



COMPUTER NETWORKS LAB SEVEN 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
```

3. Access Router R2 CLI:

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

4. 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:

