



TECNOLÓGICO NACIONAL DE MÉXICO
INSTITUTO TECNOLÓGICO DE SALINA CRUZ



Tecnológico Nacional de México
INSTITUTO TECNOLÓGICO DE SALINA CRUZ

REDES DE COMPUTADORAS

Semestre Enero – Junio 2015

REPORTE DE PRÁCTICA

PRÁCTICA NO: 7

UNIDAD 2:

NOMBRE DEL ALUMNO:

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FECHA: 15/ABRIL/2015

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.

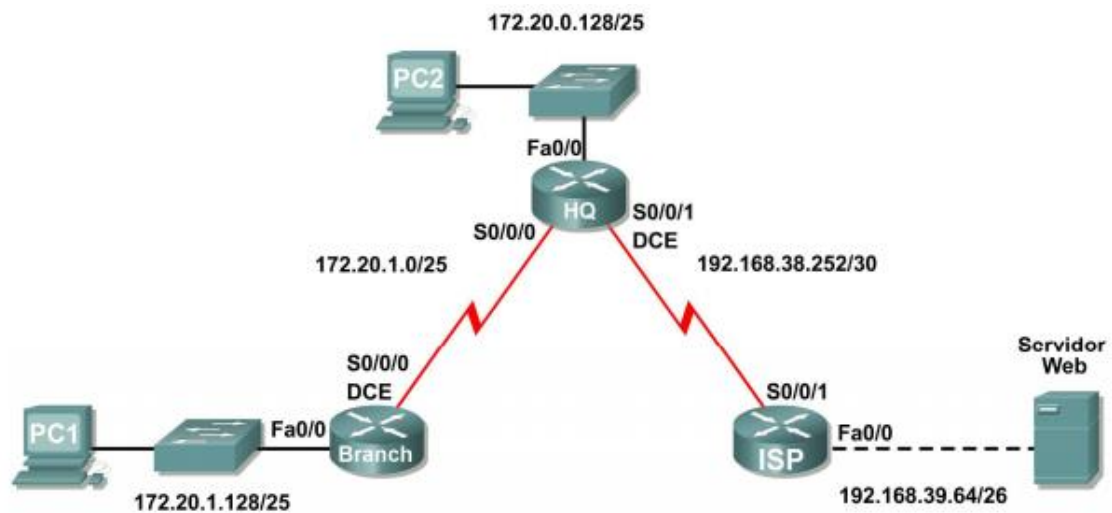


Tabla de ruteo.

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.

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address

172.20.1.130

Subnet Mask

255.255.0.0

Default Gateway

172.20.1.129

DNS Server

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address


 /


Link Local Address

FE80::20A:41FF:FEC3:569D

IPv6 Gateway

IPv6 DNS Server


Web Browser


Cisco IP Communicator

PC2.

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address

172.20.0.130

Subnet Mask

255.255.0.0

Default Gateway

172.20.0.129

DNS Server

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address


 /


Link Local Address

FE80::202:16FF:FEB6:D19B

IPv6 Gateway

IPv6 DNS Server


Web Browser


Cisco IP Communicator

Servidor.

Physical Config Desktop Software/Services

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 192.168.39.70

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.39.65

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::20D:BDFF:FE91:9AB6

IPv6 Gateway:

IPv6 DNS Server:

Web Browser

RUTEADORES.

Router1.

Cambio de nombre.

Physical Config CLI

IOS Command Line Interface

```
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)

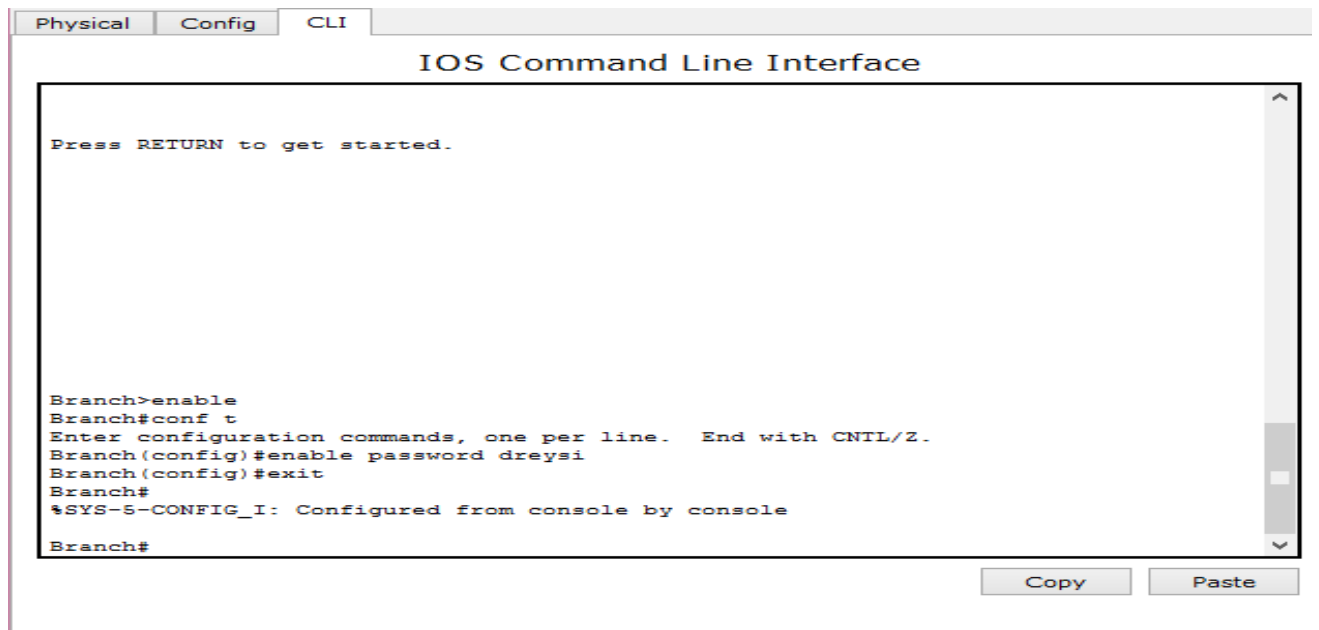
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

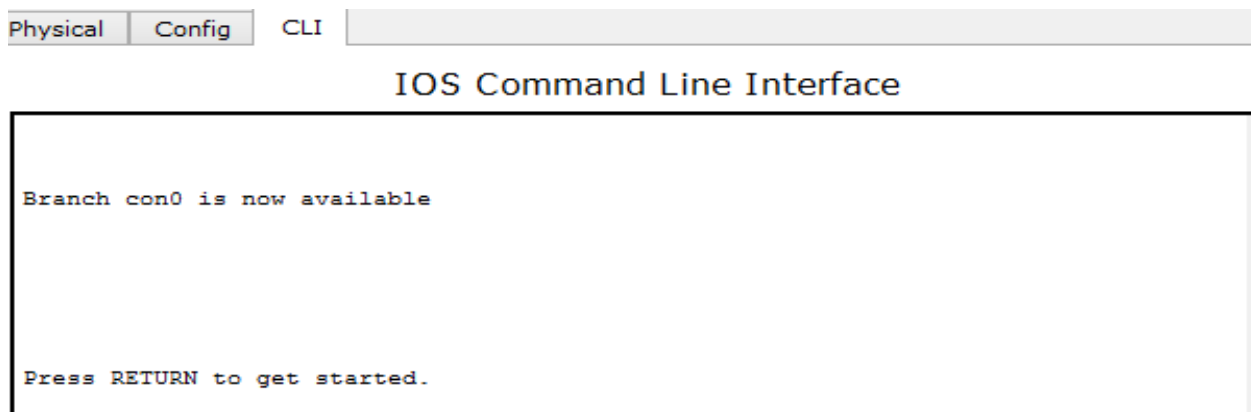
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#hostname Branch
Branch(config)#
```

Copy Paste

Asignación de password.



Asignación de banner.

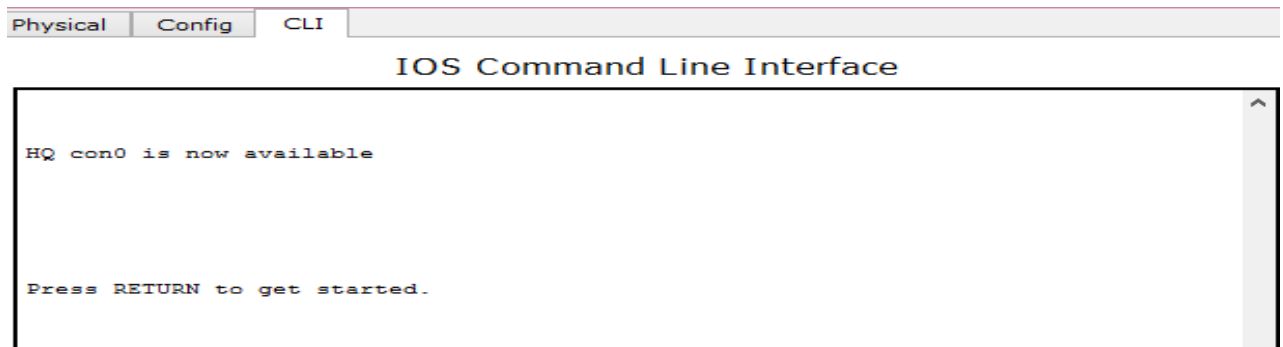


ROUTER2.

Cambio de nombre.

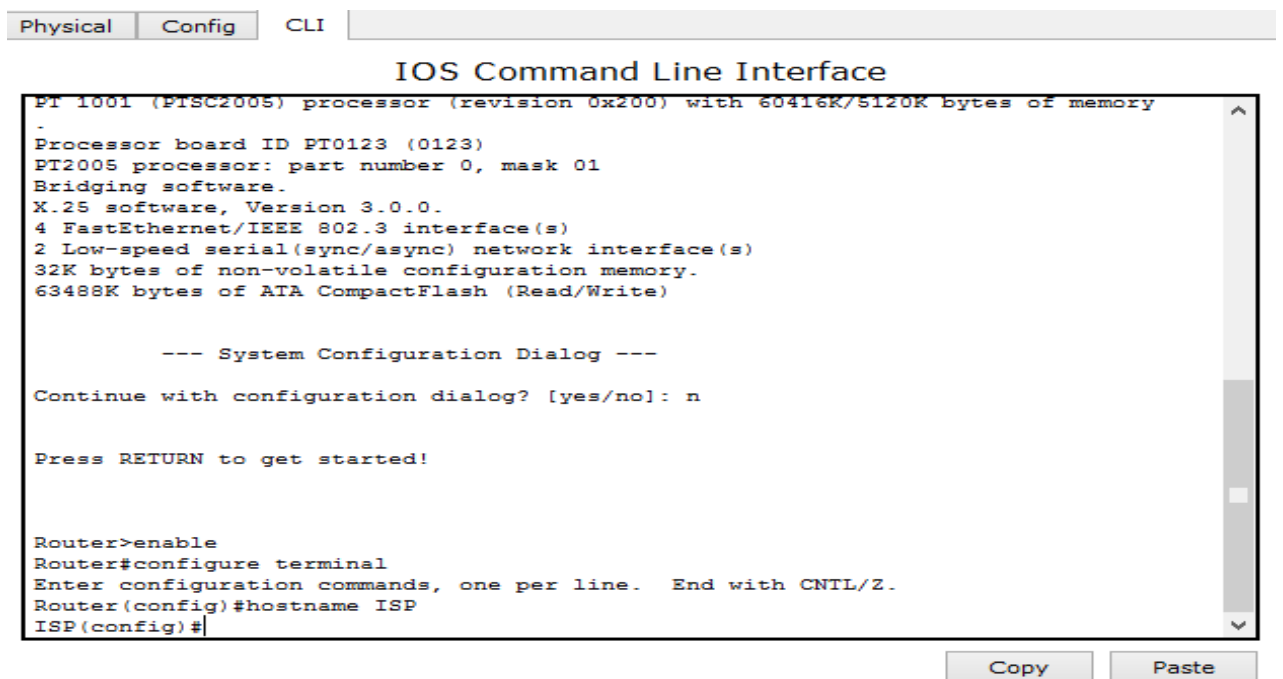


Asignación de un banner.

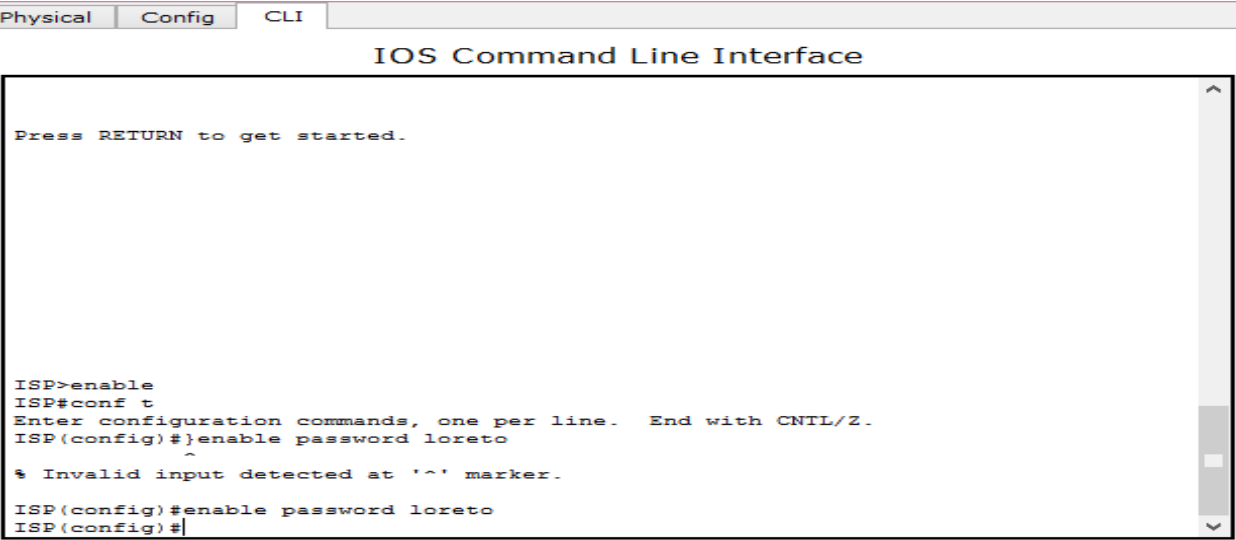


ROUTER3.

Cambio de nombre.



Asignación de password.



The screenshot shows the IOS Command Line Interface with tabs for Physical, Config, and CLI. The CLI window displays the following text:

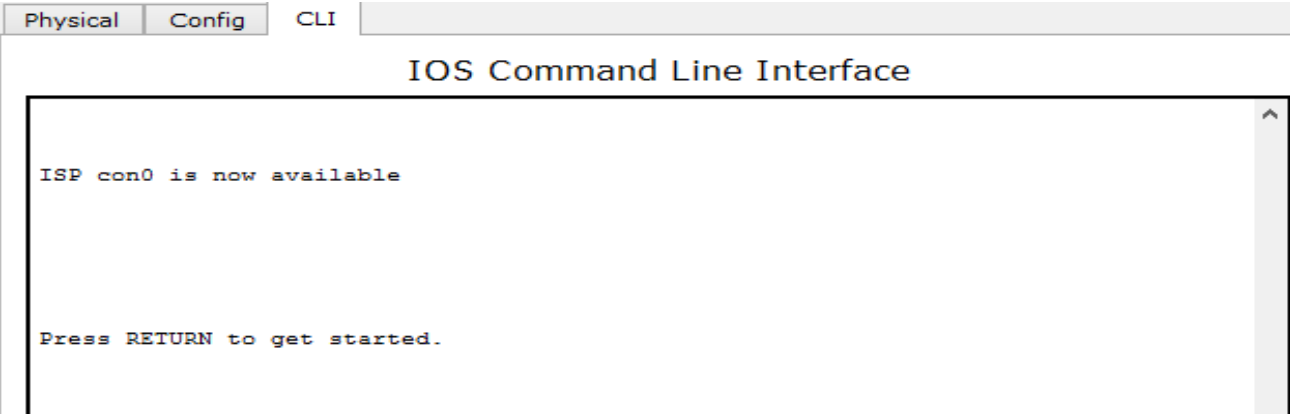
```
Press RETURN to get started.
```



```
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 CLI window, there are two buttons: "Copy" and "Paste".

Asignación del banner.



The screenshot shows the IOS Command Line Interface with tabs for Physical, Config, and CLI. The CLI window displays the following text:

```
ISP con0 is now available
```



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

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.

```

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

```

Copy

Paste

Serial2/0.

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)#

```

Copy

Paste

ROUTER2.

Puerto 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-S-CHANGED: Interface FastEthernet0/0, changed state to up

```

Copy

Paste

Serial2/0.

Physical

Config

CLI

IOS Command Line Interface

```
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

Paste

Serial3/0.

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

Copy

Paste

ROUTER3.

Puerto Fa0/0.

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)#

Copy

Paste

Serial2/0.

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

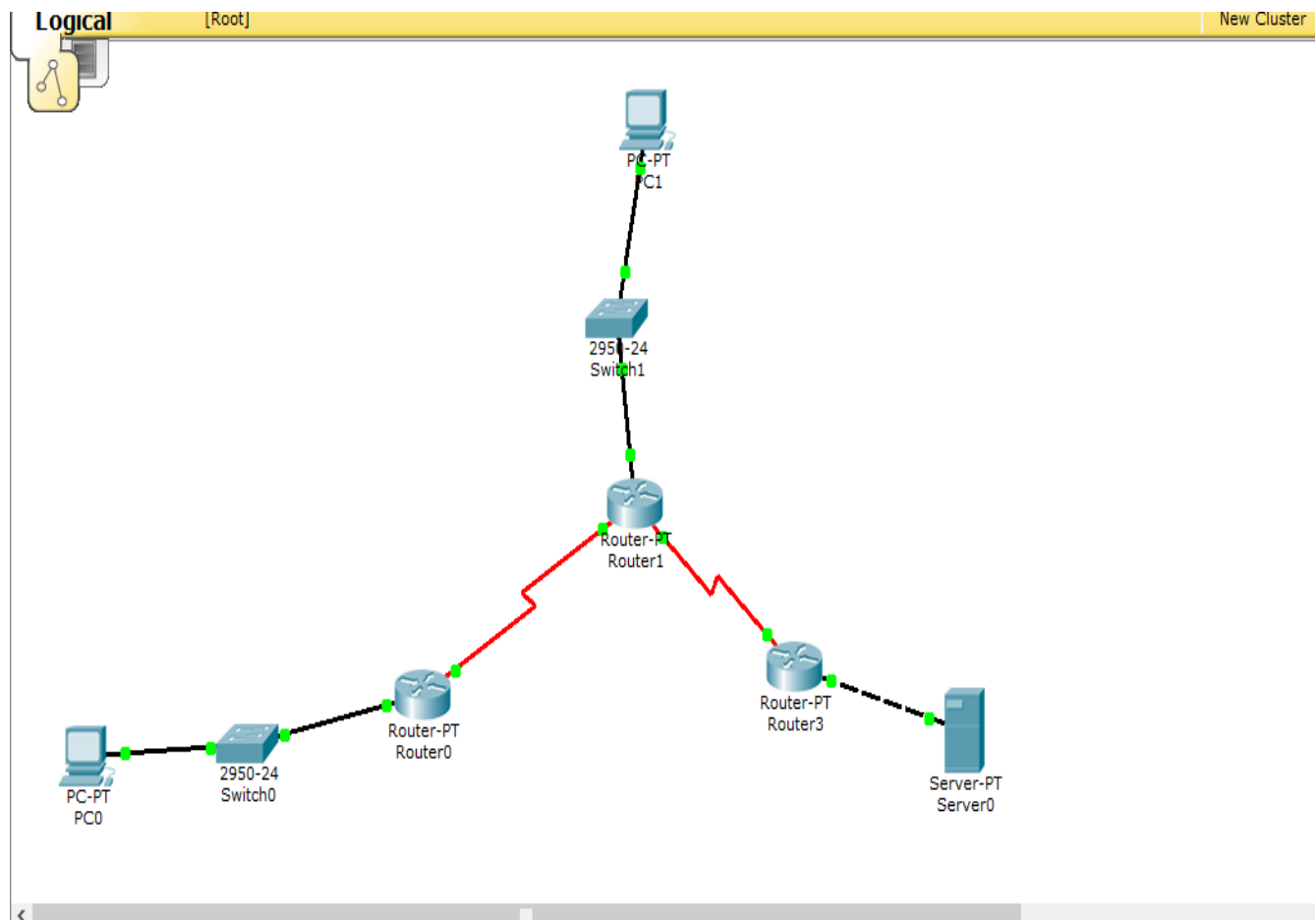
%LINK-S-CHANGED: Interface Serial2/0, changed state to down

ISP(config-if)#

Copy

Paste

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.

```
Physical Config CLI
IOS Command Line Interface
$SYS-S-CONFIG_1: 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>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)#
```

Copy Paste

HQ.

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
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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 172.20.1.0 255.255.0.0 192.20.1.1
%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)#
```

Copy Paste

ISP.

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)#
```

Copy Paste

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

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)#

Copy Paste

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)#
```

Copy

Paste

Router3.

Physical Config CLI

IOS Command Line Interface

```
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#ip route 172.20.1.0 255.255.0.0 192.168.38.253
^
% 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-S-CONFIG_I: Configured from console by console

ISP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ISP(config)#ip route 172.20.0.0 255.255.0.0 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

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.

Physical Config CLI

IOS Command Line Interface

```
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

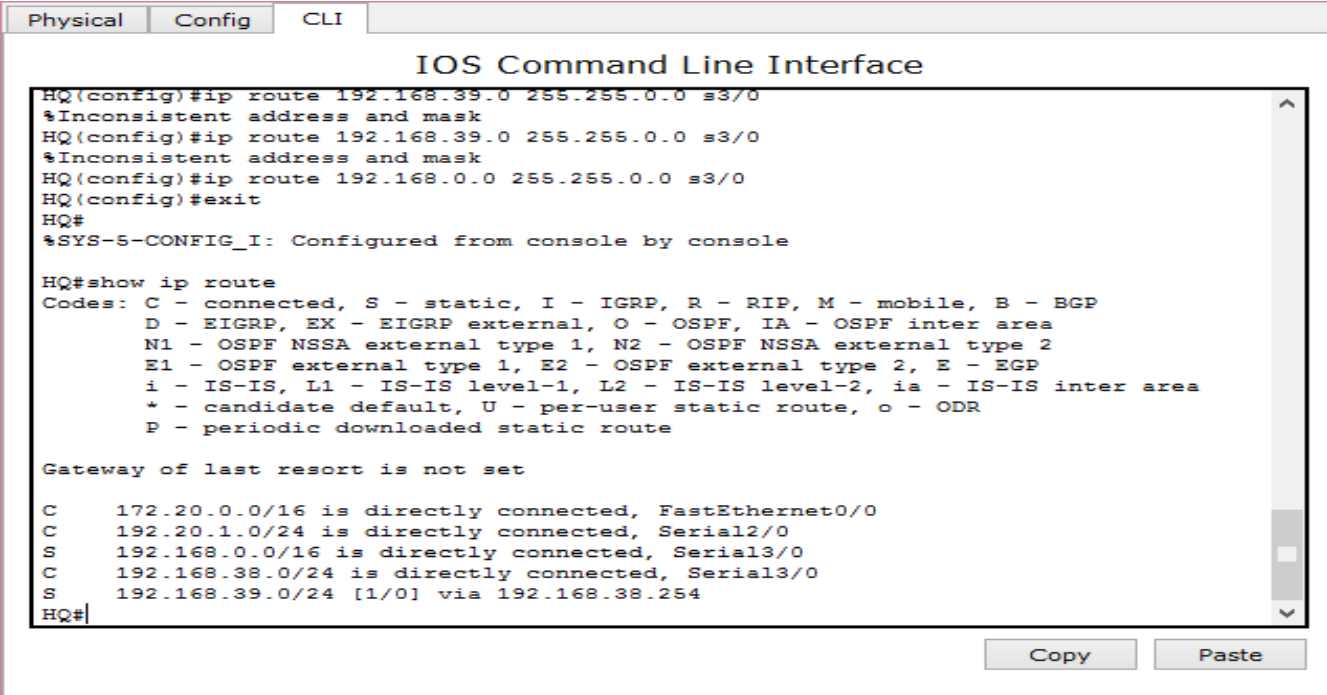
Gateway of last resort is not set

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#
```

Copy

Paste

HQ.



The screenshot shows the IOS Command Line Interface with tabs for Physical, Config, and CLI. The CLI tab is active, displaying the following commands and output:

```
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, Serial12/0
S    192.168.0.0/16 is directly connected, Serial3/0
C    192.168.38.0/24 is directly connected, Serial13/0
S    192.168.39.0/24 [1/0] via 192.168.38.254
HQ#
```

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

Conclusión

Para concluir con esta práctica podemos decir que con estas prácticas estamos ampliando nuestros conocimientos acerca de cómo poder configurar dispositivos utilizando el puerto Fast/Ethernet y seriales (s2/0/, aunque hay que tener en cuenta que solo se levantaron estos puertos, porque los router cuentan con otros puertos, así como también ponerles una contraseña a nuestros dispositivos y un nombre. Así mismo mostramos un banner.

