

Instituto Tecnológico de Salina Cruz

Fundamentos de Redes

Semestre Enero – Julio 2015

Reporte de Práctica

Practica nº 7

Unidad 2

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**Fecha:** 16 de Abril del 2015

**Objetivo:**

Conocer los comandos básicos de un router Cisco y configurar rutas estáticas para los mismos

**Instrucciones:**

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

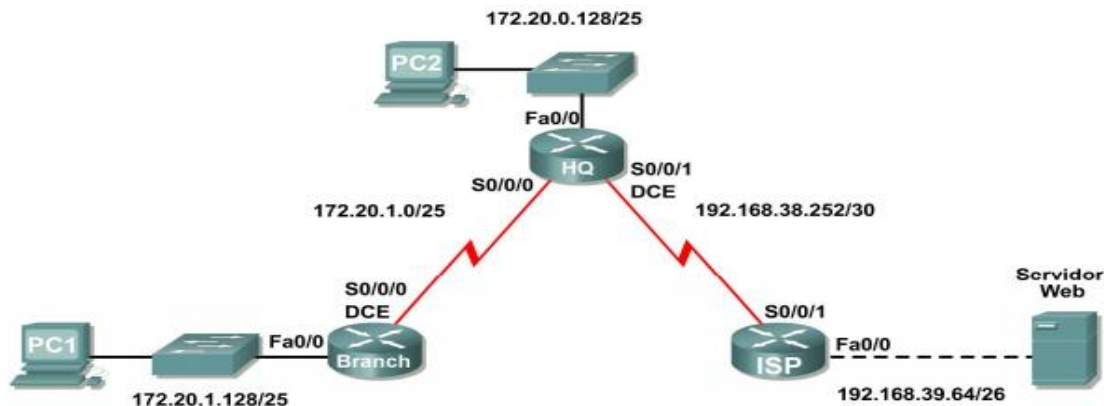


Tabla de ruteo.

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
	S3/0	192.168.38.253	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

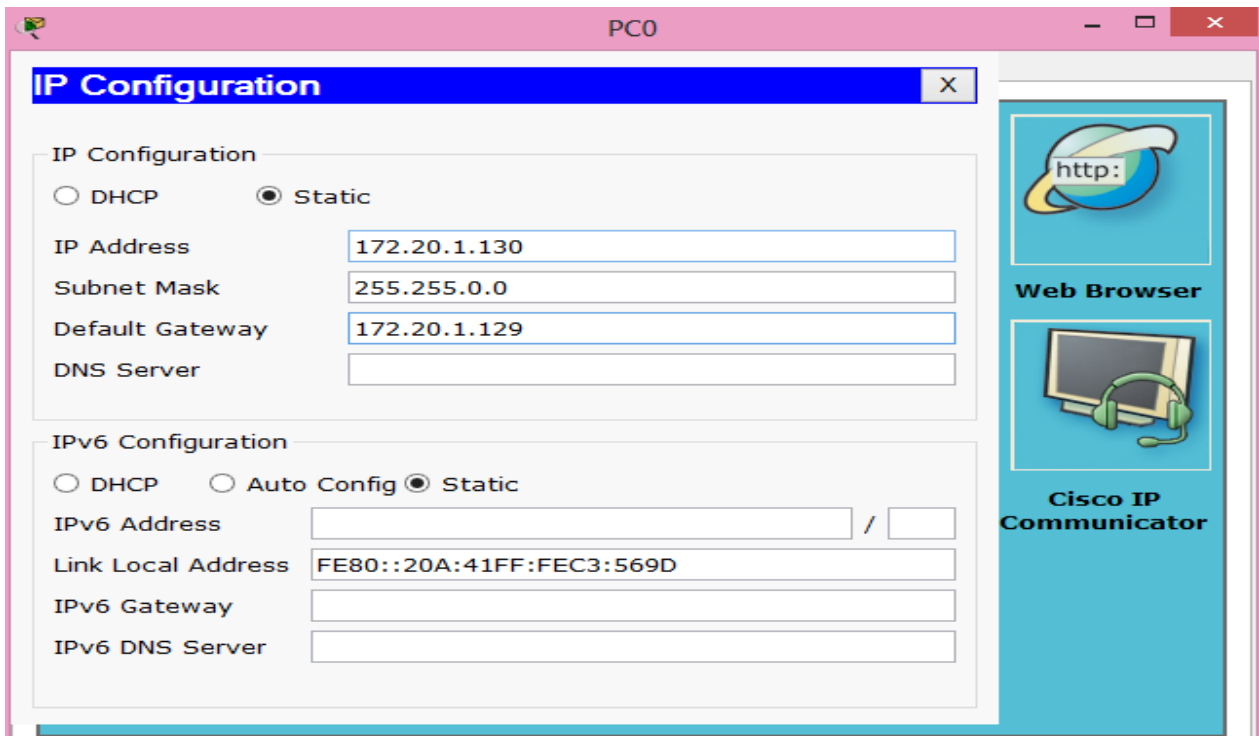
Configuración Inicial.

Cambio de direcciones a las PC'S.

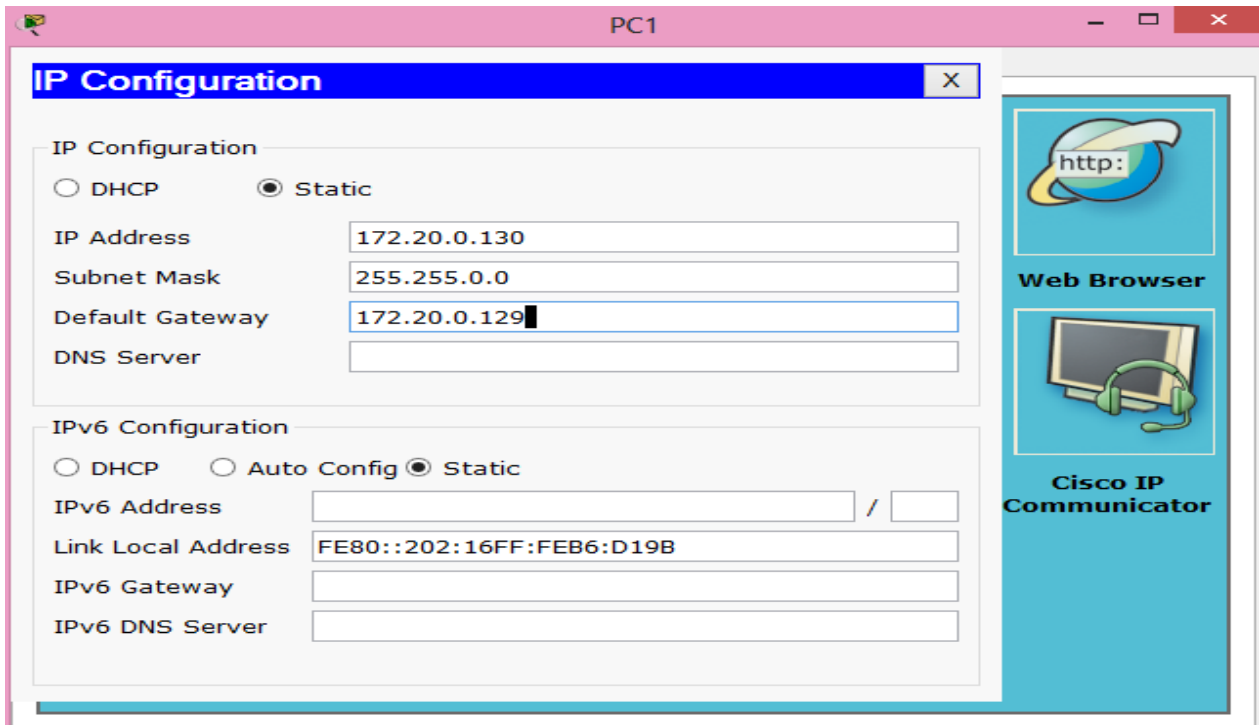
**Materiales:**

Programa de simulacion Packet Tracer

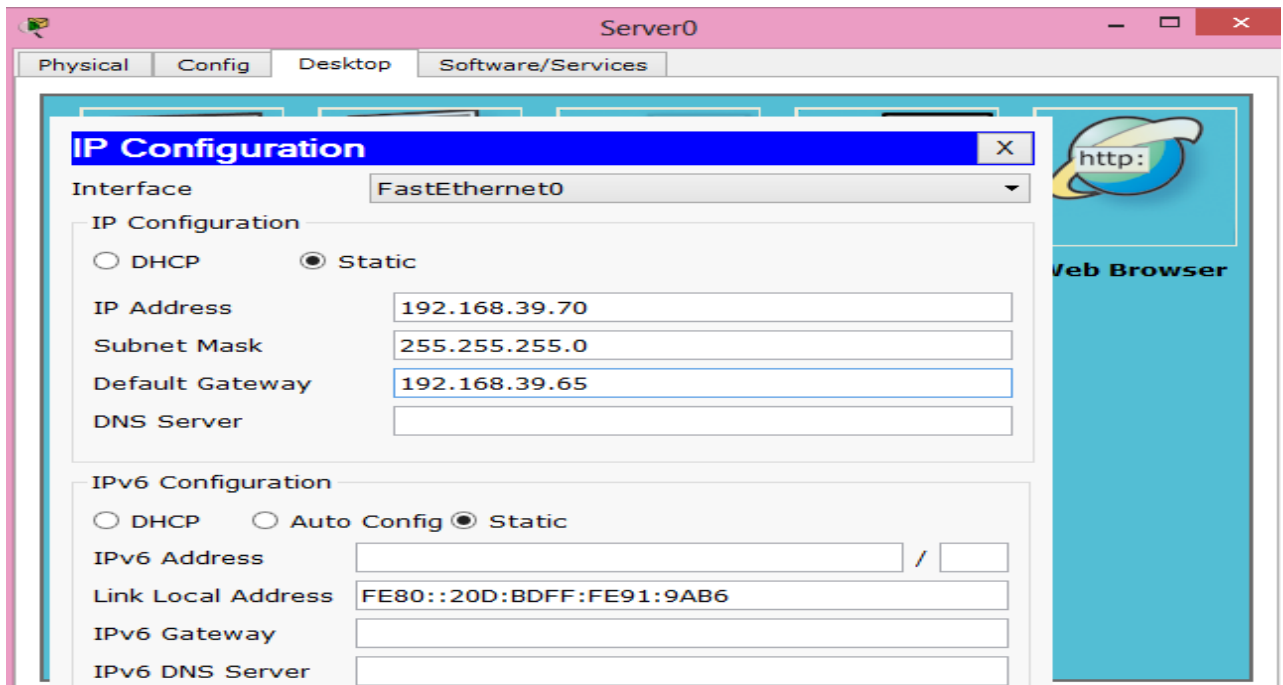
Como primer paso, configurar la dirección ip y mascara de subred de las computadoras de simulación.



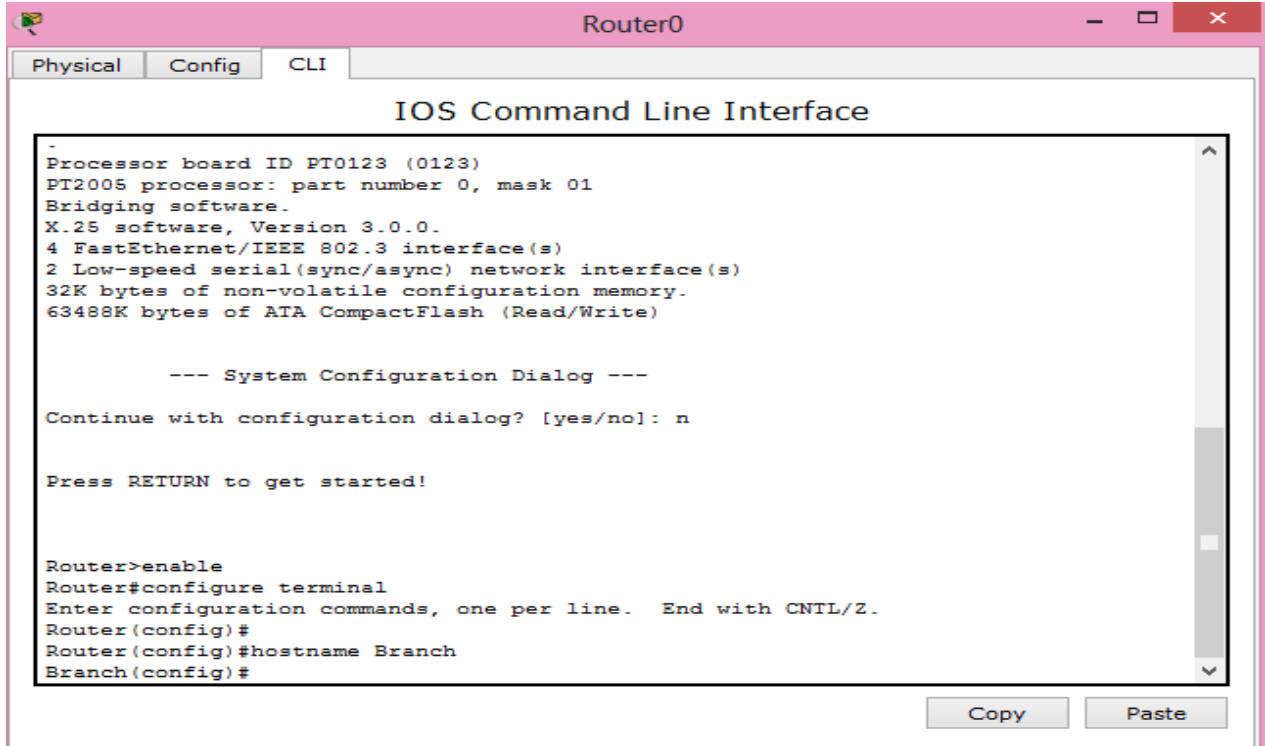
PC2.



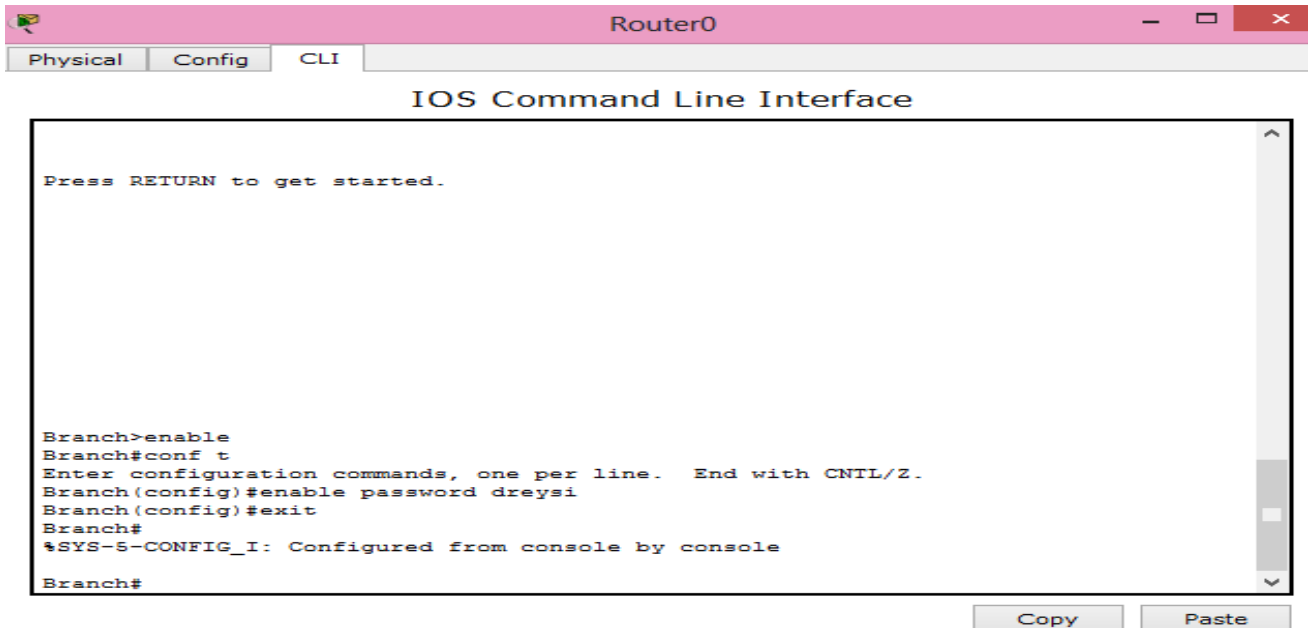
Como siguiente paso se configura el servidor.



A continuación se procede a cambiarle el nombre al primer router de la siguiente manera.



A continuación se le asigna una contraseña.



The screenshot shows the CLI interface of Router0. The window title is "Router0" and it has tabs for "Physical", "Config", and "CLI". The main area displays the "IOS Command Line Interface" with the following text:

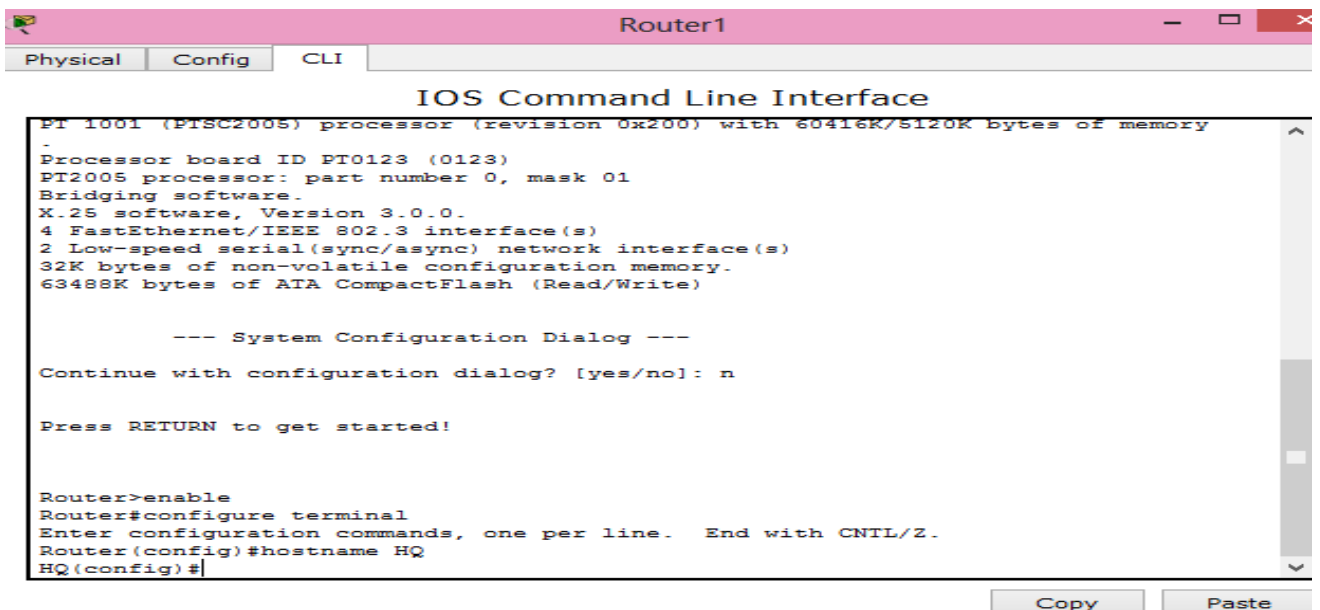
```
Press RETURN to get started.

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

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

Asignación de banner.

A continuación se le asigna un nombre al router 2.



The screenshot shows the CLI interface of Router1. The window title is "Router1" and it has tabs for "Physical", "Config", and "CLI". The main area displays the "IOS Command Line Interface" with the following text:

```
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)

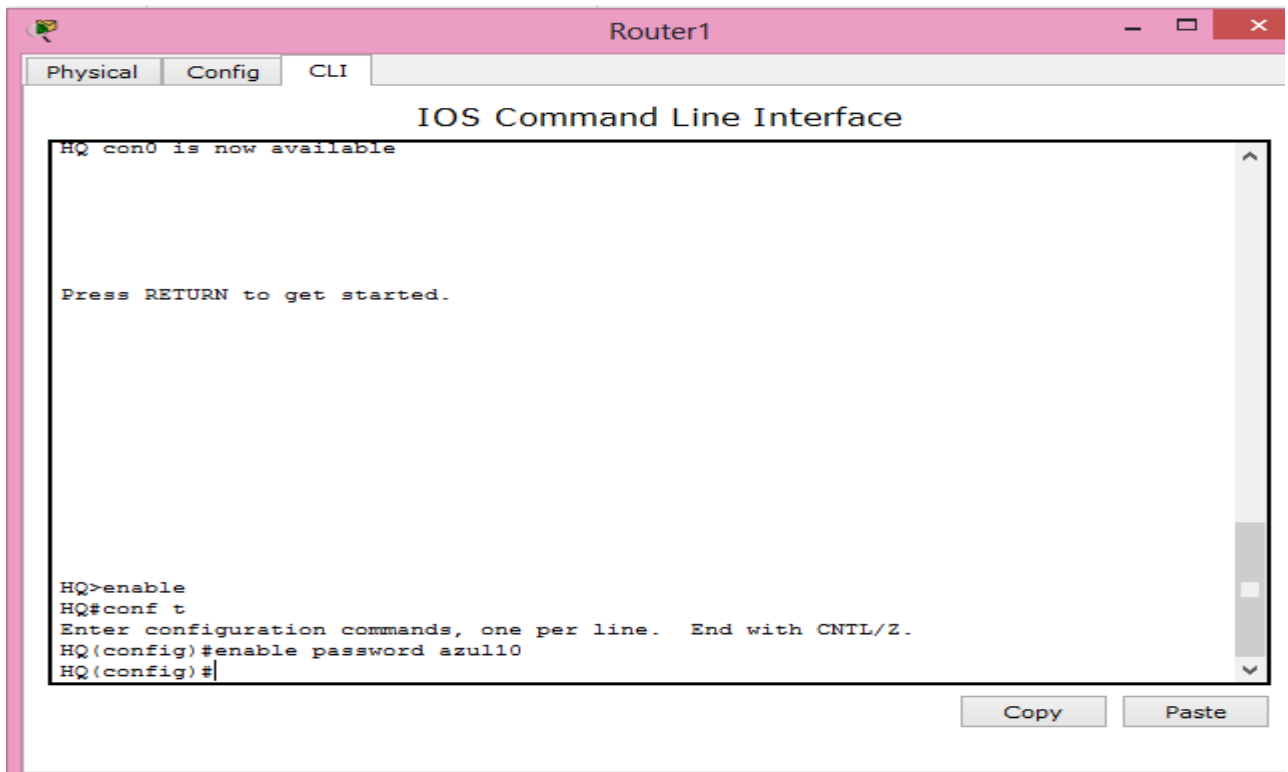
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

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)#
```

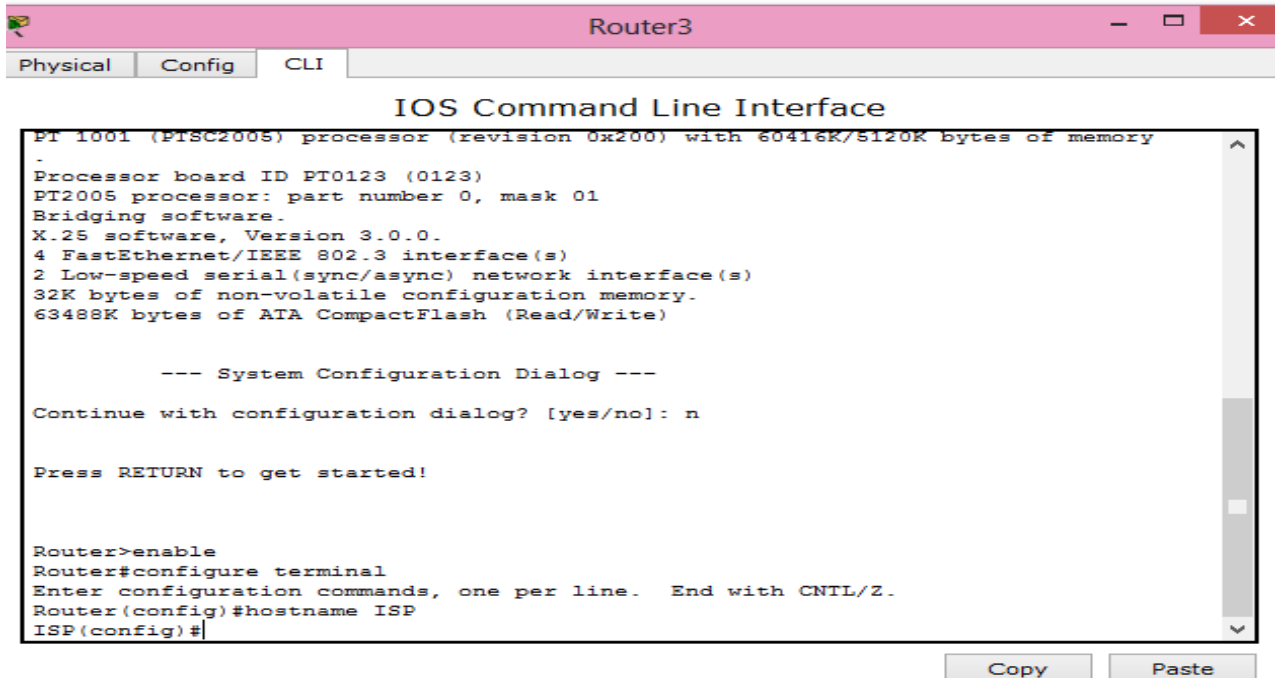
At the bottom right, there are "Copy" and "Paste" buttons.

Se le asigna una contraseña al router.



Se configura el mensaje del banner.

Se procede a cambiarle el nombre a el router 3



The screenshot shows a window titled "Router3" with tabs for "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface". It displays system information for a PT1001 processor, including board ID, processor details, software version, and hardware specifications. A "System Configuration Dialog" is shown, with the user responding 'n' to continue with configuration. The user then enters 'enable' to reach the privileged EXEC mode, followed by 'configure terminal' to enter configuration mode. The current configuration command is 'hostname ISP'.

```
PT 1001 (PT8C2005) 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)

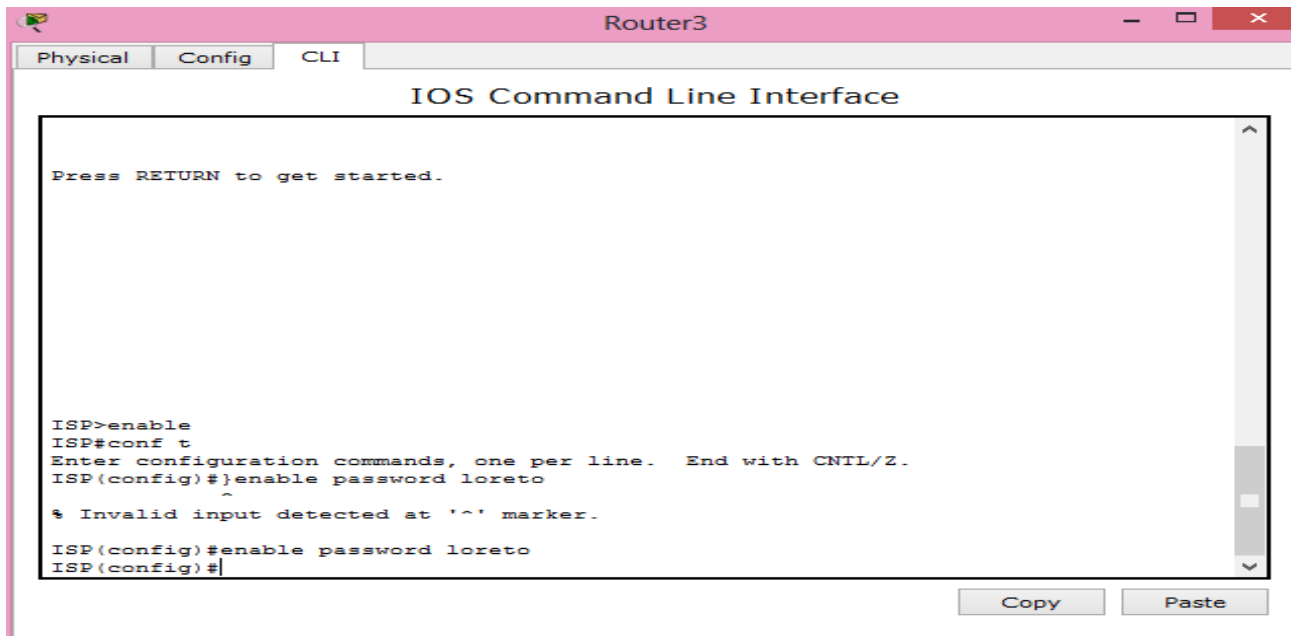
      --- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

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)#
```

Copy Paste

Se le asigna una contraseña



The screenshot shows a window titled "Router3" with tabs for "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface" and contains the following text:

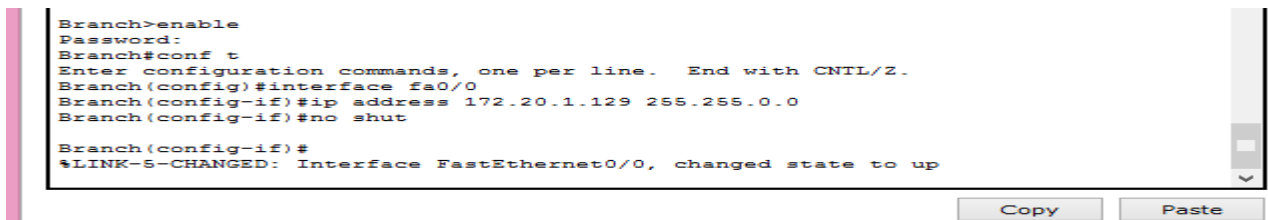
```
Press RETURN to get started.

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)#|
```

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

Después de las configuraciones básicas, se proceden a levantar los puertos seriales y los fa0/0 de los Routers de la siguiente manera

Configuración del router1



The screenshot shows a window titled "Router1" with tabs for "Physical", "Config", and "CLI". The main area is titled "IOS Command Line Interface" and contains the following text:

```
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
```

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

Levantando Serial2/0.para cada puerto

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

Copy Paste

## Configuración del router 2

### Levantando puertos fa0/0

```
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.

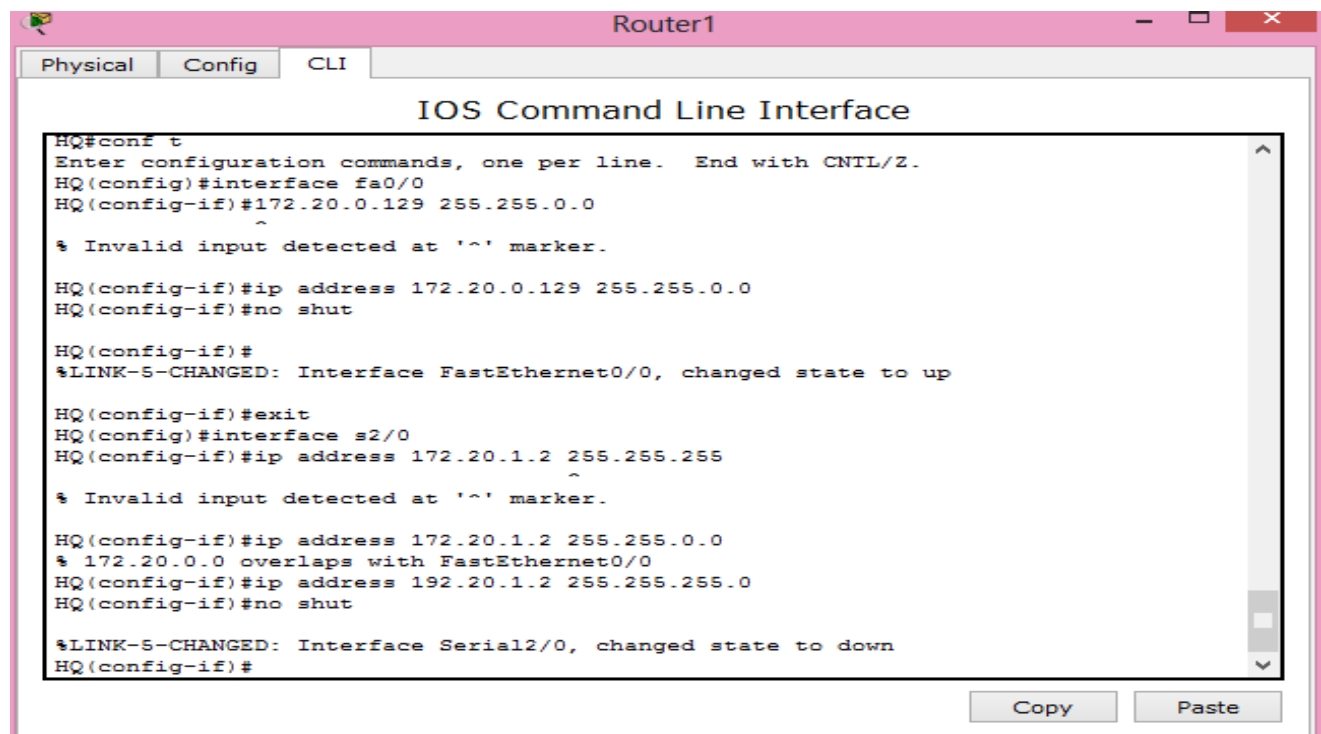
HQ(config-if)#ip address 172.20.0.129 255.255.0.0
HQ(config-if)#no shut

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

Copy

Paste

### Levantando los Serial2/0.para los puertos



The screenshot shows a window titled "Router1" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the configuration of the Serial2/0 interface, including the IP address 192.20.1.2 and the state change to down.

```
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-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.

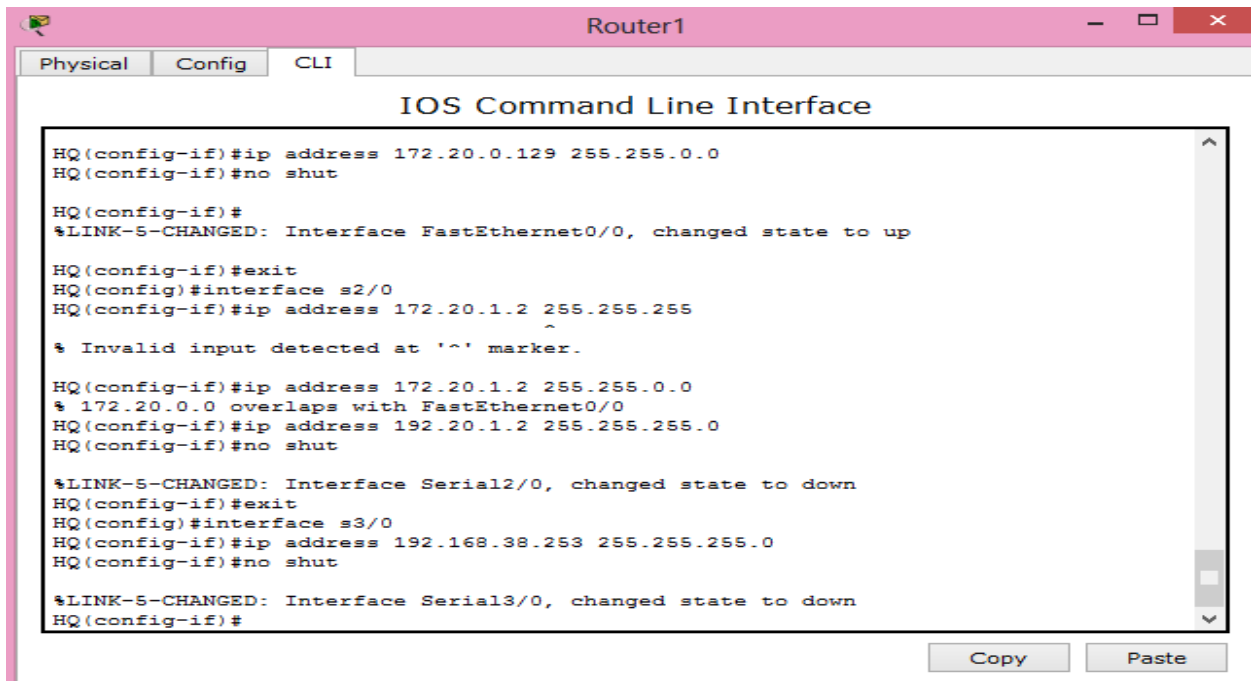
HQ(config-if)#ip address 172.20.1.2 255.255.0.0
% 172.20.0.0 overlaps with FastEthernet0/0
HQ(config-if)#ip address 192.20.1.2 255.255.255.0
HQ(config-if)#no shut

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

Copy

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Levantando Serial3/0. Para la conexión entre los dos Routers conectados a este.

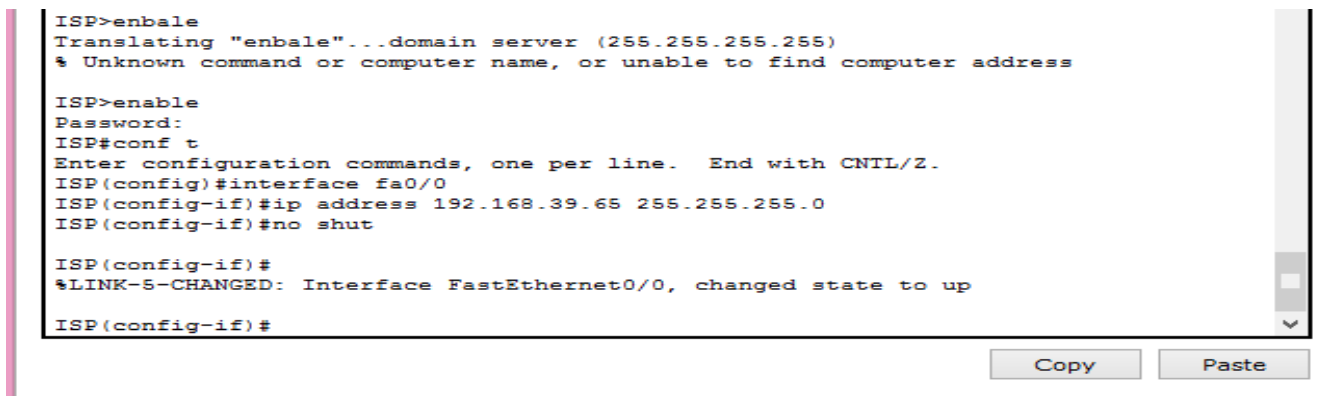


```
Router1
Physical Config CLI
IOS Command Line Interface
HQ(config-if)#ip address 172.20.0.129 255.255.0.0
HQ(config-if)#no shut
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
HQ(config-if)#
HQ(config-if)#exit
HQ(config)#interface s2/0
HQ(config-if)#ip address 172.20.1.2 255.255.255
% 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)#
```

Copy Paste

Configurando router 3

Levantando los Puertos Fa0/0. Del tercer router



```
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)#
```

Copy Paste

Levantando los puertos Serial2/0.para cada puerto del router

```

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)#exit
ISP(config)#interface s2/0
ISP(config-if)#ip address 192.168.38.254 255.255.255.0
ISP(config-if)#no shut

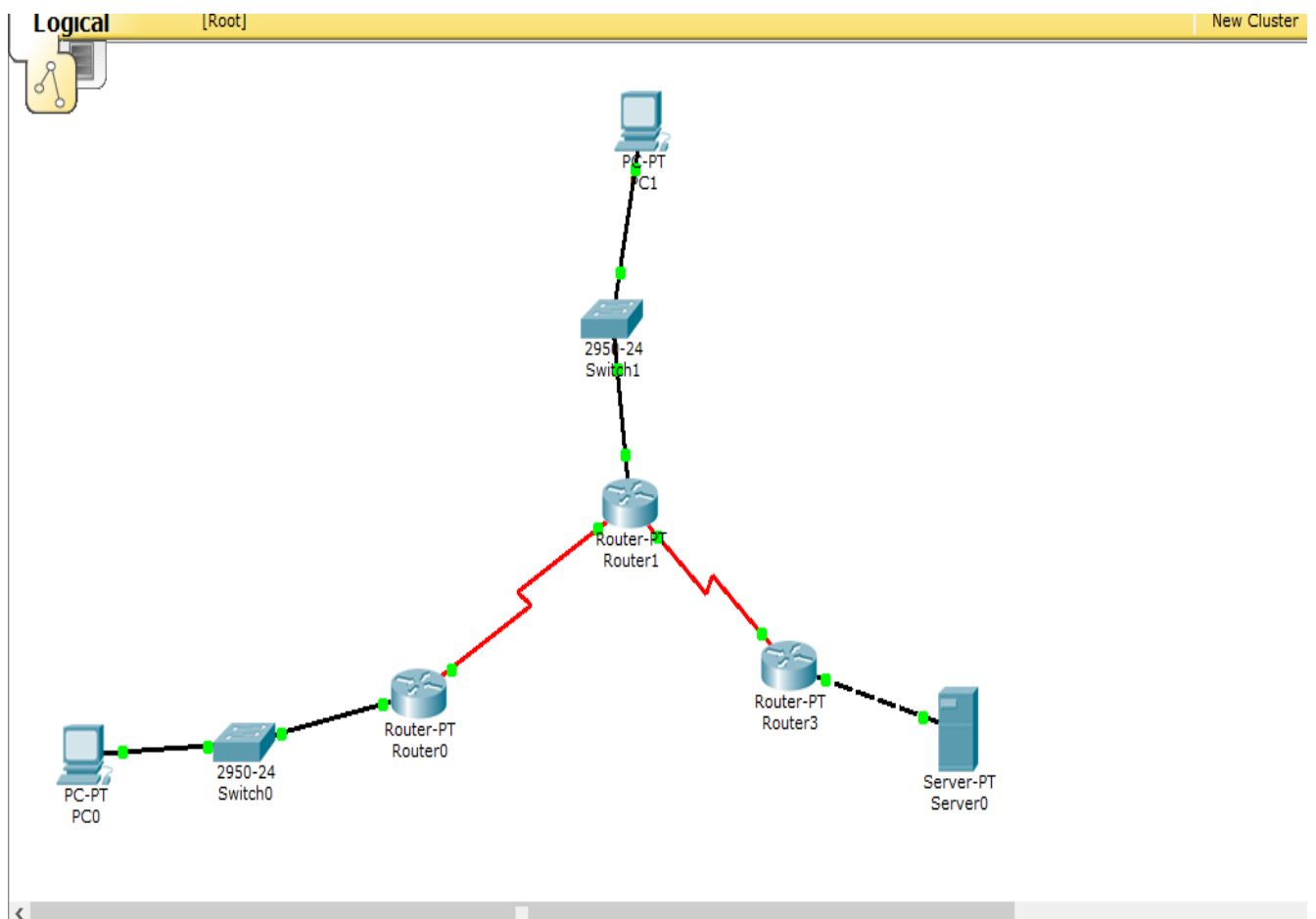
%LINK-5-CHANGED: Interface Serial2/0, changed state to down
ISP(config-if)#

```

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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 de siguiente salto.

Configurando el Branch en las configuraciones

```
Branch>eanble
Translating "eanble"...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)#
```

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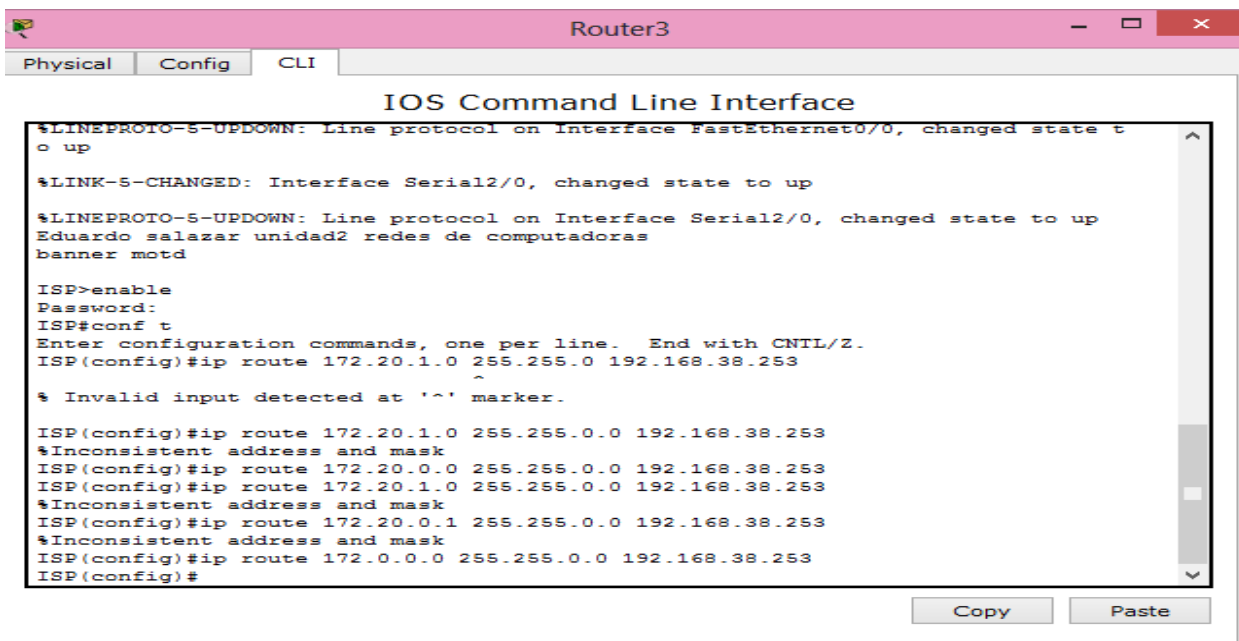
Configurando el HQ. En configuraciones

```
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)#
```

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## Configurando el ISP.

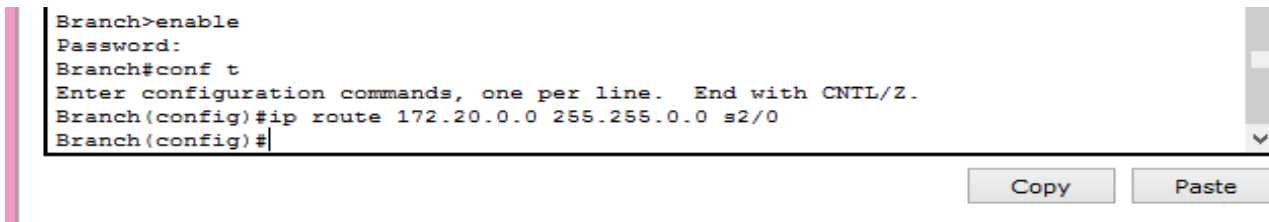


```
Router3
Physical Config CLI
IOS Command Line Interface
%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-S-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Eduardo salazar unidad2 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.

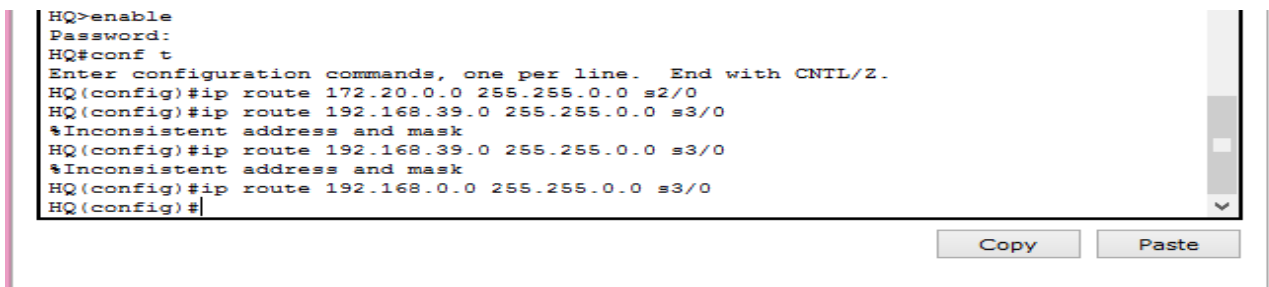
ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.20.0.0 255.255.0.0 192.168.38.253
ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
%Inconsistent address and mask
ISP(config)#ip route 172.20.0.1 255.255.0.0 192.168.38.253
%Inconsistent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

A continuación a Configurar Rutas Estáticas Utilizando la “Interfaz de Salida” al Router1



```
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)#
```

A continuación a Configurar Rutas Estáticas Utilizando la “Interfaz de Salida” al Router2.



```
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)#
```

A continuación a Configurar Rutas Estáticas Utilizando la “Interfaz de Salida” al Router3.

Router3

Physical Config CLI

### IOS Command Line Interface

```
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
%Inconsistent address and mask
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.

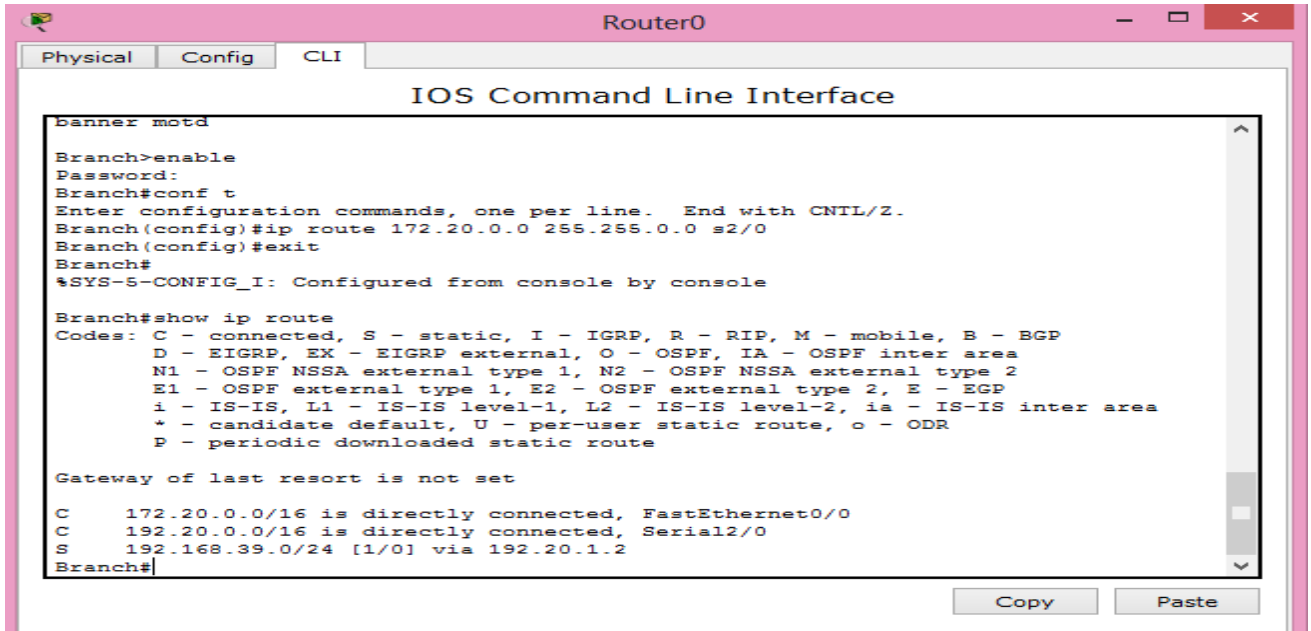
ISP(config)#ip route 172.20.0.0 255.255.0.0 s2/0
ISP(config)#ip route 172.0.0.0 255.255.0.0 s3/0
ISP(config)#
```

Copy Paste

A continuación 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.

Configurando el brench



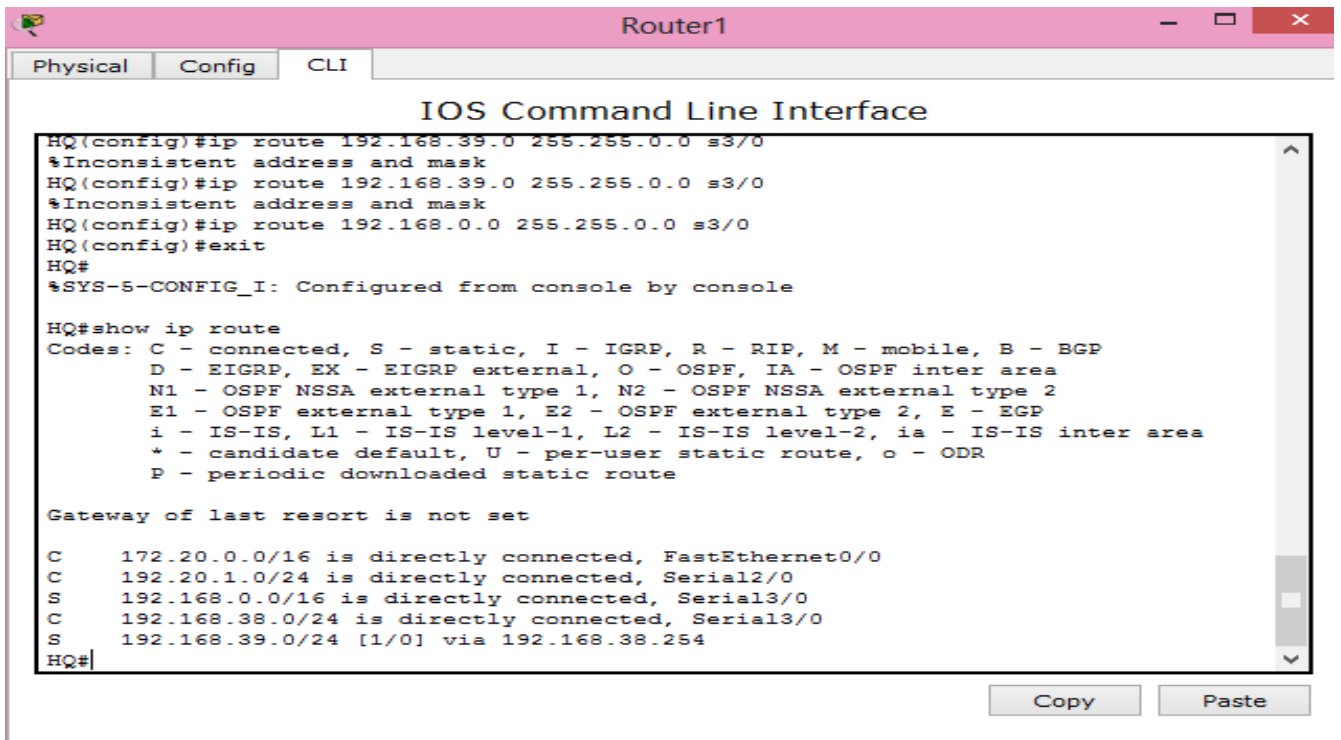
```
Router0
Physical Config CLI
IOS Command Line Interface
Banner motd
Branch>enable
Password:
Branch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Branch(config)#ip route 172.20.0.0 255.255.0.0 s2/0
Branch(config)#exit
Branch#
%SYS-5-CONFIG_I: Configured from console by console

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#
```

Configurando el HQ.



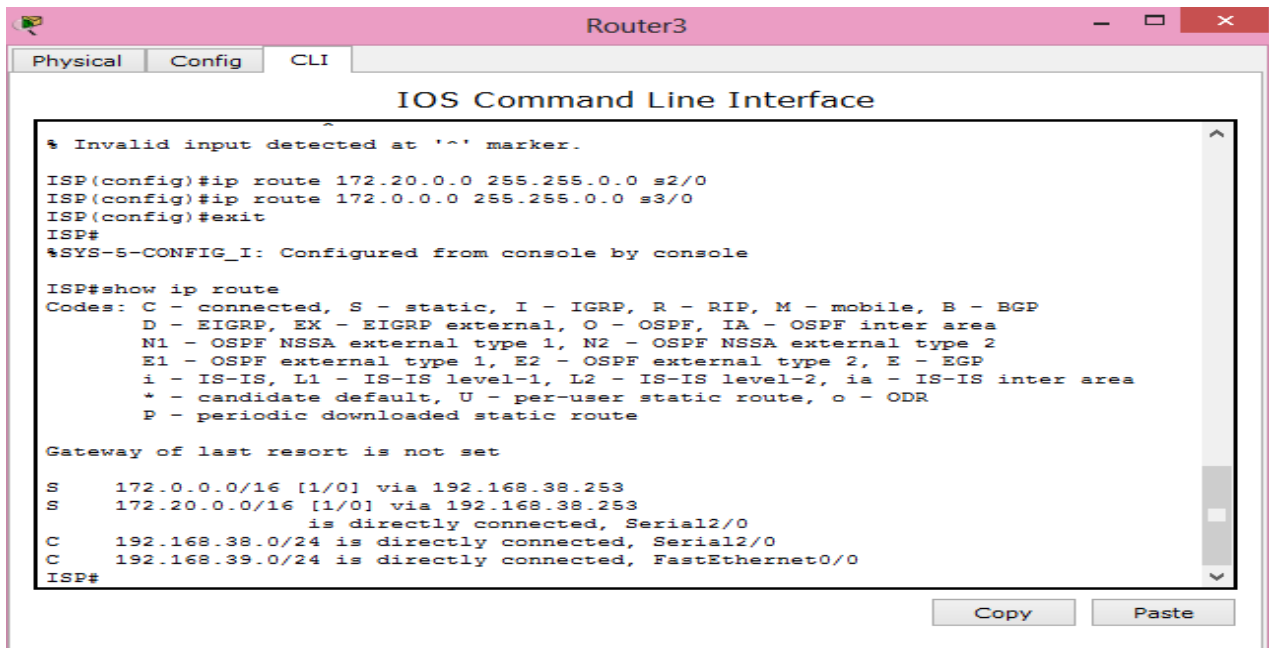
```
Router1
Physical Config CLI
IOS Command Line Interface
HQ(config)#ip route 192.168.39.0 255.255.0.0 s3/0
%Inconsistent address and mask
HQ(config)#ip route 192.168.39.0 255.255.0.0 s3/0
%Inconsistent address and mask
HQ(config)#ip route 192.168.0.0 255.255.0.0 s3/0
HQ(config)#exit
HQ#
%SYS-5-CONFIG_I: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

## Configurando el ISP



The screenshot shows a terminal window titled "Router3" with tabs for "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface" where the following commands and output are shown:

```
% 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, Serial2/0
C    192.168.38.0/24 is directly connected, Serial2/0
C    192.168.39.0/24 is directly connected, FastEthernet0/0
ISP#
```

At the bottom right of the terminal window, there are two buttons: "Copy" and "Paste".

