

# Config RIP protocol CISCO Routers

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## RIP versions

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There are three versions of routing information protocol – RIP Version1, RIP Version2, and RIPng.

RIPv1	RIPv2	RIPng
Sends update as broadcast	Sends update as multicast	Sends update sa multocast
Broadcast at 255.255.255.255	Multicast at 224.0.0.9	Milticast at FF02::9 (RIPng can only run on IPv6 networks)
Doesn't support authentication of updated messages	Supports authentication of RIPv2 update messages	-
Classful routing protocol	Classless protocol updated supports classful	Classless updates are sent

**RIP v1** is known as Classful Routing Protocol because it doesn't send information of subnet mask in its routing update. **RIP v2** is known as Classless Routing Protocol because it sends information of subnet mask in its routing update.

Use debug command to get the details:

```
# debug ip rip
```

Use this command to show all routes configured in router, say for router R1:

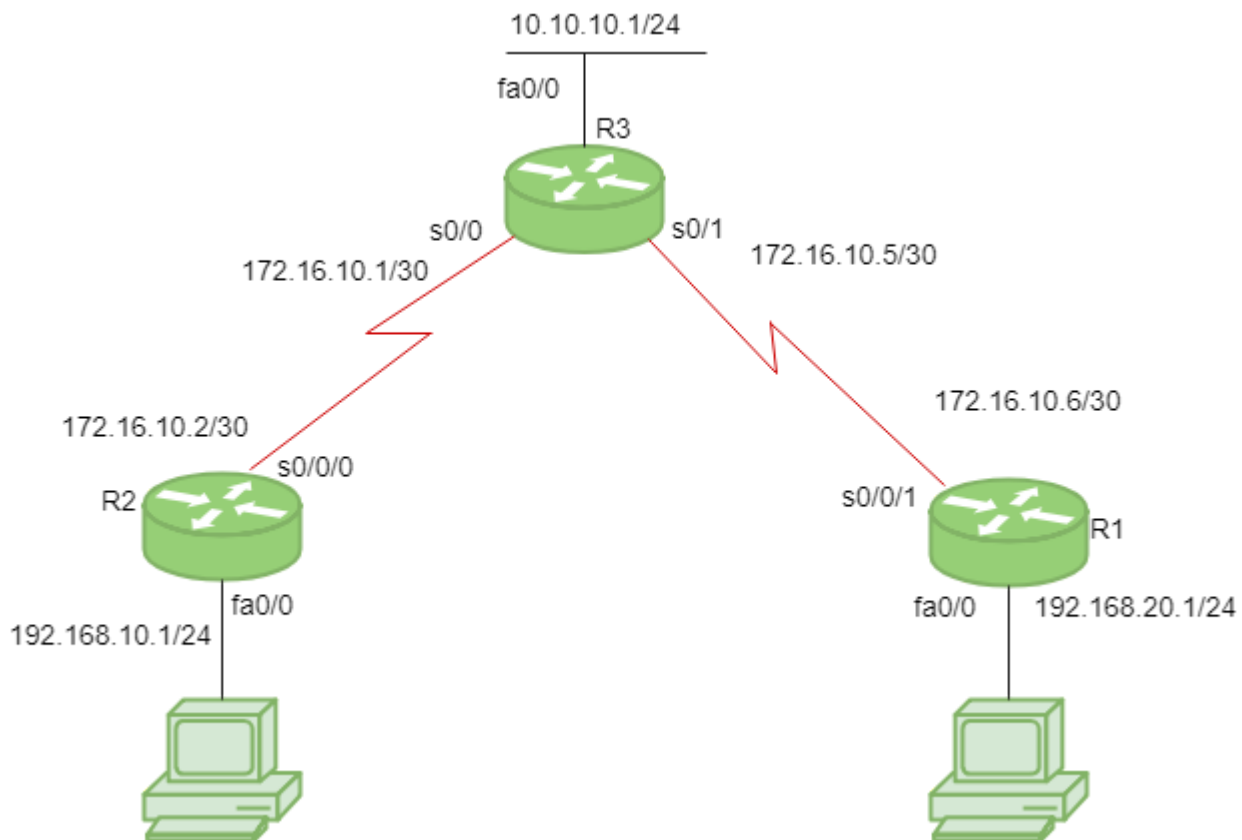
```
R1# show ip route
```

Use this command to show all protocols configured in router, say for router R1:

```
R1# show ip protocols
```

## Configuration:

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Consider the above-given topology which has 3-routers R1, R2, R3. R1 has IP address 172.16.10.6/30 on s0/0/1, 192.168.20.1/24 on fa0/0. R2 has IP address 172.16.10.2/30 on s0/0/0, 192.168.10.1/24 on fa0/0. R3 has IP address 172.16.10.5/30 on s0/1, 172.16.10.1/30 on s0/0, 10.10.10.1/24 on fa0/0.

## Configure RIP for R1:

```
R1(config)# router rip
R1(config-router)# network 192.168.20.0
R1(config-router)# network 172.16.10.4
R1(config-router)# version 2
R1(config-router)# no auto-summary
```

**Note:** no auto-summary command disables the auto-summarisation. If we don't select any auto-summary, then the subnet mask will be considered as classful in Version 1.

## Configuring RIP for R2:

```
R2(config)# router rip
R2(config-router)# network 192.168.10.0
R2(config-router)# network 172.16.10.0
R2(config-router)# version 2
R2(config-router)# no auto-summary
```

## Similarly, Configure RIP for R3:

```
R3(config)# router rip
R3(config-router)# network 10.10.10.0
R3(config-router)# network 172.16.10.4
R3(config-router)# network 172.16.10.0
R3(config-router)# version 2
R3(config-router)# no auto-summary
```

## RIP timers:

- **Update timer:** The default timing for routing information being exchanged by the routers operating RIP is 30 seconds. Using an Update timer, the routers exchange their routing table periodically.
- **Invalid timer:** If no update comes until 180 seconds, then the destination router considers it invalid. In this scenario, the destination router mark hop counts as 16 for that router.
- **Hold down timer:** This is the time for which the router waits for a neighbor router to respond. If the router isn't able to respond within a given time then it is declared dead. It is 180 seconds by default.
- **Flush time:** It is the time after which the entry of the route will be flushed if it doesn't respond within the flush time. It is 60 seconds by default. This timer starts after the route has been declared invalid and after 60 seconds i.e time will be  $180 + 60 = 240$  seconds.

Note that all these times are adjustable. Use this command to change the timers:

```
R1(config-router)# timers basic
R1(config-router)# timers basic 20 80 80 90
```