



سيسكو في 6 ساعات



الكورس

يختصر أكثر من مائة ساعة
يركز على احتياجات المهندسين
في سوق العمل

© 2020
All Rights Reserved
Second Edition
حقوق النشر والترجمة محفوظة

- Rip Summary

- Rip table :

- Neighbors table :

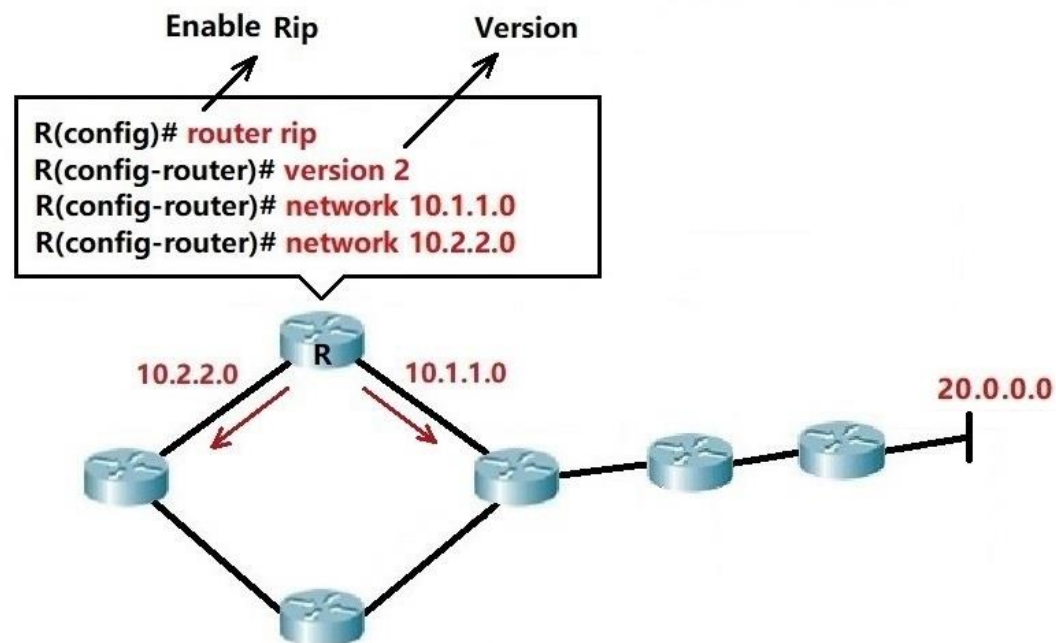
- Update timer (30s) Full Routing Table invalid timer (180s)
- Update the change

- database table :

- **Bellman-Ford** Algorithm
- Metric = hop-count (Max 15)

- Routing table :

- Lowest Hop-count



- RIP

- Key points

- **RIP** : Routing Information Protocol
- First routing protocol developed
- Distance-Vector routing protocol
- Administrative Distance (**120**)
- Send Full routing table every **30s**
- Uses **hop-count** to determine the best way
(called **Bellman-Ford** algorithm)
- Maximum hop-count are **15** routers from **1st**

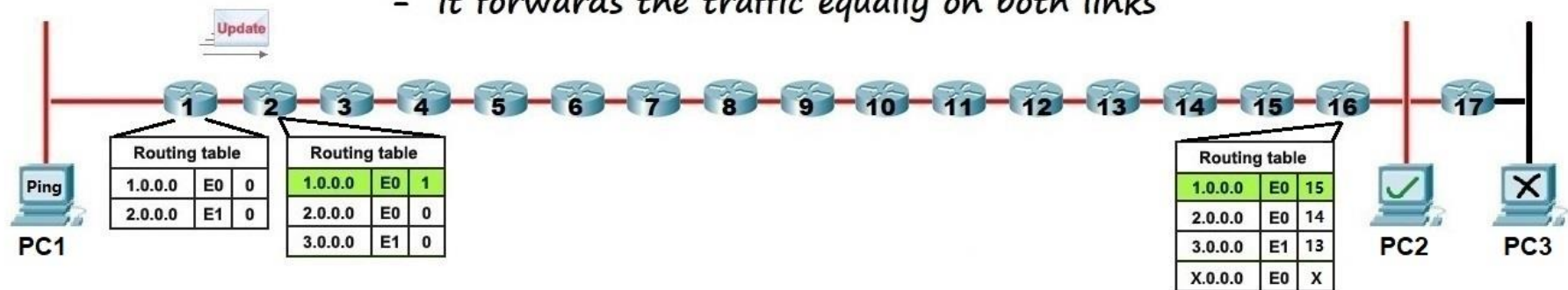
Rip version		
Ripv1	Ripv2	Ripng
IPv4	IPv4	IPv6
Classfull	VLSM	VLSM
15 hop	15 hop	15 hop
broadcasts	multicast	multicast
N.N.N.255	224.0.0.9	FF02::9
UDP(520)	UDP(520)	UDP(521)
————	MDS	MDS

- RIP

- metric

Bellman-Ford Algorithm
Metric = hop-count (Max 15)

- The best route is **Lowest hop-count**
- If the Rip finds **two path with equal hop-counts** for a Destination :
 - The two paths will listed in the routing table
 - it forwards the traffic equally on both links



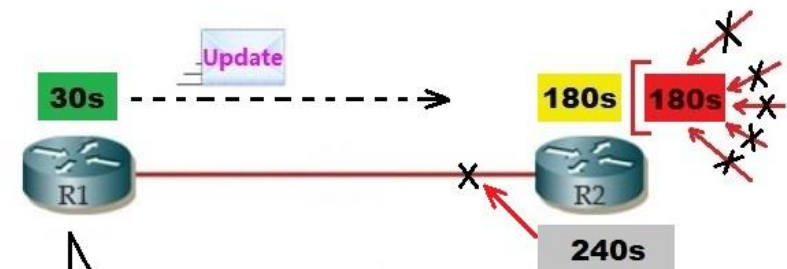
- RIP

- Update

- Periodic** : Send Update every 30s
- Triggered** : Send the Fallen Route , immediately

- RIP Timers

- Update timer** : in this timer, Supposed to get update, Default is 30s
- Invalid timer** : waiting before a route becomes invalid and appears as "possibly down" in the routing table, Default is 180s
- Holddown timer** : within this period , the router will not accept from other router any new route for the destination , Default is 180s
- Flush timer** : when the timer is expired , RIP deletes that route from the routing table , Default is 240s



```
R1# show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 8 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
```

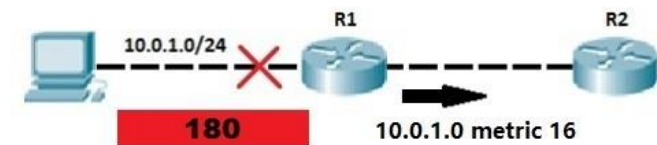


- RIP

- Prevent Looping

-POISONING:

when network goes down, RIP starts route poisoning by advertising this network as 16 hop count , which indicates an unreachable network

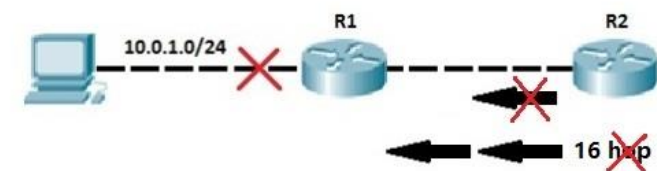


-HOLD DOWN TIMERS:

After route poisoning, router starts a hold-down timer for that route , and he will not accept any new route for the destination from different router than the one who performed route poisoning

-SPLIT HORIZON:

RIP will Prevent Router to send information about a route back in same direction which is original information came



-COUNTING TO 15 :

Maximum count 15 hops , after it will not be reachable

- Summarization

- Advantage

- Make routing table small
- Reduce Processor workload
- Reduce memory usage

- 2 Type :

- Auto-Summarization :

- * Return the mask in to the default Class
- * The default routing in RIP and EIGRP
- * Canceled in RIP and EIGRP by command

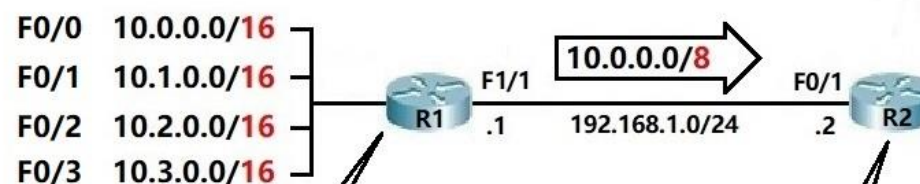
```
R1(config)# router rip
R1(config-router)# no auto-summary
```

- Manual Summarization :

- * Used in OSPF and IS-IS
- * Done in OSPF by command

```
R1(config)# router OSPF 1
R1(config-router)# area 1 range x.x.x.x x.x.x.x
```

Default Auto-summary



```
R2# show ip route
Codes: C - connected, S - static, R - RIP, D - EIGRP
R 10.0.0.0/8 [120/1] via 192.168.1.1, 00:21:41, F0/1
```

```
R1# show ip route
Codes: C - connected, S - static, R - RIP, D - EIGRP

10.0.0.0/8 is variable subnetted ,4 subnets , 1 masks
C 10.0.0.0/16 is directly connected, FastEthernet0/0
C 10.1.0.0/16 is directly connected, FastEthernet0/1
C 10.2.0.0/16 is directly connected, FastEthernet0/2
C 10.3.0.0/16 is directly connected, FastEthernet0/3
C 192.168.1.0/24 is directly connected, FastEthernet1/1
```

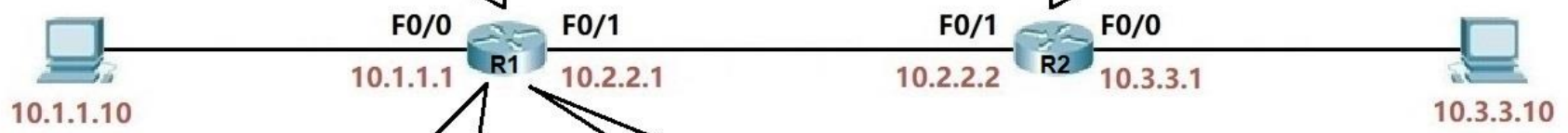

- RIP

```
R1(config)# router rip
R1(config-router)# version 2
R1(config-router)# network 10.1.1.0
R1(config-router)# network 10.2.2.0

R1(config-router)# no auto-summary
R1(config-router)# passive-interface f0/0
```

```
R2(config)# router rip
R2(config-router)# version 2
R2(config-router)# network 10.3.3.0
R2(config-router)# network 10.2.2.0

R2(config-router)# no auto-summary
R2(config-router)# passive-interface f0/0
```



```
R1# show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 8 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Default version control: send version 2, receive 2
Automatic network summarization is not in effect

Routing for Networks:
10.1.1.0
10.2.2.0

Passive Interface(s):
FastEthernet0/0

Routing Information Sources:
Gateway Distance Last Update
10.2.2.2 120 00:00:19
```

```
R1# show ip route
Codes: C - connected, S - static, R - RIP, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF

Gateway of last resort is not set

C 10.1.1.0 is directly connected, FastEthernet0/0
C 10.2.2.0 is directly connected, FastEthernet0/1
R 10.3.3.0 [120/1] via 10.2.2.2, 00:00:03, FastEthernet0/1

R1# show ip rip database
```

```
R1# debug ip rip
RIP protocol debugging is on

RIP: received v2 update from
10.2.2.2 on FastEthernet0/1
10.3.3.0/8 via 0.0.0.0 in 1 hops

RIP: sending v2 update to
224.0.0.9 via FastEthernet0/1
RIP: build update entries

R1# no debug all
```