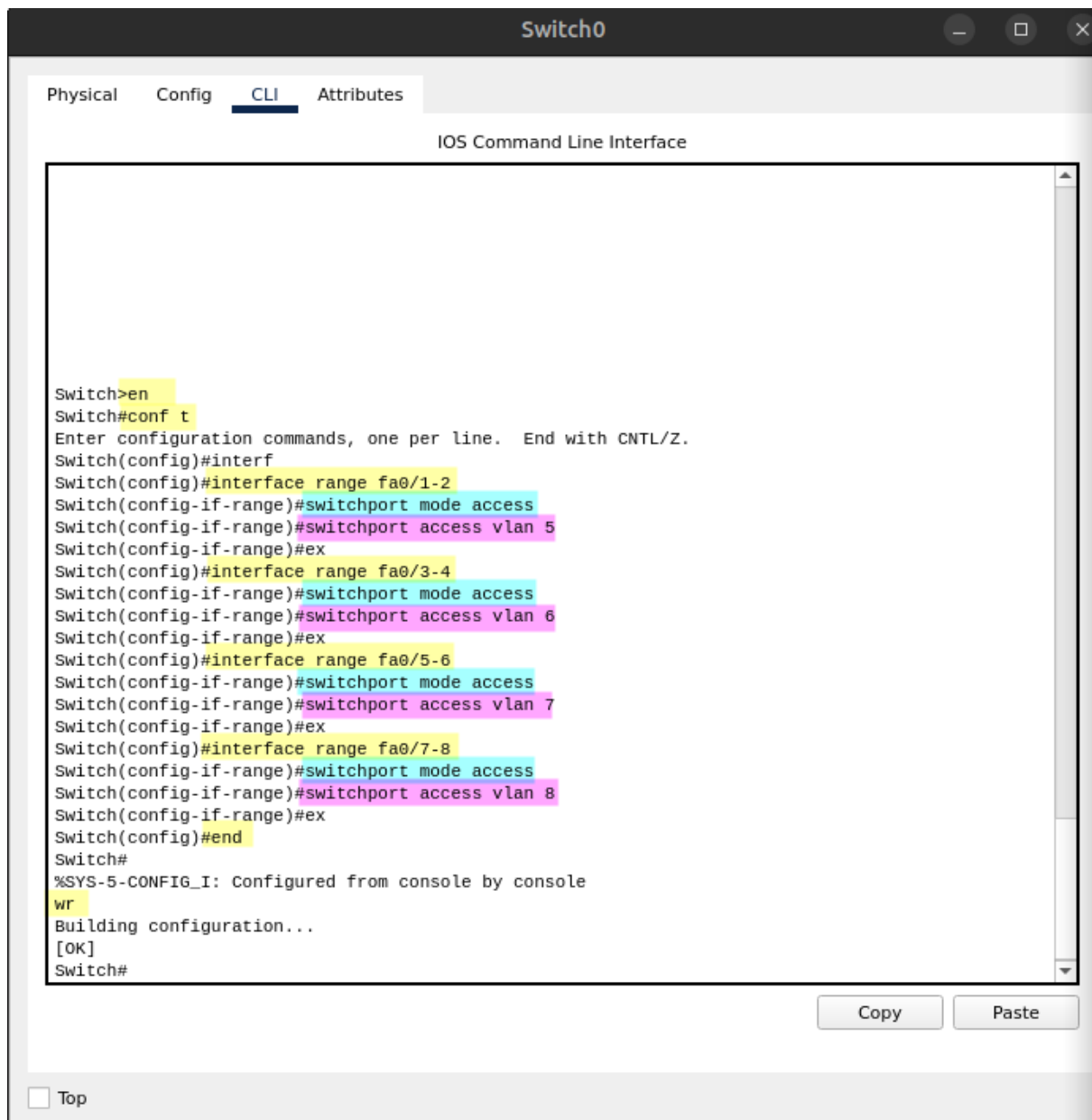
--More--

```

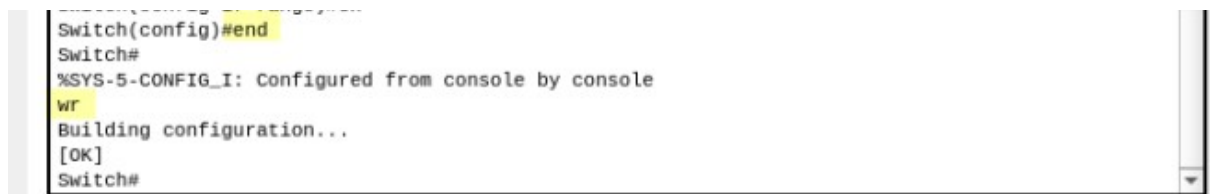
Copy
Paste

☐ Top

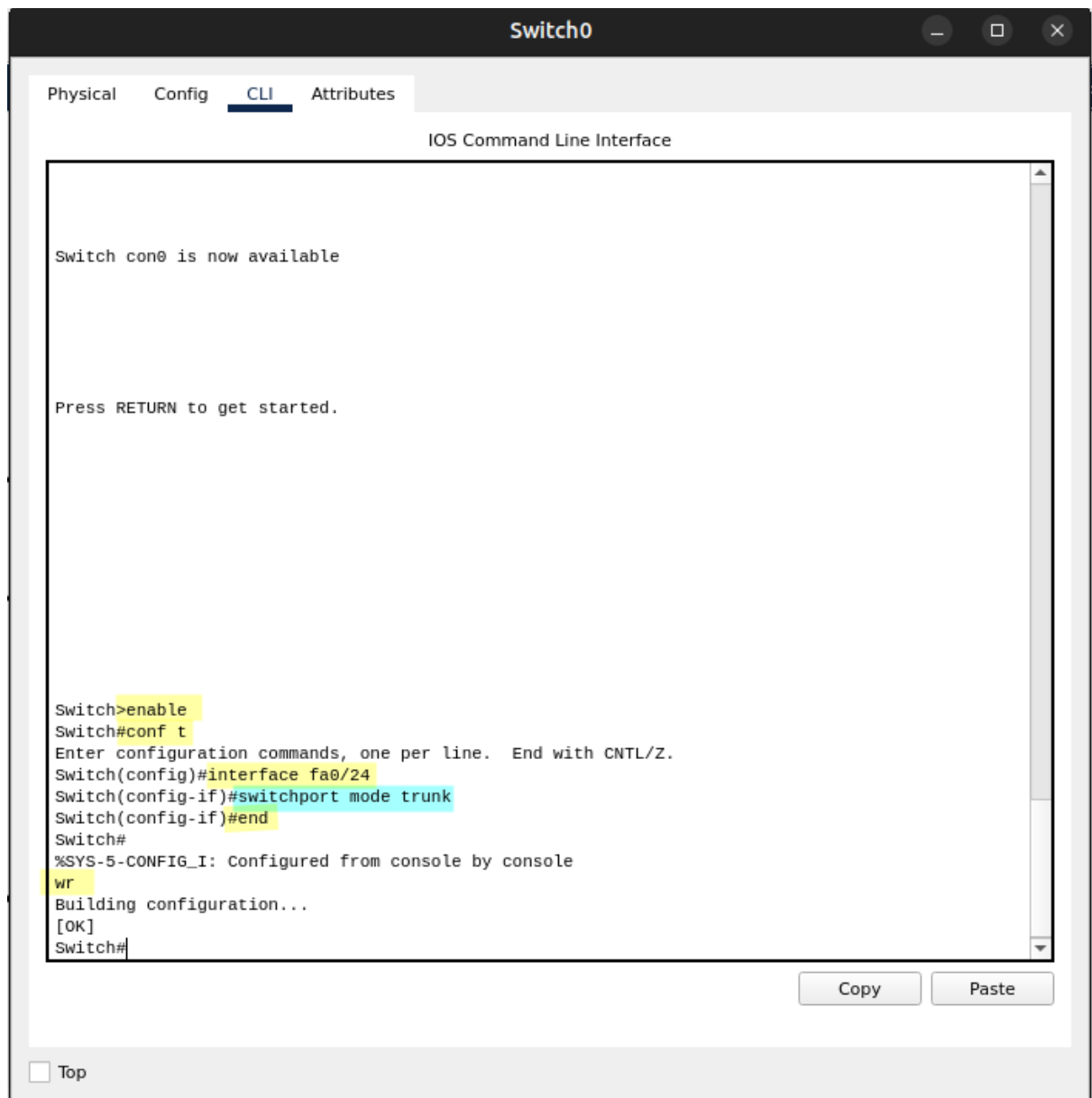
- b) Asignar el rango de puertos que se van a usar en cada VLAN según lo pintado en el diagrama



c) Guarda la configuración

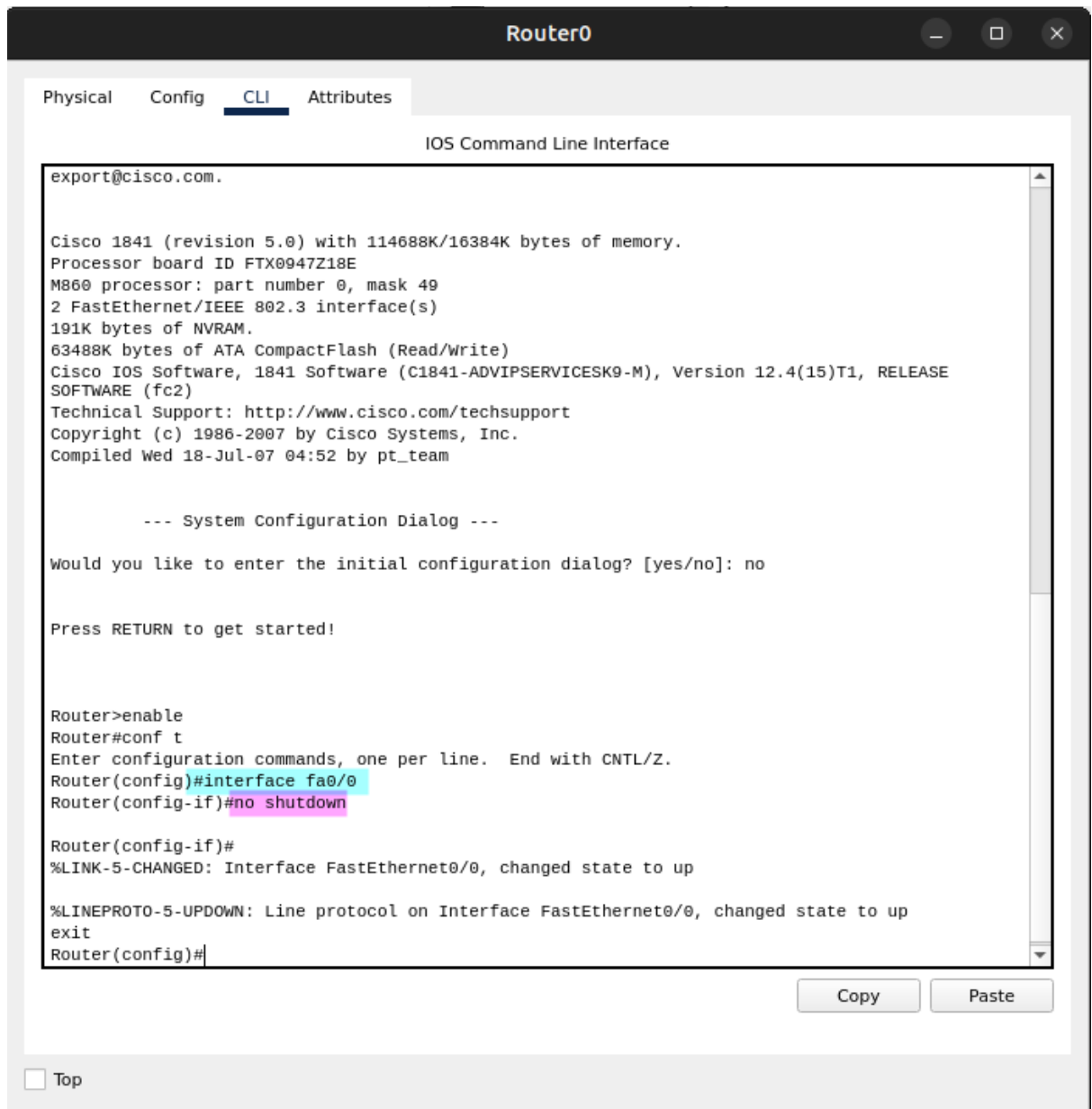


d) Configura el puerto troncal del switch y guárdalo también en la configuración

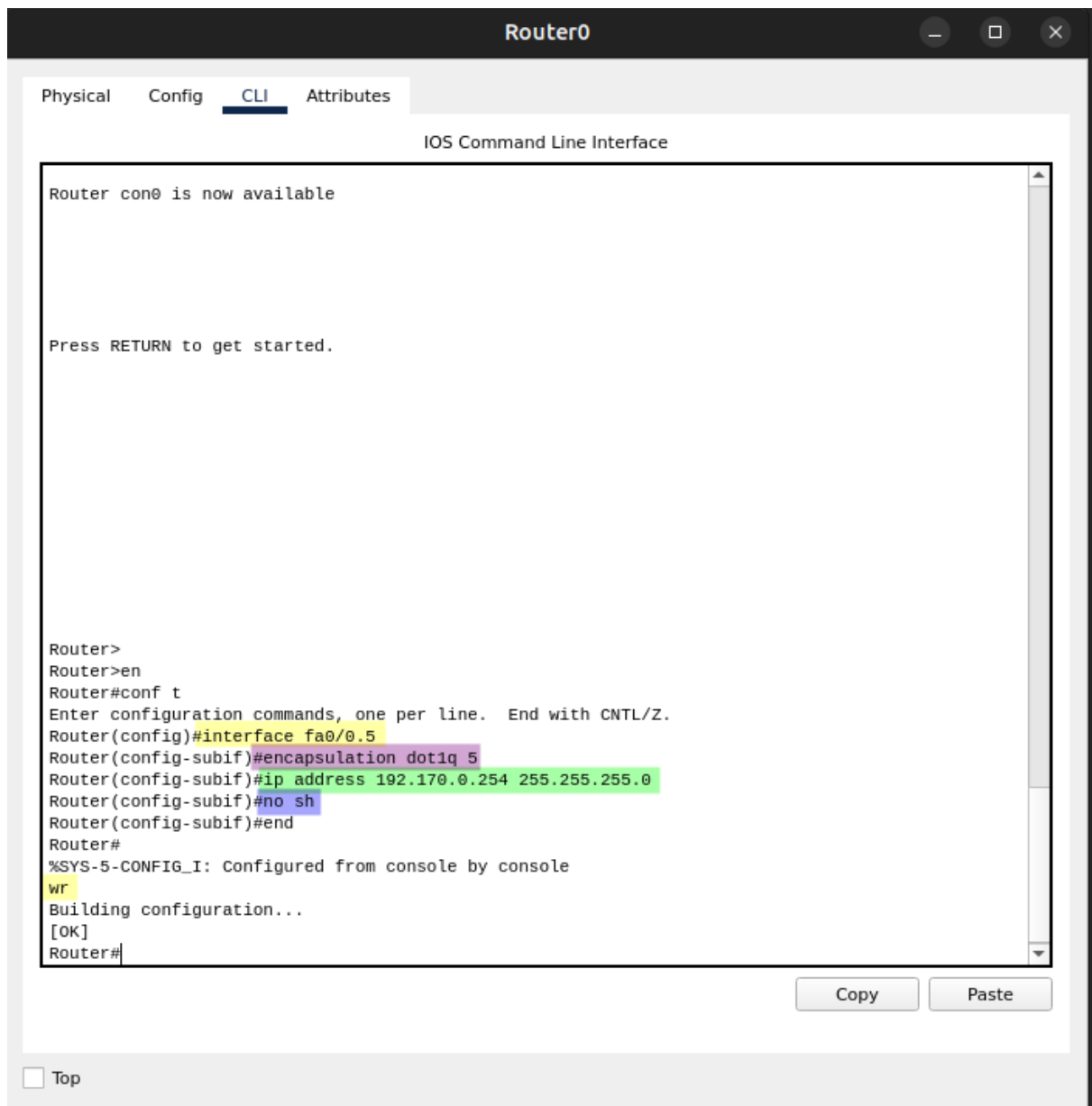


e) Configura el Router de forma adecuada y guárdalo también en la configuración

Primero se enciende la interfaz:



Y ahora se configuran las vlan:



```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0.6
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.6, changed state to up
Router(config-subif)#encapsulation dot1q 6
Router(config-subif)#ip address 192.170.1.254 255.255.255.0
Router(config-subif)#no sh
Router(config-subif)#ex
Router(config)#interface fa0/0.7
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.7, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.7, changed state to up
Router(config-subif)#encapsulation dot1q 7
Router(config-subif)#ip address 192.170.2.254 255.255.255.0
Router(config-subif)#no sh
Router(config-subif)#ex
Router(config)#interface fa0/0.8
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.8, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.8, changed state to up
Router(config-subif)#encapsulation dot1q 8
Router(config-subif)#ip address 192.170.3.254 255.255.255.0
Router(config-subif)#no sh
Router(config-subif)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
wr
Building configuration...
[OK]
Router#
```

Copy Paste

☐ Top

- f) Asignar correctamente las IPs a cada uno de los ordenadores de la red (asigna en Gateway la IP asignada a cada router)



PC0

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

DHCP

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

Static

192.170.0.1

255.255.255.0

192.170.0.254

0.0.0.0

IPv6 Configuration

Automatic

IPv6 Address

Link Local Address

FE80::201:96FF:FE51:472C

Default Gateway

DNS Server

Static

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

Top

Página 9 | 25



PC2

PhysicalConfigDesktopProgrammingAttributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address192.170.1.1

Subnet Mask255.255.255.0

Default Gateway192.170.1.254

DNS Server0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local AddressFE80::290:CFF:FE15:6A31

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

AuthenticationMD5

Username

Password

☐ Top

Página 11 | 25

PC3

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 192.170.1.2

Subnet Mask 255.255.255.0

Default Gateway 192.170.1.254

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address /

Link Local Address FE80::210:11FF:FE79:DA84

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC4

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☐ DHCP

IPv4 Address

192.170.2.1

Subnet Mask

255.255.255.0

Default Gateway

192.170.2.254

DNS Server

0.0.0.0

☒ Static

IPv6 Configuration

☐ Automatic

IPv6 Address

 /

Link Local Address

FE80::260:3EFF:FE02:4CAB

Default Gateway

DNS Server

☒ Static

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

☐ Top

PC5

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☐ DHCP

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

☒ Static

192.170.2.2

255.255.255.0

192.170.2.254

0.0.0.0

IPv6 Configuration

☐ Automatic

IPv6 Address

Link Local Address

Default Gateway

DNS Server

☒ Static

/

FE80::201:C7FF:FE37:238D

802.1X

☐ Use 802.1X Security

Authentication

Username

Password

MD5

☐ Top

PC6

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☐ DHCP

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

☒ Static

192.170.3.1

255.255.255.0

192.170.3.254

0.0.0.0

IPv6 Configuration

☐ Automatic

IPv6 Address

Link Local Address

Default Gateway

DNS Server

☒ Static

/

FE80::201:97FF:FE54:E044

802.1X

☐ Use 802.1X Security

Authentication

Username

Password

MD5

☐ Top

PC7

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.170.3.2

Subnet Mask 255.255.255.0

Default Gateway 192.170.3.254

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20A:41FF:FE2B:A414

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

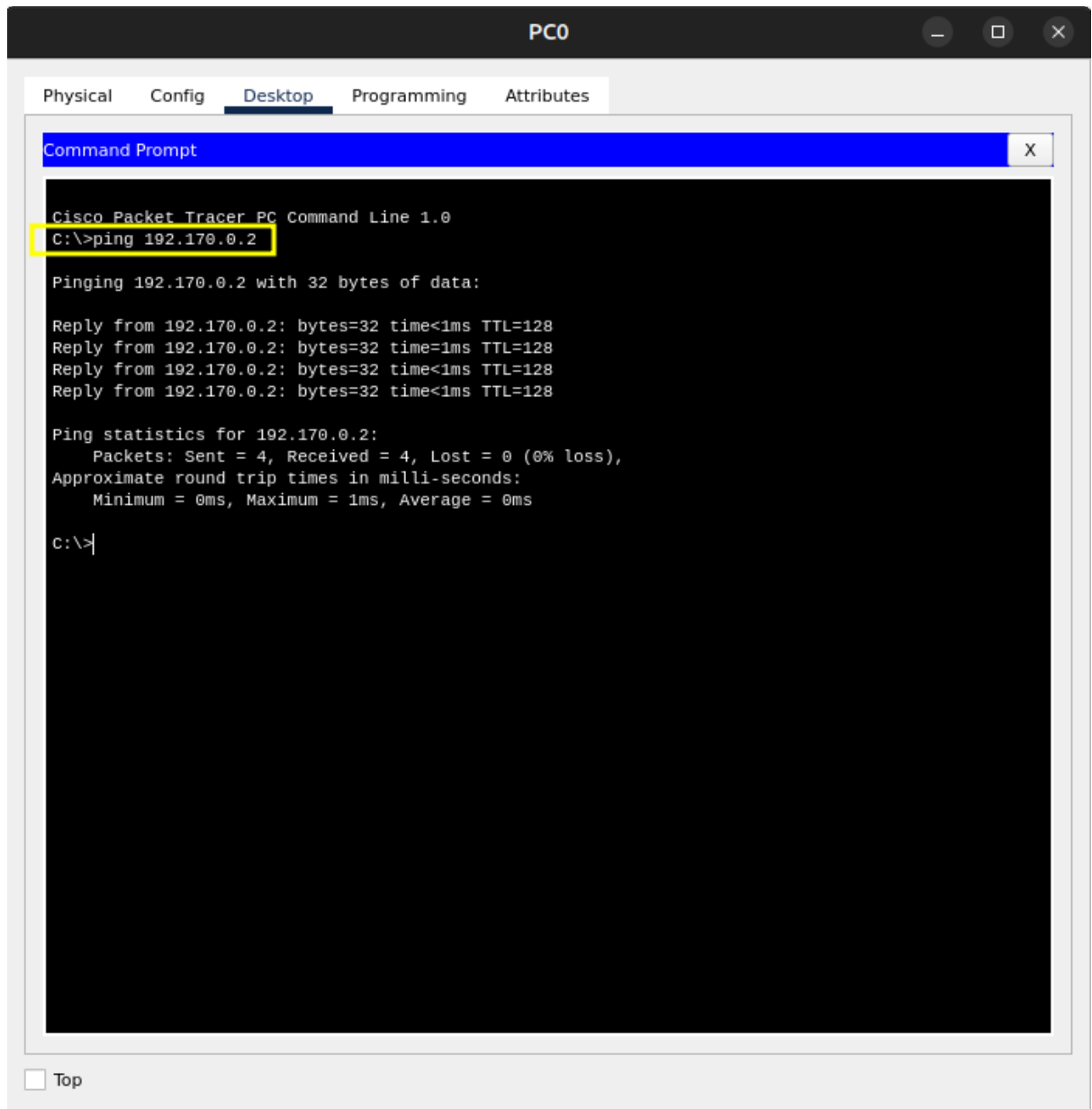
Password

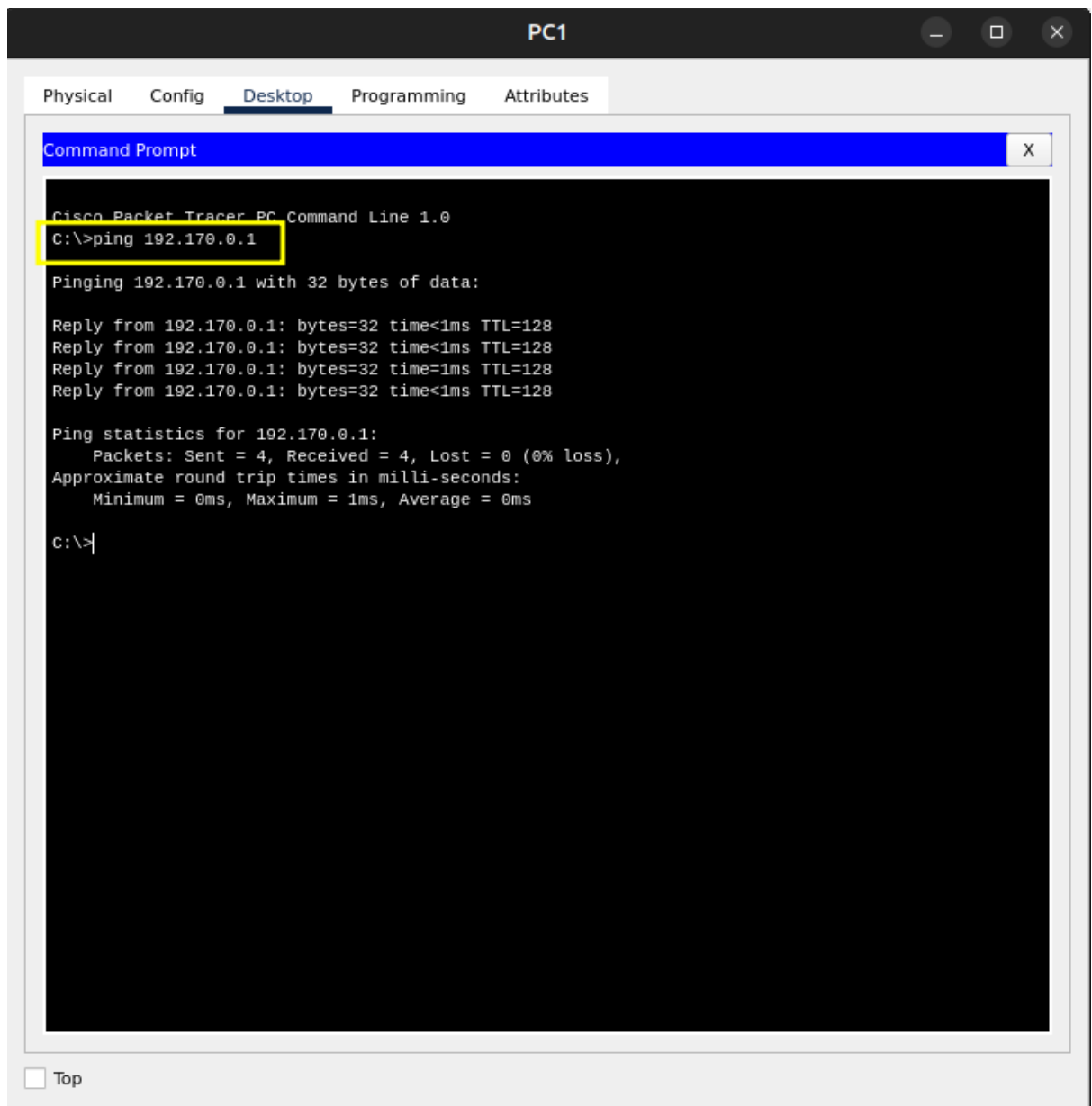
☐ Top

- g) Prueba a comunicar los PCs entre cada una de las VLANs para asegurarte que todo ha funcionado correctamente

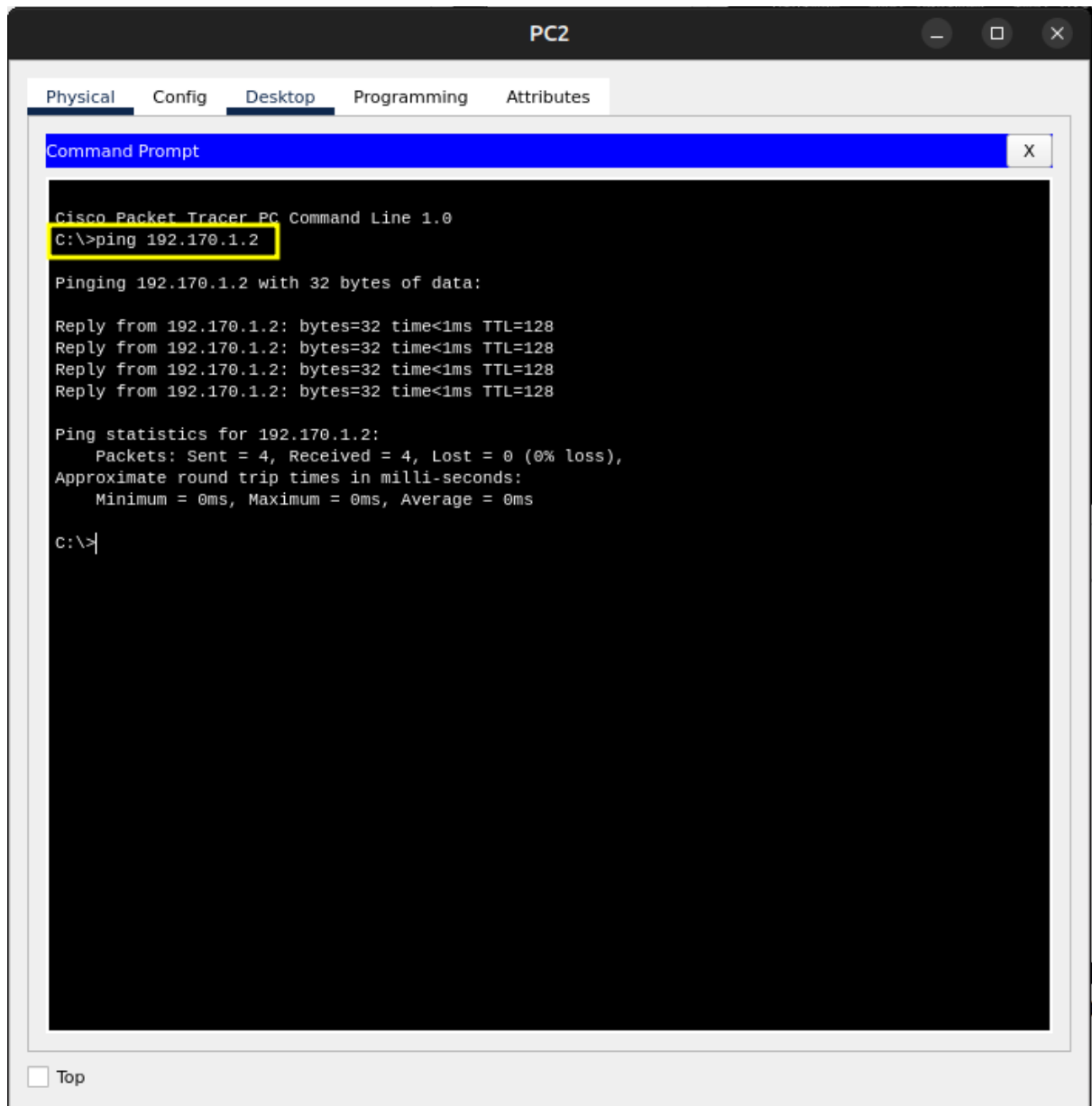
### VLAN 5:

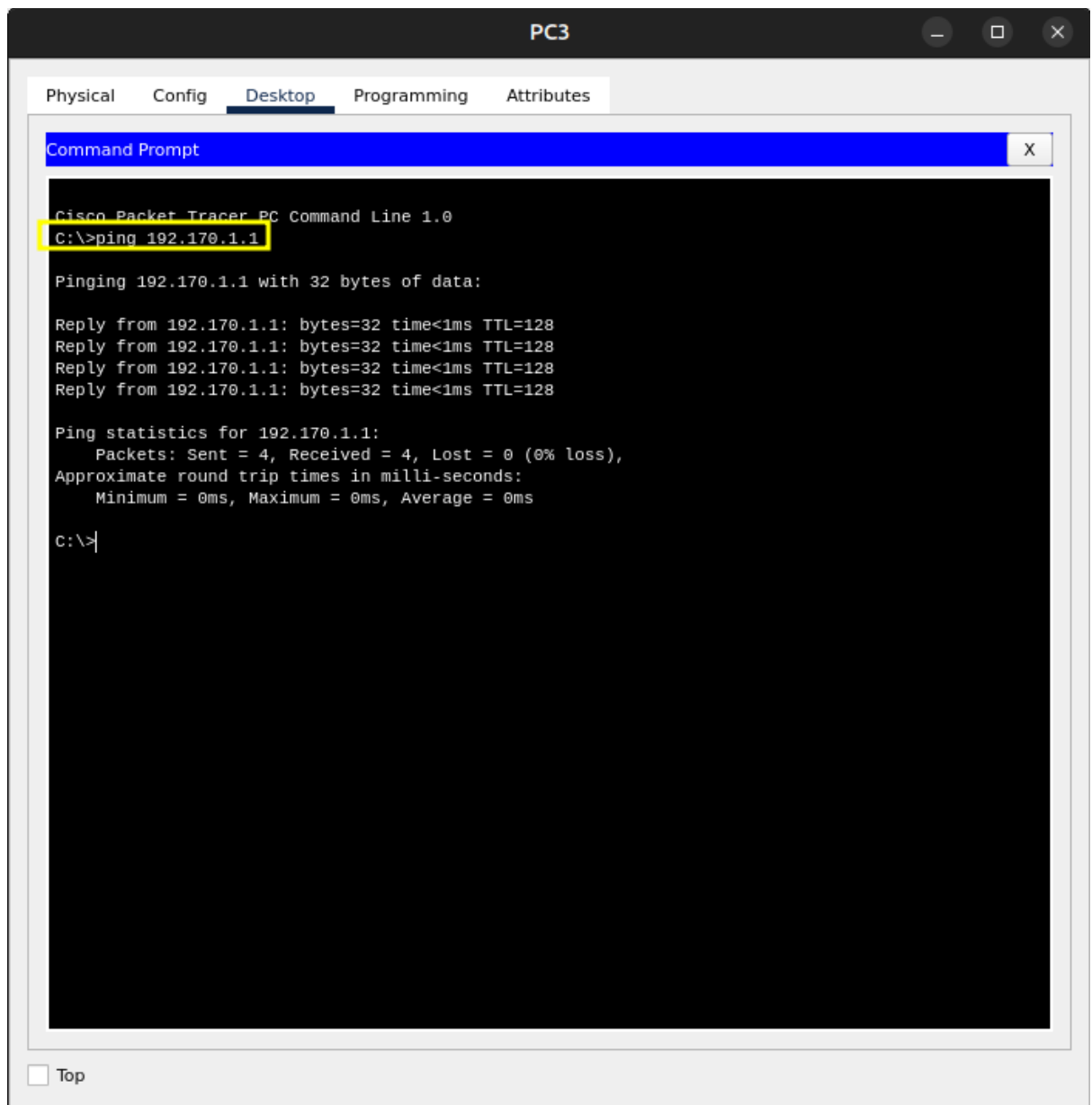




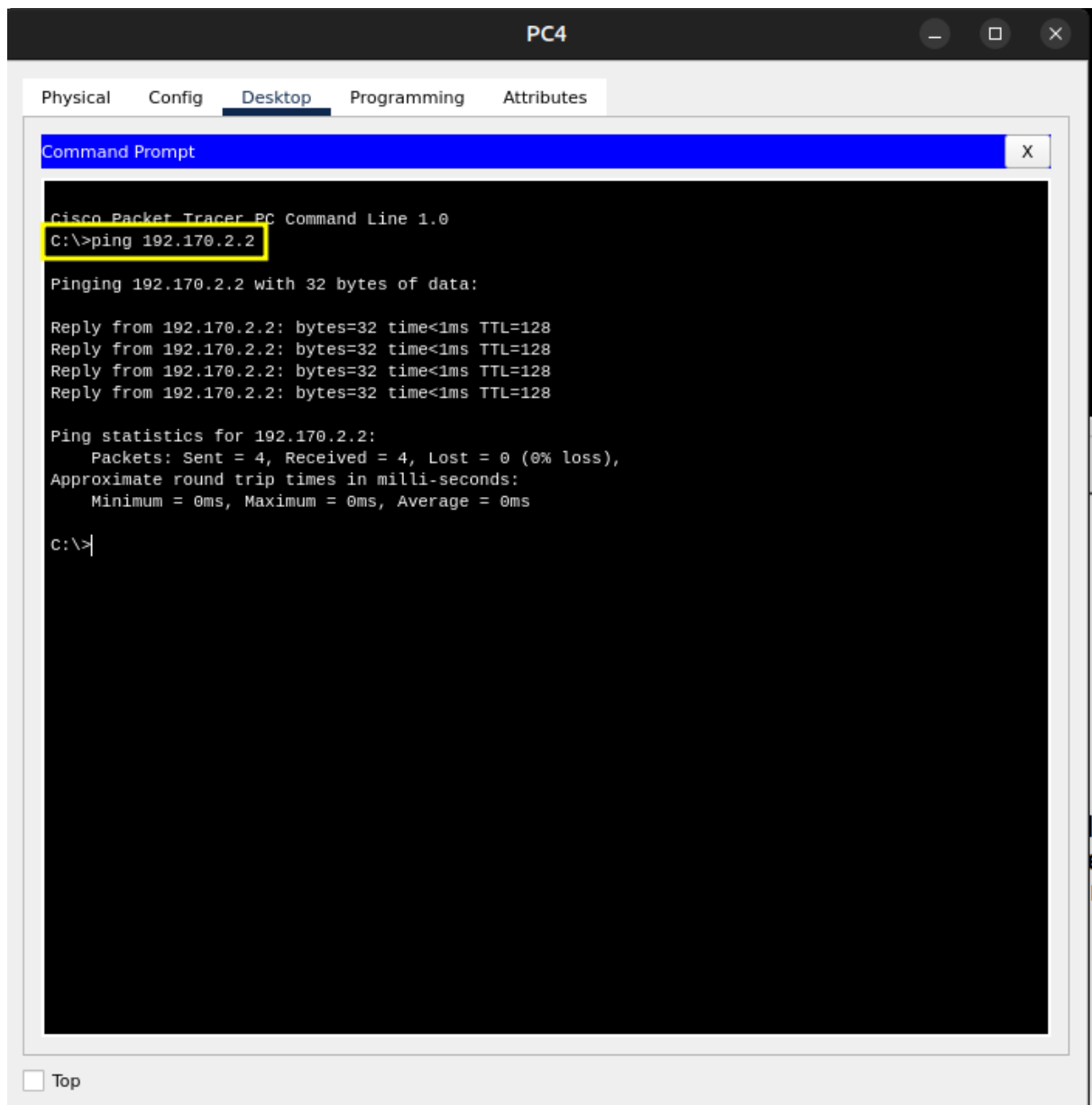


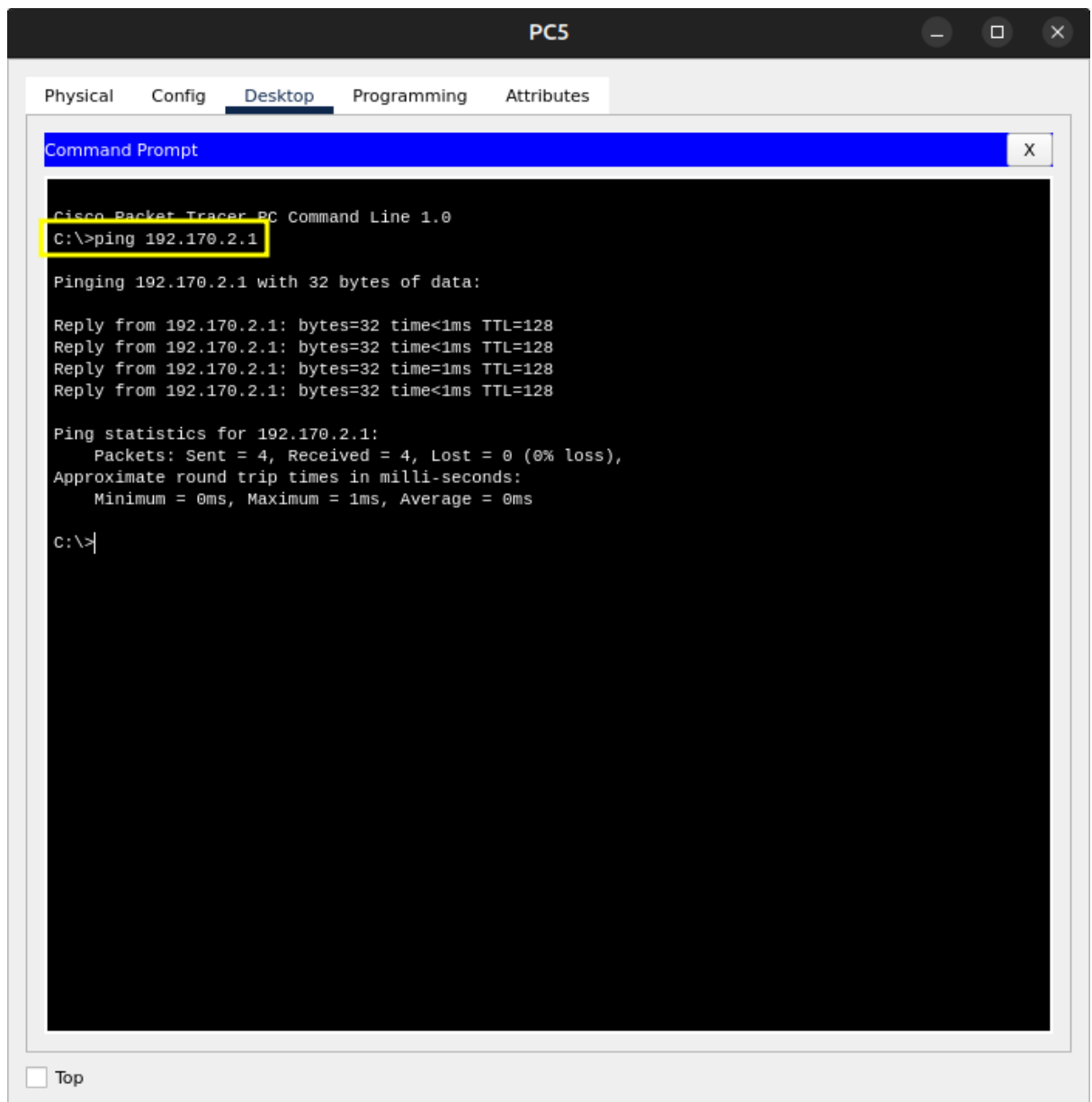
## VLAN 6:



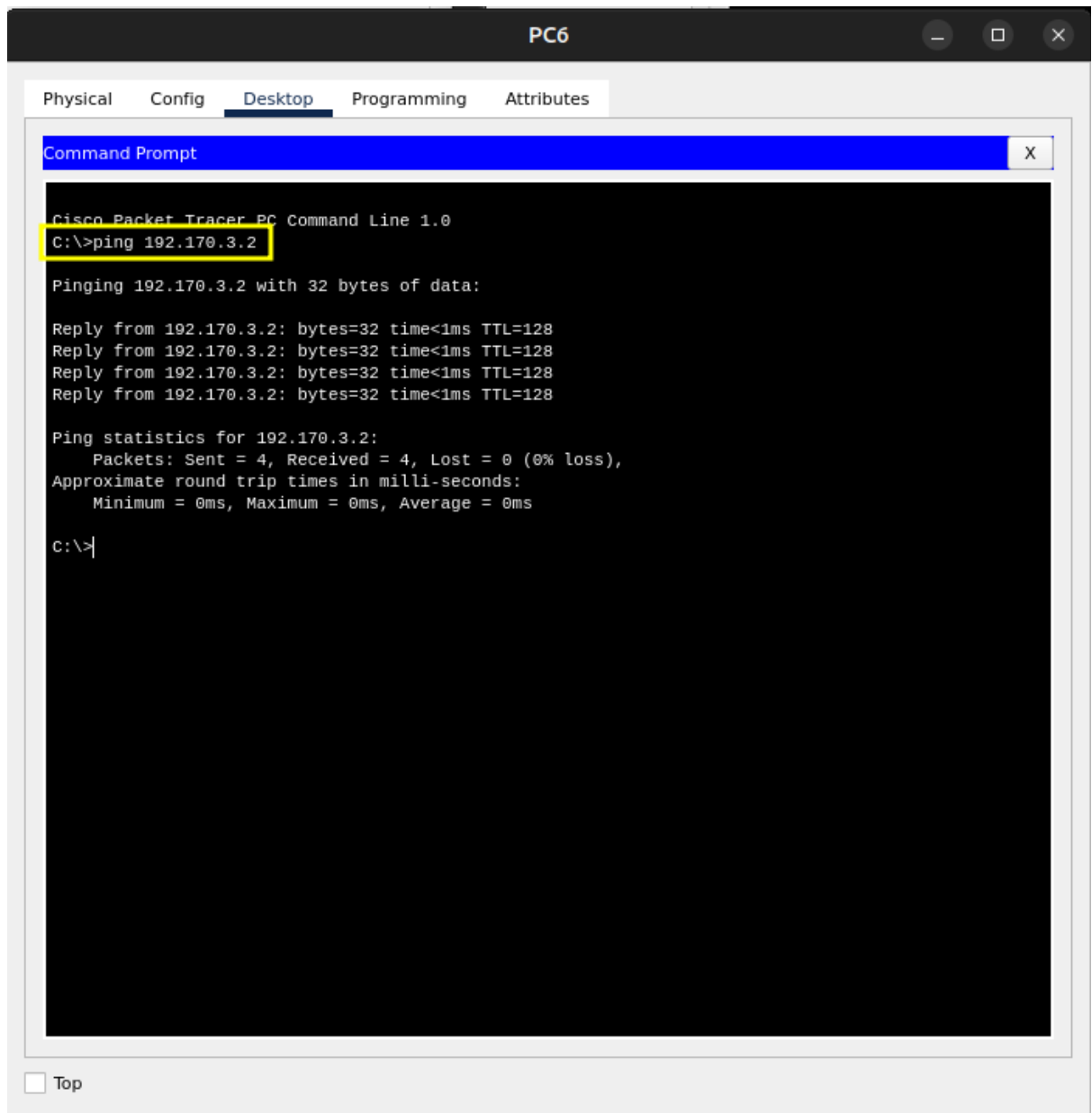


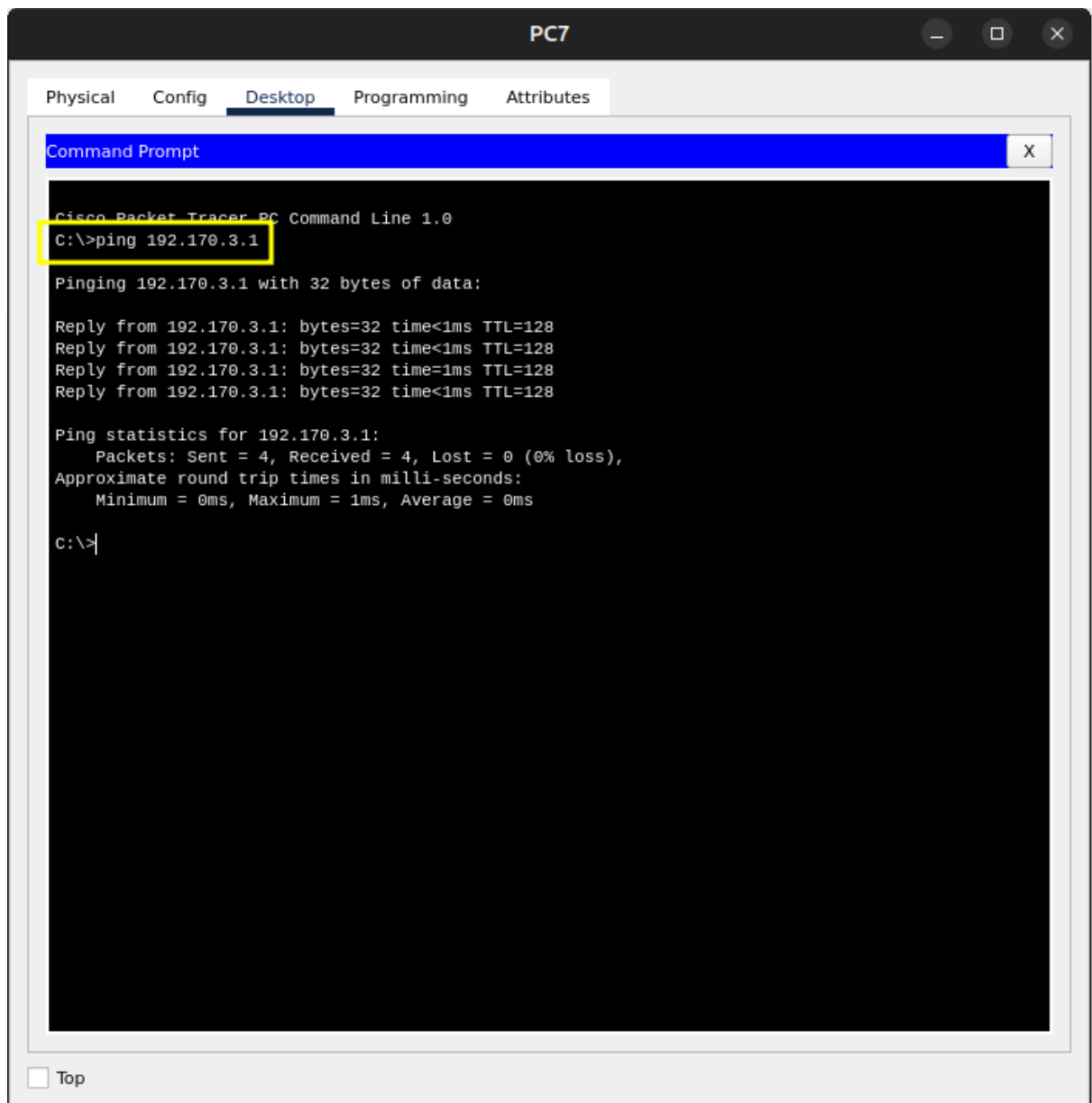
## VLAN 7:





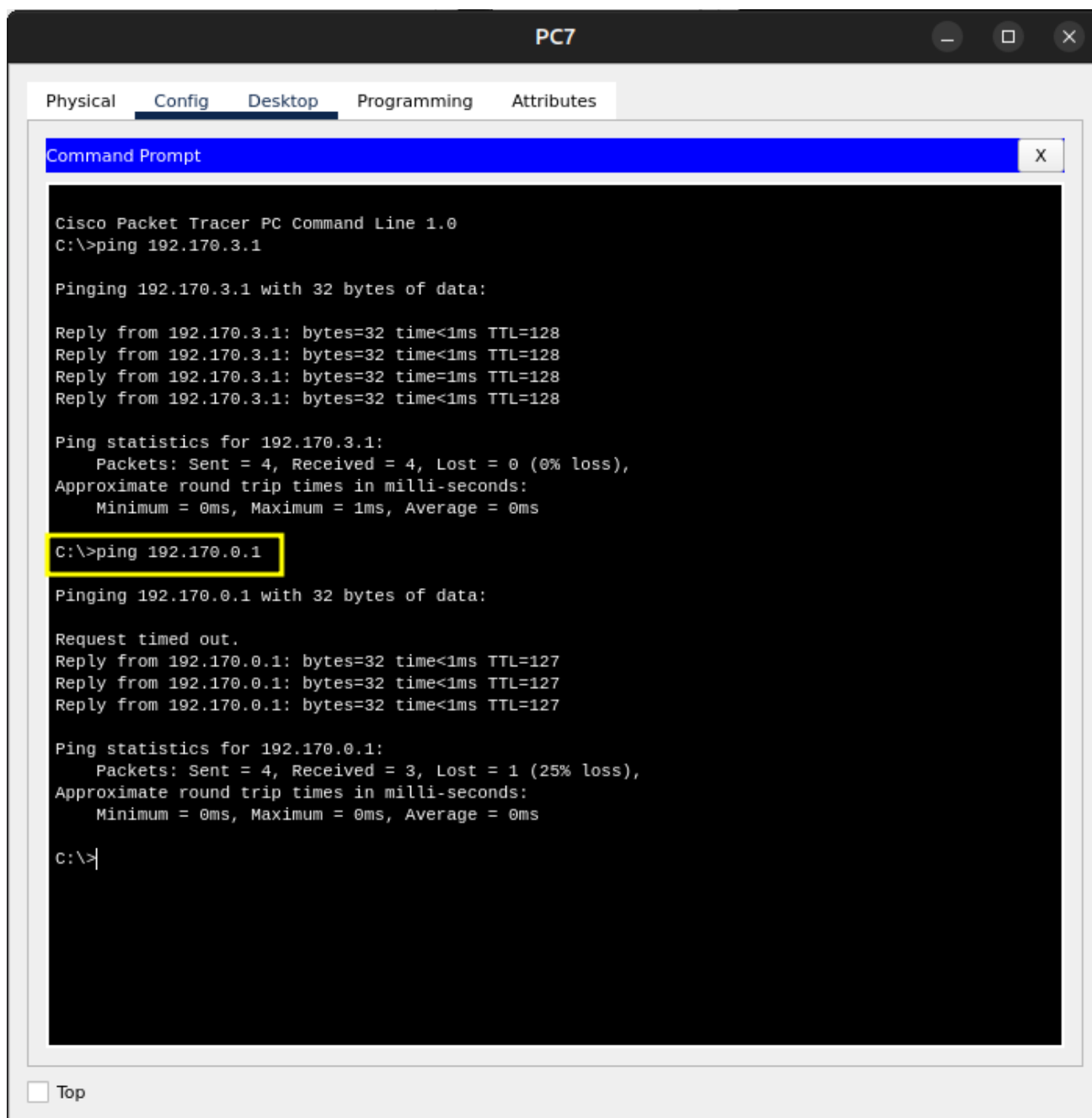
## VLAN 8:





**Y además, como se ha configurado el router, también se comunican los Pcs de diferentes VLANs:**





**Muestra los comandos empleados en cada uno de los apartados a-e**  
**Muestra que has asignado correctamente las IPs en los dispositivos**  
**Muestra que los pings funcionan**