

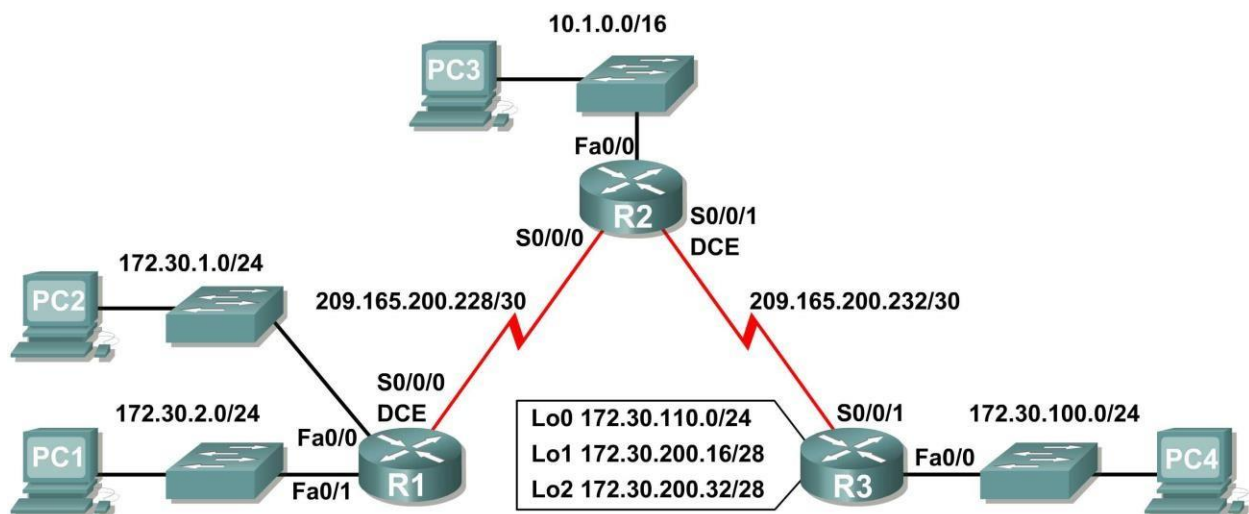
## Lab 7: RIPv2 Router Configuration

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**C-batch**

### Topology Diagram



### Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/0	172.30.1.1	255.255.255.0	N/A
	Fa0/1	172.30.2.1	255.255.255.0	N/A
	S0/0/0	209.165.200.230	255.255.255.252	N/A
R2	Fa0/0	10.1.0.1	255.255.0.0	N/A
	S0/0/0	209.165.200.229	255.255.255.252	N/A
	S0/0/1	209.165.200.233	255.255.255.252	N/A
R3	Fa0/0	172.30.100.1	255.255.255.0	N/A
	S0/0/1	209.165.200.234	255.255.255.252	N/A
	Lo0	172.30.110.1	255.255.255.0	N/A
	Lo1	172.30.200.17	255.255.255.240	N/A

	<b>Lo2</b>	172.30.200.33	255.255.255.240	N/A
<b>PC1</b>	<b>NIC</b>	172.30.2.10	255.255.255.0	172.30.2.1
<b>PC2</b>	<b>NIC</b>	172.30.1.10	255.255.255.0	172.30.1.1
<b>PC3</b>	<b>NIC</b>	10.1.0.10	255.255.0.0	10.1.0.1
<b>PC4</b>	<b>NIC</b>	172.30.100.10	255.255.255.0	172.30.100.1

## Learning Objectives

Upon completion of this lab, you will be able to:

- Cable a network according to the Topology Diagram.
- Load provided scripts onto the routers.
- Examine the current status of the network.
- Configure RIPv2 on all routers.
- Examine the automatic summarization of routes.
- Examine routing updates with `debug ip rip`.
- Disable automatic summarization.
- Examine the routing tables. • Verify network connectivity.
- Document the RIPv2 configuration.

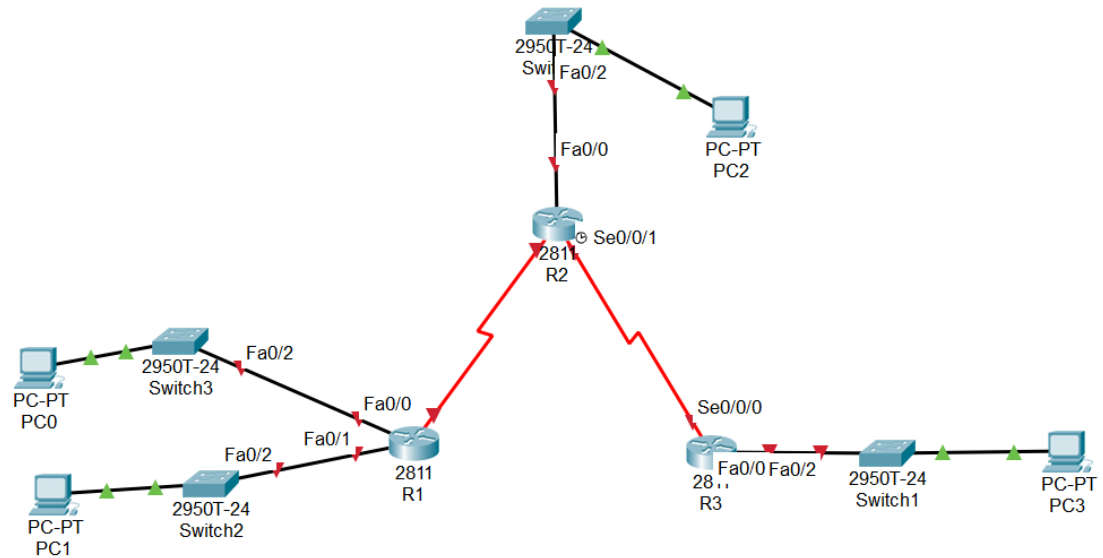
## Scenario

The network shown in the Topology Diagram contains a discontinuous network, 172.30.0.0. This network has been subnetted using VLSM. The 172.30.0.0 subnets are physically and logically divided by at least one other classful or major network, in this case the two serial networks 209.165.200.228/30 and 209.165.200.232/30. This can be an issue when the routing protocol used does not include enough information to distinguish the individual subnets. RIPv2 is a classless routing protocol that can be used to provide subnet mask information in the routing updates. This will allow VLSM subnet information to be propagated throughout the network.

## Task 1: Cable, Erase, and Reload the Routers.

### Step 1: Cable a network.

Cable a network that is similar to the one in the Topology Diagram.



## Step 2: Clear the configuration on each router.

Clear the configuration on each of routers using the **erase startup-config** command and then **reload** the routers. Answer **no** if asked to save changes. **R1**

```

Router1
Physical Config CLI Attributes
IOS Command Line Interface
R1#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
R1#reload
System configuration has been modified. Save? [yes/no]:yes
Building configuration...
[OK]
Proceed with reload? [confirm]
System Bootstrap, Version 12.3(8r)T8, RELEASE SOFTWARE (fc1)
Initializing memory for ECC
...
C1841 processor with 524288 Kbytes of main memory
Main memory is configured to 64 bit mode with ECC enabled

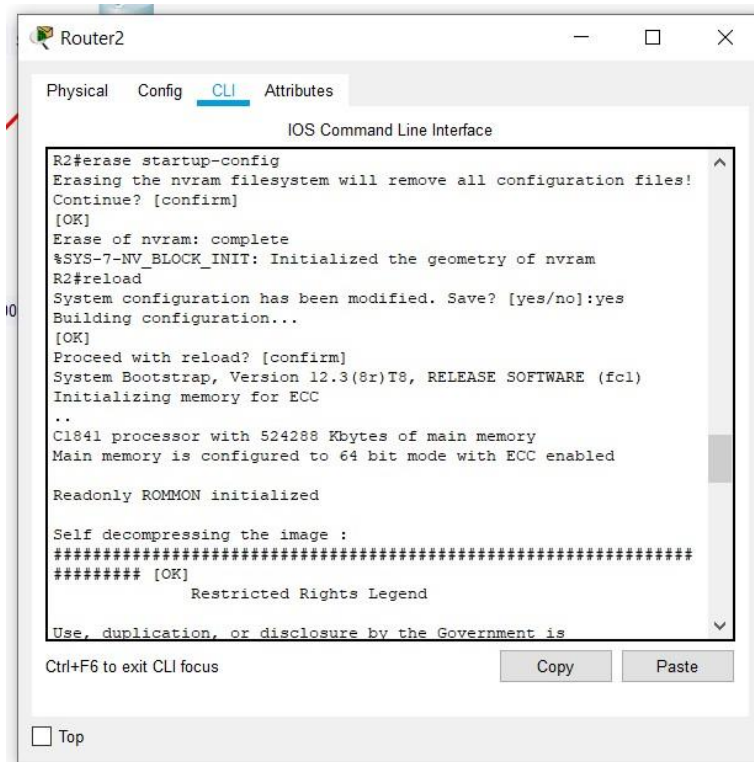
Readonly ROMMON initialized

Self decompressing the image :
#####
##### [OK]
Restricted Rights Legend

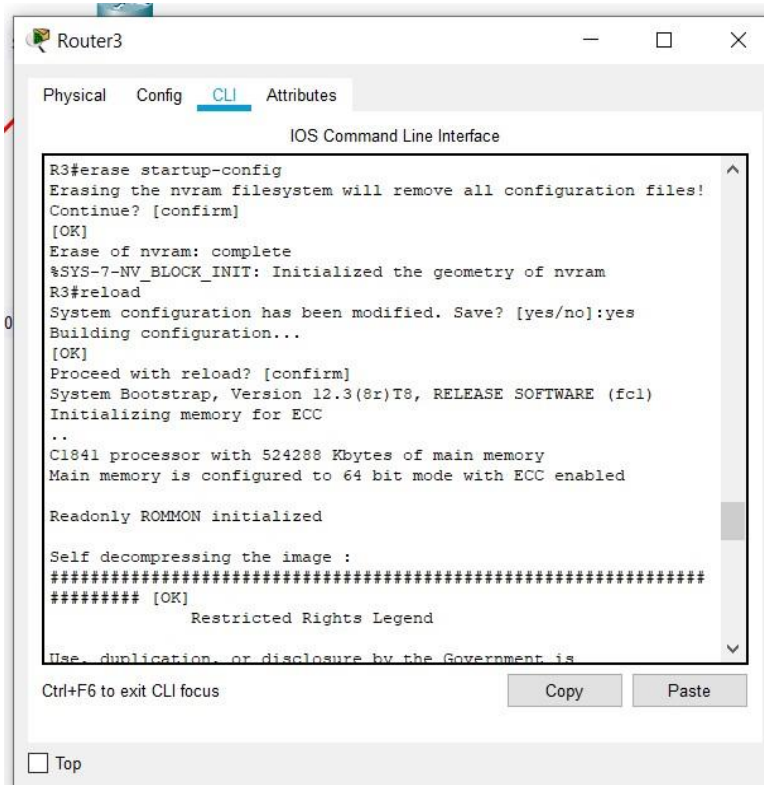
Use, duplication, or disclosure by the Government is

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**R2**



R3 9



## Task 2: Load Routers with the Supplied Scripts.

### Step 1: Load the following script onto R1.

```
!  
hostname R1  
!  
! ! interface FastEthernet0/0 ip  
address 172.30.1.1 255.255.255.0  
duplex auto speed auto no shutdown  
!  
interface FastEthernet0/1 ip  
address 172.30.2.1 255.255.255.0  
duplex auto speed auto no shutdown  
!  
interface Serial0/0/0  
ip address 209.165.200.230 255.255.255.252  
clock rate 64000 no shutdown  
!  
router rip  
passive-interface FastEthernet0/0  
passive-interface FastEthernet0/1  
network 172.30.0.0 network 209.165.200.0 !  
line con 0 line vty 0 4 login  
!  
End
```

## IOS Command Line Interface

```
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 172.30.1.1 255.255.0.0
Router(config-if)#ip address 172.30.1.1 255.255.0.0
Router(config-if)#ip address 172.30.1.1 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 172.30.2.1 255.255.255.0
Router(config-if)#ip address 172.30.2.1 255.255.255.0
Router(config-if)#ip address 172.30.2.1 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 209.165.200.230 255.255.255.0
Router(config-if)#ip address 209.165.200.230 255.255.255.0
Router(config-if)#ip address 209.165.200.230 255.255.255.252
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]c
Router#onoreload
System configuration has been modified. Save? [yes/no]:no
Proceed with reload? [confirm]c
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#hostname R1
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#
R1#
R1#
R1#
R1#interface FastEthernet0/0
^
% Invalid input detected at '^' marker.

R1#iniconfig tere
R1#config ter
R1#config terminal
Enter configuration commands, one per line. Endinterface
FastEthernet0/0interface FastEthernet0/0
```

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Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
R1#config terminal
Enter configuration commands, one per line. Endinterface
FastEthernet0/0interface FastEthernet0/0
R1(config-if)#duplex auto
R1(config-if)#speed auto
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface FastEthernet0/1
R1(duplex autodinterface Fastnspeed autointerface Fastno
shutdownninterface FastEtherneexitexit
nspeed autospsinterface Serial0/0/0
R1(config-if)#clock rate 64000
R1(config-if)#no shutdown
R1(config-if)#!
R1(config-if)#exit
R1(config)#!lilrouter rip
R1(config-router)#passive-interface FastEthernet0/0
R1(config-router)# passive-interface FastEthernet0/^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
R1#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Rrouterpassive-interface FastEthernet0/0passive-interface
FastEthernet0/0
R1(config-router)#passive-interface FastEthernet0/1
R1(config-router)#network 172.30.0.0
R1(config-router)#network 209.165.200.0
R1(config-router)#exit
R1(config)#line con 0
R1(config-line)#line vty 0 4
R1(config-line)#login
% Login disabled on line 194, until 'password' is set
% Login disabled on line 195, until 'password' is set
% Login disabled on line 196, until 'password' is set
% Login disabled on line 197, until 'password' is set
% Login disabled on line 198, until 'password' is set
R1(config-line)#password cisco
R1(config-lloginlogin
R1(config-line)#end
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface FastEthernet0/0
R1(config-if)#
R1(config-if)#exit
R1(config)#interface FastEthernet0/1
R1(config-if)#
R1(config-if)#exit
R1(config)#interface Serial0/0/0
R1(config-if)#
```

Ctrl+F6 to exit CLI focus

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**Step 2: Load the following script onto R2.**

```
hostname
R2
```

```
!  
! ! interface FastEthernet0/0  
ip address 10.1.0.1 255.255.0.0  
duplex auto speed auto no  
shutdown !  
interface Serial0/0/0 ip address  
209.165.200.229 255.255.255.252 no  
shutdown !  
interface Serial0/0/1 ip address  
209.165.200.233 255.255.255.252 clock rate  
64000 no shutdown  
!  
router rip  
  passive-interface FastEthernet0/0  
network 10.0.0.0 network  
209.165.200.0 !  
line con 0 line  
vty 0 4 login  
! end
```



Router2

Physical Config CLI Attributes

IOS Command Line Interface

Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#hostname R2  
R2(config)#!  
R2(config)#!  
R2(config)#!  
R2(config)#interface FastEthernet0/0  
R2(config-if)# ip address 10.1.0.1 255.255.0.0  
R2(config-if)# duplex auto  
R2(config-if)# speed auto  
R2(config-if)# no shutdown  
  
R2(config-if)#!  
R2(config-if)#interface Serial0/0/0  
R2(config-if)# ip address 209.165.200.229 255.255.255.252  
R2(config-if)# no shutdown  
  
R2(config-if)#!  
R2(config-if)#interface Serial0/0/1  
R2(config-if)# ip address 209.165.200.233 255.255.255.252  
R2(config-if)# clock rate 64000  
R2(config-if)# no shutdown  
  
R2(config-if)#!  
R2(config-if)#router rip  
R2(config-router)# passive-interface FastEthernet0/0  
R2(config-router)# network 10.0.0.0  
R2(config-router)# network 209.165.200.0  
R2(config-router)#!  
R2(config-router)#line con 0  
R2(config-line)#line vty 0 4  
R2(config-line)# login  
% Login disabled on line 194, until 'password' is set  
% Login disabled on line 195, until 'password' is set  
% Login disabled on line 196, until 'password' is set  
% Login disabled on line 197, until 'password' is set  
% Login disabled on line 198, until 'password' is set  
R2(config-line)#!  
R2(config-line)#end  
R2#  
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,  
changed state to up  
  
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up  
  
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up  
  
%SYS-5-CONFIG\_I: Configured from console by console  
  
R2#  
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0,  
changed state to up

Ctrl+F6 to exit CLI focus

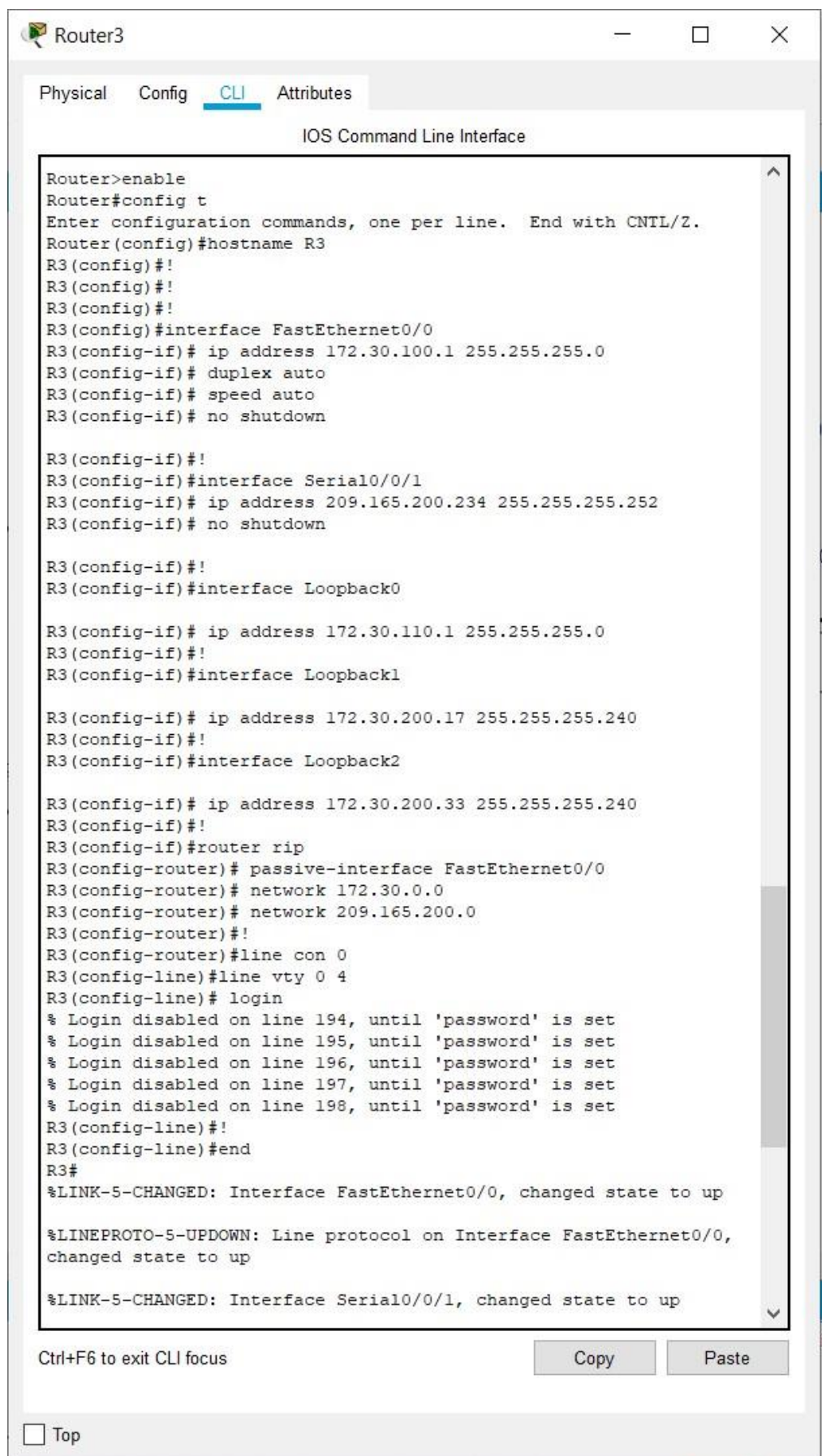
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**Step 3: Load the following script onto R3.**

```
hostname  
R3
```

```
!  
! ! interface FastEthernet0/0 ip  
address 172.30.100.1 255.255.255.0  
duplex auto speed auto no shutdown !  
interface Serial0/0/1 ip address  
209.165.200.234 255.255.255.252 no  
shutdown !  
interface Loopback0 ip address  
172.30.110.1 255.255.255.0 !  
interface Loopback1 ip address  
172.30.200.17 255.255.255.240 !  
interface Loopback2 ip address  
172.30.200.33 255.255.255.240 !  
router rip  
  passive-interface FastEthernet0/0  
network 172.30.0.0 network  
209.165.200.0 !  
line con 0 line  
vty 0 4 login  
! end
```

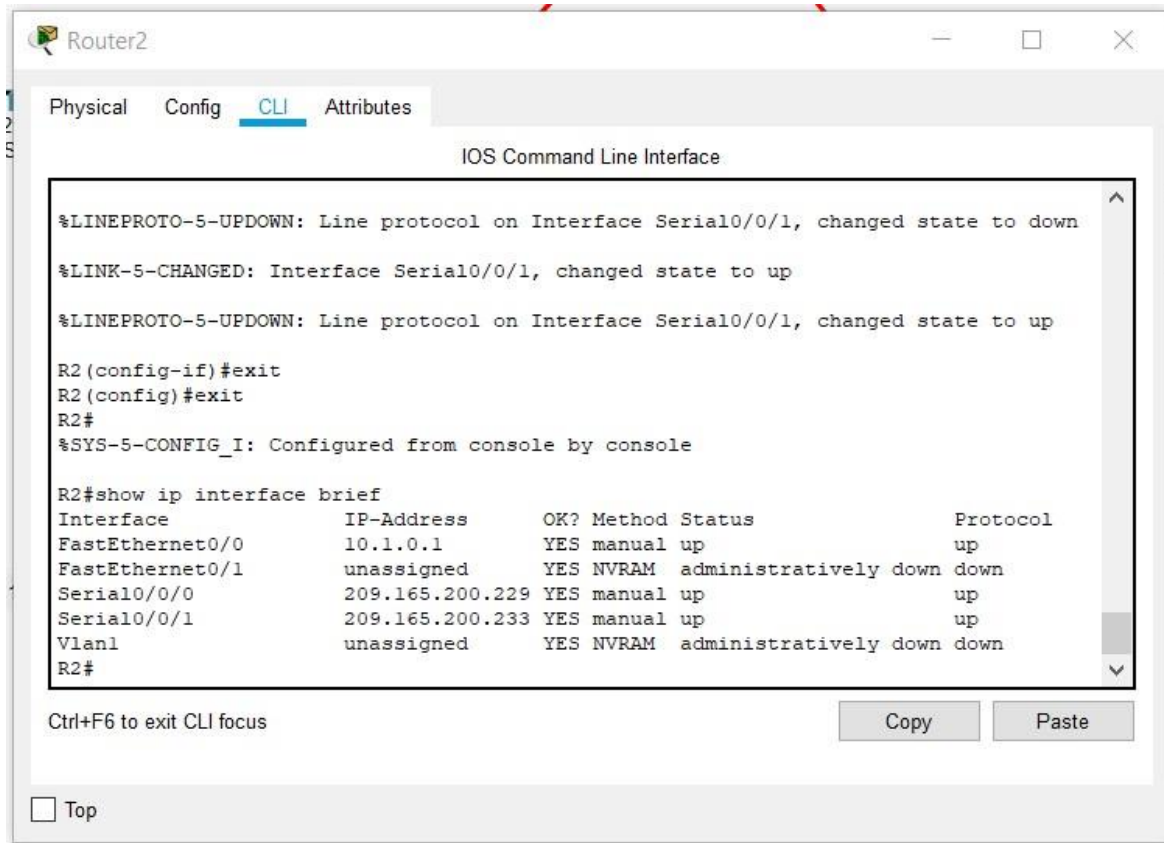


### Task 3: Examine the Current Status of the Network.

Step 1: Verify that both serial links are up.

The two serial links can quickly be verified using the `show ip interface brief` command on R2.

```
R2#show ip interface brief
```



## Step 2: Check the connectivity from R2 to the hosts on the R1 and R3 LANs.

Note: For the 1841 router, you will need to disable IP CEF to obtain the correct output from the `ping` command. Although a discussion of IP CEF is beyond the scope of this course, you may disable IP CEF by using the following command in global configuration mode:

```
R2(config)#no ip cef
```

```
R2#
R2#
R2#
R2#
R2#
R2#
R2#ping 172.30.1.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.30.1.10, timeout is 2 seconds:
!U!..!
Success rate is 60 percent (3/5), round-trip min/avg/max = 1/9/16 ms

R2#ping 172.30.100.10

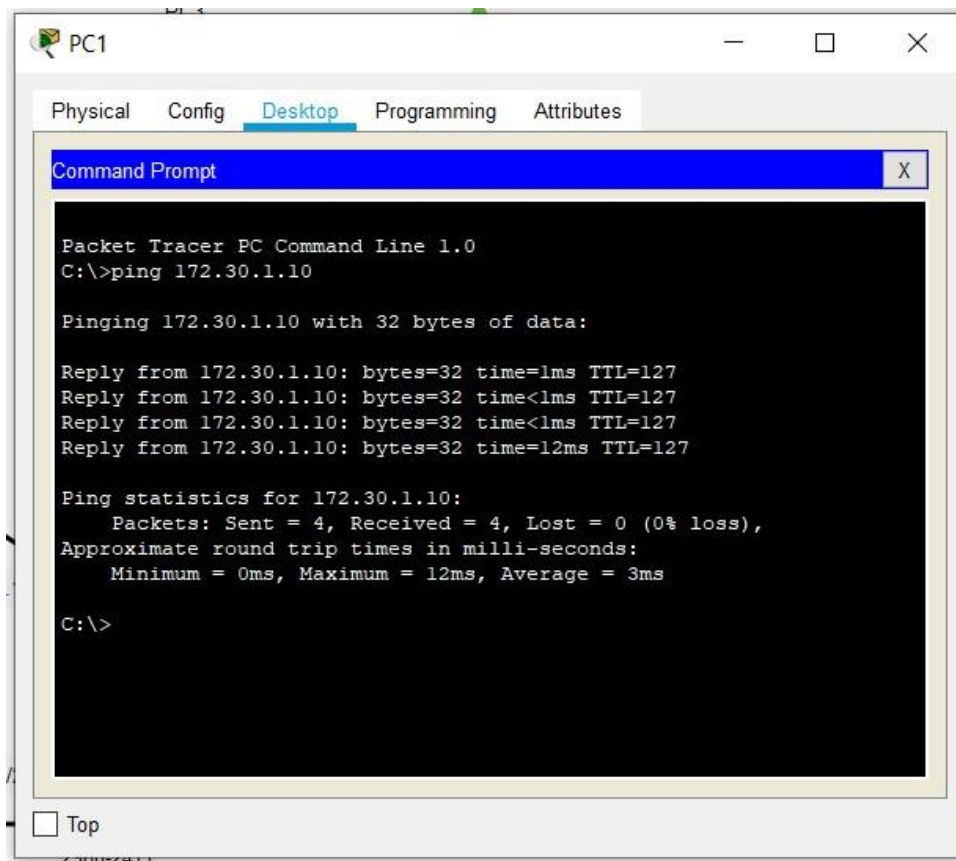
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.30.100.10, timeout is 2 seconds:
.U!..!
Success rate is 40 percent (2/5), round-trip min/avg/max = 1/1/1 ms

R2#
```

From the R2 router, how many ICMP messages are successful when pinging PC1? **3/5**

From the R2 router, how many ICMP messages are successful when pinging PC4? **2/5**

### Step 3: Check the connectivity between the PCs.



```
PC1
Physical Config Desktop Programming Attributes
Command Prompt X

Packet Tracer PC Command Line 1.0
C:\>ping 172.30.1.10

Pinging 172.30.1.10 with 32 bytes of data:

Reply from 172.30.1.10: bytes=32 time=1ms TTL=127
Reply from 172.30.1.10: bytes=32 time<1ms TTL=127
Reply from 172.30.1.10: bytes=32 time<1ms TTL=127
Reply from 172.30.1.10: bytes=32 time=12ms TTL=127

Ping statistics for 172.30.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>
```

From the PC1, is it possible to ping PC2? **YES**

What is the success rate? **100%**

The screenshot shows a window titled 'PC1' with tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the results of a ping command to 172.30.1.10, which was successful with 0% loss. Then, a ping command to 10.1.0.10 was executed, resulting in a 50% loss rate (2 out of 4 packets received). The window also includes a 'Top' button at the bottom left.

```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Reply from 172.30.1.10: bytes=32 time<1ms TTL=127
Reply from 172.30.1.10: bytes=32 time=12ms TTL=127

Ping statistics for 172.30.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>ping 10.1.0.10

Pinging 10.1.0.10 with 32 bytes of data:

Request timed out.
Reply from 10.1.0.10: bytes=32 time=14ms TTL=126
Request timed out.
Reply from 10.1.0.10: bytes=32 time=30ms TTL=126

Ping statistics for 10.1.0.10:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 14ms, Maximum = 30ms, Average = 22ms

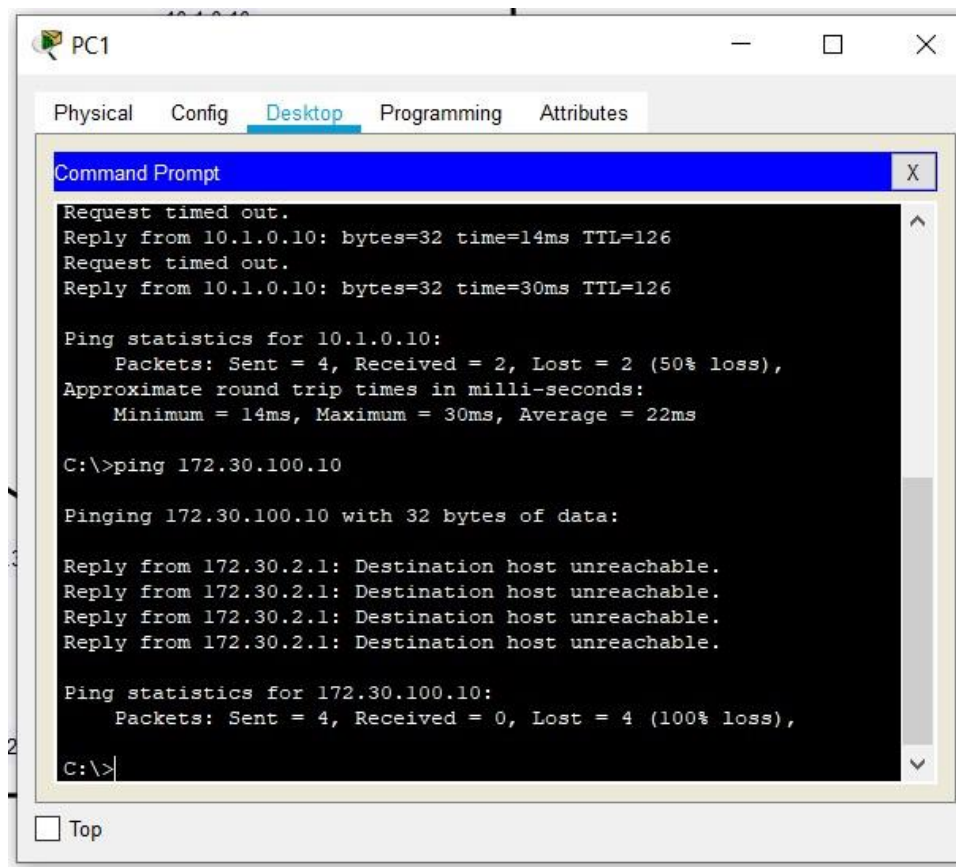
C:\>
```

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From the PC1, is it possible to ping PC3? YES

What is the success rate? 50%





The screenshot shows a window titled "PC1" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The Command Prompt shows the results of a ping command to 10.1.0.10, which was successful with a 50% success rate. It then shows the results of a ping command to 172.30.100.10, which failed with a 100% loss rate.

```
Request timed out.  
Reply from 10.1.0.10: bytes=32 time=14ms TTL=126  
Request timed out.  
Reply from 10.1.0.10: bytes=32 time=30ms TTL=126  
  
Ping statistics for 10.1.0.10:  
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 14ms, Maximum = 30ms, Average = 22ms  
  
C:\>ping 172.30.100.10  
  
Pinging 172.30.100.10 with 32 bytes of data:  
  
Reply from 172.30.2.1: Destination host unreachable.  
Reply from 172.30.2.1: Destination host unreachable.  
Reply from 172.30.2.1: Destination host unreachable.  
Reply from 172.30.2.1: Destination host unreachable.  
  
Ping statistics for 172.30.100.10:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
  
C:\>
```

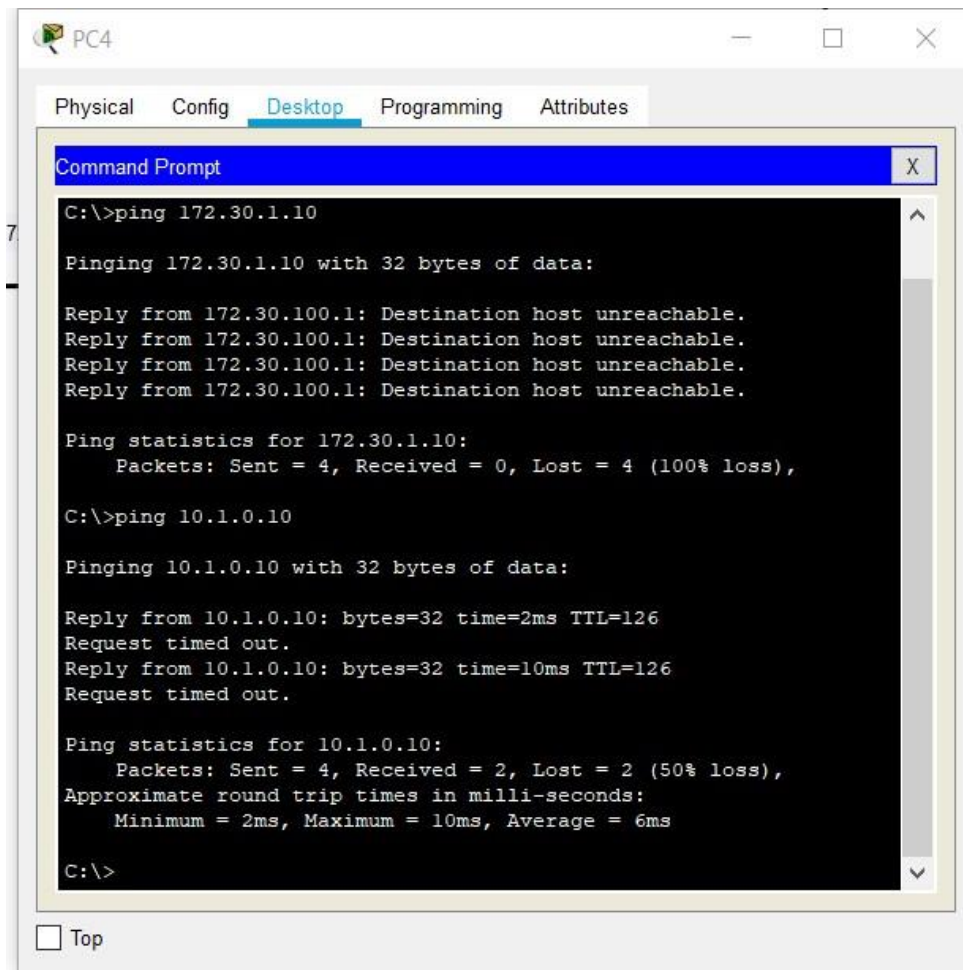
From the PC1, is it possible to ping PC4? NO

What is the success rate? 0%

From the PC4, is it possible to ping PC2? NO

What is the success rate? 0%





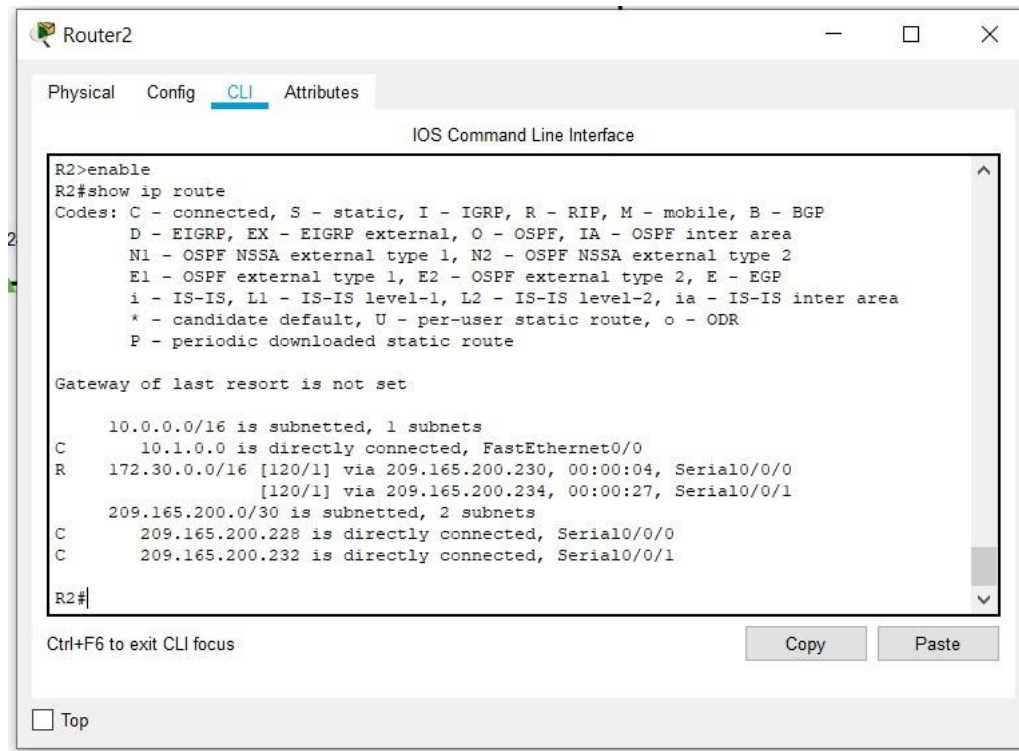
From the PC4, is it possible to ping PC3? YES

What is the success rate? 50%

#### Step 4: View the routing table on R2.

Both the R1 and R3 are advertising routes to the 172.30.0.0/16 network; therefore, there are two entries for this network in the R2 routing table. The R2 routing table only shows the major classful network address of 172.30.0.0—it does not show any of the subnets for this network that are used on the LANs attached to R1 and R3. Because the routing metric is the same for both entries, the router alternates the routes that are used when forwarding packets that are destined for the 172.30.0.0/16 network.

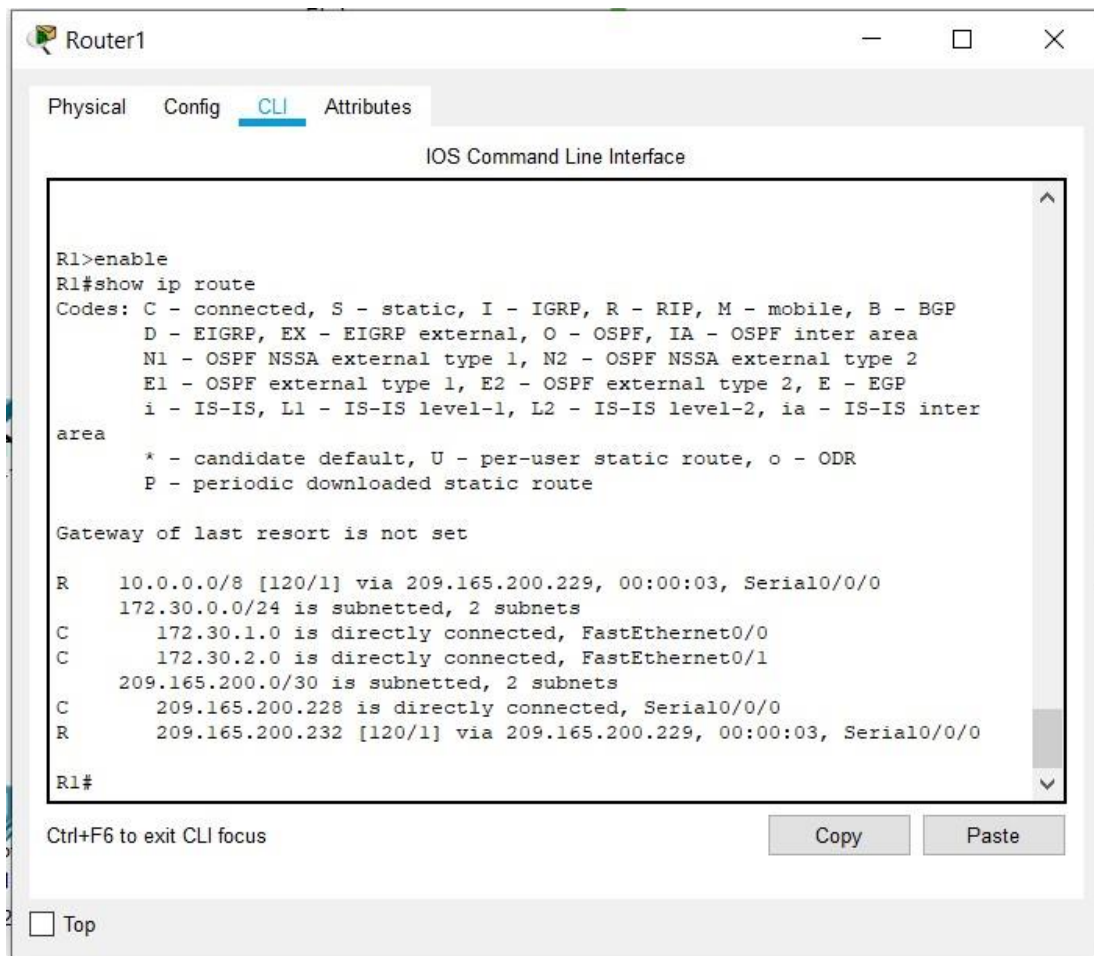
```
R2#show ip route
```



#### Step 5: Examine the routing table on the R1 router.

Both R1 and R3 are configured with interfaces on a discontinuous network, 172.30.0.0. The 172.30.0.0 subnets are physically and logically divided by at least one other classful or major network—in this case, the two serial networks 209.165.200.228/30 and 209.165.200.232/30. Classful routing protocols like RIPv1 summarize networks at major network boundaries. Both R1 and R3 will be summarizing 172.30.0.0/24 subnets to 172.30.0.0/16. Because the route to 172.30.0.0/16 is directly connected, and because R1 does not have any specific routes for the 172.30.0.0 subnets on R3, packets destined for the R3 LANs will not be forwarded properly.

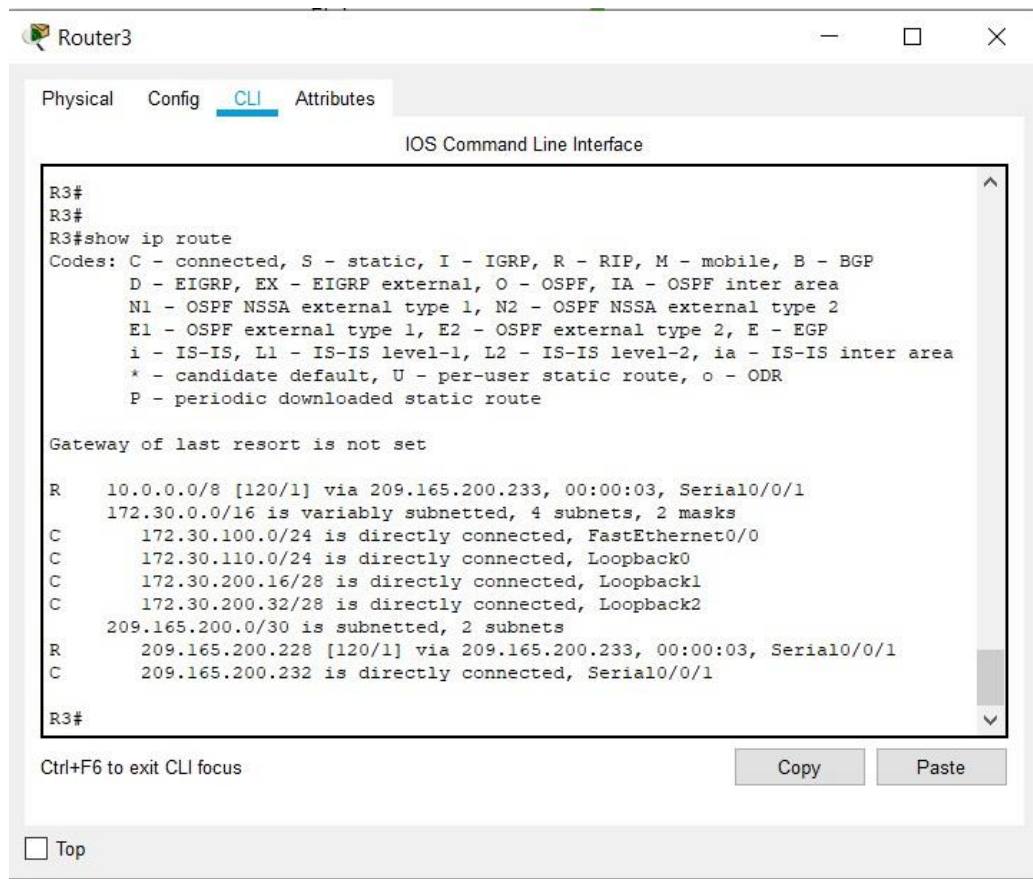
```
R1#show ip route
```



#### Step 6: Examine the routing table on the R3 router.

R3 only shows its own subnets for 172.30.0.0 network: 172.30.100/24, 172.30.110/24, 172.30.200.16/28, and 172.30.200.32/28. R3 does not have any routes for the 172.30.0.0 subnets on R1.

R3#**show ip route**



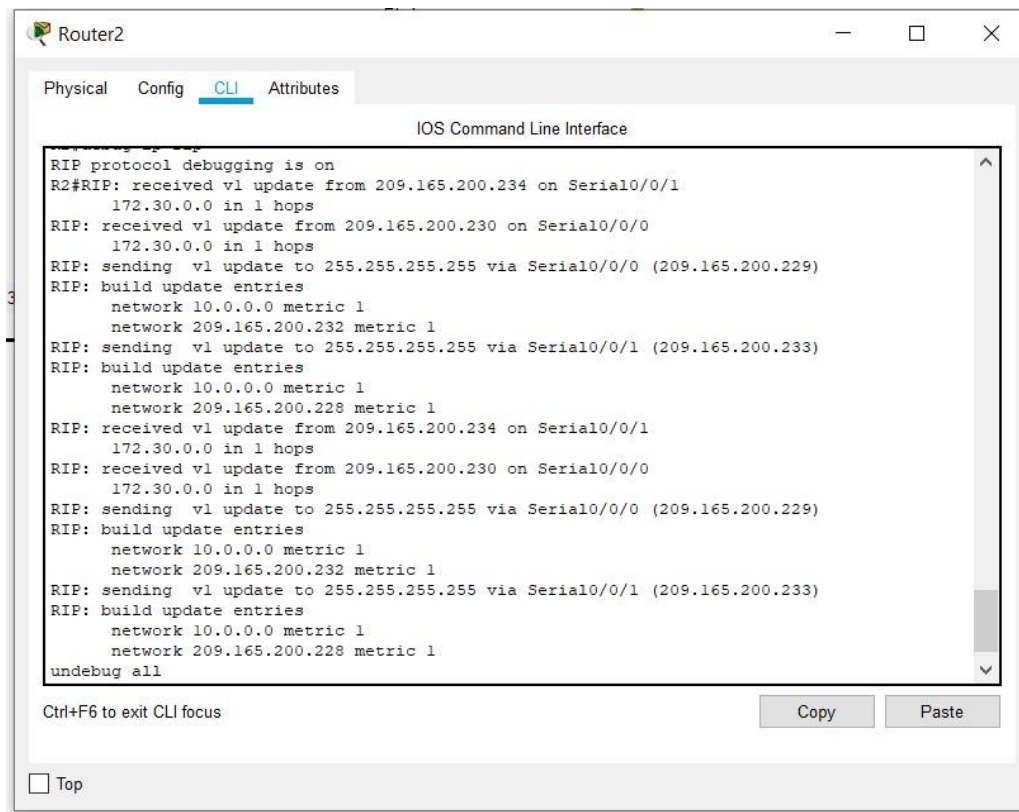
### Step 7: Examine the RIPv1 packets that are being received by R2.

Use the `debug ip rip` command to display RIP routing updates.

R2 is receiving the route 172.30.0.0, with 1 hop, from both R1 and R3. Because these are equal cost metrics, both routes are added to the R2 routing table. Because RIPv1 is a classful routing protocol, no subnet mask information is sent in the update.

R2#`debug ip rip`

R2 is sending only the routes for the 10.0.0.0 LAN and the two serial connections to R1 and R3. R1 and R3 are not receiving any information about the 172.30.0.0 subnet routes.



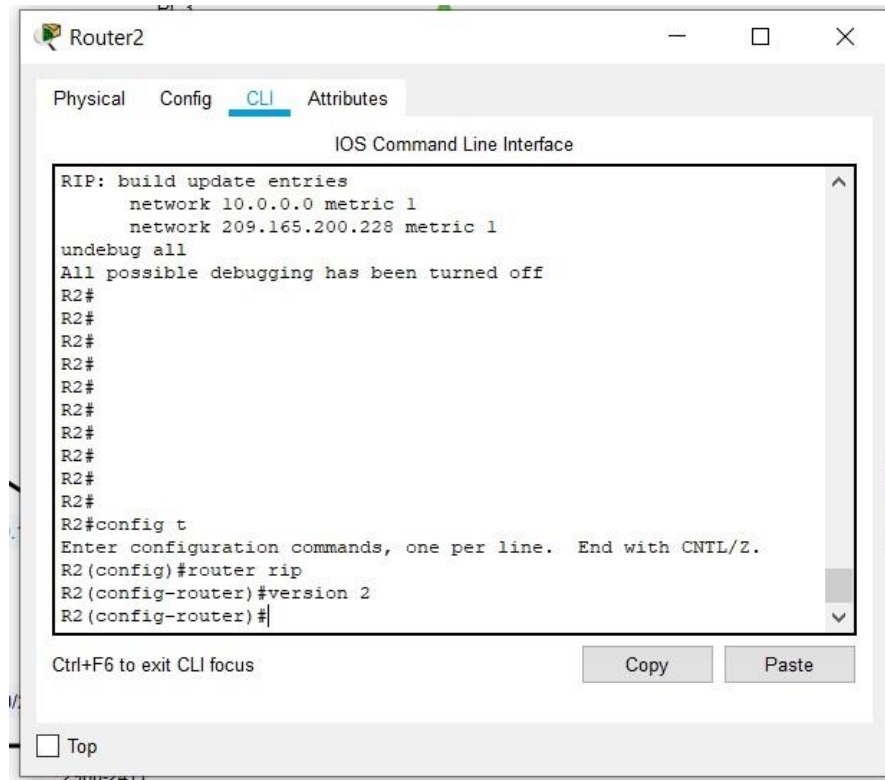
When you are finished, turn off the debugging.

R2#**undebug all**

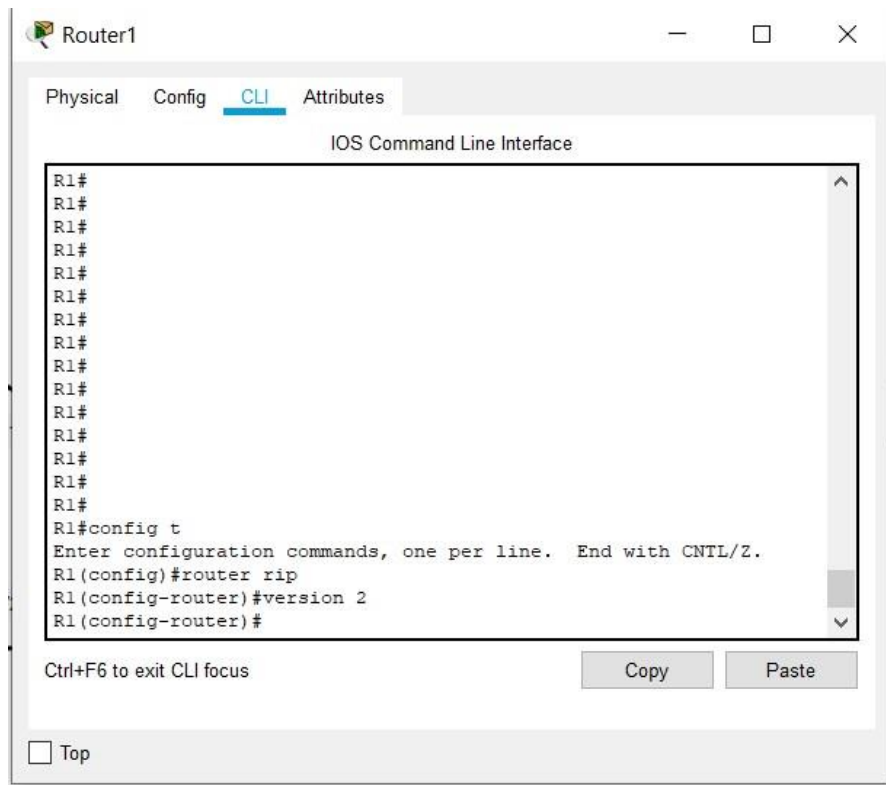
## Task 4: Configure RIP Version 2.

**Step 1: Use the `version 2` command to enable RIP version 2 on each of the routers.**

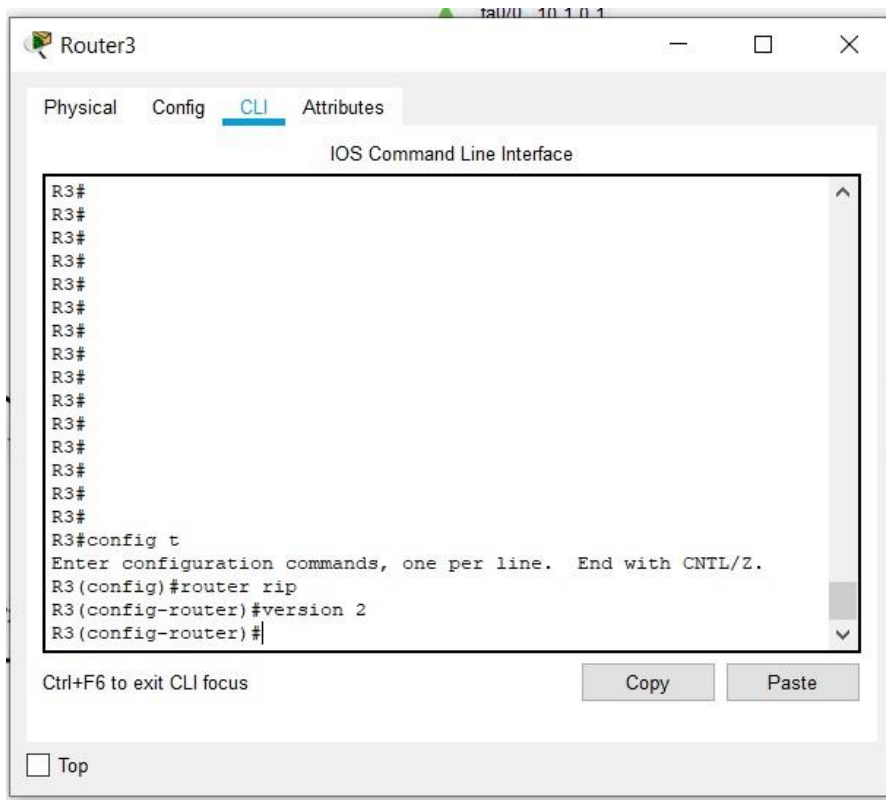
```
R2(config)#router rip  
R2(config-router)#version 2
```



```
R1(config)#router rip  
R1(config-router)#version 2
```



R3(config)#**router rip** R3(config-  
router)#**version 2**



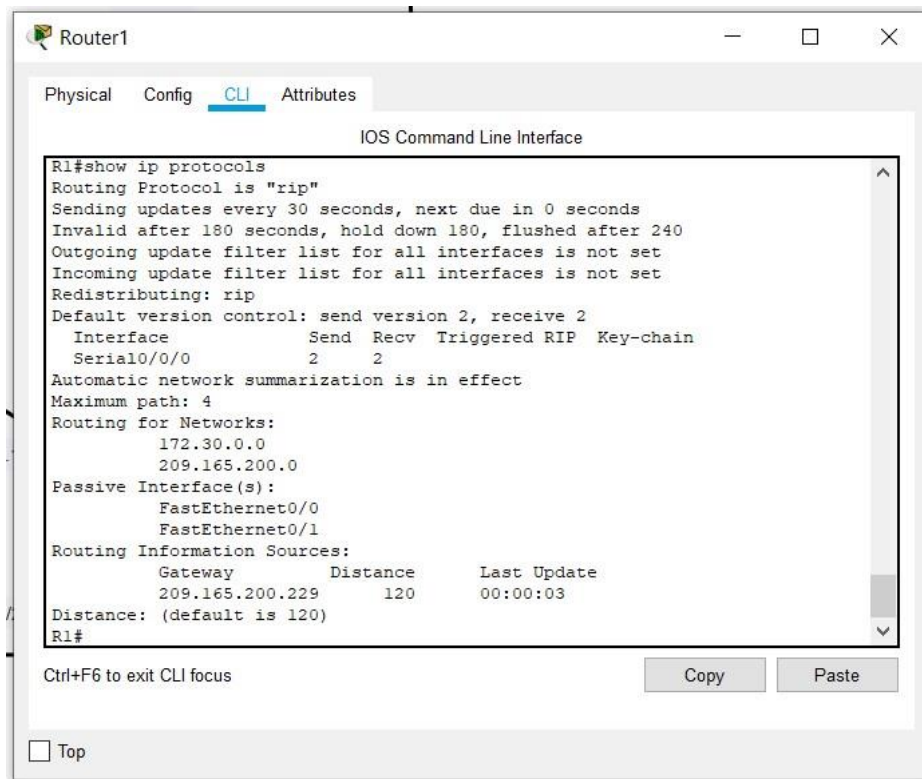
RIPv2 messages include the subnet mask in a field in the routing updates. This allows subnets and their masks to be included in the routing updates. However, by default RIPv2 summarizes networks at major network boundaries, just like RIPv1, except that the subnet mask is included in the update.



## Step 2: Verify that RIPv2 is running on the routers.

The `debug ip rip`, `show ip protocols`, and `show run` commands can all be used to confirm that RIPv2 is running. The output of the `show ip protocols` command for R1 is shown below.

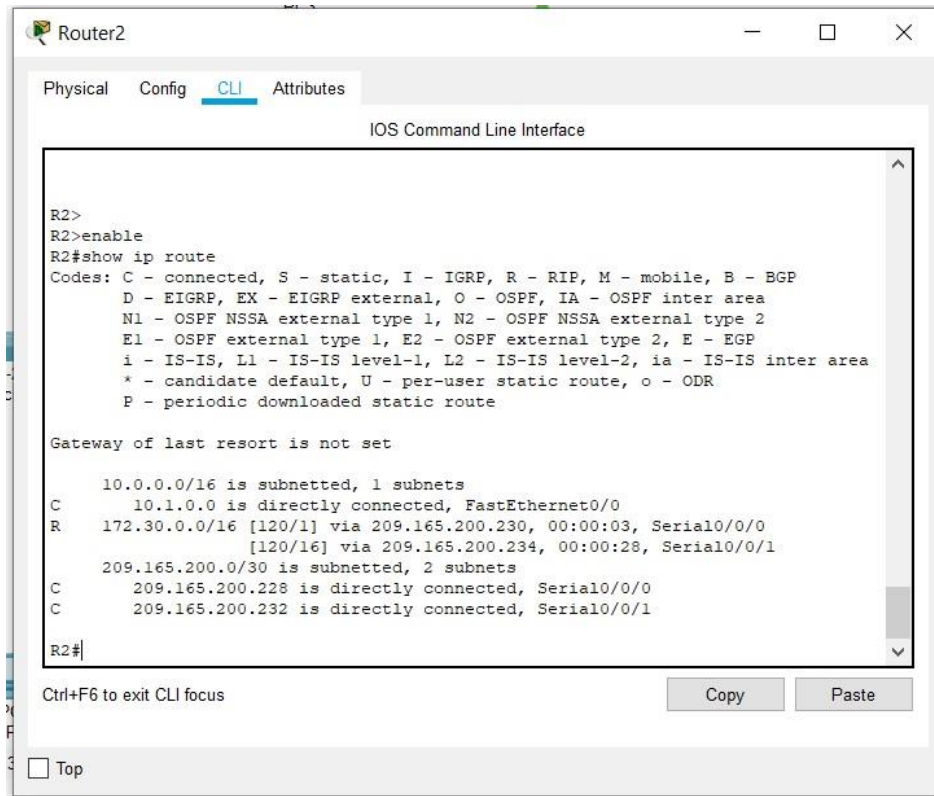
R1# `show ip protocols`



### Task 5: Examine the Automatic Summarization of Routes.

The LANs connected to R1 and R3 are still composed of discontinuous networks. R2 still shows two equal cost paths to the 172.30.0.0/16 network in the routing table. R2 still shows only the major classful network address of 172.30.0.0 and does not show any of the subnets for this network.

R2#**show ip route**



R1 still shows only its own subnets for the 172.30.0.0 network. R1 still does not have any routes for the 172.30.0.0 subnets on R3.

R1#**show ip route**

```
Router1
Physical Config CLI Attributes
IOS Command Line Interface
R1#show ip routes
^
% Invalid input detected at '^' marker.
R1#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

R    10.0.0.0/8 [120/1] via 209.165.200.229, 00:00:07, Serial0/0/0
     172.30.0.0/24 is subnetted, 2 subnets
C     172.30.1.0 is directly connected, FastEthernet0/0
C     172.30.2.0 is directly connected, FastEthernet0/1
     209.165.200.0/30 is subnetted, 2 subnets
C     209.165.200.228 is directly connected, Serial0/0/0
R     209.165.200.232 [120/1] via 209.165.200.229, 00:00:07, Serial0/0/0
R1#
```

R3 still only shows its own subnets for the 172.30.0.0 network. R3 still does not have any routes for the 172.30.0.0 subnets on R1.

R3#**show ip route**

```
Router3
Physical Config CLI Attributes
IOS Command Line Interface
R3>
R3>ena
R3#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

R    10.0.0.0/8 [120/1] via 209.165.200.233, 00:00:07, Serial0/0/1
     172.30.0.0/16 is variably subnetted, 4 subnets, 2 masks
C     172.30.100.0/24 is directly connected, FastEthernet0/0
C     172.30.110.0/24 is directly connected, Loopback0
C     172.30.200.16/28 is directly connected, Loopback1
C     172.30.200.32/28 is directly connected, Loopback2
     209.165.200.0/30 is subnetted, 2 subnets
R     209.165.200.228 [120/1] via 209.165.200.233, 00:00:07, Serial0/0/1
C     209.165.200.232 is directly connected, Serial0/0/1
R3#
```

Use the output of the **debug ip rip** command to answer the following questions:

RIP: sending v2 update to 224.0.0.9 via Loopback0 (172.30.110.1)

RIP: build update entries

10.0.0.0/8 via 0.0.0.0, metric 2, tag 0

172.30.100.0/24 via 0.0.0.0, metric 1, tag 0

172.30.200.16/28 via 0.0.0.0, metric 1, tag 0

172.30.200.32/28 via 0.0.0.0, metric 1, tag 0

209.165.200.0/24 via 0.0.0.0, metric 1, tag 0

What entries are included in the RIP updates sent out from R3?

10.0.0.0/8

172.30.100.0/24

172.30.110.0/24

172.30.200.16/28

209.165.200.0/24

On R2, what routes are in the RIP updates that are received from R3?

RIP: received v2 update from 209.165.200.234 on Serial0/0/1

172.30.0.0/16 via 0.0.0.0 in 1 hops

RIP: received v2 update from 209.165.200.230 on Serial0/0/0

172.30.0.0/16 via 0.0.0.0 in 1 hops

RIP: sending v2 update to 224.0.0.9 via Serial0/0/0 (209.165.200.229)

RIP: build update entries

10.0.0.0/8 via 0.0.0.0, metric 1, tag 0

209.165.200.232/30 via 0.0.0.0, metric 1, tag 0

RIP: sending v2 update to 224.0.0.9 via Serial0/0/1 (209.165.200.233)

RIP: build update entries

10.0.0.0/8 via 0.0.0.0, metric 1, tag 0

209.165.200.228/30 via 0.0.0.0, metric 1, tag 0

172.30.0.0/16

R3 is not sending any of the 172.30.0.0 subnets—only the summarized route of 172.30.0.0/16, including the subnet mask. This is why R2 and R1 are not seeing the 172.30.0.0 subnets on R3.

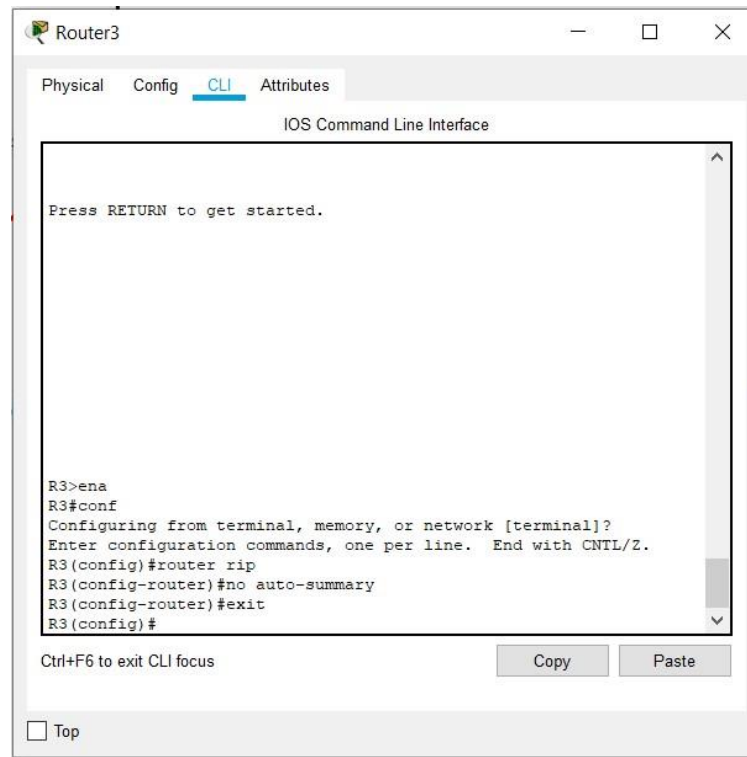
## Task 6: Disable Automatic Summarization.

The **no auto-summary** command is used to turn off automatic summarization in RIPv2. Disable auto summarization on all routers. The routers will no longer summarize routes at major network boundaries.

```
R2 (config) #router rip
```

```
R2 (config-router) #no auto-summary
```



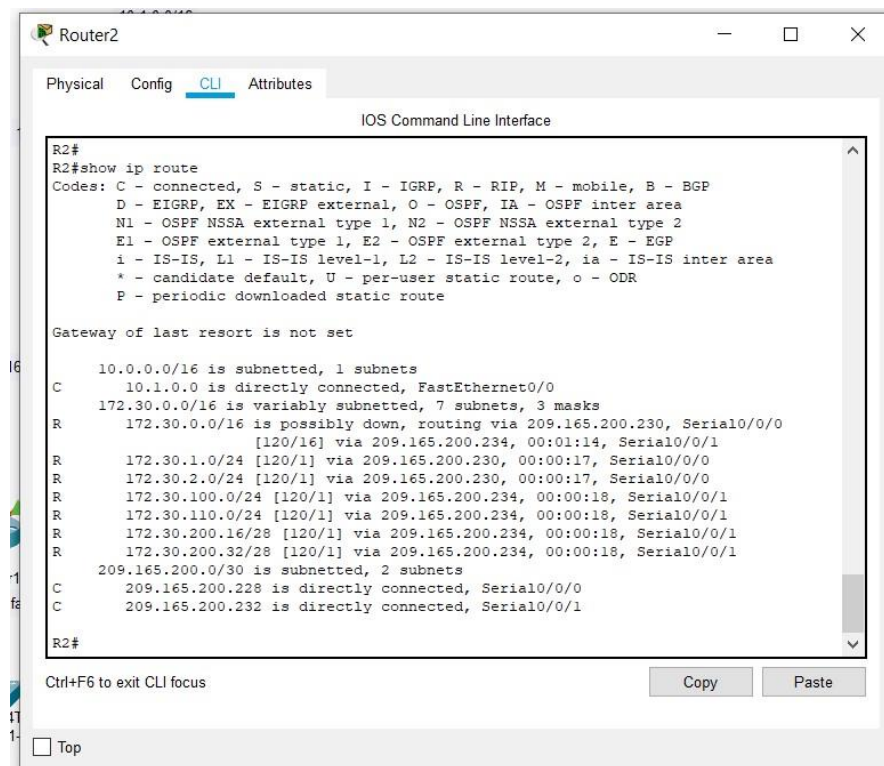


The **show ip route** and **ping** commands can be used to verify that automatic summarization is off.

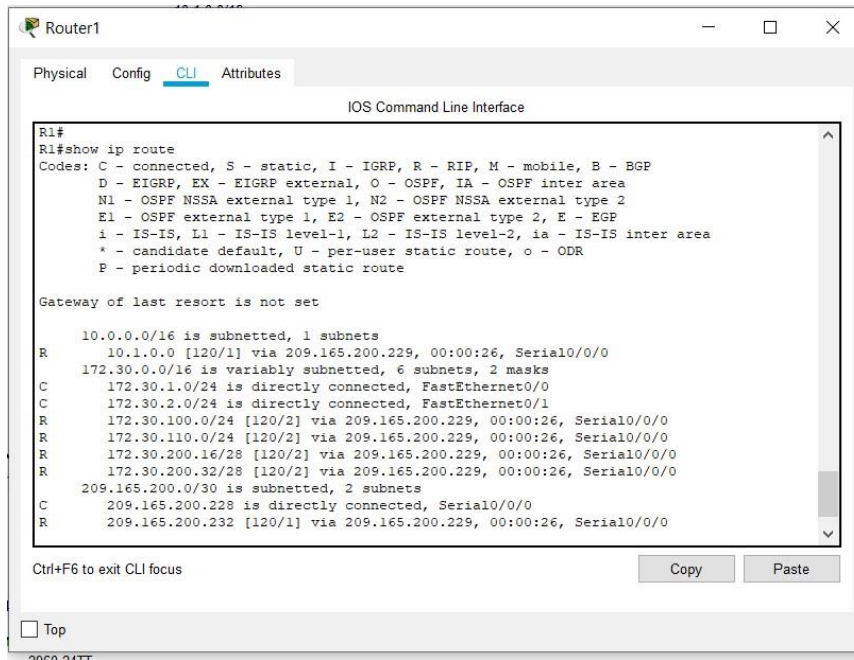
## Task 7: Examine the Routing Tables.

The LANs connected to R1 and R3 should now be included in all three routing tables.

R2#**show ip route**



R1#show ip route



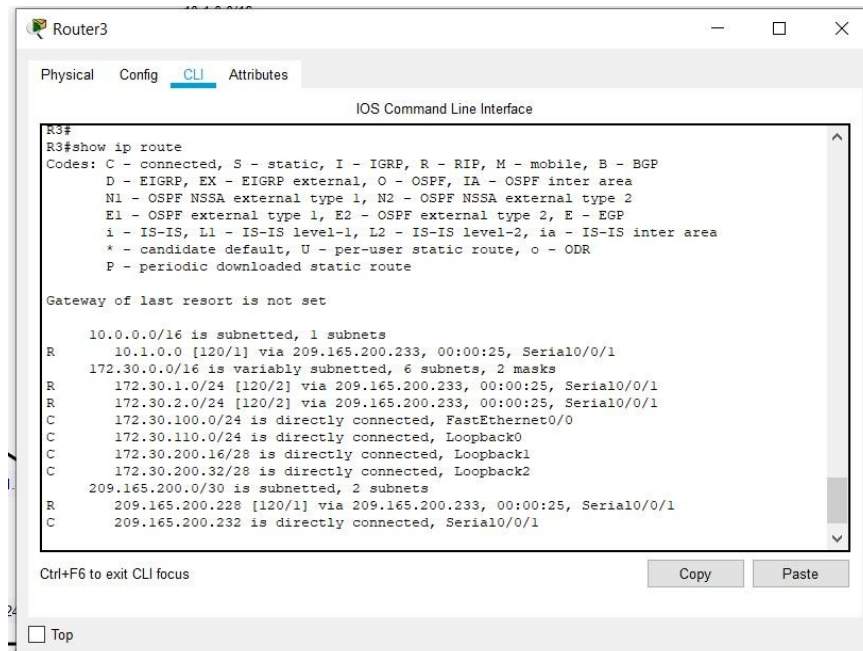
The screenshot shows the CLI of Router1. The output of the 'show ip route' command is displayed, showing the routing table. The output includes a legend for route codes, a message about the gateway of last resort, and a list of routes with their metrics and interfaces.

```
R1#
R1#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

10.0.0.0/16 is subnetted, 1 subnets
R    10.1.0.0 [120/1] via 209.165.200.229, 00:00:26, Serial0/0/0
C    172.30.0.0/16 is variably subnetted, 6 subnets, 2 masks
C    172.30.1.0/24 is directly connected, FastEthernet0/0
C    172.30.2.0/24 is directly connected, FastEthernet0/1
R    172.30.100.0/24 [120/2] via 209.165.200.229, 00:00:26, Serial0/0/0
R    172.30.110.0/24 [120/2] via 209.165.200.229, 00:00:26, Serial0/0/0
R    172.30.200.16/28 [120/2] via 209.165.200.229, 00:00:26, Serial0/0/0
R    172.30.200.32/28 [120/2] via 209.165.200.229, 00:00:26, Serial0/0/0
C    209.165.200.0/30 is subnetted, 2 subnets
C    209.165.200.228 is directly connected, Serial0/0/0
R    209.165.200.232 [120/1] via 209.165.200.229, 00:00:26, Serial0/0/0
```

R3#show ip route



The screenshot shows the CLI of Router3. The output of the 'show ip route' command is displayed, showing the routing table. The output includes a legend for route codes, a message about the gateway of last resort, and a list of routes with their metrics and interfaces.

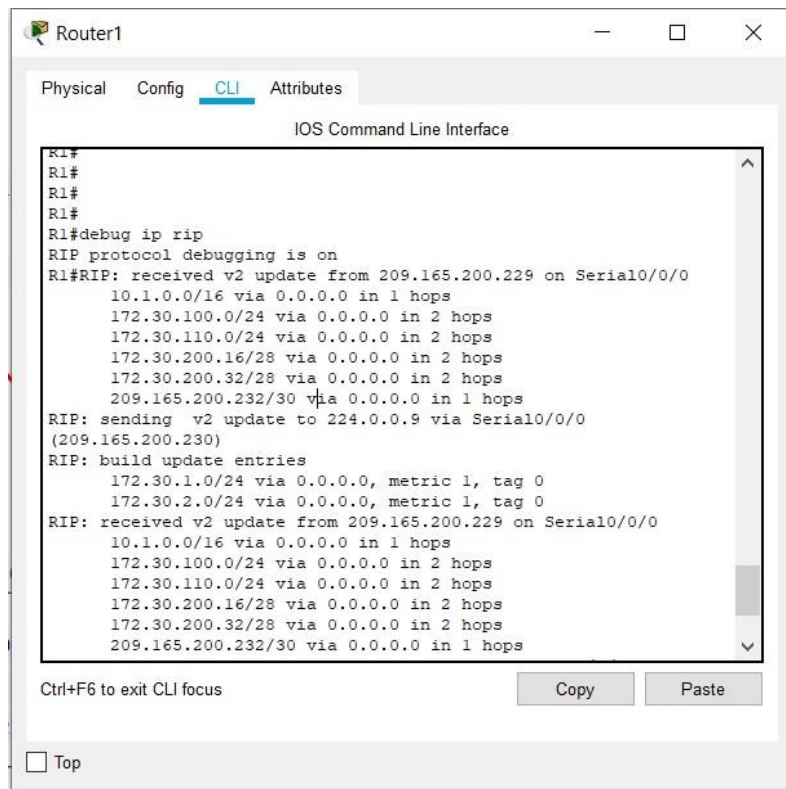
```
R3#
R3#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - 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

10.0.0.0/16 is subnetted, 1 subnets
R    10.1.0.0 [120/1] via 209.165.200.233, 00:00:25, Serial0/0/1
C    172.30.0.0/16 is variably subnetted, 6 subnets, 2 masks
R    172.30.1.0/24 [120/2] via 209.165.200.233, 00:00:25, Serial0/0/1
R    172.30.2.0/24 [120/2] via 209.165.200.233, 00:00:25, Serial0/0/1
C    172.30.100.0/24 is directly connected, FastEthernet0/0
C    172.30.110.0/24 is directly connected, Loopback0
C    172.30.200.16/28 is directly connected, Loopback1
C    172.30.200.32/28 is directly connected, Loopback2
C    209.165.200.0/30 is subnetted, 2 subnets
R    209.165.200.228 [120/1] via 209.165.200.233, 00:00:25, Serial0/0/1
C    209.165.200.232 is directly connected, Serial0/0/1
```

Use the output of the **debug ip rip** command to answer the following questions:





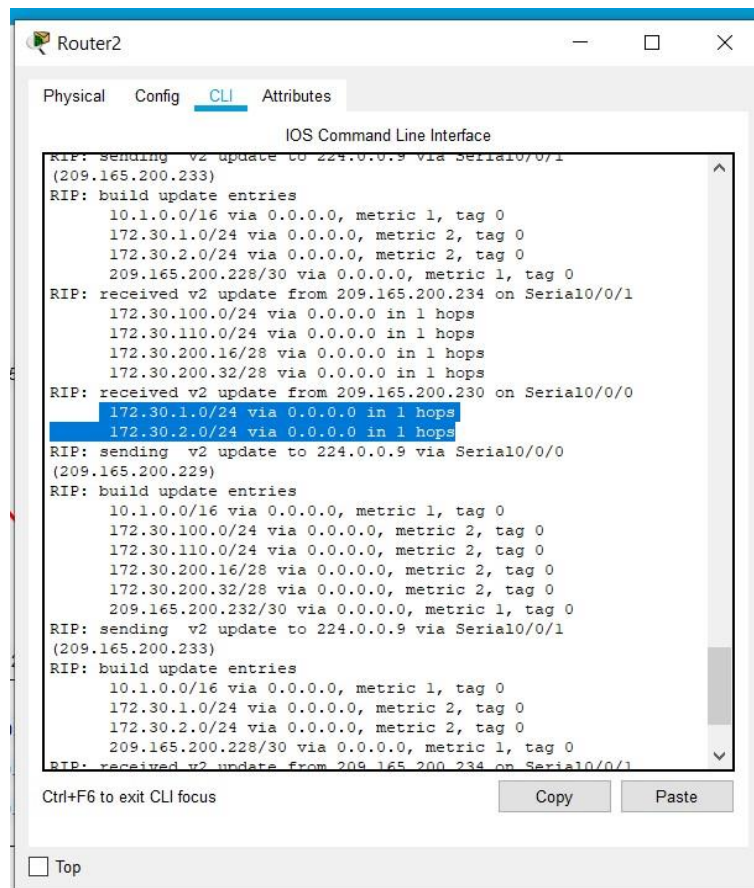
The image shows a terminal window titled "Router1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the IOS Command Line Interface. The output shows the following sequence of events:

```
R1#
R1#
R1#
R1#
R1#debug ip rip
RIP protocol debugging is on
R1#RIP: received v2 update from 209.165.200.229 on Serial0/0/0
  10.1.0.0/16 via 0.0.0.0 in 1 hops
  172.30.100.0/24 via 0.0.0.0 in 2 hops
  172.30.110.0/24 via 0.0.0.0 in 2 hops
  172.30.200.16/28 via 0.0.0.0 in 2 hops
  172.30.200.32/28 via 0.0.0.0 in 2 hops
  209.165.200.232/30 via 0.0.0.0 in 1 hops
RIP: sending v2 update to 224.0.0.9 via Serial0/0/0
(209.165.200.230)
RIP: build update entries
  172.30.1.0/24 via 0.0.0.0, metric 1, tag 0
  172.30.2.0/24 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.229 on Serial0/0/0
  10.1.0.0/16 via 0.0.0.0 in 1 hops
  172.30.100.0/24 via 0.0.0.0 in 2 hops
  172.30.110.0/24 via 0.0.0.0 in 2 hops
  172.30.200.16/28 via 0.0.0.0 in 2 hops
  172.30.200.32/28 via 0.0.0.0 in 2 hops
  209.165.200.232/30 via 0.0.0.0 in 1 hops
```

At the bottom of the window, there is a "Ctrl+F6 to exit CLI focus" message and "Copy" and "Paste" buttons.

What entries are included in the RIP updates sent out from R1?

172.30.1.0/24  
172.30.2.0/24



The image shows a terminal window titled "Router2" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the IOS Command Line Interface. The output shows the following sequence of events:

```
RIP: sending v2 update to 224.0.0.9 via Serial0/0/1
(209.165.200.233)
RIP: build update entries
  10.1.0.0/16 via 0.0.0.0, metric 1, tag 0
  172.30.1.0/24 via 0.0.0.0, metric 2, tag 0
  172.30.2.0/24 via 0.0.0.0, metric 2, tag 0
  209.165.200.228/30 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.234 on Serial0/0/1
  172.30.100.0/24 via 0.0.0.0 in 1 hops
  172.30.110.0/24 via 0.0.0.0 in 1 hops
  172.30.200.16/28 via 0.0.0.0 in 1 hops
  172.30.200.32/28 via 0.0.0.0 in 1 hops
RIP: received v2 update from 209.165.200.230 on Serial0/0/0
  172.30.1.0/24 via 0.0.0.0 in 1 hops
  172.30.2.0/24 via 0.0.0.0 in 1 hops
RIP: sending v2 update to 224.0.0.9 via Serial0/0/0
(209.165.200.229)
RIP: build update entries
  10.1.0.0/16 via 0.0.0.0, metric 1, tag 0
  172.30.100.0/24 via 0.0.0.0, metric 2, tag 0
  172.30.110.0/24 via 0.0.0.0, metric 2, tag 0
  172.30.200.16/28 via 0.0.0.0, metric 2, tag 0
  172.30.200.32/28 via 0.0.0.0, metric 2, tag 0
  209.165.200.232/30 via 0.0.0.0, metric 1, tag 0
RIP: sending v2 update to 224.0.0.9 via Serial0/0/1
(209.165.200.233)
RIP: build update entries
  10.1.0.0/16 via 0.0.0.0, metric 1, tag 0
  172.30.1.0/24 via 0.0.0.0, metric 2, tag 0
  172.30.2.0/24 via 0.0.0.0, metric 2, tag 0
  209.165.200.228/30 via 0.0.0.0, metric 1, tag 0
RIP: received v2 update from 209.165.200.234 on Serial0/0/1
```

At the bottom of the window, there is a "Ctrl+F6 to exit CLI focus" message and "Copy" and "Paste" buttons.

On R2, what routes are in the RIP updates that are received from R1?

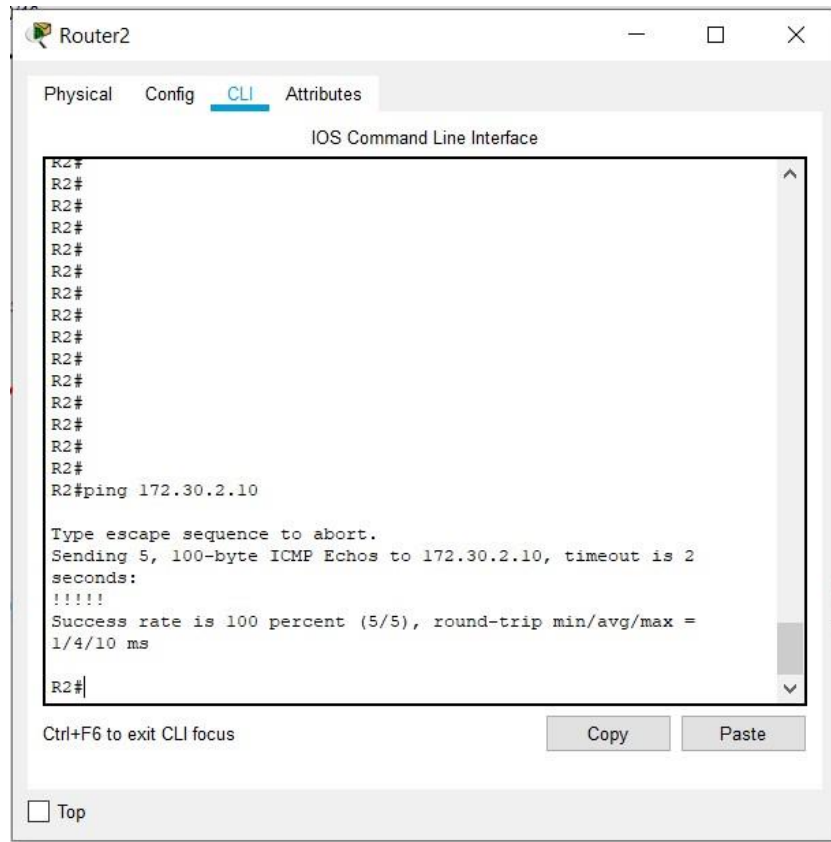
172.30.1.0/24

172.30.2.0/24

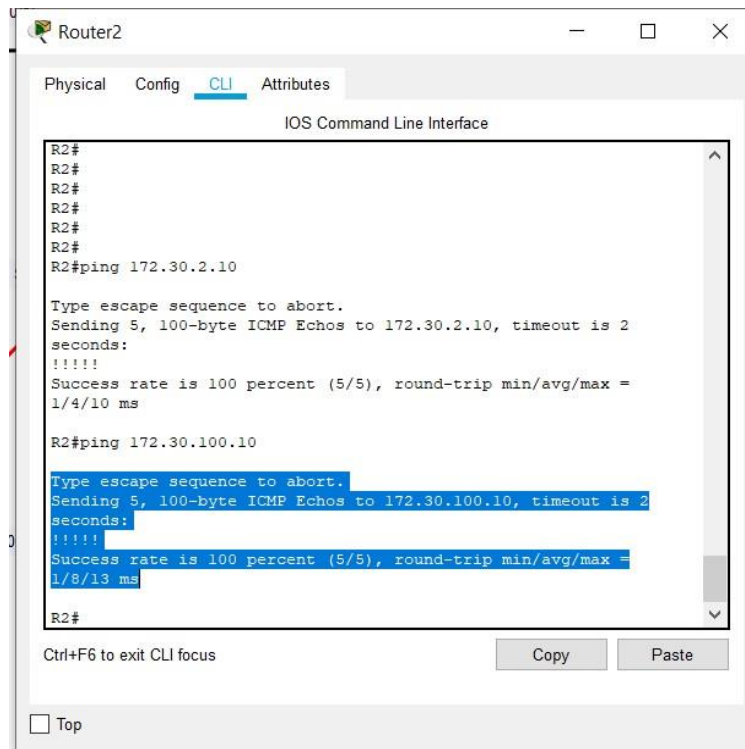
Are the subnet masks now included in the routing updates? YES

### Task 8: Verify Network Connectivity.

**Step 1: Check connectivity between R2 router and PCs.**

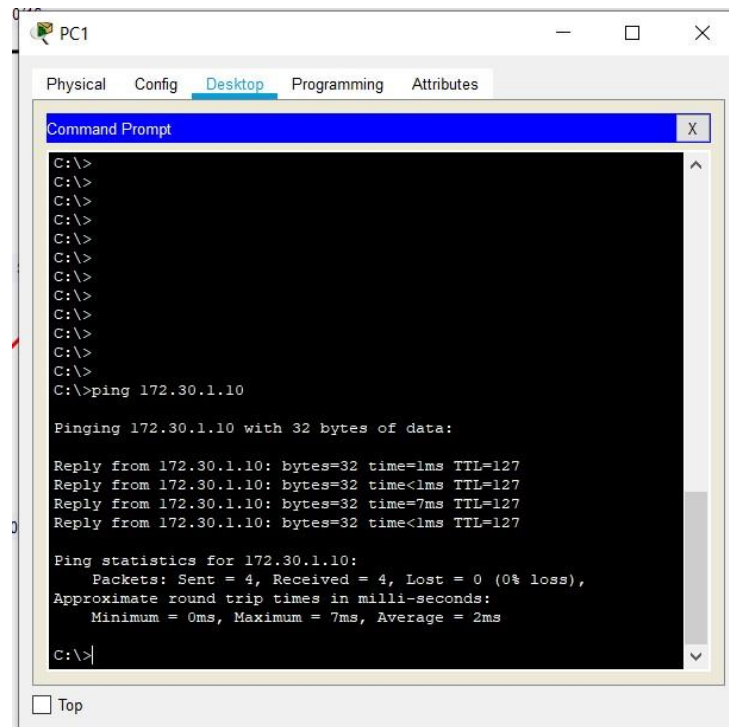


From R2, how many ICMP messages are successful when pinging PC1? **5/5**



From R2, how many ICMP messages are successful when pinging PC4? **5 /5**

**Step 2: Check the connectivity between the PCs.**



From PC1, is it possible to ping PC2? **YES**

What is the success rate? **100%**

The screenshot shows a Windows Command Prompt window titled "PC1" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active. The command prompt shows the user entering "ping 10.1.0.10". The output displays four successful replies from 10.1.0.10 with varying response times (2ms, 1ms, 1ms, 7ms) and a TTL of 126. Ping statistics show 4 packets sent, 4 received, and 0% loss.

```
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 10.1.0.10

Pinging 10.1.0.10 with 32 bytes of data:

Reply from 10.1.0.10: bytes=32 time=2ms TTL=126
Reply from 10.1.0.10: bytes=32 time=1ms TTL=126
Reply from 10.1.0.10: bytes=32 time=1ms TTL=126
Reply from 10.1.0.10: bytes=32 time=7ms TTL=126

Ping statistics for 10.1.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 2ms

C:\>
```

From PC1, is it possible to ping PC3? YES

What is the success rate? 100%

The screenshot shows a Windows Command Prompt window titled "PC1" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active. The command prompt shows the user entering "ping 172.30.100.10". The output displays four successful replies from 172.30.100.10 with varying response times (3ms, 11ms, 10ms, 2ms) and a TTL of 125. Ping statistics show 4 packets sent, 4 received, and 0% loss.

```
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 172.30.100.10

Pinging 172.30.100.10 with 32 bytes of data:

Reply from 172.30.100.10: bytes=32 time=3ms TTL=125
Reply from 172.30.100.10: bytes=32 time=11ms TTL=125
Reply from 172.30.100.10: bytes=32 time=10ms TTL=125
Reply from 172.30.100.10: bytes=32 time=2ms TTL=125

Ping statistics for 172.30.100.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 11ms, Average = 6ms

C:\>
```

From PC1, is it possible to ping PC4? YES

What is the success rate? 100%

PC4

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 172.30.1.10

Pinging 172.30.1.10 with 32 bytes of data:

Reply from 172.30.1.10: bytes=32 time=11ms TTL=125
Reply from 172.30.1.10: bytes=32 time=2ms TTL=125
Reply from 172.30.1.10: bytes=32 time=2ms TTL=125
Reply from 172.30.1.10: bytes=32 time=2ms TTL=125

Ping statistics for 172.30.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 11ms, Average = 4ms

C:\>
```

☐ Top

From PC4, is it possible to ping PC2? YES

What is the success rate? 100%

PC4

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 10.1.0.10

Pinging 10.1.0.10 with 32 bytes of data:

Reply from 10.1.0.10: bytes=32 time=1ms TTL=126
Reply from 10.1.0.10: bytes=32 time=2ms TTL=126
Reply from 10.1.0.10: bytes=32 time=1ms TTL=126
Reply from 10.1.0.10: bytes=32 time=1ms TTL=126

Ping statistics for 10.1.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>
```

☐ Top

From PC4, is it possible to ping PC3? YES

What is the success rate? 100%

## Task 9: Documentation

On each router, capture the following command output to a text (.txt) file and save for future reference.

**show running-config**

**R1**

Building configuration...

Current configuration : 901 bytes

!

version 12.4 no service timestamps log

datetime msec no service timestamps debug

datetime msec no service password-

encryption

!

hostname R1

!

!

!

!

!

!

!

!

no ip cef no

ipv6 cef

!

!

!

!

!

!

!

!

!

!

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface FastEthernet0/0 ip

address 172.30.1.1 255.255.255.0

```
duplex auto speed
auto
!
interface FastEthernet0/1 ip
address 172.30.2.1 255.255.255.0
duplex auto
speed auto
!
interface Serial0/0/0 ip address
209.165.200.230 255.255.255.252 clock rate
64000
!
interface Serial0/0/1
no ip address clock
rate 2000000
shutdown
!
interface Vlan1 no
ip address
shutdown
!
router rip version 2 passive-
interface FastEthernet0/0
passive-interface FastEthernet0/1
network 172.30.0.0 network
209.165.200.0
no auto-summary
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
password cisco login
!
```



```
!  
!  
End
```

R2

Building configuration...

```
Current configuration : 847 bytes  
!  
version 12.4 no service timestamps log  
datetime msec no service timestamps debug  
datetime msec  
no service password-encryption  
!  
hostname R2  
!  
!  
!  
!  
!  
!  
!  
!  
no ip cef no  
ipv6 cef  
!  
!  
!  
!  
!  
!  
!  
!  
!  
!  
spanning-tree mode pvst  
!  
!  
!  
!  
!
```

```
interface FastEthernet0/0 ip
address 10.1.0.1 255.255.0.0
duplex auto
speed auto
!
interface FastEthernet0/1
no ip address duplex
auto speed auto
shutdown
!
interface Serial0/0/0 ip address
209.165.200.229 255.255.255.252
!
interface Serial0/0/1
ip address 209.165.200.233 255.255.255.252
clock rate 64000
!
interface Vlan1 no
ip address
shutdown
!
router rip version
2
passive-interface FastEthernet0/0
network 10.0.0.0 network
209.165.200.0
no auto-summary
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
password cisco login
!
```

!  
!  
End

R3 9

Building configuration...

Current configuration : 1027 bytes

!  
version 12.4 no service timestamps log  
datetime msec no service timestamps debug  
datetime msec  
no service password-encryption  
!  
hostname R3  
!  
!  
!  
!  
!  
!  
!  
!  
no ip cef no  
ipv6 cef  
!  
!  
!  
!  
!  
!  
!  
!  
!  
!  
spanning-tree mode pvst  
!  
!  
!  
!  
!  
interface Loopback0 ip address  
172.30.110.1 255.255.255.0

```
!  
interface Loopback1 ip address  
172.30.200.17 255.255.255.240  
!  
interface Loopback2  
ip address 172.30.200.33 255.255.255.240  
!  
interface FastEthernet0/0 ip  
address 172.30.100.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface FastEthernet0/1  
no ip address duplex  
auto speed auto  
shutdown  
!  
interface Serial0/0/0  
no ip address clock  
rate 2000000  
shutdown  
!  
interface Serial0/0/1 ip address  
209.165.200.234 255.255.255.252  
!  
interface Vlan1 no  
ip address  
shutdown  
!  
router rip version 2 passive-  
interface FastEthernet0/0  
network 172.30.0.0 network  
209.165.200.0  
no auto-summary  
!  
ip classless  
!  
ip flow-export version 9  
!  
!  
!  
!  
!  
!  
!
```

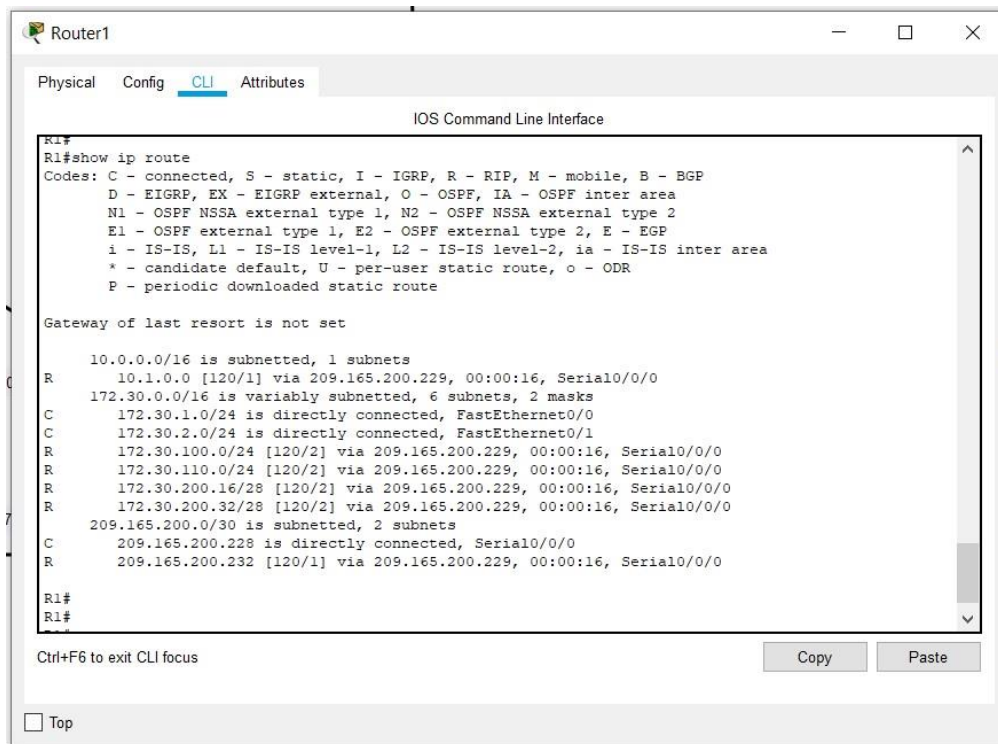
```

line con 0
!
line aux 0
!
line vty 0 4 password
cisco
login
!
!
!
end

```

- **show ip route**

**R1** 



```

Router1
Physical Config CLI Attributes
IOS Command Line Interface
R1#
R1#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

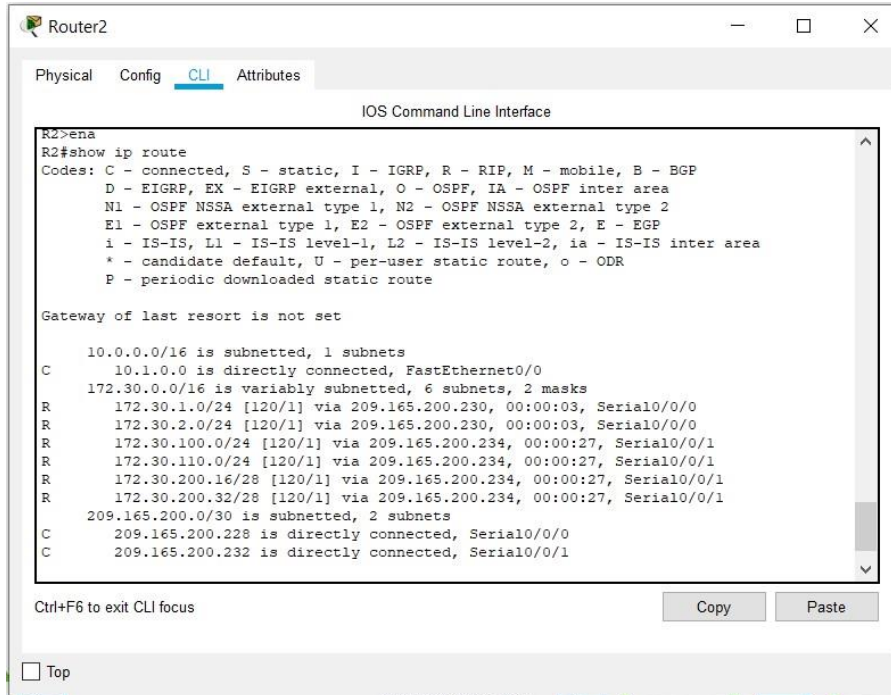
  10.0.0.0/16 is subnetted, 1 subnets
R    10.1.0.0 [120/1] via 209.165.200.229, 00:00:16, Serial0/0/0
  172.30.0.0/16 is variably subnetted, 6 subnets, 2 masks
C    172.30.1.0/24 is directly connected, FastEthernet0/0
C    172.30.2.0/24 is directly connected, FastEthernet0/1
R    172.30.100.0/24 [120/2] via 209.165.200.229, 00:00:16, Serial0/0/0
R    172.30.110.0/24 [120/2] via 209.165.200.229, 00:00:16, Serial0/0/0
R    172.30.200.16/28 [120/2] via 209.165.200.229, 00:00:16, Serial0/0/0
R    172.30.200.32/28 [120/2] via 209.165.200.229, 00:00:16, Serial0/0/0
  209.165.200.0/30 is subnetted, 2 subnets
C    209.165.200.228 is directly connected, Serial0/0/0
R    209.165.200.232 [120/1] via 209.165.200.229, 00:00:16, Serial0/0/0

R1#
R1#
Ctrl+F6 to exit CLI focus
Copy Paste
Top

```

R2

9



Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
R2>ena
R2#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

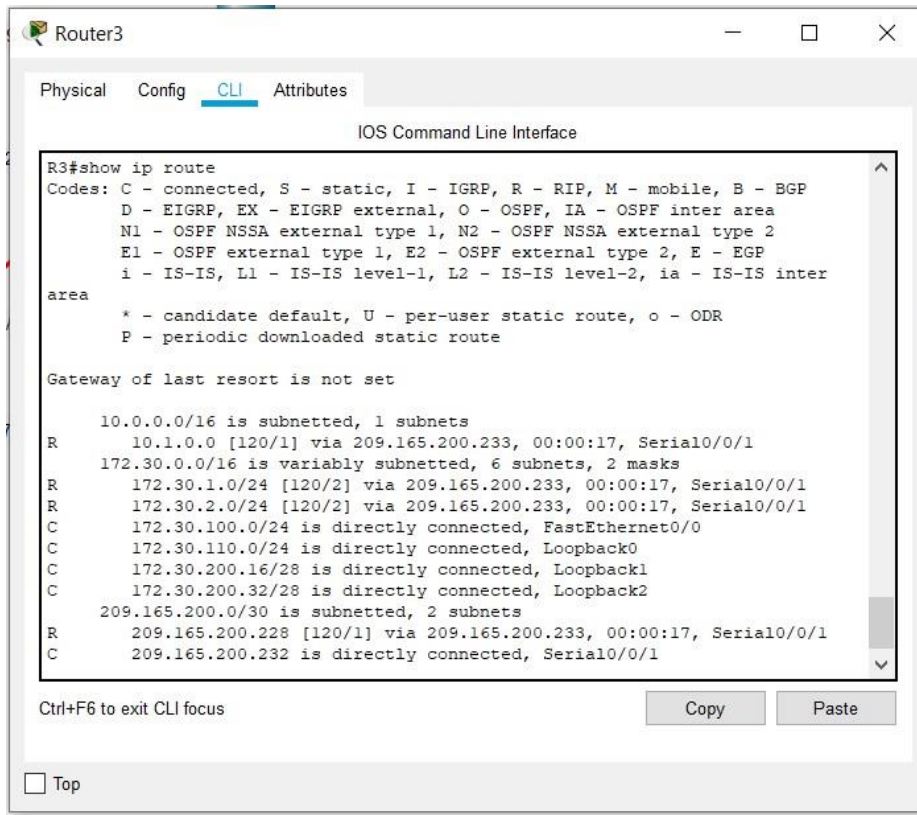
    10.0.0.0/16 is subnetted, 1 subnets
C       10.1.0.0 is directly connected, FastEthernet0/0
R       172.30.0.0/16 is variably subnetted, 6 subnets, 2 masks
R       172.30.1.0/24 [120/1] via 209.165.200.230, 00:00:03, Serial0/0/0
R       172.30.2.0/24 [120/1] via 209.165.200.230, 00:00:03, Serial0/0/0
R       172.30.100.0/24 [120/1] via 209.165.200.234, 00:00:27, Serial0/0/1
R       172.30.110.0/24 [120/1] via 209.165.200.234, 00:00:27, Serial0/0/1
R       172.30.200.16/28 [120/1] via 209.165.200.234, 00:00:27, Serial0/0/1
R       172.30.200.32/28 [120/1] via 209.165.200.234, 00:00:27, Serial0/0/1
    209.165.200.0/30 is subnetted, 2 subnets
C       209.165.200.228 is directly connected, Serial0/0/0
C       209.165.200.232 is directly connected, Serial0/0/1
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

R3 9



Router3

Physical Config CLI Attributes

IOS Command Line Interface

```
R3#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

    10.0.0.0/16 is subnetted, 1 subnets
R       10.1.0.0 [120/1] via 209.165.200.233, 00:00:17, Serial0/0/1
R       172.30.0.0/16 is variably subnetted, 6 subnets, 2 masks
R       172.30.1.0/24 [120/2] via 209.165.200.233, 00:00:17, Serial0/0/1
R       172.30.2.0/24 [120/2] via 209.165.200.233, 00:00:17, Serial0/0/1
C       172.30.100.0/24 is directly connected, FastEthernet0/0
C       172.30.110.0/24 is directly connected, Loopback0
C       172.30.200.16/28 is directly connected, Loopback1
C       172.30.200.32/28 is directly connected, Loopback2
    209.165.200.0/30 is subnetted, 2 subnets
R       209.165.200.228 [120/1] via 209.165.200.233, 00:00:17, Serial0/0/1
C       209.165.200.232 is directly connected, Serial0/0/1
```

Ctrl+F6 to exit CLI focus

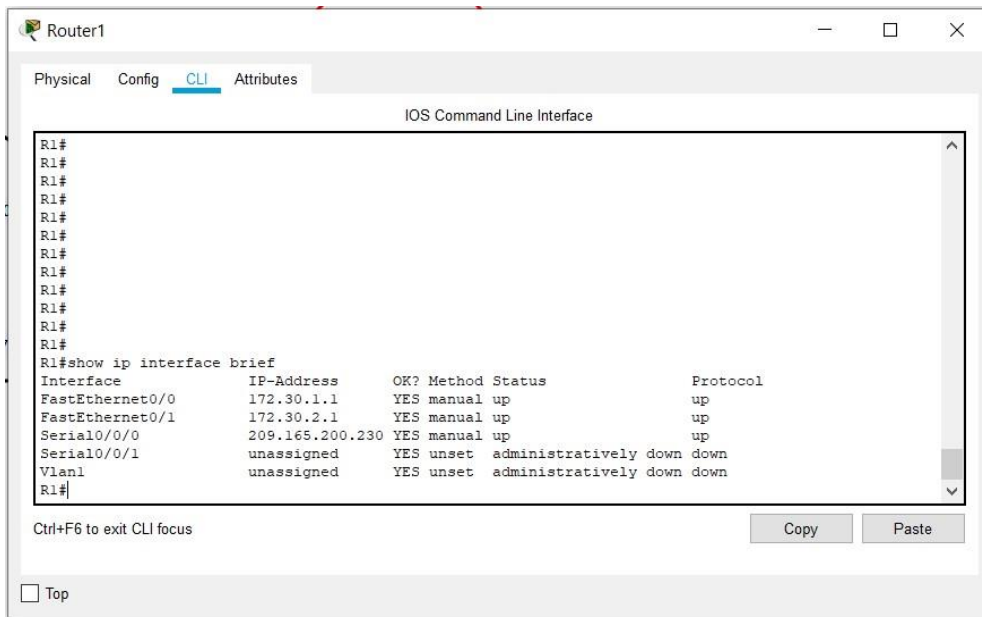
Copy Paste

☐ Top

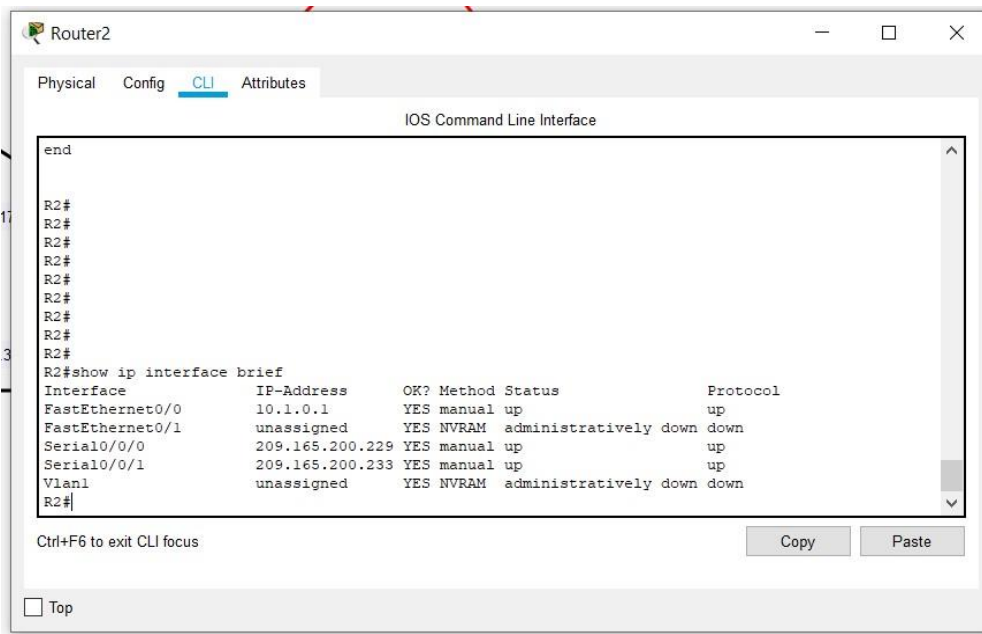
9

- **show ip interface brief**

R1



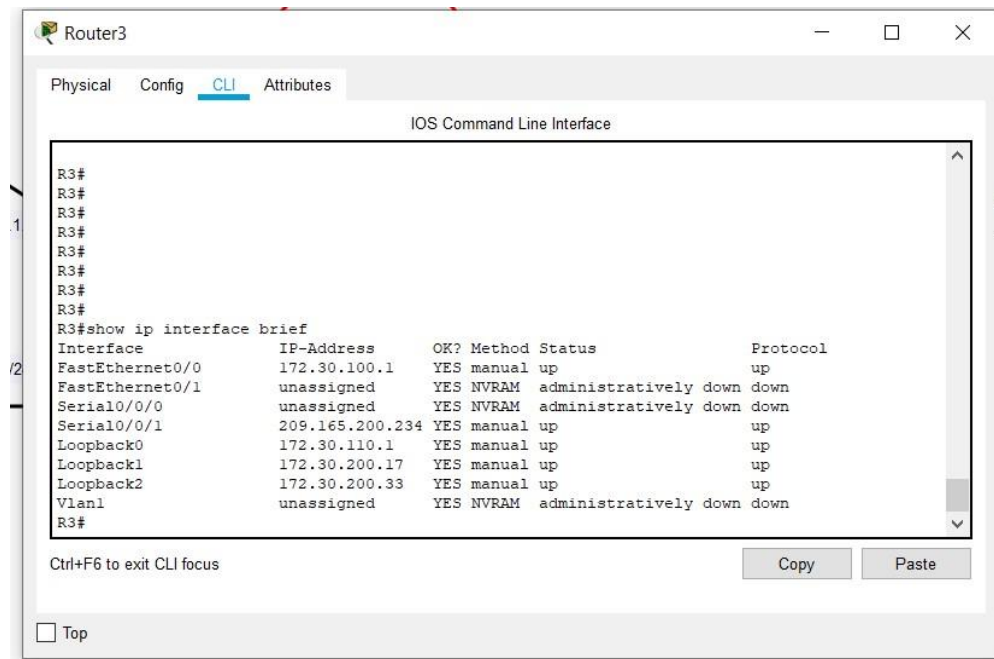
R2





9

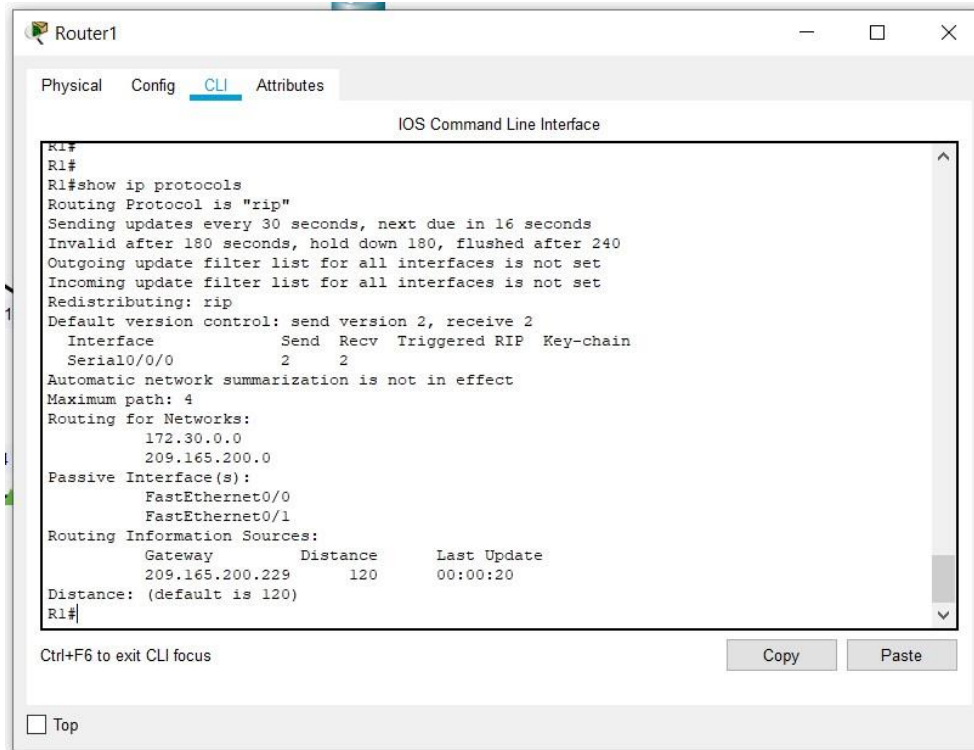
R3



- show ip protocols

R1 9

9



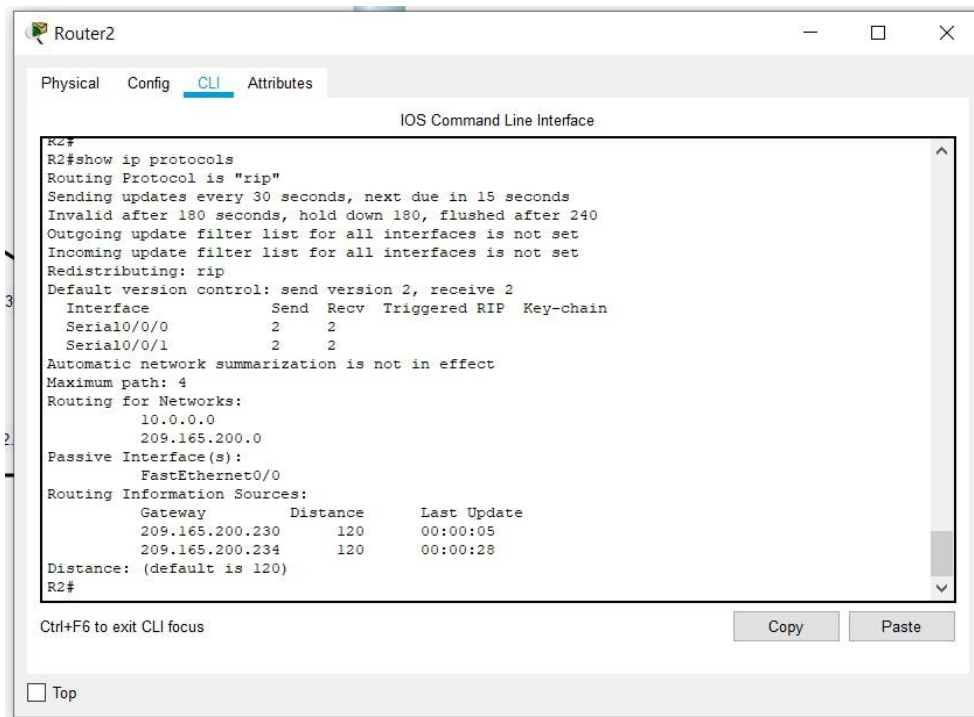
The screenshot shows a window titled "Router1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The command "show ip protocols" has been entered, and the output is as follows:

```
R1#
R1#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
Serial0/0/0          2      2
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
  172.30.0.0
  209.165.200.0
Passive Interface(s):
  FastEthernet0/0
  FastEthernet0/1
Routing Information Sources:
  Gateway         Distance    Last Update
209.165.200.229    120         00:00:20
Distance: (default is 120)
R1#
```

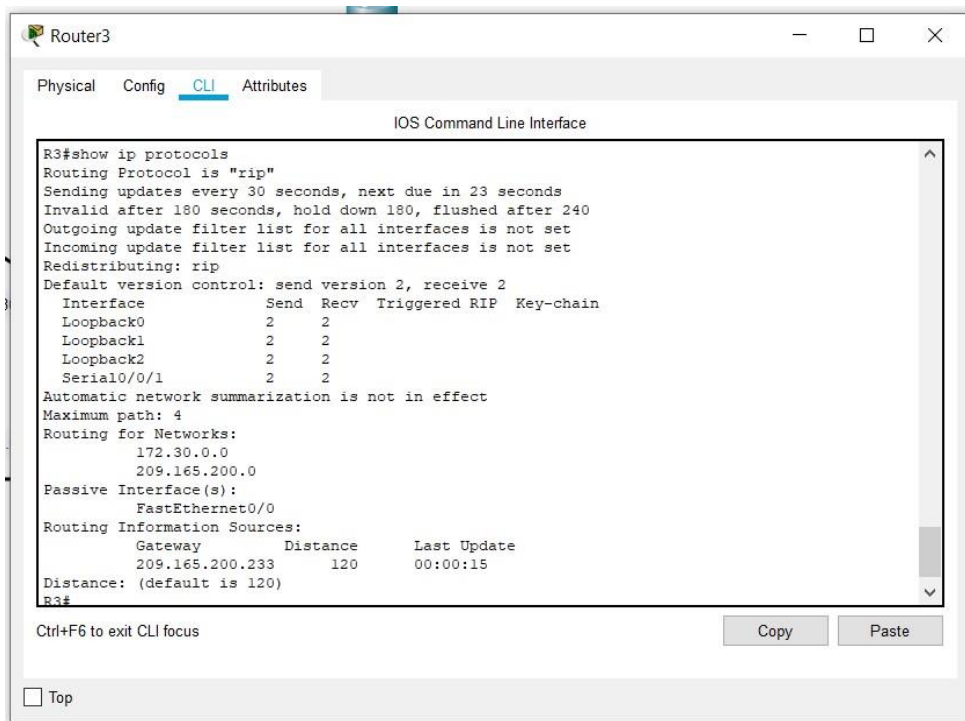
Below the CLI window, there is a "Ctrl+F6 to exit CLI focus" message and "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

R2

9



R3 9

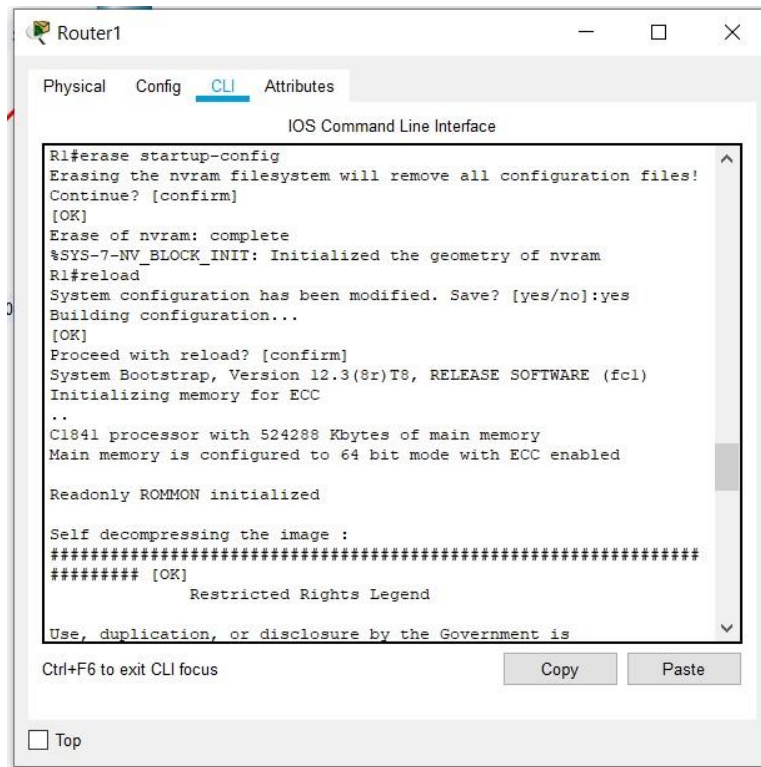


If you need to review the procedures for capturing command output, refer to Lab 1.5.1.

## Task 10: Clean Up

Erase the configurations and reload the routers. Disconnect and store the cabling. For PC hosts that are normally connected to other networks (such as the school LAN or to the Internet), reconnect the appropriate cabling and restore the TCP/IP settings.

R1 ⑨



Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
R1#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
R1#reload
System configuration has been modified. Save? [yes/no]:yes
Building configuration...
[OK]
Proceed with reload? [confirm]
System Bootstrap, Version 12.3(8r)T8, RELEASE SOFTWARE (fc1)
Initializing memory for ECC
..
C1841 processor with 524288 Kbytes of main memory
Main memory is configured to 64 bit mode with ECC enabled

Readonly ROMMON initialized

Self decompressing the image :
#####
##### [OK]
Restricted Rights Legend

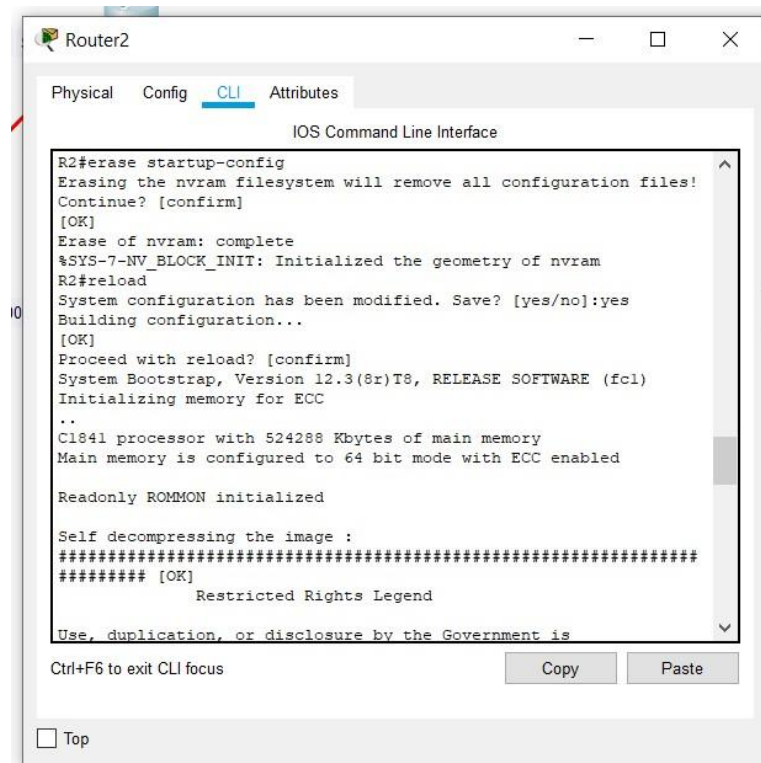
Use, duplication, or disclosure by the Government is
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

R2 ⑨



Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
R2#erase startup-config
Erasing the nvram filesystem will remove all configuration files!
Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
R2#reload
System configuration has been modified. Save? [yes/no]:yes
Building configuration...
[OK]
Proceed with reload? [confirm]
System Bootstrap, Version 12.3(8r)T8, RELEASE SOFTWARE (fc1)
Initializing memory for ECC
..
C1841 processor with 524288 Kbytes of main memory
Main memory is configured to 64 bit mode with ECC enabled

Readonly ROMMON initialized

Self decompressing the image :
#####
##### [OK]
Restricted Rights Legend

Use, duplication, or disclosure by the Government is
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

R3 ⑨

