UNIVERSITY OF ASIA PACIFIC

Department of Computer Science & Engineering

REPORT

Course Title : Data Communications Lab

Course Code : CSE 304

Topic: : Report on RIP 1, RIP2, RIPng & their differences.

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Routing Information Protocol (RIP) protocol are the intradomain (interior) routing protocol which is based on distance vector routing and it is used inside an autonomous system. Within an autonomous system, the intra-domain routing protocol RIP is utilized. Intra-domain in this context refers to packet routing within a specified domain, such as web browsing inside a corporate setting. Knowing the packet's structure, the number of fields it includes, and how these fields affect the routing table is crucial in understanding the RIP. Routers and network links are called node. It is an Application layer protocol that runs on top of UDP well-known port 520.

Features of RIP:

1. Updates of the network are exchanged periodically.
2. Updates (routing information) are always broadcast.
3. Full routing tables are sent in updates.
4. Routers always trust routing information received from neighbor routers. This is also known as *Routing on* rumors.

There are **three** versions of routing information protocol**:**

1. **RIP Version1**
2. **RIP Version2,** and
3. **RIPng**

RIP 1(RIP Version1): RIP v1 uses what is known classful routing. Classful addressing is the use of Class A, Class B, and Class C addresses. (Class D is reserved for multicasts, and Class E is reserved for future use.) Class A, B, and C addresses define a set number of binary bits for the subnet portion.

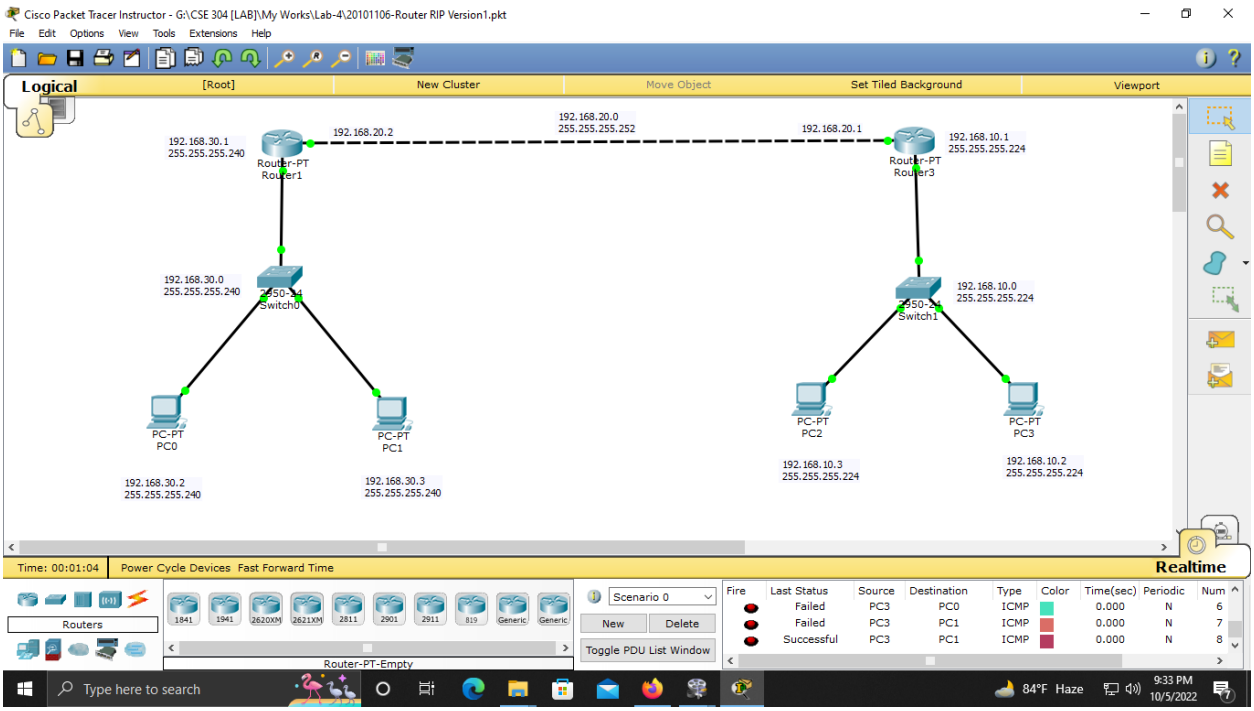

Fig 01: RIP1 with successful status

For example, a Class A network ranges from 1–127 and uses a subnet mask of 255.0.0.0. A Class B network uses the mask 255.255.0.0, and Class C uses 255.255.255.0. RIP v1 does not support authentication of update messages (plain-text or MD5). RIP v1 is an older, no longer much used routing protocol.

RIP 2(RIP Version2): RIP v2 is a classless protocol and it supports classful, variable-length subnet masking (VLSM), CIDR, and route summarization. RIPv2 supports authentication of RIPv2 update messages (MD5 or plain-text).

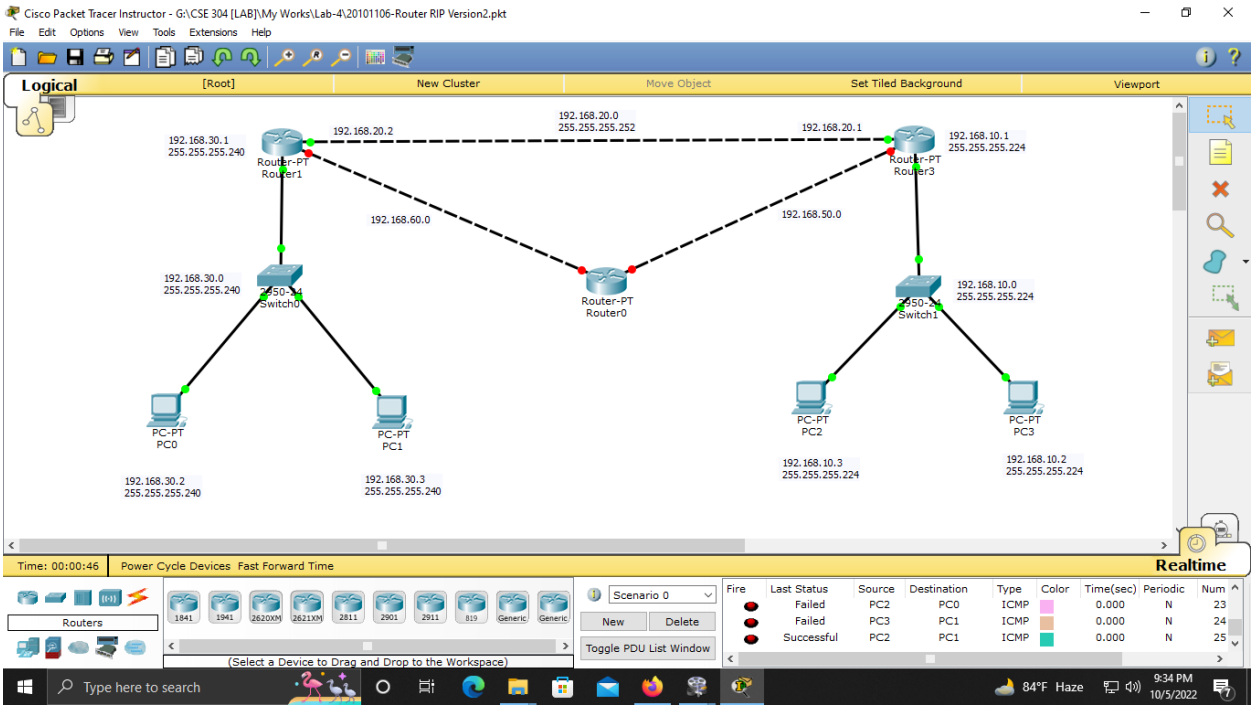

Fig 02: RIP2 with successful status

Authentication helps in confirming that the updates are coming from authorized sources. It also supports multicast routing updates to reduce resource consumption (as opposed to using broadcasting in RIP v1). RIP v2 can be useful in small, flat networks or at the edge of larger networks because of its simplicity in configuration and usage.

RIPng: RIPng works basically in the same manner as RIP v2 with one notable exception. RIPng can only run on IPv6 networks. Additionally, it uses different IP address lengths, RIPng uses 128-bit IP addresses (to accommodate IPv6 128 bit addressing), compared with RIPv2's 32-bit addresses.

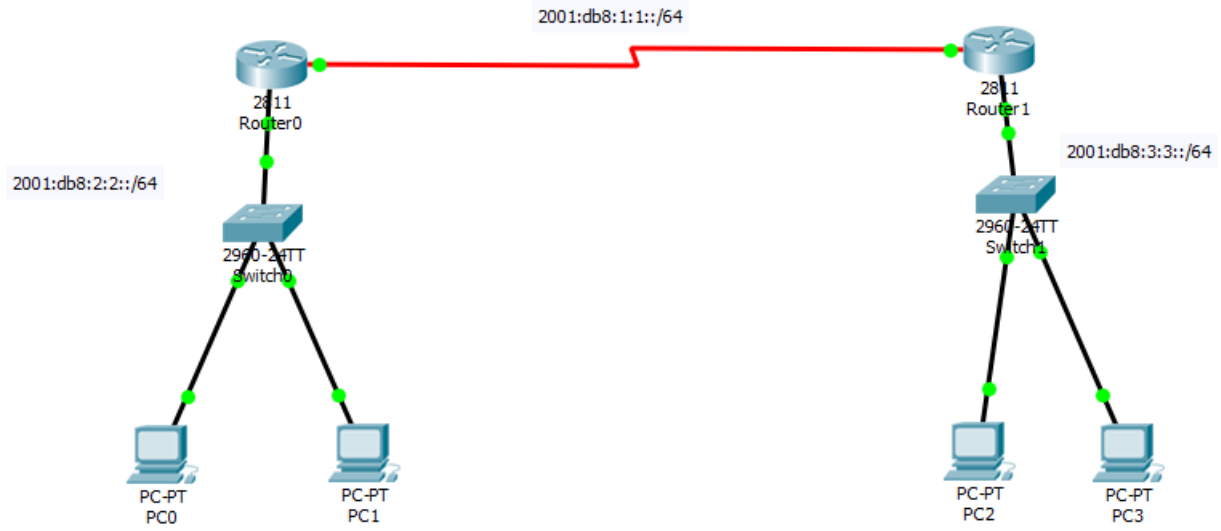

Fig 03: Ripng

Difference between **RIP1**, **RIP2** and **RIPng**:

RIP1	RIP2	RIPng
RIP1 doesn't support VLSM	RIP2 supports VLSM	RIPng also supports VLSM
Broadcast at 255.255.255.255	Multicast at 224.0.0.9	Multicast at FF02::9 (RIPng can only run on IPv6 networks)
Sends update as broadcast	Sends update as multicast	Sends update as multicast
Classful routing protocol	Classless protocol updated supports classful	Classless updates are sent
Doesn't support authentication of updated messages	Supports authentication of RIPv2 update messages	-
UDP port 520	UDP port 520	UDP port 521
Classful	Classless	IPv6
RIP1 does not provide trigger updates.	RIP2 provides trigger updates.	RIPng provides trigger updates.
-	Authentification plain-text ou MD5	Authentification IPv6 AH/ESP

THE END