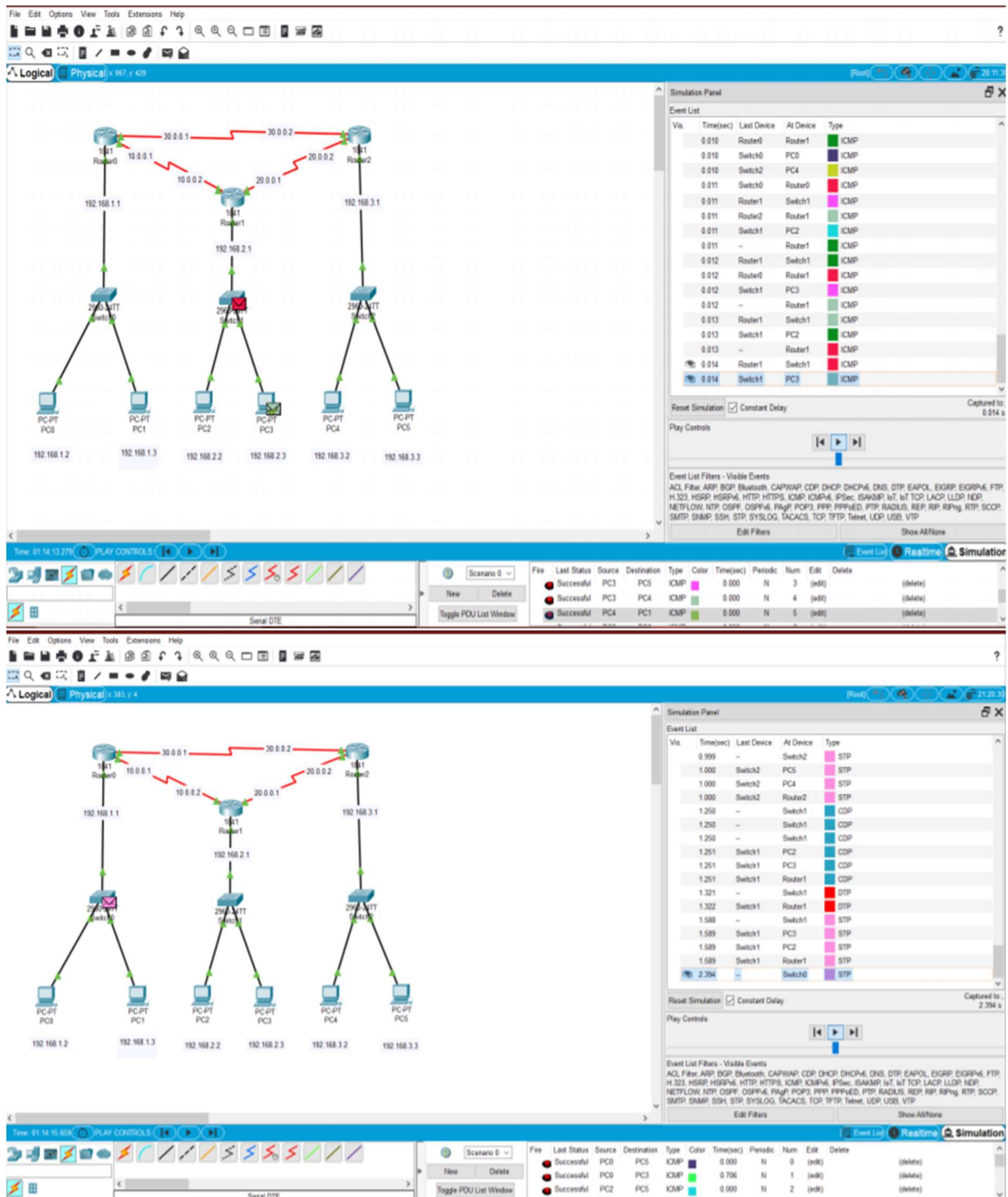


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Experiment 6

AIM: Demonstration of RIP V1 with 3 Routers



1. Assign any network with classless IP addressing and check what happens?

The screenshot shows a Packet Tracer simulation of a network with three routers (R0, R1, R2) and several PCs. The network is configured with classless IP addressing. The Event List shows the following traffic:

Time(sec)	Last Device	At Device	Type
0.000	PC4	PC4	ICMP
0.001	PC4	Router2	ICMP
0.001	PC4	PC4	ICMP
0.002	PC4	Router2	ICMP
0.002	Router2	PC4	ICMP
0.003	Router2	Router1	ICMP
0.004	Router1	Switch1	ICMP
0.005	Switch1	PC3	ICMP
0.006	PC3	Switch1	ICMP
0.007	Switch1	Router1	ICMP
0.008	Router1	Router2	ICMP
0.009	Router2	PC4	ICMP

The Packet Detail window shows the following information:

Network	Mask	Next Hop
192.168.10.0/27	255.255.255.224	30.0.0.2
192.168.10.32/27	255.255.255.224	30.0.0.2

Yes, it's possible Assign any network with classless IP addressing and the PDU packets are being transferred successfully.

2. Create six different network and check its possible?

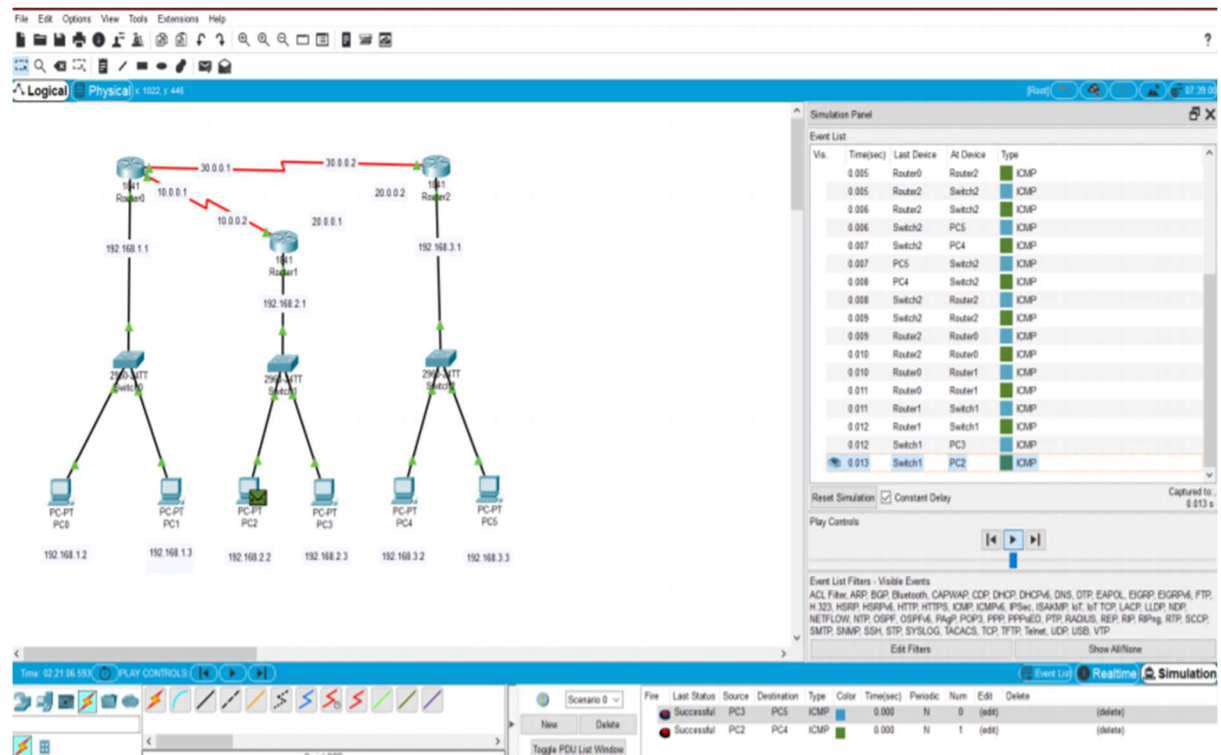
The screenshot shows a Packet Tracer simulation of a network with three routers (R0, R1, R2) and several PCs. The network is configured with six different networks. The Event List shows the following traffic:

Time(sec)	Last Device	At Device	Type
0.007	Switch5	PC11	ICMP
0.007	PC10	Switch5	ICMP
0.007	Switch5	Router2	ICMP
0.008	PC11	Switch5	ICMP
0.008	Switch5	Router2	ICMP
0.008	Router2	Router0	ICMP
0.009	Switch5	Router2	ICMP
0.009	Router2	Router0	ICMP
0.009	Router0	Switch3	ICMP
0.010	Router0	Router0	ICMP
0.010	Switch5	PC8	ICMP
0.011	Router0	Switch3	ICMP
0.011	Switch3	PC8	ICMP
0.012	Switch3	PC8	ICMP
0.387	Switch4	PC8	STP

The Packet Detail window shows the following information:

Network	Mask	Next Hop
192.168.10.0/27	255.255.255.224	30.0.0.2
192.168.10.32/27	255.255.255.224	30.0.0.2

3. Disconnect any one serial connection between the router and check how the data flows?



4. Configure RIP on the R2 router using the router rip and network commands.

Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on interface Serial0/0/0,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1,
changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#no network 192.168.3.0
Router(config-router)#
Router(config-router)#exit
Router(config)#router rip
Router(config-router)#network 192.168.3.0
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

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The screenshot shows the Router2 configuration window with the 'Config' tab selected. The left sidebar shows a tree view with 'RIP' selected under the 'ROUTING' section. The main area is titled 'RIP Routing' and contains a table of network addresses. Below the table is a 'Remove' button. At the bottom, there is a section for 'Equivalent IOS Commands'.

Network Address
30.0.0.0
192.168.1.0
192.168.2.0
192.168.3.0

Remove

Equivalent IOS Commands

```

Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#no network 192.168.3.0
Router(config-router)#
Router(config-router)#exit
Router(config)#router rip
Router(config-router)#network 192.168.3.0
Router(config-router)#
  
```

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5. Give the commands in each router 0,1, and 2 and comment on the output.
 - a. show ip route

The screenshot shows the Router0 CLI window with the 'CLI' tab selected. The window displays the output of the 'show ip route' command. The output shows the routing table for Router0, including directly connected networks and routes learned via RIP.

```

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

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

Router#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, Serial0/0/0
R    20.0.0.0/8 [120/1] via 10.0.0.2, 00:00:23, Serial0/0/0
     [120/1] via 30.0.0.2, 00:00:08, Serial0/0/1
C    30.0.0.0/8 is directly connected, Serial0/0/1
C    192.168.1.0/24 is directly connected, FastEthernet0/0
R    192.168.2.0/24 [120/1] via 10.0.0.2, 00:00:23, Serial0/0/0
R    192.168.3.0/24 [120/1] via 30.0.0.2, 00:00:08, Serial0/0/1

Router#
  
```

Ctrl+F6 to exit CLI focus

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Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

Router>en
Router#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, Serial0/0/0
C    20.0.0.0/8 is directly connected, Serial0/0/1
R    30.0.0.0/8 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
     [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1
R    192.168.1.0/24 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0
R    192.168.3.0/24 [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1

Router#
```

Ctrl+F6 to exit CLI focus

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Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#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 20.0.0.1, 00:00:18, Serial0/0/0
     [120/1] via 30.0.0.1, 00:00:01, Serial0/0/1
C    20.0.0.0/8 is directly connected, Serial0/0/0
C    30.0.0.0/8 is directly connected, Serial0/0/1
R    192.168.1.0/24 [120/1] via 30.0.0.1, 00:00:01, Serial0/0/1
R    192.168.2.0/24 [120/1] via 20.0.0.1, 00:00:18, Serial0/0/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0

Router#
```

Ctrl+F6 to exit CLI focus

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b. show ip protocols

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```

C 10.0.0.0/8 is directly connected, Serial0/0/0
R 20.0.0.0/8 [120/1] via 10.0.0.2, 00:00:23, Serial0/0/0
  [120/1] via 30.0.0.2, 00:00:08, Serial0/0/1
C 30.0.0.0/8 is directly connected, Serial0/0/1
C 192.168.1.0/24 is directly connected, FastEthernet0/0
R 192.168.2.0/24 [120/1] via 10.0.0.2, 00:00:23, Serial0/0/0
R 192.168.3.0/24 [120/1] via 30.0.0.2, 00:00:08, Serial0/0/1

Router#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 9 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
Serial0/0/1        1    2    1
Serial0/0/0        1    2    1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  10.0.0.0
  20.0.0.0
  30.0.0.0
  192.168.1.0
  192.168.2.0
  192.168.3.0
Passive Interface(s):
Routing Information Sources:
  --More--

```

Ctrl+F6 to exit CLI focus

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Router1

Physical Config CLI Attributes

IOS Command Line Interface

```

C 10.0.0.0/8 is directly connected, Serial0/0/0
C 20.0.0.0/8 is directly connected, Serial0/0/1
R 30.0.0.0/8 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
  [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1
R 192.168.1.0/24 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
R 192.168.2.0/24 is directly connected, FastEthernet0/0
R 192.168.3.0/24 [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1

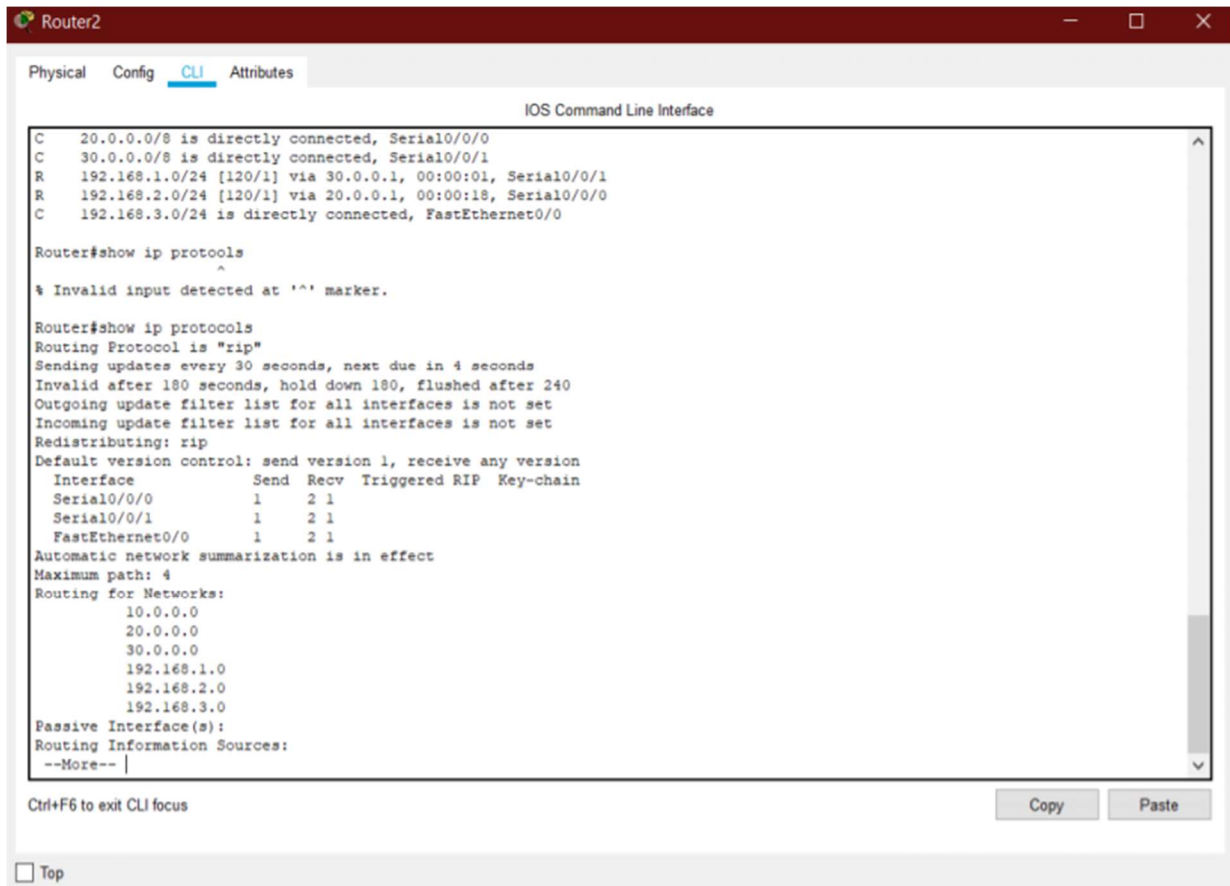
Router#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 6 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface      Send Recv Triggered RIP Key-chain
FastEthernet0/0    1    2    1
Serial0/0/1        1    2    1
Serial0/0/0        1    2    1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  10.0.0.0
  20.0.0.0
  30.0.0.0
  192.168.1.0
  192.168.2.0
  192.168.3.0
Passive Interface(s):
Routing Information Sources:
  --More--

```

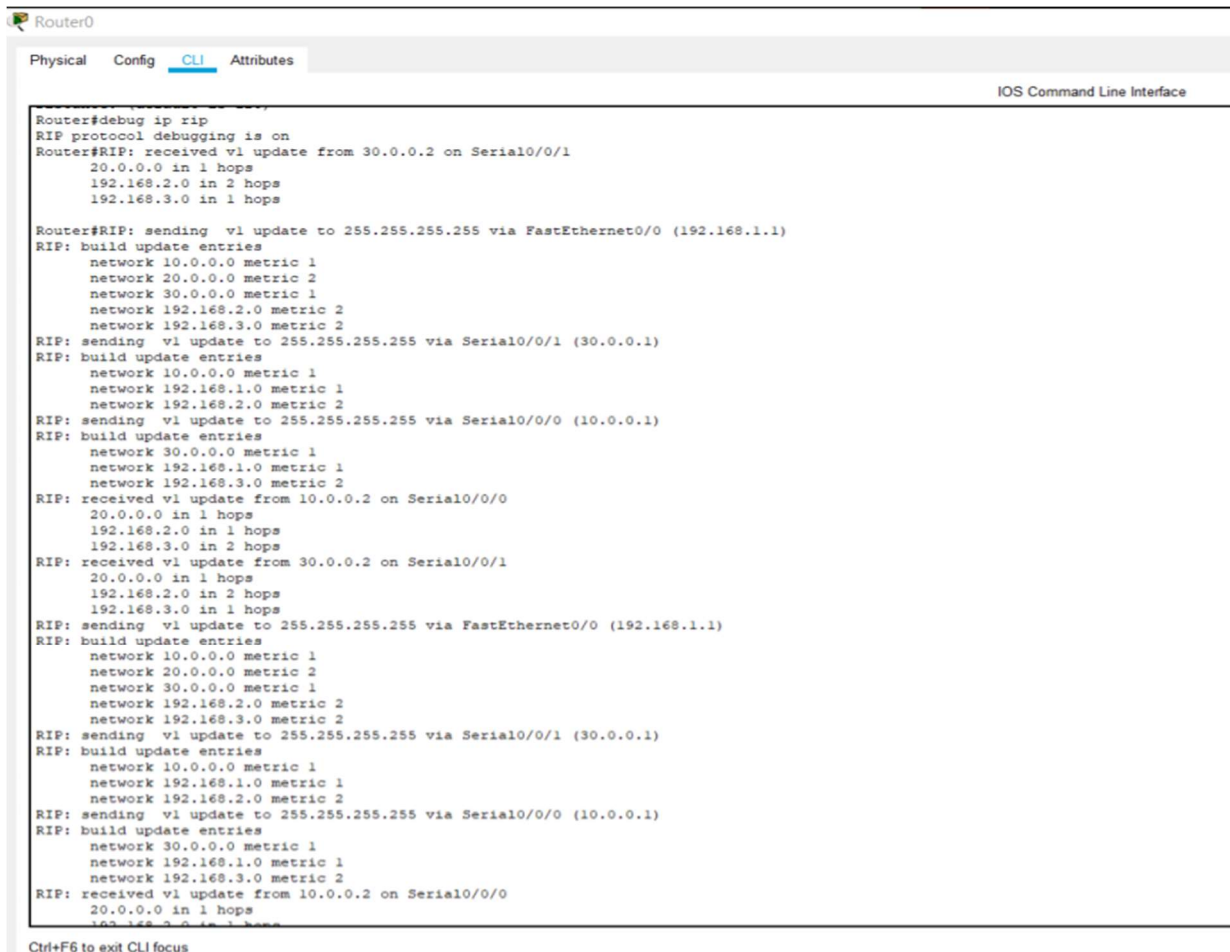
Ctrl+F6 to exit CLI focus

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6. Use the debug ip rip command to view the RIP messages being sent and received.



7. Discontinue the debug output with the undebug all command

```
Router#undebug all
All possible debugging has been turned off
Router#
```

RESULT: Hence, demonstration of RIP V1 is verified using CISCO Packet Tracer.