INSTITUTO TÉCNOLOGICO DE SALINA CRUZ

REDES DE COMPUTADORA

SEMESTRE FEBRERO-AGOSTO 2015

REPORTE DE PRÁCTICAS

PRACTICA N°: 2

UNIDAD: 4

FECHA: 11 DE MAY0 DE 2015

NOMBRE: EDUARDO SALAZAR IRRIZARI

Objetivos:

- Detectar y describir las limitaciones de RIPv1.
- Aplicar los comandos de configuración básica del protocolo de información de enrutamiento versión 2 (RIPv2) y evaluar las actualizaciones de enrutamiento classless RIPv2.
- Analizar el resultado del router para ver si RIPv2 proporciona soporte para VLSM y CIDR.
- Identificar los comandos de verificación RIPv2 y los problemas de RIPv2 comunes.
- Configurar, verificar y resolver problemas de RIPv2 en laboratorios prácticos.

Instrucciones:

1.- Realizar la tabla de ruteo.

2.- Realizar configuraciones iniciales.

3.- Identificar comandos a utilizar.

4.- Realizar configuraciones de RIP.

Materiales:

1.- Computadoras.

2.- Cisco Packet Tracert.

3.- Silla.

Escenario.

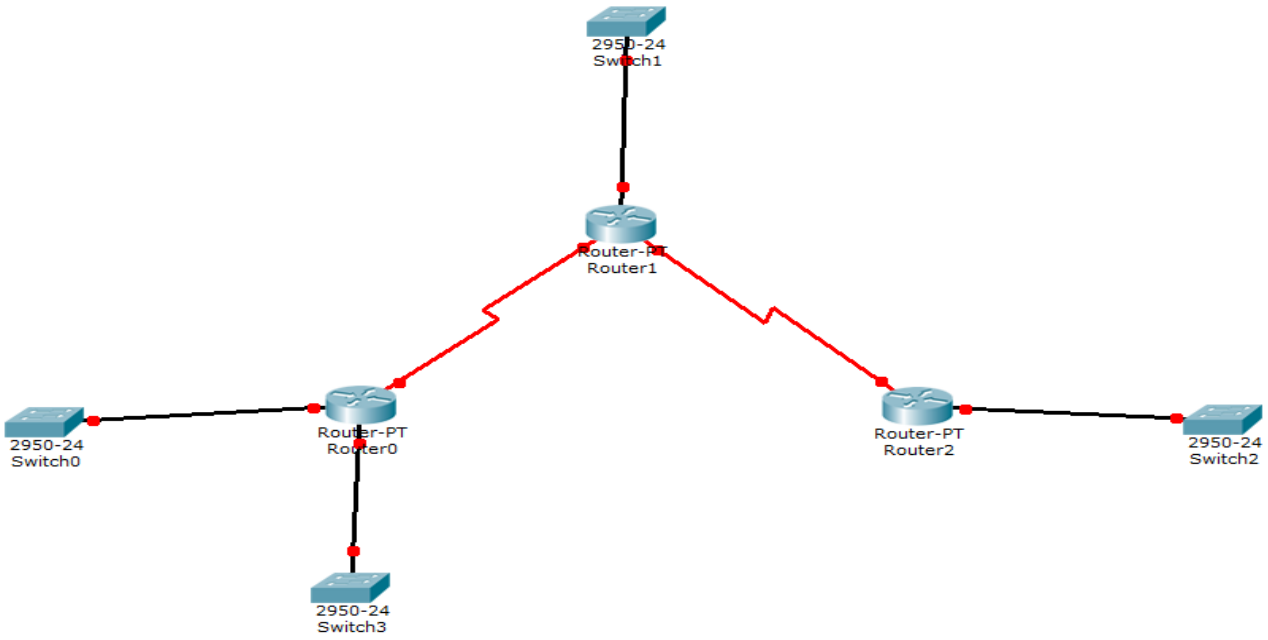


Tabla de enrutamiento.

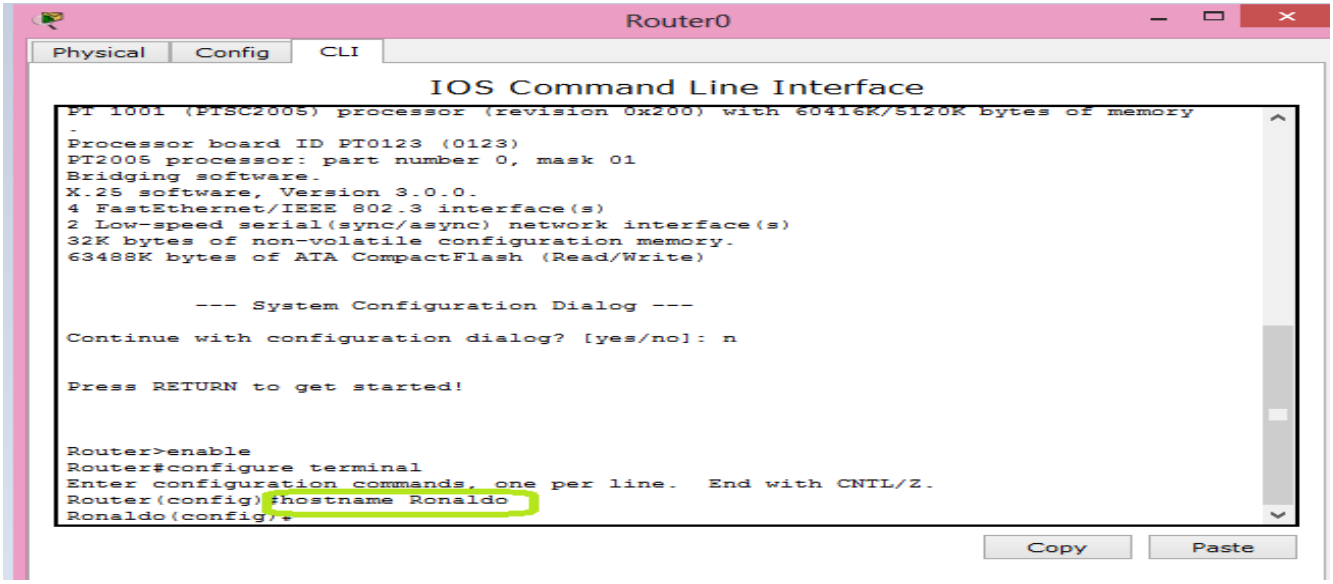
Dispositivo	Interfaz	Dirección IP	Mascara de subred	Gateway
Ronaldo (R1)	Fa0/0	172.30.1.1	255.255.0.0	No aplicable
	Fa1/0	192.30.0.1	255.255.0.0	
	S2/0	209.165.200.228	255.255.255.0	
Casillas (R2)	Fa0/0	10.1.0.1	255.0.0.0	No aplicable
	S2/0	209.165.200.229	255.255.255.0	
	S3/0	219.165.200.232	255.255.255.0	
Pirlo (R3)	Fa0/0	172.30.100.1	255.255.0.0	No aplicable
	S2/0	219.165.200.233	255.255.255.0	

CONFIGURACIÓN INICIAL.

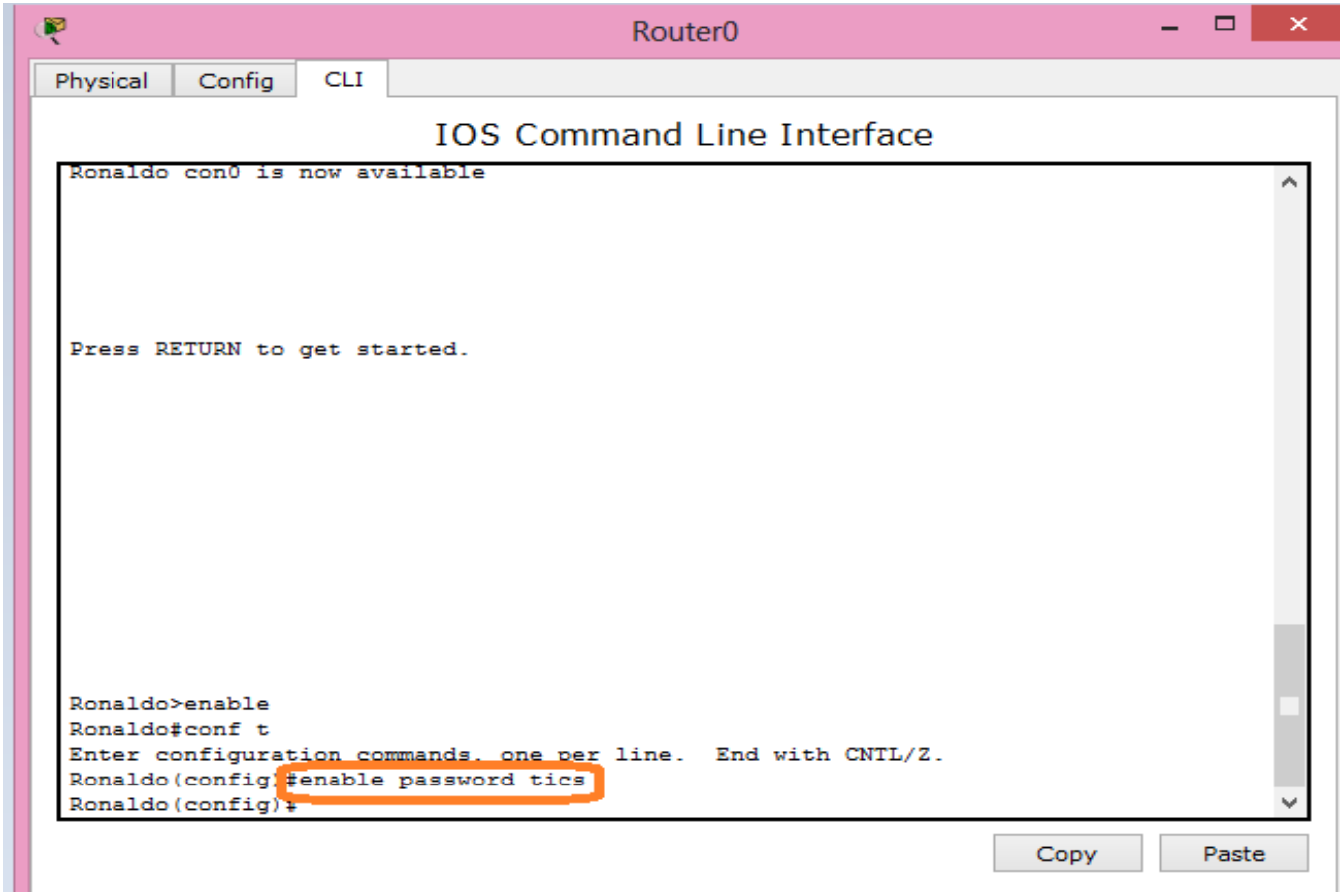
En este apartado es donde nosotros realizaremos configuraciones tales como: cambio de nombre, asignación de un passwrod y asignación de un banner a cada uno de los routers.

R1 (Ronaldo).

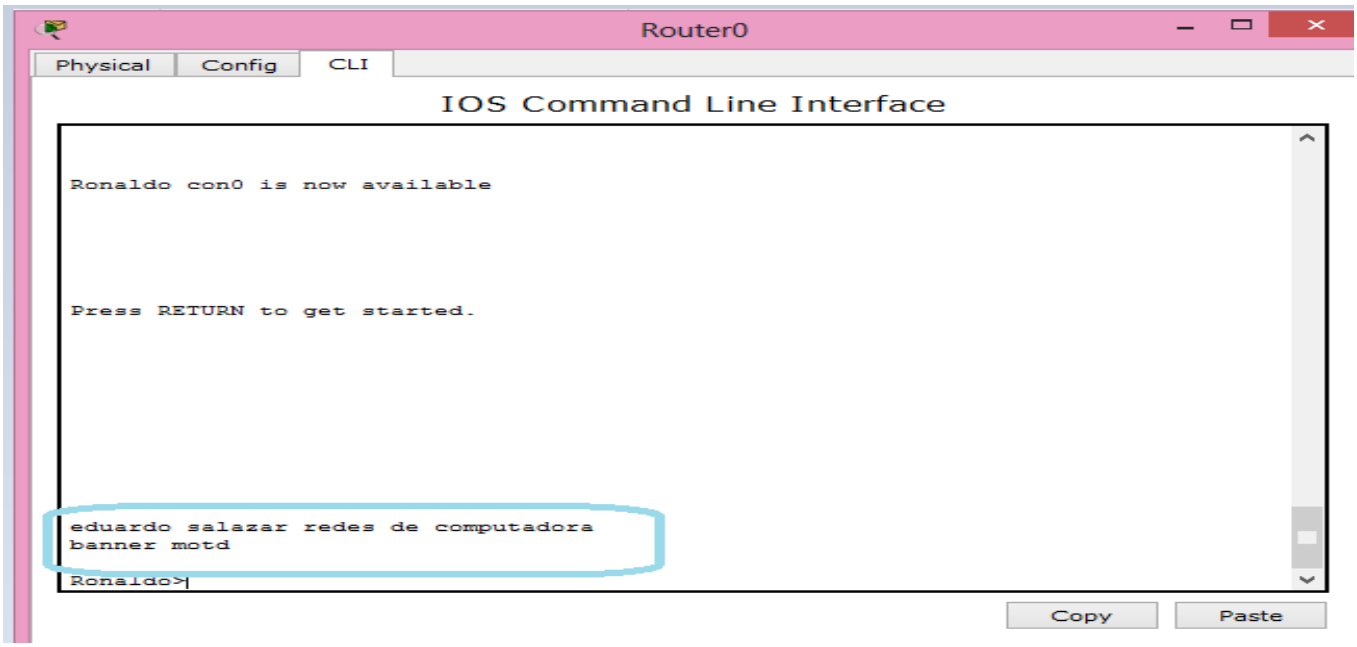
Cambio de nombre.



Asignación de una contraseña.

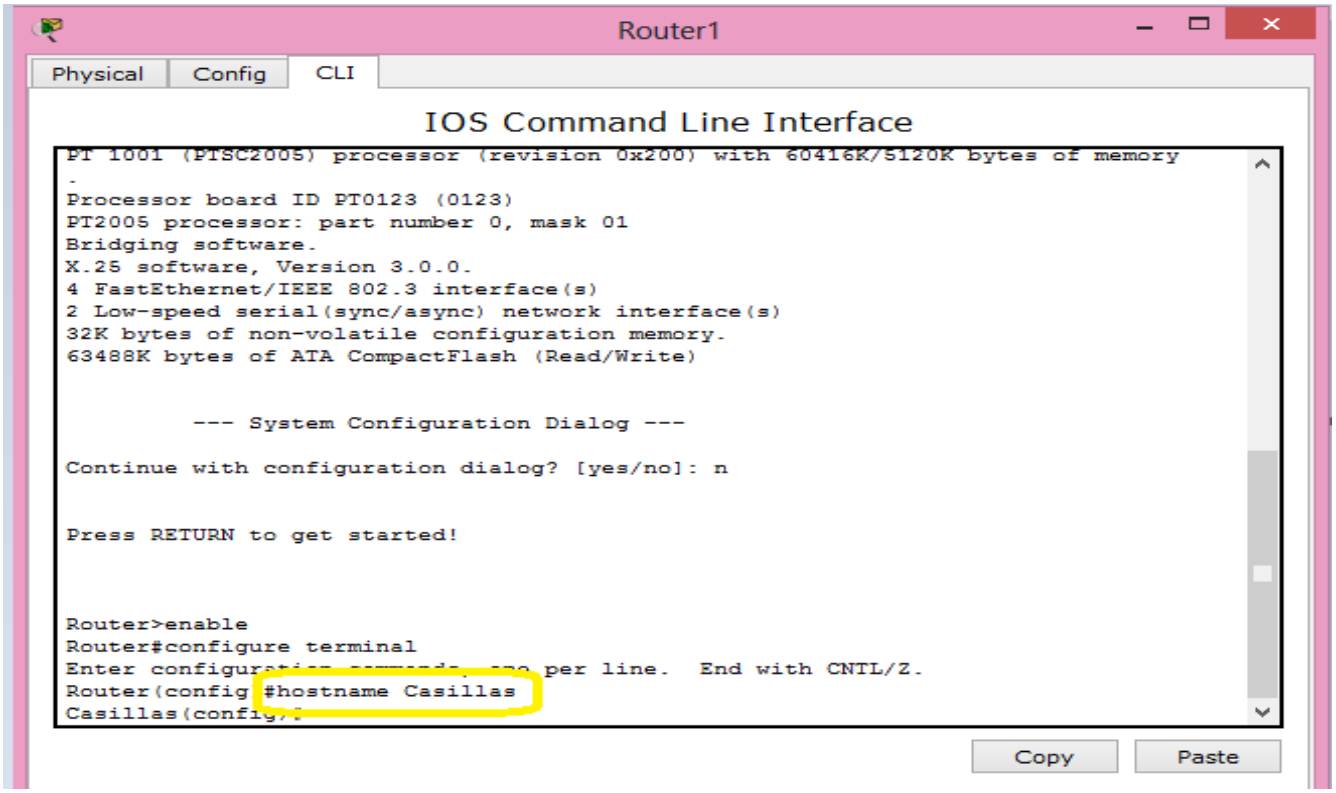


Asignación de un banner.

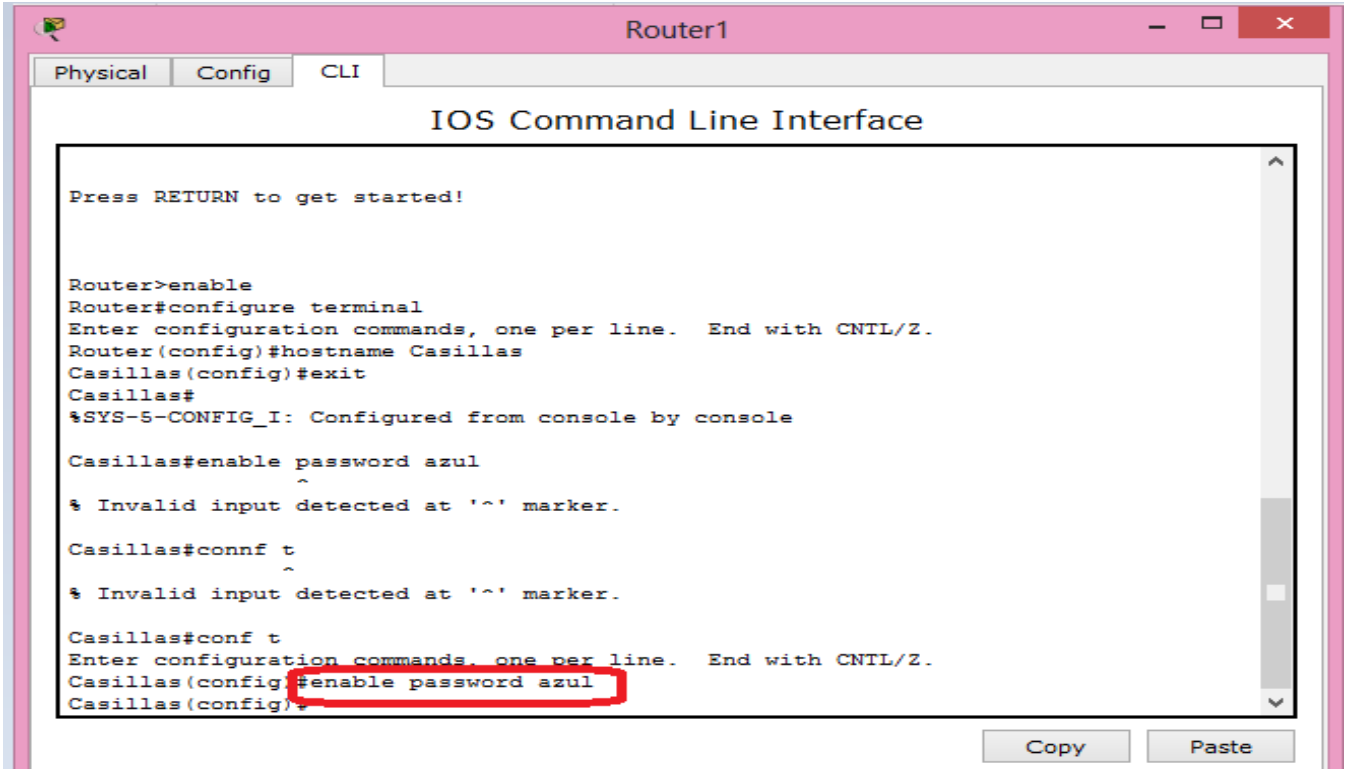


R2 (Casillas).

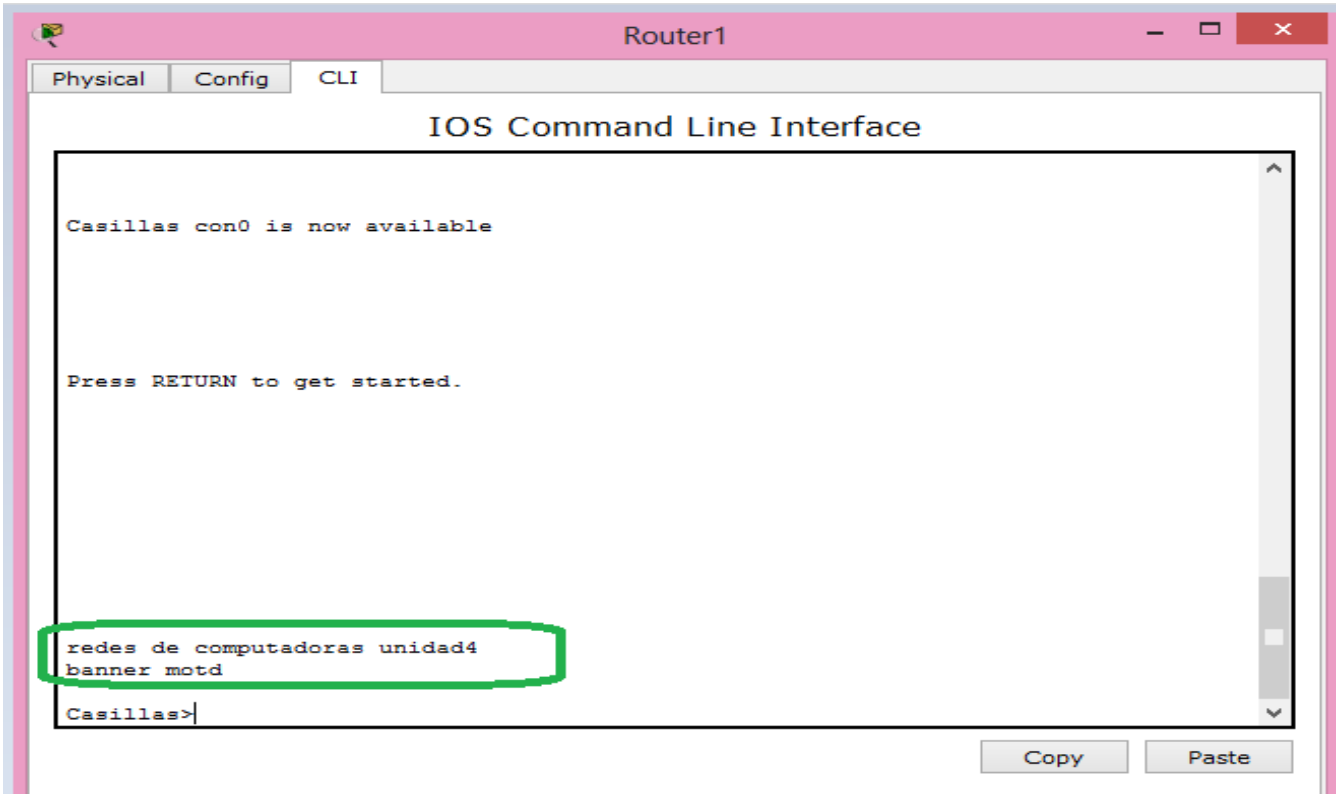
Cambio de nombre.



Asignación de la contraseña.

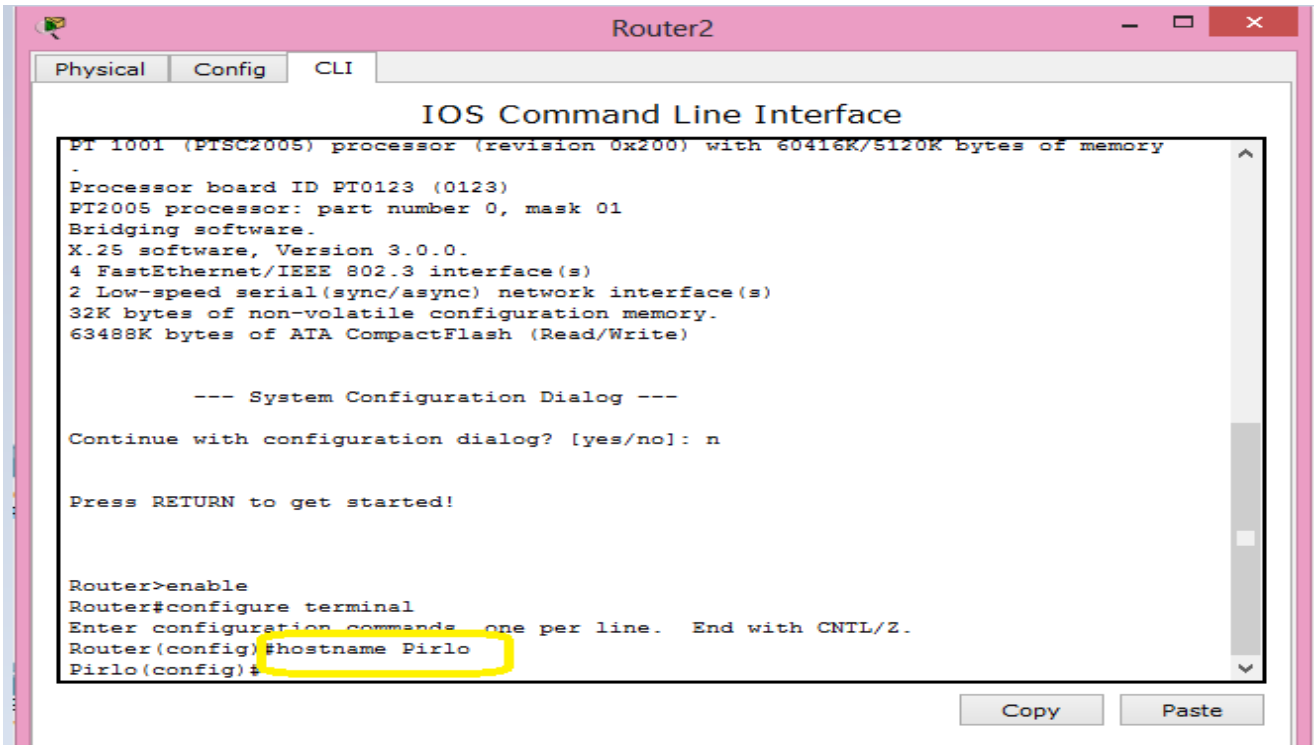


Configuración del banner.

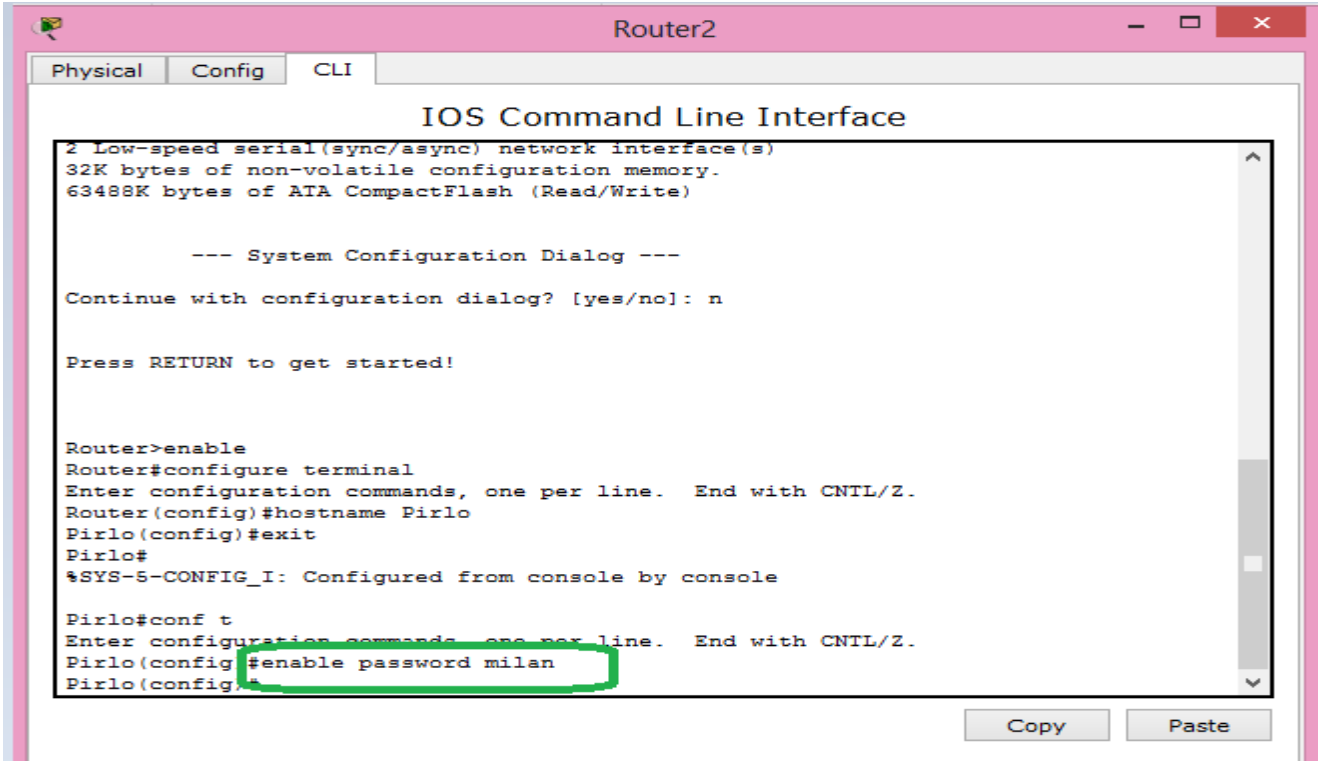


R3 (Pirlo).

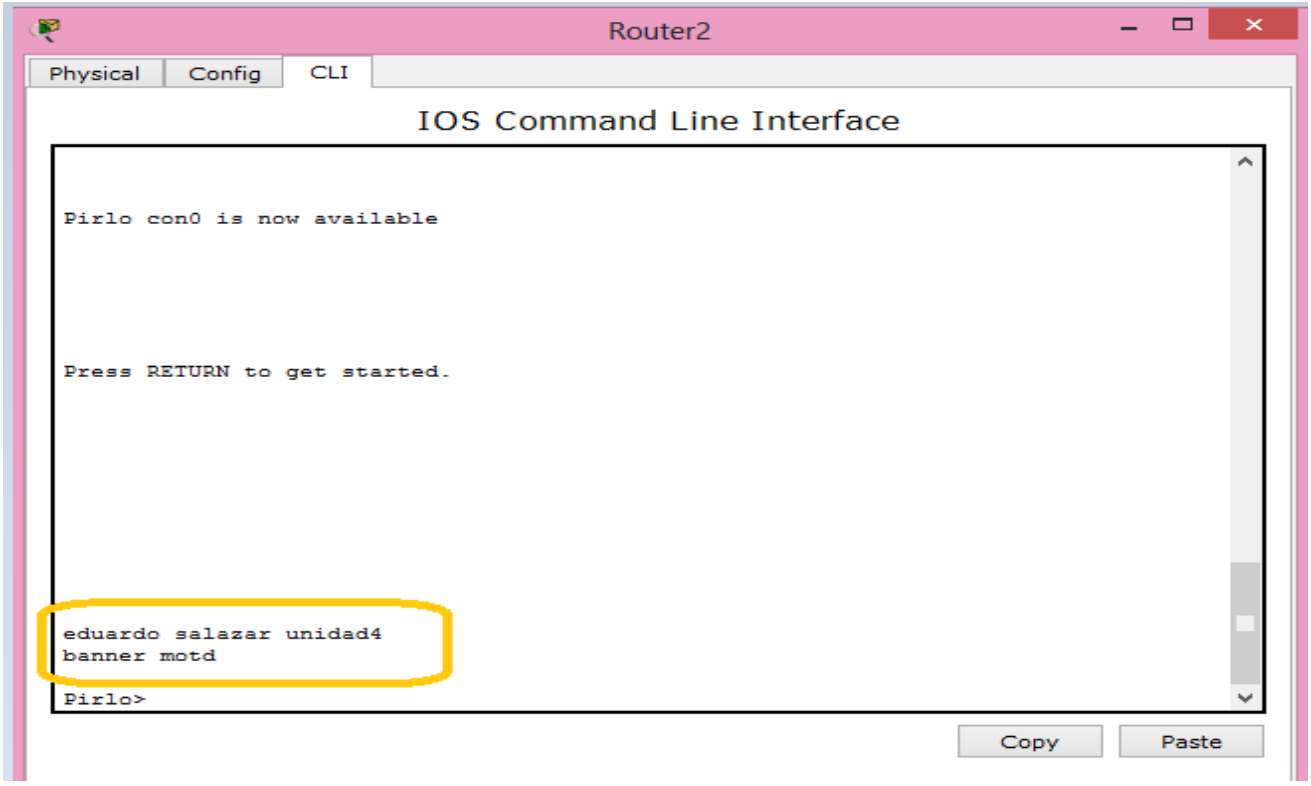
Cambio de nombre.



Configuración de la contraseña.



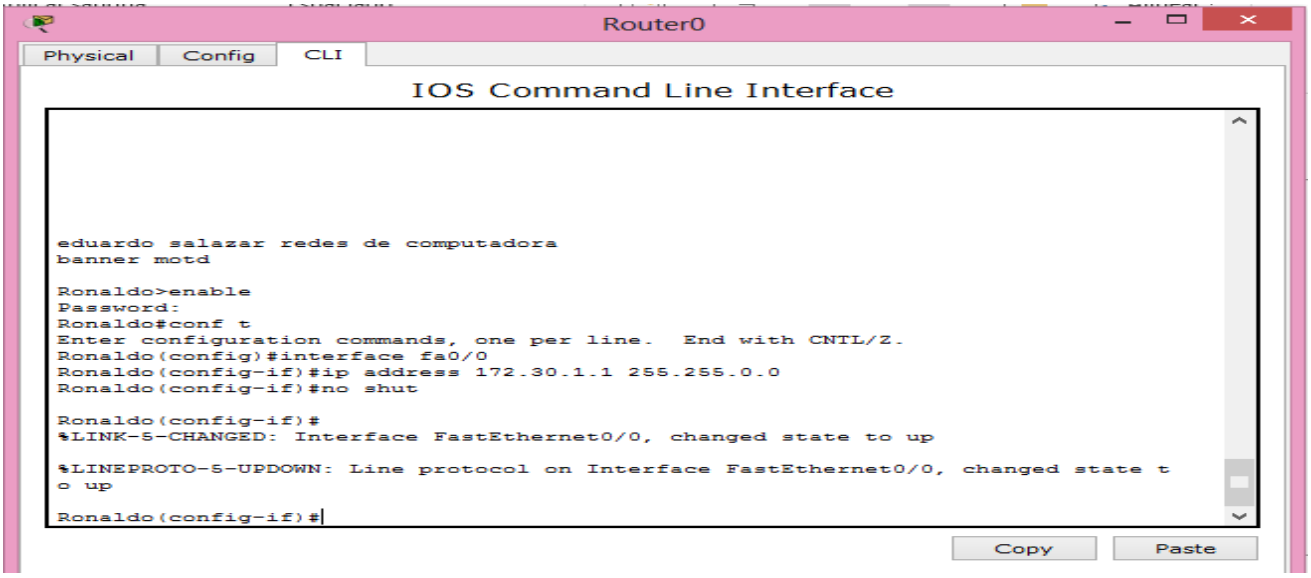
Asignación de un banner.



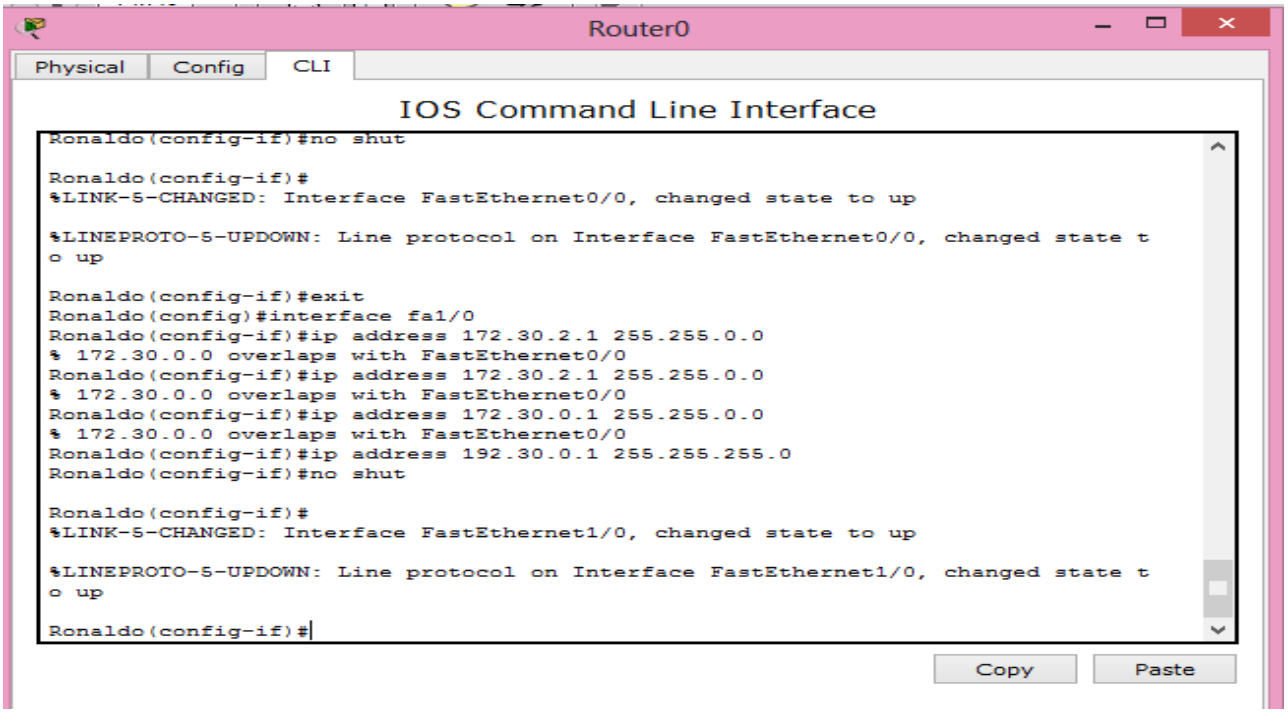
Después de todas estas configuraciones pasamos al levantamiento o habilitación de puertos, tanto de Fa como seriales, esto con el fin de que se pueda llevar a cabo las conexiones.

Ronaldo (R1).

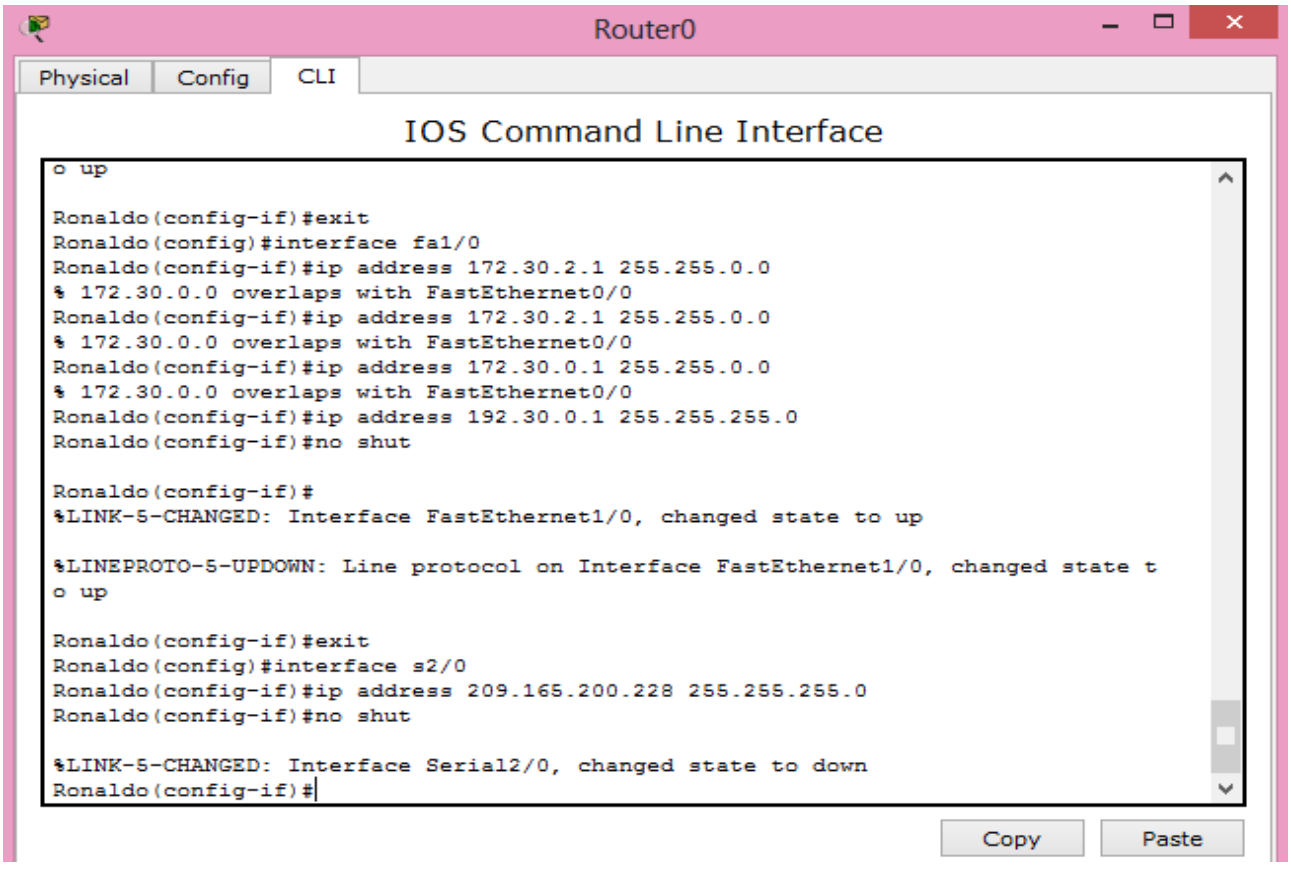
Puerto fa0/0.



Puerto fa1/0.

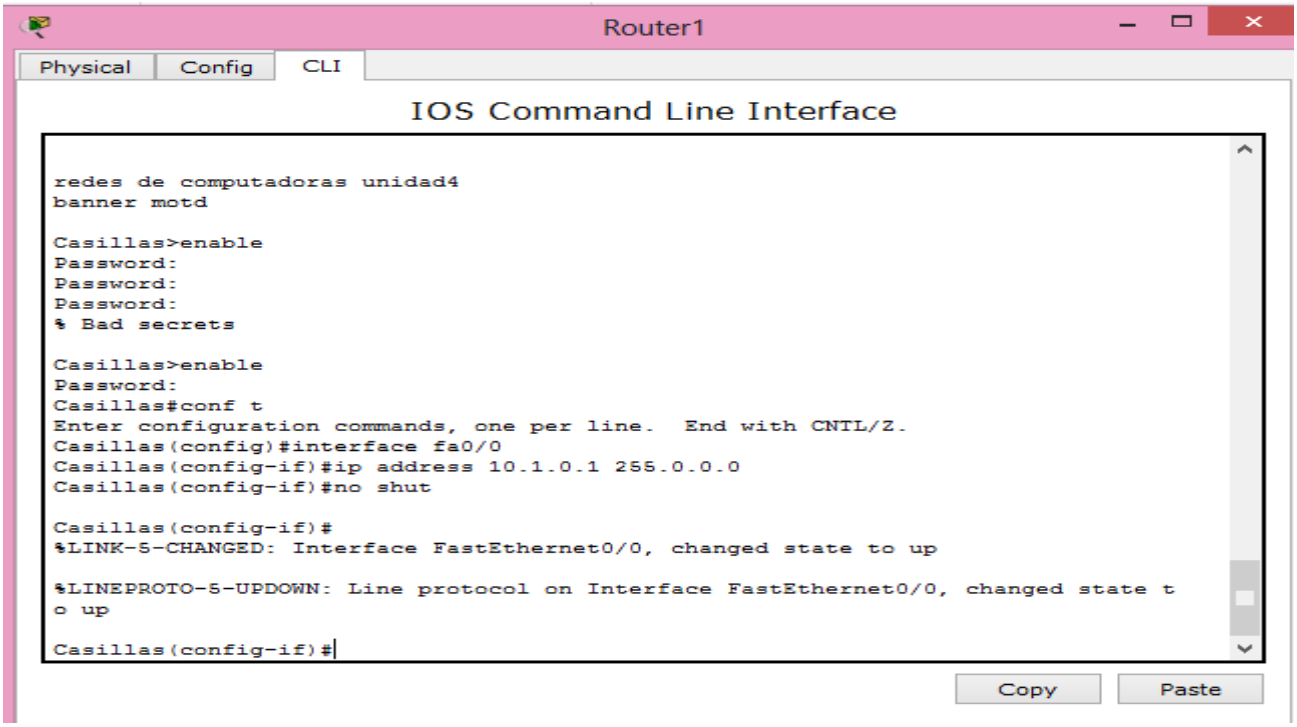


Serial 2/0.

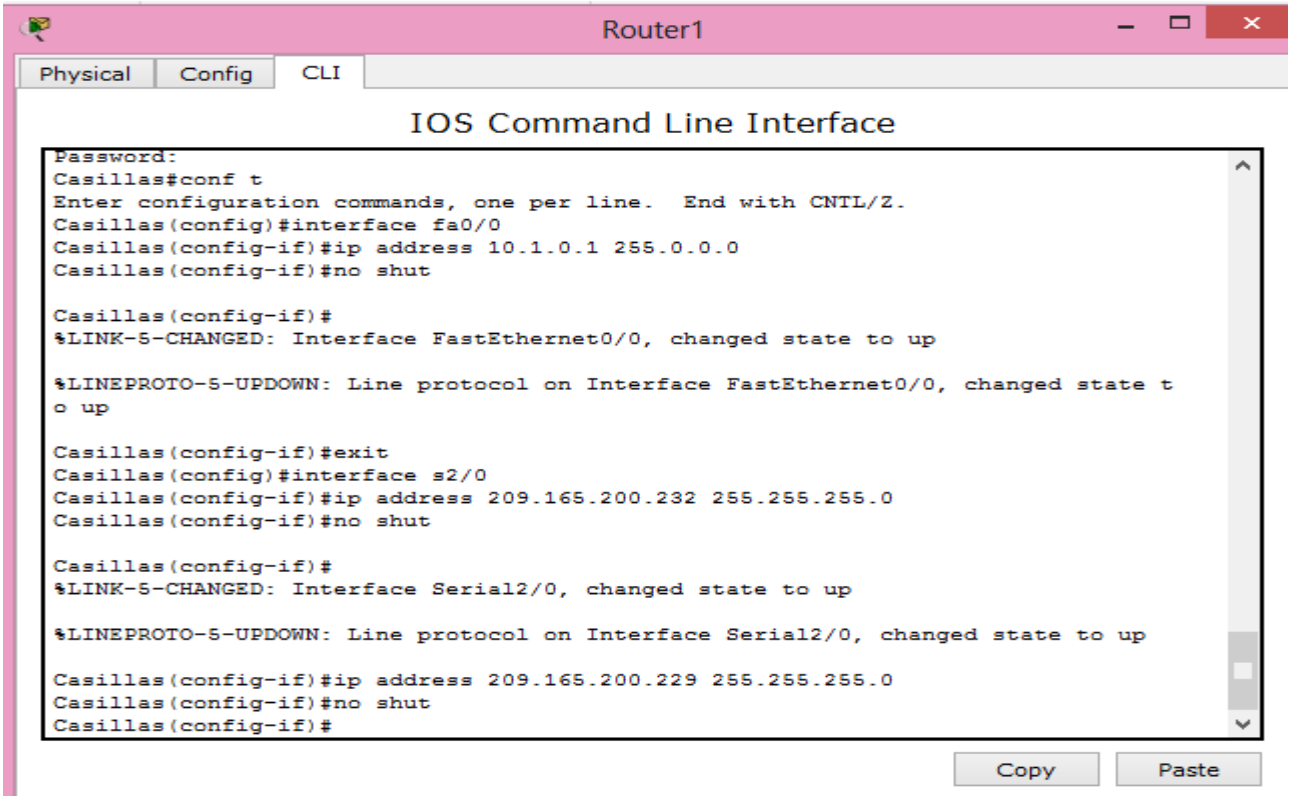


Casillas (R2).

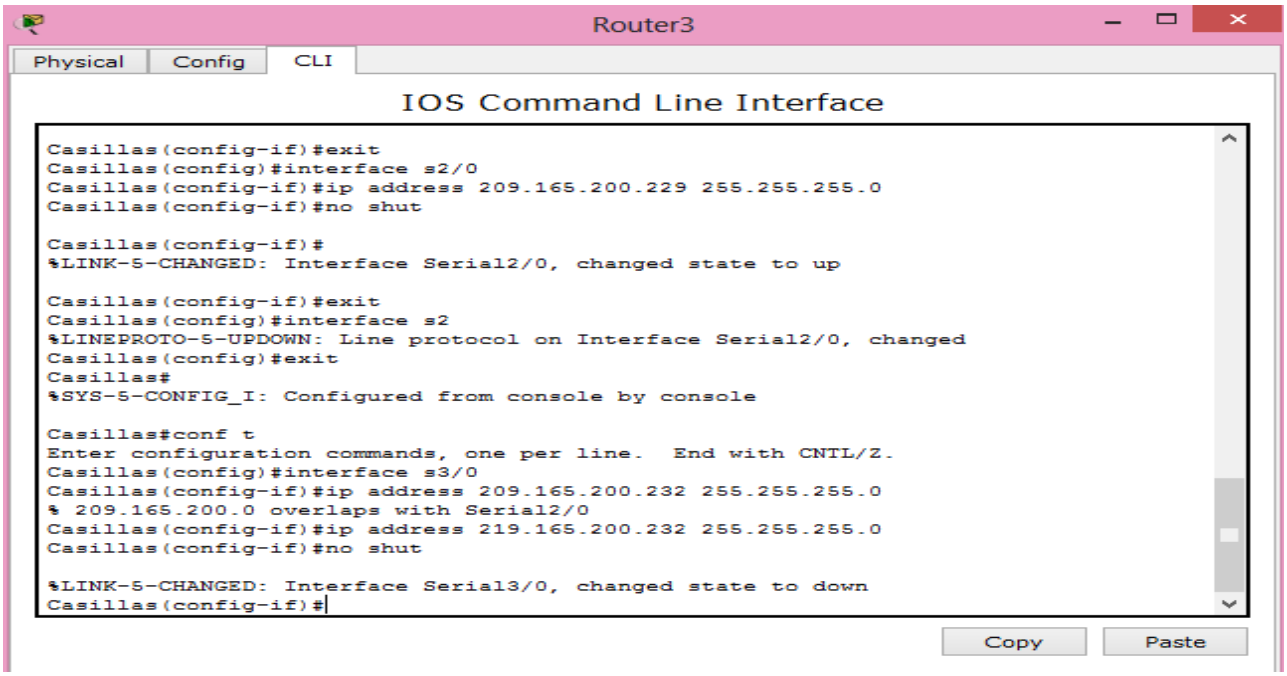
Puerto fa0/0.



Serial 2/0.

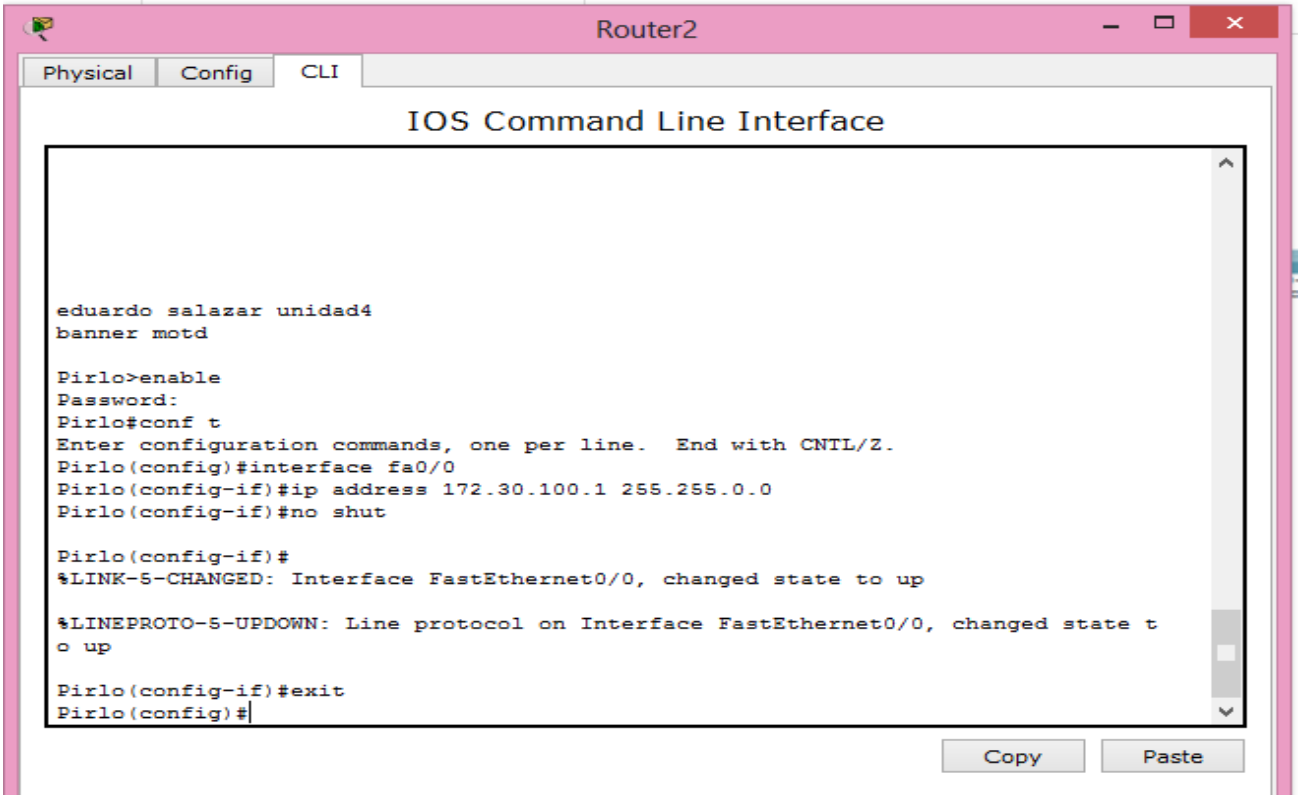


Serial 3/0.

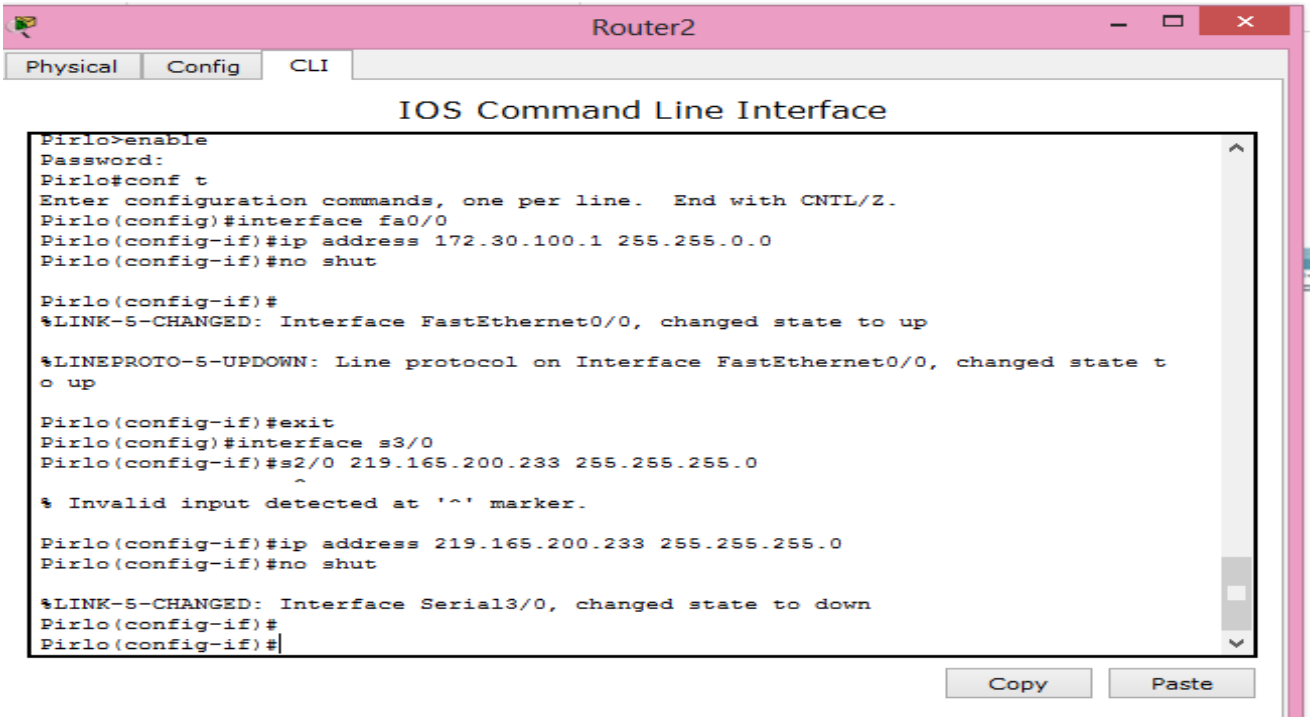


Pirlo (R3).

Puerto fa0/0.

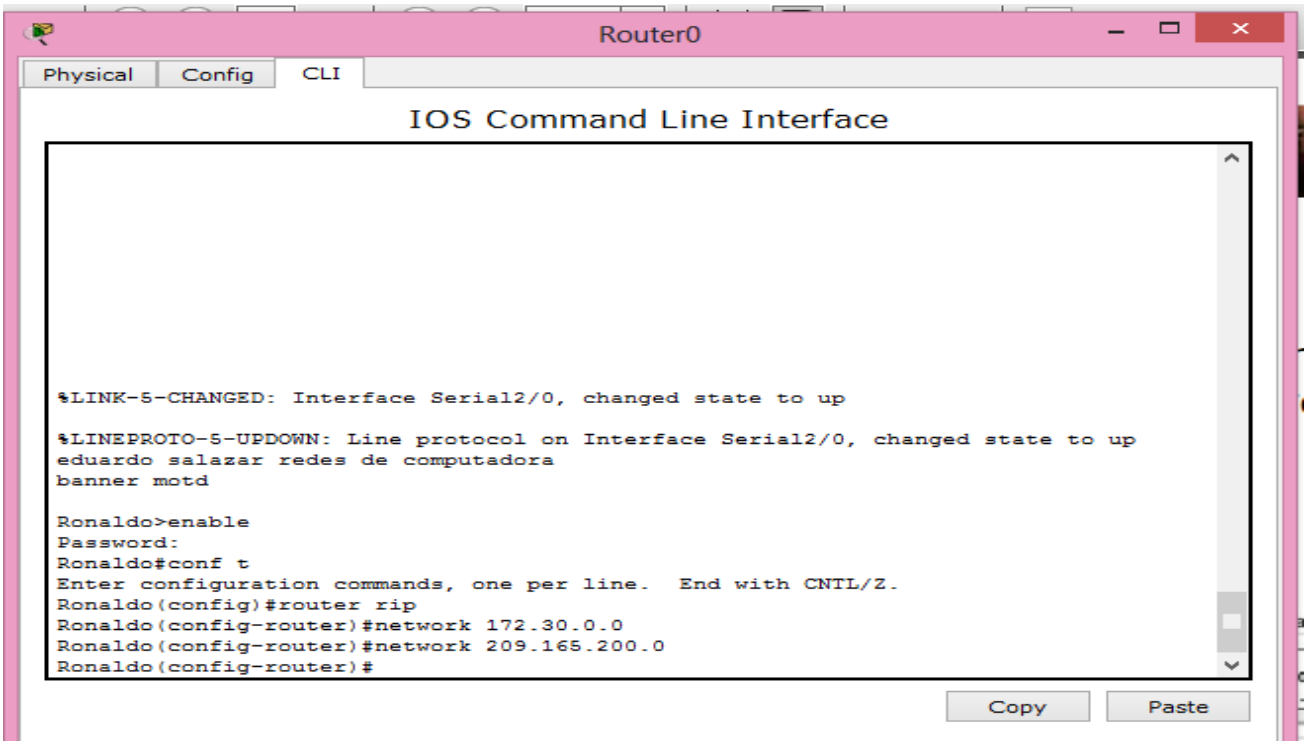


Serial 2/0.

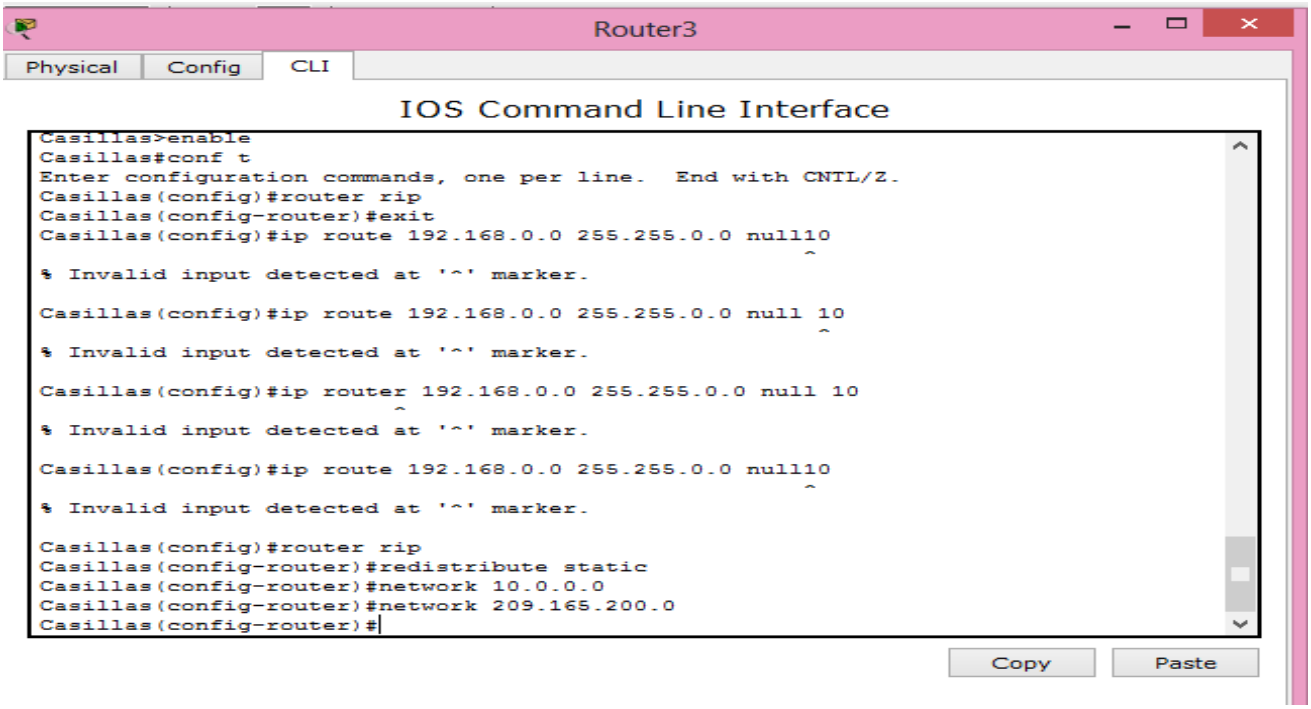


Posteriormente pasamos a la redistribución de rutas.

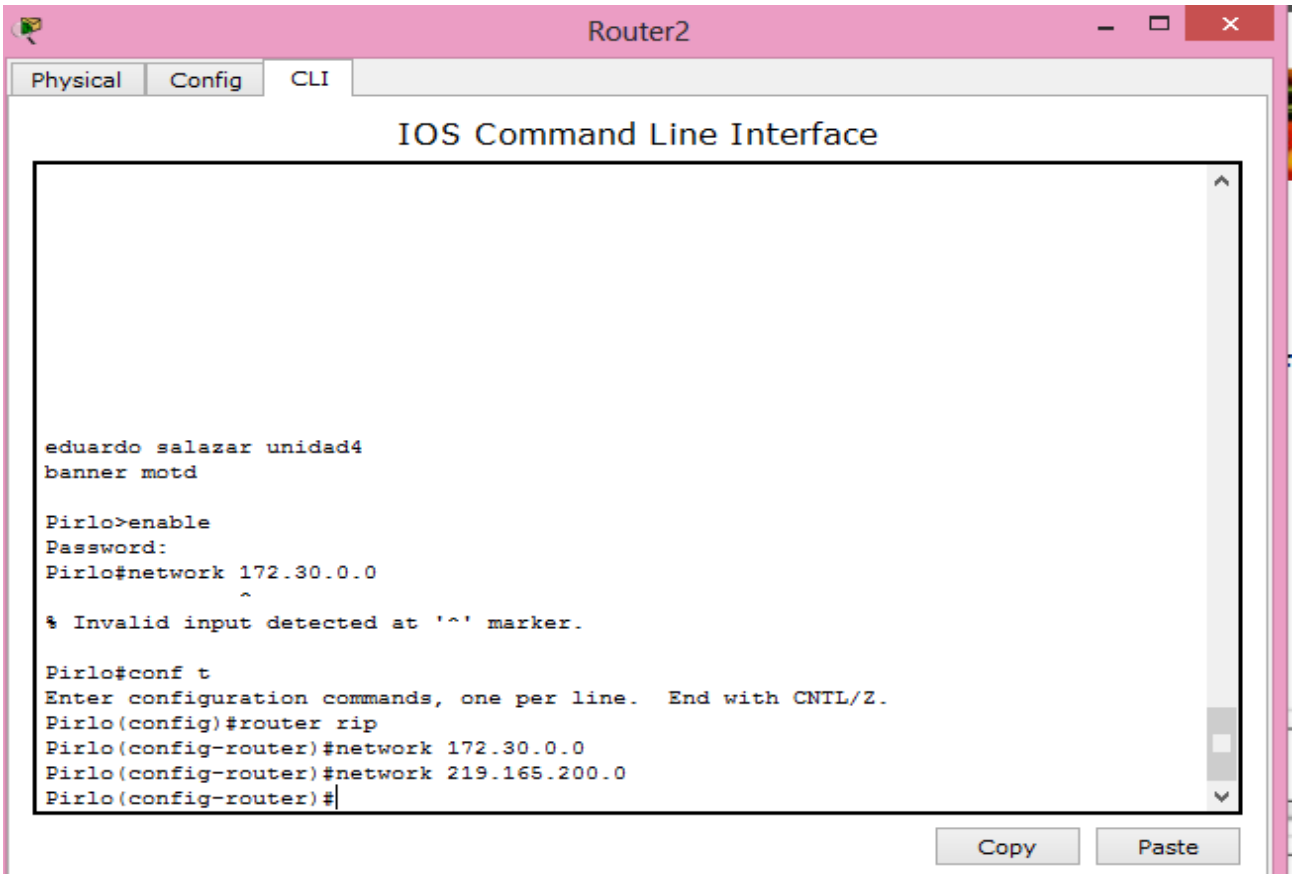
R1.



R2.

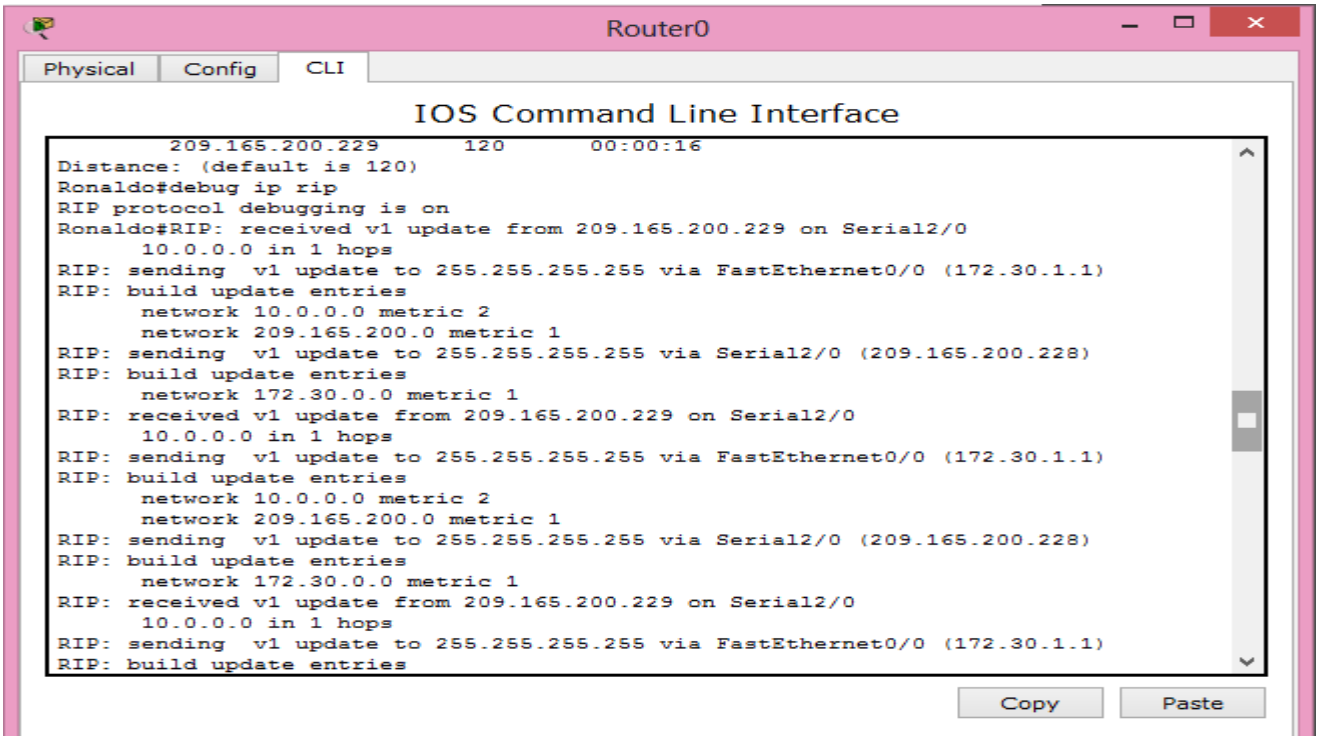

Router3
Physical
Config
CLI
IOS Command Line Interface
Casillas>enable
Casillas#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Casillas(config)#router rip
Casillas(config-router)#exit
Casillas(config)#ip route 192.168.0.0 255.255.0.0 null10
% Invalid input detected at '^' marker.
Casillas(config)#ip route 192.168.0.0 255.255.0.0 null 10
% Invalid input detected at '^' marker.
Casillas(config)#ip router 192.168.0.0 255.255.0.0 null 10
% Invalid input detected at '^' marker.
Casillas(config)#ip route 192.168.0.0 255.255.0.0 null10
% Invalid input detected at '^' marker.
Casillas(config)#router rip
Casillas(config-router)#redistribute static
Casillas(config-router)#network 10.0.0.0
Casillas(config-router)#network 209.165.200.0
Casillas(config-router)#
Copy
Paste

R3.

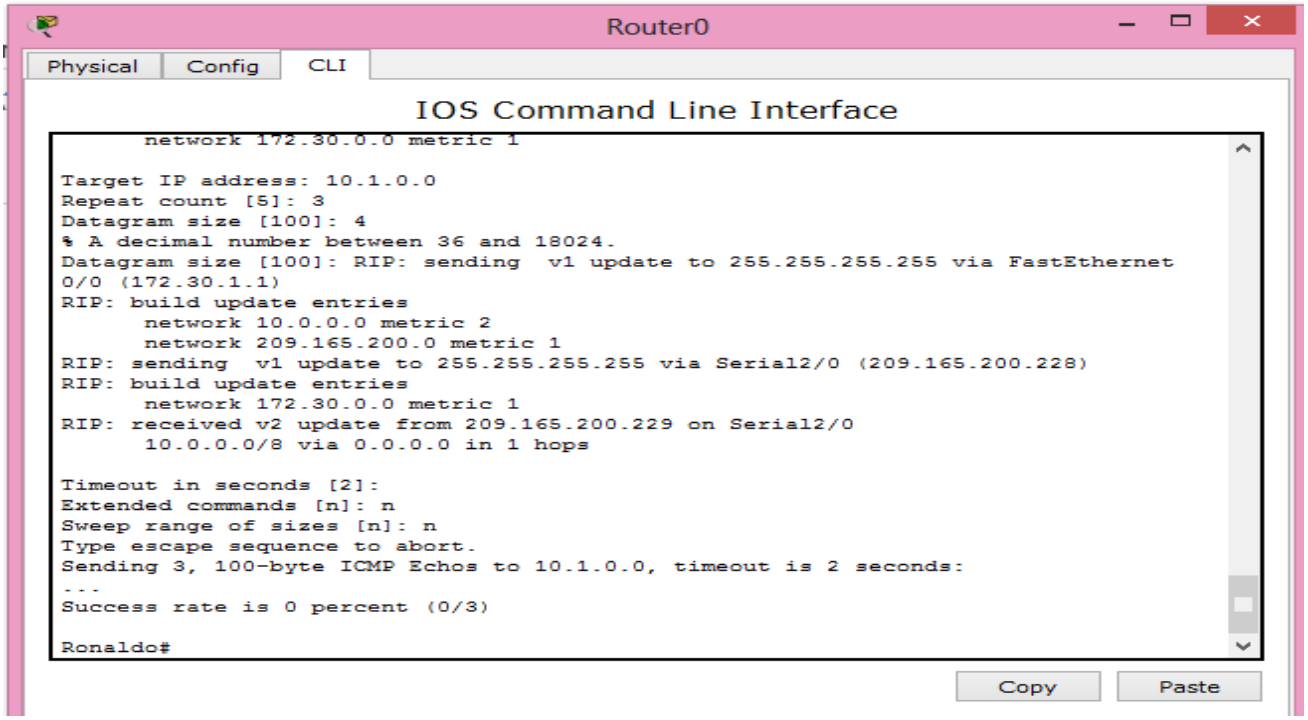

Router2
Physical
Config
CLI
IOS Command Line Interface
eduardo salazar unidad4
banner motd
Pirlo>enable
Password:
Pirlo#network 172.30.0.0
% Invalid input detected at '^' marker.
Pirlo#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Pirlo(config)#router rip
Pirlo(config-router)#network 172.30.0.0
Pirlo(config-router)#network 219.165.200.0
Pirlo(config-router)#
Copy
Paste

Verificación y prueba de la conectividad.

R1 (Ronaldo).

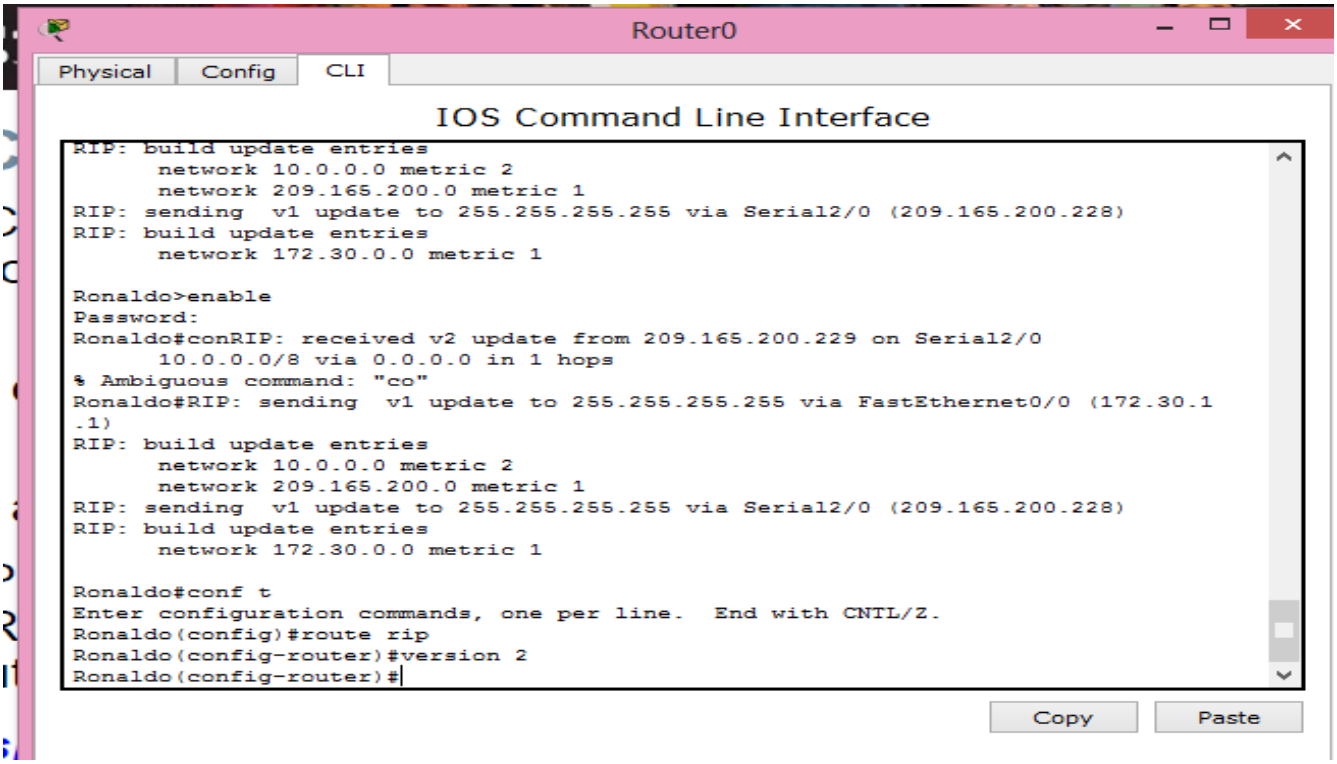


Ping.

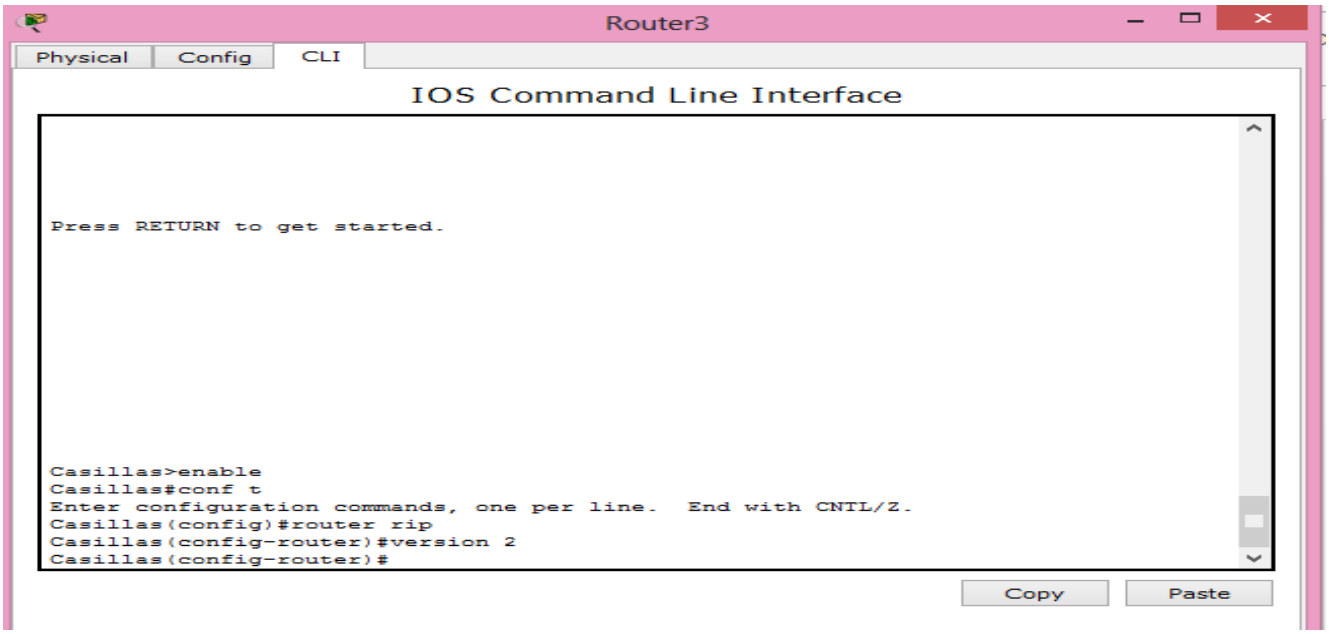


Habilitación y verificación de RIPv2.

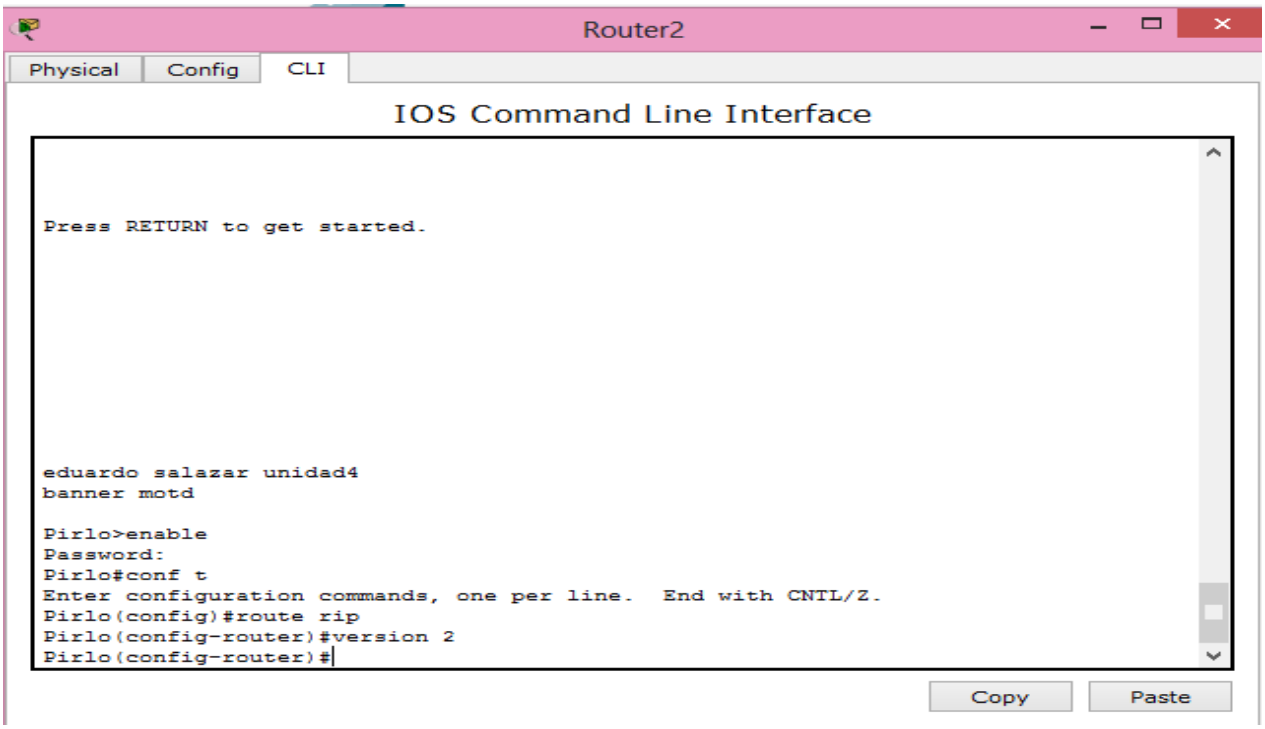
R1.



R2.

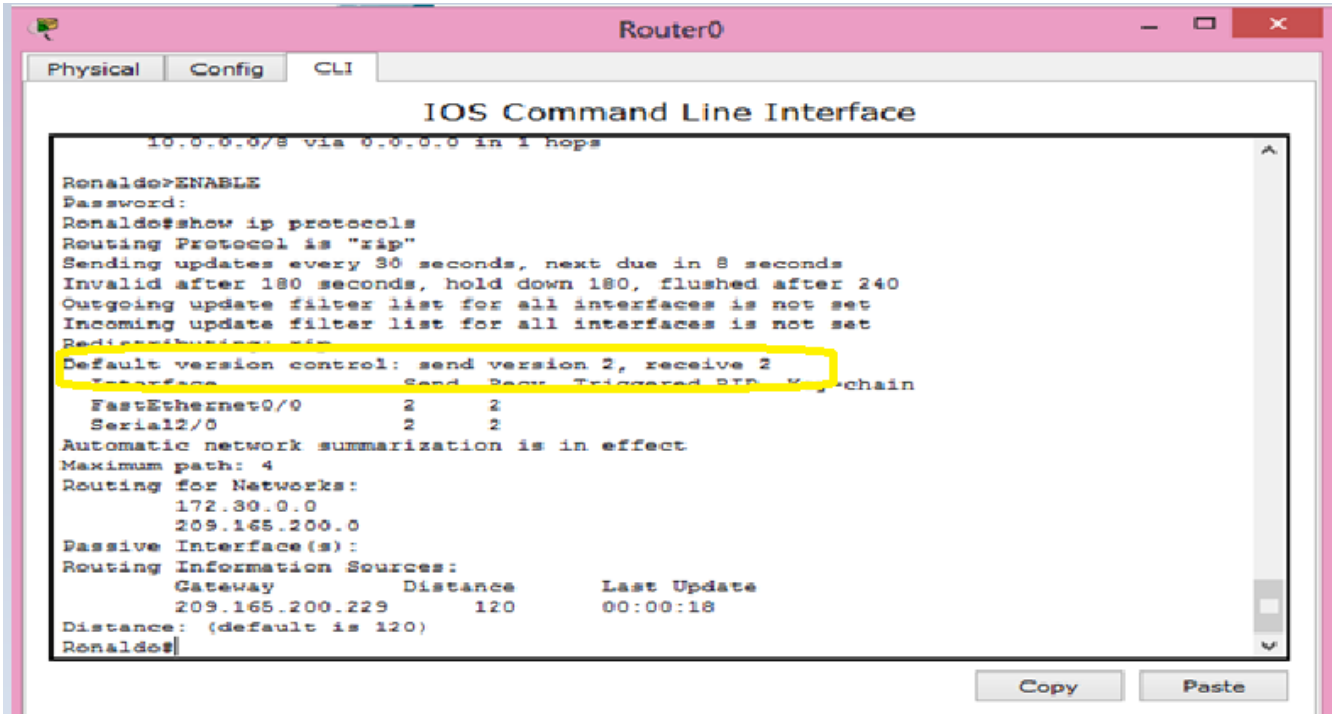


R3.

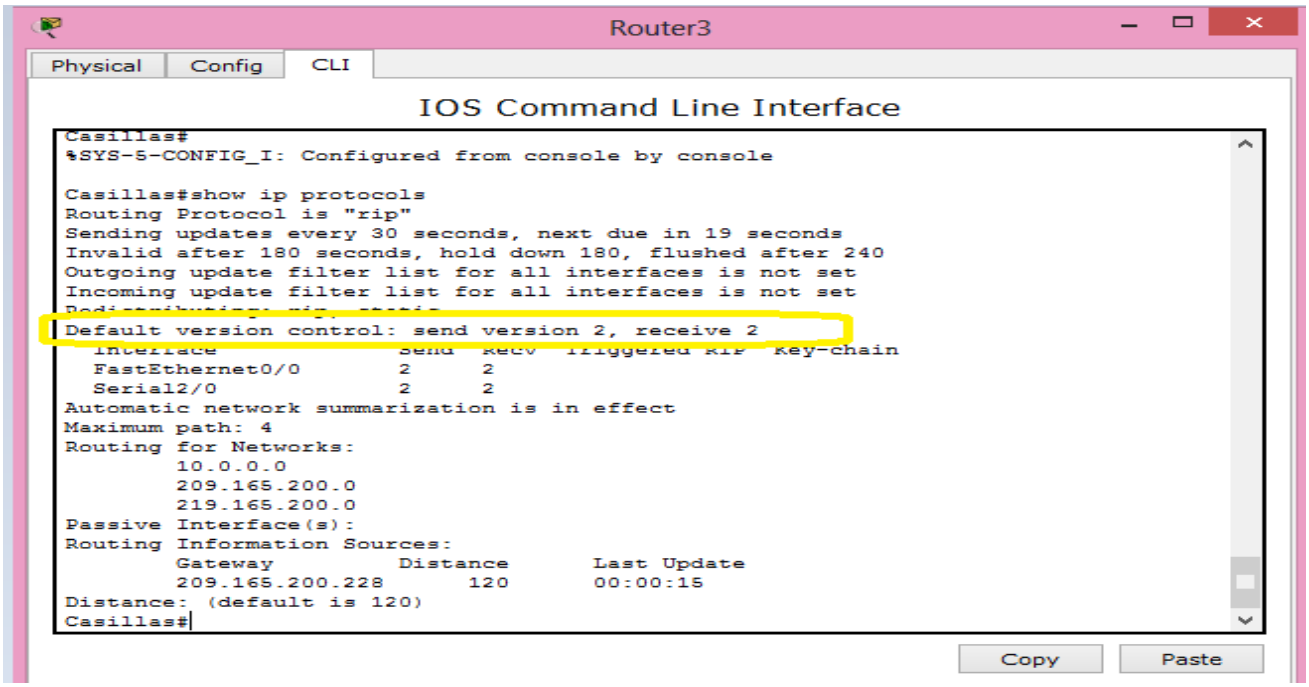


Para verificar que RIPv2 esté configurado, utilice el comando show ip protocols.

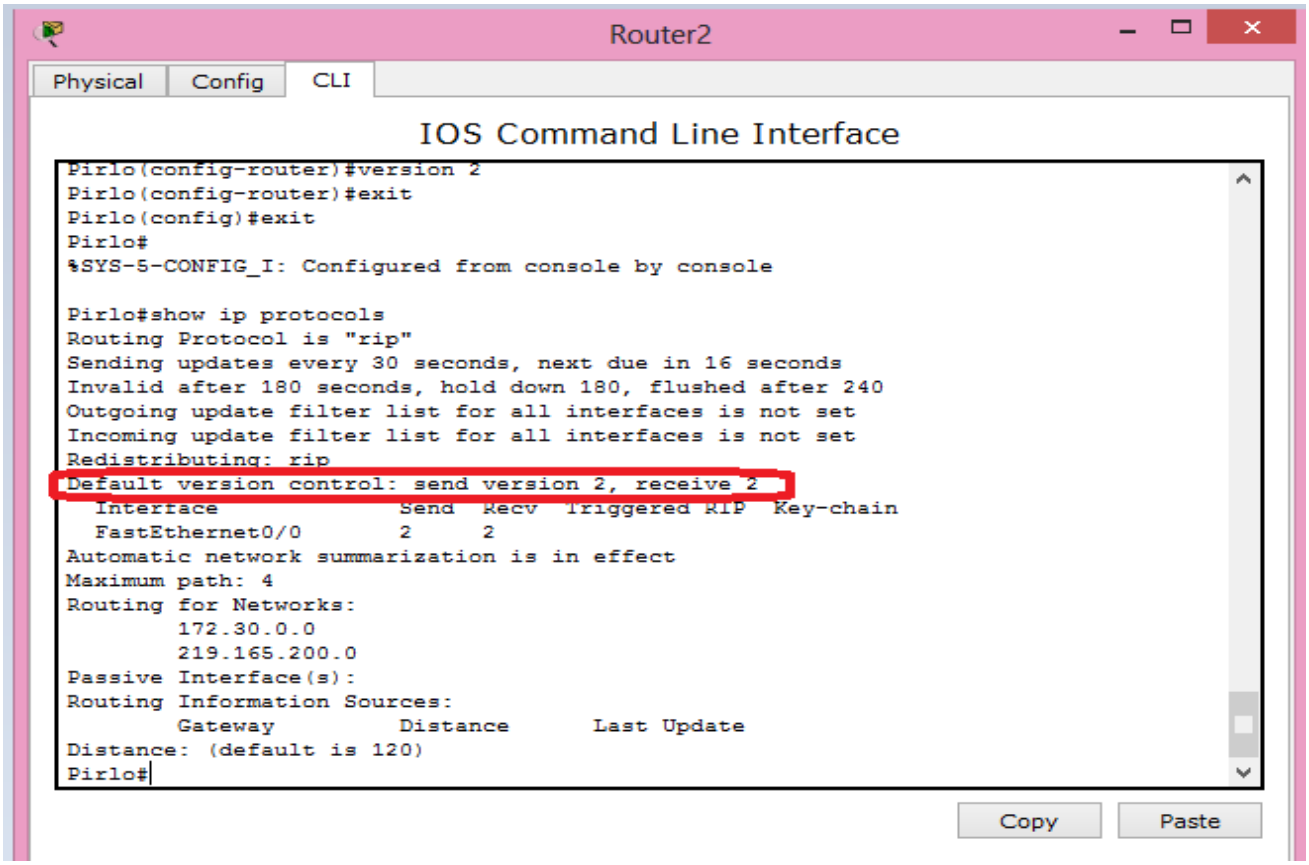
R1.



R2.

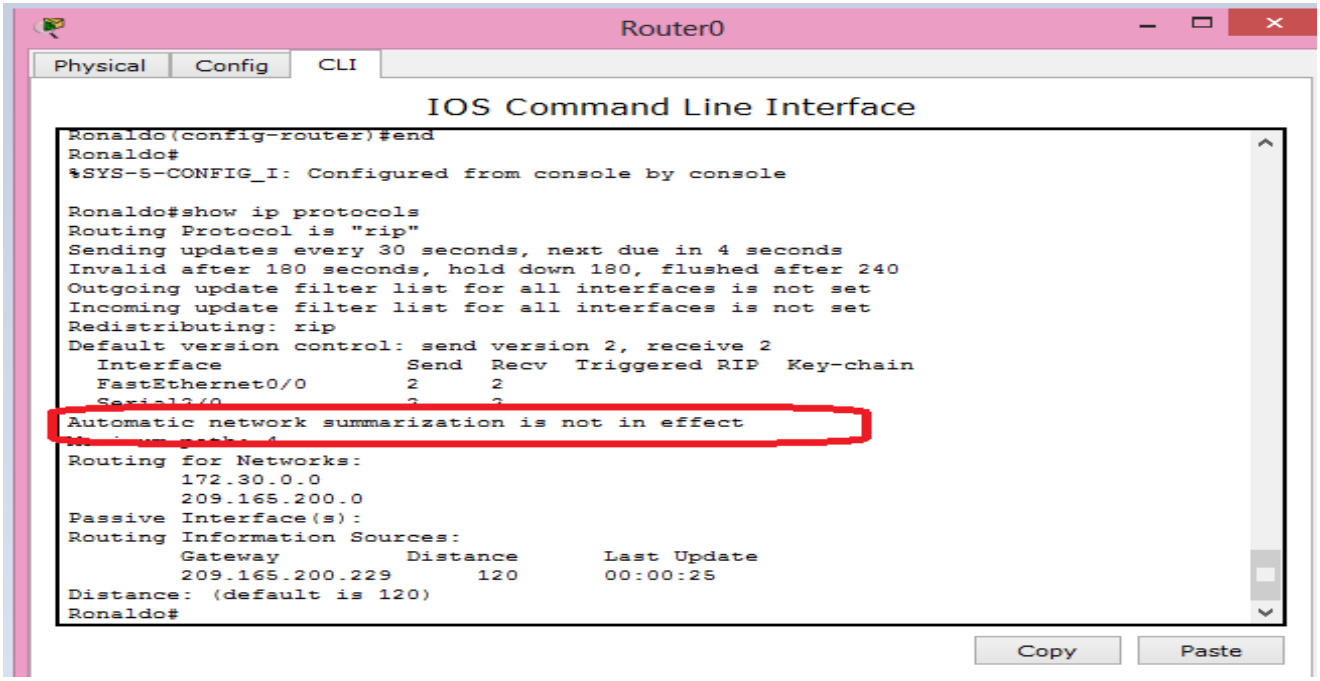

Router3
Physical
Config
CLI
IOS Command Line Interface
Casillas#
%SYS-5-CONFIG_I: Configured from console by console
Casillas#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 19 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Default version control: send version 2, receive 2
FastEthernet0/0 2 2
Serial2/0 2 2
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
10.0.0.0
209.165.200.0
219.165.200.0
Passive Interface(s):
Routing Information Sources:
Gateway Distance Last Update
209.165.200.228 120 00:00:15
Distance: (default is 120)
Casillas#
Copy
Paste

R3.

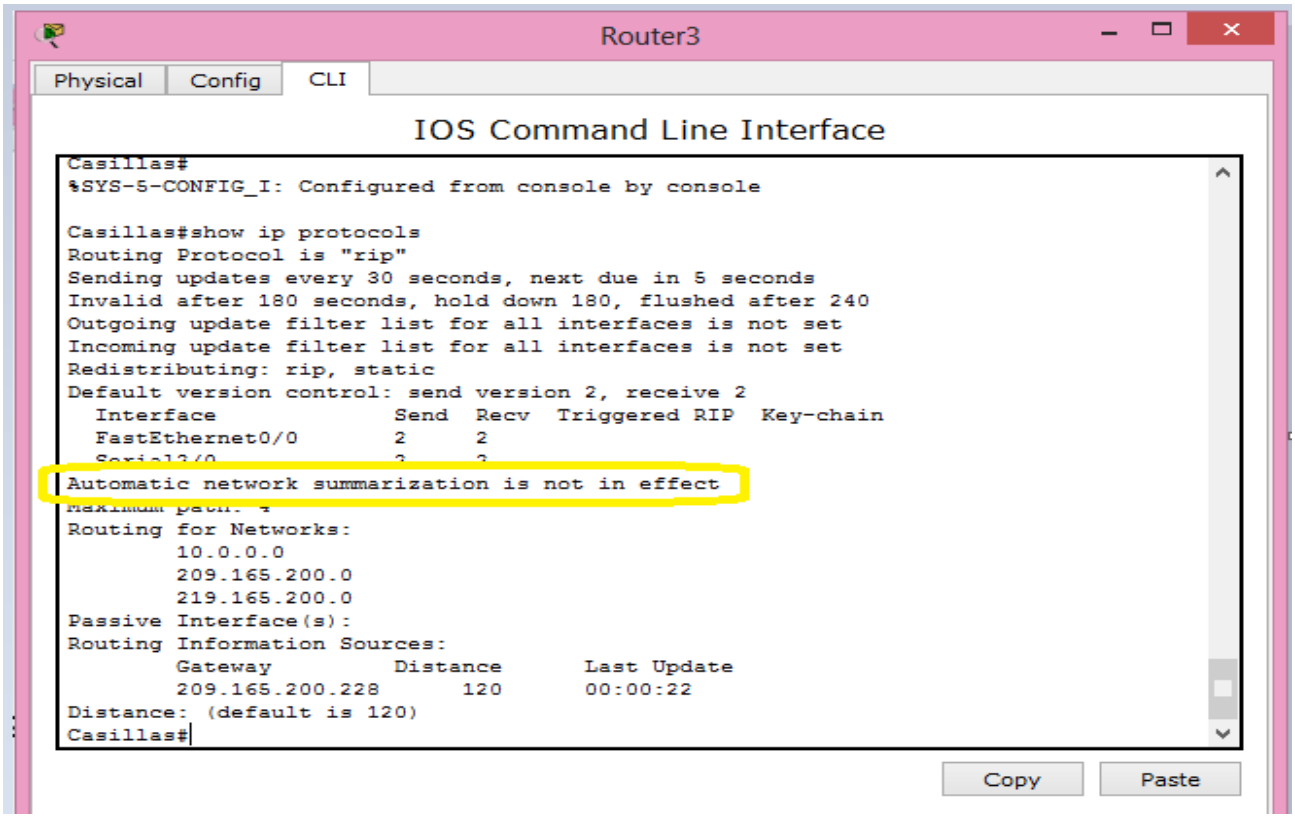

Router2
Physical
Config
CLI
IOS Command Line Interface
Pirlo(config-router)#version 2
Pirlo(config-router)#exit
Pirlo(config)#exit
Pirlo#
%SYS-5-CONFIG_I: Configured from console by console
Pirlo#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 16 seconds
Invalid 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 2, receive 2
Interface Send Recv Triggered RIP Key-chain
FastEthernet0/0 2 2
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
172.30.0.0
219.165.200.0
Passive Interface(s):
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 120)
Pirlo#
Copy
Paste

Inhabilitación de sumarización automática en RIPv2.

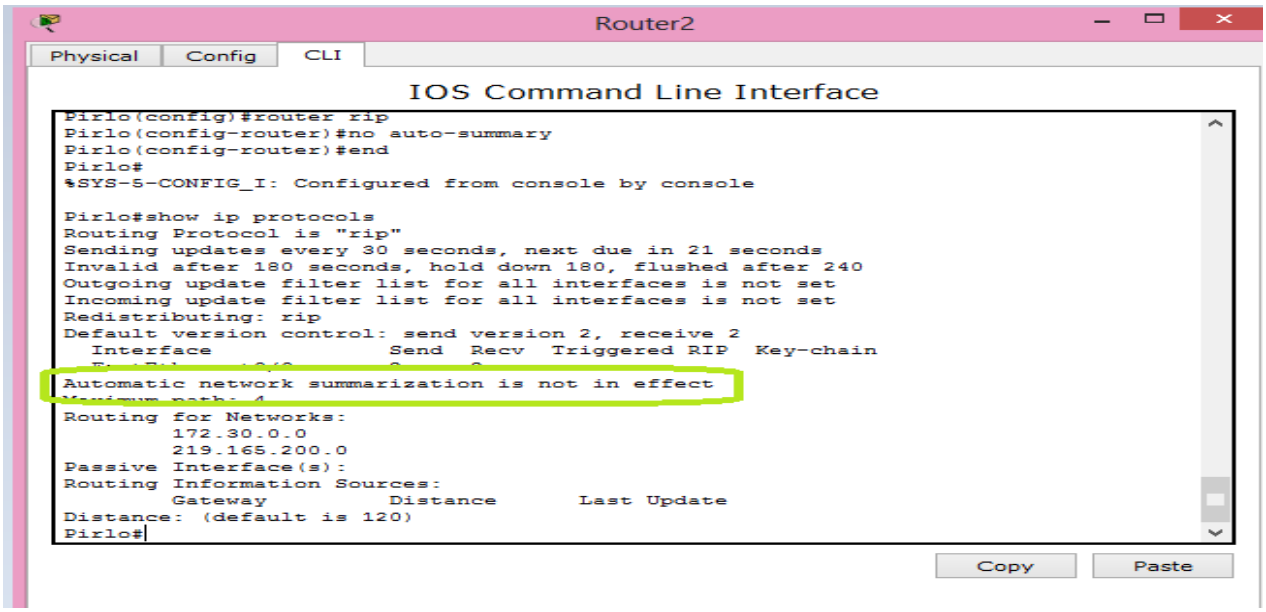
R1.



R2.

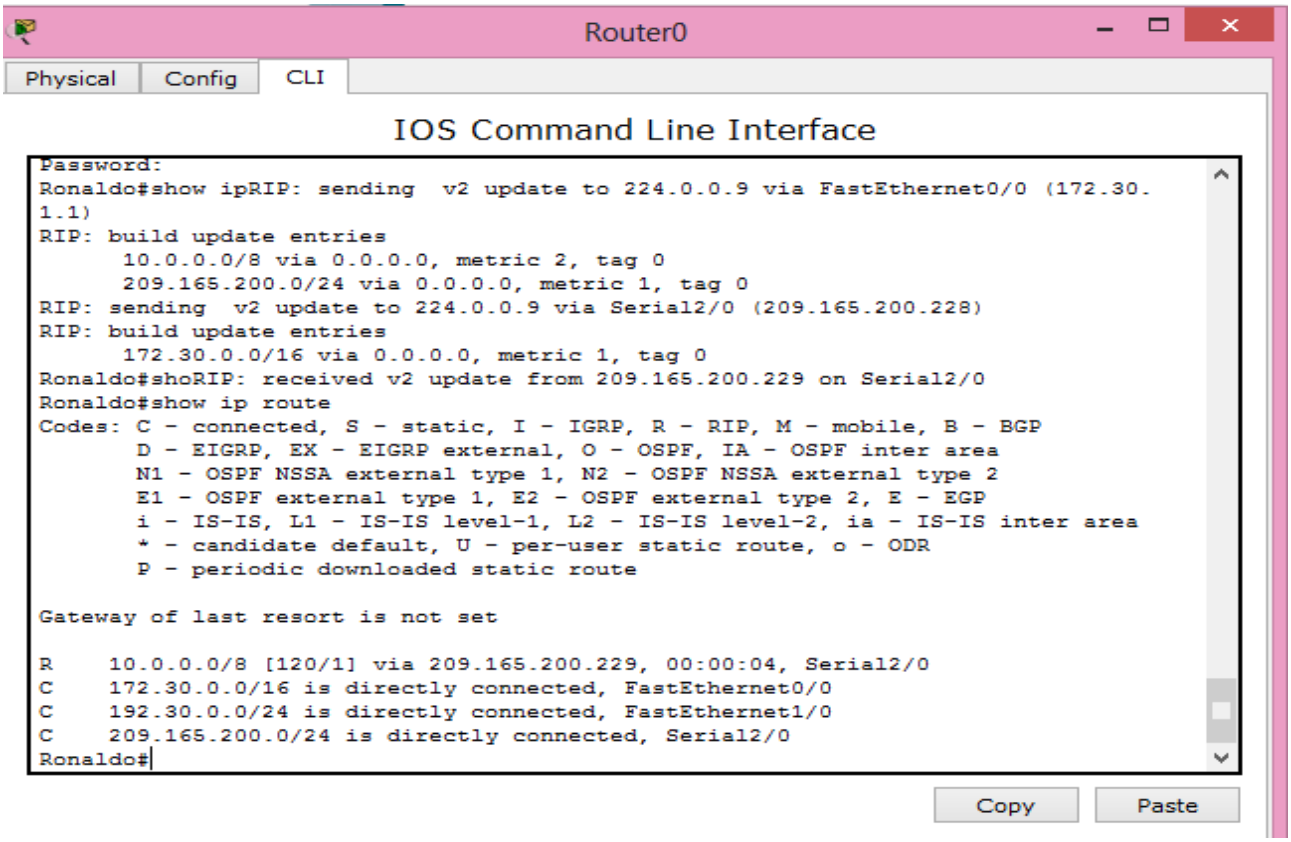


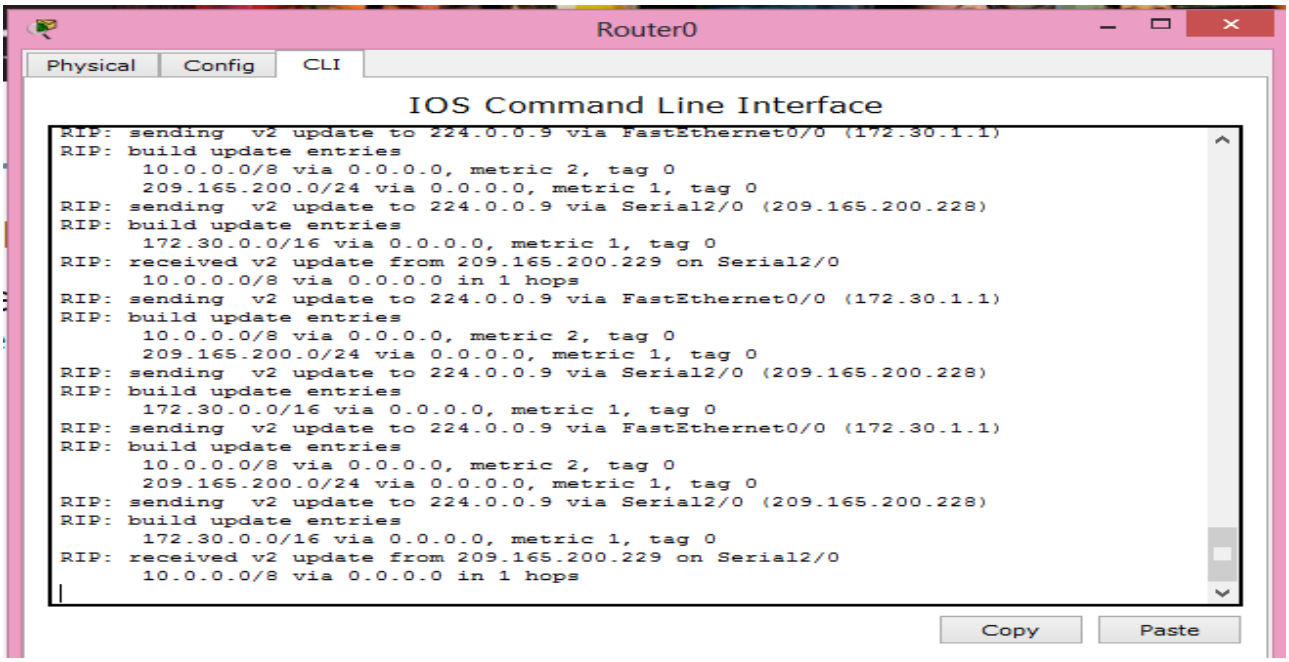
R3.



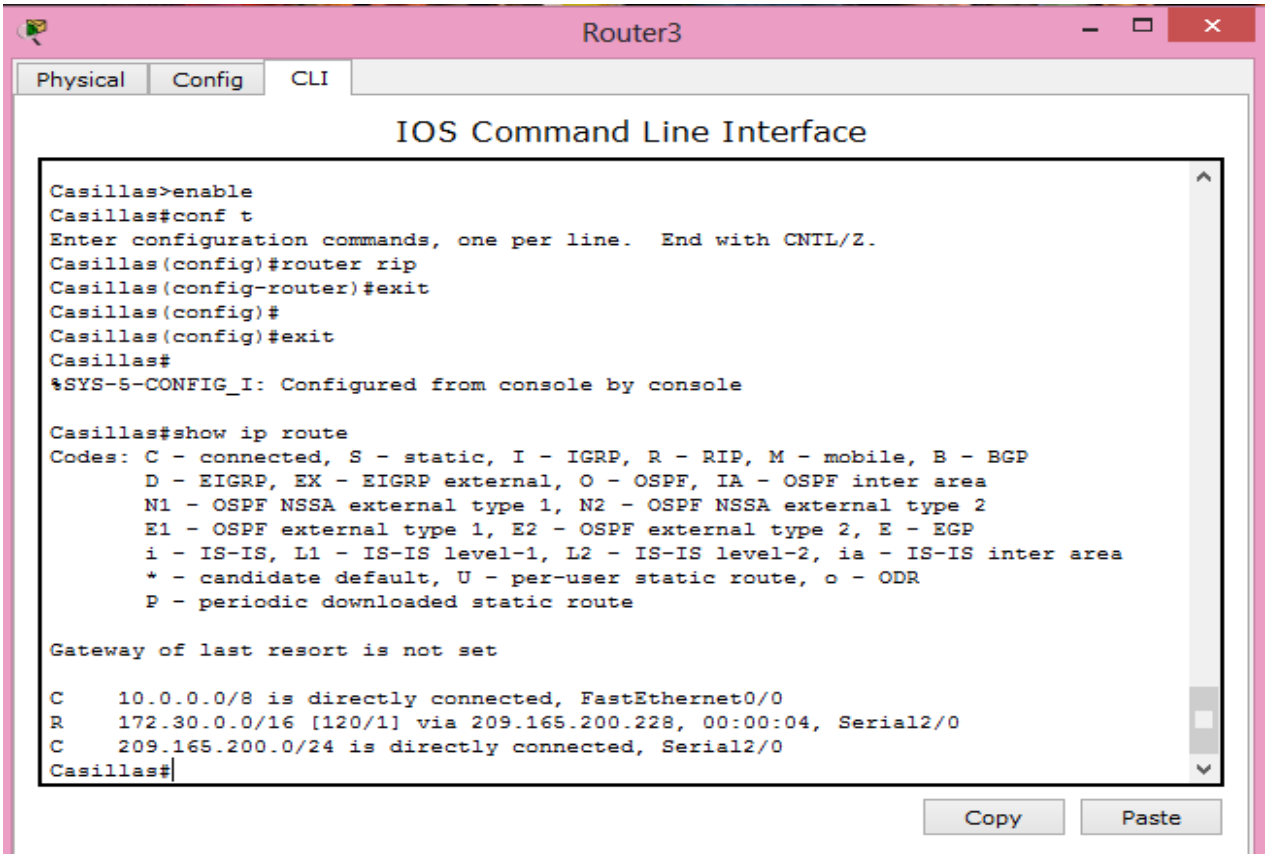
Para verificar que las superredes se envían y se reciben, utilice los siguientes comandos: show ip route y debug ip rip.

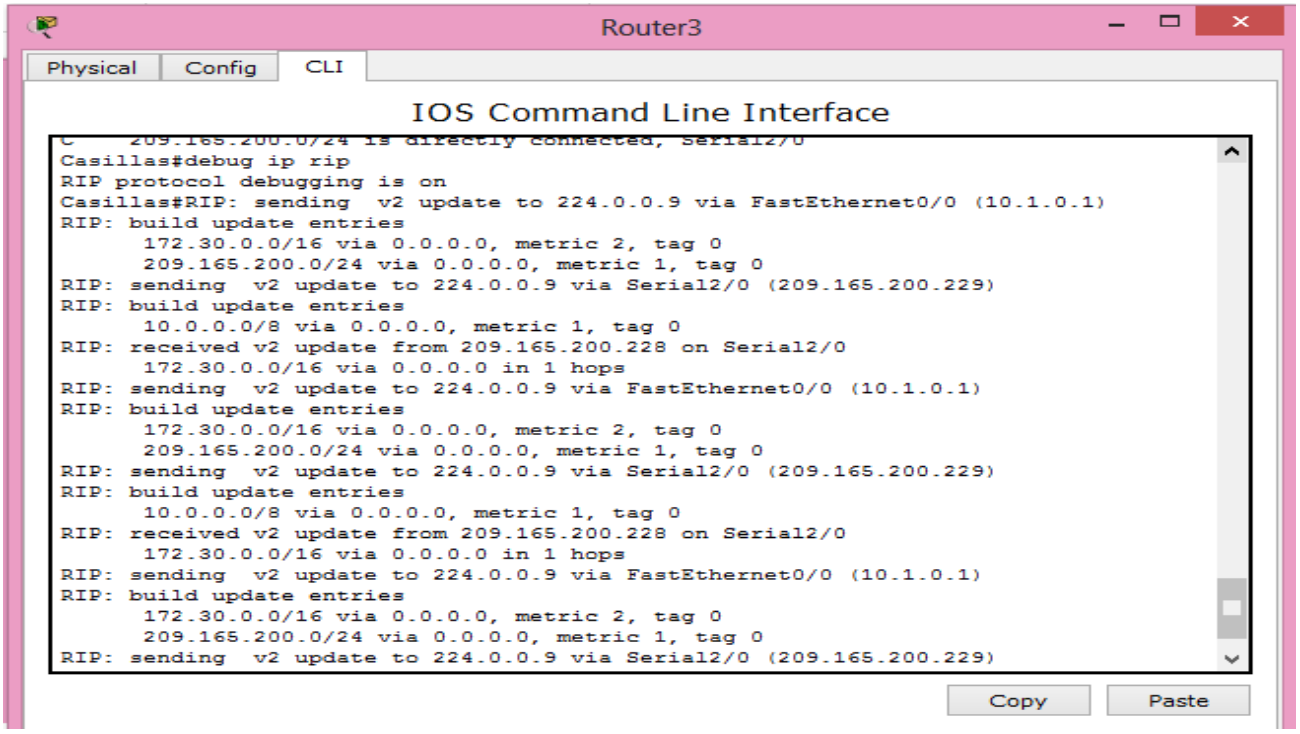
R1.




Router0
Physical
Config
CLI
IOS Command Line Interface
RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (172.30.1.1)
RIP: build update entries
10.0.0.0/8 via 0.0.0.0, metric 2, tag 0
209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.228)
RIP: build update entries
172.30.0.0/16 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.229 on Serial2/0
10.0.0.0/8 via 0.0.0.0 in 1 hops
RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (172.30.1.1)
RIP: build update entries
10.0.0.0/8 via 0.0.0.0, metric 2, tag 0
209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.228)
RIP: build update entries
172.30.0.0/16 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (172.30.1.1)
RIP: build update entries
10.0.0.0/8 via 0.0.0.0, metric 2, tag 0
209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.228)
RIP: build update entries
172.30.0.0/16 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.229 on Serial2/0
10.0.0.0/8 via 0.0.0.0 in 1 hops
Copy
Paste

R2.


Router3
Physical
Config
CLI
IOS Command Line Interface
Casillas>enable
Casillas#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Casillas(config)#router rip
Casillas(config-router)#exit
Casillas(config)#
Casillas(config)#exit
Casillas#
%SYS-5-CONFIG_I: Configured from console by console
Casillas#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
C 10.0.0.0/8 is directly connected, FastEthernet0/0
R 172.30.0.0/16 [120/1] via 209.165.200.228, 00:00:04, Serial2/0
C 209.165.200.0/24 is directly connected, Serial2/0
Casillas#
Copy
Paste


Router3
Physical
Config
CLI
IOS Command Line Interface
C 209.165.200.0/24 is directly connected, Serial2/0
Casillas#debug ip rip
RIP protocol debugging is on
Casillas#RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (10.1.0.1)
RIP: build update entries
172.30.0.0/16 via 0.0.0.0, metric 2, tag 0
209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.229)
RIP: build update entries
10.0.0.0/8 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.228 on Serial2/0
172.30.0.0/16 via 0.0.0.0 in 1 hops
RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (10.1.0.1)
RIP: build update entries
172.30.0.0/16 via 0.0.0.0, metric 2, tag 0
209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.229)
RIP: build update entries
10.0.0.0/8 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.228 on Serial2/0
172.30.0.0/16 via 0.0.0.0 in 1 hops
RIP: sending v2 update to 224.0.0.9 via FastEthernet0/0 (10.1.0.1)
RIP: build update entries
172.30.0.0/16 via 0.0.0.0, metric 2, tag 0
209.165.200.0/24 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial2/0 (209.165.200.229)
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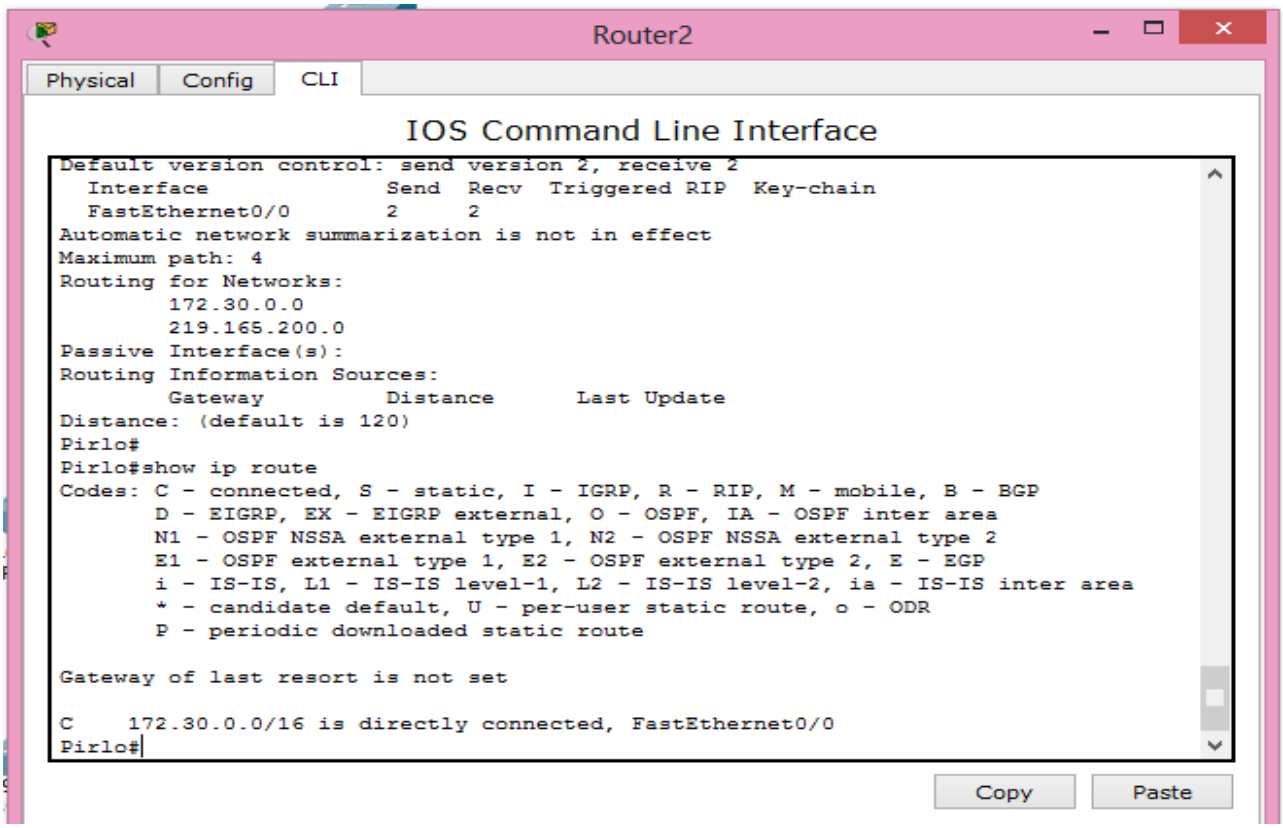
Paste

R3.


Router2
Physical
Config
CLI
IOS Command Line Interface
Default version control: send version 2, receive 2
Interface Send Recv Triggered RIP Key-chain
FastEthernet0/0 2 2
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
172.30.0.0
219.165.200.0
Passive Interface(s):
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 120)
Pirlo#
Pirlo#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 172.30.0.0/16 is directly connected, FastEthernet0/0
Pirlo#
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CONCLUSIÓN

En esta práctica seguimos desarrollando el protocolo rip, pero en este caso utilizamos 2 versiones del protocolo la versión 1 y la versión 2. Más que nada en la versión 1 no proporciona soporte para subredes contiguas, tampoco soporta VLSM, no envía mascara de subred durante las actualizaciones, además que las actualizaciones se realizan por medio de broadcast y que es de classful.

En la versión 2 las actualizaciones se hacen por medio de multicast, cuando se le da debug ip rip nos aparece la próxima dirección de salto, y cabe mencionar que es la mejora de la versión 1, en este caso la autentificación es opcional.

Por ultimo podemos deducir que dependiendo del tipo de redes que tengamos vamos a ocupar este protocolo y con la versión que queramos, ya que ambas utilizan temporizadores que evitan bucles de enrutamiento, de igual forma el uso de horizonte dividido con actualizaciones inversas, además de uso updates disparos y por ultimo decimos que no importando la versión toma como máximo salto de 15 y si esta se pasa se toma como destino inalcanzable.