

INSTITUTO TÉCNICO DE SALINA CRUZ

REDES DE COMPUTADORA

SEMESTRE FEBRERO-AGOSTO 2015

REPORTE DE PRÁCTICAS

PRACTICA N°: 6

UNIDAD: 2

FECHA: 15 DE ABRIL DE 2015

NOMBRE: EDUARDO SALAZAR IRRIZARI

Objetivo:

Identificar el enrutamiento estático y dinámico, además de aplicar el enrutamiento estático a una red WAN.

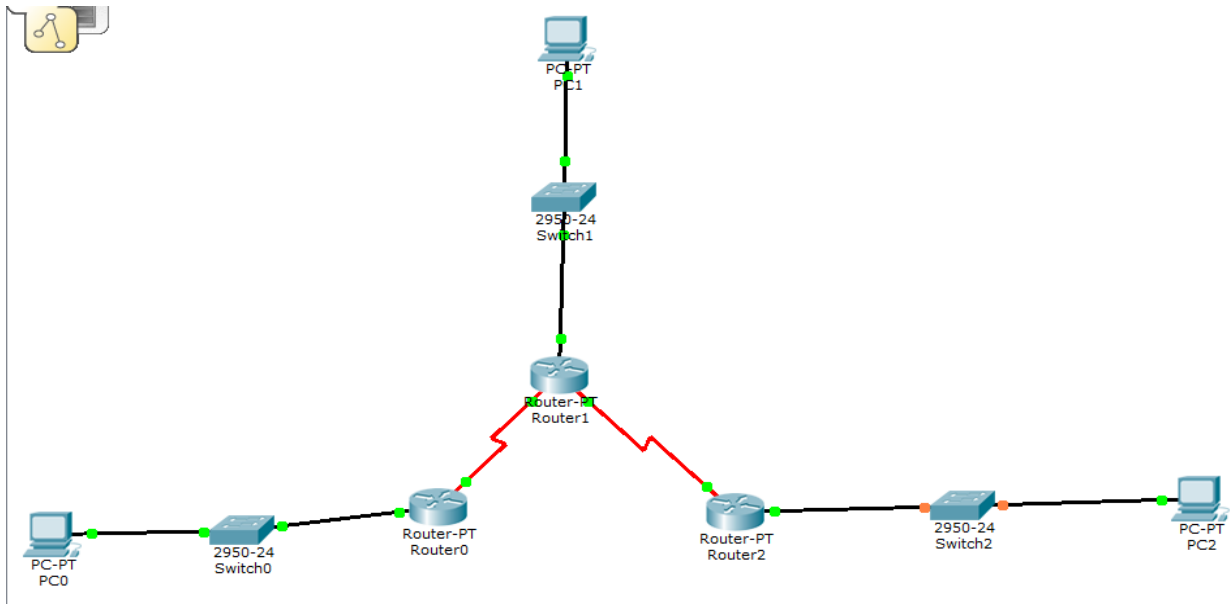
Instrucciones:

- 1.- Cambiar de nombre a los dispositivos.
- 2.- configurar banner a ambos router's.
- 3.- levantar los puertos fa0 a ambos routers.
- 4.- levantar los seriales de ambos routers.
6. Comprobar conexiones por medio de ping.

Materiales:

- 1.- computadora.
- 2.- Packet tracet.

INSTITUTO TECNOLÓGICO DE SALINA CRUZ
REDES DE COMPUTADORAS
PRACTICAS UNIDAD 2



PASO 1

Construir la tabla de direccionamiento

Dispositivo	Interfaz	Dirección IP	Mascara de subred	Gateway
R1	Fa0/0	192.168.10.1	255.255.255.0	No aplicable
	S2/0	10.0.0.2	255.0.0.0	No aplicable
R2	Fa0/0	192.16.11.2	255.255.5.0	No aplicable
	S2/0	10.0.0.1	255.0.0.0	No aplicable
	S3/0	11.0.0.1	255.255.0.0	No aplicable
R3	Fa0/0	192.168.20.1	255.255.255.0	No aplicable
	S2/0	11.0.0.2	255.0.0.0	No aplicable
PC1	No aplicable	172.16.3.10	255.255.0.0	192.16.10.1
PC2	No aplicable	172.16.1.10	255.255.0.0	192.16.11.2
PC3	No aplicable	192.168.2.10	255.255.255.0	192.168.20.1

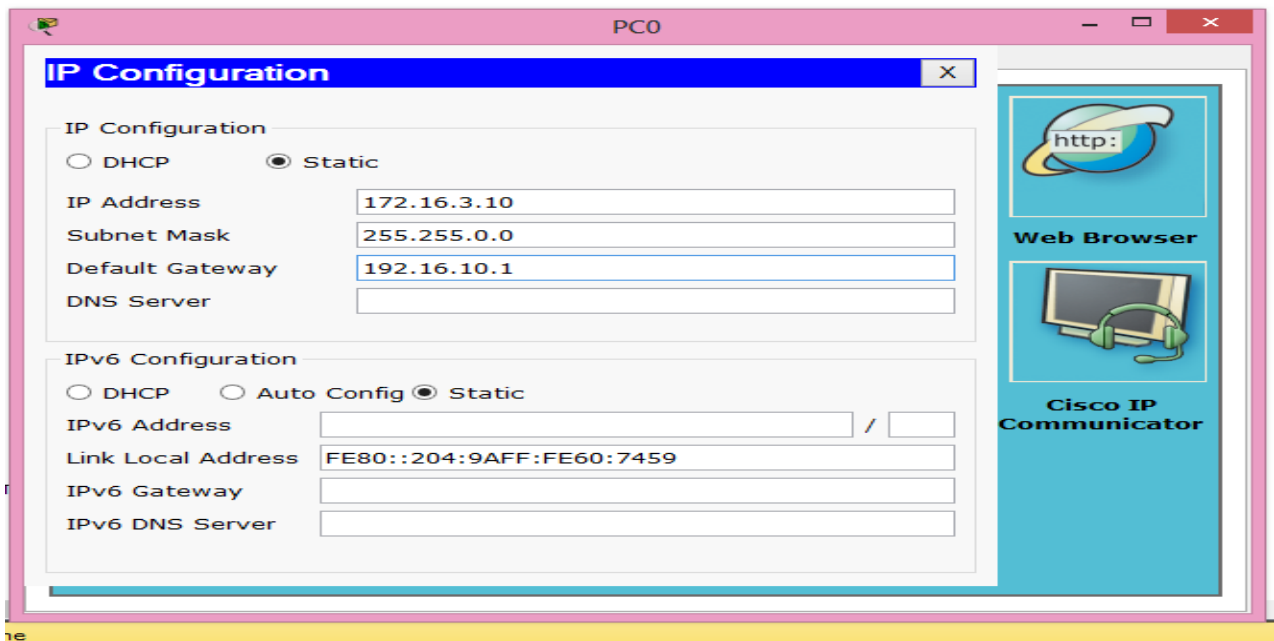
PASO 2

CONFIGURACIÓN INICIAL

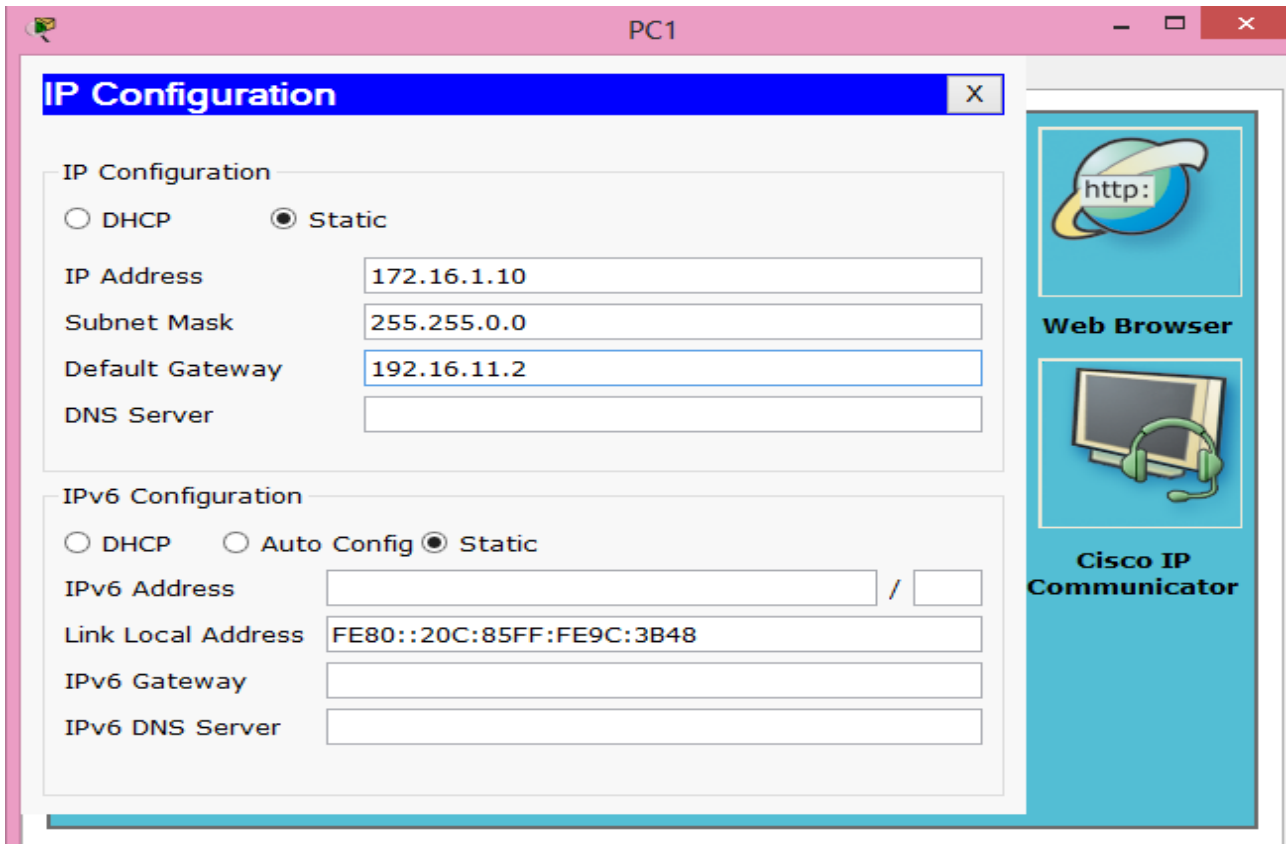
A) HOST

***Agregar puerta de enlace**

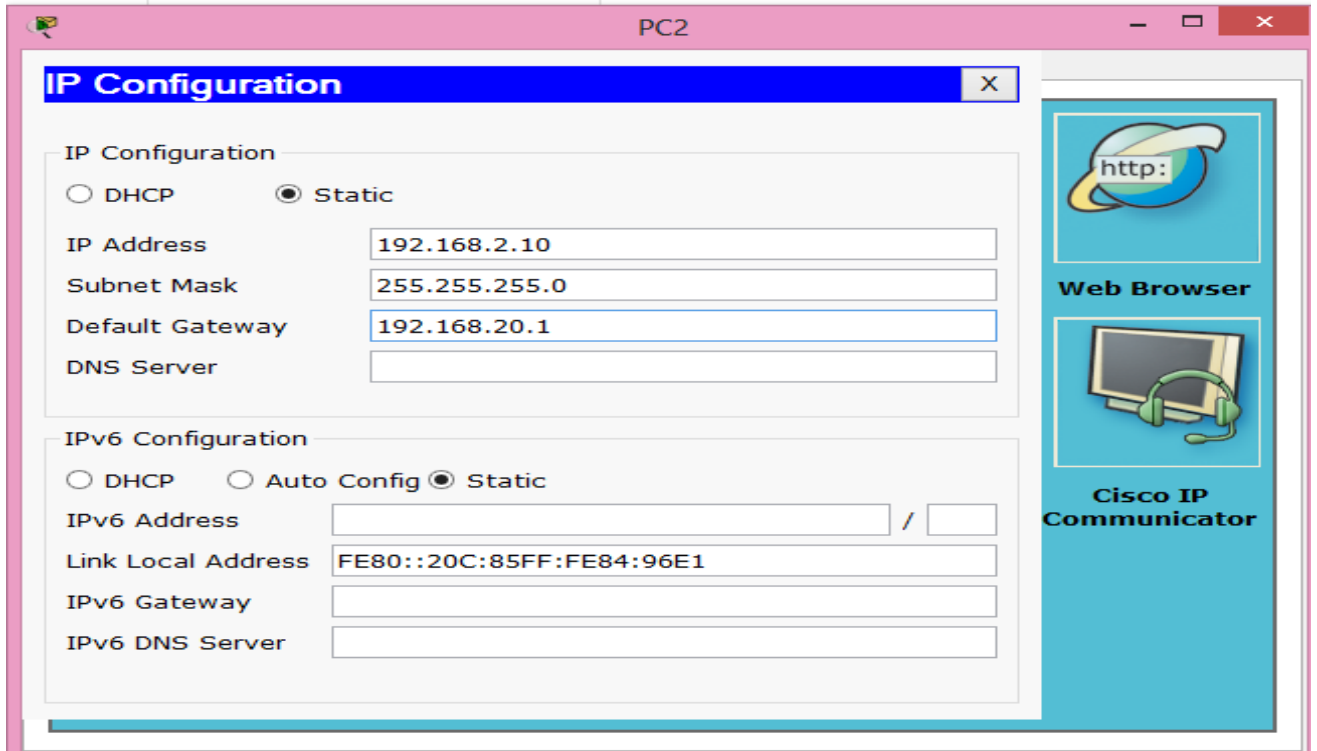
PC1



PC2



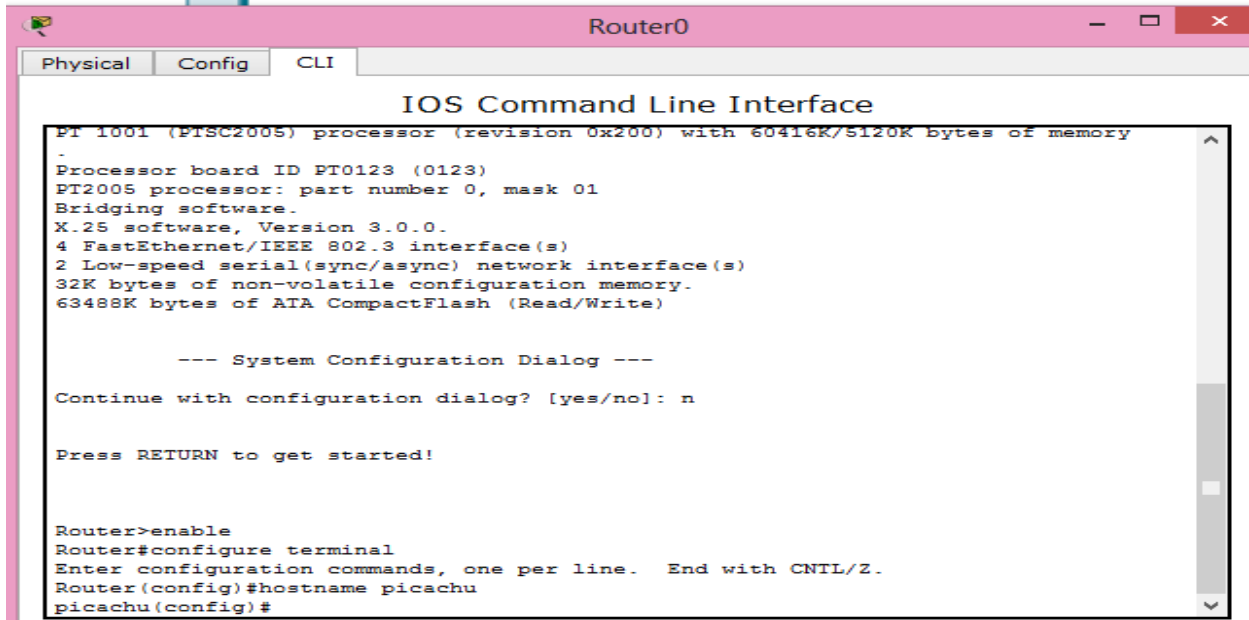
PC3



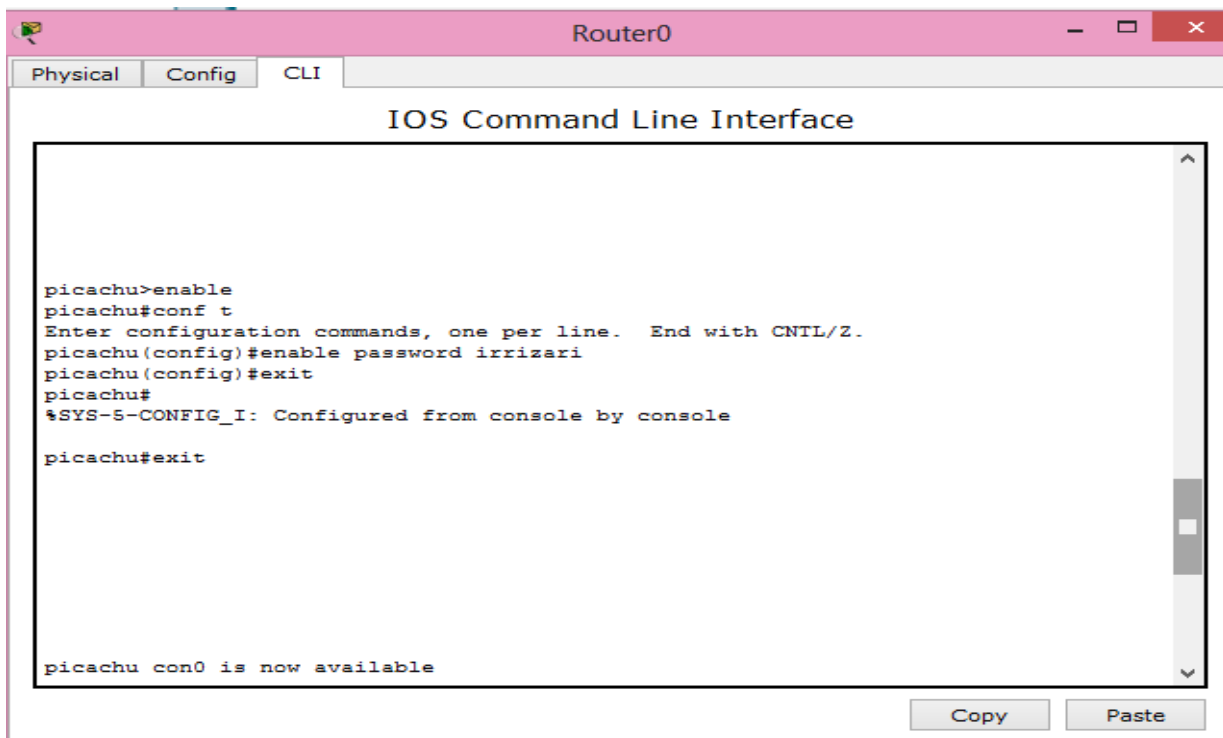
Después de realizar la configuración a las pc's pasamos a configuración básica de los routers.

ROUTER1

Cambiar nombre.



Cambiar contraseña.



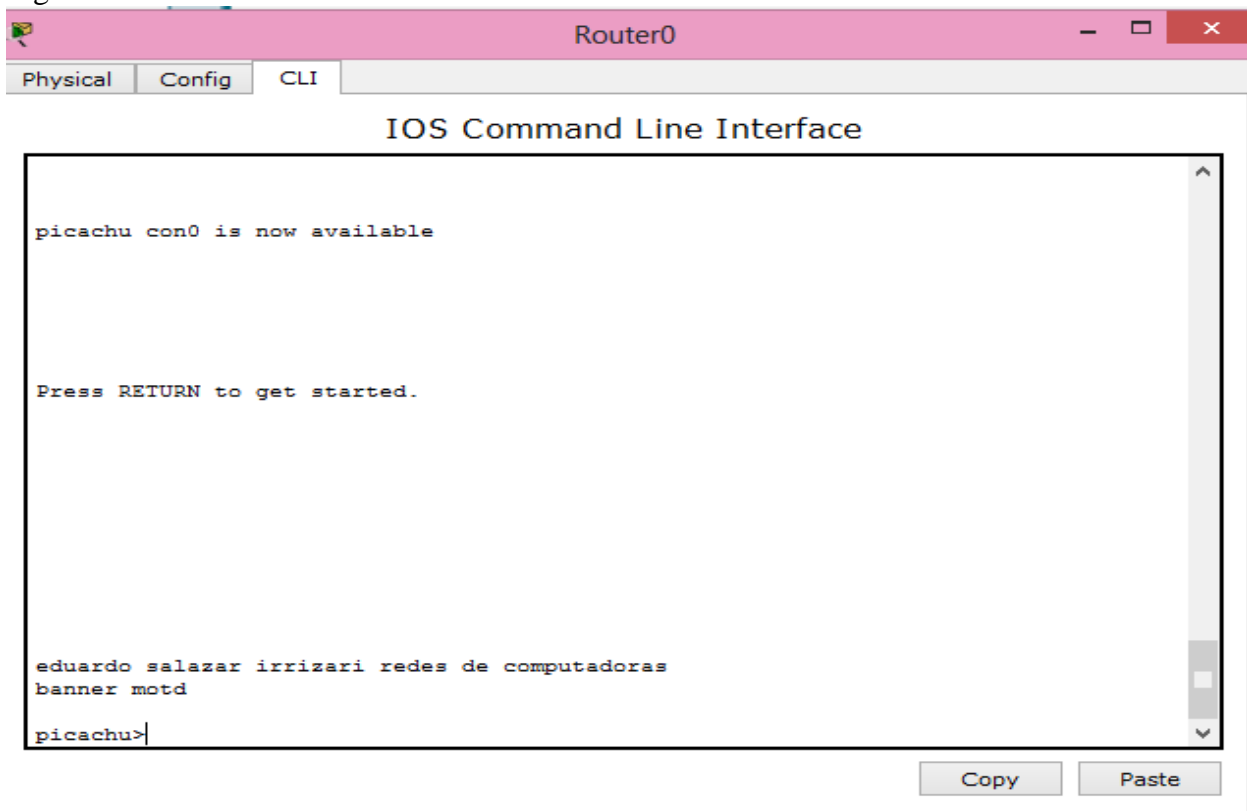
The screenshot shows a terminal window titled "Router0" with tabs for "Physical", "Config", and "CLI". The main area is labeled "IOS Command Line Interface" and contains the following text:

```
picachu>enable
picachu#conf t
Enter configuration commands, one per line. End with CNTL/Z.
picachu(config)#enable password irrizari
picachu(config)#exit
picachu#
%SYS-5-CONFIG_I: Configured from console by console

picachu#exit
```

At the bottom of the terminal area, it says "picachu con0 is now available". Below the terminal area are "Copy" and "Paste" buttons.

Ingresa el banner.



The screenshot shows the same "Router0" terminal window. The terminal area now displays:

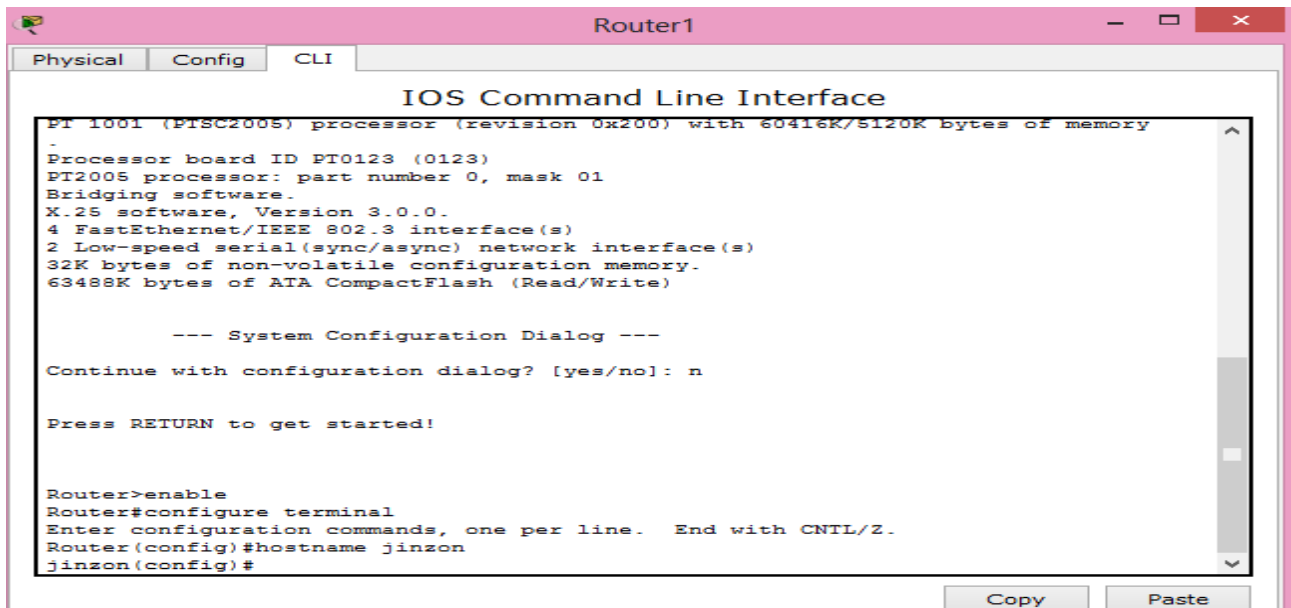
```
picachu con0 is now available

Press RETURN to get started.

eduardo salazar irrizari redes de computadoras
banner motd
picachu>
```

Below the terminal area are "Copy" and "Paste" buttons.

ROUTER 2.
Cambiarle el nombre.



The screenshot shows the Router1 CLI window with the 'Config' tab selected. The title bar reads 'Router1'. The main window title is 'IOS Command Line Interface'. The terminal output displays system information for a PT 1001 (PTSC2005) processor with 60416K/5120K bytes of memory. It lists hardware details like the processor board ID (PT0123) and network interfaces (4 FastEthernet/IEEE 802.3 and 2 Low-speed serial). A system configuration dialog asks to continue with configuration, which is answered 'n'. The user then enters 'enable' to reach the configuration mode. The command 'configure terminal' is entered, followed by 'hostname jinzon' to change the router's name. The prompt changes from 'Router#' to 'jinzon#'.

```
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)

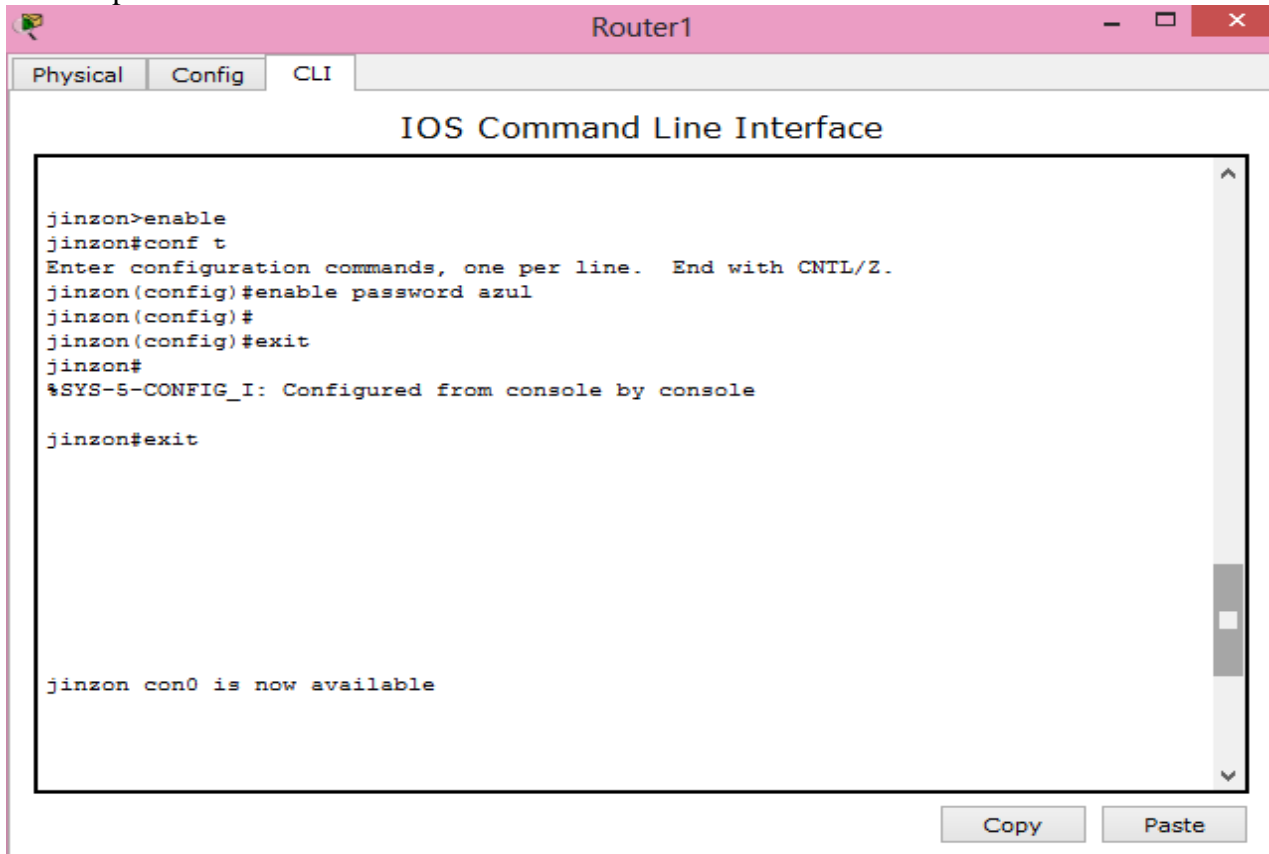
--- System Configuration Dialog ---

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 jinzon
jinzon(config)#
```

Ponerle password.



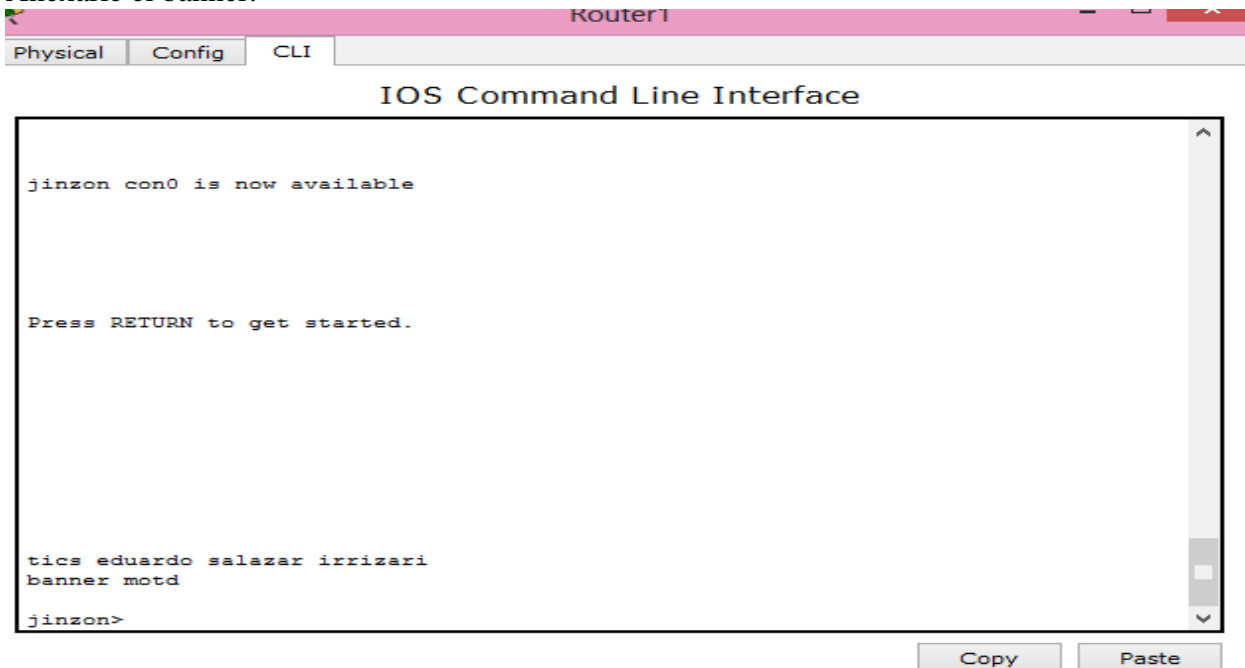
The screenshot shows the Router1 CLI window with the 'Config' tab selected. The title bar reads 'Router1'. The main window title is 'IOS Command Line Interface'. The terminal output shows the user entering 'enable' to reach configuration mode. The command 'conf t' is entered, followed by 'enable password azul' to set the console password. The user then enters 'exit' to return to the user EXEC mode. The prompt changes from 'jinzon#' to 'jinzon#'. A system message indicates the configuration was applied: '%SYS-5-CONFIG_I: Configured from console by console'. Finally, the user enters 'exit' again, and the prompt changes to 'jinzon con0 is now available'.

```
jinzon>enable
jinzon#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
jinzon(config)#enable password azul
jinzon(config)#
jinzon(config)#exit
jinzon#
%SYS-5-CONFIG_I: Configured from console by console

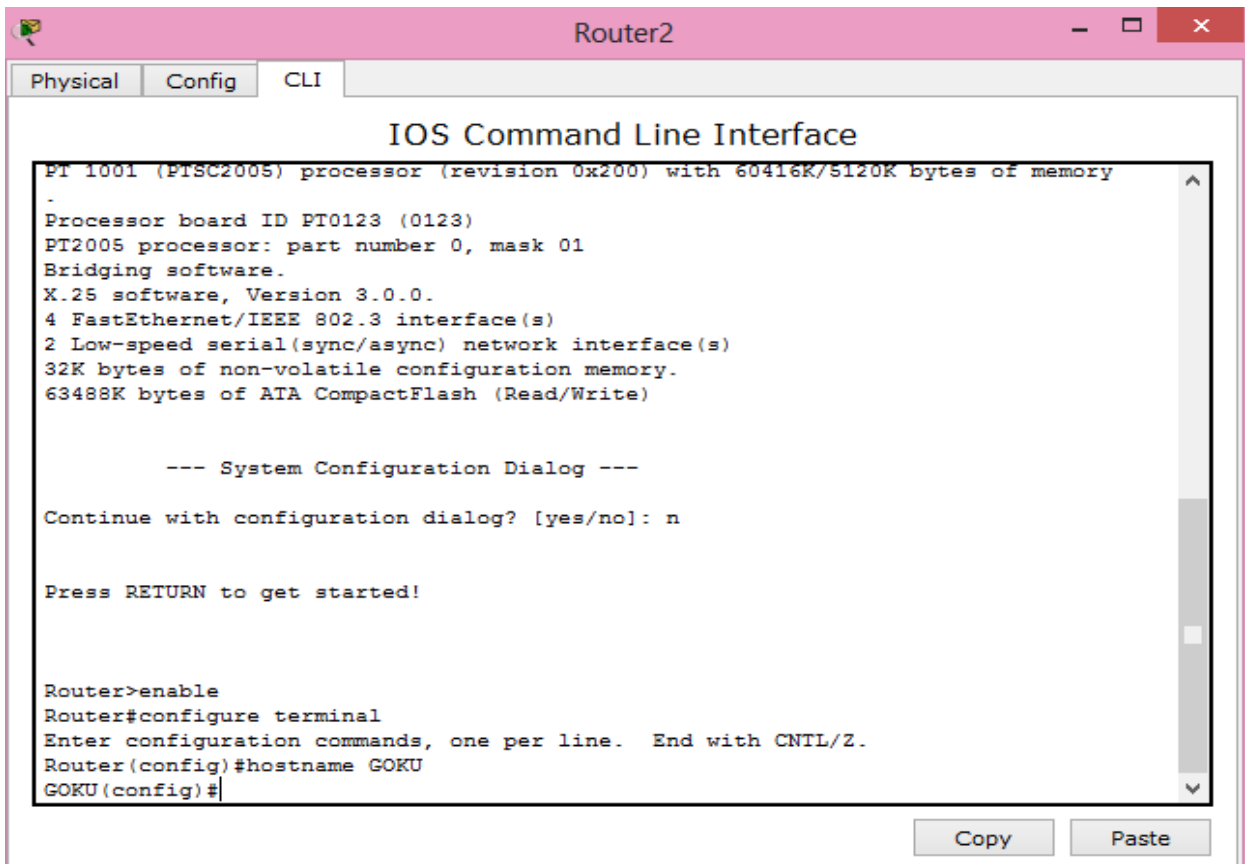
jinzon#exit

jinzon con0 is now available
```

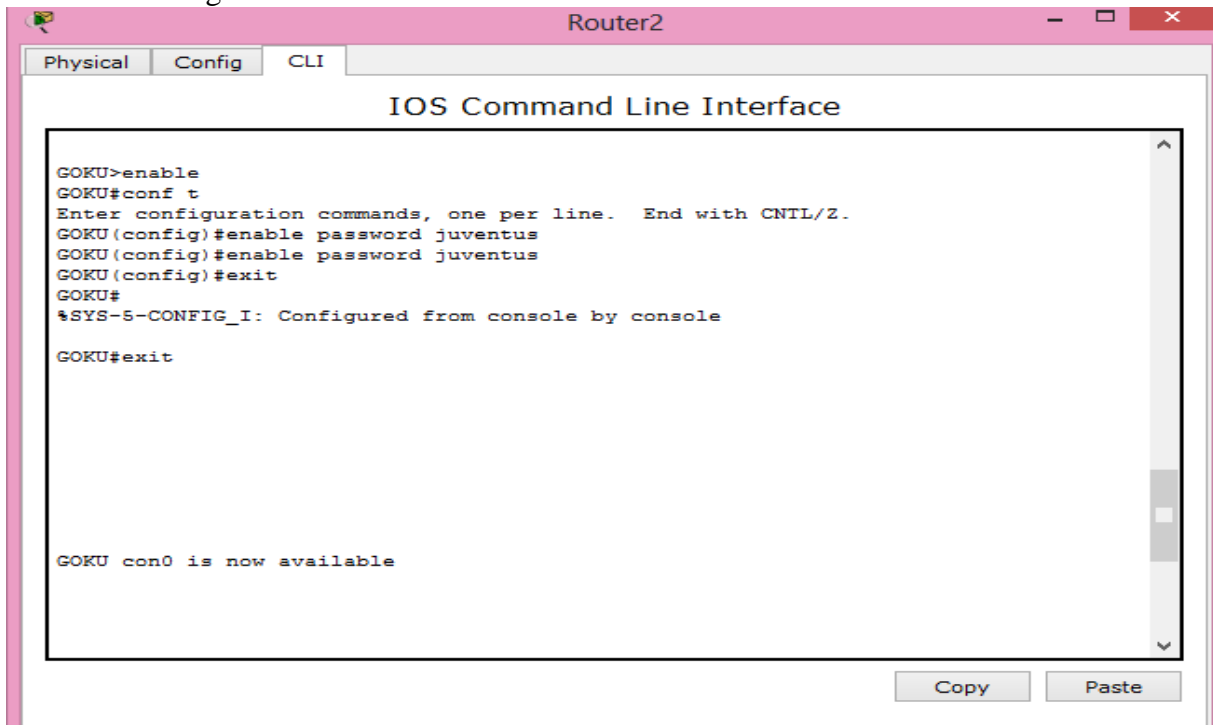
Anexarle el banner.



ROUTER3.



Cambiarle la seguridad.



The screenshot shows the Router2 CLI interface with the following text:

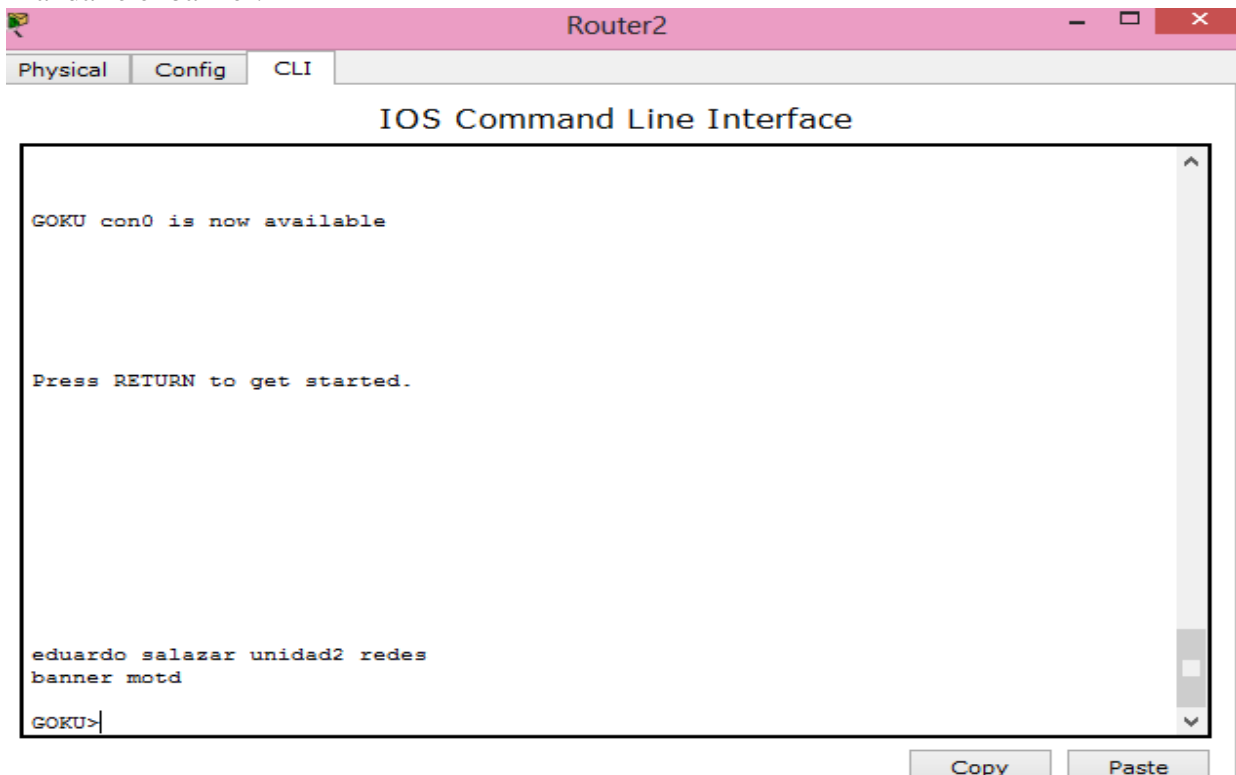
```
GOKU>enable
GOKU#conf t
Enter configuration commands, one per line. End with CNTL/Z.
GOKU(config)#enable password juventus
GOKU(config)#enable password juventus
GOKU(config)#exit
GOKU#
%SYS-5-CONFIG_I: Configured from console by console

GOKU#exit

GOKU con0 is now available
```

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

Mandarle el banner.



The screenshot shows the Router2 CLI interface with the following text:

```
GOKU con0 is now available

Press RETURN to get started.

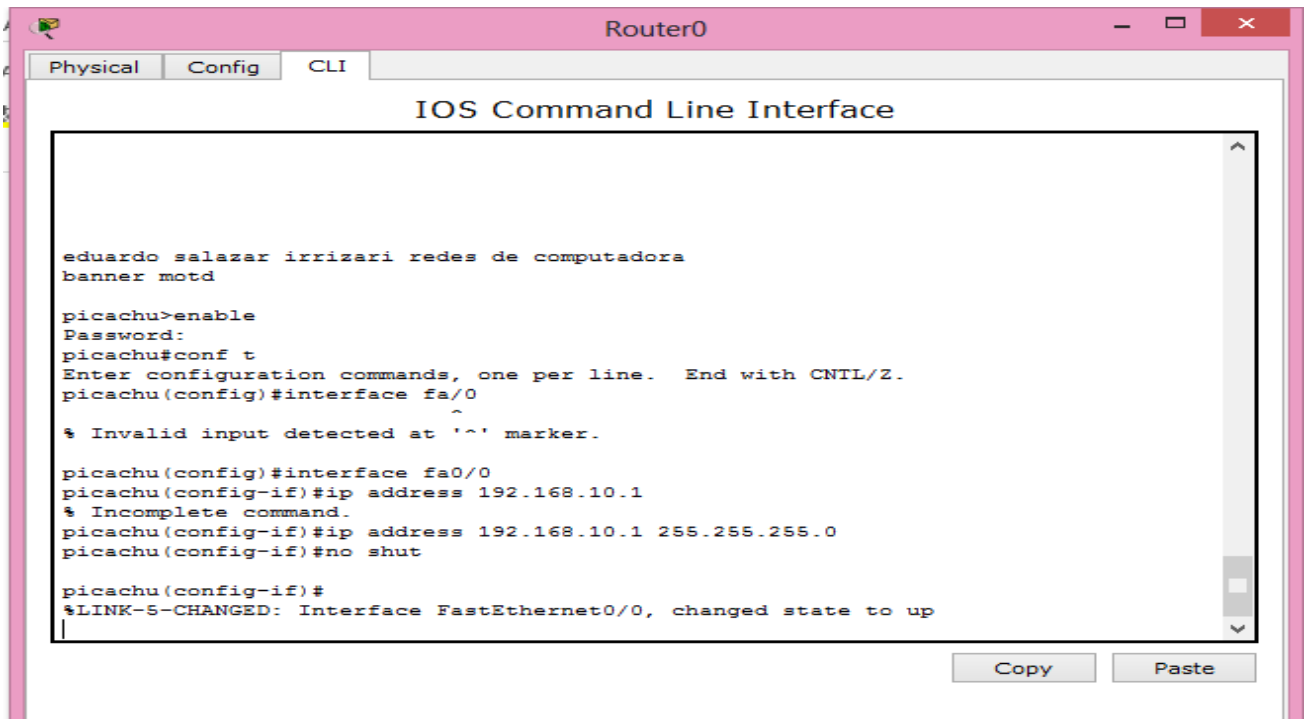
eduardo salazar unidad2 redes
banner motd
GOKU>
```

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

PASO3.

Levantar los puertos fa y los seriales.

ROUTER1.



The screenshot shows the Router0 CLI window with the following text:

```
Router0
Physical Config CLI
IOS Command Line Interface

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banner motd

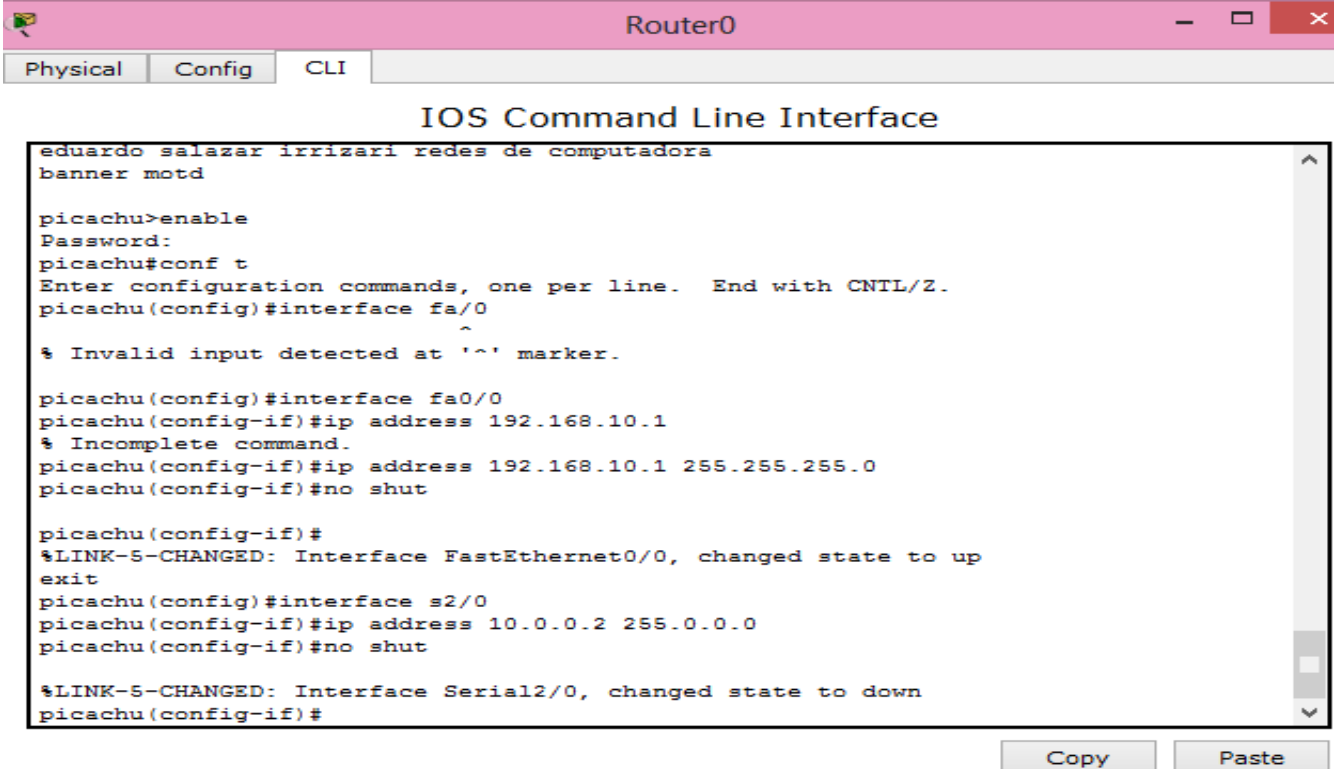
picachu>enable
Password:
picachu#conf t
Enter configuration commands, one per line. End with CNTL/Z.
picachu(config)#interface fa/0
^
% Invalid input detected at '^' marker.

picachu(config)#interface fa0/0
picachu(config-if)#ip address 192.168.10.1
% Incomplete command.
picachu(config-if)#ip address 192.168.10.1 255.255.255.0
picachu(config-if)#no shut

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

Buttons: Copy, Paste

Serial2/0.



The screenshot shows the Router0 CLI window with the following text:

```
Router0
Physical Config CLI
IOS Command Line Interface

eduardo salazar irrizari redes de computadora
banner motd

picachu>enable
Password:
picachu#conf t
Enter configuration commands, one per line. End with CNTL/Z.
picachu(config)#interface fa/0
^
% Invalid input detected at '^' marker.

picachu(config)#interface fa0/0
picachu(config-if)#ip address 192.168.10.1
% Incomplete command.
picachu(config-if)#ip address 192.168.10.1 255.255.255.0
picachu(config-if)#no shut

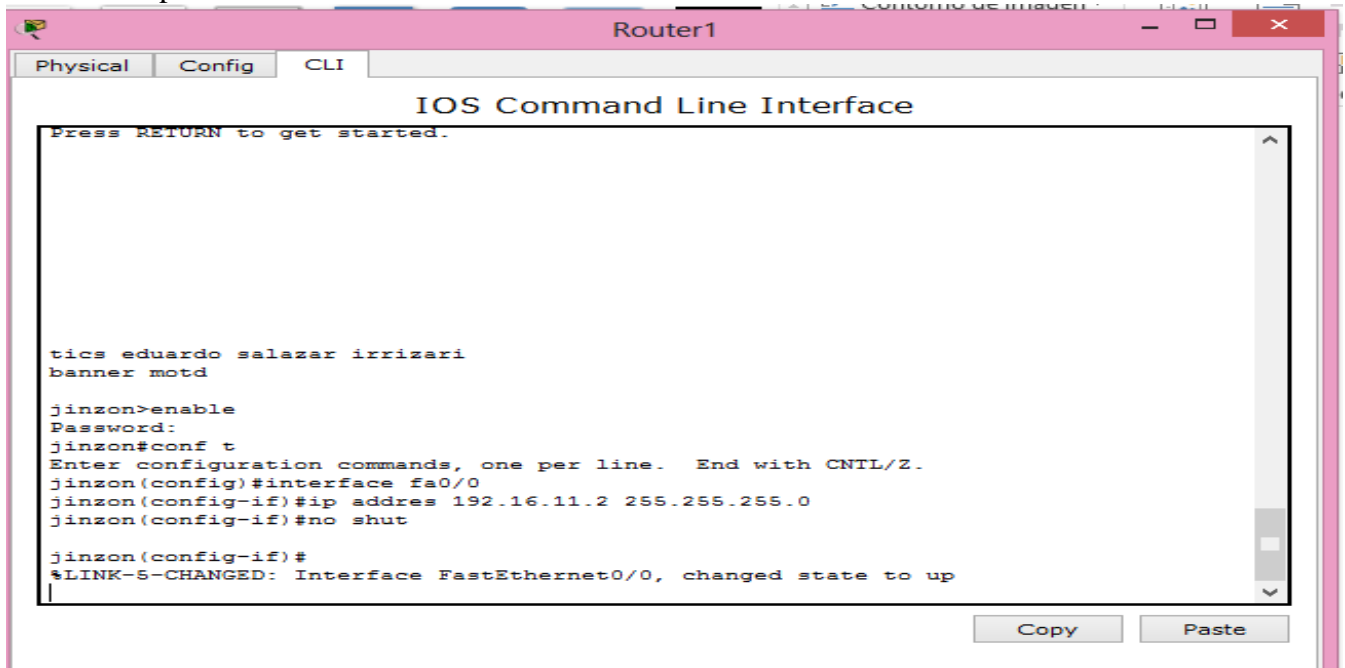
picachu(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
exit
picachu(config)#interface s2/0
picachu(config-if)#ip address 10.0.0.2 255.0.0.0
picachu(config-if)#no shut

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

Buttons: Copy, Paste

ROUTER2.

Levantar el puerto fa0/0



The screenshot shows the Router1 CLI interface with the following text:

```
Press RETURN to get started.

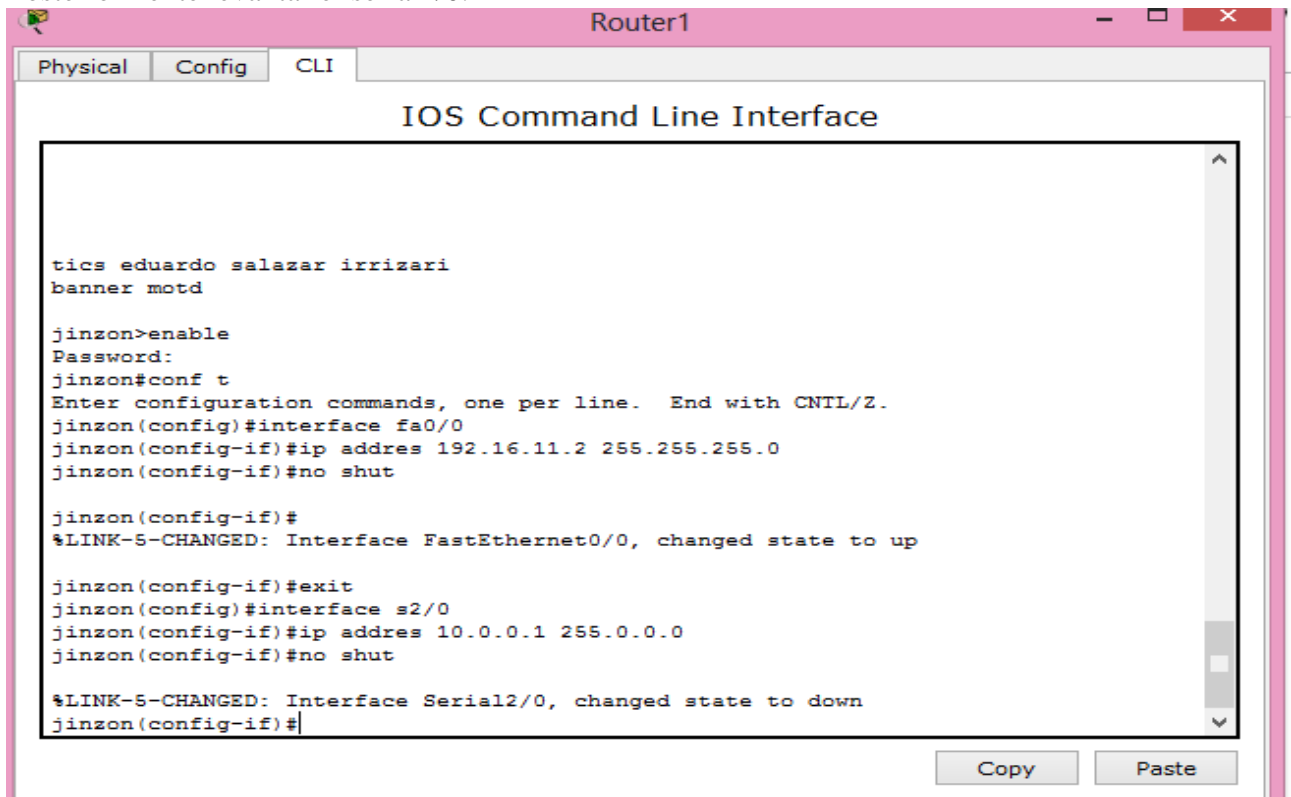
tics eduardo salazar irrizari
banner motd

jinzon>enable
Password:
jinzon#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
jinzon(config)#interface fa0/0
jinzon(config-if)#ip address 192.16.11.2 255.255.255.0
jinzon(config-if)#no shut

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

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

Posteriormente levantar el serial2/0.



The screenshot shows the Router1 CLI interface with the following text:

```
tics eduardo salazar irrizari
banner motd

jinzon>enable
Password:
jinzon#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
jinzon(config)#interface fa0/0
jinzon(config-if)#ip address 192.16.11.2 255.255.255.0
jinzon(config-if)#no shut

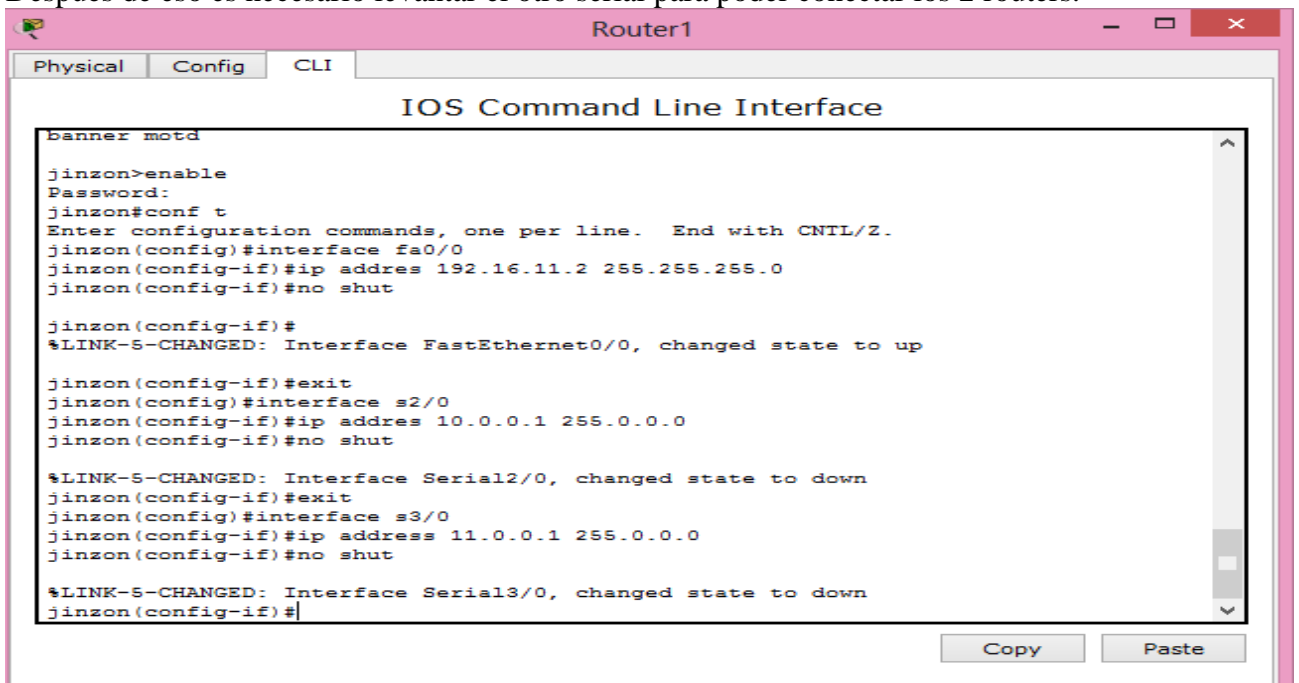
jinzon(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

jinzon(config-if)#exit
jinzon(config)#interface s2/0
jinzon(config-if)#ip address 10.0.0.1 255.0.0.0
jinzon(config-if)#no shut

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

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

Después de eso es necesario levantar el otro serial para poder conectar los 2 routers.



```
Router1
Physical Config CLI
IOS Command Line Interface

banner motd
jinzon>enable
Password:
jinzon#conf t
Enter configuration commands, one per line. End with CNTL/Z.
jinzon(config)#interface fa0/0
jinzon(config-if)#ip address 192.16.11.2 255.255.255.0
jinzon(config-if)#no shut

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

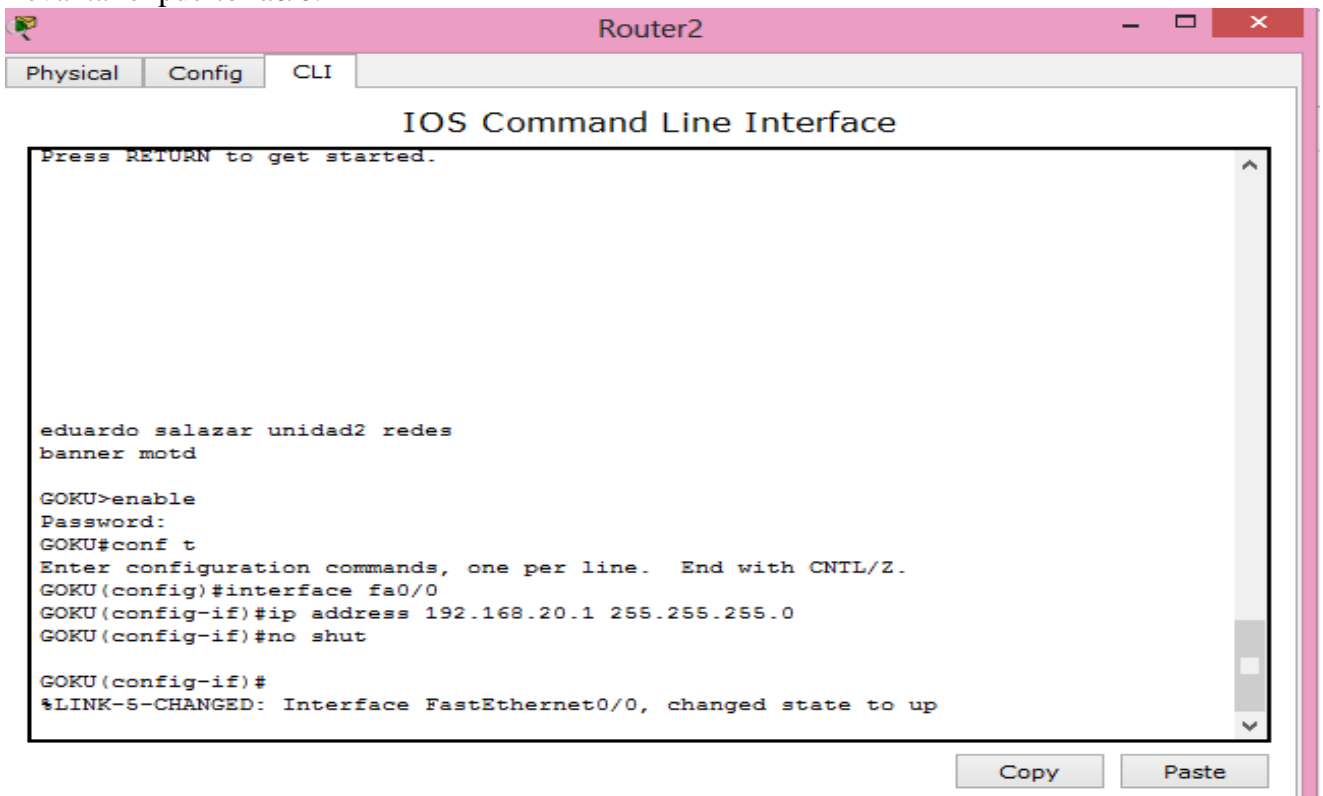
jinzon(config-if)#exit
jinzon(config)#interface s2/0
jinzon(config-if)#ip address 10.0.0.1 255.0.0.0
jinzon(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
jinzon(config-if)#exit
jinzon(config)#interface s3/0
jinzon(config-if)#ip address 11.0.0.1 255.0.0.0
jinzon(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
jinzon(config-if)#|
```

ROUTER3.

Levantar el puerto fa0/0.



```
Router2
Physical Config CLI
IOS Command Line Interface

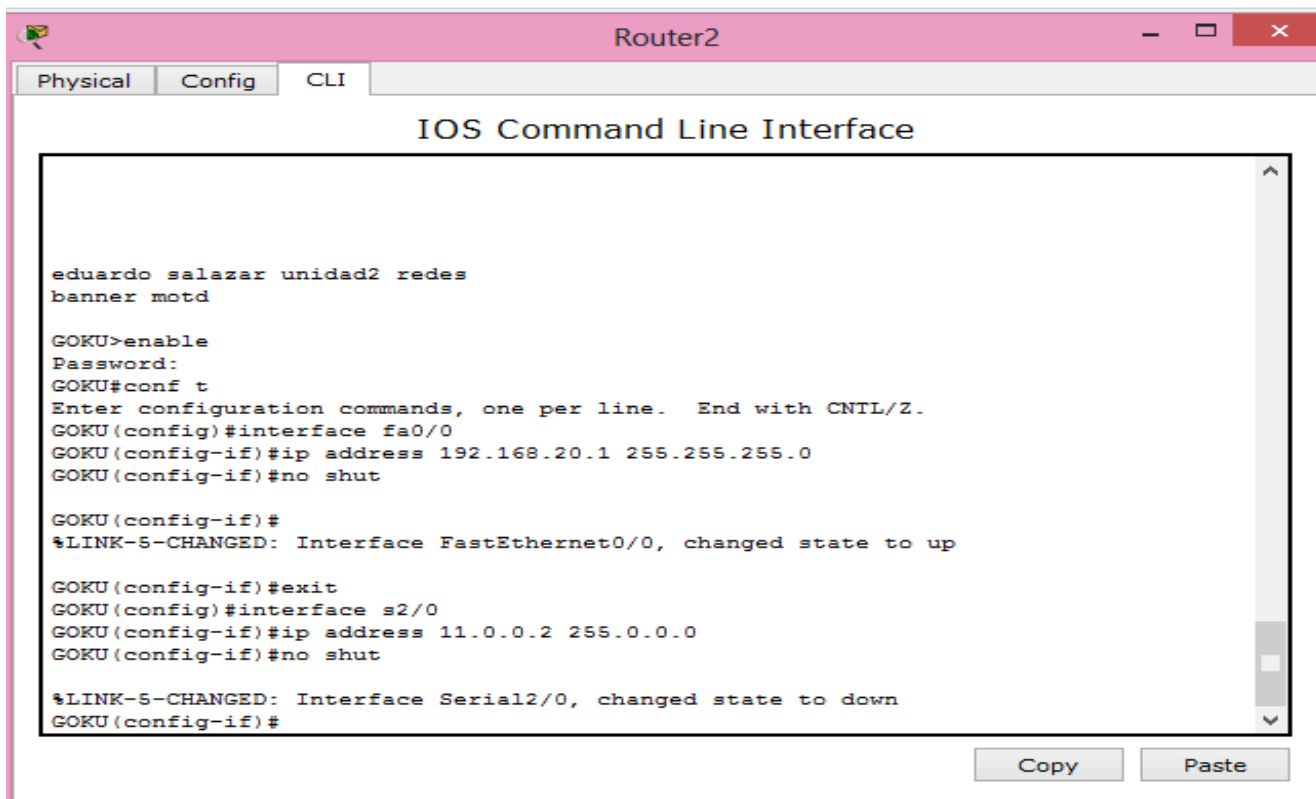
Press RETURN to get started.

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GOKU>enable
Password:
GOKU#conf t
Enter configuration commands, one per line. End with CNTL/Z.
GOKU(config)#interface fa0/0
GOKU(config-if)#ip address 192.168.20.1 255.255.255.0
GOKU(config-if)#no shut

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

Posteriormente levantar el serial2/0.



```
Router2
Physical Config CLI
IOS Command Line Interface

eduardo salazar unidad2 redes
banner motd

GOKU>enable
Password:
GOKU#conf t
Enter configuration commands, one per line. End with CNTL/Z.
GOKU(config)#interface fa0/0
GOKU(config-if)#ip address 192.168.20.1 255.255.255.0
GOKU(config-if)#no shut

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

GOKU(config-if)#exit
GOKU(config)#interface s2/0
GOKU(config-if)#ip address 11.0.0.2 255.0.0.0
GOKU(config-if)#no shut

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

Copy Paste
```

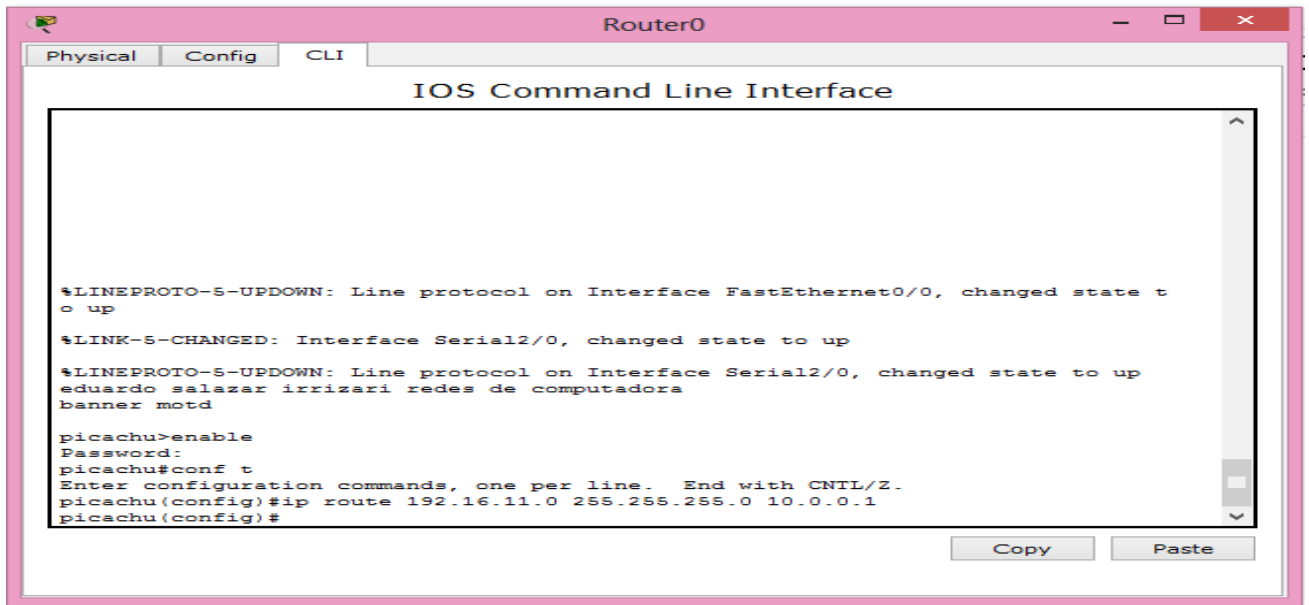
PASO 3

Configurar Rutas Estáticas

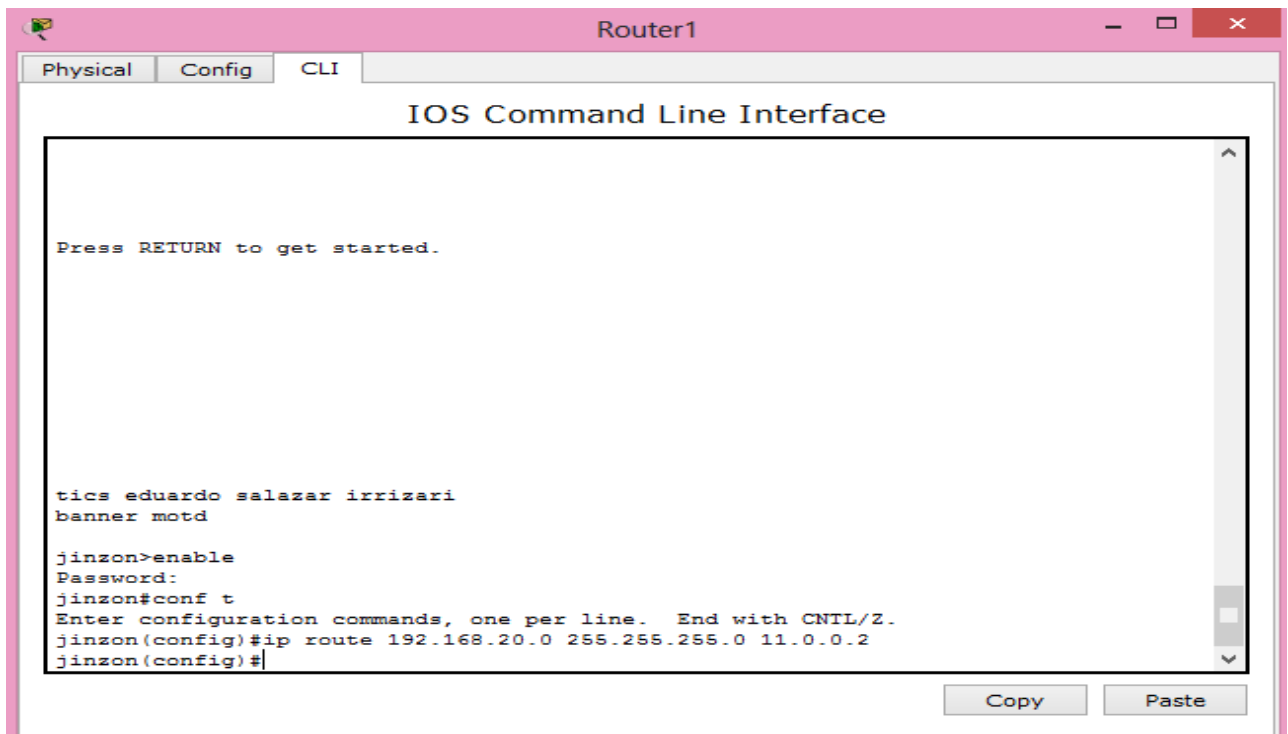
- a) IP del siguiente salto
- b) Interfaz desalida

NOTA: Normalmente se usa la “IP del siguiente salto” que es la IP de la interfaz del router directamente conectado, pero si entre los datos no se tiene, se puede usar la “interfaz de salida” que es la interfaz del router local. No hay forma de hacer rutas estáticas sin conocer la dirección de red destino, para ese caso se usan “rutas por defecto” o un “default gateway” en el router.

A) Configurar Rutas Estáticas Utilizando la “IP del Siguiete Salto” Router A



RouterB



Router1

Physical Config CLI

IOS Command Line Interface

```
Press RETURN to get started.
```

```
tics eduardo salazar irrizari
banner motd

jinzon>enable
Password:
jinzon#conf t
Enter configuration commands, one per line. End with CNTL/Z.
jinzon(config)#ip route 192.168.20.0 255.255.255.0 11.0.0.2
jinzon(config)#ip route 192.168.20.1 255.255.255.0 11.0.0.2
%Inconsistent address and mask
jinzon(config)#ip route 192.168.21.0 255.255.255.0 11.0.0.2
jinzon(config)#
```

Copy Paste

RouterC

Router2

Physical Config CLI

IOS Command Line Interface

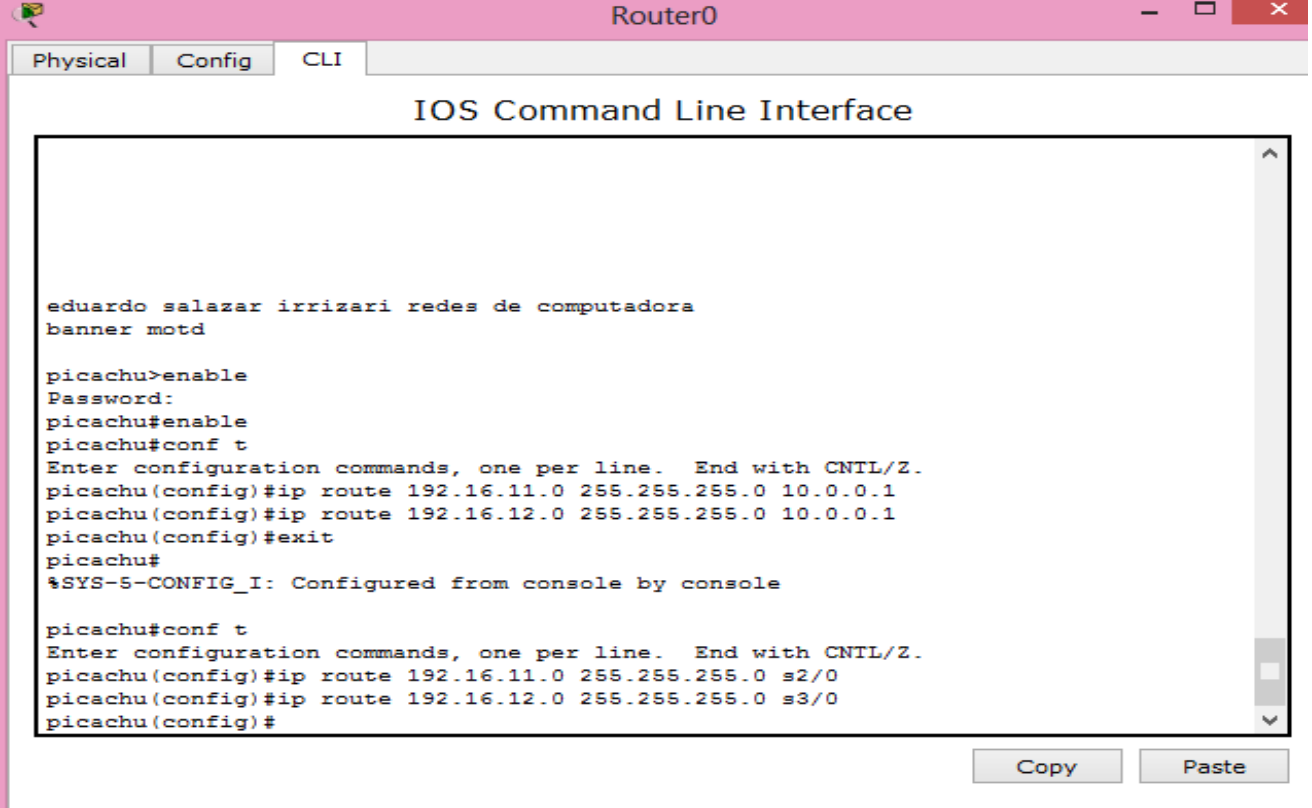
```
Press RETURN to get started.
```

```
eduardo salazar unidad2 redes
banner motd

GOKU>enable
Password:
GOKU#conf t
Enter configuration commands, one per line. End with CNTL/Z.
GOKU(config)#ip route 192.16.11.0 255.255.255.0 11.0.0.1
GOKU(config)#ip route 192.16.12.0 255.255.255.0 11.0.0.1
GOKU(config)#
```

Copy Paste

B) Configurar Rutas Estáticas Utilizando la “Interfaz de Salida” Router A



The screenshot shows the CLI interface of Router0. The window title is "Router0". The tabs are "Physical", "Config", and "CLI". The main area displays the following text:

```
IOS Command Line Interface

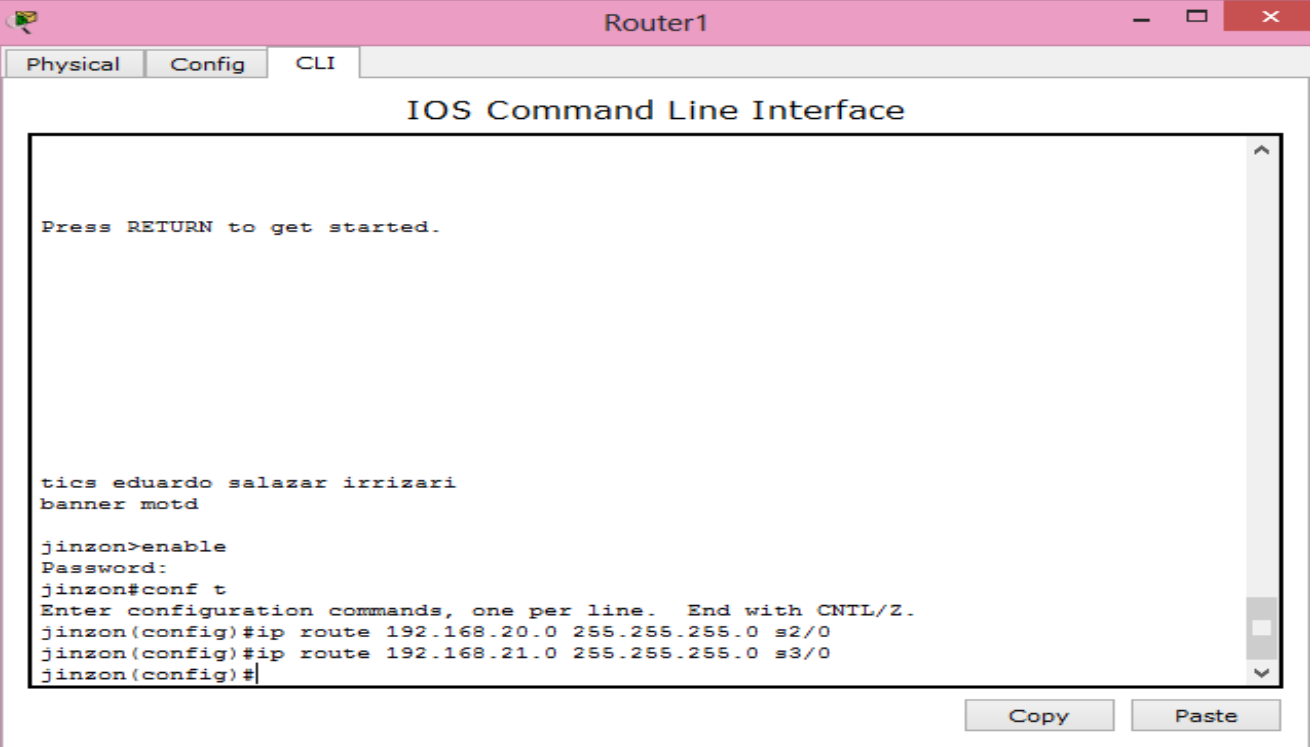
eduardo salazar irrizari redes de computadora
banner motd

picachu>enable
Password:
picachu#enable
picachu#conf t
Enter configuration commands, one per line. End with CNTL/Z.
picachu(config)#ip route 192.16.11.0 255.255.255.0 10.0.0.1
picachu(config)#ip route 192.16.12.0 255.255.255.0 10.0.0.1
picachu(config)#exit
picachu#
%SYS-5-CONFIG_I: Configured from console by console

picachu#conf t
Enter configuration commands, one per line. End with CNTL/Z.
picachu(config)#ip route 192.16.11.0 255.255.255.0 s2/0
picachu(config)#ip route 192.16.12.0 255.255.255.0 s3/0
picachu(config)#
```

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

RouterB



The screenshot shows the CLI interface of Router1. The window title is "Router1". The tabs are "Physical", "Config", and "CLI". The main area displays the following text:

```
IOS Command Line Interface

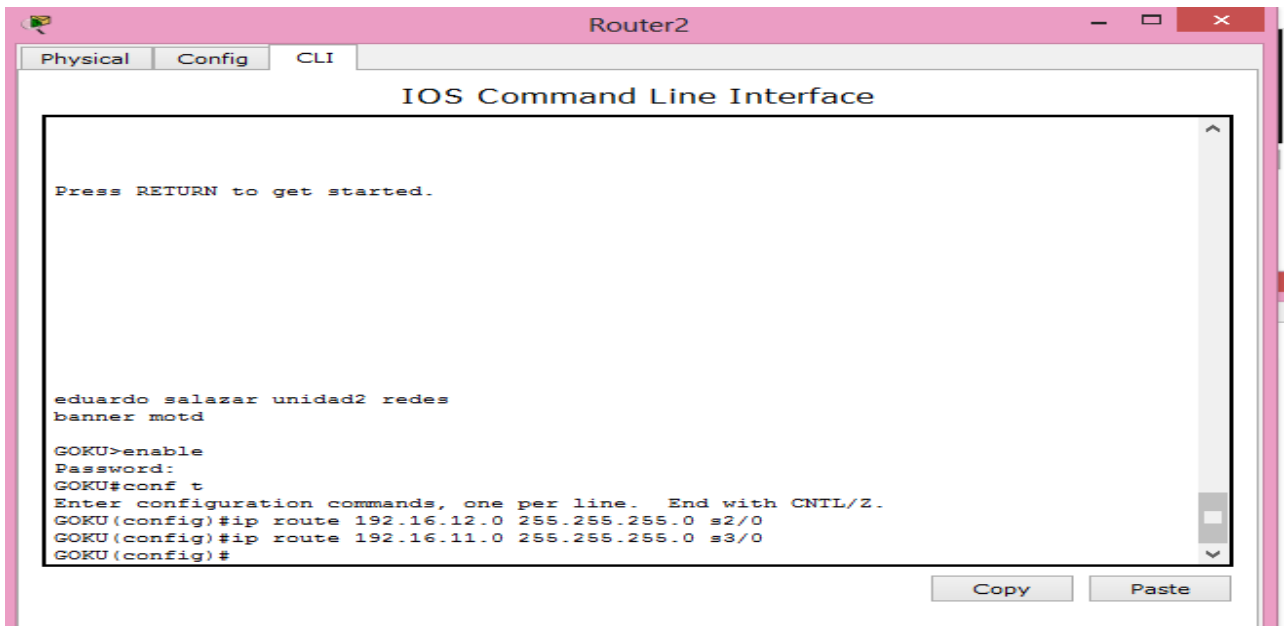
Press RETURN to get started.

tics eduardo salazar irrizari
banner motd

jinzon>enable
Password:
jinzon#conf t
Enter configuration commands, one per line. End with CNTL/Z.
jinzon(config)#ip route 192.168.20.0 255.255.255.0 s2/0
jinzon(config)#ip route 192.168.21.0 255.255.255.0 s3/0
jinzon(config)#
```

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

RouterC



```
Router2
Physical Config CLI
IOS Command Line Interface

Press RETURN to get started.

eduardo salazar unidad2 redes
banner motd

GOKU>enable
Password:
GOKU#conf t
Enter configuration commands, one per line. End with CNTL/Z.
GOKU(config)#ip route 192.16.12.0 255.255.255.0 s2/0
GOKU(config)#ip route 192.16.11.0 255.255.255.0 s3/0
GOKU(config)#
```

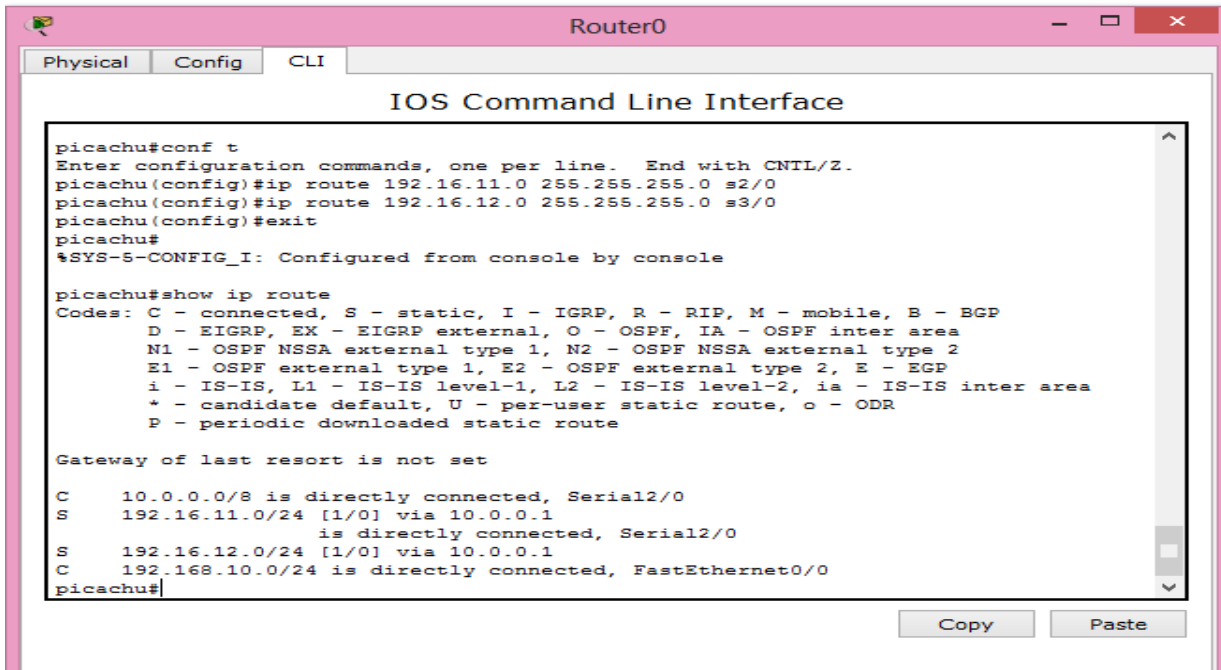
PASO 5

Comprobación de Rutas Estáticas usando la IP del Siguiete Salto

El comando “show ip route” muestra la tabla de enrutamiento del dispositivo.

Las rutas marcadas con “c” pertenecen a las redes directamente conectadas y las marcadas con “s” son las rutas estáticas configuradas.

Picachu



```
Router0
Physical Config CLI
IOS Command Line Interface

picachu#conf t
Enter configuration commands, one per line. End with CNTL/Z.
picachu(config)#ip route 192.16.11.0 255.255.255.0 s2/0
picachu(config)#ip route 192.16.12.0 255.255.255.0 s3/0
picachu(config)#exit
picachu#
%SYS-5-CONFIG_I: Configured from console by console

picachu#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    10.0.0.0/8 is directly connected, Serial2/0
S    192.16.11.0/24 [1/0] via 10.0.0.1
     is directly connected, Serial2/0
S    192.16.12.0/24 [1/0] via 10.0.0.1
C    192.168.10.0/24 is directly connected, FastEthernet0/0
picachu#
```

Jinzon.

Cisco Packet Tracer - C:\Users\eduardo\Documents\susana\6°E\UNIDAD 2\practica6.pkt

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Router1

Physical Config CLI

IOS Command Line Interface

```
Enter configuration commands, one per line. End with CNTL/Z.
jinzon(config)#ip route 192.168.20.0 255.255.255.0 s2/0
jinzon(config)#ip route 192.168.21.0 255.255.255.0 s3/0
jinzon(config)#exit
jinzon#
%SYS-5-CONFIG_I: Configured from console by console

jinzon#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 10.0.0.0/8 is directly connected, Serial2/0
C 11.0.0.0/8 is directly connected, Serial3/0
C 192.16.11.0/24 is directly connected, FastEthernet0/0
S 192.168.20.0/24 [1/0] via 11.0.0.2
  is directly connected, Serial2/0
S 192.168.21.0/24 [1/0] via 11.0.0.2
  is directly connected, Serial3/0

jinzon#
```

Time: 01:47:03 Power Cycle Devices Fast Forward Time

Realtime

Scenario 0 Fire Last Status Source Destination Type Color Time (sec) Periodic Num

Connections

Automatically Choose Connection Type

New Delete Toggle PDU List Window

GOKU

practica6-unidad2-redes - Word

ARCHIVO INICIO INSERTAR DISEÑO DISEÑO DE PÁGINA REFERENCIAS CORRESPONDENCIA REVISAR VISTA

Times New Ro - 12 A A Aa - AaBbCcDc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCcDc

Normal Sin espa... Título 1 Título 2 Puesto Subtítulo Énfasis sutil

Portapapeles Fuente Edición

Router2

Physical Config CLI

IOS Command Line Interface

```
GOKU(config)#ip route 192.16.11.0 255.255.255.0 s3/0
GOKU(config)#exit
GOKU#
%SYS-5-CONFIG_I: Configured from console by console

GOKU#show route
% Invalid input detected at '^' marker.

GOKU#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 11.0.0.0/8 is directly connected, Serial2/0
S 192.16.11.0/24 [1/0] via 11.0.0.1
S 192.16.12.0/24 [1/0] via 11.0.0.1
  is directly connected, Serial2/0
C 192.168.20.0/24 is directly connected, FastEthernet0/0

GOKU#
```

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CONCLUSIÓN

Durante esta práctica pude apreciar más acerca de lo que veníamos viendo, ya que es algo consistente, como es el levantamiento de los puertos fa y los seriales para llevar a cabo la conexión de los dispositivos de trabajo, más que nada pude apreciar que los ip route es una forma de establecerle la ruta que debe utilizar. Adeás que es necesario decirle al router por cual ruta debe trasnmitir.