

INSTITUTO TÉCNICO DE SALINA CRUZ
REDES DE COMPUTADORA

SEMESTRE FEBRERO-AGOSTO 2015

REPORTE DE PRÁCTICAS

PRACTICA N°: 7

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 para los 3 router's.
- 3.- levantar los puertos fa0 a los 3 routers.
- 4.- levantar los seriales de los 3 routers.
6. Comprobar conexiones por medio de ping o show ip route.

Materiales:

- 1.- computadora.
- 2.- Packet tracer.

INSTITUTO TECNOLOGICO DE SALINA CRUZ

REDES DE COMPUTADORAS

PRACTICAS 7

INSTRUCCIONES: Realice las rutas estáticas para los siguientes escenarios, construya los cuatro pasos vistos en las practicas anteriores.

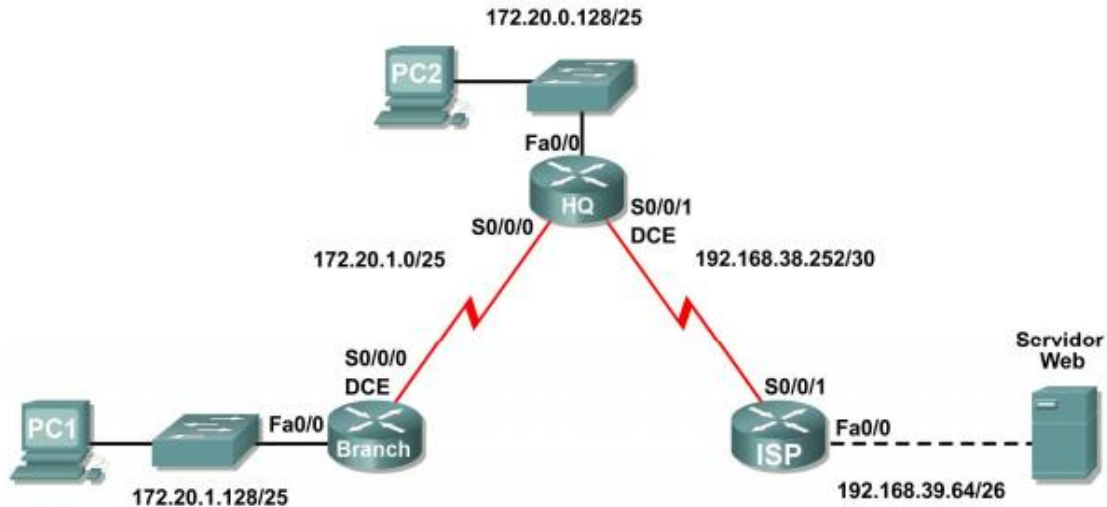


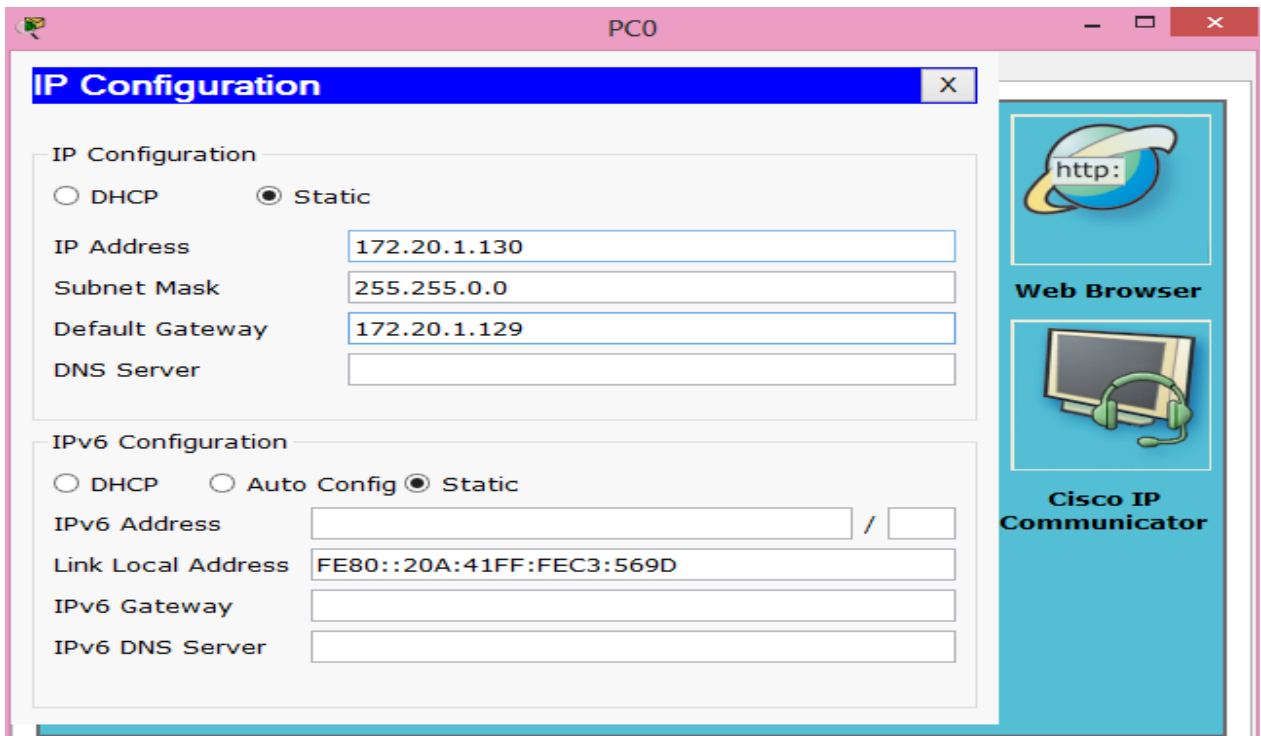
Tabla de ruteo.

Dispositivo	Interfaz	Dirección IP	Mascara de subred.	Gateway
Branch	Fa0/0	172.20.1.129	255.255.0.0	No aplicable
	S2/0	192.20.1.1	255.255.255.0	No aplicable
HQ	Fa0/0	172.20.0.129	255.255.0.0	No aplicable
	S2/0	192.20.1.2	255.255.255.0	No aplicable
	S3/0	192.168.38.253	255.255.255.0	No aplicable
ISP	Fa0/0	192.168.39.65	255.255.255.0	No aplicable
	S2/0	192.168.38.254	255.255.255.0	No aplicable
PC1	No aplicable	172.20.1.130	255.255.0.0	172.20.1.129
PC2	No aplicable	172.20.0.130	255.255.0.0	172.20.0.129
Servidor	No aplicable	192.168.39.70	255.255.255.0	192.168.39.65

Configuración Inicial.

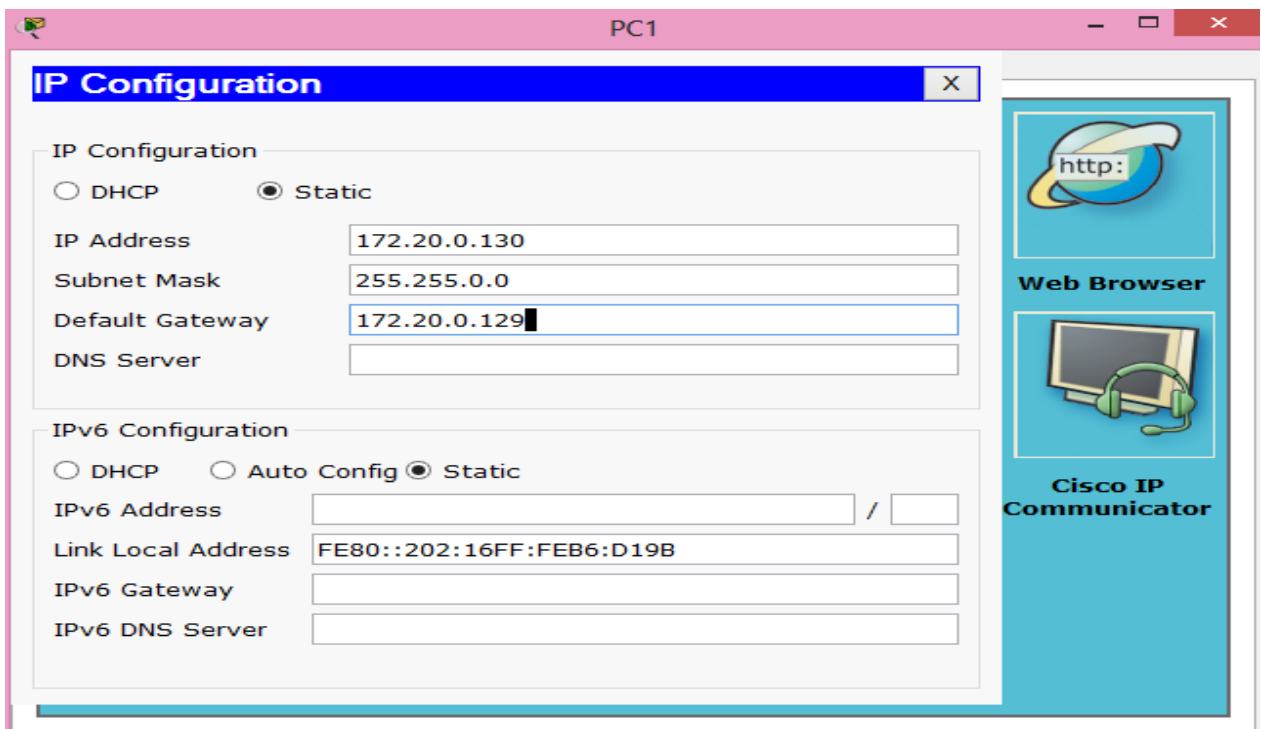
Cambio de direcciones a las PC'S.

PC1.



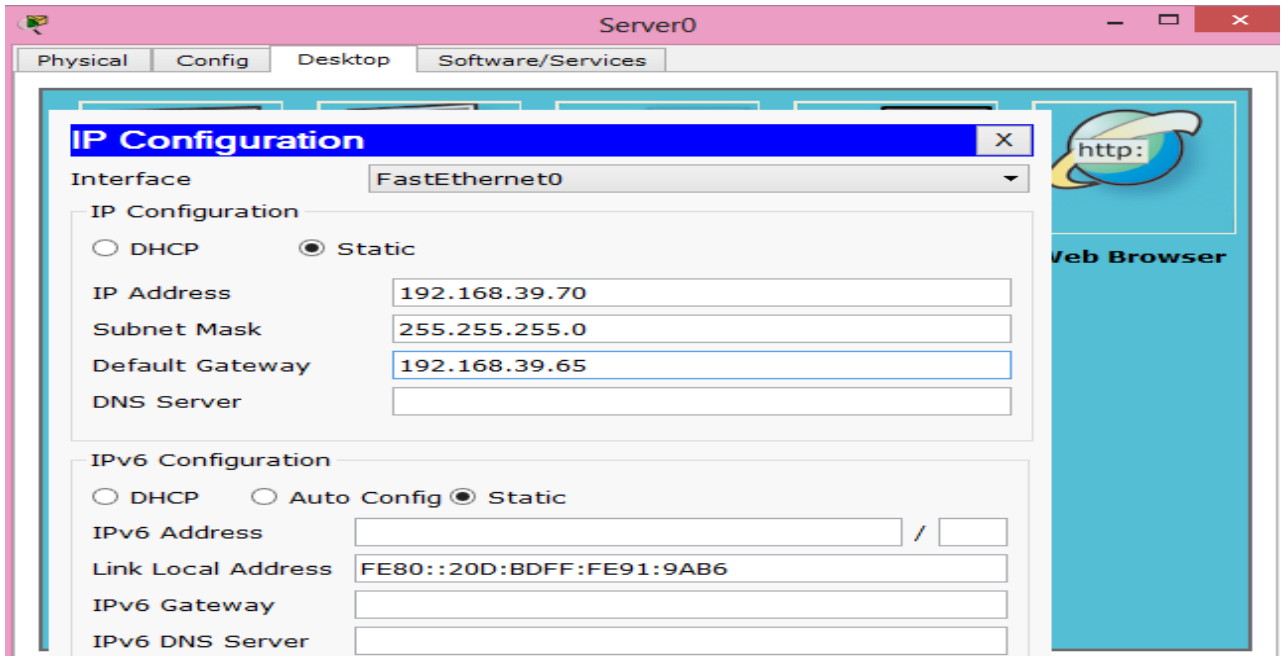
The screenshot shows the IP Configuration window for PC0. The window title is "PC0". The main title of the configuration panel is "IP Configuration". Under "IP Configuration", the "Static" radio button is selected. The fields are filled with: IP Address: 172.20.1.130, Subnet Mask: 255.255.0.0, Default Gateway: 172.20.1.129, and DNS Server: (empty). Under "IPv6 Configuration", the "Static" radio button is selected. The fields are: IPv6 Address: (empty), Link Local Address: FE80::20A:41FF:FEC3:569D, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). On the right side, there are two icons: "Web Browser" with a globe and "Cisco IP Communicator" with a headset icon.

PC2.



The screenshot shows the IP Configuration window for PC1. The window title is "PC1". The main title of the configuration panel is "IP Configuration". Under "IP Configuration", the "Static" radio button is selected. The fields are filled with: IP Address: 172.20.0.130, Subnet Mask: 255.255.0.0, Default Gateway: 172.20.0.129, and DNS Server: (empty). Under "IPv6 Configuration", the "Static" radio button is selected. The fields are: IPv6 Address: (empty), Link Local Address: FE80::202:16FF:FEB6:D19B, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). On the right side, there are two icons: "Web Browser" with a globe and "Cisco IP Communicator" with a headset icon.

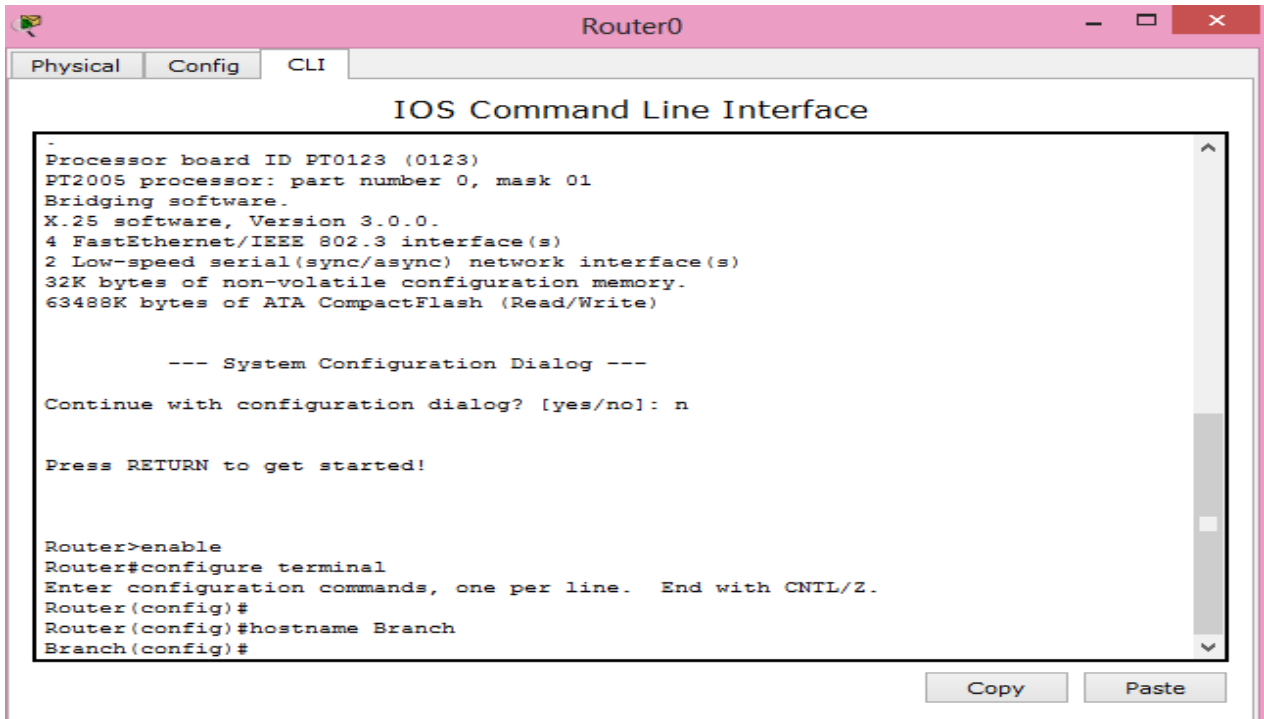
Servidor.



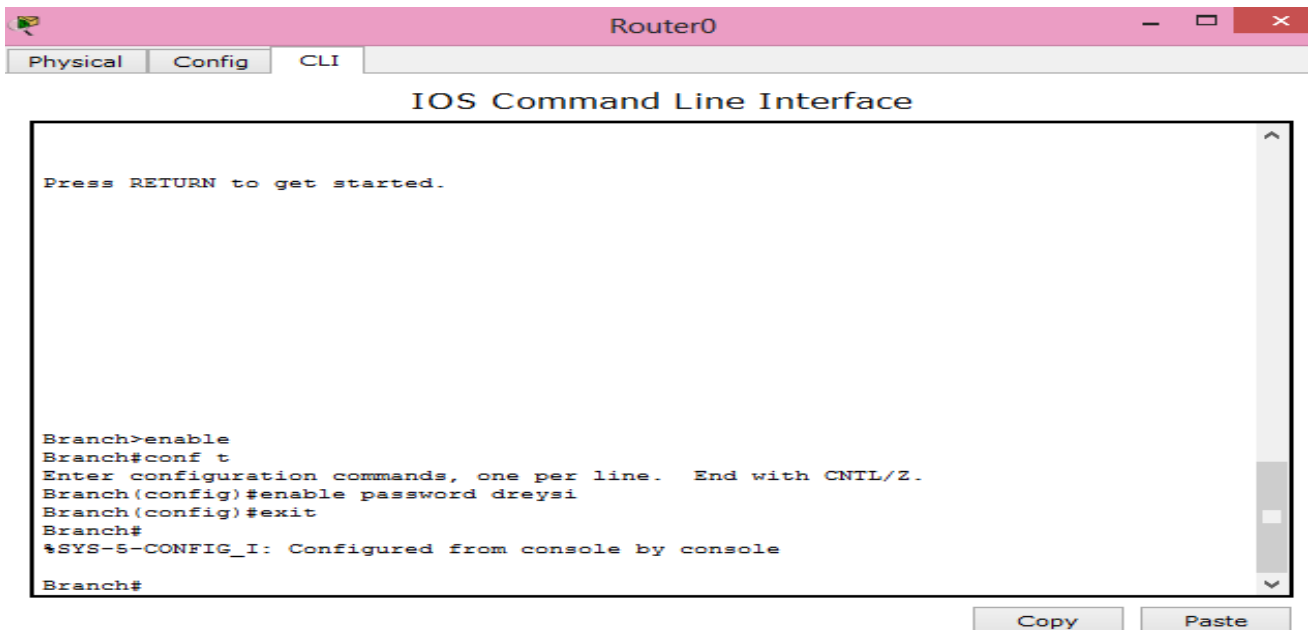
RUTEADORES.

Router1.

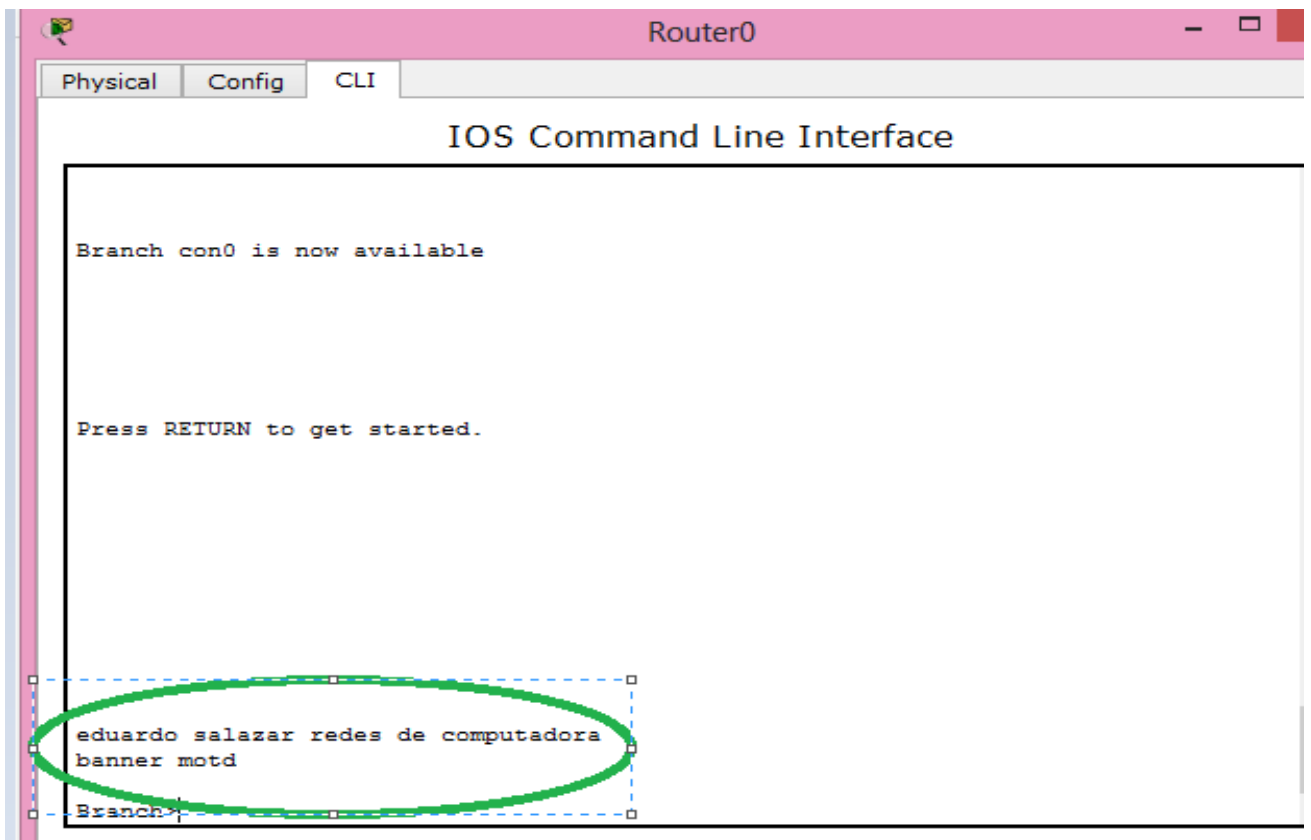
Cambio de nombre.



Asignación de password.

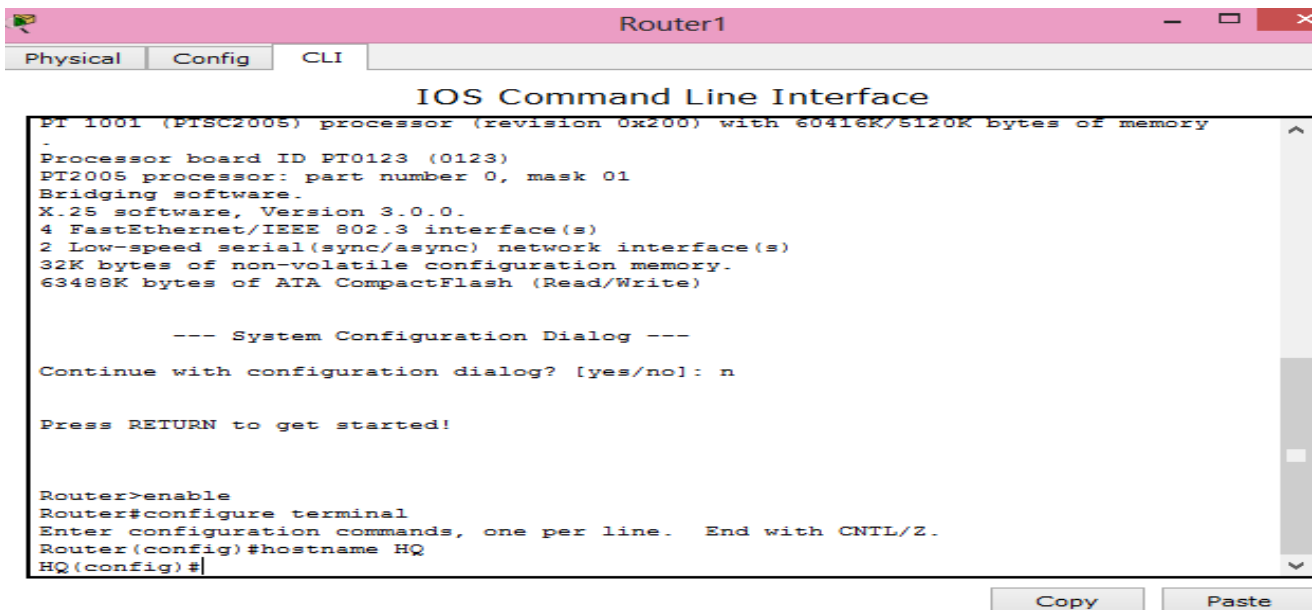


Asignación de banner.



ROUTER2.

Cambio de nombre.



The screenshot shows the Router1 CLI interface. The title bar is 'Router1'. The tabs are 'Physical', 'Config', and 'CLI'. The main window is titled 'IOS Command Line Interface'. The text in the window is as follows:

```
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 ---

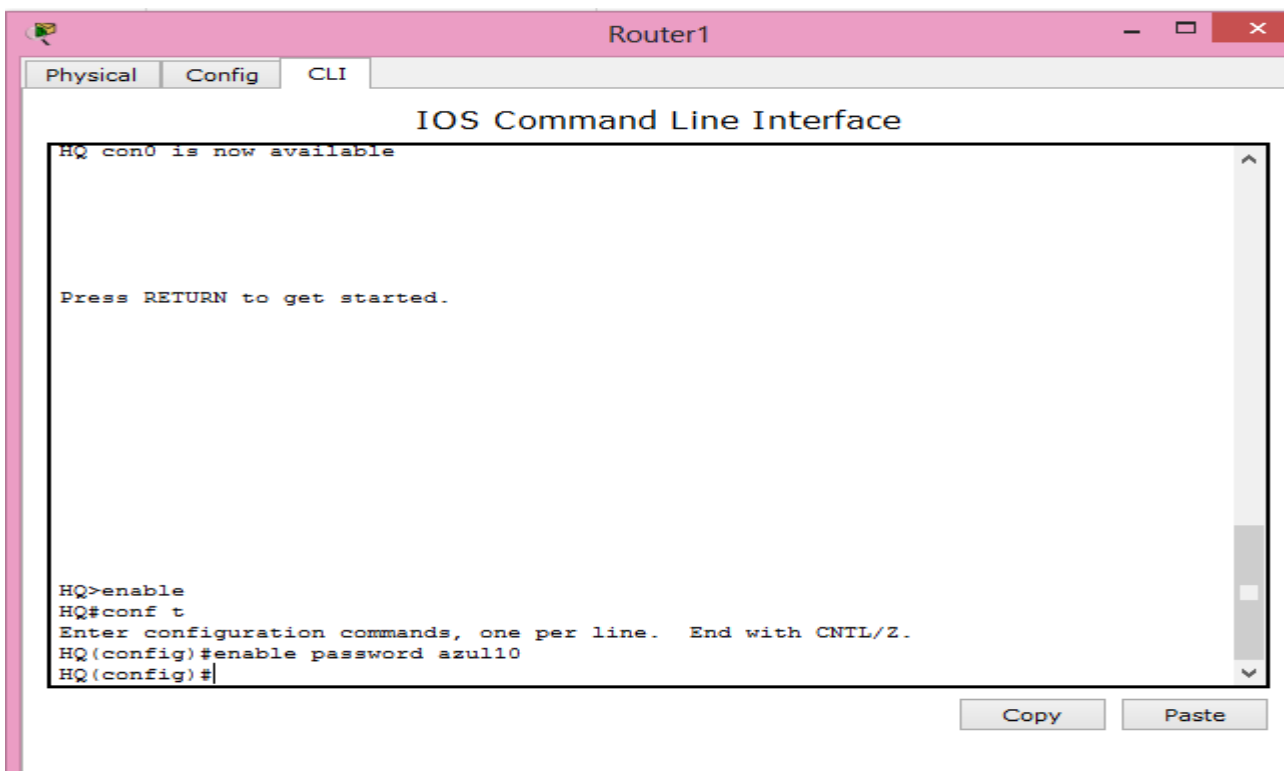
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

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

At the bottom right of the window, there are 'Copy' and 'Paste' buttons.

Asignación de password.



The screenshot shows the Router1 CLI interface. The title bar is 'Router1'. The tabs are 'Physical', 'Config', and 'CLI'. The main window is titled 'IOS Command Line Interface'. The text in the window is as follows:

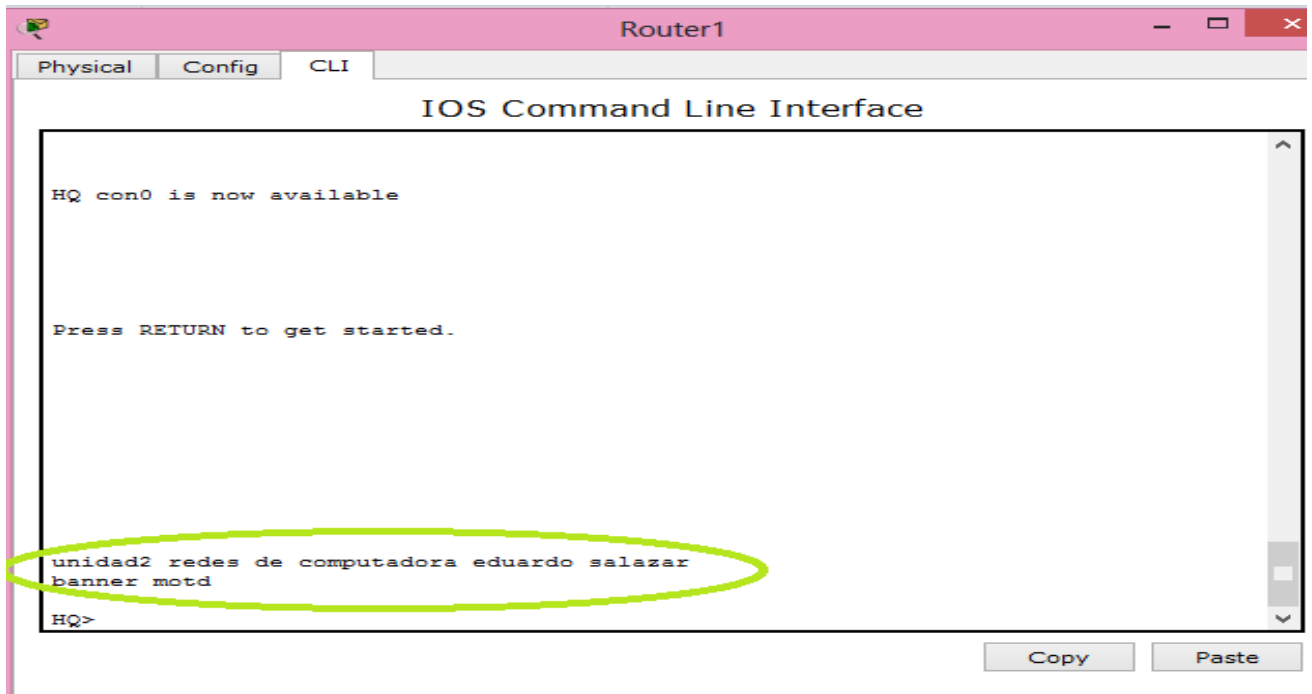
```
HQ con0 is now available

Press RETURN to get started.

HQ>enable
HQ#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
HQ(config)#enable password azul10
HQ(config)#
```

At the bottom right of the window, there are 'Copy' and 'Paste' buttons.

Asignación de un banner.



The screenshot shows the CLI of Router1. The window title is "Router1". The tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The output shows "HQ con0 is now available" and "Press RETURN to get started.". The command "banner motd" is being entered, and the text "unidad2 redes de computadora eduardo salazar" is being typed. The prompt "HQ>" is visible at the bottom left. There are "Copy" and "Paste" buttons at the bottom right.

```
Router1
Physical Config CLI
IOS Command Line Interface

HQ con0 is now available

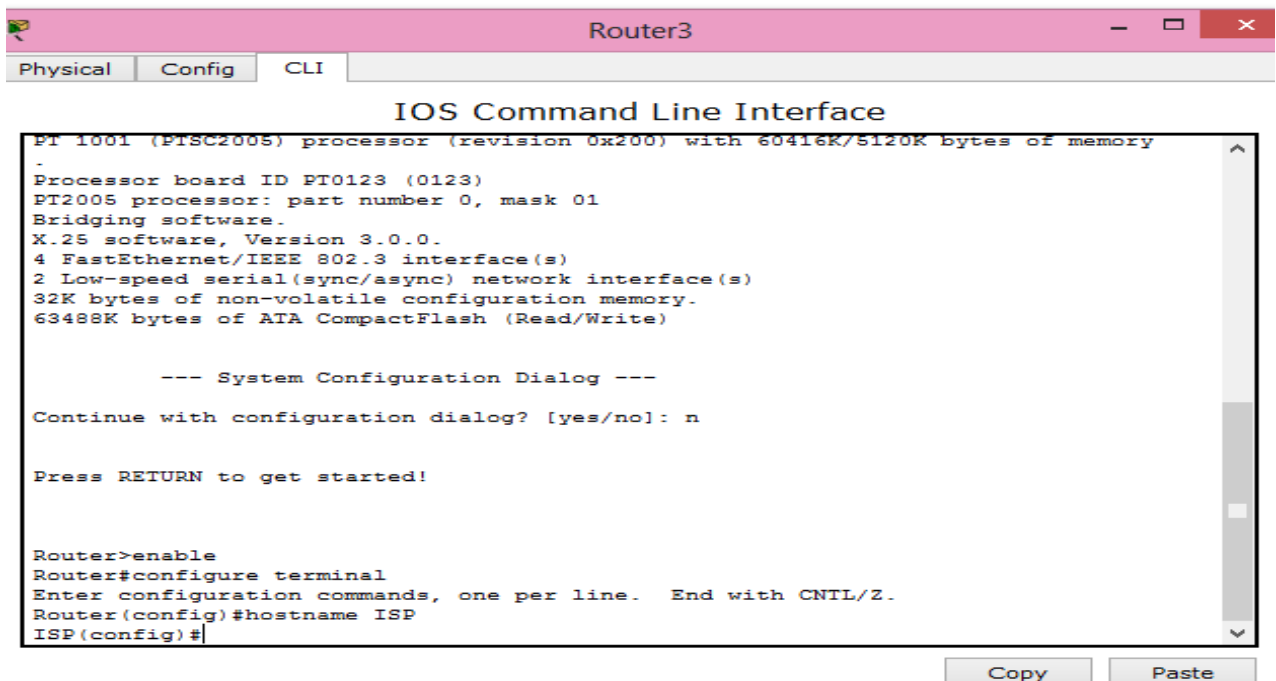
Press RETURN to get started.

unidad2 redes de computadora eduardo salazar
banner motd

HQ>
```

ROUTER3.

Cambio de nombre.



The screenshot shows the CLI of Router3. The window title is "Router3". The tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The output shows system information: "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)". The "System Configuration Dialog" is shown, with the prompt "Continue with configuration dialog? [yes/no]: n". The prompt "Press RETURN to get started!" is visible. The command "enable" is entered, and the prompt changes to "Router#". The command "configure terminal" is entered, and the prompt changes to "Router(config)#". The command "hostname ISP" is entered, and the prompt changes to "ISP(config)#". There are "Copy" and "Paste" buttons at the bottom right.

```
Router3
Physical Config CLI
IOS Command Line Interface

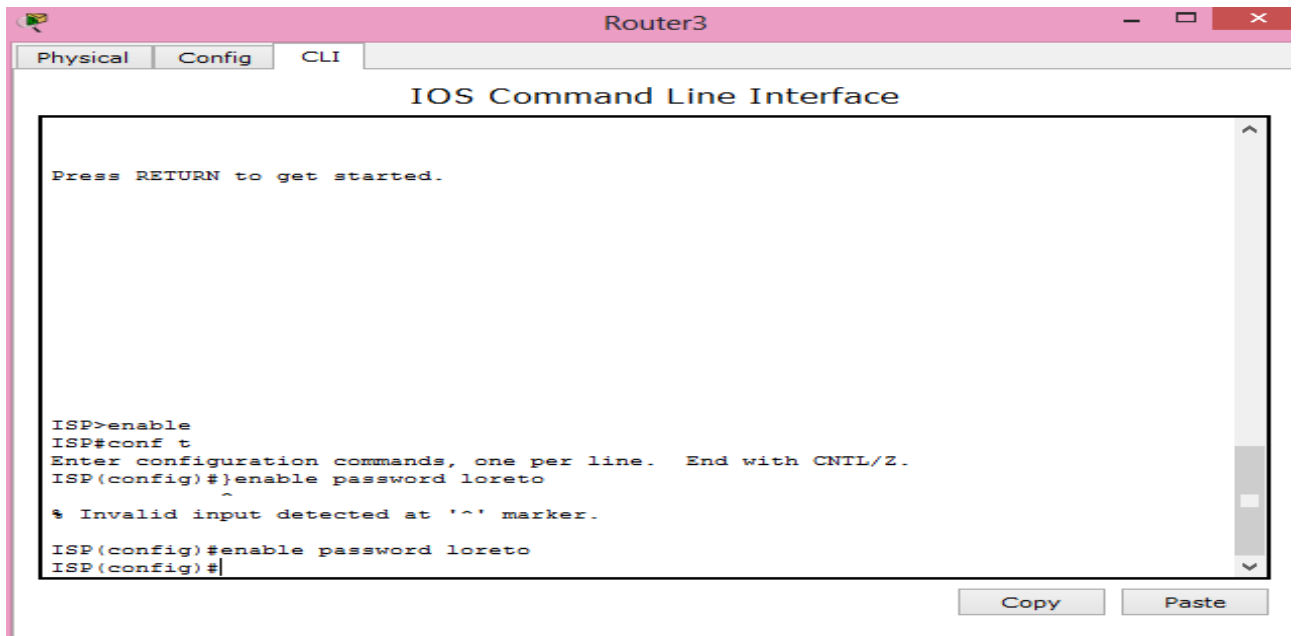
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
.
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes 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 ISP
ISP(config)#
```

Asignación de password.



The screenshot shows the Router3 CLI interface with tabs for Physical, Config, and CLI. The main window displays the following text:

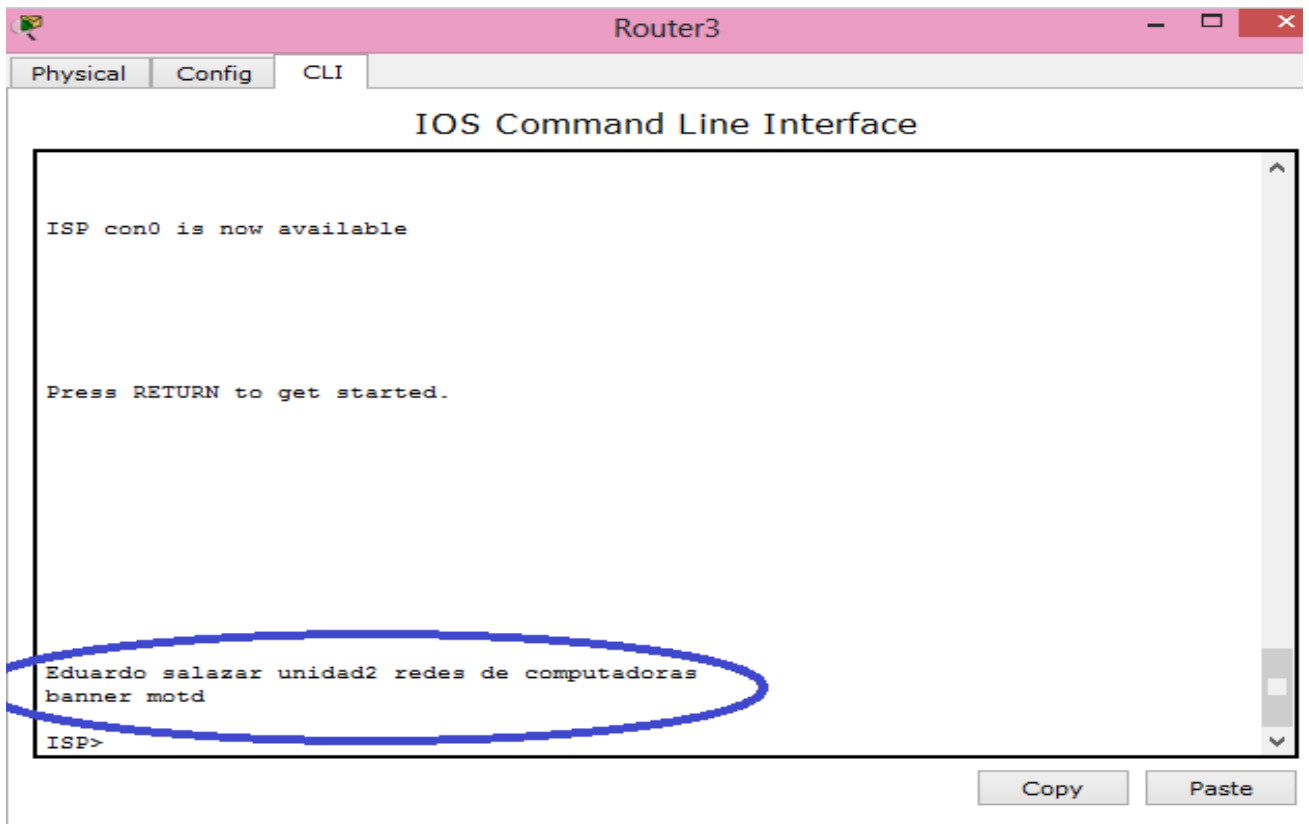
```
IOS Command Line Interface

Press RETURN to get started.

ISP>enable
ISP#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ISP(config)#enable password loreto
      ^
% Invalid input detected at '^' marker.
ISP(config)#enable password loreto
ISP(config)#
```

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

Asignación del banner.



The screenshot shows the Router3 CLI interface with tabs for Physical, Config, and CLI. The main window displays the following text:

```
IOS Command Line Interface

ISP con0 is now available

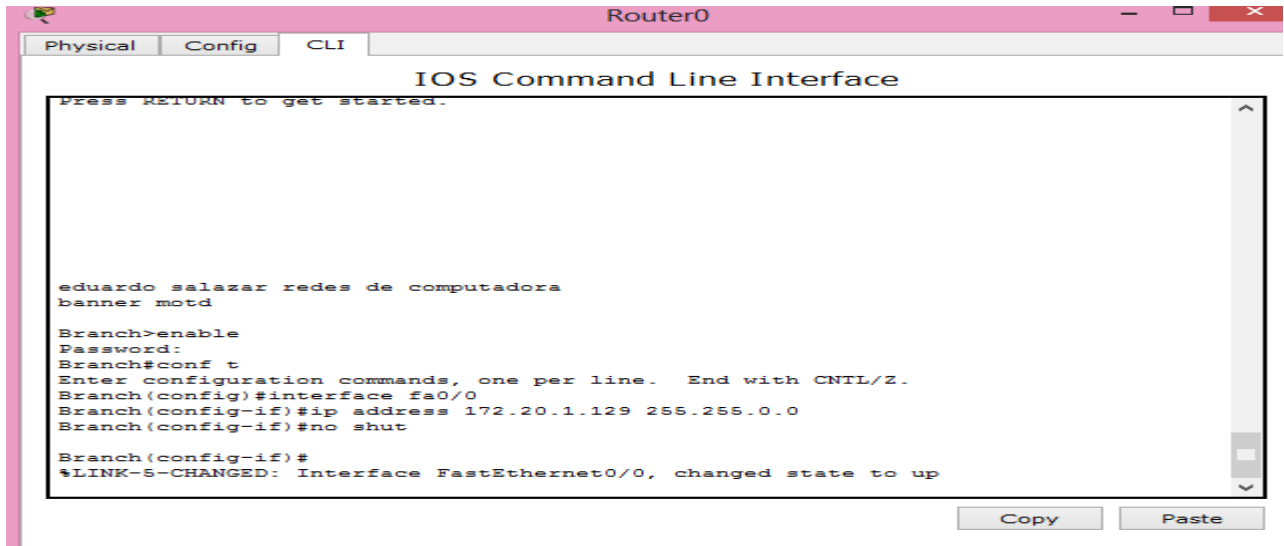
Press RETURN to get started.

Eduardo salazar unidad2 redes de computadoras
banner motd
ISP>
```

The banner text "Eduardo salazar unidad2 redes de computadoras" is circled in blue. Buttons for Copy and Paste are visible at the bottom right.

Después de realizar estas configuraciones iniciales, es necesario realizar otras configuraciones para levantar los puertos de conexión tanto el puerto Fa0/0 y los seriales.

Router1.



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

```
Router0
Physical Config CLI
IOS Command Line Interface
Press RETURN to get started.

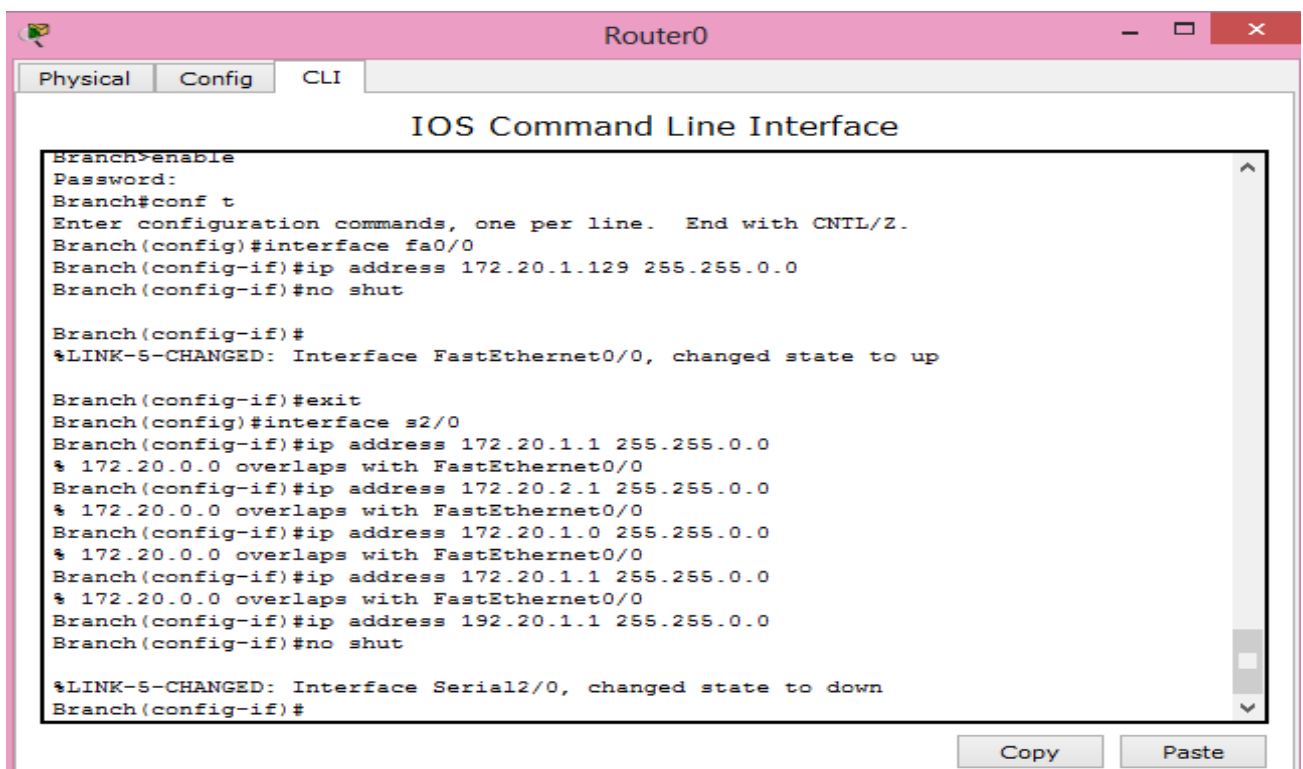
eduardo salazar redes de computadora
banner motd

Branch>enable
Password:
Branch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Branch(config)#interface fa0/0
Branch(config-if)#ip address 172.20.1.129 255.255.0.0
Branch(config-if)#no shut

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

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

Serial2/0.



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

```
Router0
Physical Config CLI
IOS Command Line Interface

Branch>enable
Password:
Branch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Branch(config)#interface fa0/0
Branch(config-if)#ip address 172.20.1.129 255.255.0.0
Branch(config-if)#no shut

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

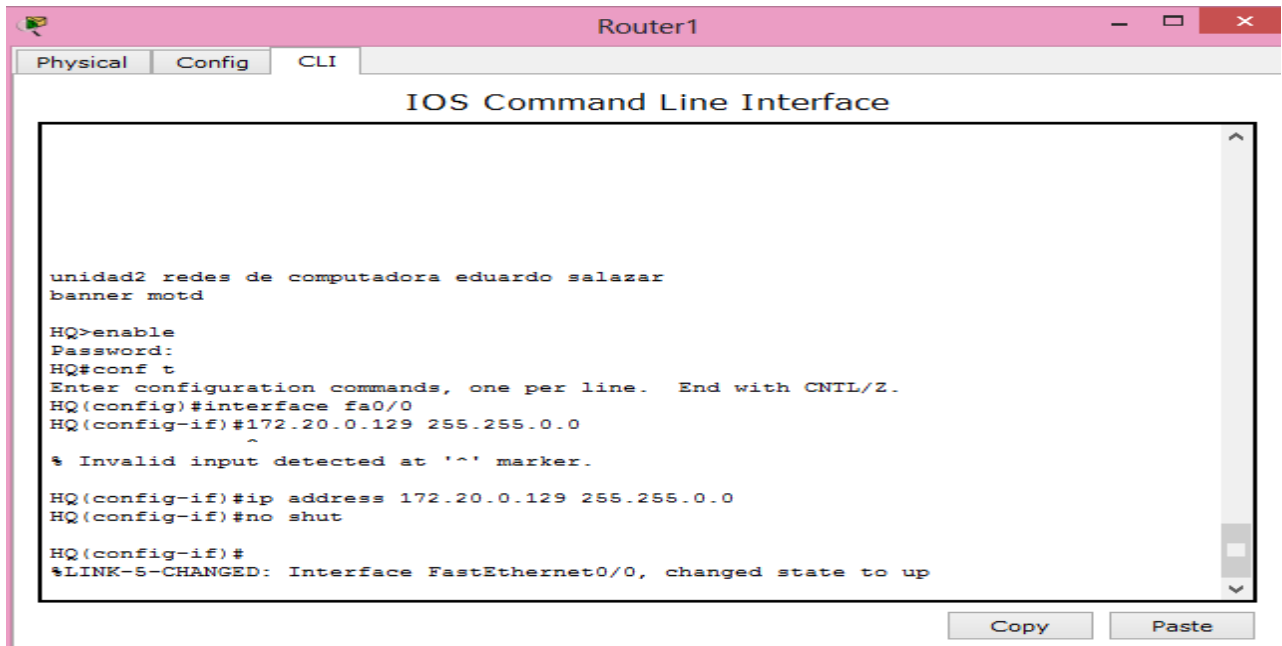
Branch(config-if)#exit
Branch(config)#interface s2/0
Branch(config-if)#ip address 172.20.1.1 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
Branch(config-if)#ip address 172.20.2.1 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
Branch(config-if)#ip address 172.20.1.0 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
Branch(config-if)#ip address 172.20.1.1 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
Branch(config-if)#ip address 192.20.1.1 255.255.0.0
Branch(config-if)#no shut

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

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

ROUTER2.

Puerto Fa0/0.



The screenshot shows the CLI of Router1. The window title is "Router1" and the tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The text in the terminal is as follows:

```
unidad2 redes de computadora eduardo salazar
banner motd

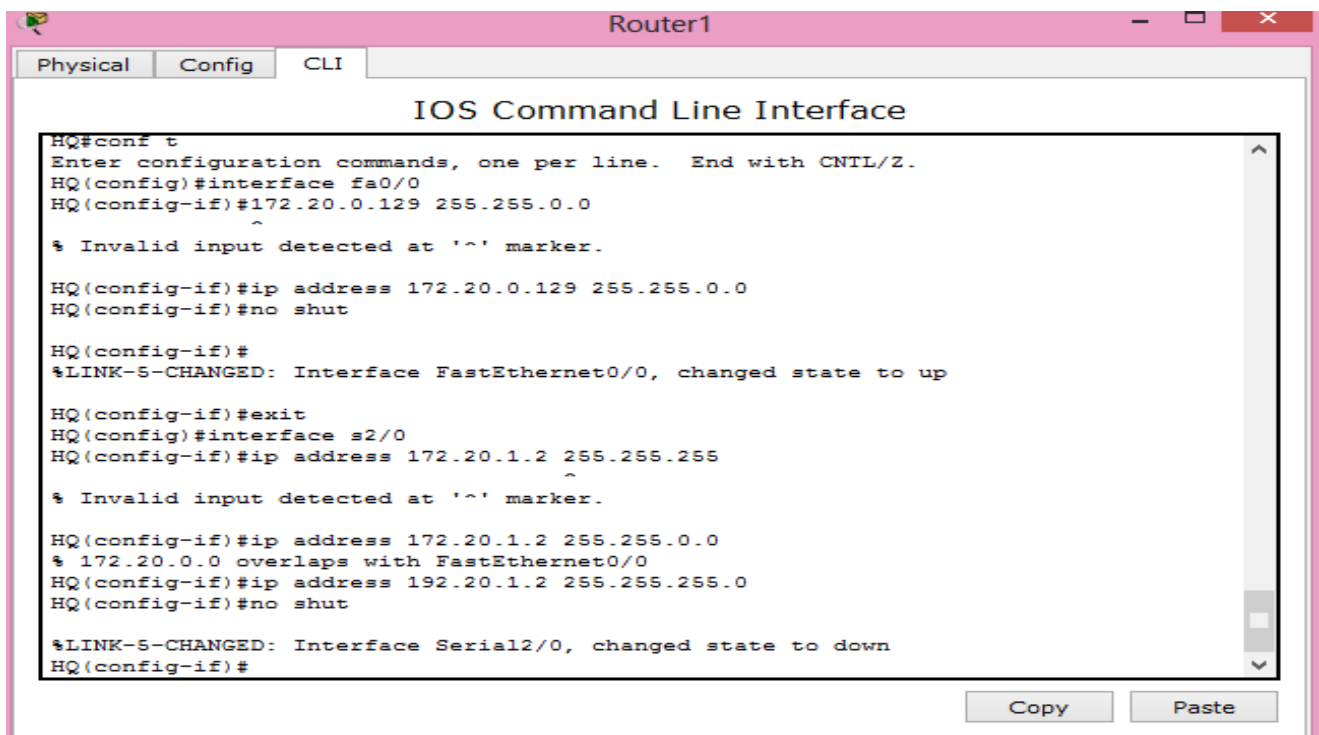
HQ>enable
Password:
HQ#conf t
Enter configuration commands, one per line. End with CNTL/Z.
HQ(config)#interface fa0/0
HQ(config-if)#172.20.0.129 255.255.0.0
      ^
% Invalid input detected at '^' marker.

HQ(config-if)#ip address 172.20.0.129 255.255.0.0
HQ(config-if)#no shut

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

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

Serial2/0.



The screenshot shows the CLI of Router1. The window title is "Router1" and the tabs are "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface". The text in the terminal is as follows:

```
HQ#conf t
Enter configuration commands, one per line. End with CNTL/Z.
HQ(config)#interface fa0/0
HQ(config-if)#172.20.0.129 255.255.0.0
      ^
% Invalid input detected at '^' marker.

HQ(config-if)#ip address 172.20.0.129 255.255.0.0
HQ(config-if)#no shut

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

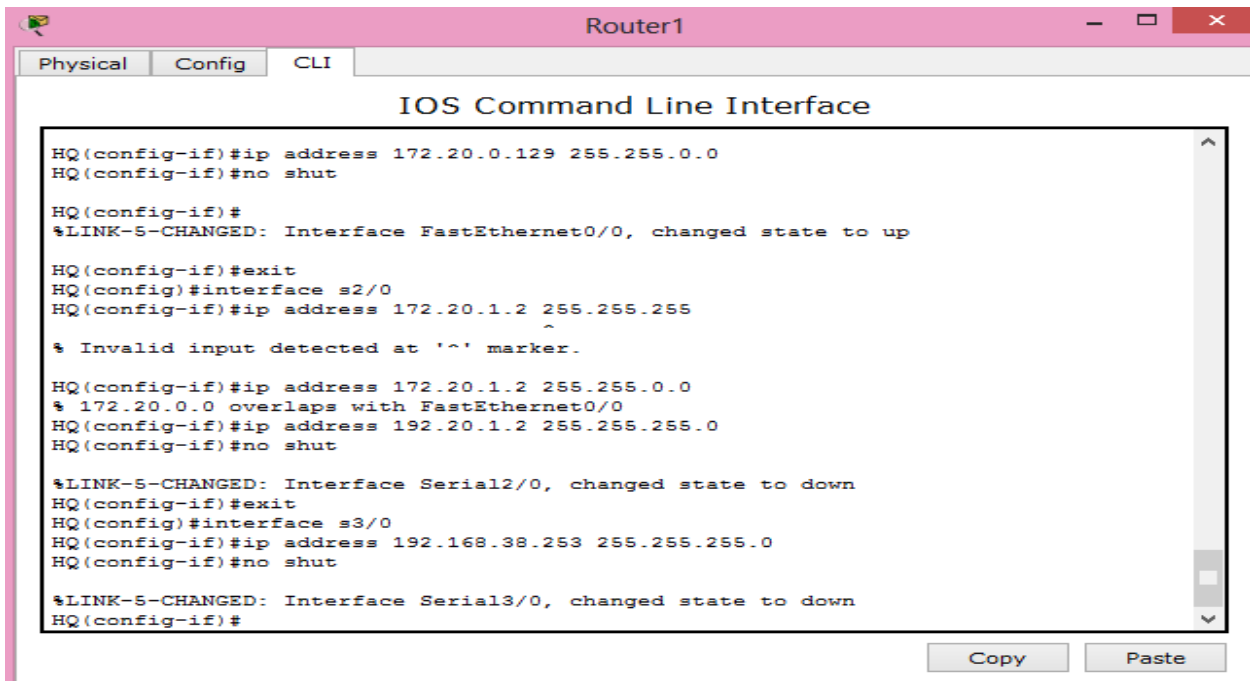
HQ(config-if)#exit
HQ(config)#interface s2/0
HQ(config-if)#ip address 172.20.1.2 255.255.255
      ^
% Invalid input detected at '^' marker.

HQ(config-if)#ip address 172.20.1.2 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
HQ(config-if)#ip address 192.20.1.2 255.255.255.0
HQ(config-if)#no shut

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

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

Serial3/0.



The screenshot shows the CLI of Router1. The user has configured the IP address for Serial3/0 as 192.20.1.2 with a 255.255.255.0 mask. The interface state is shown as down. The output also shows the configuration for other interfaces: FastEthernet0/0 (up) and Serial2/0 (down).

```
Router1
Physical Config CLI
IOS Command Line Interface

HQ(config-if)#ip address 172.20.0.129 255.255.0.0
HQ(config-if)#no shut

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

HQ(config-if)#exit
HQ(config)#interface s2/0
HQ(config-if)#ip address 172.20.1.2 255.255.255
% Invalid input detected at '^' marker.

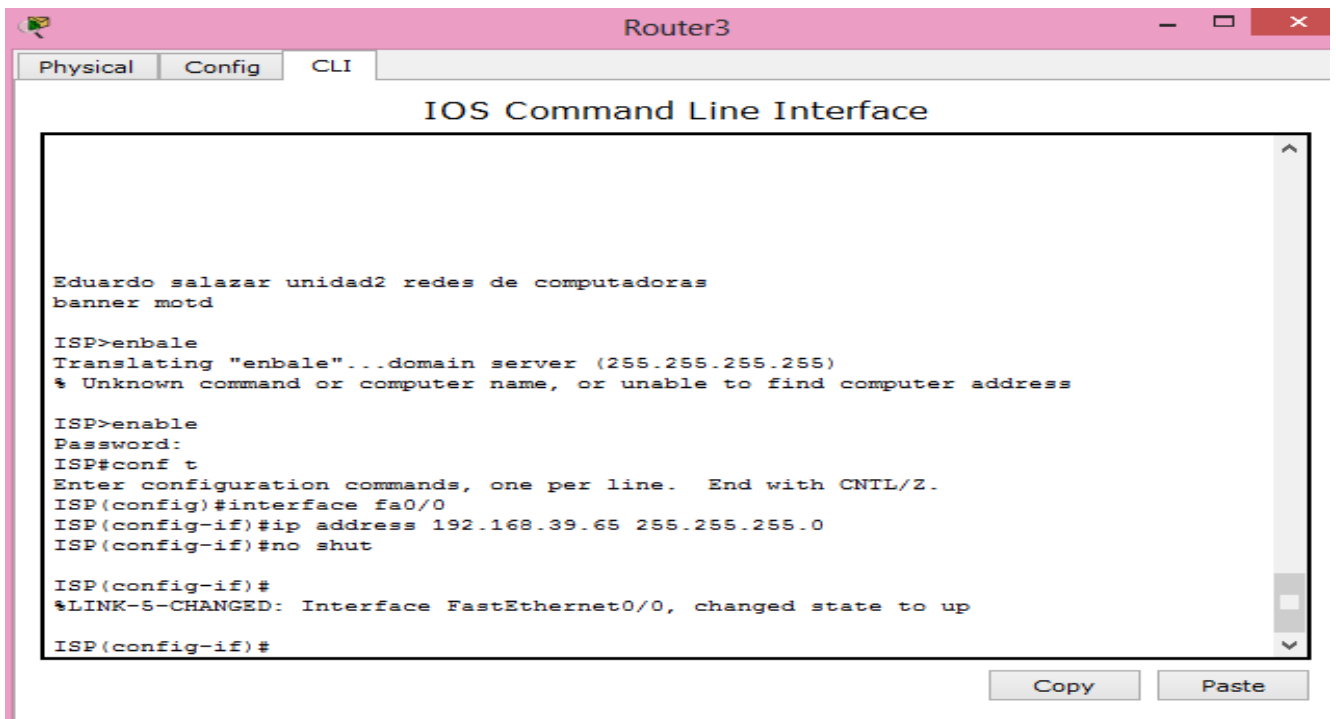
HQ(config-if)#ip address 172.20.1.2 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
HQ(config-if)#ip address 192.20.1.2 255.255.255.0
HQ(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
HQ(config-if)#exit
HQ(config)#interface s3/0
HQ(config-if)#ip address 192.168.38.253 255.255.255.0
HQ(config-if)#no shut

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

ROUTER3.

Puerto Fa0/0.



The screenshot shows the CLI of Router3. The user has configured the IP address for Fa0/0 as 192.168.39.65 with a 255.255.255.0 mask. The interface state is shown as up. The output also shows the configuration for other interfaces: FastEthernet0/0 (up) and Serial2/0 (down).

```
Router3
Physical Config CLI
IOS Command Line Interface

Eduardo salazar unidad2 redes de computadoras
banner motd

ISP>enbale
Translating "enbale"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

ISP>enable
Password:
ISP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#interface fa0/0
ISP(config-if)#ip address 192.168.39.65 255.255.255.0
ISP(config-if)#no shut

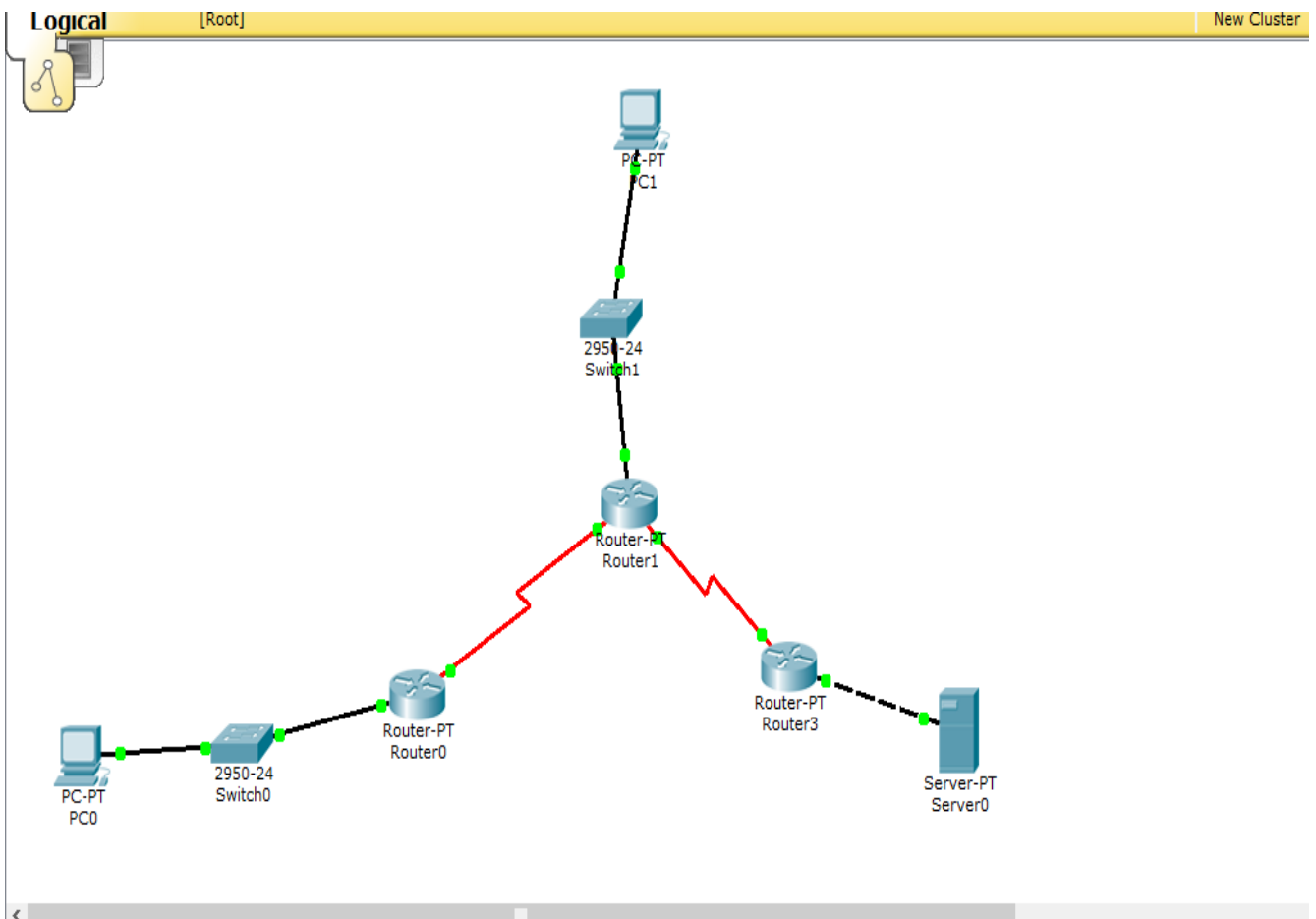
ISP(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

ISP(config-if)#
```

Serial2/0.

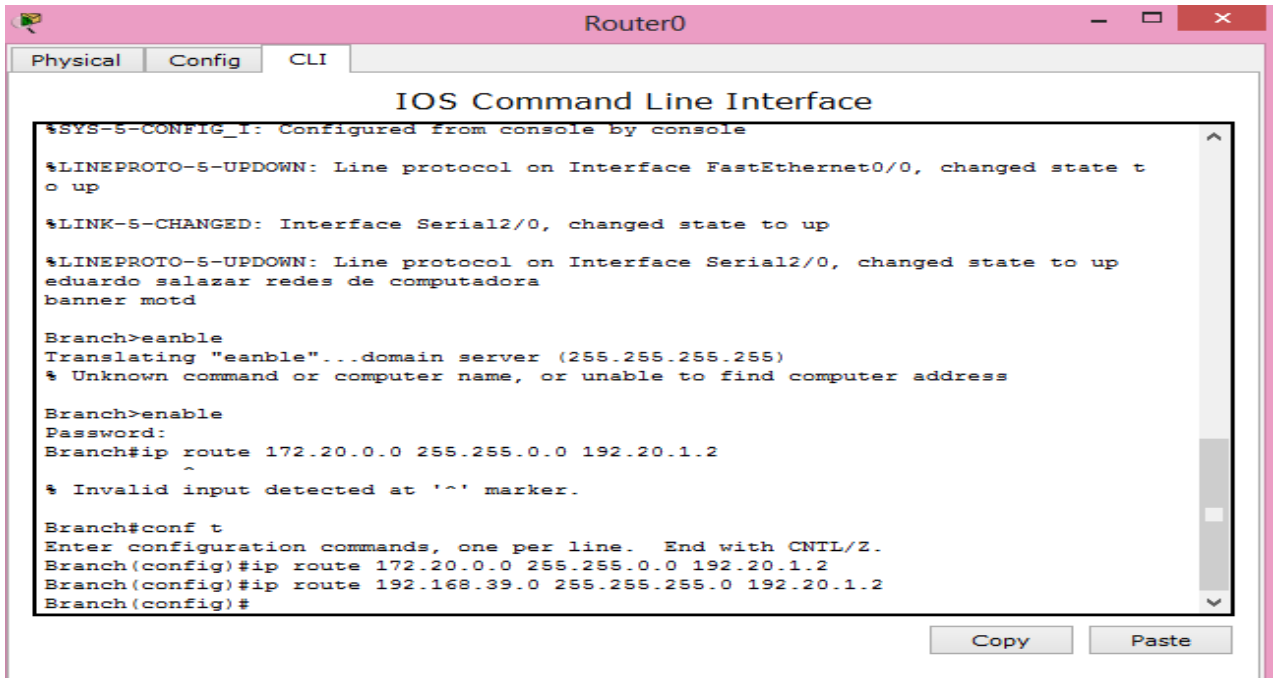
```
Router3
Physical Config CLI
IOS Command Line Interface
Eduardo salazar unidad2 redes de computadoras
banner motd
ISP>enbale
Translating "enbale"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address
ISP>enable
Password:
ISP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#interface fa0/0
ISP(config-if)#ip address 192.168.39.65 255.255.255.0
ISP(config-if)#no shut
ISP(config-if)#
%LINK-S-CHANGED: Interface FastEthernet0/0, changed state to up
ISP(config-if)#exit
ISP(config)#interface s2/0
ISP(config-if)#ip address 192.168.38.254 255.255.255.0
ISP(config-if)#no shut
%LINK-S-CHANGED: Interface Serial2/0, changed state to down
ISP(config-if)#
```

Después de levantar todos los puertos las conexiones se muestran en verde, es decir, que están ya conectados.



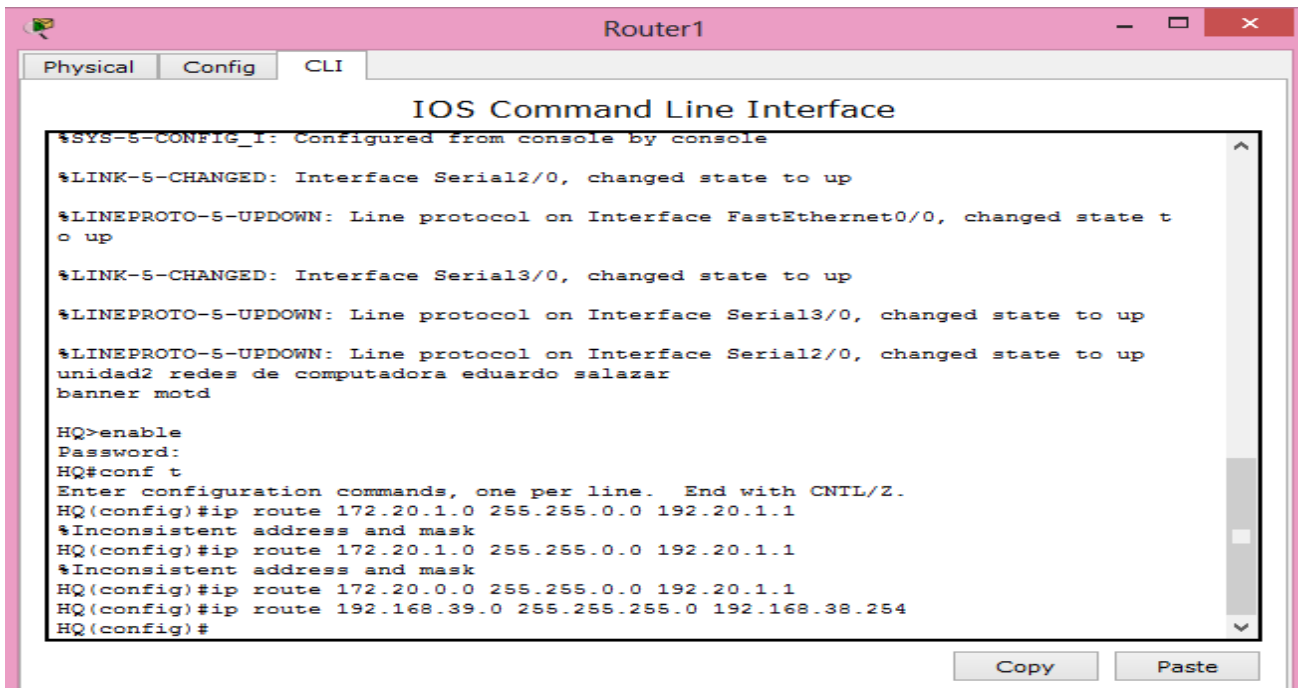
Como último paso es necesario configurar las rutas estáticas, para ello se asignan IP se siguiente salto.

Branch.



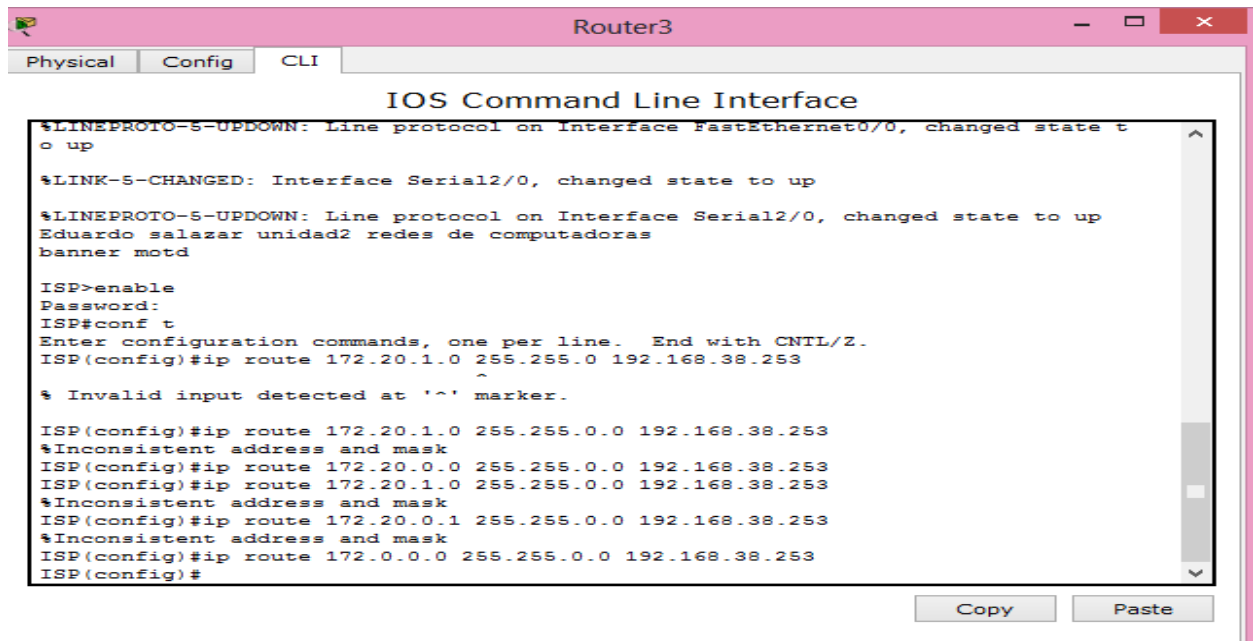
```
Router0
Physical Config CLI
IOS Command Line Interface
%SYS-5-CONFIG_I: Configured from console by console
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
eduardo salazar redes de computadora
banner motd
Branch>enable
Translating "enable"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address
Branch>enable
Password:
Branch#ip route 172.20.0.0 255.255.0.0 192.20.1.2
^
% Invalid input detected at '^' marker.
Branch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Branch(config)#ip route 172.20.0.0 255.255.0.0 192.20.1.2
Branch(config)#ip route 192.168.39.0 255.255.255.0 192.20.1.2
Branch(config)#
```

HQ.



```
Router1
Physical Config CLI
IOS Command Line Interface
%SYS-5-CONFIG_I: Configured from console by console
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial3/0, changed state to 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
unidad2 redes de computadora eduardo salazar
banner motd
HQ>enable
Password:
HQ#conf t
Enter configuration commands, one per line. End with CNTL/Z.
HQ(config)#ip route 172.20.1.0 255.255.0.0 192.20.1.1
%Inconsistent address and mask
HQ(config)#ip route 172.20.1.0 255.255.0.0 192.20.1.1
%Inconsistent address and mask
HQ(config)#ip route 172.20.0.0 255.255.0.0 192.20.1.1
HQ(config)#ip route 192.168.39.0 255.255.255.0 192.168.38.254
HQ(config)#
```

ISP.



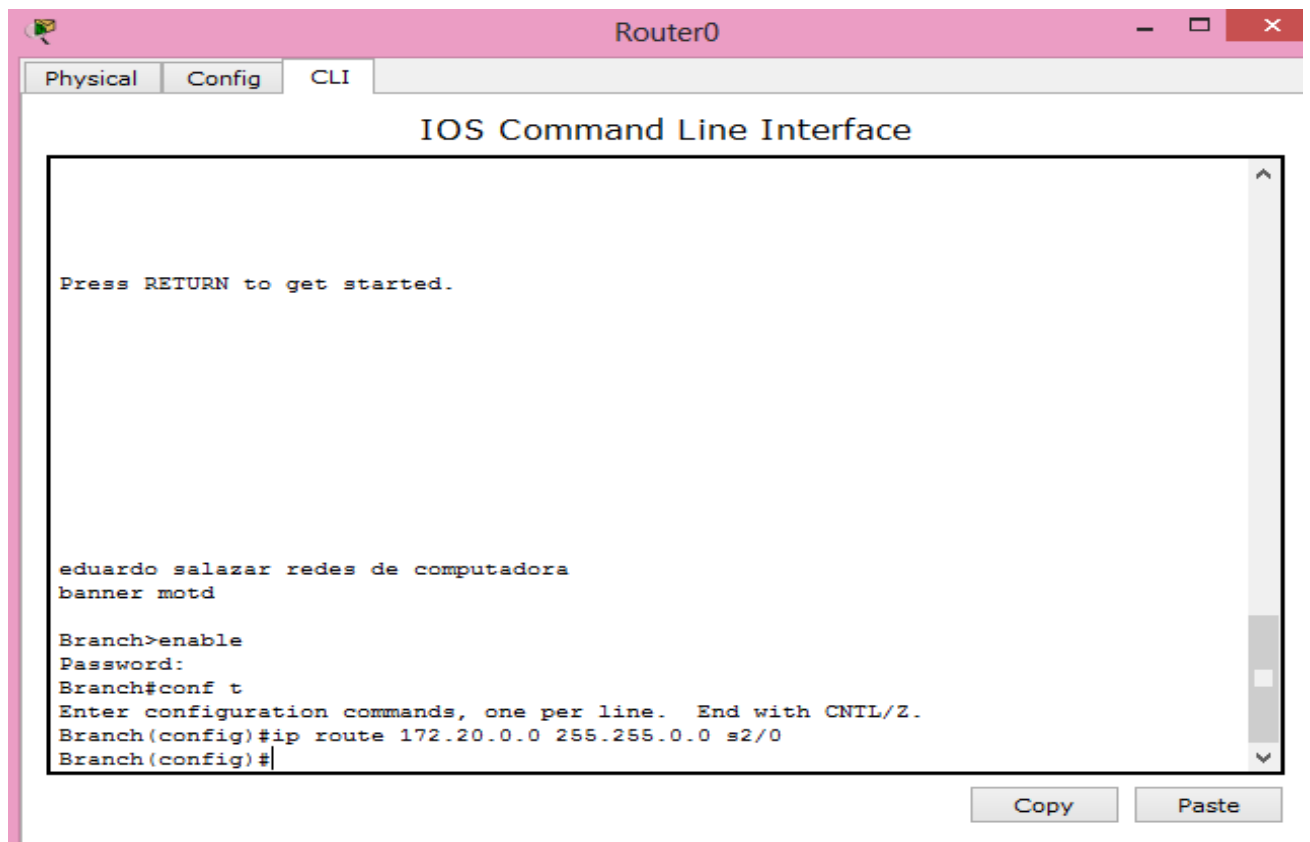
```
Router3
Physical Config CLI
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Eduardo salazar unidad2 redes de computadoras
banner motd

ISP>enable
Password:
ISP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
^
% Invalid input detected at '^' marker.

ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.20.0.0 255.255.0.0 192.168.38.253
ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.20.0.1 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.0.0.0 255.255.0.0 192.168.38.253
ISP(config)#
```

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

Router1



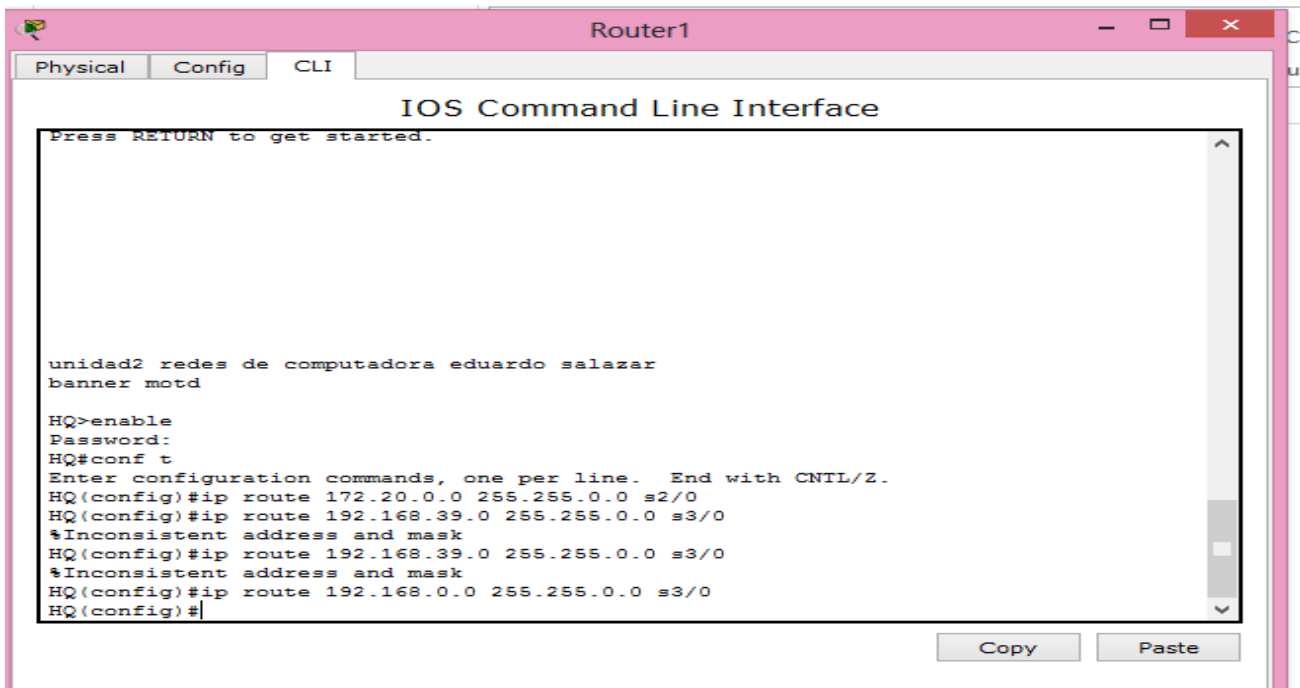
```
Router0
Physical Config CLI
IOS Command Line Interface

Press RETURN to get started.

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banner motd

Branch>enable
Password:
Branch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Branch(config)#ip route 172.20.0.0 255.255.0.0 s2/0
Branch(config)#
```

Router2.



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

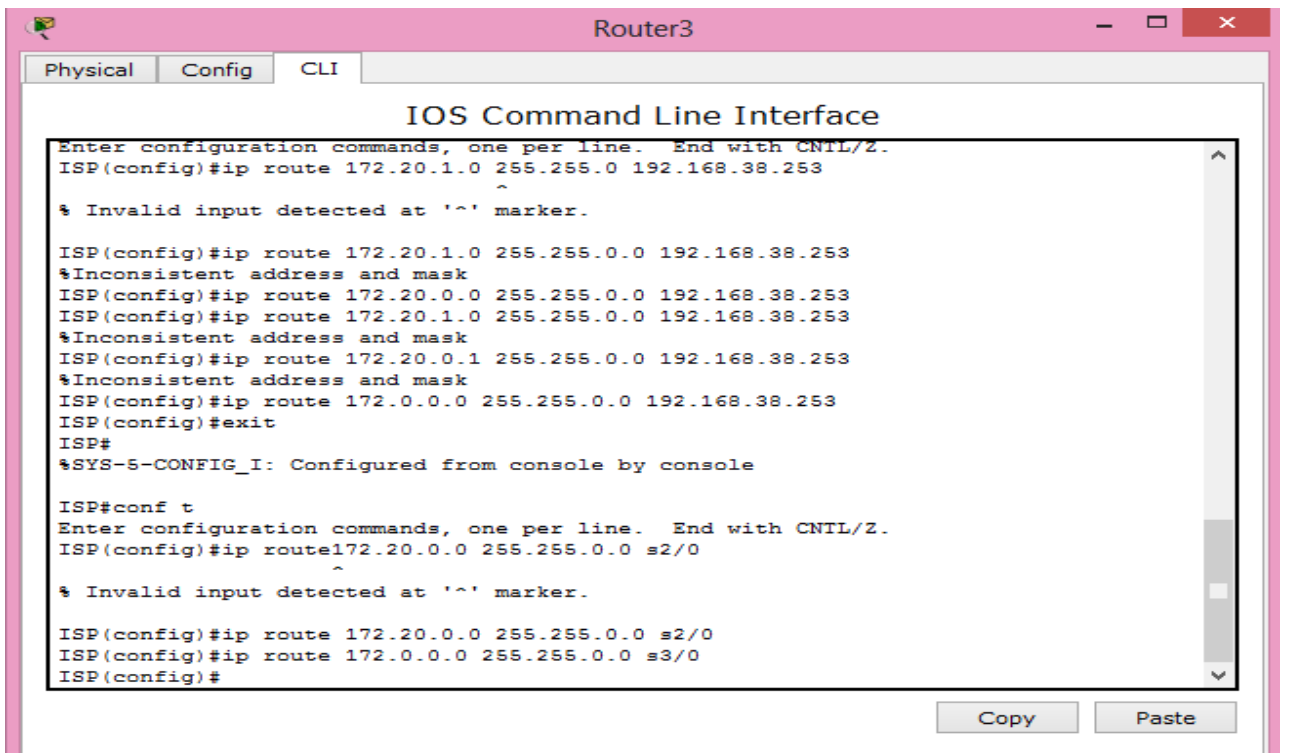
```
Press RETURN to get started.

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banner motd

HQ>enable
Password:
HQ#conf t
Enter configuration commands, one per line. End with CNTL/Z.
HQ(config)#ip route 172.20.0.0 255.255.0.0 s2/0
HQ(config)#ip route 192.168.39.0 255.255.0.0 s3/0
%Inconsistent address and mask
HQ(config)#ip route 192.168.39.0 255.255.0.0 s3/0
%Inconsistent address and mask
HQ(config)#ip route 192.168.0.0 255.255.0.0 s3/0
HQ(config)#
```

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

Router3.



The screenshot shows the CLI of Router3. The window title is "Router3". The tabs are "Physical", "Config", and "CLI". The main text area displays the following text:

```
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#ip route 172.20.1.0 255.255.0 192.168.38.253
~
% Invalid input detected at '^' marker.

ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.20.0.0 255.255.0.0 192.168.38.253
ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.20.0.1 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.0.0.0 255.255.0.0 192.168.38.253
ISP(config)#exit
ISP#
%SYS-5-CONFIG_I: Configured from console by console

ISP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#ip route172.20.0.0 255.255.0.0 s2/0
~
% Invalid input detected at '^' marker.

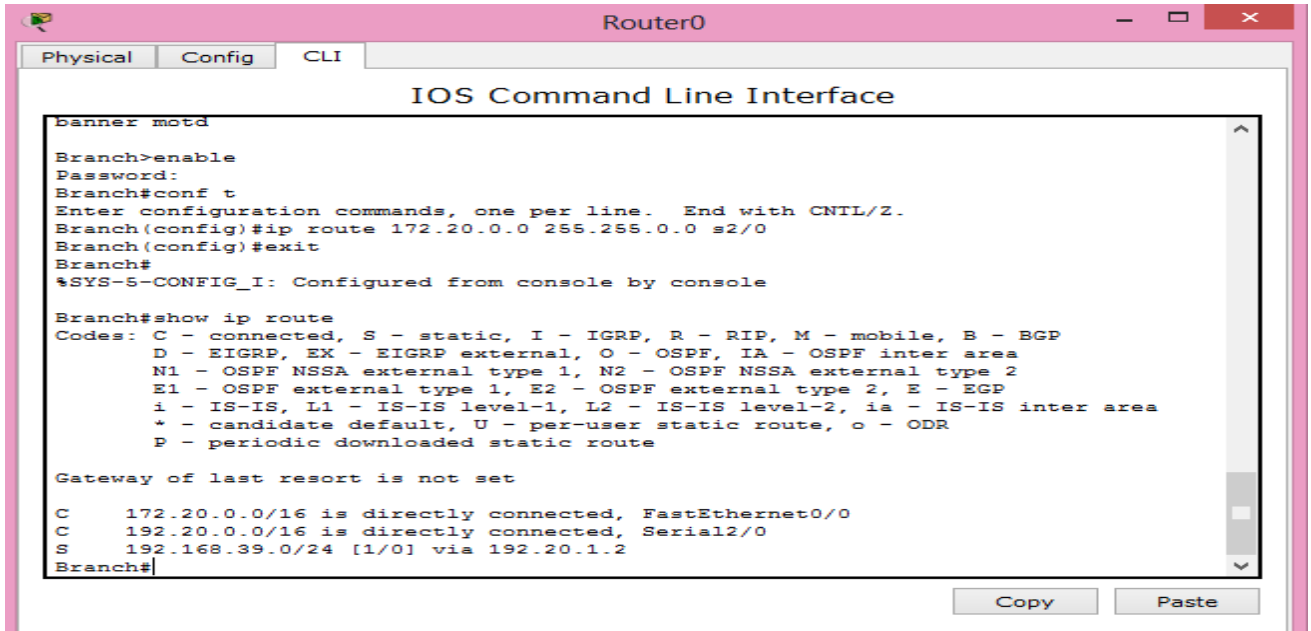
ISP(config)#ip route 172.20.0.0 255.255.0.0 s2/0
ISP(config)#ip route 172.0.0.0 255.255.0.0 s3/0
ISP(config)#
```

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

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.

Branch.



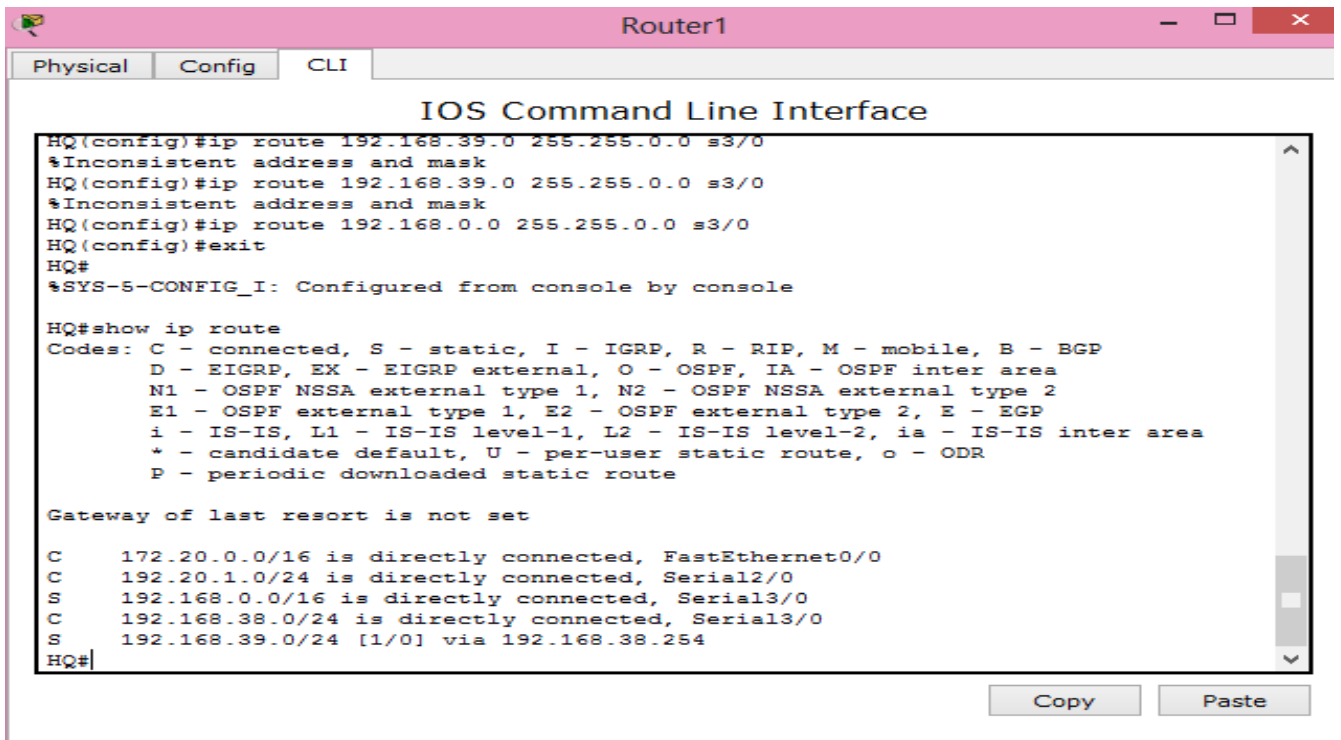
```
Router0
Physical Config CLI
IOS Command Line Interface
Banner motd
Branch>enable
Password:
Branch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Branch(config)#ip route 172.20.0.0 255.255.0.0 s2/0
Branch(config)#exit
Branch#
%SYS-5-CONFIG_I: Configured from console by console

Branch#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 172.20.0.0/16 is directly connected, FastEthernet0/0
C 192.20.0.0/16 is directly connected, Serial2/0
S 192.168.39.0/24 [1/0] via 192.20.1.2
Branch#
```

HQ.



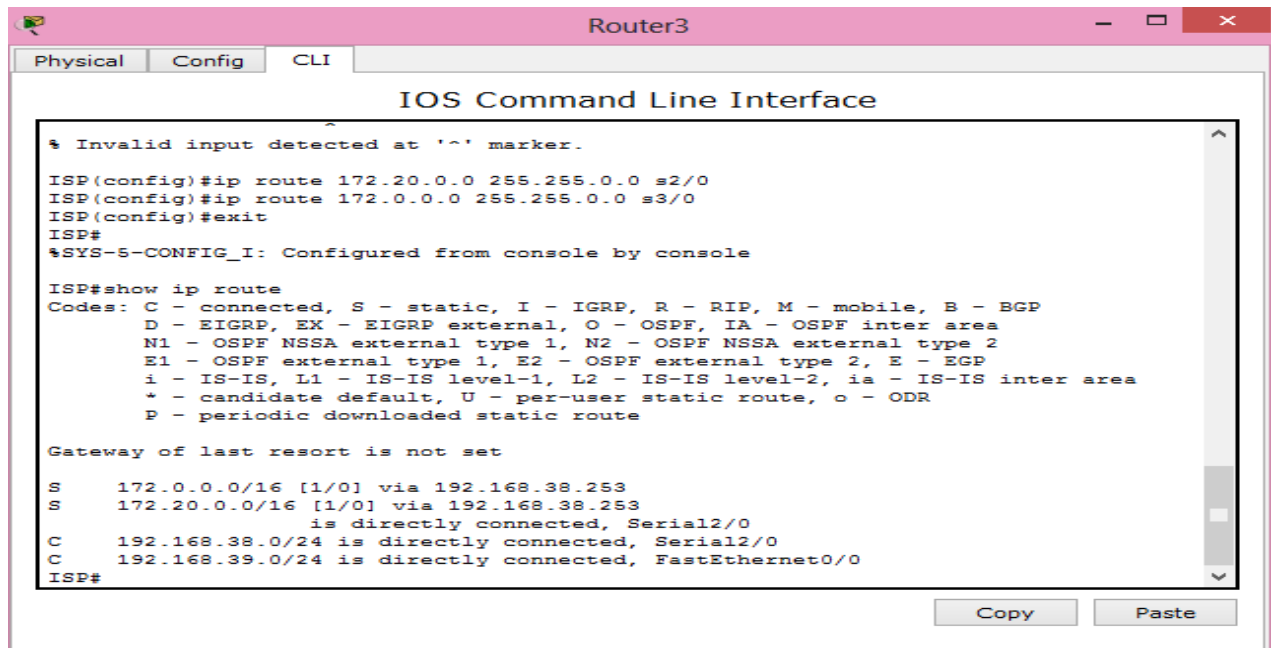
```
Router1
Physical Config CLI
IOS Command Line Interface
HQ(config)#ip route 192.168.39.0 255.255.0.0 s3/0
%Inconsistent address and mask
HQ(config)#ip route 192.168.39.0 255.255.0.0 s3/0
%Inconsistent address and mask
HQ(config)#ip route 192.168.0.0 255.255.0.0 s3/0
HQ(config)#exit
HQ#
%SYS-5-CONFIG_I: Configured from console by console

HQ#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 172.20.0.0/16 is directly connected, FastEthernet0/0
C 192.20.1.0/24 is directly connected, Serial2/0
S 192.168.0.0/16 is directly connected, Serial3/0
C 192.168.38.0/24 is directly connected, Serial3/0
S 192.168.39.0/24 [1/0] via 192.168.38.254
HQ#
```

ISP



```
Router3
Physical Config CLI
IOS Command Line Interface
% Invalid input detected at '^' marker.
ISP(config)#ip route 172.20.0.0 255.255.0.0 s2/0
ISP(config)#ip route 172.0.0.0 255.255.0.0 s3/0
ISP(config)#exit
ISP#
%SYS-5-CONFIG_I: Configured from console by console
ISP#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

S    172.0.0.0/16 [1/0] via 192.168.38.253
S    172.20.0.0/16 [1/0] via 192.168.38.253
     is directly connected, Serial12/0
C    192.168.38.0/24 is directly connected, Serial12/0
C    192.168.39.0/24 is directly connected, FastEthernet0/0
ISP#
```

CONCLUSIÓN

En esta ocasión puedo decir que este trabajo es para poner en práctica todo sobre lo que hemos estado viendo a lo largo de la unidad 2, más que nada poder comprender como y cuando se empleara rutas estáticas, esto es para decirle al router por donde debe mandar los mensajes, o por donde debe transmitir, es decir, el camino que hay que tomar para conectarse a otra red.