

RIP Versions

RIP v1

- Classful Routing
- No VLSM
- Routing updates through Broadcast
- No Authentication

RIP v2

- Classless Routing
- VLSM Support
- Routing updates through Multicast
- MD5 authentication

RIPng

- IPv6 Routing
- VLSM Support
- Routing updates through Multicast
- Uses AH/ESP authentication

Characteristics

- Distance vector protocol
- UDP port 520/521
- Administrative distance of 120
- Bellman-Ford algorithm
- Uses Split Horizon, Poison reverse
- Hop count metric upto max 15
- RFC 2453 , 2080
- Multicast address 224.0.0.9/FF02::9
- Periodic updates every 30 seconds

Verification & Troubleshooting

```
show ip/ipv6 protocols
```

```
show ip/ipv6 rip database
```

```
debug ip rip { database | events }
```

```
debug ip rip [interface]
```

```
show ip/ipv6 route rip
```

```
show ip/ipv6 protocols
```

Timers

Update	30 seconds
Invalid	180 seconds
Hold down	180 seconds
Flush	240 seconds

To change the RIP timers –
R1(config)#Router rip
R1(config)#Timers basic <update>
<invalid><hold down> <Flush>

Key Terms

Split Horizon	Updates received on an interface wont be sent out the same interface.
Route Poisoning	When a network becomes unreachable, an update of infinite metric is generated to advertise the route as unreachable
Poison Reverse	A router advertises a network as unreachable through the interface on which it was learned
Triggered Updates	In case metric is changed , it is immediately advertised to neighbors without awaiting default update timer.

Configuration

- Router rip
 - version 2
 - no auto-summary
 - network <network>
 - default-information originate
 - passive-interface {interface | default}
- ip summary-address rip network mask
- ipv6 rip name enable
- ipv6 rip name summary-address prefix