

**INSTITUTO TÉCNICO DE SALINA CRUZ**  
**REDES DE COMPUTADORA**

**SEMESTRE FEBRERO-AGOSTO 2015**

**REPORTE DE PRÁCTICAS**

**PRACTICA N°: 1**

**UNIDAD: 3**

**FECHA: 16 DE ABRIL DE 2015**

**NOMBRE: EDUARDO SALAZAR IRRIZARI**

Objetivo:

Identificar el concepto de enrutamiento vector-distancia. Implementar redes WAN.

Instrucciones.

- 1.- Crear la tabla de enrutamiento de acuerdo a la imagen.
- 2.- realizar configuraciones iniciales a los routers.
- 3.- Comprobar las conexiones mediante ping.

Materiales.

- 1.- Computadora.
- 2.- Packet Tracert.
- 3.- Silla

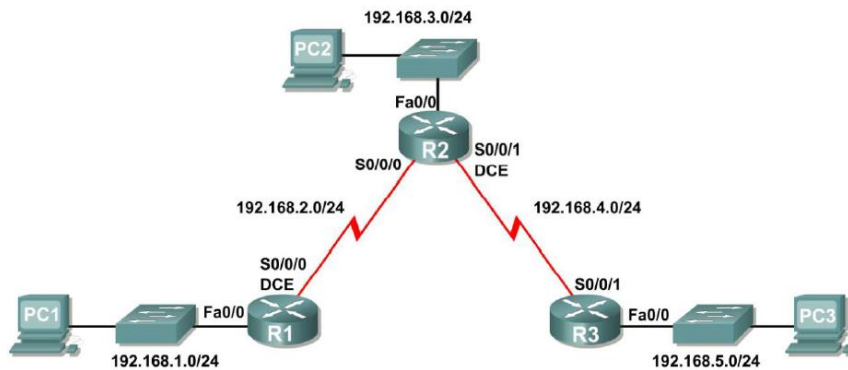
## Practica No.1

### Unidad 3

#### Realice

- La tabla de direccionamiento
- La configuración inicial
- Y verifique las conexiones entre las PC's

Agregar al menos 5 pcs por subred



Dispositivo	Interfaz	Dirección IP	Mascara de subred	Gateway
Loreto	Fa0/0	192.168.1.1	255.255.255.0	No aplicable
	S2/0	192.168.2.1	255.255.255.0	
Curibo	Fa0/0	192.168.3.1	255.255.255.0	No aplicable
	S2/0	192.168.2.2	255.255.255.0	
	S3/0	192.168.4.1	255.255.255.0	
Mandril	Fa0/0	192.168.5.1	255.255.255.0	No aplicable
	S2/0	192.168.4.2	255.255.255.0	
PC1	No aplicable	192.168.1.10	255.255.255.0	192.168.1.1
PC2	No aplicable	192.168.1.11	255.255.255.0	192.168.1.1
PC3	No aplicable	192.168.1.12	255.255.255.0	192.168.1.1
PC4	No aplicable	192.168.1.13	255.255.255.0	192.168.1.1
PC5	No aplicable	192.168.1.14	255.255.255.0	192.168.1.1
PC6	No aplicable	192.168.3.10	255.255.255.0	192.168.3.1
PC7	No aplicable	192.168.3.11	255.255.255.0	192.168.3.1
PC8	No aplicable	192.168.3.12	255.255.255.0	192.168.3.1
PC9	No aplicable	192.168.3.13	255.255.255.0	192.168.3.1
PC10	No aplicable	192.168.3.14	255.255.255.0	192.168.3.1

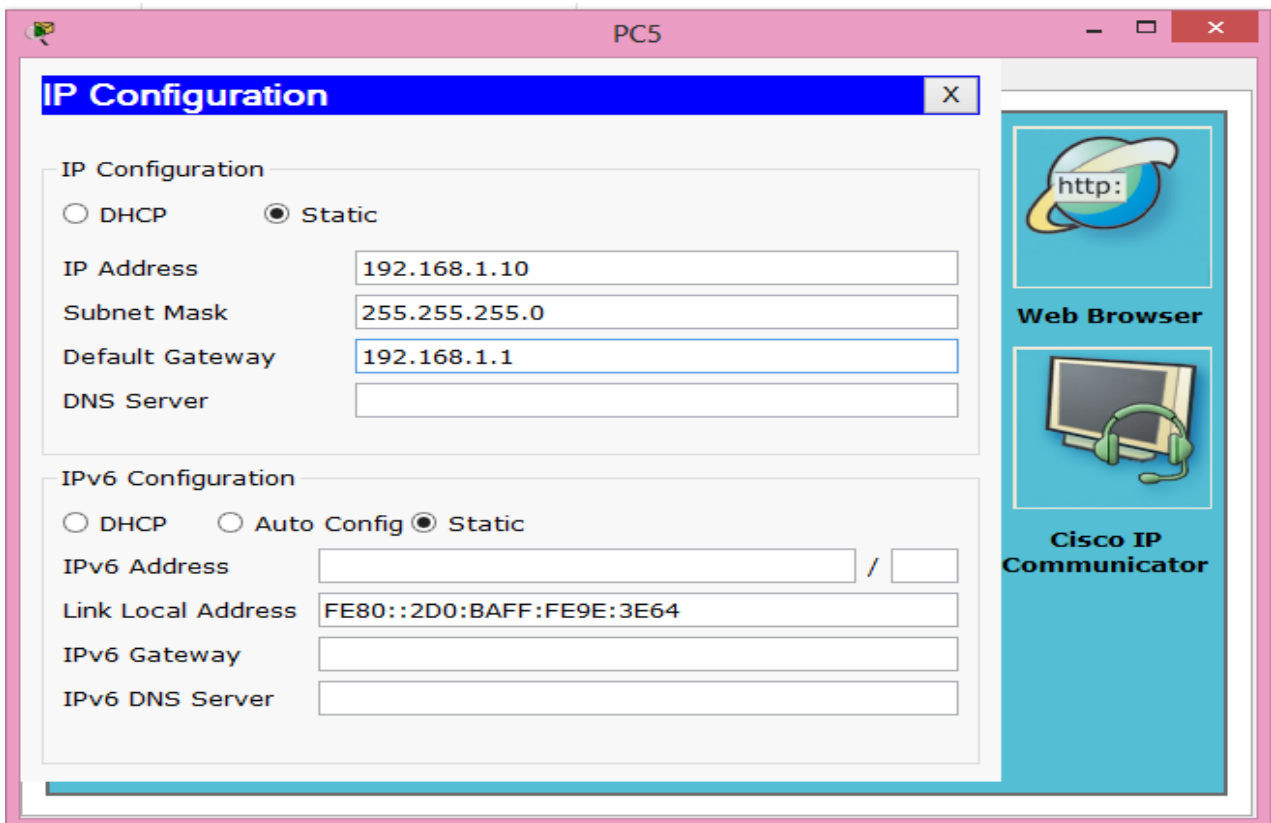
PC11	No aplicable	192.168.5.10	255.255.255.0	192.168.5.1
PC12	No aplicable	192.168.5.11	255.255.255.0	192.168.5.1
PC13	No aplicable	192.168.5.12	255.255.255.0	192.168.5.1
PC14	No aplicable	192.168.5.13	255.255.255.0	192.168.5.1
PC15	No aplicable	192.168.5.14	255.255.255.0	192.168.5.1

## PASO 2 CONFIGURACIÓN INICIAL

### A) HOST

**\*Agregar puerta de enlace**

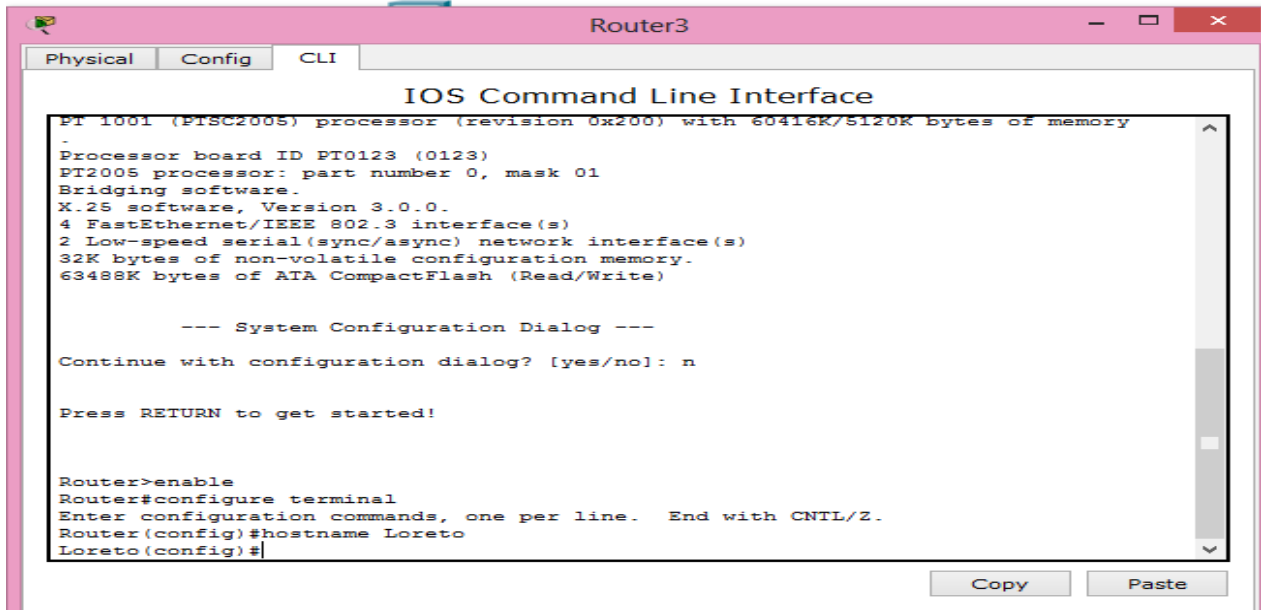
PC1.



Esto sería la asignación de direcciones IP a cada máquina, este proceso es repetitivo por lo tanto no quise por las 15 máquinas, las direcciones a asignarles son las que vienen en la tabla.

Posteriormente es necesario llevar a cabo una serie de pasos, los cuales son asignación de nombre, asignación de password, asignación de un banner a cada uno de los routers.

### R1(Loreto).



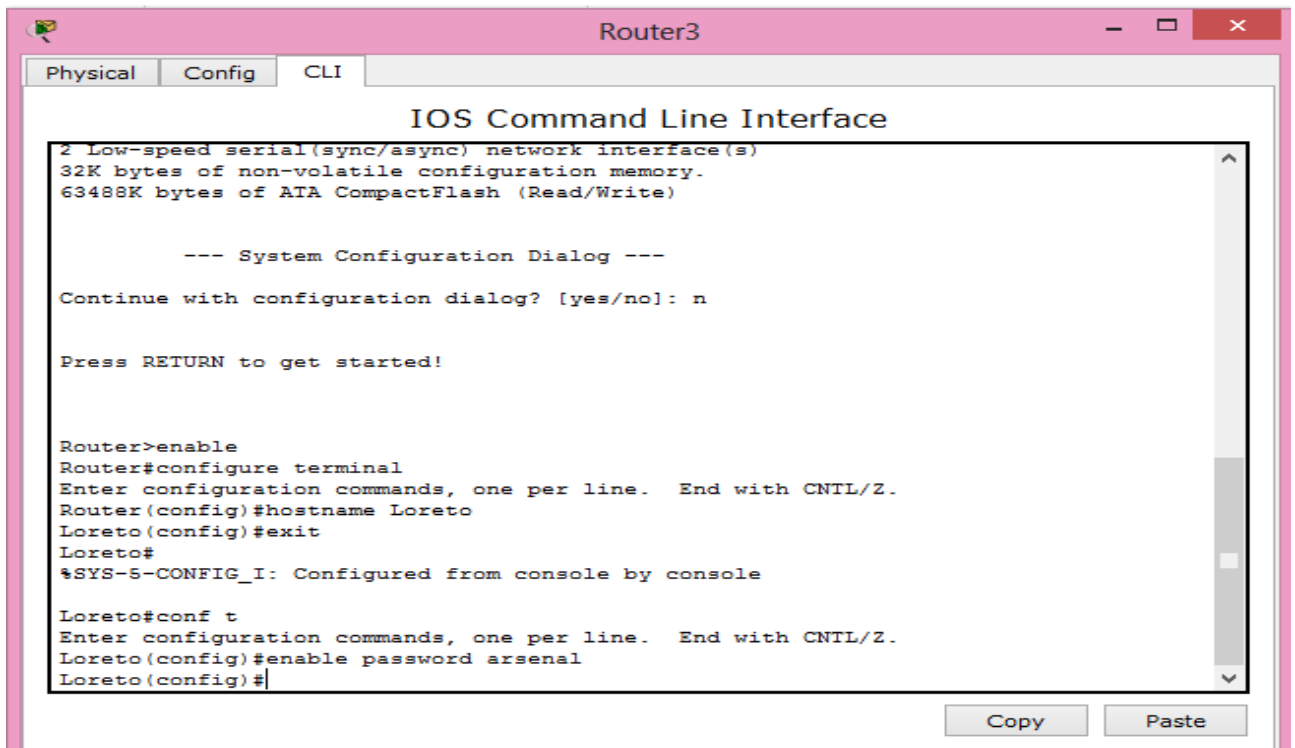
```
Router3
Physical Config CLI
IOS Command Line Interface
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
-
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Loreto
Loreto(config)#
```

Cambio de password.



```
Router3
Physical Config CLI
IOS Command Line Interface
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

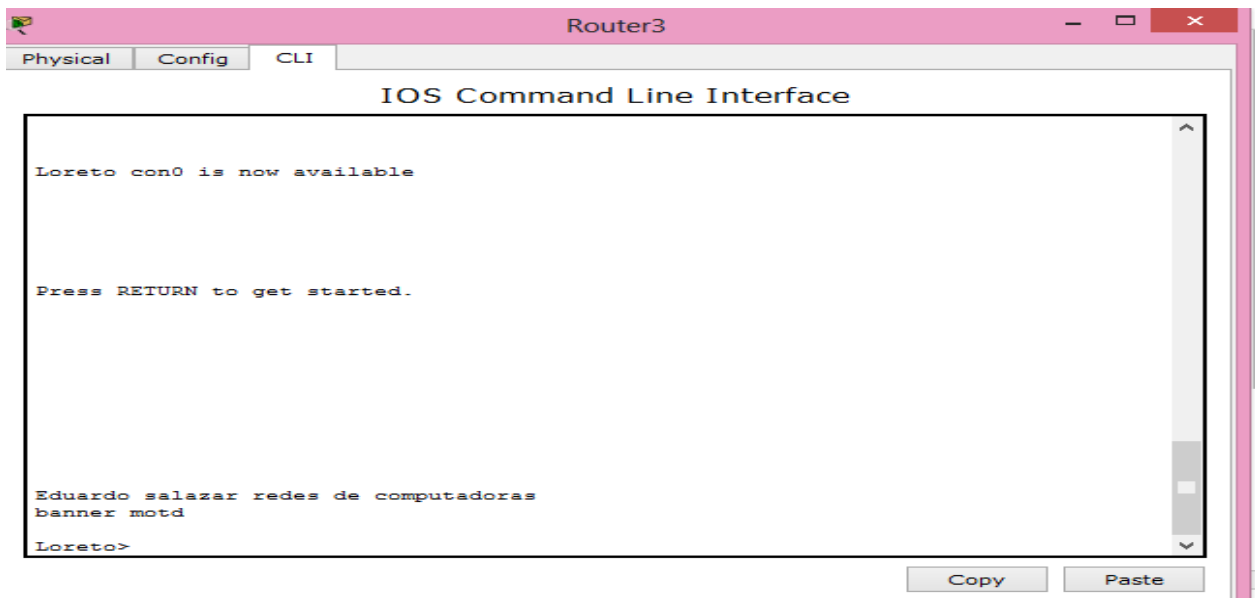
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Loreto
Loreto(config)#exit
Loreto#
%SYS-5-CONFIG_I: Configured from console by console

Loreto#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Loreto(config)#enable password arsenal
Loreto(config)#
```

Asignación de un banner.



The screenshot shows the CLI interface of Router3. The window title is "Router3". The tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The text displayed is:

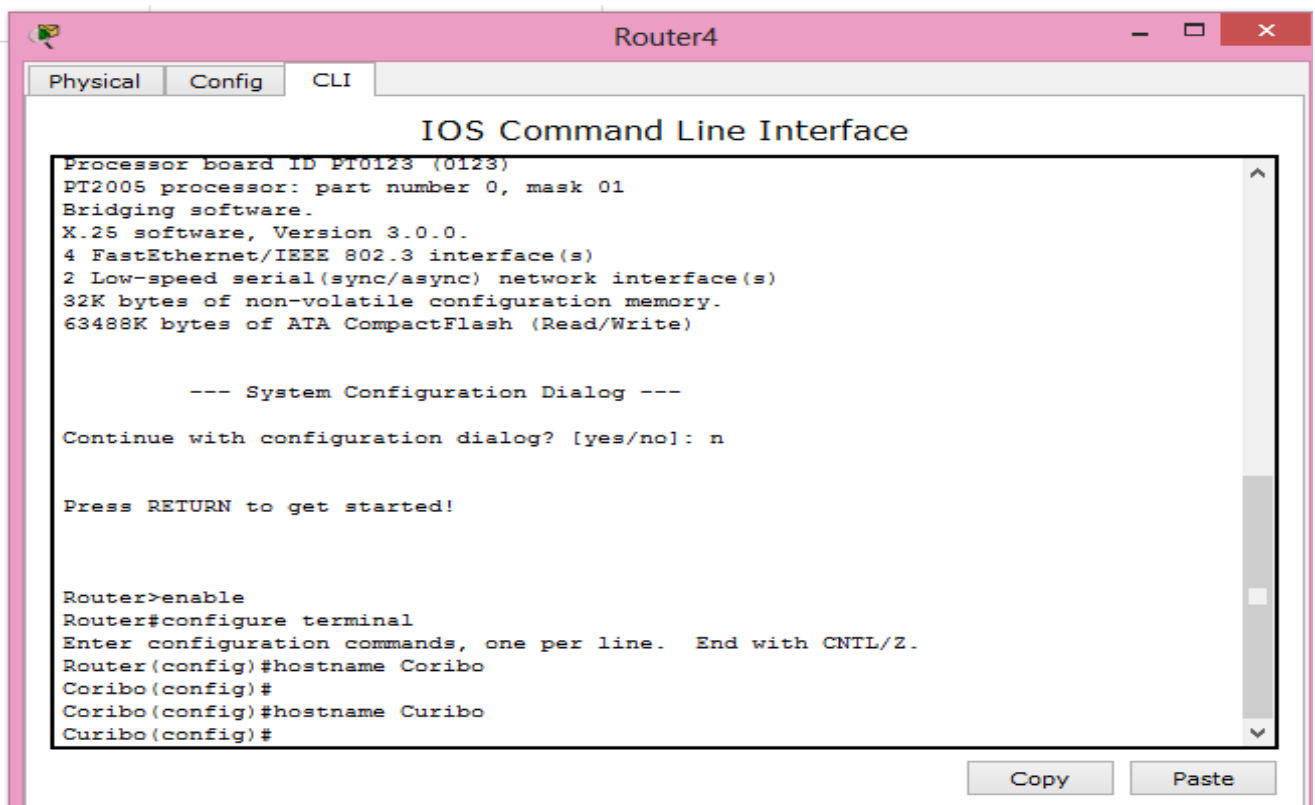
```
Loreto con0 is now available

Press RETURN to get started.

Eduardo salazar redes de computadoras
banner motd
Loreto>
```

At the bottom right, there are "Copy" and "Paste" buttons.

R2 (Curibo).



The screenshot shows the CLI interface of Router4. The window title is "Router4". The tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The text displayed is:

```
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

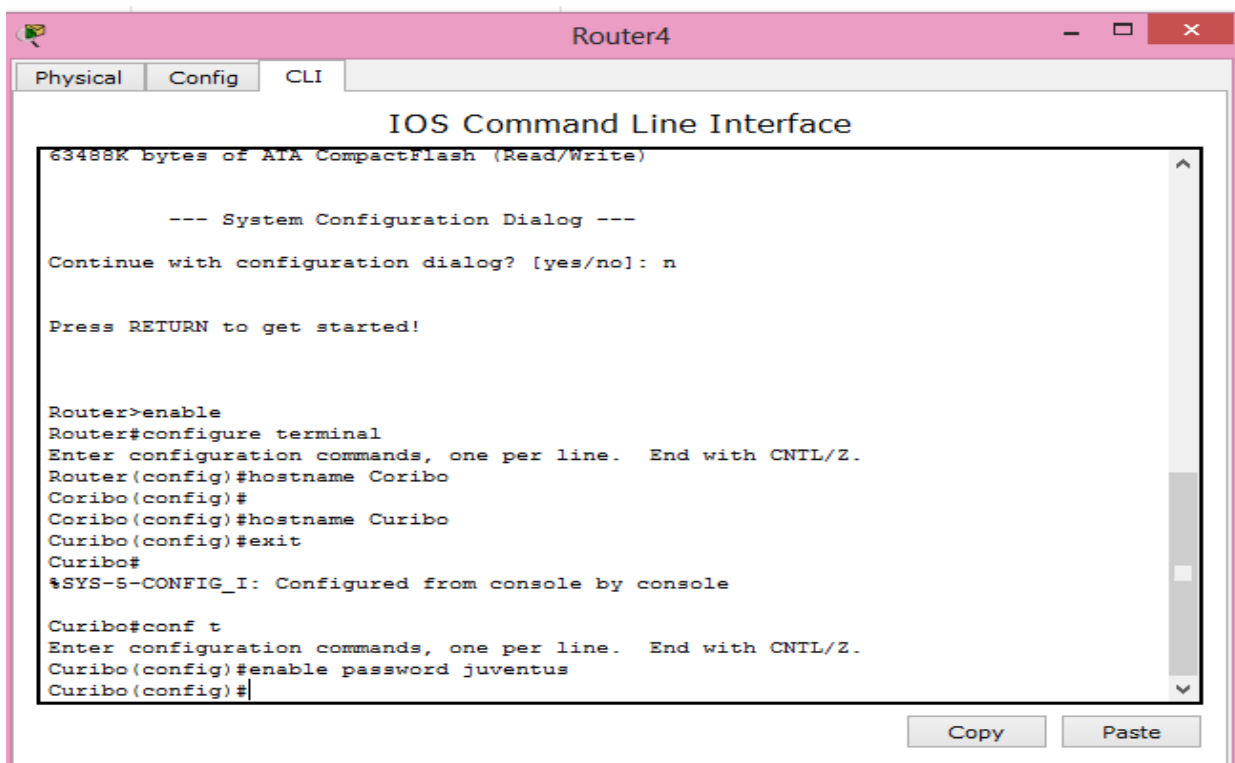
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Coribo
Coribo(config)#
Coribo(config)#hostname Curibo
Curibo(config)#
```

At the bottom right, there are "Copy" and "Paste" buttons.

Asignación de un password.



The screenshot shows the Router4 CLI interface with the following text:

```
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n

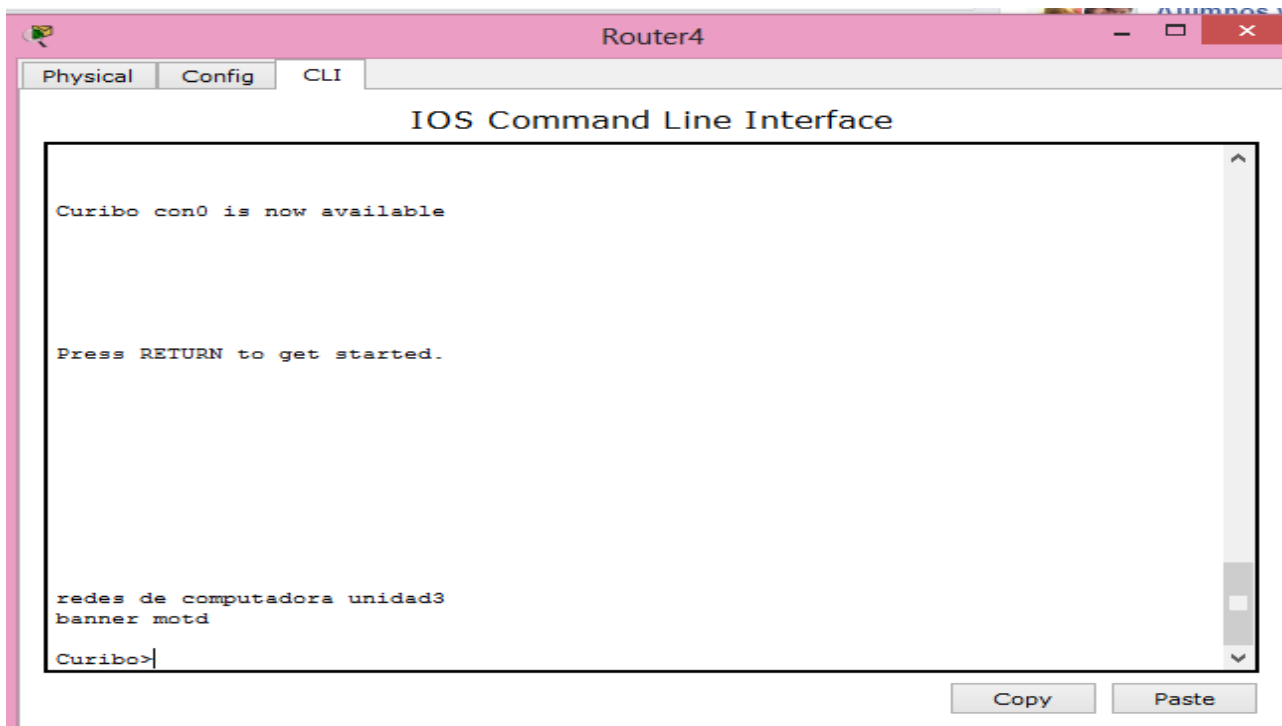
Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Coribo
Coribo(config)#
Coribo(config)#hostname Curibo
Curibo(config)#exit
Curibo#
%SYS-5-CONFIG_I: Configured from console by console

Curibo#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Curibo(config)#enable password juvenus
Curibo(config)#
```

Buttons for Copy and Paste are visible at the bottom right of the terminal window.

Asignación de un banner.



The screenshot shows the Router4 CLI interface with the following text:

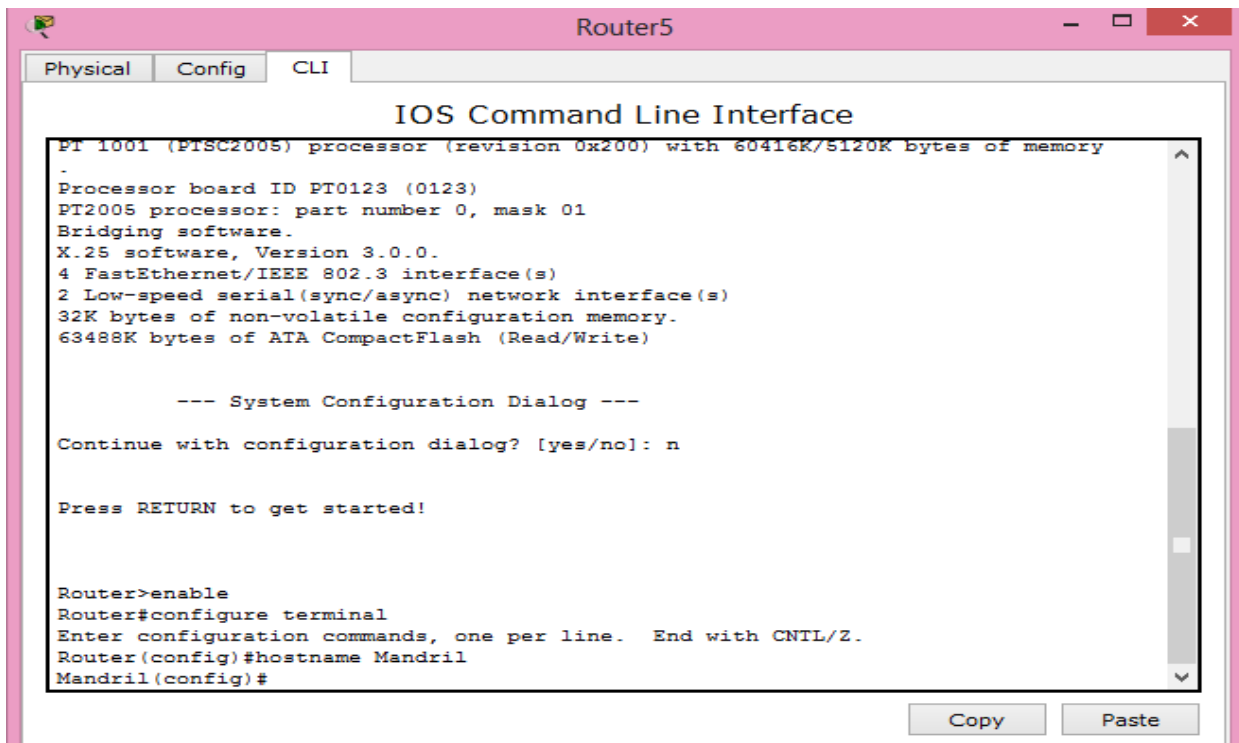
```
Curibo con0 is now available

Press RETURN to get started.

redes de computadora unidad3
banner motd
Curibo>
```

Buttons for Copy and Paste are visible at the bottom right of the terminal window.

### R3 (Mandrill).



```
Router5
Physical Config CLI
IOS Command Line Interface
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
-
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

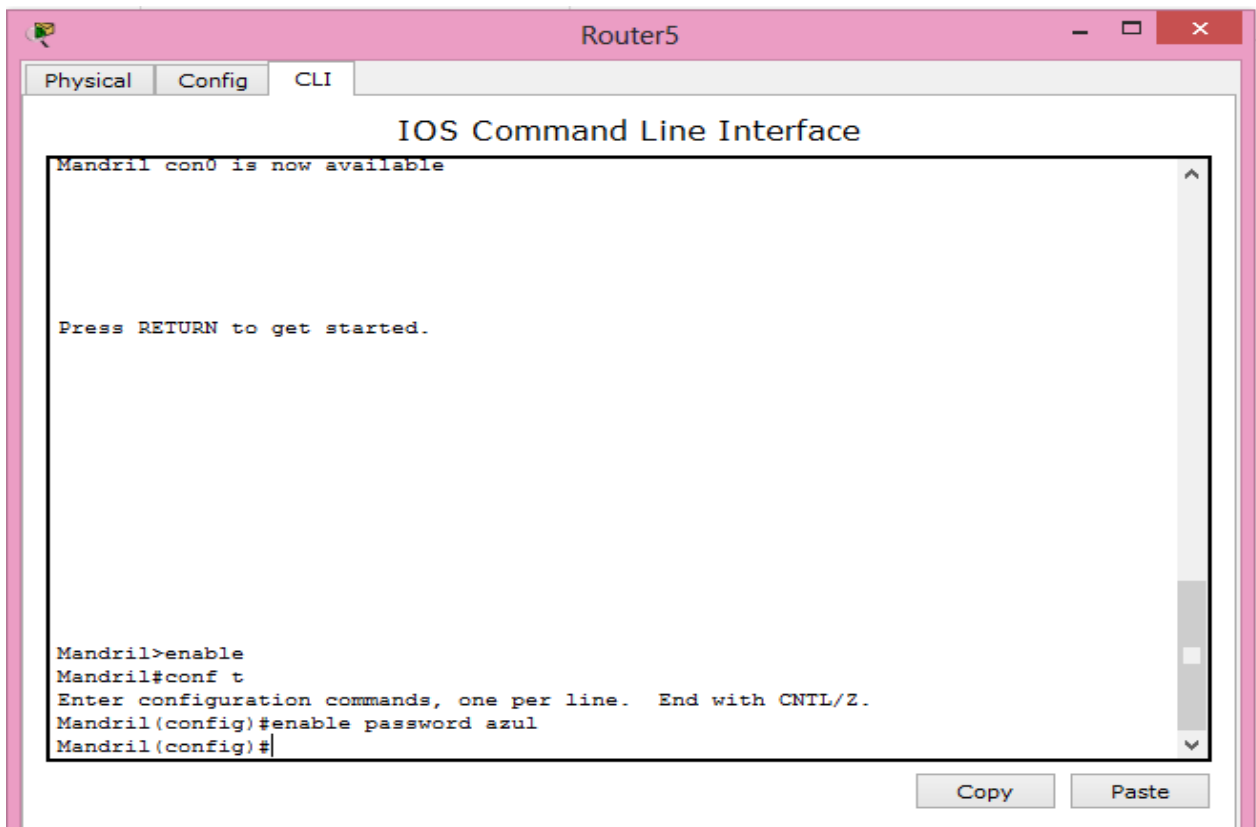
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Mandril
Mandrill(config)#
```

Copy Paste

Se le asigna una contraseña al router.



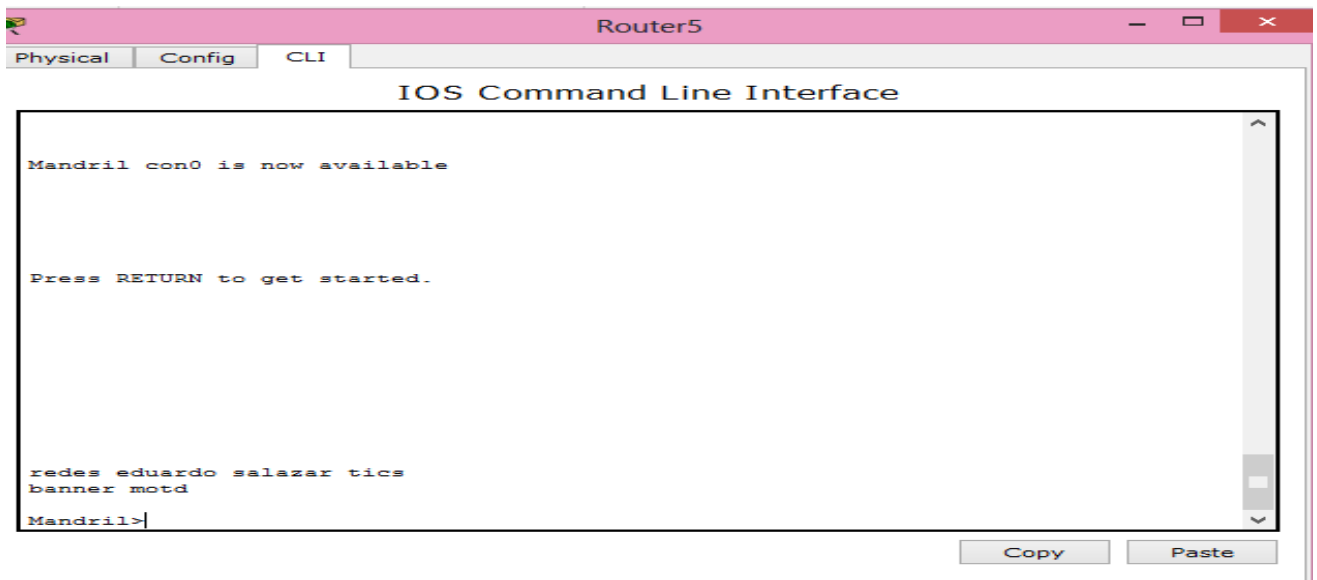
```
Router5
Physical Config CLI
IOS Command Line Interface
Mandrill con0 is now available

Press RETURN to get started.

Mandrill>enable
Mandrill#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Mandrill(config)#enable password azul
Mandrill(config)#
```

Copy Paste

Luego se le agrega un banner.



The screenshot shows the CLI interface of Router5. The window title is "Router5" and the tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The text displayed is:

```
Mandrill con0 is now available

Press RETURN to get started.

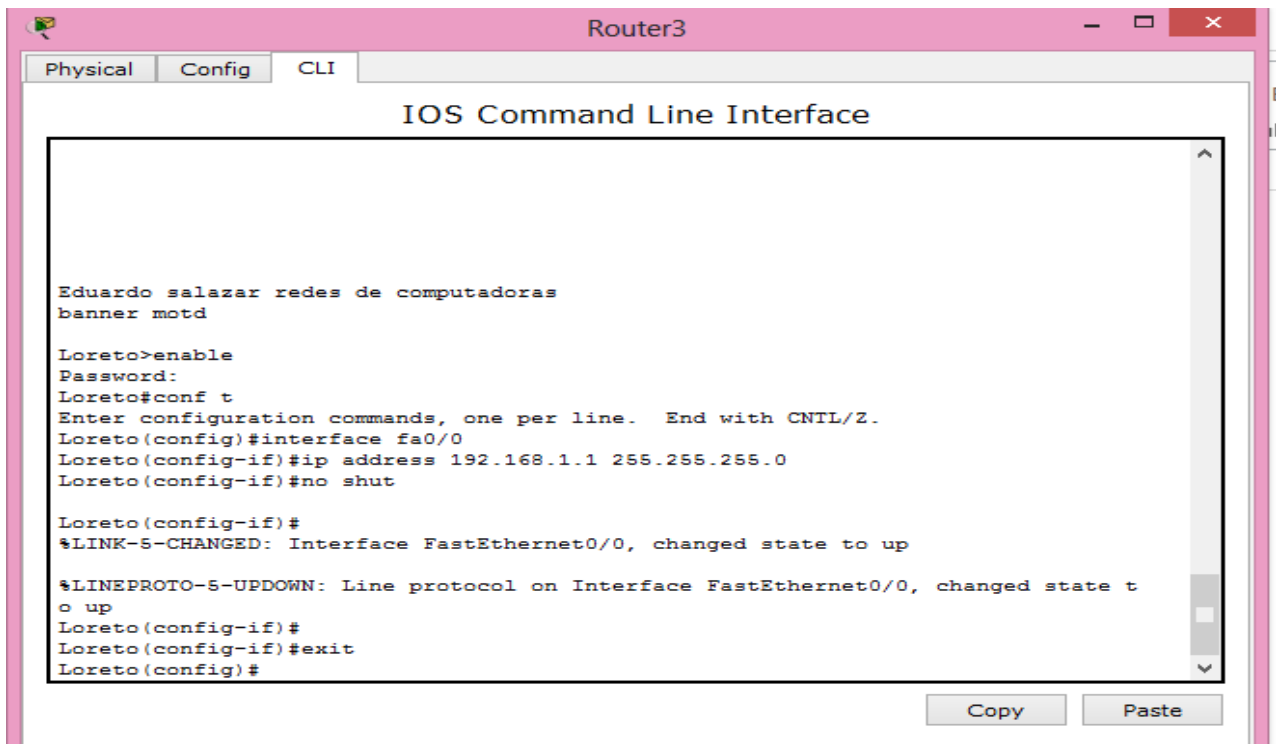
redes eduardo salazar tics
banner motd
Mandrill>
```

At the bottom right, there are "Copy" and "Paste" buttons.

Posteriormente luego de realizar estas configuraciones, necesitamos llevar a cabo el levantamiento de puertos para que se lleve a cabo la conexión de los dispositivos.

### Loreto (R1).

Puerto fa0/0.



The screenshot shows the CLI interface of Router3. The window title is "Router3" and the tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The text displayed is:

```
Eduardo salazar redes de computadoras
banner motd

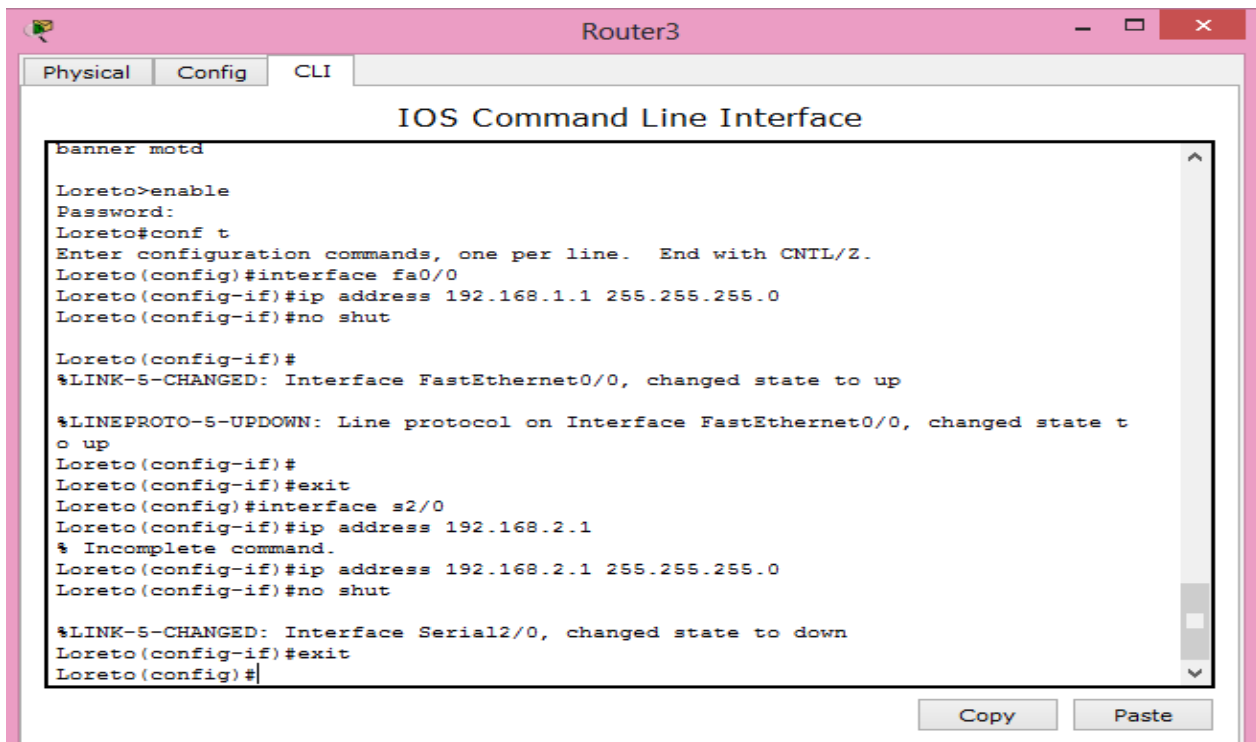
Loreto>enable
Password:
Loreto#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Loreto(config)#interface fa0/0
Loreto(config-if)#ip address 192.168.1.1 255.255.255.0
Loreto(config-if)#no shut

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

%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
Loreto(config-if)#
Loreto(config-if)#exit
Loreto(config)#
```

At the bottom right, there are "Copy" and "Paste" buttons.

Serial2/0.



The screenshot shows the CLI interface of Router3. The window title is "Router3". The tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
banner motd
Loreto>enable
Password:
Loreto#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Loreto(config)#interface fa0/0
Loreto(config-if)#ip address 192.168.1.1 255.255.255.0
Loreto(config-if)#no shut

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

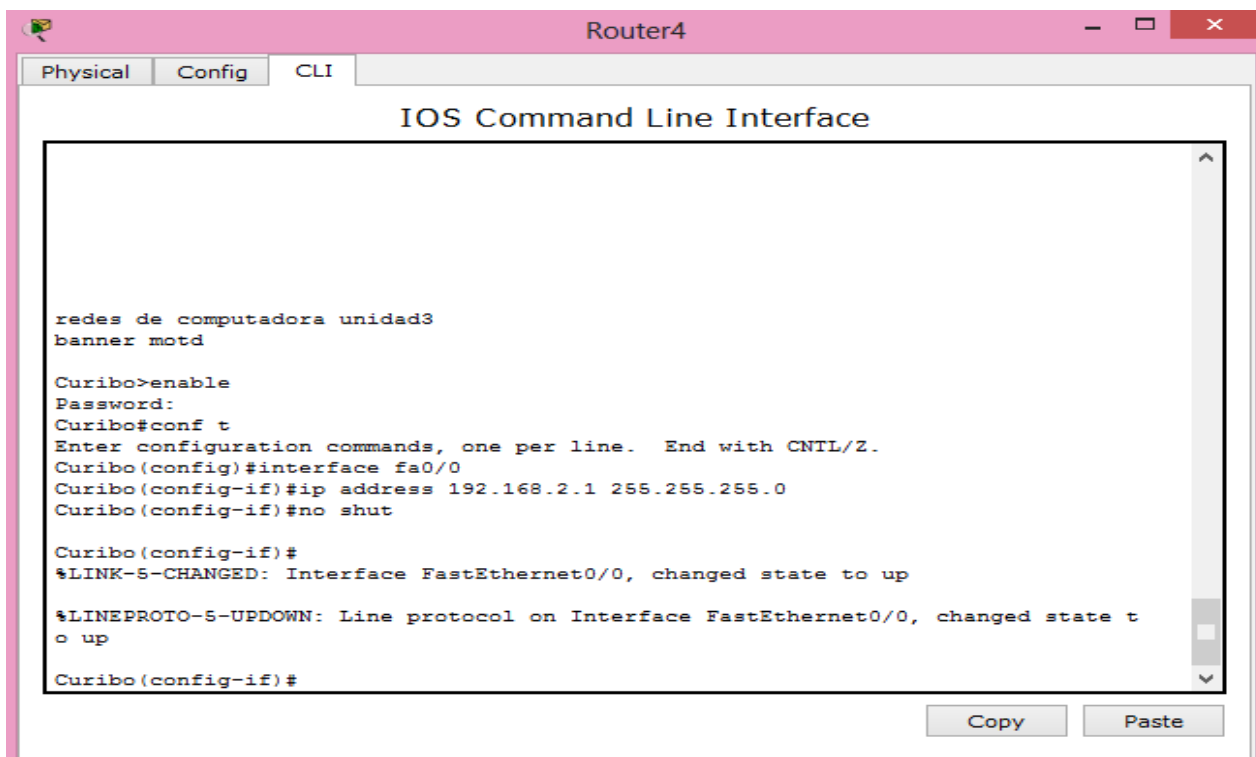
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
Loreto(config-if)#
Loreto(config-if)#exit
Loreto(config)#interface s2/0
Loreto(config-if)#ip address 192.168.2.1
% Incomplete command.
Loreto(config-if)#ip address 192.168.2.1 255.255.255.0
Loreto(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Loreto(config-if)#exit
Loreto(config)#
```

At the bottom right, there are "Copy" and "Paste" buttons.

Curibo (R2)

Puertofa0/0.



The screenshot shows the CLI interface of Router4. The window title is "Router4". The tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
redes de computadora unidad3
banner motd

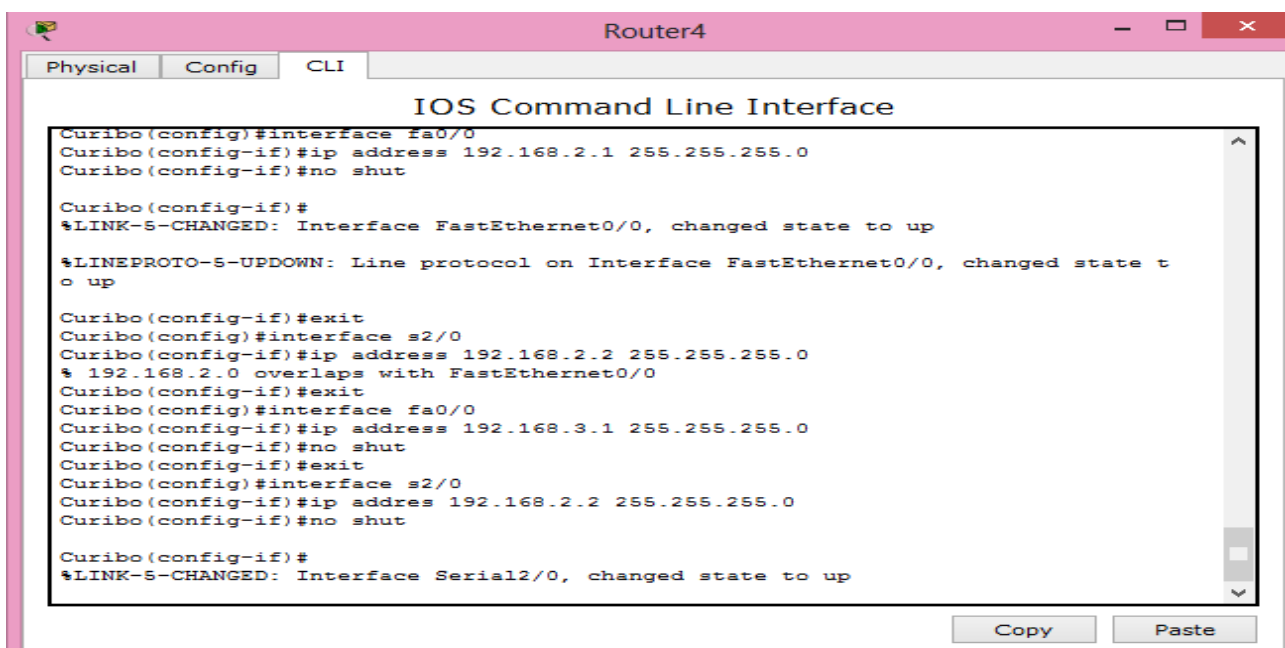
Curibo>enable
Password:
Curibo#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Curibo(config)#interface fa0/0
Curibo(config-if)#ip address 192.168.2.1 255.255.255.0
Curibo(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
Curibo(config-if)#
```

At the bottom right, there are "Copy" and "Paste" buttons.

Serial2/0.



The screenshot shows the CLI of Router4 with the following commands and output:

```
Curibo(config)#interface fa0/0
Curibo(config-if)#ip address 192.168.2.1 255.255.255.0
Curibo(config-if)#no shut

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

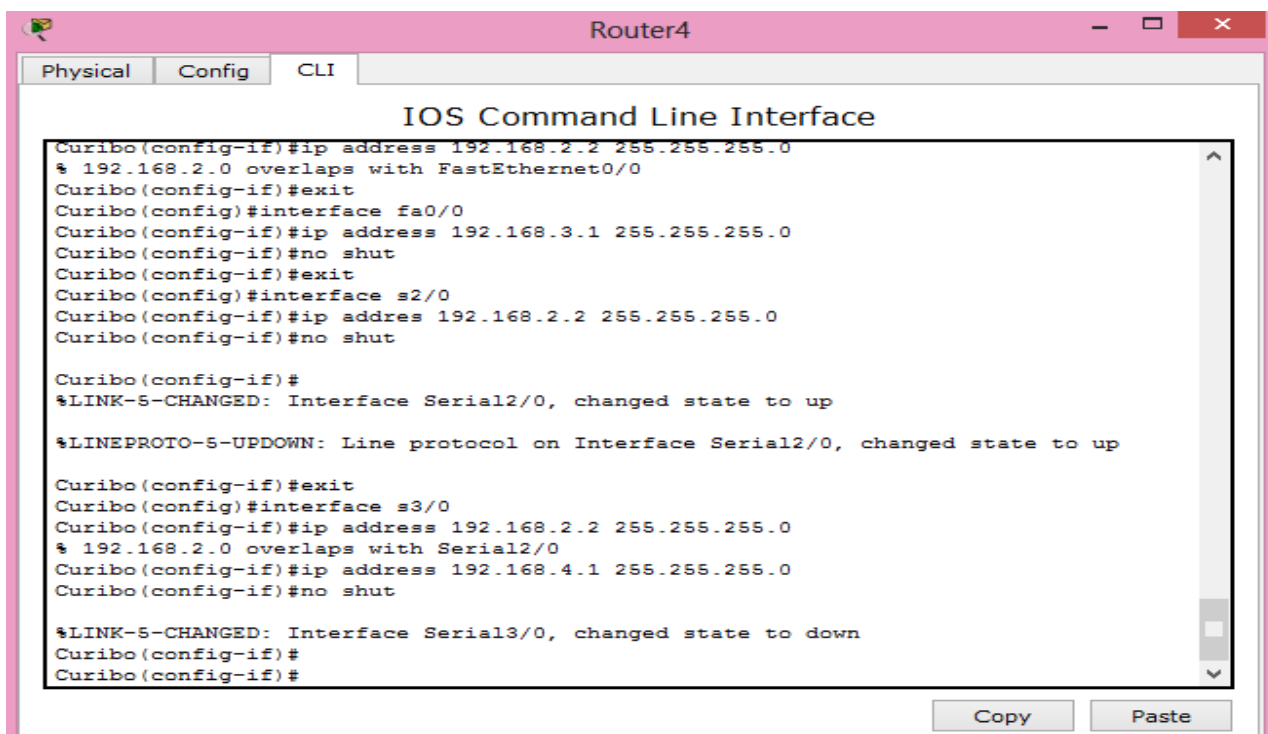
%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Curibo(config-if)#exit
Curibo(config)#interface s2/0
Curibo(config-if)#ip address 192.168.2.2 255.255.255.0
% 192.168.2.0 overlaps with FastEthernet0/0
Curibo(config-if)#exit
Curibo(config)#interface fa0/0
Curibo(config-if)#ip address 192.168.3.1 255.255.255.0
Curibo(config-if)#no shut
Curibo(config-if)#exit
Curibo(config)#interface s2/0
Curibo(config-if)#ip address 192.168.2.2 255.255.255.0
Curibo(config-if)#no shut

Curibo(config-if)#
%LINK-S-CHANGED: Interface Serial2/0, changed state to up
```

Como sabemos es necesario levantar los 2 puertos para poder conectar 2 routers.

Serial3/0.



The screenshot shows the CLI of Router4 with the following commands and output:

```
Curibo(config-if)#ip address 192.168.2.2 255.255.255.0
% 192.168.2.0 overlaps with FastEthernet0/0
Curibo(config-if)#exit
Curibo(config)#interface fa0/0
Curibo(config-if)#ip address 192.168.3.1 255.255.255.0
Curibo(config-if)#no shut
Curibo(config-if)#exit
Curibo(config)#interface s2/0
Curibo(config-if)#ip address 192.168.2.2 255.255.255.0
Curibo(config-if)#no shut

Curibo(config-if)#
%LINK-S-CHANGED: Interface Serial2/0, changed state to up

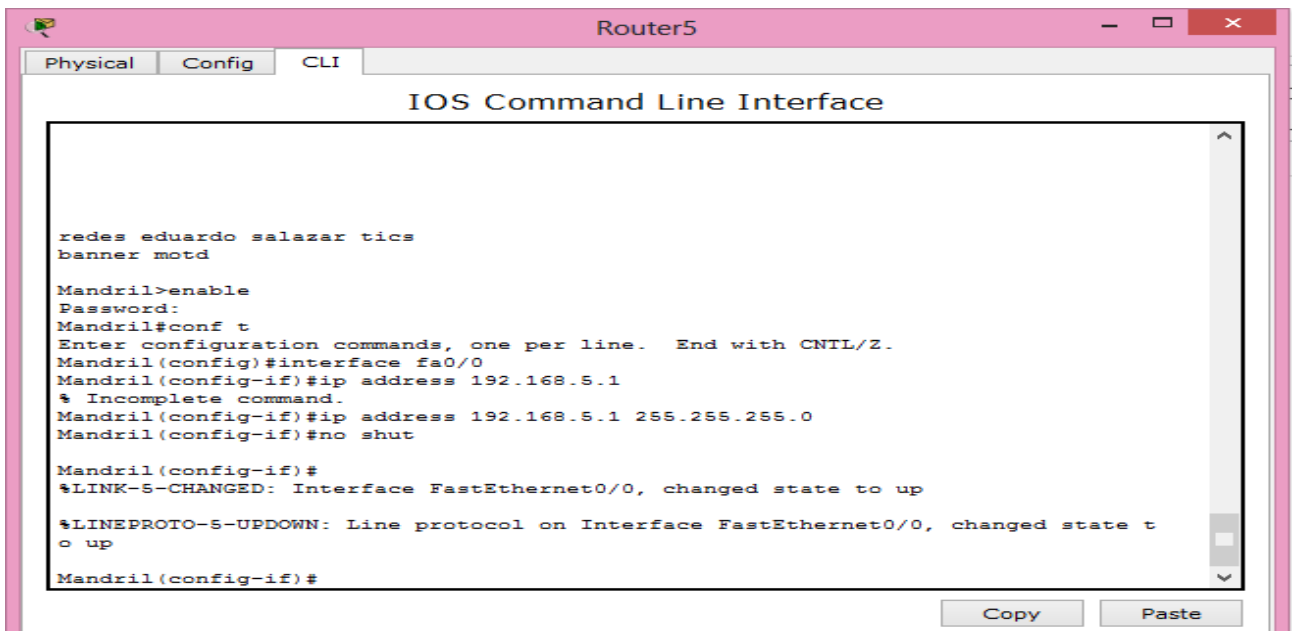
%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Curibo(config-if)#exit
Curibo(config)#interface s3/0
Curibo(config-if)#ip address 192.168.2.2 255.255.255.0
% 192.168.2.0 overlaps with Serial2/0
Curibo(config-if)#ip address 192.168.4.1 255.255.255.0
Curibo(config-if)#no shut

%LINK-S-CHANGED: Interface Serial3/0, changed state to down
Curibo(config-if)#
Curibo(config-if)#
```

## Mandril (R3).

Puerto fa0/0.



The screenshot shows the Router5 CLI interface with the following text:

```
Physical Config CLI
IOS Command Line Interface

redes eduardo salazar tics
banner motd

Mandril>enable
Password:
Mandril#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Mandril(config)#interface fa0/0
Mandril(config-if)#ip address 192.168.5.1
% Incomplete command.
Mandril(config-if)#ip address 192.168.5.1 255.255.255.0
Mandril(config-if)#no shut

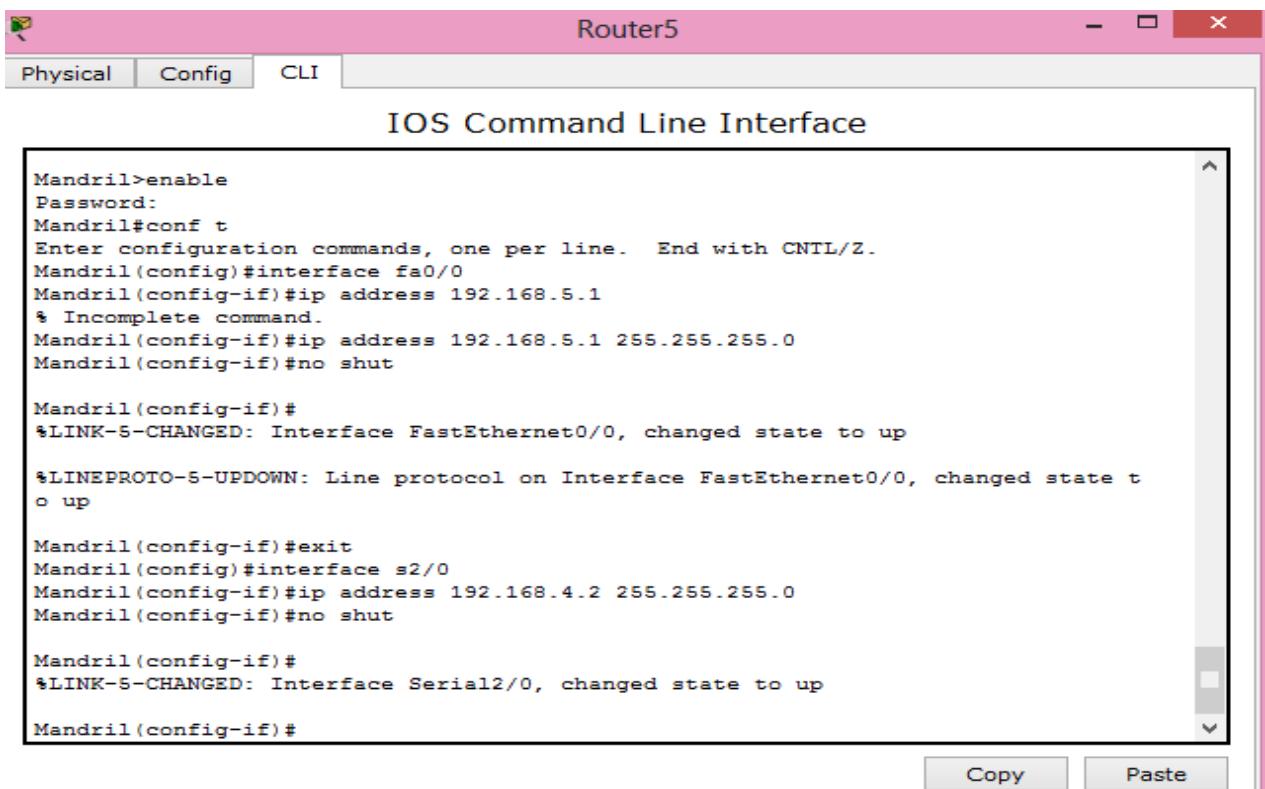
Mandril(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

Mandril(config-if)#
```

Copy Paste

Serial2/0.



The screenshot shows the Router5 CLI interface with the following text:

```
Physical Config CLI
IOS Command Line Interface

Mandril>enable
Password:
Mandril#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Mandril(config)#interface fa0/0
Mandril(config-if)#ip address 192.168.5.1
% Incomplete command.
Mandril(config-if)#ip address 192.168.5.1 255.255.255.0
Mandril(config-if)#no shut

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

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

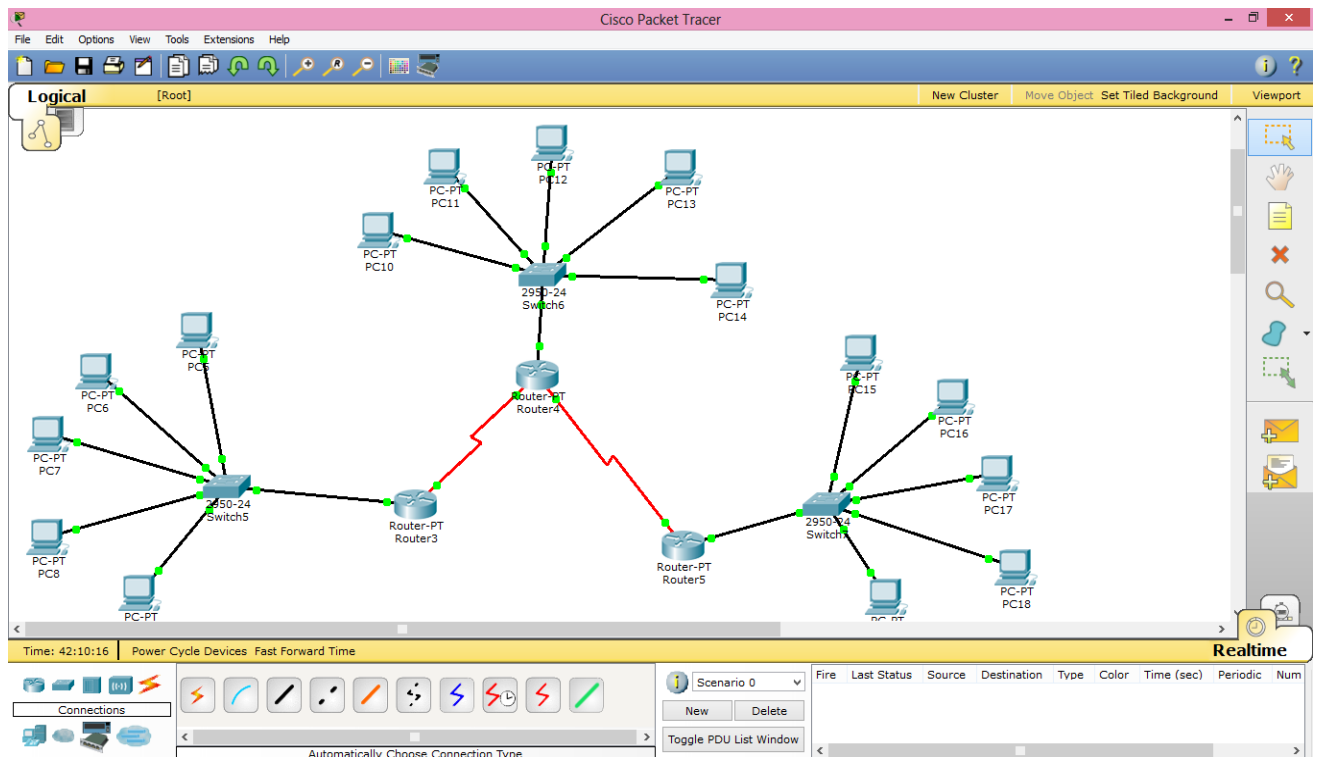
Mandril(config-if)#exit
Mandril(config)#interface s2/0
Mandril(config-if)#ip address 192.168.4.2 255.255.255.0
Mandril(config-if)#no shut

Mandril(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Mandril(config-if)#
```

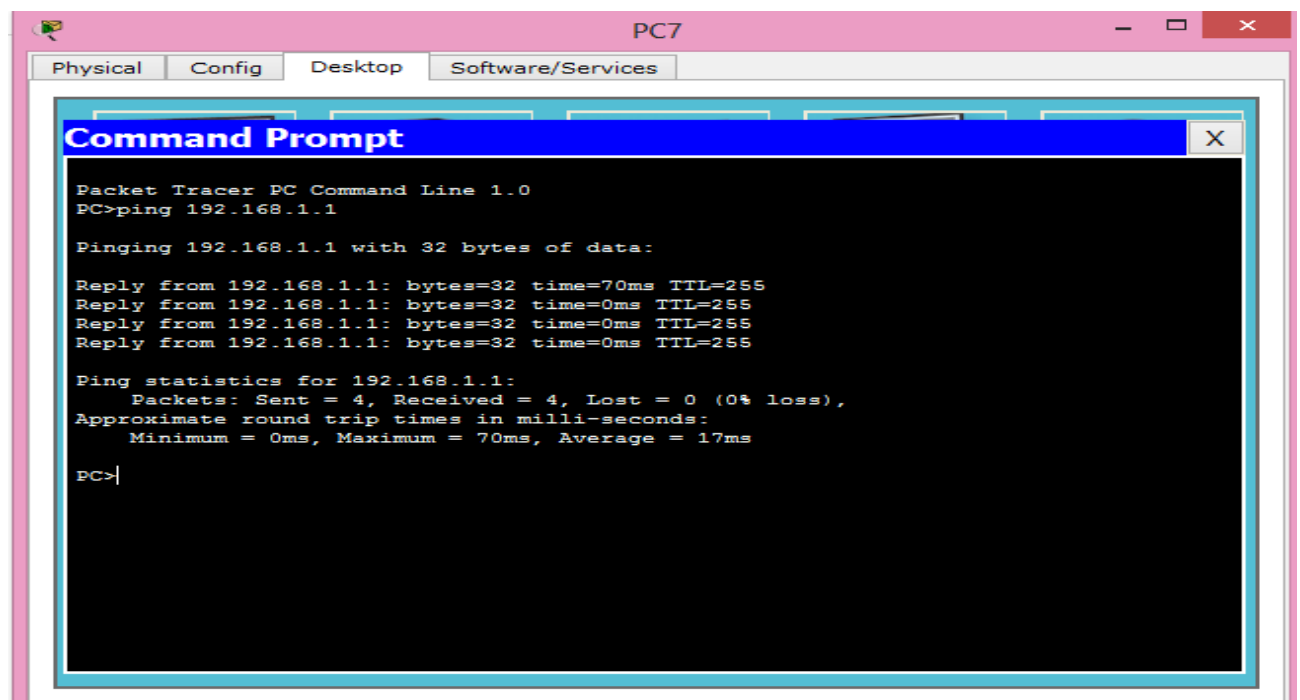
Copy Paste

Despues de esto podemos observar como los dispositivos se ponen en verde.

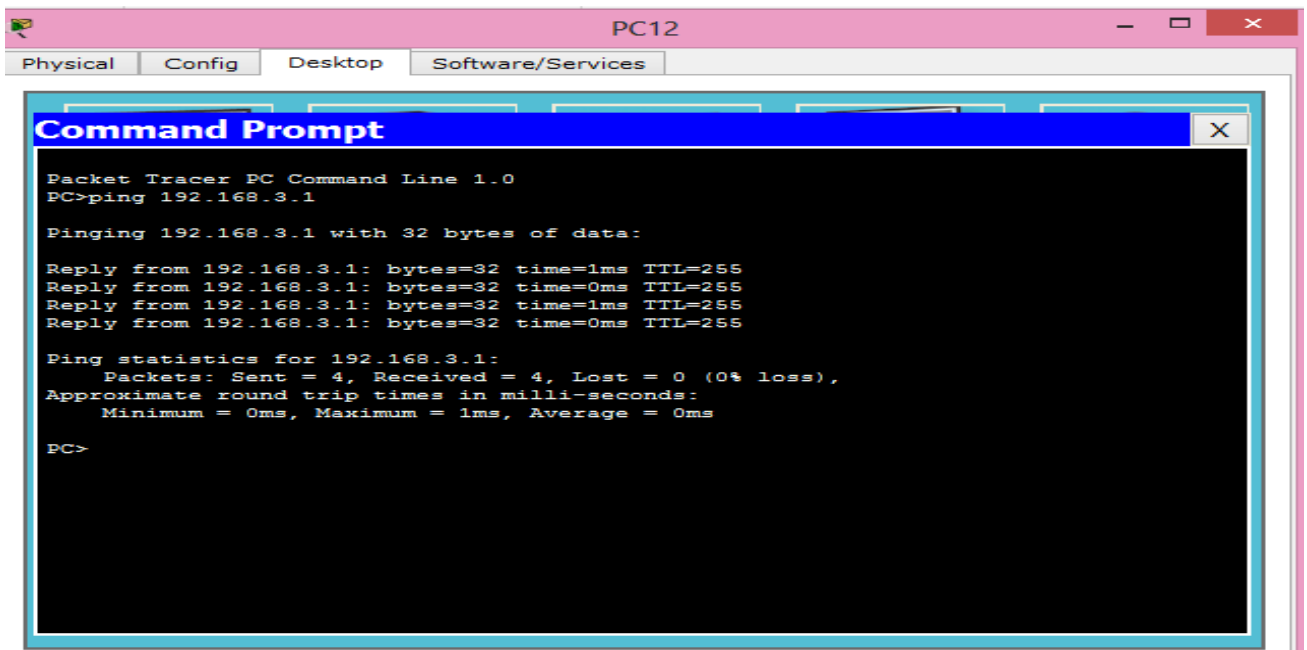


Para poder comprobar si realmente están conectadas, le daremos pig de una pc al router que este conectado.

PC1 a Loreto.



Ping de la PC8 a Curibo.



The screenshot shows a Packet Tracer PC window titled "PC12" with tabs for Physical, Config, Desktop, and Software/Services. A "Command Prompt" window is open, displaying the following text:

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.3.1

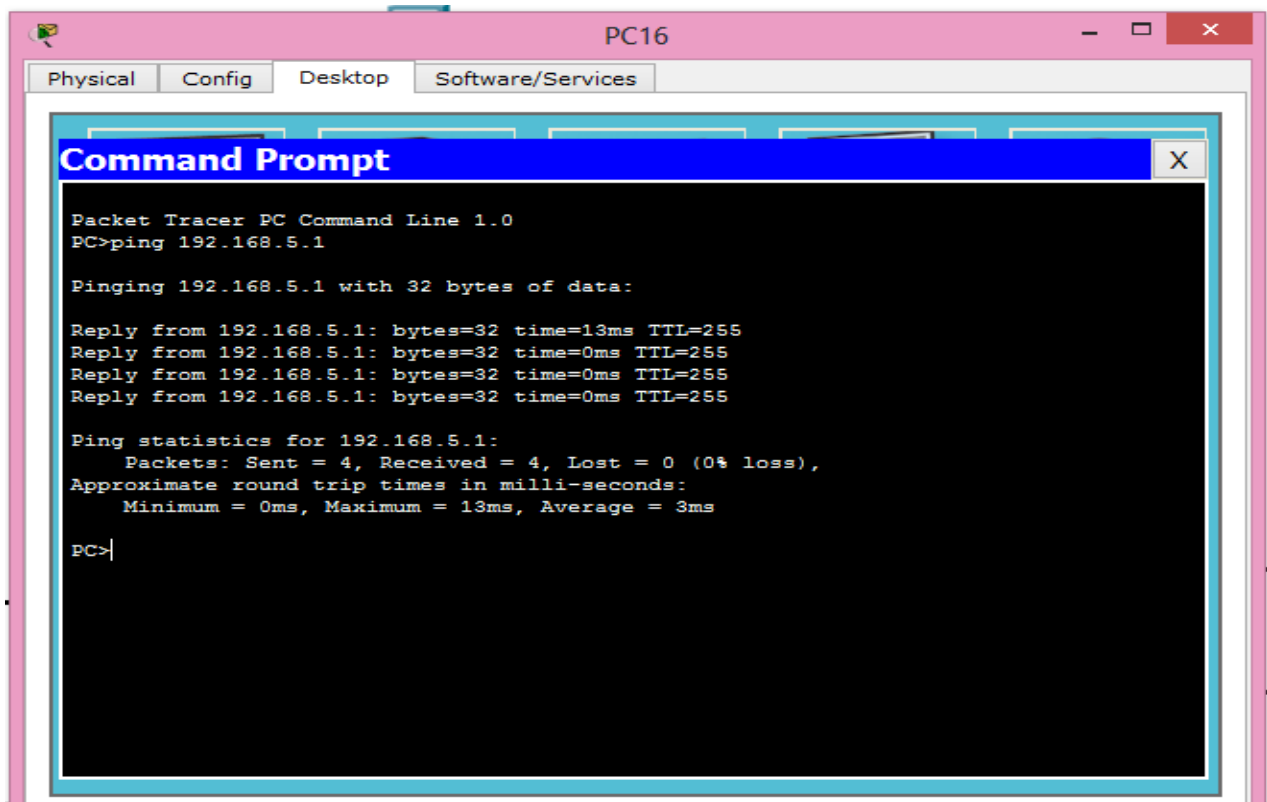
Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time=1ms TTL=255
Reply from 192.168.3.1: bytes=32 time=0ms TTL=255
Reply from 192.168.3.1: bytes=32 time=1ms TTL=255
Reply from 192.168.3.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```

Ping de la PC12 a Mandril.



The screenshot shows a Packet Tracer PC window titled "PC16" with tabs for Physical, Config, Desktop, and Software/Services. A "Command Prompt" window is open, displaying the following text:

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.5.1

Pinging 192.168.5.1 with 32 bytes of data:

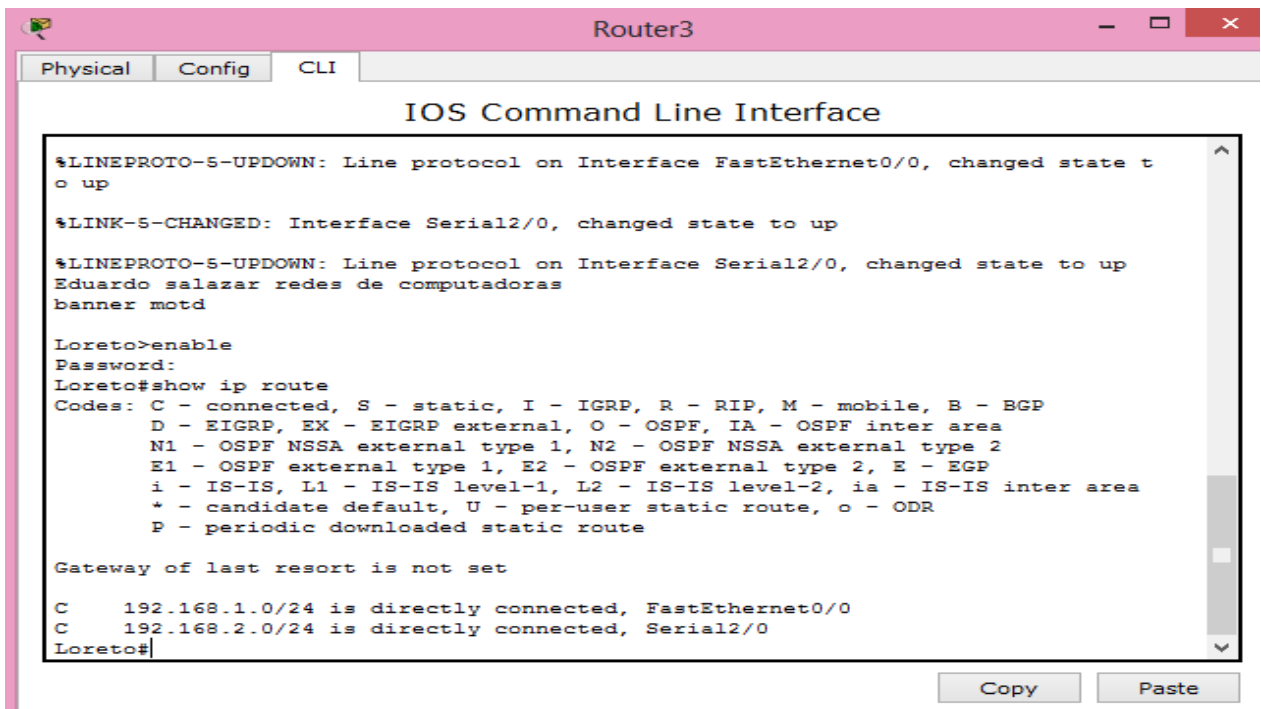
Reply from 192.168.5.1: bytes=32 time=13ms TTL=255
Reply from 192.168.5.1: bytes=32 time=0ms TTL=255
Reply from 192.168.5.1: bytes=32 time=0ms TTL=255
Reply from 192.168.5.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 3ms

PC>|
```

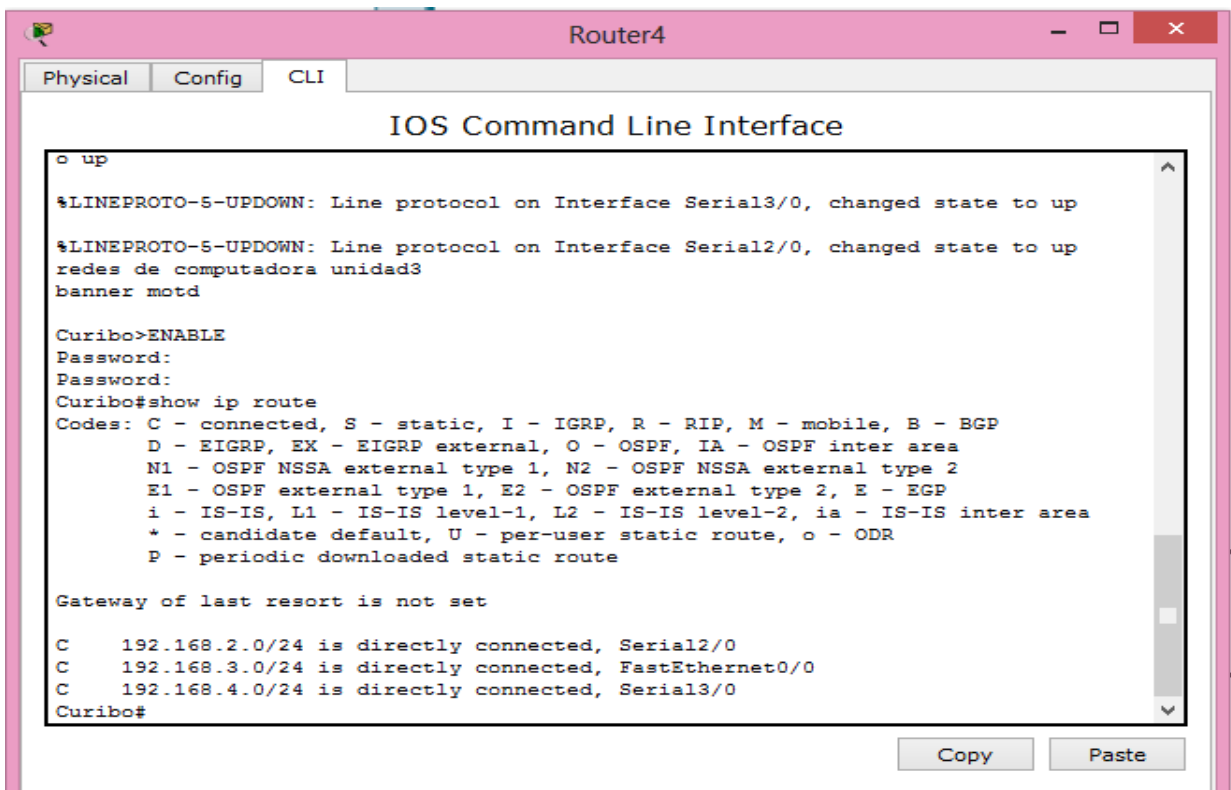
Además de eso podemos mostrar una tabla con la instrucción show ip route.

R1.



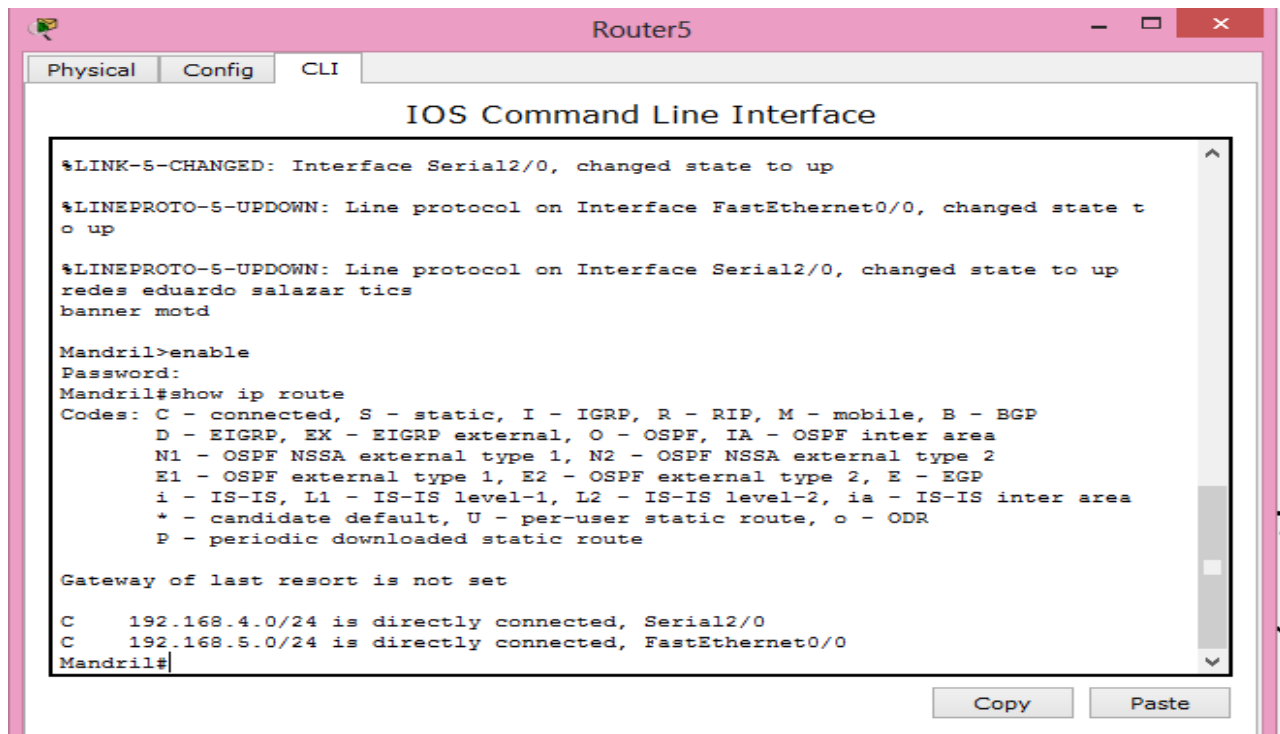
The screenshot shows the CLI of Router3. The window title is "Router3". The tabs are "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface". The output shows several status messages: "%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up", "%LINK-5-CHANGED: Interface Serial2/0, changed state to up", and "%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up". Below these, there is a banner message: "Eduardo salazar redes de computadoras banner motd". The user enters "enable" and "show ip route". The output of "show ip route" includes a legend for codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP, D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area, N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2, E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP, i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area, \* - candidate default, U - per-user static route, o - ODR, P - periodic downloaded static route. It also states "Gateway of last resort is not set". The routing table shows two entries: "C 192.168.1.0/24 is directly connected, FastEthernet0/0" and "C 192.168.2.0/24 is directly connected, Serial2/0". The prompt is "Loreto#".

R2.



The screenshot shows the CLI of Router4. The window title is "Router4". The tabs are "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface". The output shows several status messages: "o up", "%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up", "%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up", and "redes de computadora unidad3 banner motd". The user enters "ENABLE" and "show ip route". The output of "show ip route" includes a legend for codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP, D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area, N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2, E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP, i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area, \* - candidate default, U - per-user static route, o - ODR, P - periodic downloaded static route. It also states "Gateway of last resort is not set". The routing table shows three entries: "C 192.168.2.0/24 is directly connected, Serial2/0", "C 192.168.3.0/24 is directly connected, FastEthernet0/0", and "C 192.168.4.0/24 is directly connected, Serial3/0". The prompt is "Curibo#".

R3.



```
Router5
Physical Config CLI
IOS Command Line Interface

%LINK-S-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
redes eduardo salazar tics
banner motd

Mandril>enable
Password:
Mandril#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C     192.168.4.0/24 is directly connected, Serial2/0
C     192.168.5.0/24 is directly connected, FastEthernet0/0
Mandril#
```

### CONCLUSIÓN

Puedo decir que en esta práctica solo era necesario analizar la imagen que se nos proporcionó ya que de hay íbamos a obtener las direcciones IP de cada uno de los dispositivos, además de que se les realizó configuraciones iniciales, como, el cambio de nombre, cambio de contraseña, etc., de igual forma fue necesario levantar los puertos tanto los puertos fa como los seriales de cada router, esto con el fin de que hagan conexión los dispositivos, pues más que nada no se hizo algo nuevo.