Computer Network Report

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B. TECH COMPUTER SCIENCE AND ENGINEERING (SEC-C 3rd YEAR, 5TH SEMESTER) (FROM SRM INSTITUTE OF SCIENCE AND TECHNOLOGY – TRICHY)

**Lab 7: Configure RIP Version 1 (RIPv1) on Cisco Packet Tracer**

Objective:

This lab focuses on configuring Routing Information Protocol (RIP) Version 1 (RIPv1) on a router to allow dynamic routing between multiple devices. RIP helps routers exchange routing table information, enabling them to adapt to changes in the network topology.

**Network Design:**

1. **Devices**:
   * 2 Router 1941
   * 2 Cisco Switch 2960
   * 4 PC-PT
2. **Network Topology**:
   * **Router 1 (R1)** connected to **Switch 1 (SW1)**
   * **Router 2 (R2)** connected to **Switch 2 (SW2)**
   * **PC1** and **PC2** connected to **SW1**
   * **PC3** and **PC4** connected to **SW2**
   * **R1** and **R2** connected via a **Serial DCE-DTE cable**

**Procedure:**

**Step 1: Configure Network Addresses**

* **PC1**: 192.168.10.1 (Subnet Mask: 255.255.255.0)
* **PC2**: 192.168.10.2 (Subnet Mask: 255.255.255.0)
* **PC3**: 192.168.20.1 (Subnet Mask: 255.255.255.0)
* **PC4**: 192.168.20.2 (Subnet Mask: 255.255.255.0)
* **R1** Serial Interface: 10.0.0.1 (Subnet Mask: 255.255.255.252)
* **R2** Serial Interface: 10.0.0.2 (Subnet Mask: 255.255.255.252)

**Step 2: Configure the Routers**

1. **Access Router R1 CLI**:
   * Press **Enter** to start.
   * Type enable to activate privileged mode.
   * Type config t to enter global configuration mode.
2. **Configure R1 Interfaces**:

* Configure the **Serial 0/0/0** interface:

interface Serial0/0/0

ip address 10.0.0.1 255.255.255.252

no shutdown

* Configure the **GigabitEthernet 0/0** interface connected to **SW1**:

interface GigabitEthernet0/0

ip address 192.168.10.1 255.255.255.0

no shutdown

1. **Access Router R2 CLI**:

* Press **Enter** to start.
* Type enable to activate privileged mode.
* Type config t to enter global configuration mode.

1. **Configure R2 Interfaces**:

Configure the **Serial 0/0/0** interface:

interface Serial0/0/0

ip address 10.0.0.2 255.255.255.252

no shutdown

Configure the **GigabitEthernet 0/0** interface connected to **SW2**:

interface GigabitEthernet0/0

ip address 192.168.20.1 255.255.255.0

no shutdown

**Step 3: Configure RIP on the Routers**

1. **Configuring RIP on R1**:
   * Enter global configuration mode and enable RIP:

config t

router rip

version 1

network 192.168.10.0

network 10.0.0.0

**Configuring RIP on R2**:

* Enter global configuration mode and enable RIP:

config t

router rip

version 1

network 192.168.20.0

network 10.0.0.0

**Step 4: Configuring PCs**

1. **PC1 Configuration**:
   * Go to the **desktop** of PC1, select **IP Configuration**, and assign:
     + IP Address: 192.168.10.1
     + Subnet Mask: 255.255.255.0
     + Default Gateway: 192.168.10.1
2. **PC2 Configuration**:
   * IP Address: 192.168.10.2
   * Subnet Mask: 255.255.255.0
   * Default Gateway: 192.168.10.1
3. **PC3 Configuration**:
   * IP Address: 192.168.20.1
   * Subnet Mask: 255.255.255.0
   * Default Gateway: 192.168.20.1
4. **PC4 Configuration**:
   * IP Address: 192.168.20.2
   * Subnet Mask: 255.255.255.0
   * Default Gateway: 192.168.20.1

**Step 5: Verify Configuration**

1. **Ping Between PCs**:
   * On **PC1**, open the command prompt and type ping 192.168.20.1. You should receive successful responses.
   * Similarly, ping between **PC2** and **PC3** to verify end-to-end connectivity.
2. **Check RIP Routing Tables**:
   * On **R1 CLI**, type show ip route to verify that the routes learned via RIP are visible in the routing table.

**Step 6: Save the Configuration**

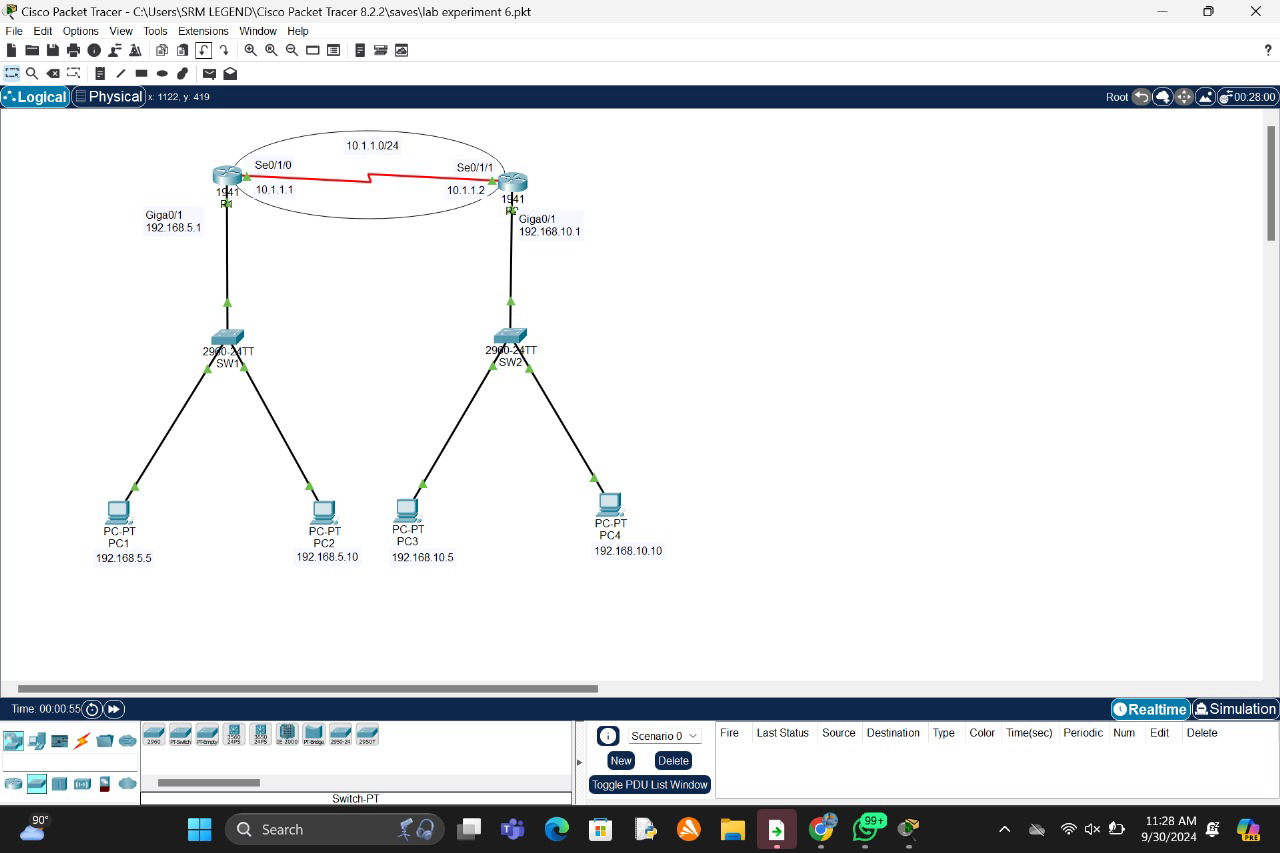
1. Save the router configuration:

copy running-config startup-config

**Conclusion:**

By completing this lab, we successfully configured RIP Version 1 on two routers, enabling dynamic routing between two LANs. The routers shared their routing tables, allowing PCs from one network to communicate with PCs from another network.

**Screenshot:**

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