

INSTITUTO TÉCNICO DE SALINA CRUZ

REDES DE COMPUTADORA

SEMESTRE FEBRERO-AGOSTO 2015

REPORTE DE PRÁCTICAS

PRACTICA N°: 1

UNIDAD: 4

FECHA: 11 DE MAYO DE 2015

NOMBRE: EDUARDO SALAZAR IRRIZARI

Objetivos:

- Describir las funciones, las características y el funcionamiento del protocolo RIPv1.
- Configurar un dispositivo para usar RIPv1.
- Verificar el funcionamiento adecuado de RIPv1.
- Describir cómo RIPv1 realiza la sumarización automática.
- Configurar, verificar y resolver problemas de las rutas por defecto que se propagan en una red enrutada mediante la implementación de RIPv1.
- Usar las técnicas recomendadas para resolver problemas relacionados con RIPv1.

Instrucciones:

- 1.- Crear la tabla de enrutamiento.
- 2.- Realizar las configuraciones iniciales a los routers.
- 3.- Realizar configuraciones para usar RIP.
- 4.- Verificar el funcionamiento de RIP.

Materiales:

- 1.- Computadoras.
- 2.- Cisco Packet Tracer.
- 3.- Silla.

Escenario.

Verificación de la distancia administrativa

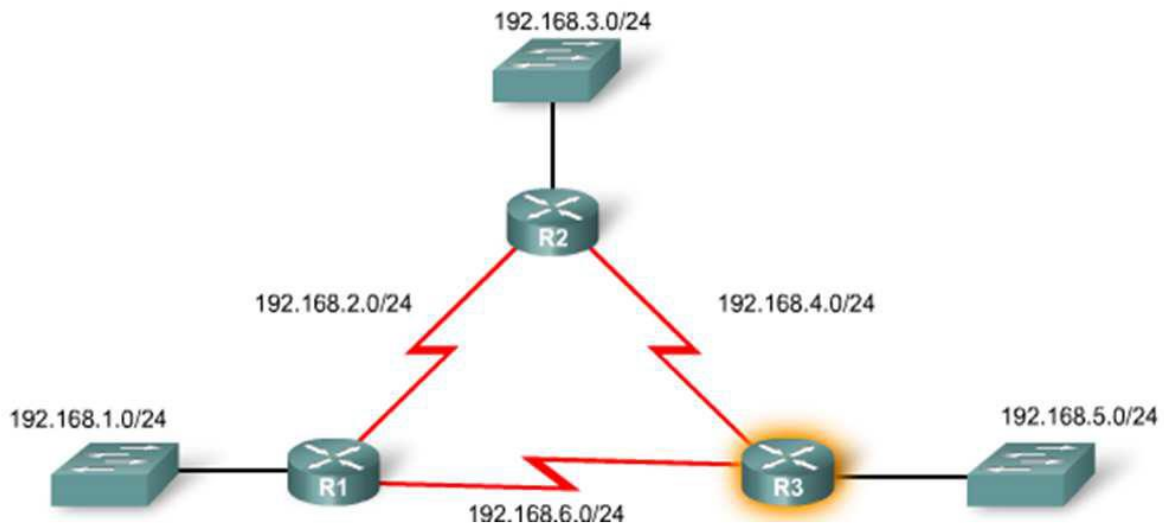


Tabla de enrutamiento.

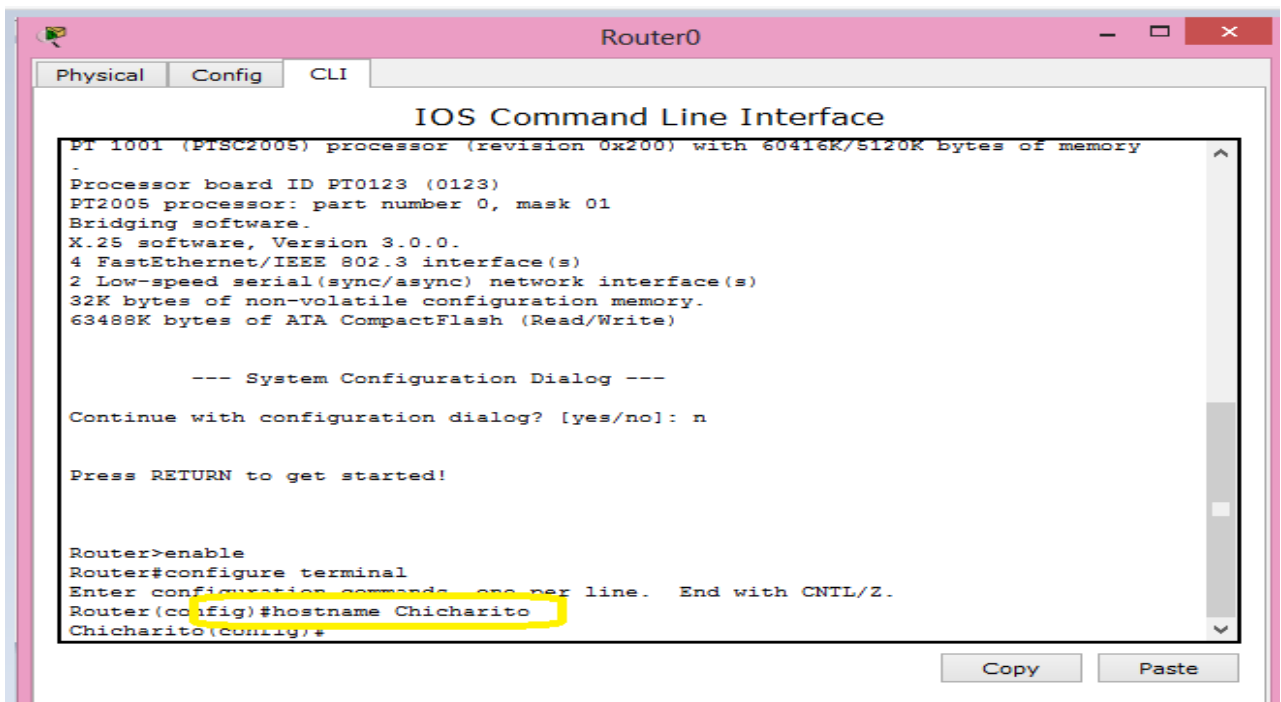
Dispositivo	Interfaz	Dirección IP	Mascara de subred	Gateway
Chicharito (R1)	Fa0/0	192.168.1.1	255.255.255.0	No aplicable
	S2/0	192.168.2.1	255.255.255.0	
	S3/0	192.168.6.1	255.255.255.0	
Ramos (R2)	Fa0/0	192.168.3.1	255.255.255.0	No aplicable
	S2/0	192.168.2.2	255.255.255.0	
	S3/0	192.168.4.1	255.255.255.0	
Messi (R3)	Fa0/0	192.168.5.1	255.255.255.0	No aplicable
	S2/0	192.168.4.2	255.255.255.0	
	S3/0	192.168.6.2	255.255.255.0	

CONFIGURACIÓN INICIAL

En este paso es en donde se lleva a cabo el levantamiento de puertos hará poder interconectar los diferentes dispositivos.

R1 (chicharito).

Cambio de nombre.



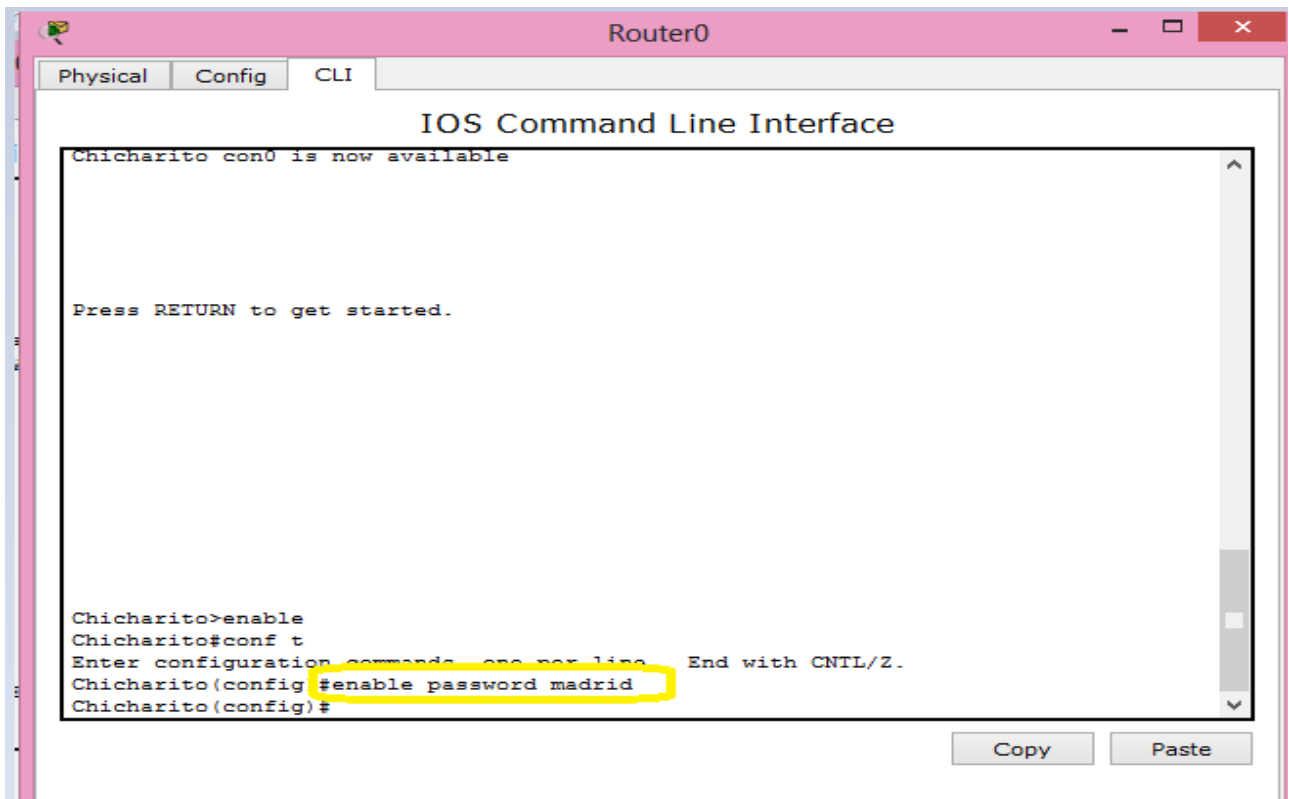
```
Router0
Physical Config CLI
IOS Command Line Interface
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
-
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
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 Chicharito
Chicharito(config)#
```

Posteriormente se le asigna una contraseña.

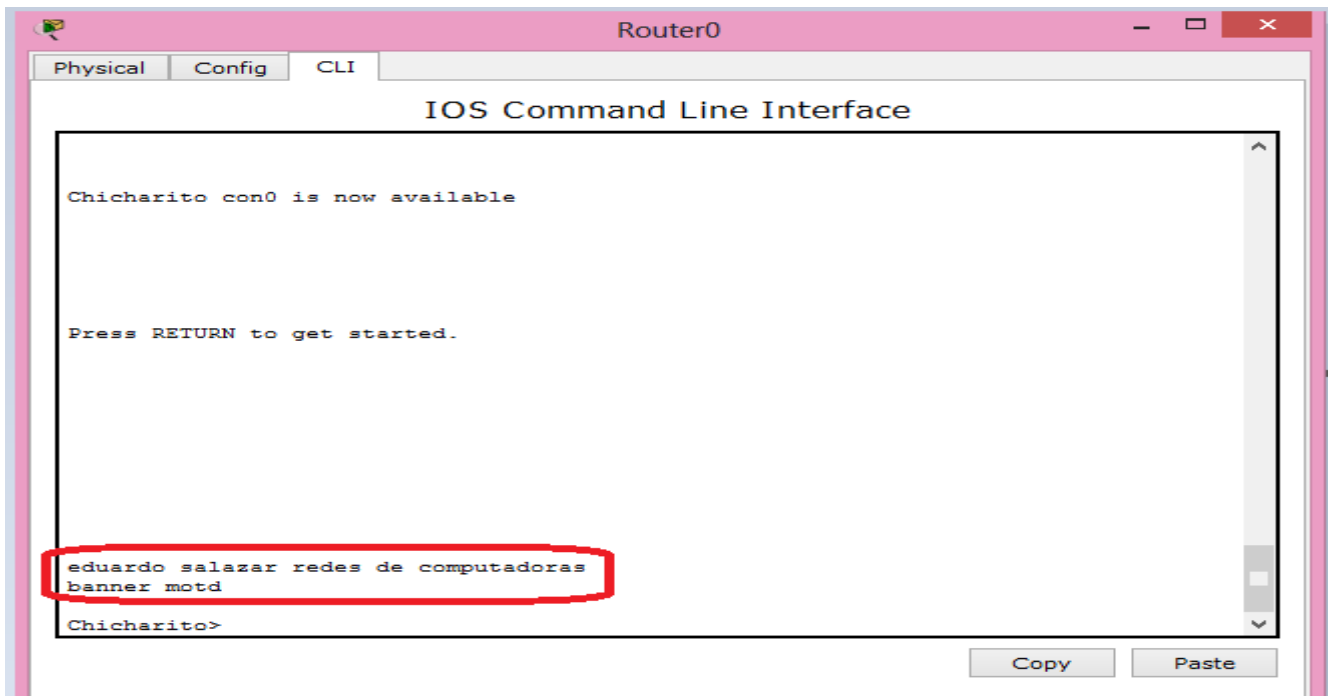


```
Router0
Physical Config CLI
IOS Command Line Interface
Chicharito con0 is now available

Press RETURN to get started.

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

De ahí se le asigna un banner.



The screenshot shows the IOS Command Line Interface for Router0. The interface has tabs for Physical, Config, and CLI. The main window displays the following text:

```
Chicharito con0 is now available

Press RETURN to get started.

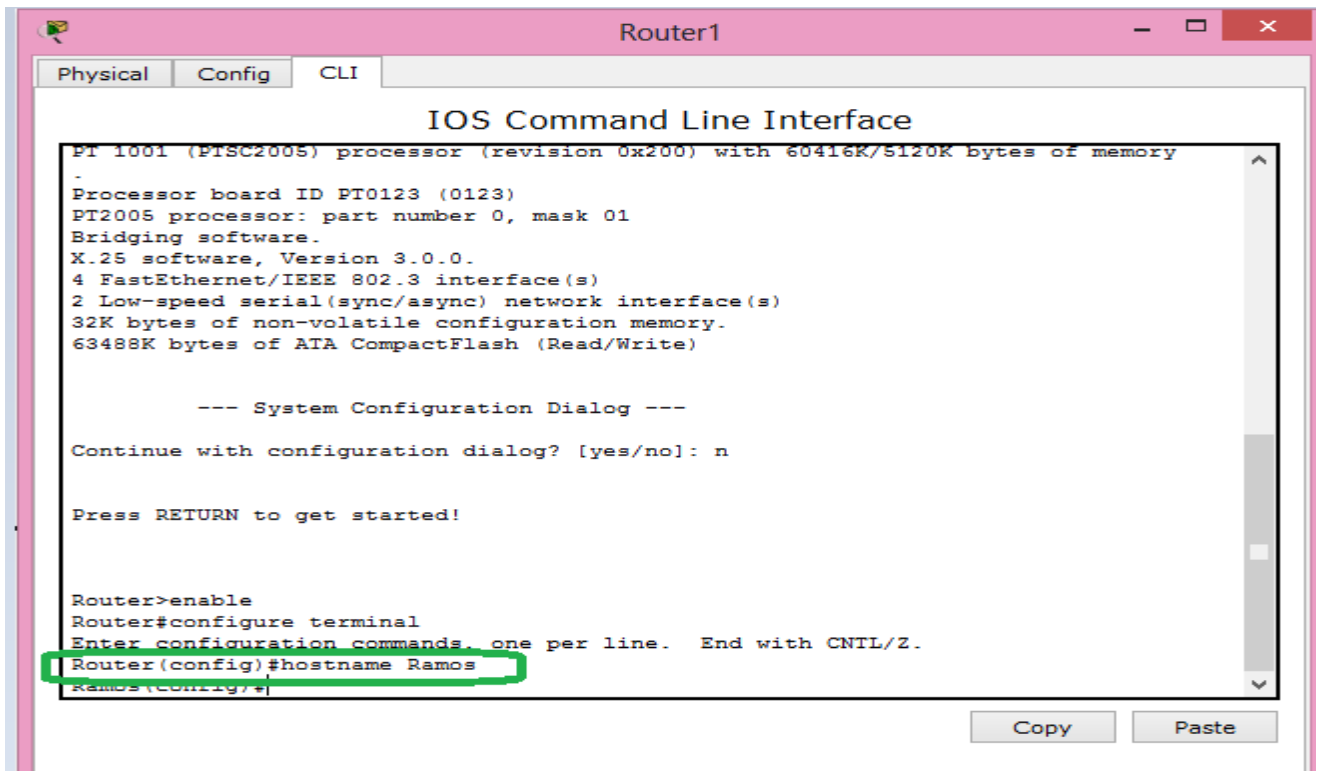
eduardo salazar redes de computadoras
banner motd

Chicharito>
```

The command `eduardo salazar redes de computadoras banner motd` is highlighted with a red box. At the bottom right, there are buttons for Copy and Paste.

R2 (Ramos).

Cambio de nombre.



The screenshot shows the IOS Command Line Interface for Router1. The interface has tabs for Physical, Config, and CLI. The main window displays 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 ---

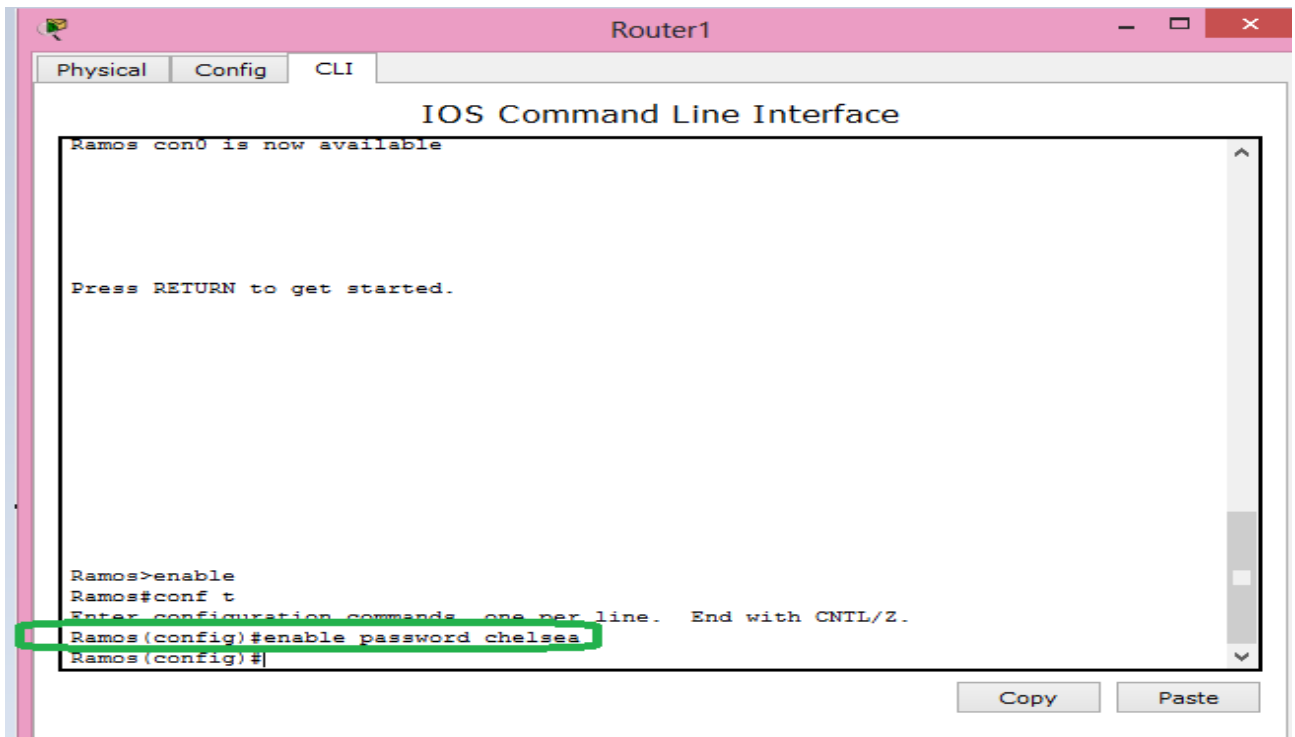
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

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

The command `Router(config)#hostname Ramos` is highlighted with a green box. At the bottom right, there are buttons for Copy and Paste.

Luego ahí que otorgarle una contraseña.



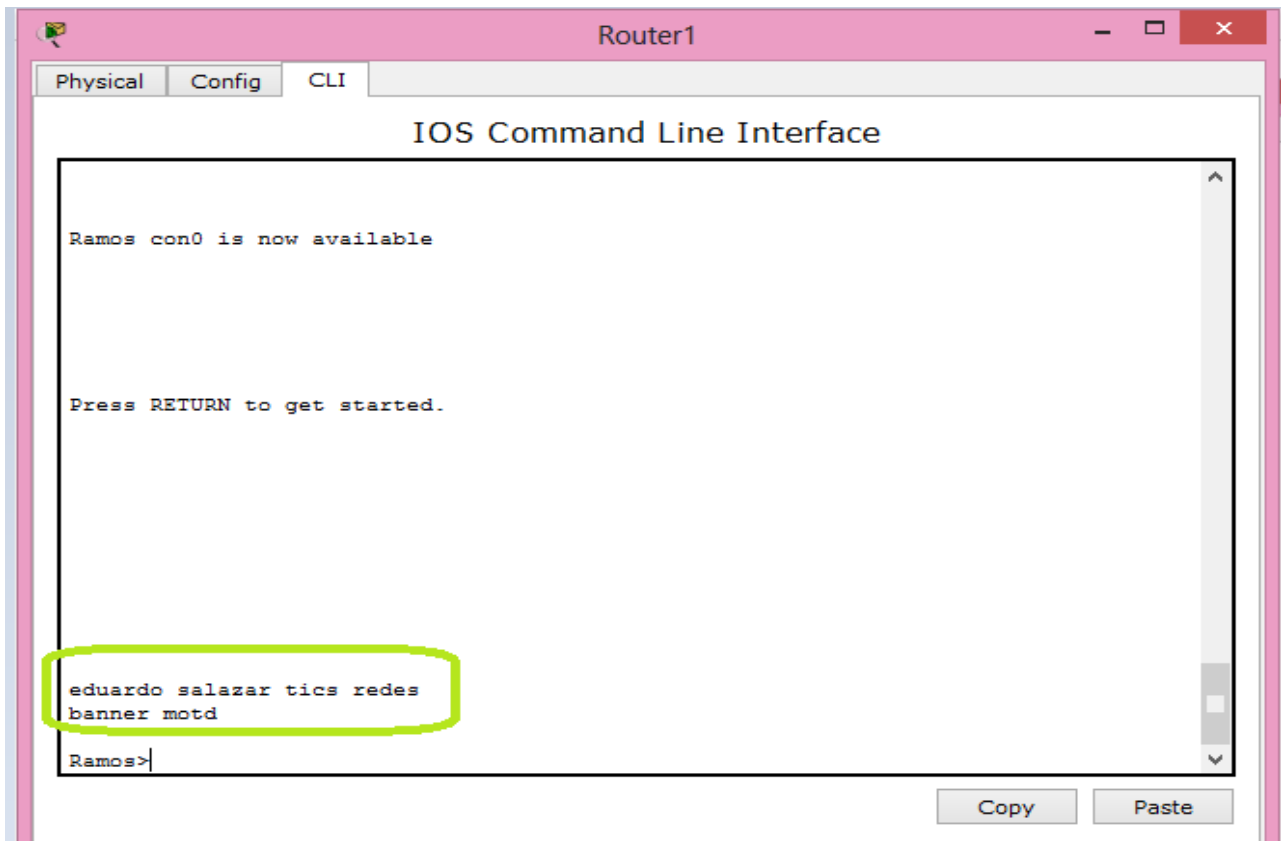
The screenshot shows the Router1 CLI interface. The prompt is 'Ramos>'. The user enters 'enable', changing the prompt to 'Ramos#'. Then, the user enters 'conf t', changing the prompt to 'Ramos(config)#'. The user then enters 'enable password chelsea', which is highlighted with a green box. The prompt returns to 'Ramos(config)#'. Below the terminal window are 'Copy' and 'Paste' buttons.

```
Ramos con0 is now available

Press RETURN to get started.

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

Finalmente es necesario ponerle un banner.



The screenshot shows the Router1 CLI interface. The prompt is 'Ramos>'. The user enters 'banner motd', which is highlighted with a green box. The prompt returns to 'Ramos>'. Below the terminal window are 'Copy' and 'Paste' buttons.

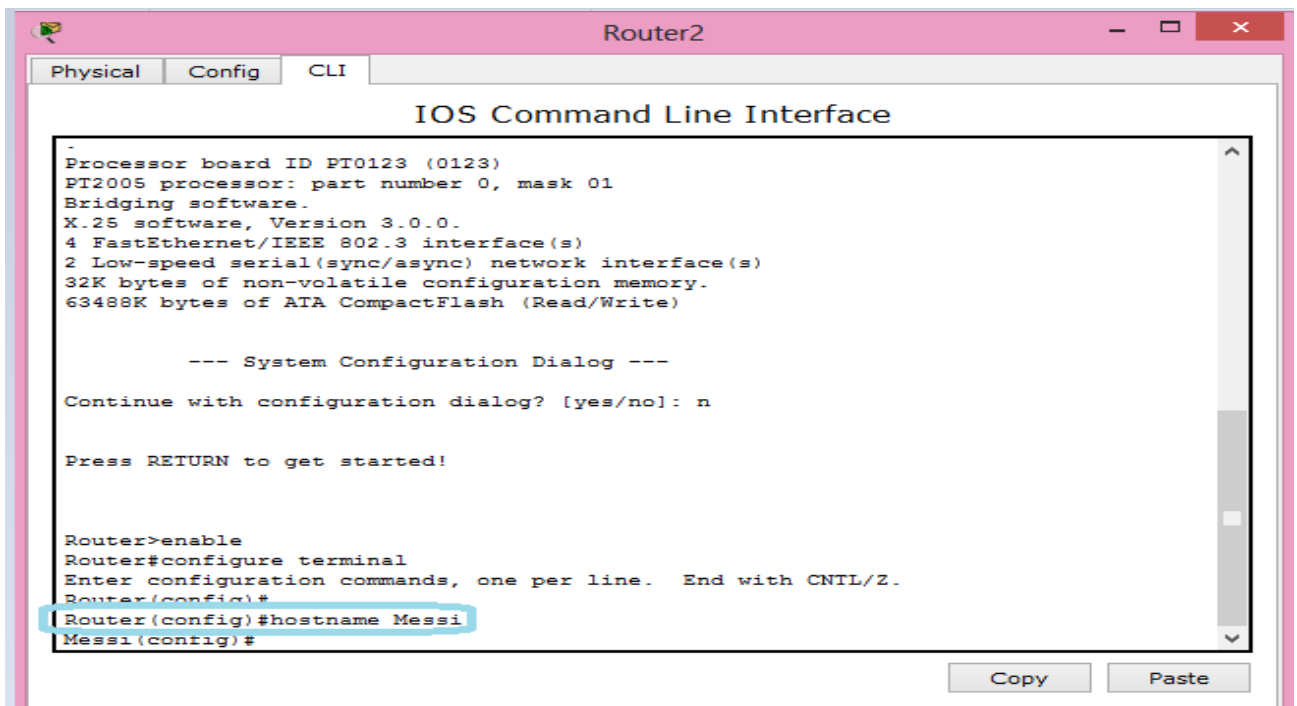
```
Ramos con0 is now available

Press RETURN to get started.

Ramos>
Ramos>banner motd
Ramos>
```

R3 (Messi).

Cambio de nombre del router.



The screenshot shows the Router2 CLI interface. The window title is "Router2". The tabs are "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface". The output shows the system configuration dialog, followed by the command "enable" and "configure terminal". The command "hostname Messi" is entered and highlighted with a blue box. The prompt changes to "Messi(config)#".

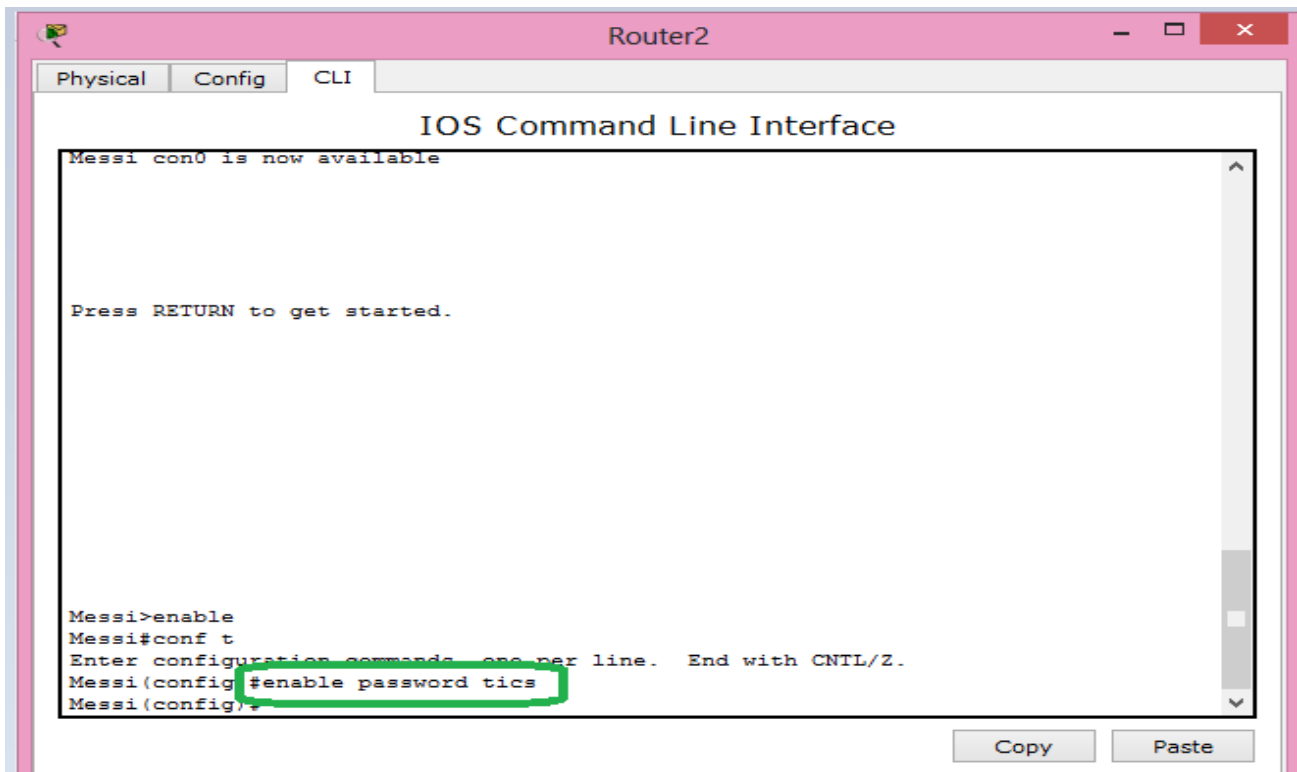
```
Router2
Physical Config CLI
IOS Command Line Interface
-
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile 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 Messi
Messi(config)#
```

Asignación de una contraseña.



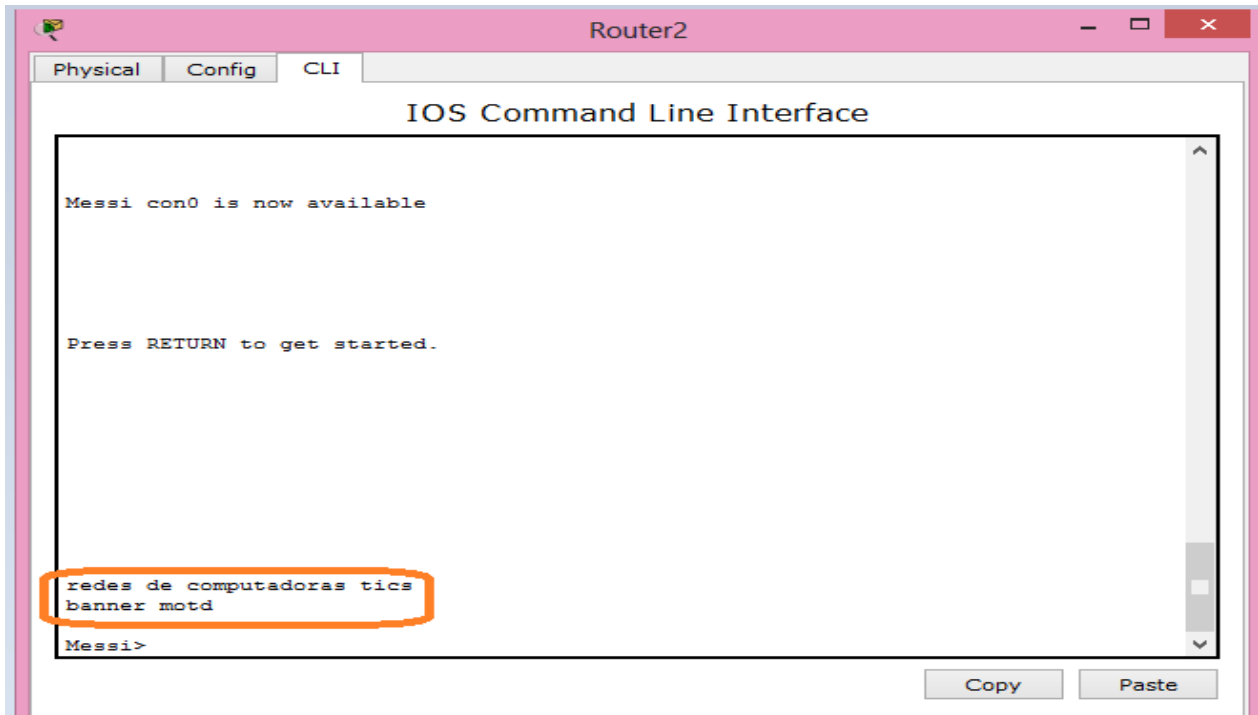
The screenshot shows the Router2 CLI interface. The window title is "Router2". The tabs are "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface". The output shows the message "Messi con0 is now available" and "Press RETURN to get started.". The command "enable" is entered, followed by "conf t". The command "enable password tics" is entered and highlighted with a green box. The prompt changes to "Messi(config)#".

```
Router2
Physical Config CLI
IOS Command Line Interface
Messi con0 is now available

Press RETURN to get started.

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

Asignación de un banner al router.



The screenshot shows the CLI interface of Router2. The window title is "Router2". At the top, there are tabs for "Physical", "Config", and "CLI". The main title is "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
Messi con0 is now available

Press RETURN to get started.

redes de computadoras tics
banner motd

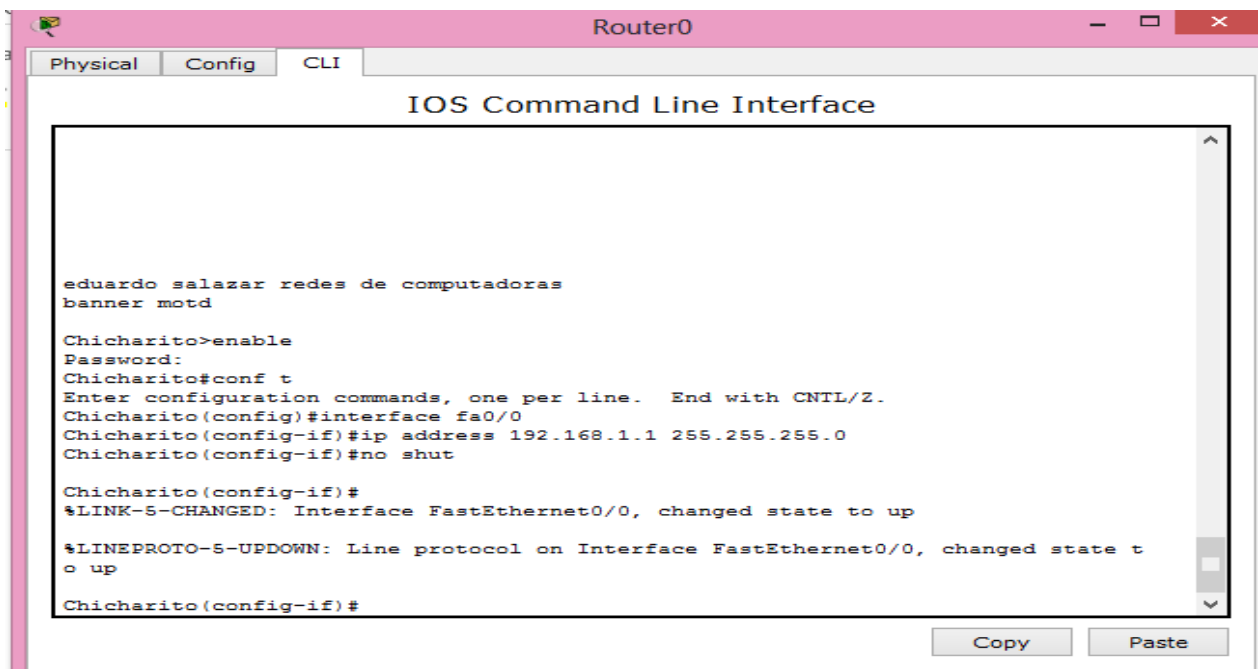
Messi>
```

The command `redes de computadoras tics` and `banner motd` are highlighted with an orange box. There are "Copy" and "Paste" buttons at the bottom right.

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

R1 (chicharito).

Puerto fa0/0



The screenshot shows the CLI interface of Router0. The window title is "Router0". At the top, there are tabs for "Physical", "Config", and "CLI". The main title is "IOS Command Line Interface". The terminal output shows the following commands and responses:

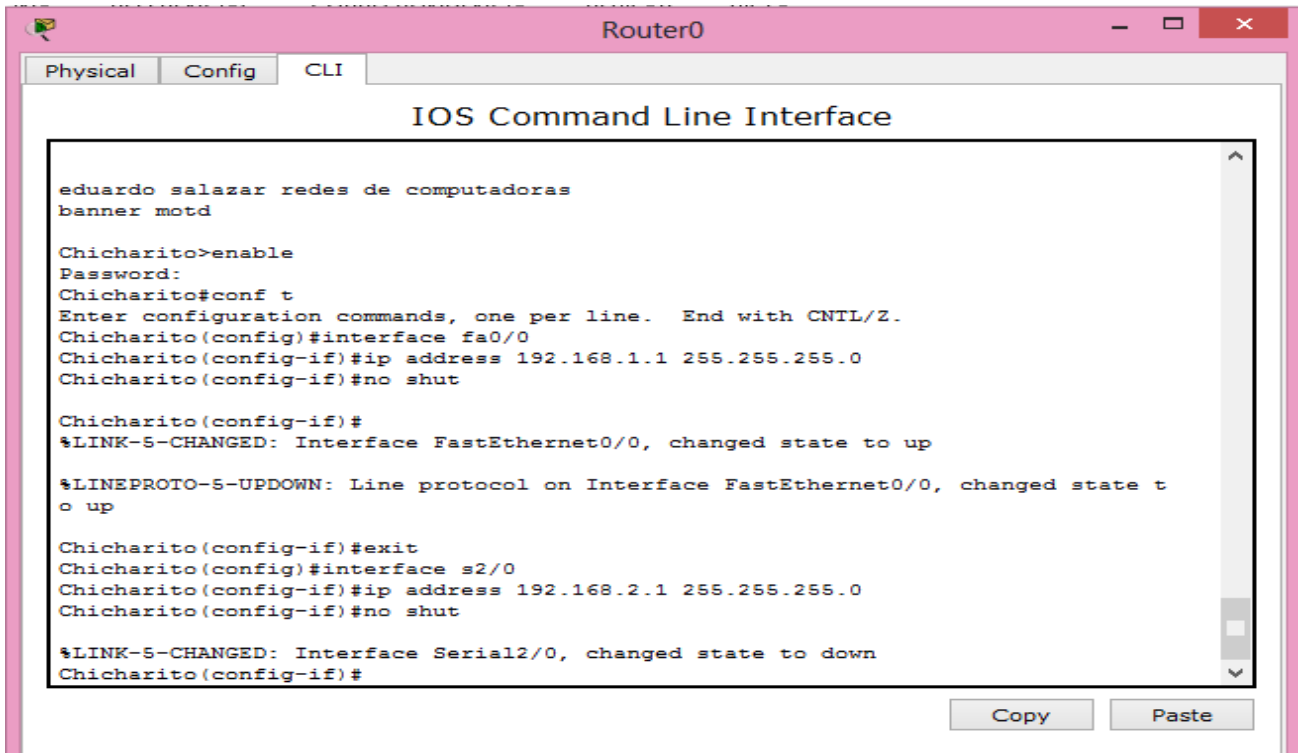
```
eduardo salazar redes de computadoras
banner motd

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

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

There are "Copy" and "Paste" buttons 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

eduardo salazar redes de computadoras
banner motd

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

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

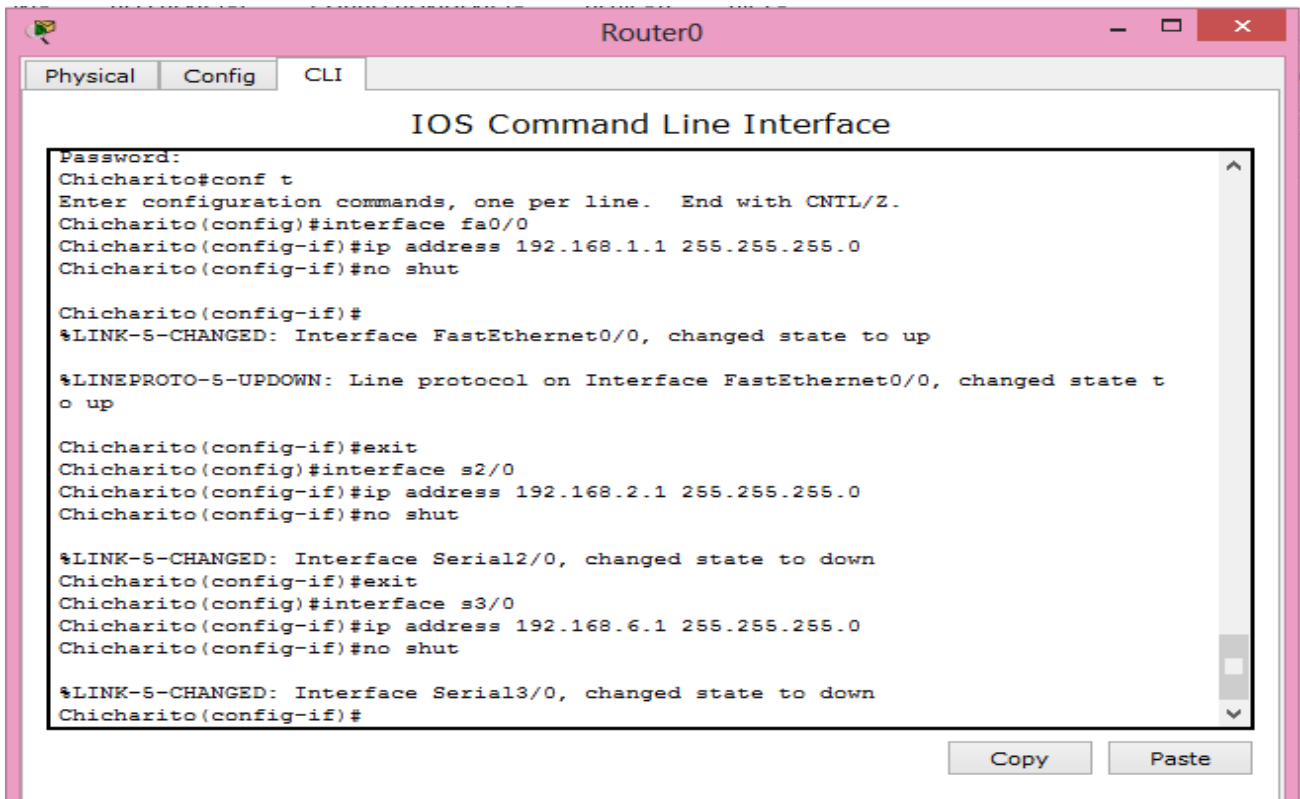
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Chicharito(config-if)#exit
Chicharito(config)#interface s2/0
Chicharito(config-if)#ip address 192.168.2.1 255.255.255.0
Chicharito(config-if)#no shut

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

Copy Paste

Serial3/0.



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

```
Router0
Physical Config CLI
IOS Command Line Interface

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

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

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

Chicharito(config-if)#exit
Chicharito(config)#interface s2/0
Chicharito(config-if)#ip address 192.168.2.1 255.255.255.0
Chicharito(config-if)#no shut

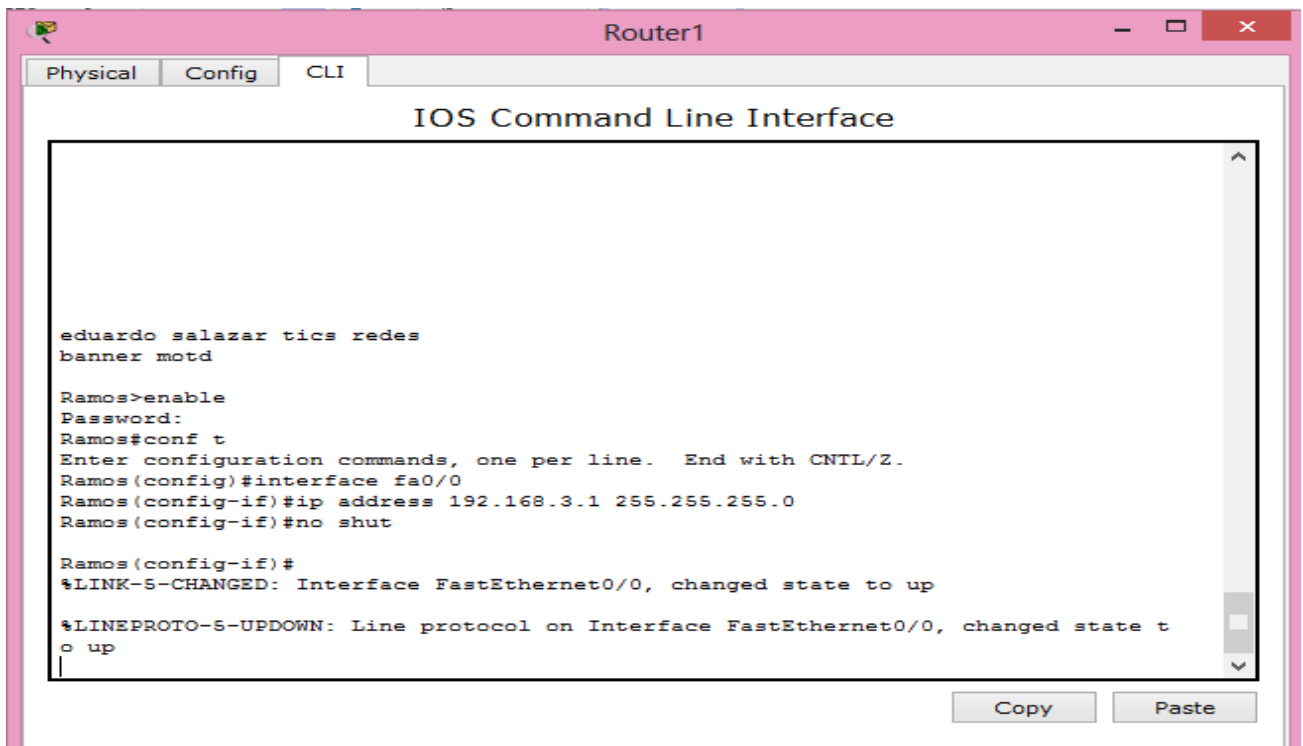
%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Chicharito(config-if)#exit
Chicharito(config)#interface s3/0
Chicharito(config-if)#ip address 192.168.6.1 255.255.255.0
Chicharito(config-if)#no shut

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

Copy Paste

R2 (Ramos).

Puerto fa0/0.



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

```
Router1
Physical Config CLI
IOS Command Line Interface

eduardo salazar tics redes
banner motd

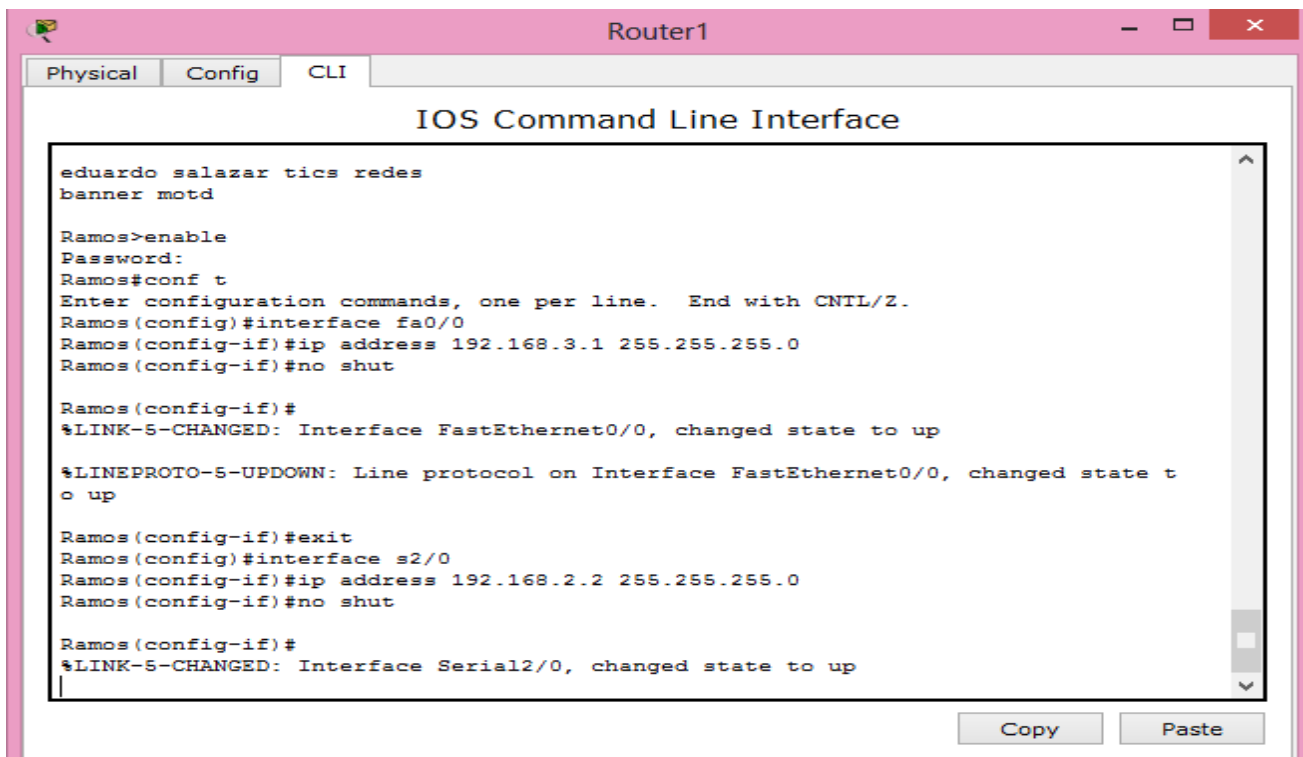
Ramos>enable
Password:
Ramos#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Ramos(config)#interface fa0/0
Ramos(config-if)#ip address 192.168.3.1 255.255.255.0
Ramos(config-if)#no shut

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

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

Buttons: Copy Paste

Serial 2/0.



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

```
Router1
Physical Config CLI
IOS Command Line Interface

eduardo salazar tics redes
banner motd

Ramos>enable
Password:
Ramos#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Ramos(config)#interface fa0/0
Ramos(config-if)#ip address 192.168.3.1 255.255.255.0
Ramos(config-if)#no shut

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

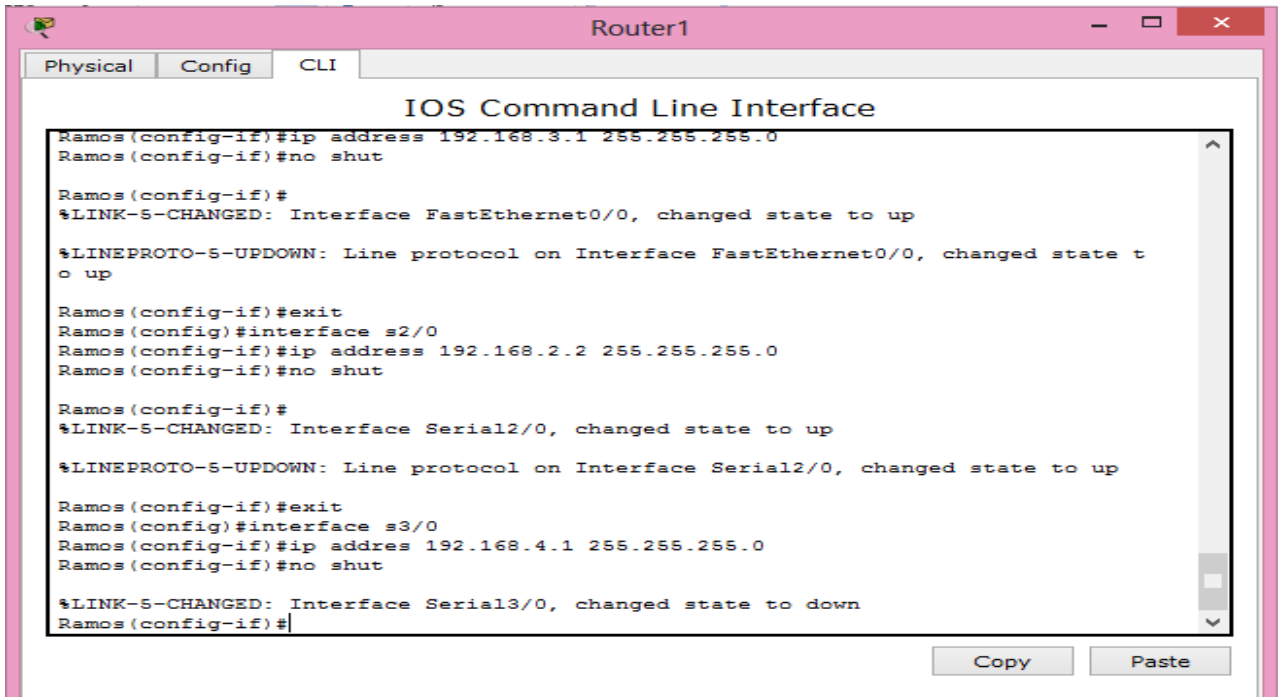
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up

Ramos(config-if)#exit
Ramos(config)#interface s2/0
Ramos(config-if)#ip address 192.168.2.2 255.255.255.0
Ramos(config-if)#no shut

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

Buttons: Copy Paste

Serial 3/0.



The screenshot shows the CLI of Router1. The user is in configuration mode for interface s3/0. The commands entered are: ip address 192.168.3.1 255.255.255.0, no shut, interface s2/0, ip address 192.168.2.2 255.255.255.0, no shut, interface s3/0, ip address 192.168.4.1 255.255.255.0, no shut. The output shows that the link state for s2/0 and s3/0 has changed to up, while s3/0 is currently down.

```
Router1
Physical Config CLI
IOS Command Line Interface
Ramos(config-if)#ip address 192.168.3.1 255.255.255.0
Ramos(config-if)#no shut

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

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

Ramos(config-if)#exit
Ramos(config)#interface s2/0
Ramos(config-if)#ip address 192.168.2.2 255.255.255.0
Ramos(config-if)#no shut

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

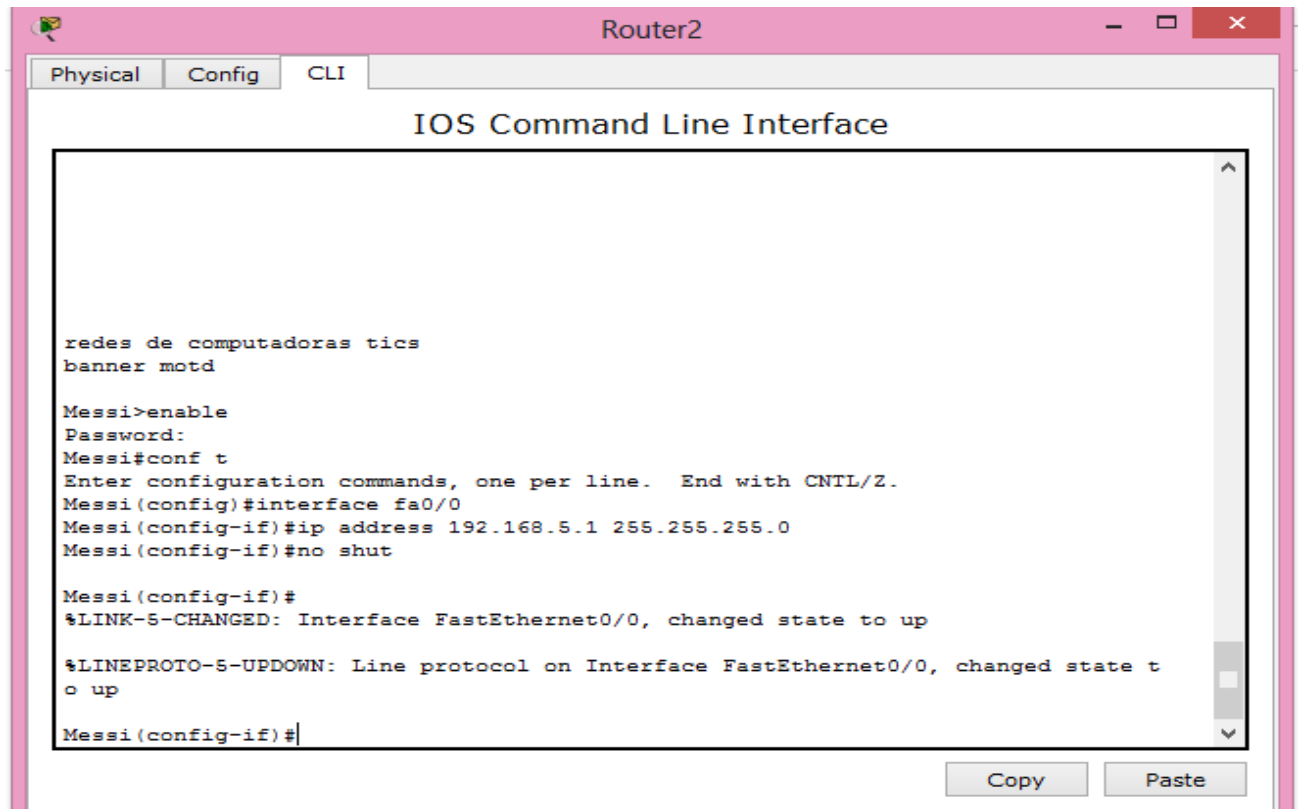
%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Ramos(config-if)#exit
Ramos(config)#interface s3/0
Ramos(config-if)#ip address 192.168.4.1 255.255.255.0
Ramos(config-if)#no shut

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

R3 (Messi).

Puerto fa0/0.



The screenshot shows the CLI of Router2. The user is in configuration mode for interface fa0/0. The commands entered are: banner motd redes de computadoras tics, enable, conf t, interface fa0/0, ip address 192.168.5.1 255.255.255.0, no shut. The output shows that the link state for fa0/0 has changed to up.

```
Router2
Physical Config CLI
IOS Command Line Interface

redes de computadoras tics
banner motd

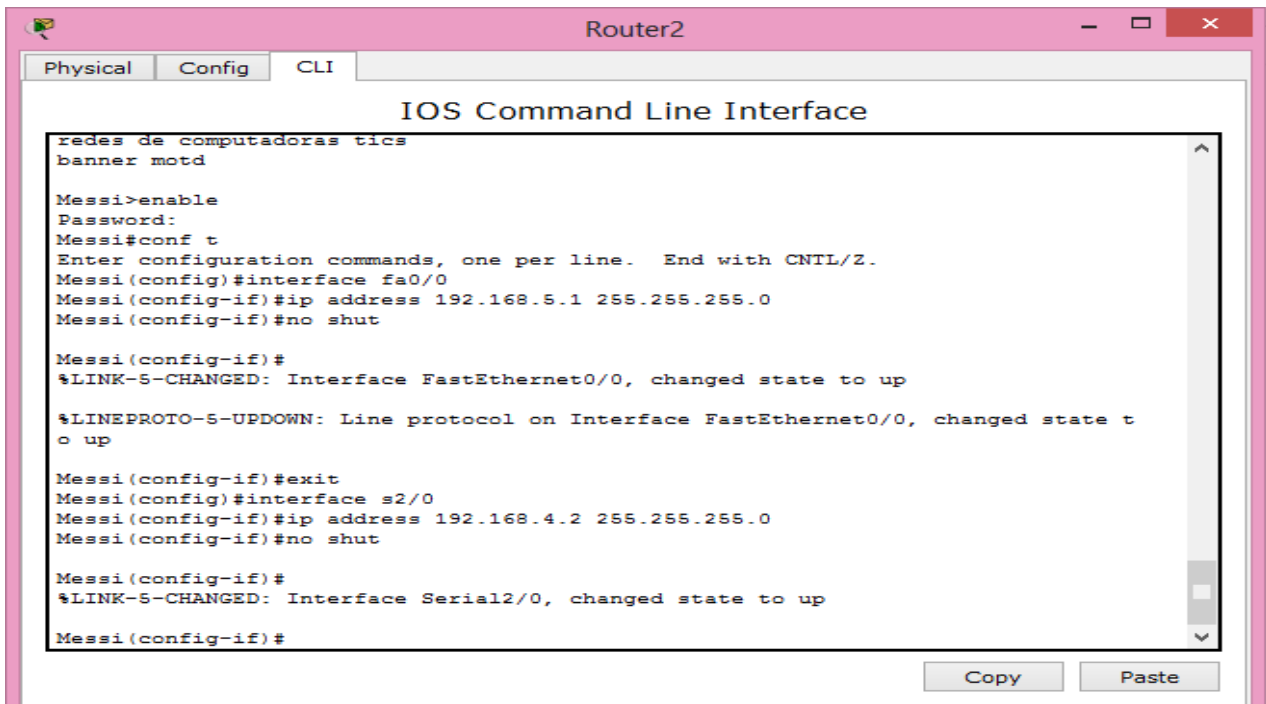
Messi>enable
Password:
Messi#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Messi(config)#interface fa0/0
Messi(config-if)#ip address 192.168.5.1 255.255.255.0
Messi(config-if)#no shut

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

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

Messi(config-if)#
```

Serial 2/0.



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

```
redes de computadoras tics
banner motd

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

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

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

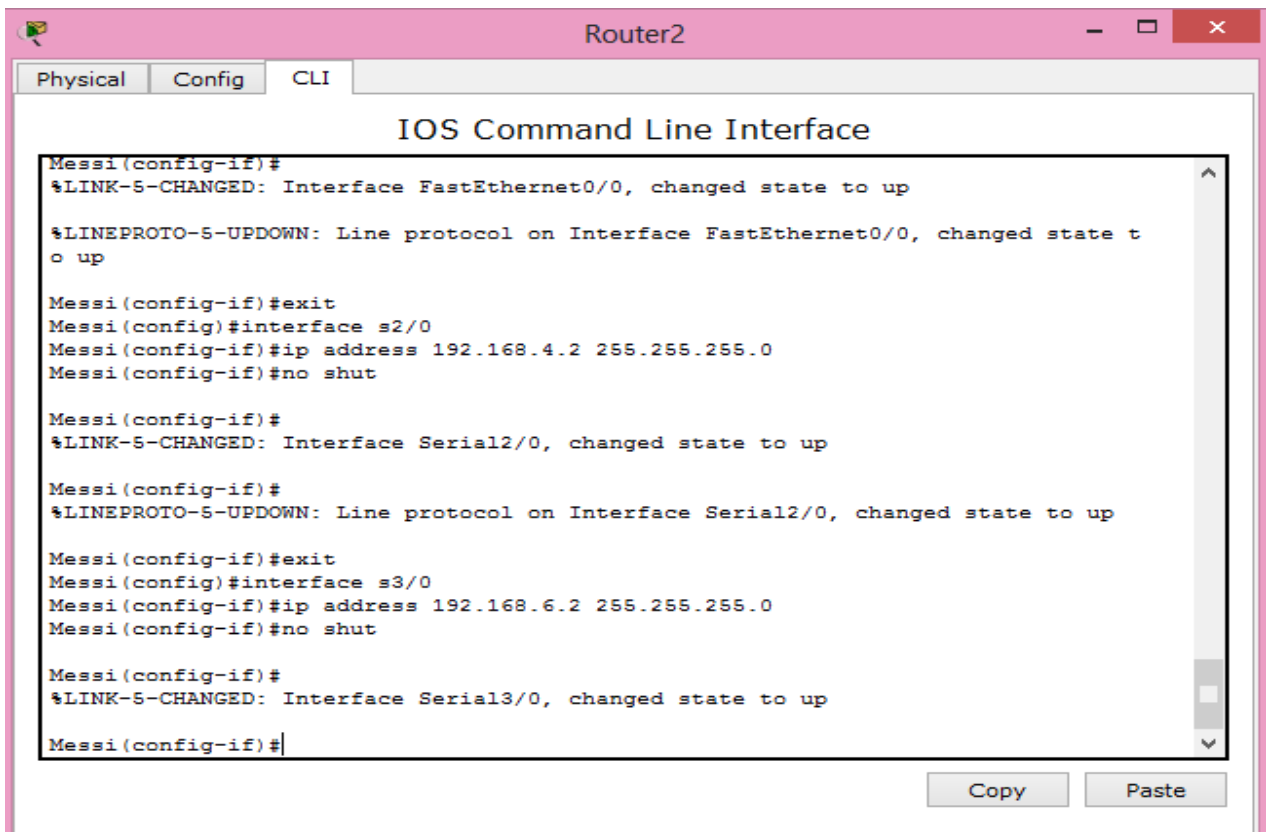
Messi(config-if)#exit
Messi(config)#interface s2/0
Messi(config-if)#ip address 192.168.4.2 255.255.255.0
Messi(config-if)#no shut

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

Messi(config-if)#
```

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

Serial 3/0.



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

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

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

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

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

Messi(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Messi(config-if)#exit
Messi(config)#interface s3/0
Messi(config-if)#ip address 192.168.6.2 255.255.255.0
Messi(config-if)#no shut

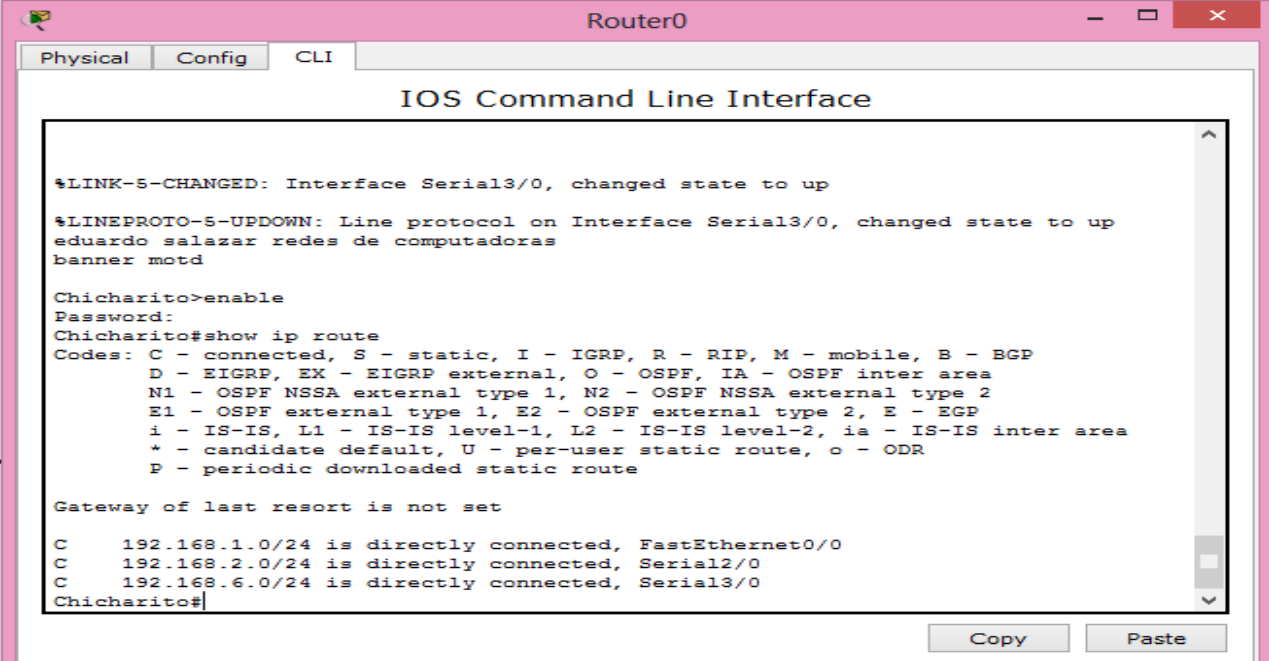
Messi(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

Messi(config-if)#
```

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

Después de eso necesitamos saber las conexiones que tienen cada router, esto mediante el comando show ip route.

R1



```
Router0
Physical Config CLI
IOS Command Line Interface

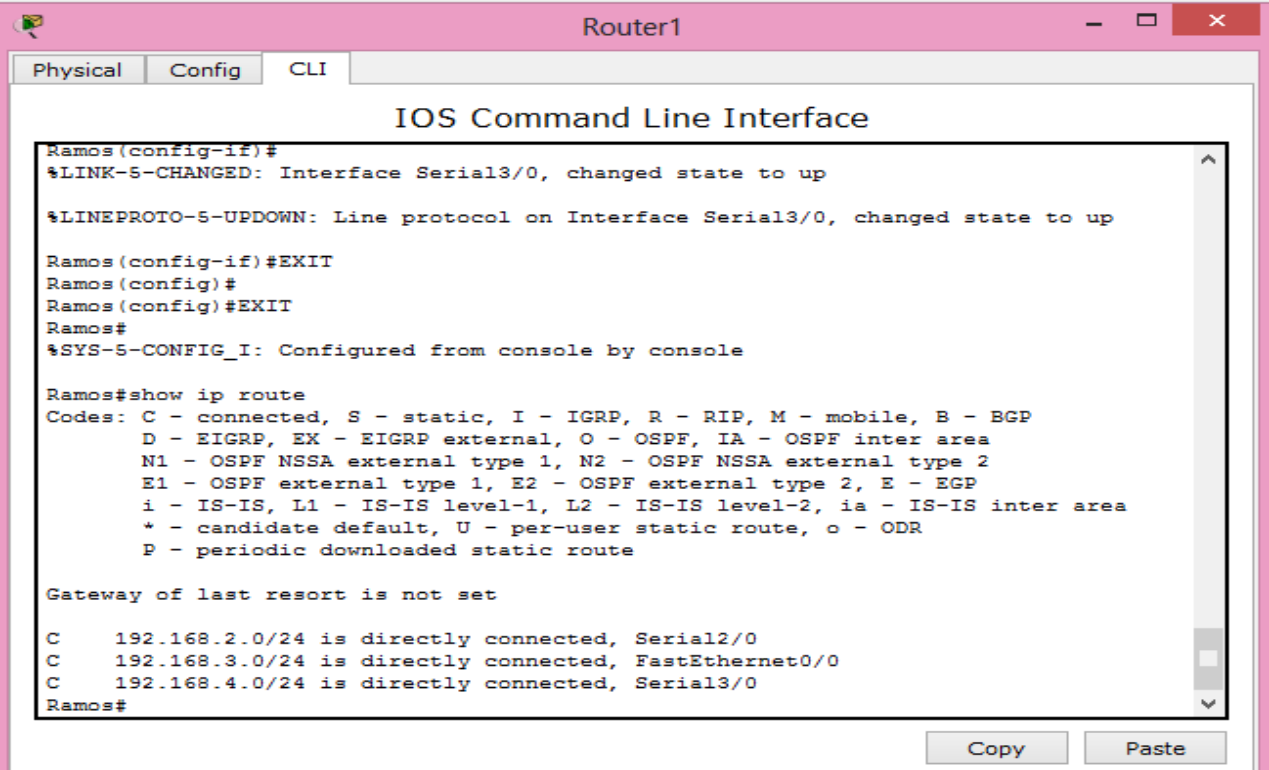
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
eduardo salazar redes de computadoras
banner motd

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

Gateway of last resort is not set

C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, Serial2/0
C    192.168.6.0/24 is directly connected, Serial3/0
Chicharito#
```

R2.



```
Router1
Physical Config CLI
IOS Command Line Interface

Ramos(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

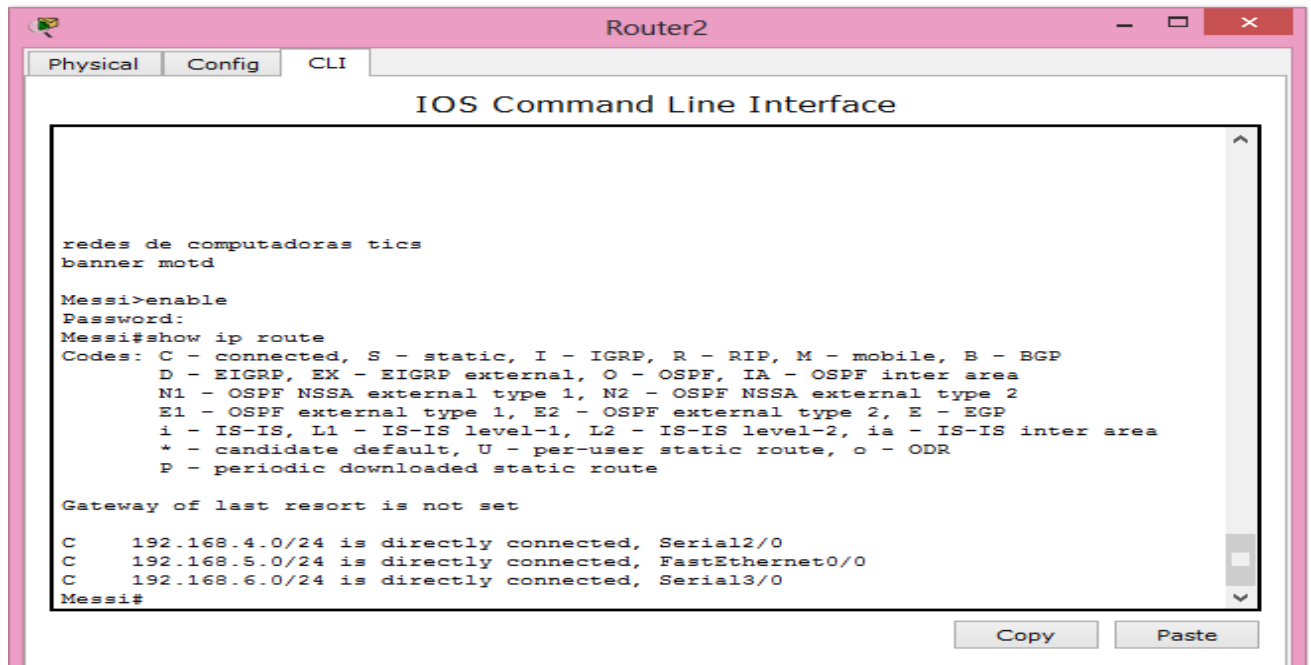
Ramos(config-if)#EXIT
Ramos(config)#
Ramos(config)#EXIT
Ramos#
%SYS-5-CONFIG_I: Configured from console by console

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

Gateway of last resort is not set

C    192.168.2.0/24 is directly connected, Serial2/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0
C    192.168.4.0/24 is directly connected, Serial3/0
Ramos#
```

R3.



The screenshot shows the CLI of Router2. The user has entered the command 'show ip route' after enabling the console. The output displays the routing table with three entries for directly connected networks: 192.168.4.0/24 on Serial2/0, 192.168.5.0/24 on FastEthernet0/0, and 192.168.6.0/24 on Serial3/0. A legend explains the 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), and P (periodic downloaded static route). The gateway of last resort is not set.

```
Router2
Physical Config CLI
IOS Command Line Interface

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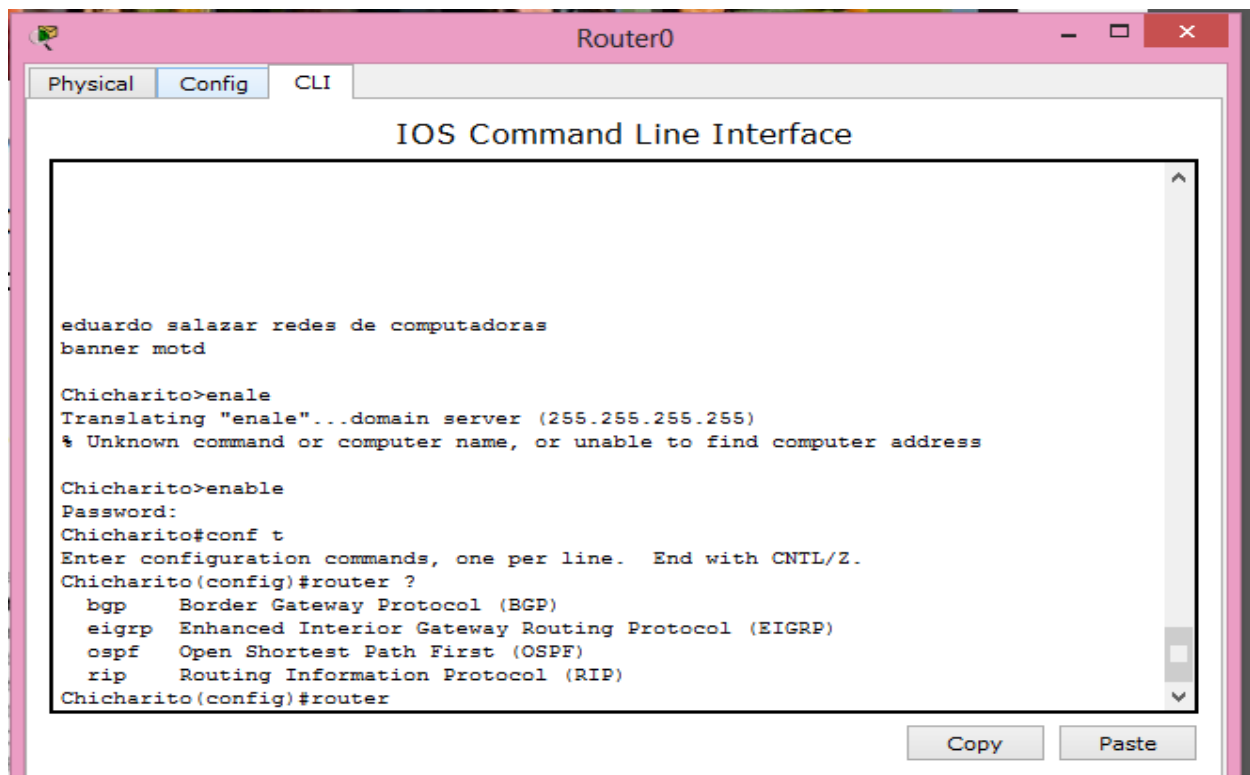
Messi>enable
Password:
Messi#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external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

Gateway of last resort is not set

C    192.168.4.0/24 is directly connected, Serial2/0
C    192.168.5.0/24 is directly connected, FastEthernet0/0
C    192.168.6.0/24 is directly connected, Serial3/0
Messi#
```

Para terminar es necesario examinar los protocolos que están implementados a cada uno de los routers.

R1.



The screenshot shows the CLI of Router0. The user has entered 'enable' and is prompted for a password. Then, the user enters 'conf t' to enter configuration mode. At the prompt 'router ?', the user lists several protocols: bgp (Border Gateway Protocol), eigrp (Enhanced Interior Gateway Routing Protocol), ospf (Open Shortest Path First), and rip (Routing Information Protocol).

```
Router0
Physical Config CLI
IOS Command Line Interface

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

Chicharito>enable
Password:
Chicharito#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Chicharito(config)#router ?
  bgp   Border Gateway Protocol (BGP)
  eigrp Enhanced Interior Gateway Routing Protocol (EIGRP)
  ospf  Open Shortest Path First (OSPF)
  rip   Routing Information Protocol (RIP)
Chicharito(config)#router
```

```
Router0
Physical Config CLI
IOS Command Line Interface

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
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Chicharito>enable
Password:
Chicharito#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Chicharito(config)#router ?
  bgp      Border Gateway Protocol (BGP)
  eigrp    Enhanced Interior Gateway Routing Protocol (EIGRP)
  ospf     Open Shortest Path First (OSPF)
  rip      Routing Information Protocol (RIP)
Chicharito(config)#router
% Incomplete command.
Chicharito(config)#router rip
Chicharito(config-router)#network 192.168.1.1
Chicharito(config-router)#network 192.168.2.1
Chicharito(config-router)#network 192.168.6.1
Chicharito(config-router)#exit
Chicharito(config)#exit
Chicharito#
%SYS-5-CONFIG_I: Configured from console by console

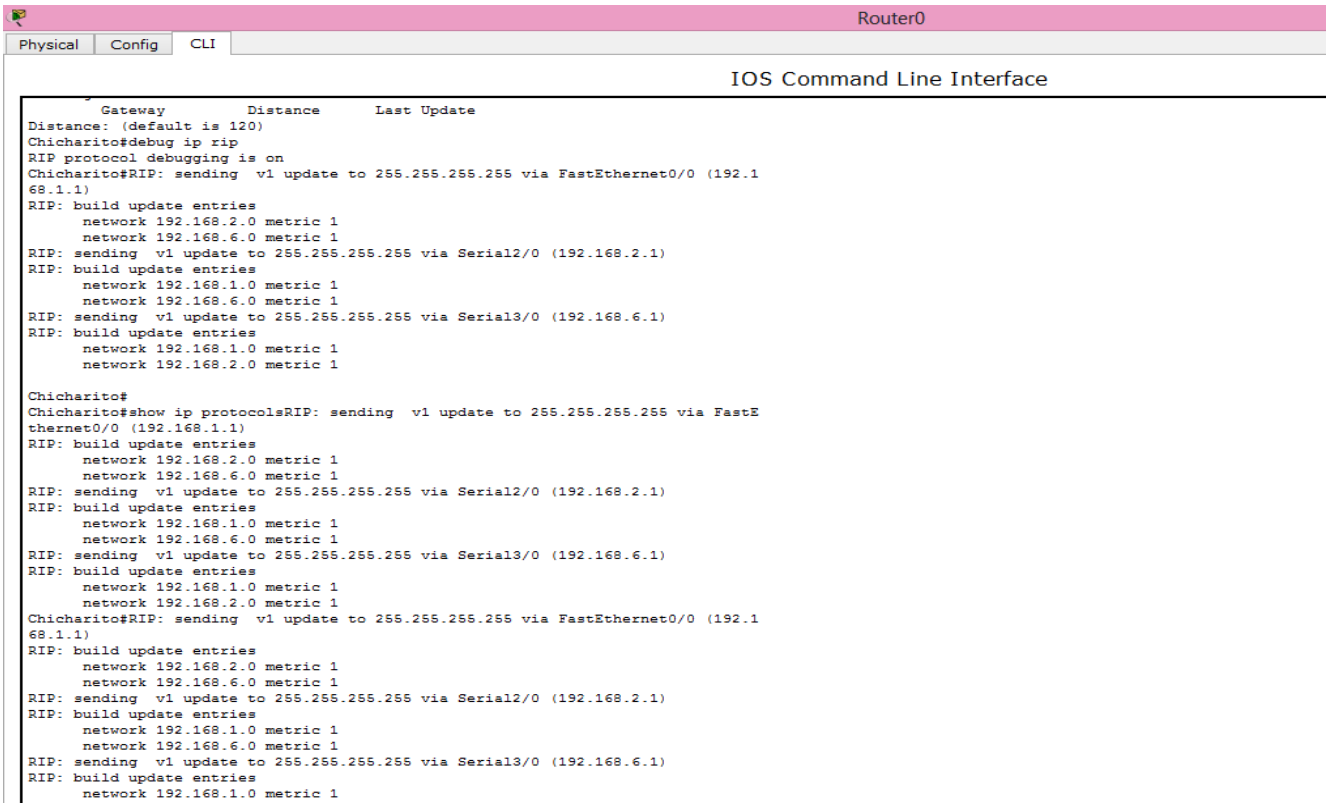
Chicharito#
```

Para verificar y resolver problemas de enrutamiento, Use los siguientes comandos:

```
Router0
Physical Config CLI
IOS Command Line Interface

C 192.168.1.0/24 is directly connected, FastEthernet0/0
C 192.168.2.0/24 is directly connected, Serial2/0
C 192.168.6.0/24 is directly connected, Serial3/0
Chicharito#show ip protocols
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 25 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Redistributing: rip
  Default version control: send version 1, receive any version
    Interface          Send Recv Triggered RIP Key-chain
  FastEthernet0/0      1     2 1
  Serial2/0            1     2 1
  Serial3/0            1     2 1
  Automatic network summarization is in effect
  Maximum path: 4
  Routing for Networks:
    192.168.1.0
    192.168.2.0
    192.168.6.0
  Passive Interface(s):
  Routing Information Sources:
    Gateway           Distance   Last Update
  Distance: (default is 120)
Chicharito#
```

Finalmente le damos la última instrucción que es el debug ip route.

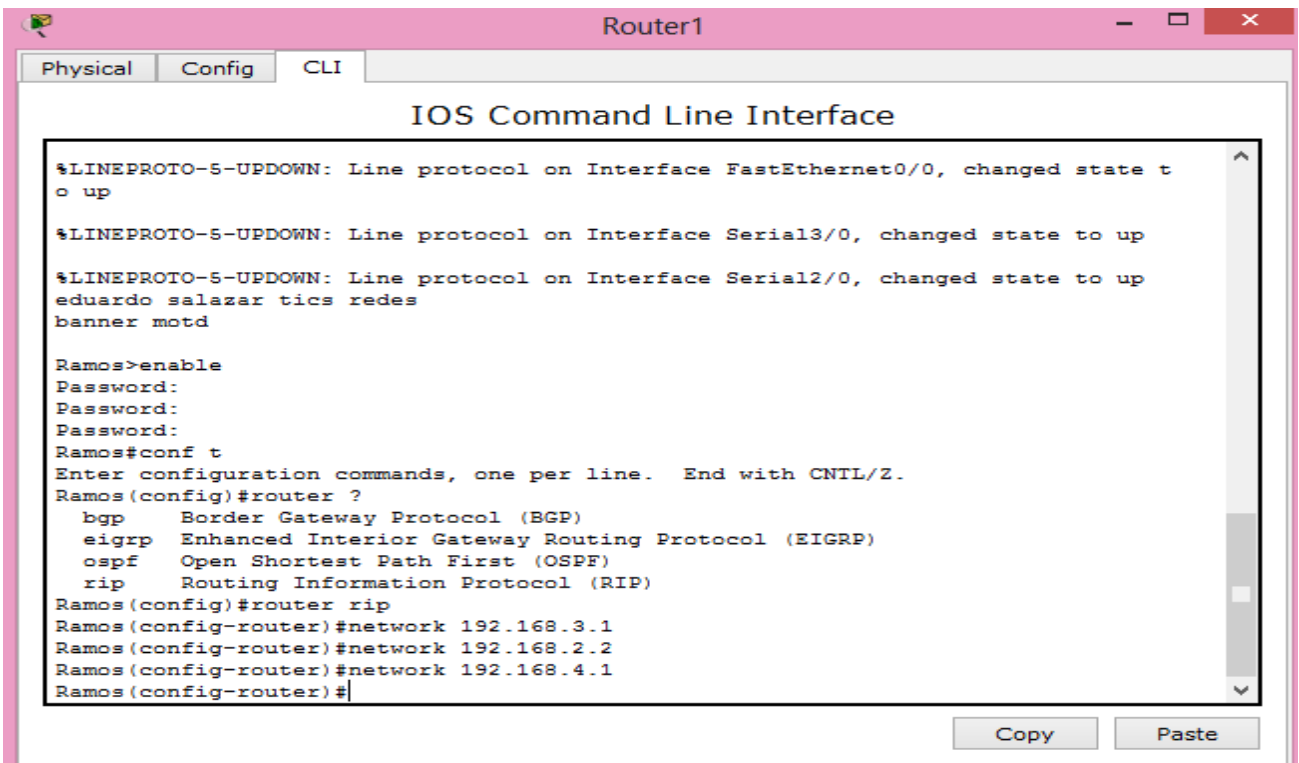


The screenshot shows the CLI of Router0. The title bar says "Router0". Below it are tabs for "Physical", "Config", and "CLI". The main window title is "IOS Command Line Interface". The output shows a table with columns "Gateway", "Distance", and "Last Update". Below the table, there are several lines of debug output for RIP updates. The output shows the router sending v1 updates to three interfaces: FastEthernet0/0 (192.168.1.1), Serial2/0 (192.168.2.1), and Serial3/0 (192.168.6.1). Each update includes two network entries: 192.168.2.0/24 and 192.168.6.0/24, both with a metric of 1. The output also shows the router building update entries for each interface.

```
Distance: (default is 120)
Chicharito#debug ip rip
RIP protocol debugging is on
Chicharito#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.1
68.1.1)
RIP: build update entries
  network 192.168.2.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.2.1)
RIP: build update entries
  network 192.168.1.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.1)
RIP: build update entries
  network 192.168.1.0 metric 1
  network 192.168.2.0 metric 1

Chicharito#
Chicharito#show ip protocolsRIP: sending v1 update to 255.255.255.255 via FastE
thernet0/0 (192.168.1.1)
RIP: build update entries
  network 192.168.2.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.2.1)
RIP: build update entries
  network 192.168.1.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.1)
RIP: build update entries
  network 192.168.1.0 metric 1
  network 192.168.2.0 metric 1
Chicharito#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.1
68.1.1)
RIP: build update entries
  network 192.168.2.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.2.1)
RIP: build update entries
  network 192.168.1.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.1)
RIP: build update entries
  network 192.168.1.0 metric 1
```

R2.

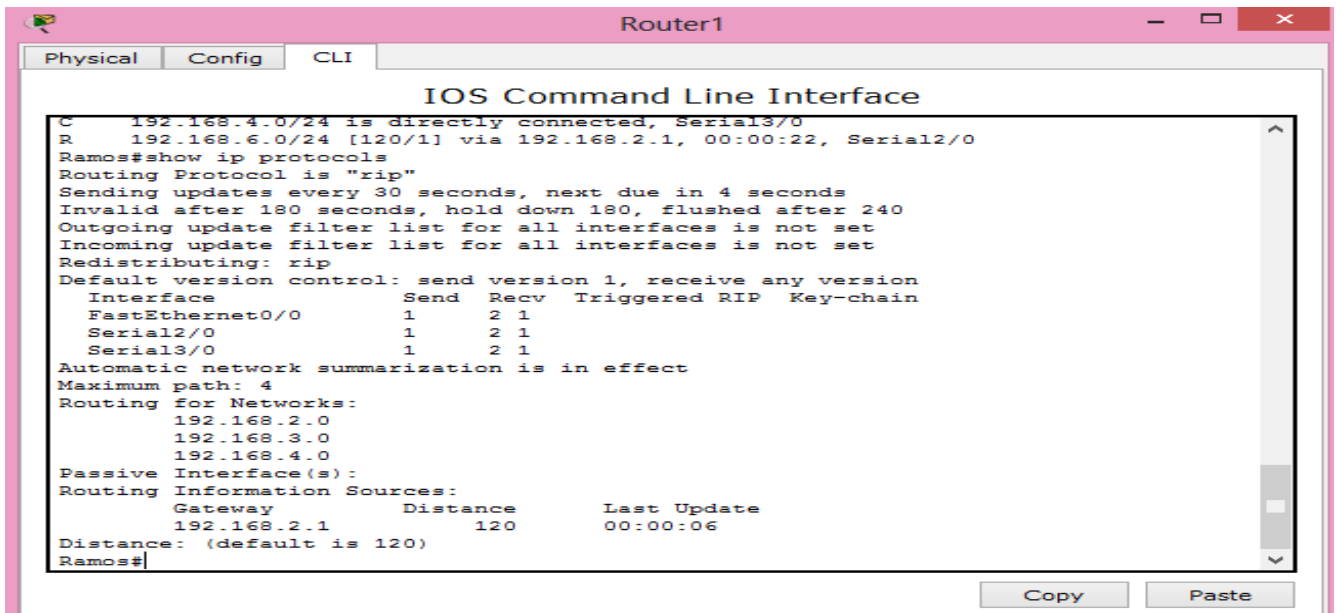


The screenshot shows the CLI of Router1. The title bar says "Router1". Below it are tabs for "Physical", "Config", and "CLI". The main window title is "IOS Command Line Interface". The output shows the router enabling the console, setting a password, and entering configuration mode. The user then configures the router to run RIP, and sets the network addresses for the three interfaces: 192.168.3.1 for FastEthernet0/0, 192.168.2.2 for Serial3/0, and 192.168.4.1 for Serial2/0.

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
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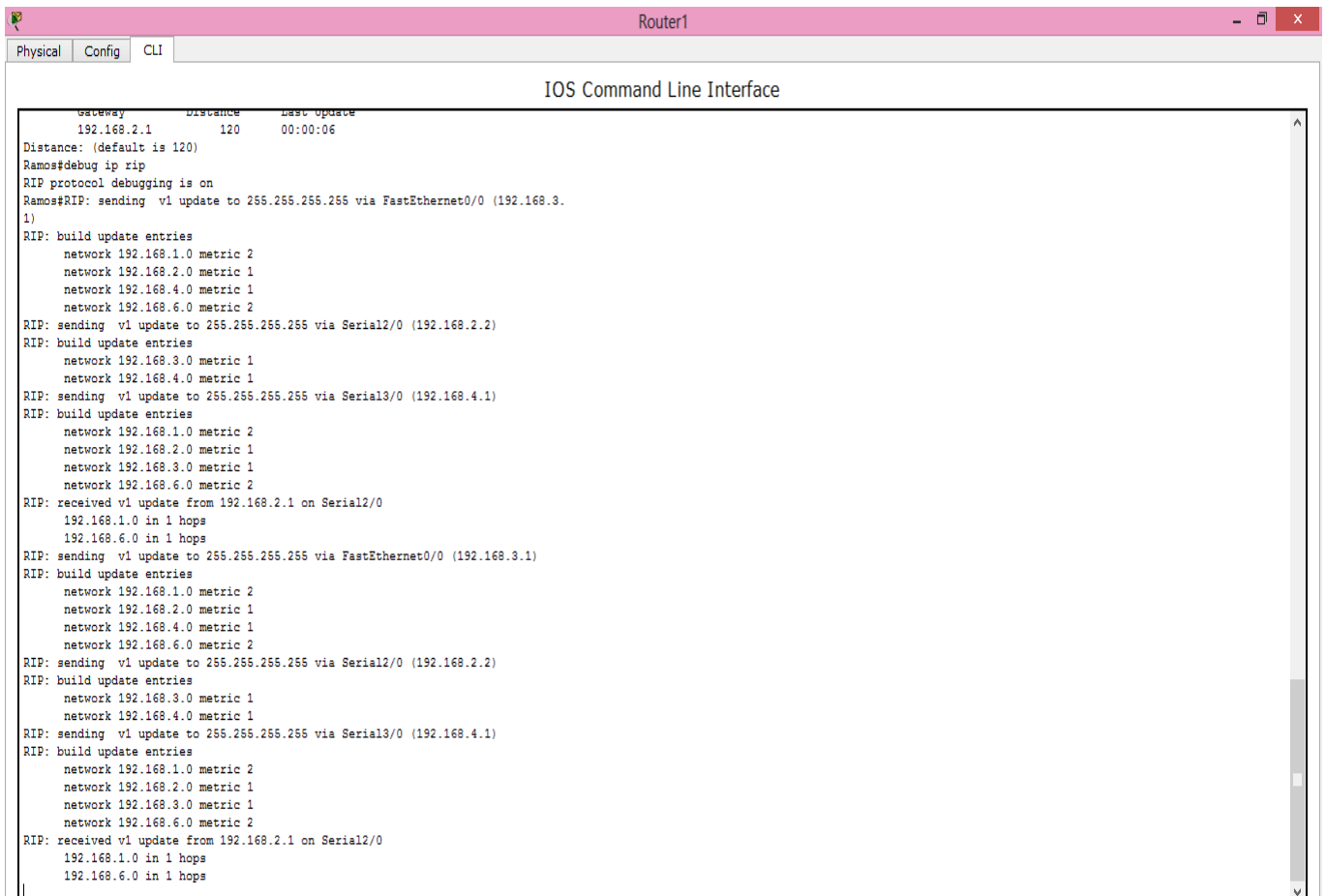
Ramos>enable
Password:
Password:
Password:
Ramos#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Ramos(config)#router ?
  bgp      Border Gateway Protocol (BGP)
  eigrp    Enhanced Interior Gateway Routing Protocol (EIGRP)
  ospf     Open Shortest Path First (OSPF)
  rip      Routing Information Protocol (RIP)
Ramos(config)#router rip
Ramos(config-router)#network 192.168.3.1
Ramos(config-router)#network 192.168.2.2
Ramos(config-router)#network 192.168.4.1
Ramos(config-router)#
```

Para verificar y resolver problemas de enrutamiento, Use los siguientes comandos:



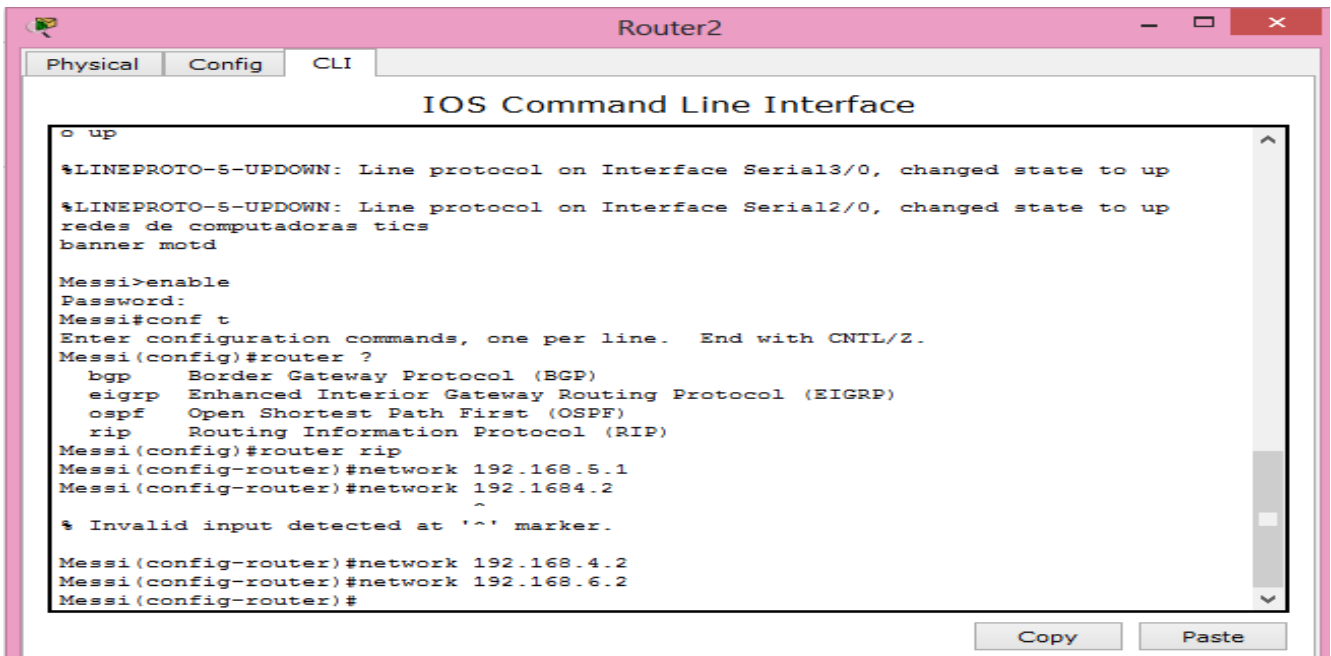
```
Router1
Physical Config CLI
IOS Command Line Interface
C 192.168.4.0/24 is directly connected, Serial3/0
R 192.168.6.0/24 [120/1] via 192.168.2.1, 00:00:22, Serial2/0
Ramos#show ip protocols
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 4 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Redistributing: rip
  Default version control: send version 1, receive any version
  Interface          Send Recv Triggered RIP Key-chain
  FastEthernet0/0    1     2 1
  Serial2/0          1     2 1
  Serial3/0          1     2 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  192.168.2.0
  192.168.3.0
  192.168.4.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
  192.168.2.1     120           00:00:06
Distance: (default is 120)
Ramos#
```

Posteriormente le damos la instrucción de debug ip rip para que nos muestre las métricas.



```
Router1
Physical Config CLI
IOS Command Line Interface
  Gateway         Distance      Last Update
  192.168.2.1     120           00:00:06
Distance: (default is 120)
Ramos#debug ip rip
RIP protocol debugging is on
Ramos#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.3.1)
RIP: build update entries
  network 192.168.1.0 metric 2
  network 192.168.2.0 metric 1
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 2
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.2.2)
RIP: build update entries
  network 192.168.3.0 metric 1
  network 192.168.4.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.4.1)
RIP: build update entries
  network 192.168.1.0 metric 2
  network 192.168.2.0 metric 1
  network 192.168.3.0 metric 1
  network 192.168.6.0 metric 2
RIP: received v1 update from 192.168.2.1 on Serial2/0
  192.168.1.0 in 1 hops
  192.168.6.0 in 1 hops
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.3.1)
RIP: build update entries
  network 192.168.1.0 metric 2
  network 192.168.2.0 metric 1
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 2
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.2.2)
RIP: build update entries
  network 192.168.3.0 metric 1
  network 192.168.4.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.4.1)
RIP: build update entries
  network 192.168.1.0 metric 2
  network 192.168.2.0 metric 1
  network 192.168.3.0 metric 1
  network 192.168.6.0 metric 2
RIP: received v1 update from 192.168.2.1 on Serial2/0
  192.168.1.0 in 1 hops
  192.168.6.0 in 1 hops
```

R3.

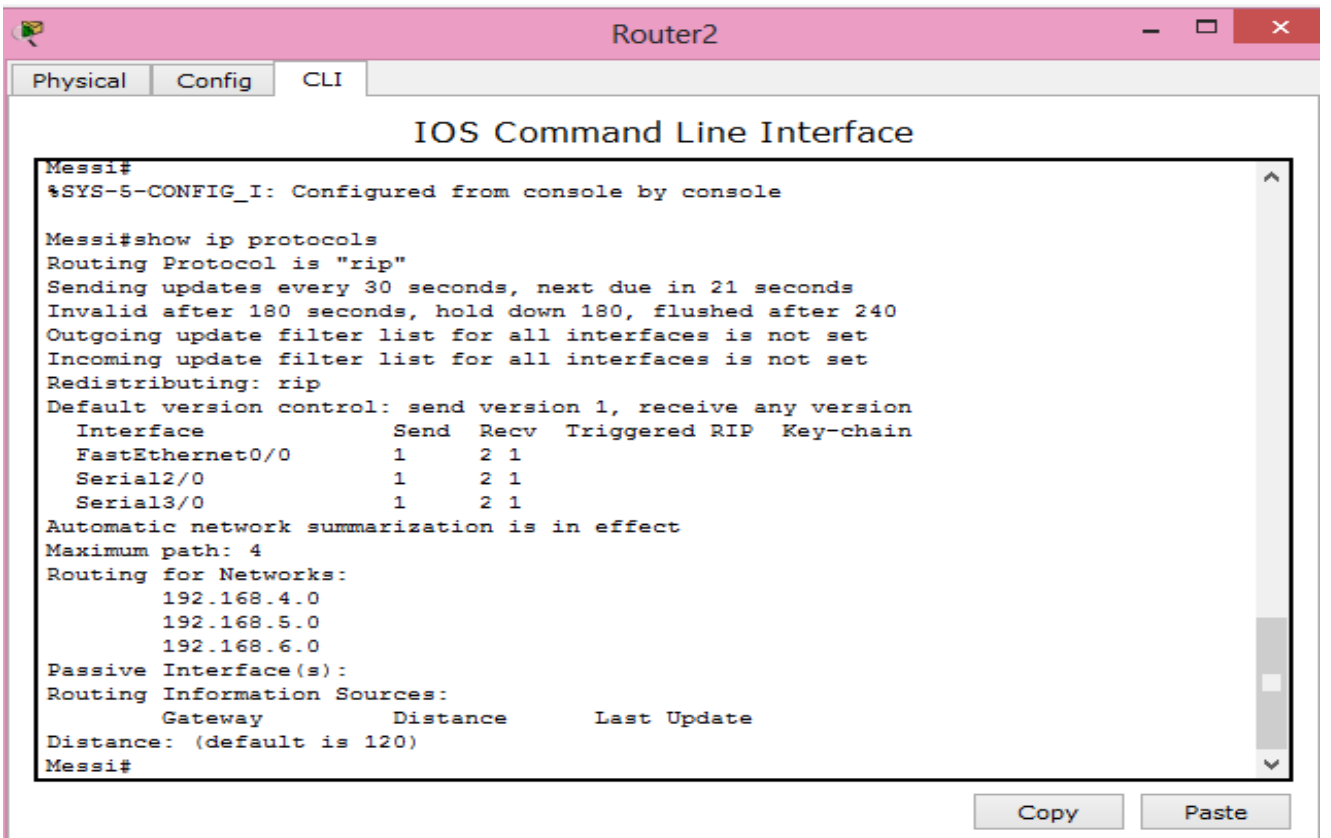


The screenshot shows the CLI of Router2 with the following text:

```
Router2
Physical Config CLI
IOS Command Line Interface
o up
%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial13/0, changed state to up
%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
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Messi>enable
Password:
Messi#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Messi(config)#router ?
  bgp      Border Gateway Protocol (BGP)
  eigrp    Enhanced Interior Gateway Routing Protocol (EIGRP)
  ospf     Open Shortest Path First (OSPF)
  rip      Routing Information Protocol (RIP)
Messi(config)#router rip
Messi(config-router)#network 192.168.5.1
Messi(config-router)#network 192.1684.2
^
% Invalid input detected at '^' marker.
Messi(config-router)#network 192.168.4.2
Messi(config-router)#network 192.168.6.2
Messi(config-router)#
```

Para verificar y resolver problemas de enrutamiento, Use los siguientes comandos:



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

```
Router2
Physical Config CLI
IOS Command Line Interface
Messi#
%SYS-5-CONFIG_I: Configured from console by console

Messi#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 21 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface          Send Recv Triggered RIP Key-chain
FastEthernet0/0      1     2 1
Serial2/0             1     2 1
Serial13/0           1     2 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  192.168.4.0
  192.168.5.0
  192.168.6.0
Passive Interface(s):
Routing Information Sources:
  Gateway           Distance      Last Update
Distance: (default is 120)
Messi#
```

Al final le damos la instrucción debug ip rip, para que nos muestra las actualizaciones.

```
Router2
Physical Config CLI
IOS Command Line Interface
Router2#debug ip rip
RIP protocol debugging is on
Messi#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.5.1)
RIP: build update entries
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.4.2)
RIP: build update entries
  network 192.168.5.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.2)
RIP: build update entries
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.5.1)
RIP: build update entries
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.4.2)
RIP: build update entries
  network 192.168.5.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.2)
RIP: build update entries
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
Messi#debug ip ripRIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.5.1)
RIP: build update entries
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (192.168.4.2)
RIP: build update entries
  network 192.168.5.0 metric 1
  network 192.168.6.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (192.168.6.2)
RIP: build update entries
  network 192.168.4.0 metric 1
  network 192.168.6.0 metric 1
Messi#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.5.1)
RIP: build update entries
  network 192.168.4.0 metric 1
```

CONCLUSIÓN

En esta práctica conocí más a fondo de lo que es el protocolo RIP, ya que de ahora en adelante estaremos trabajando con este protocolo, más que nada pude apreciar la forma de configuración que se tiene, además de que pude visualizar que mediante el debug ip rip nos muestra las métricas y las formas de envió de paquetes esto mediante broadcast y se actualiza cada 30 segundos.

Además de que no nos muestra las máscaras de subred durante las actualizaciones, por ultimo puedo decir que conocí una nueva instrucción que es el network que nos ayuda a habilitar RIP en todas las interfaces que pertenecen a esa red.