Lab N° 2
RIP Configuration

Routing Information Protocol (RIP)

RIP stands for **Routing Information Protocol**. It is a **distance-vector routing protocol** that uses the **hop count** metric to determine the best routing path.

RIP is an **open standard protocol**, meaning it can be used on routers from different vendors. However, it supports a maximum of **15 hops**, which limits its use to **small networks**.

There are two versions of RIP:

- RIPv1
- RIPv2

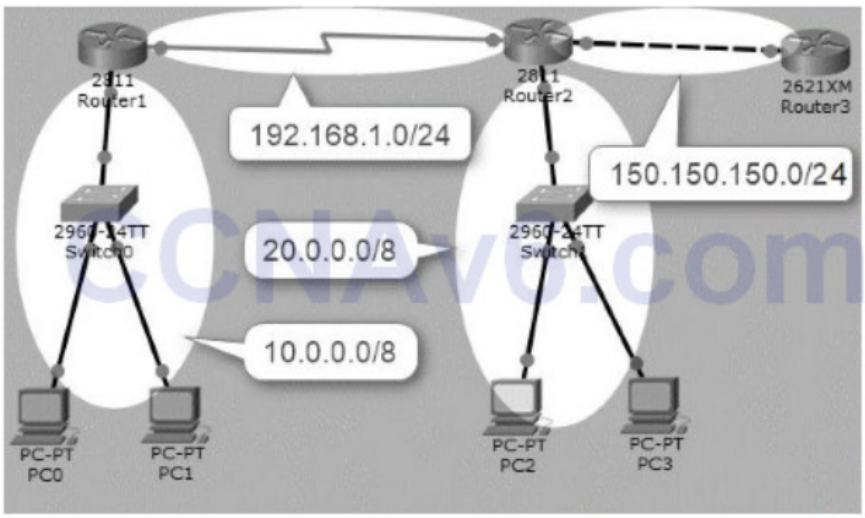
RIPv2 includes additional features, although both versions share the same basic functionality.

Differences Between RIPv1 and RIPv2

No.	Feature	RIPv1	RIPv2
1	CIDR and VLSM	Not supported	Supported
2	Authentication	Not supported	Supported
3	Discontinuous Networks	Not supported	Supported

Network Topology Setup

In this Lab, you will build a network topology using Packet Tracer. The following figure shows the topology that we are going to use for this Lab.



- Connect R1 to R2 using the **Serial interfaces** (S1/0).
- Connect R2 to R3 using the **FastEthernet interfaces** (Fa0/1 on both routers).
- Connect PCs to their respective switches, and switches to routers as shown in the topology diagram.

Step 1: Basic Router Configuration

- Set the hostnames for the routers:
  - Router1 → **R1**
  - Router2 → **R2**
  - Router3 → **R3**
- Configure the basic router settings:
  - Enable interfaces
  - Set passwords if needed (optional)

Step 2: IP addressing configuration

No.	Device	Interface	IP Address
1	Router1	Fa0/1	10.0.0.1/8
		S1/0	192.168.1.1/24
2	Router2	S1/0	192.168.1.1/24
		Fa0/0	20.0.0.1/8
		Fa0/1	150.150.150.1/24
3	Router3	Fa0/0	150.150.150.2/24
4	Switch1	–	N/A
5	Switch2	–	N/A
6	PC0	Fa0	10.0.0.2/8
7	PC1	Fa0	10.0.0.3/8
8	PC2	Fa0	20.0.0.2/8
9	PC3	Fa0	20.0.0.3/8

Step 2: Configuring IP Addresses

- Configure the **PCs** with their assigned IP addresses and subnet masks.
- Configure the **routers' interfaces** with the correct IP addresses
- Ensure all interfaces are activated
- Ping from PCs to their respective routers.
- Ping between PCs in different networks.

Step 3: Configuring RIPv1

- Enable the RIP routing protocol on each router.
- Advertise the correct networks on the different routers
- Verify the routes learned by the RIP protocol **ip route**

- Identify which routing protocol is running on each router **show ip protocols**.
- Observe the routing updates exchanged between routers use the command **debug ip rip**
- Stop any debugging processes after observation use the command **undebug all**

Step 4: Configuring RIPv2

- Modify the RIP configuration on each router to use **version 2**.
- Verify that the new configuration is correctly applied using command **show ip rip protocols**

Step 5: saving configuration

- Save the running configuration on all routers.
- Save the topology file in Packet Tracer for future use.