# CN Lab 8: Configure RIP Version 2 (RIPv2) in Cisco Packet Tracer

Enable RIPv2 on a Router with Packet Tracer

➢ There are two versions of the RIP Routing protocol. RIP Version 1 version does routing table updates as Broadcast (255.255.255.255).

➢ The other one, RIP Version 2, does Multicast broadcasting.

➢ RIPv1 uses Classfull routing, which is very vulnerable to attacks. Entries in RIPv1 include the IP address of the destination network and the metric.

➢ On the other hand, RIPv2 uses classless routing and authentication with an MD5 password.

➢ That is, entries in RIPv2 include the IP address of the destination network, its mask, the next router, and the metric.

➢ RIPv2 is defined in RFC 2453. This protocol sends routing table updates as Multicast. Plus, it supports VLSM and CIDR.

➢ The older version, RIPv1, uses Broadcast but does not support VLSM and CIDR.

➢ Therefore, when configuring RIPv1, all devices must be on the same network.

➢ However, in RIP Version 2, there is no such requirement, and a more comprehensive network design can be made.
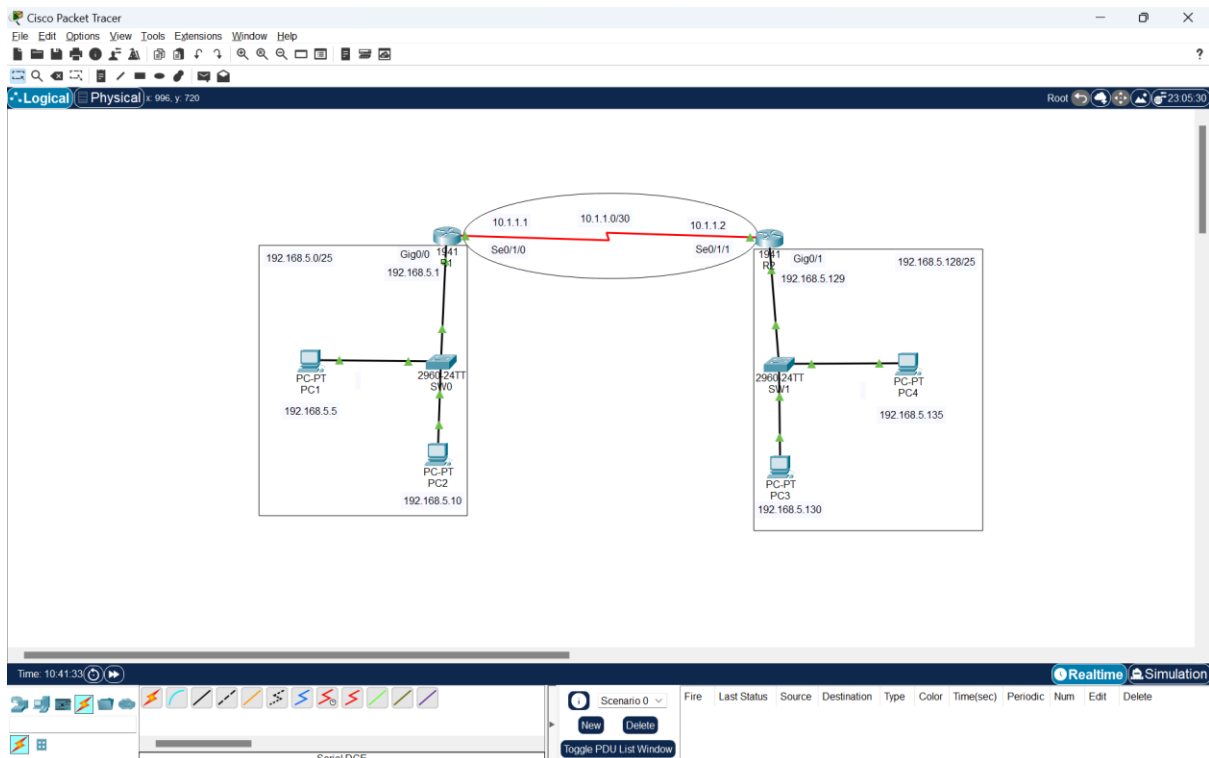
Activating RIPv2 on Packet Tracer Router

In this article, we will examine the steps of configuring RIP Version 2 (RIPv2) Routing on the Router to communicate computers or devices in two segments on the network simulator software.

Steps:

Step 1

Open Packet Tracer and create a network topology that divides the 192.168.5.0/24 network into two segments.

The IP block of the Serial connection between Cisco Router R1 and R2 is 10.1.1.0/30 – 255.255.255.252.

Step 2

Open the CLI command prompt of the Cisco Router R1, assign IP addresses to the GigabitEthernet0/0 and Serial0/1/0 interfaces, and turn on the ports.

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#interface gigabitethernet 0/0
R1(config-if)#ip address 192.168.5.1 255.255.255.128
```

```
R1(config-if)#no shutdown
R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state
to up
R1(config-if)#ex
R1(config)#interface serial 0/1/0
R1(config-if)#ip address 10.1.1.1 255.255.255.252
R1(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
R1(config-if)#end
R1#
```
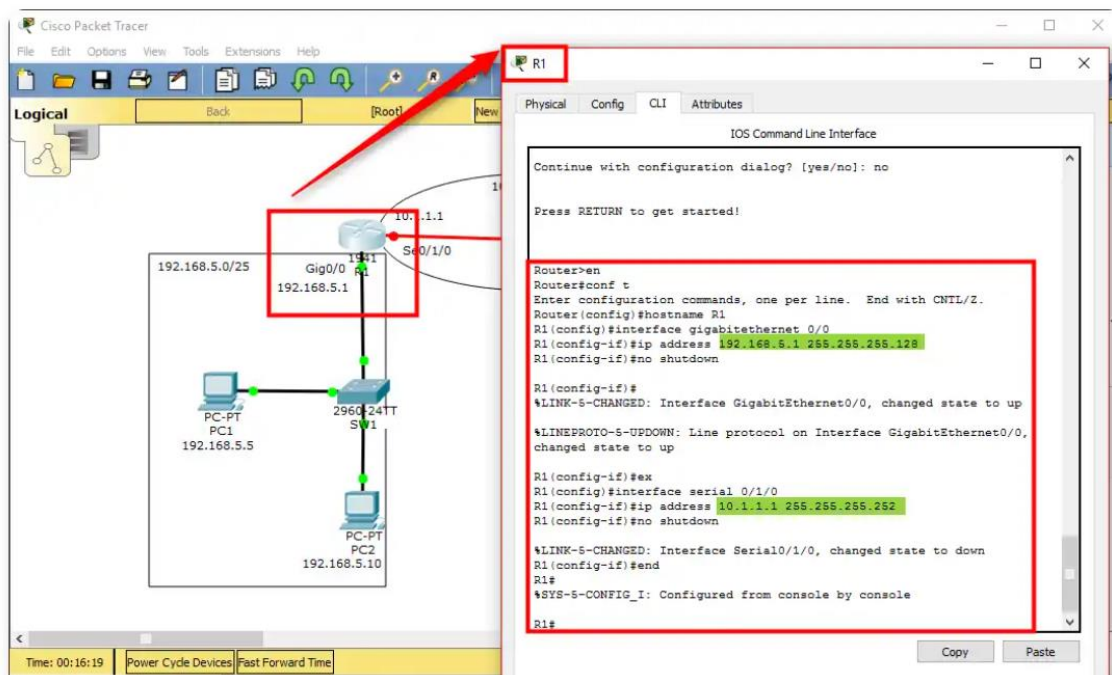

Step 3
Configure the Gig0/1 and Se0/1/1 interfaces of Router R2 as well.

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
R2(config)#interface gigabitethernet 0/1
R2(config-if)#ip address 192.168.5.129 255.255.255.128
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state
to up
R2(config-if)#exit
R2(config)#interface serial 0/1/1
R2(config-if)#ip address 10.1.1.2 255.255.255.252
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up
R2(config-if)#end
R2#
```
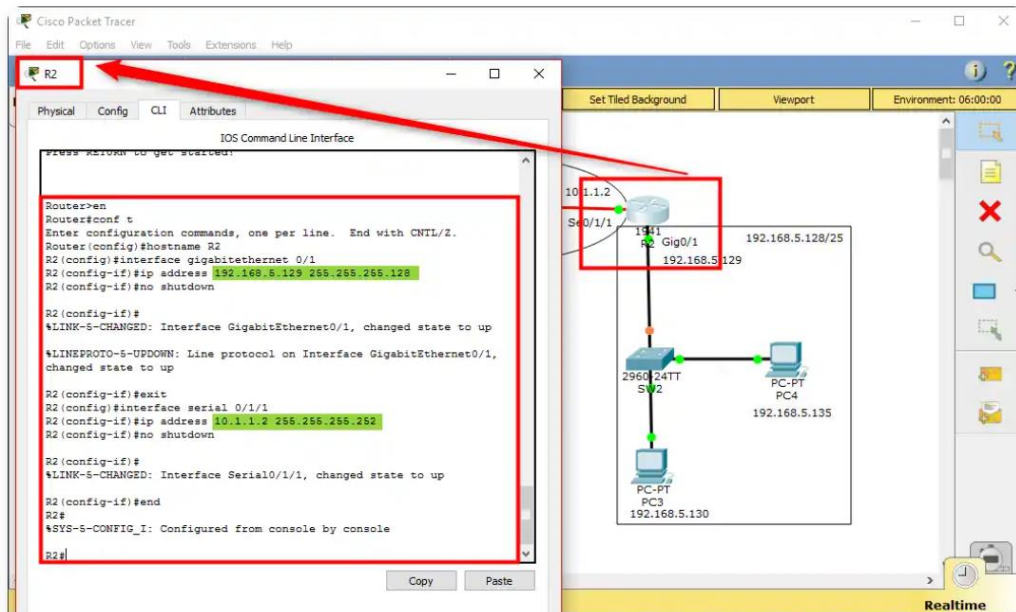
Step 4

Test the connection by pinging PC1 to PC2 and R1's Serial 0/1/0 interface.
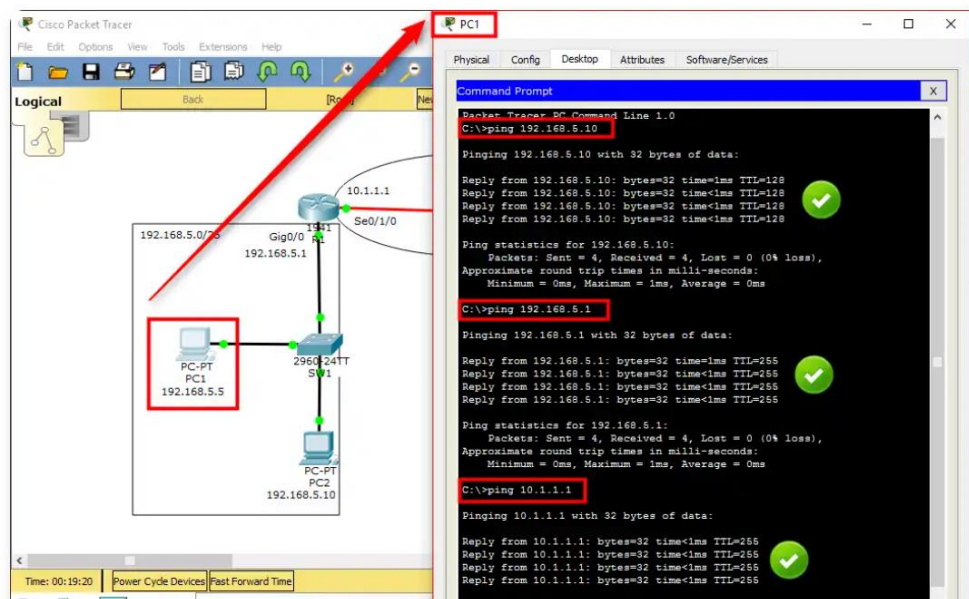
Step 5

Ping from PC1 to Serial and GigabitEthernet interfaces of R2 will fail because the RIPv2 routing protocol is not enabled on routers.

Step 6

Test the network connection by pinging the Router interfaces to which it is connected via PC3 on the 192.168.5.128/25 network.

Step 7

In the above steps, you have examined that the devices on the same network connected to the routers are communicating. Now, ping the network connection again to check that it can communicate with computers on two different networks.

Pinging from PC3 to Router R1's Serial and GigabitEthernet interfaces will also fail.

Step 8

Now, to activate RIP Version 2 on routers, first open the CLI prompt of R1 and execute the following commands.

```
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#router rip
R1(config-router)#version 2
R1(config-router)#network 10.1.1.0
R1(config-router)#network 192.168.5.0
R1(config-router)#end
R1#
```
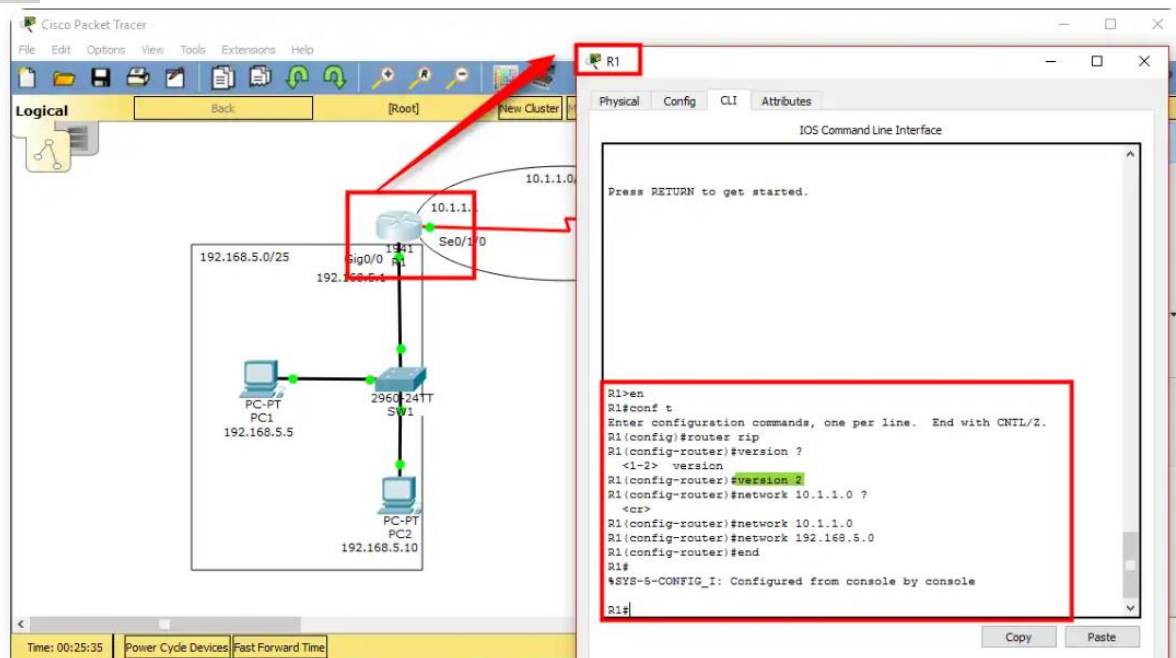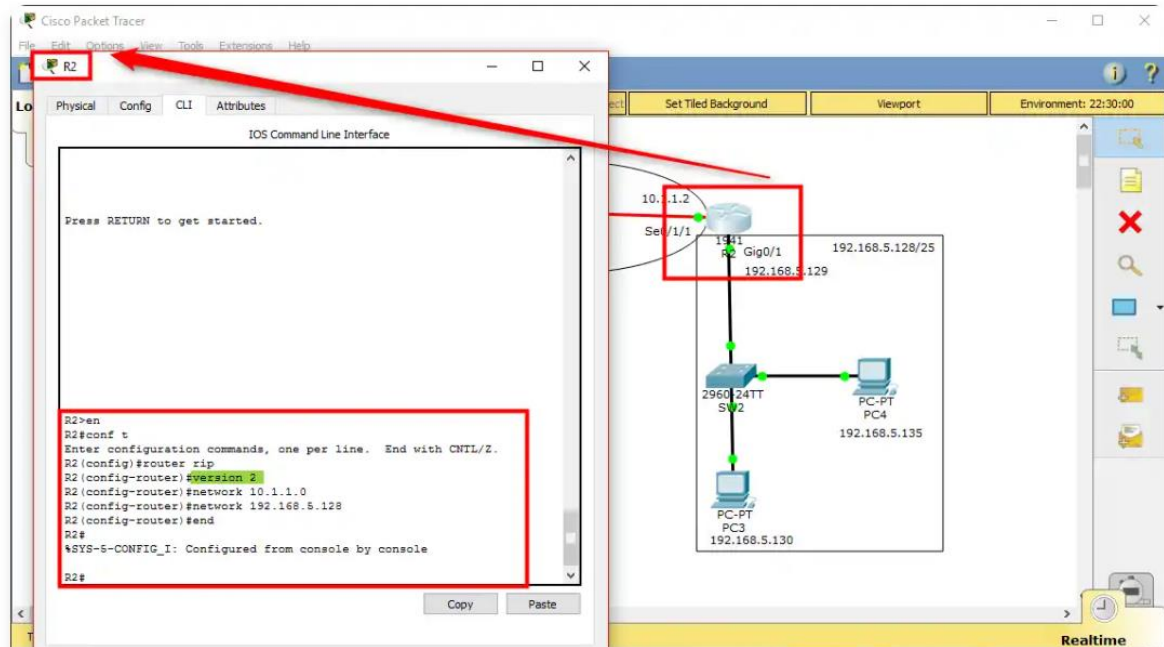

Step 9

RIP Version 2 is activated on R2, and the networks connected to the router are definitely in. Routerte here the network 192.168.5.128.
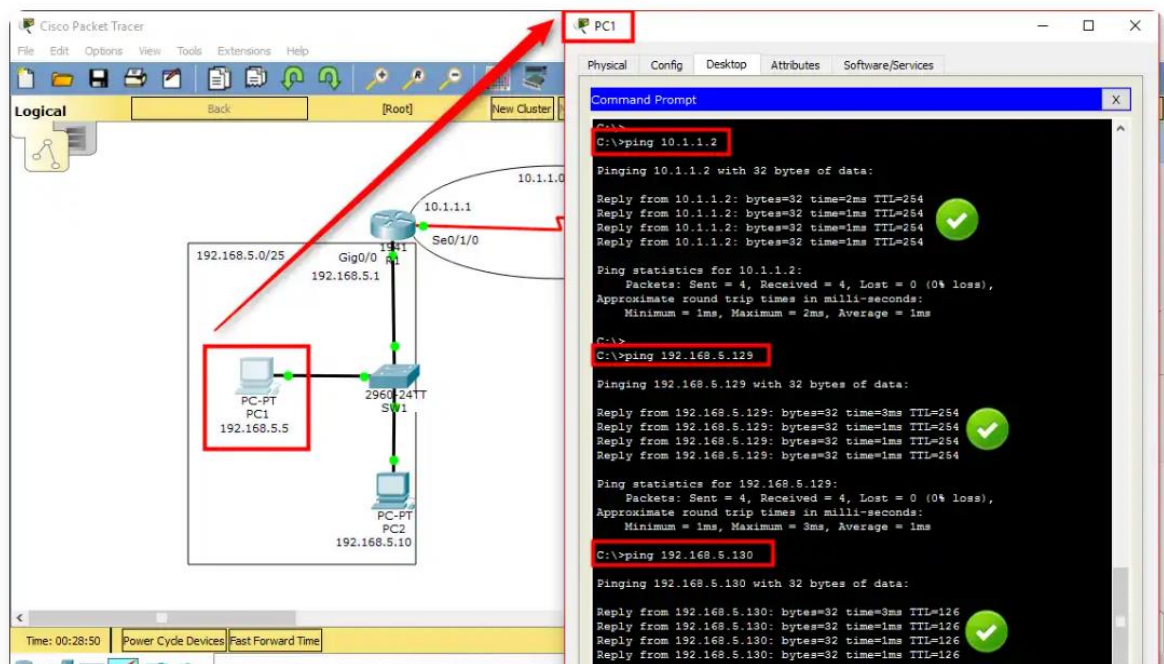
```
R2#conf t
```

```
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#router rip
R2(config-router)#version 2
R2(config-router)#network 10.1.1.0
R2(config-router)#network 192.168.5.128
R2(config-router)#end
R2#
```


Step 10

After configuring the routing protocol, Pinging over PC1 will now
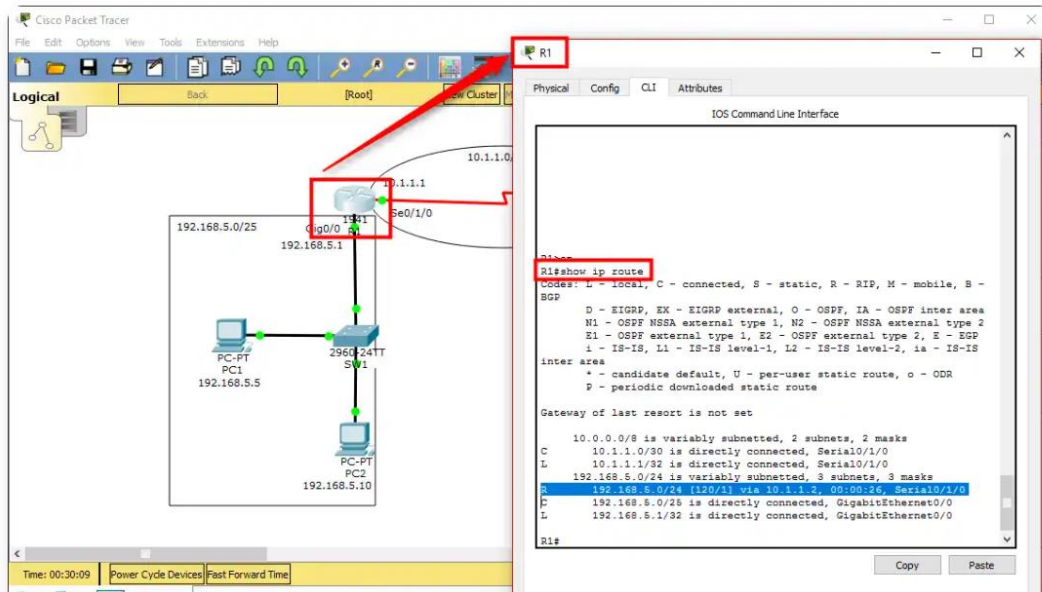succeed, as shown in the image below!

Step 11

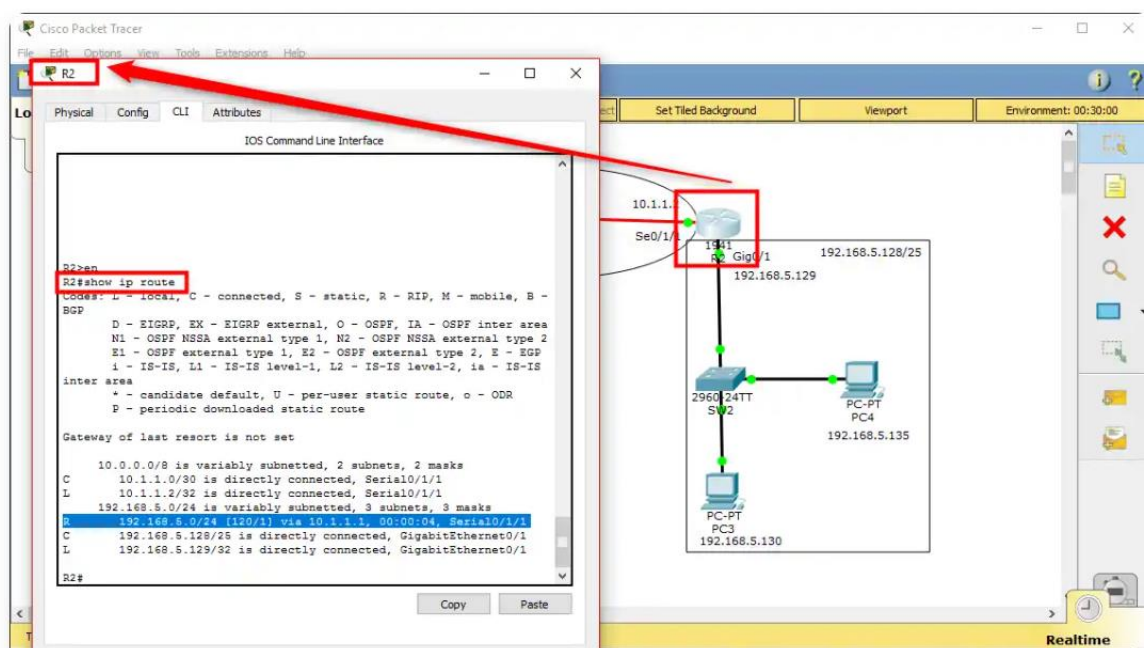Similarly, check that the network connection is successful by pinging over PC3.

Step 12

Once you have fully configured RIPv2, execute the **show ip route** command to check the tables created on the routers and check the Routes.
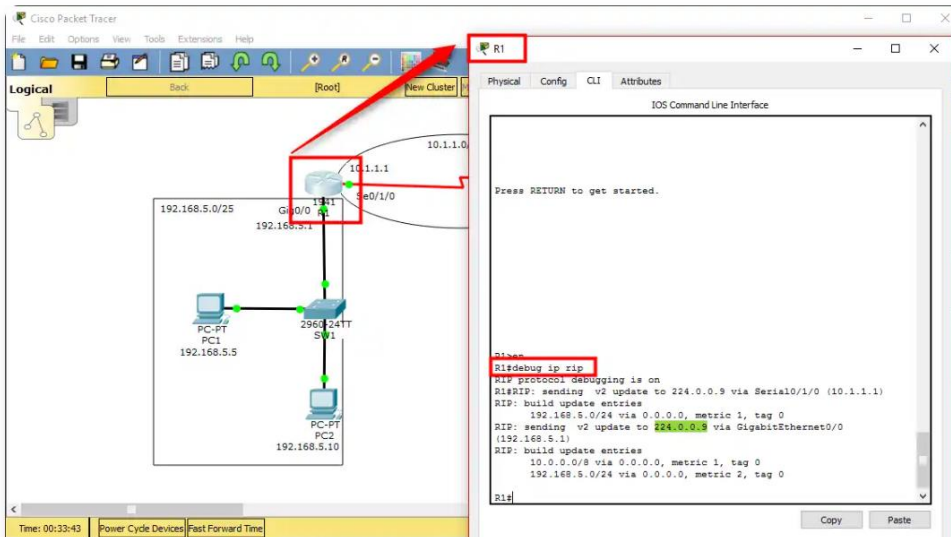

Step 13

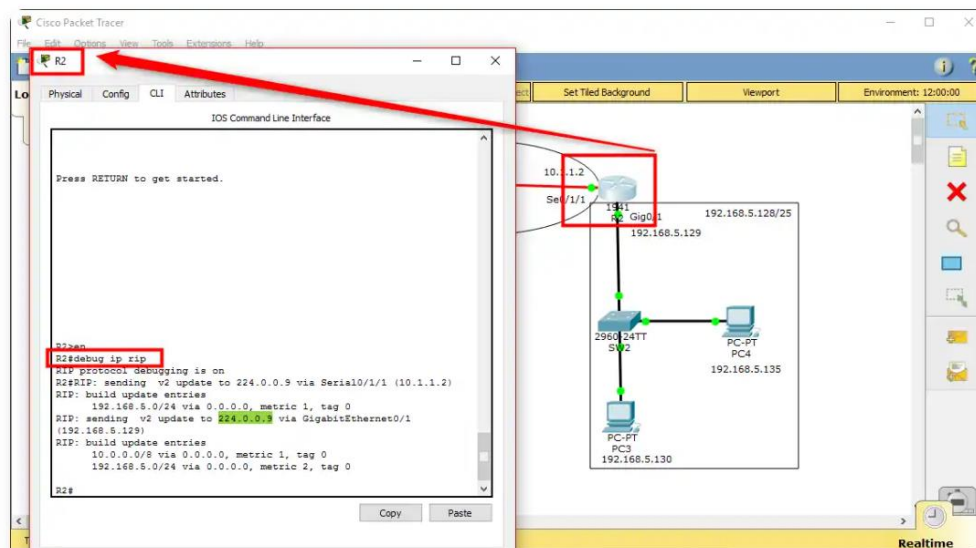Route records in R2 are as follows.

Step 14

You can see how routing updates are performed by applying the **debug ip rip** command to verify the routing protocol on Cisco Routers.
As shown in the image below, you can see that RIP V2 is updating with **224.0.0.9 Multicast** address.
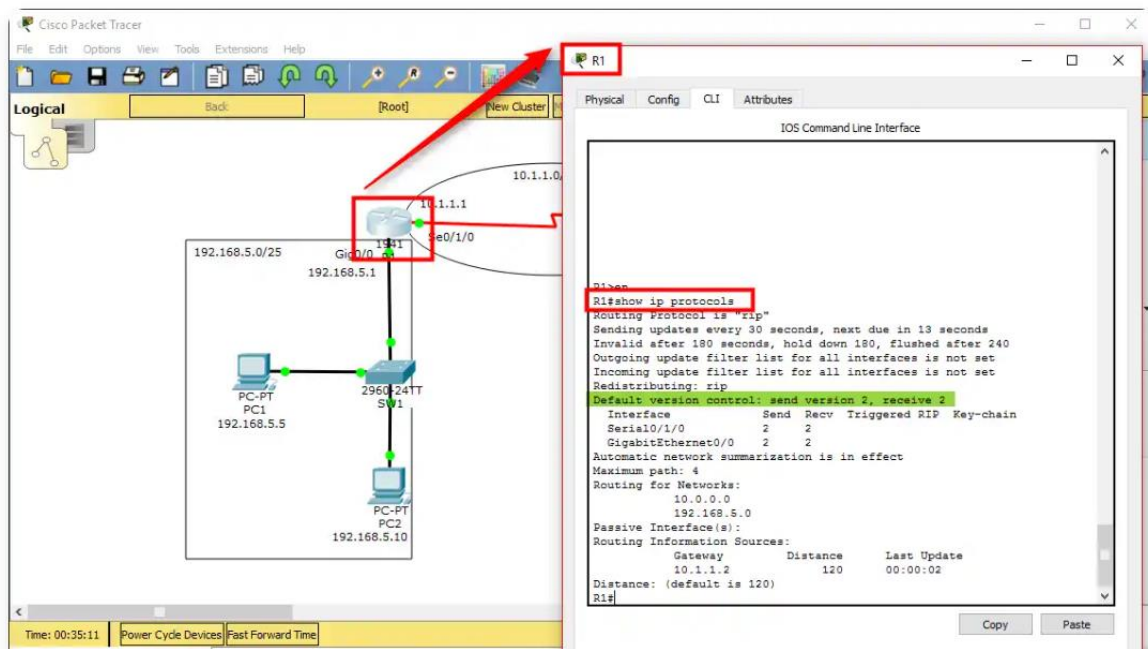

Step 15

On the Cisco Router R2, it sends updates to the multicast address 224.0.0.9.

Step 16

Another way to verify the routing is to use the `show ip protocols` command. Execute this command on R1 and check that the Routing Protocol is RIP.

Step 17

Similarly, you can use the `show ip protocols` command on Router R2 to browse the results.