NETWORKING ASSIGNMENT-4

Cisco tracer lab assignments

Lab Report: Dynamic Routing Using RIP Version 1

Objective:

To configure and verify **dynamic routing using RIP Version 1 (Routing Information Protocol)** in a network with 3 routers, 3 switches, and 6 PCs.

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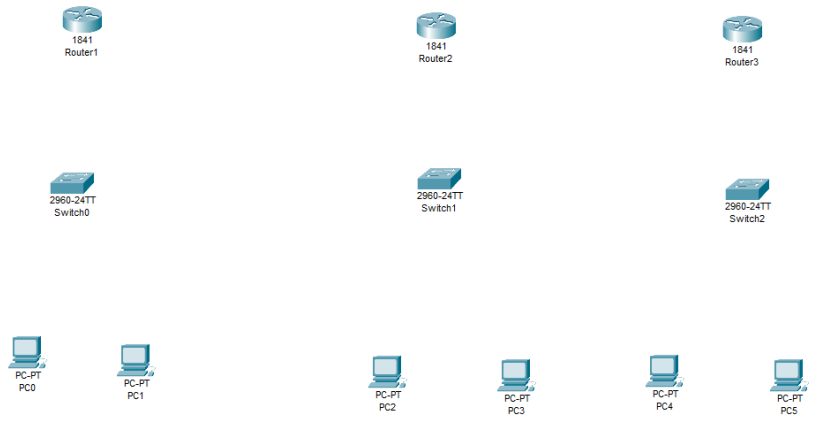
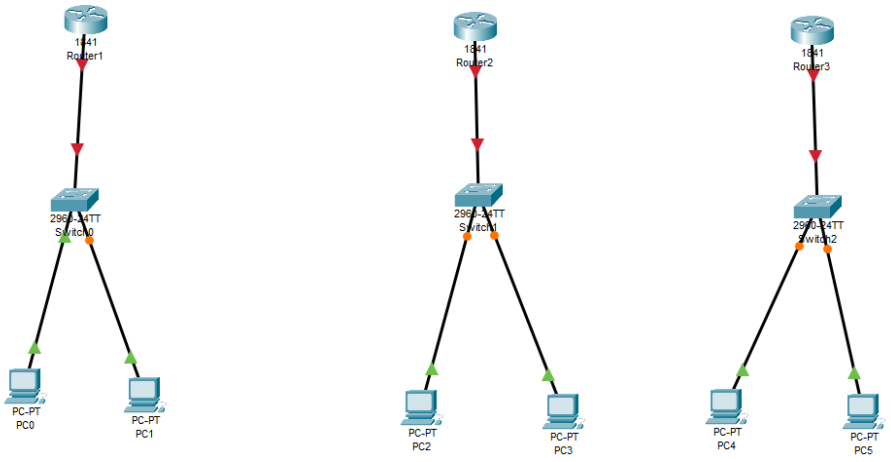
1. Network Topology

1. **Setup Devices**:
    - Place **3 Routers**, **3 Switches**, and **6 PCs** in the Cisco Packet Tracer workspace.
    - Name the routers **Router1**, **Router2**, and **Router3**.
    - Assign switches as **Switch1**, **Switch2**, and **Switch3**.
    - PCs: **PC1**, **PC2**, **PC3**, **PC4**, **PC5**, and **PC6**.



2. **Connections**:

- **End Devices to Switches**:
  - Connect PC1 and PC2 to Switch1.
  - Connect PC3 and PC4 to Switch2.
  - Connect PC5 and PC6 to Switch3.
- **Switches to Routers**:
  - Switch1 to **Router1 (FastEthernet0/0)**.
  - Switch2 to **Router2 (FastEthernet0/0)**.
  - Switch3 to **Router3 (FastEthernet0/0)**.
- **Router-to-Router Serial Connections**:
  - Router1 (Serial0/1/0) ↔ Router2 (Serial0/1/0) using **10.0.0.0/24**.
  - Router2 (Serial0/1/1) ↔ Router3 (Serial0/1/0) using **11.0.0.0/24**.
  - Router1 (Serial0/1/1) ↔ Router3 (Serial0/1/1) using **12.0.0.0/24**.



2. IP Address Configuration

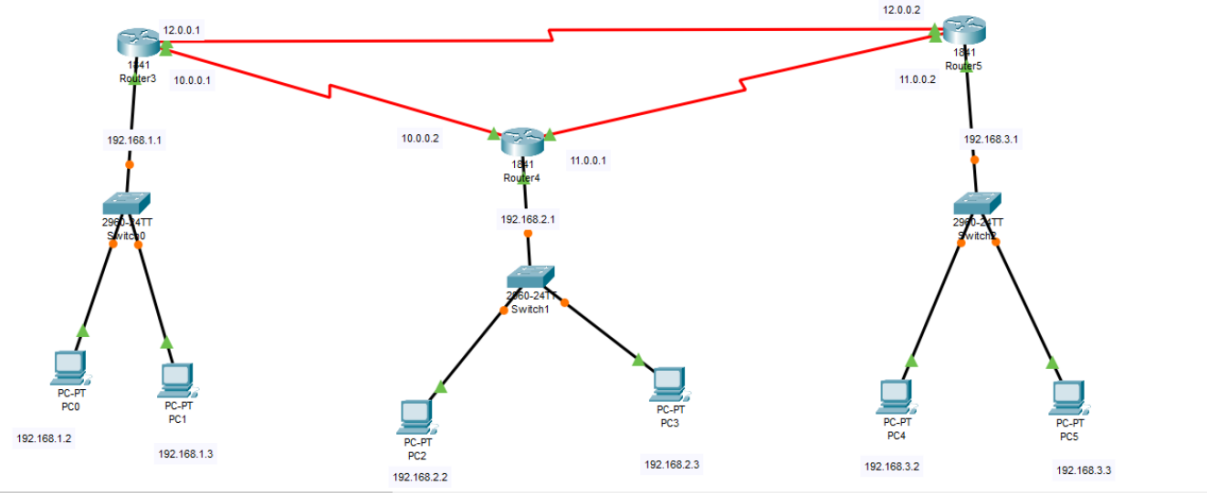
Router Interfaces

Router	Interface	IP Address	Subnet Mask
Router1	FastEthernet0/0	192.168.1.1	255.255.255.0

Router1	Serial0/1/0	10.0.0.1	255.255.255.0
Router1	Serial0/1/1	12.0.0.1	255.255.255.0
Router2	FastEthernet0/0	192.168.2.1	255.255.255.0
Router2	Serial0/1/0	10.0.0.2	255.255.255.0
Router2	Serial0/1/1	11.0.0.1	255.255.255.0
Router3	FastEthernet0/0	192.168.3.1	255.255.255.0
Router3	Serial0/1/0	11.0.0.2	255.255.255.0
Router3	Serial0/1/1	12.0.0.2	255.255.255.0

PC Configurations

PC	IP Address	Subnet Mask	Default Gateway
PC1	192.168.1.2	255.255.255.0	192.168.1.1
PC2	192.168.1.3	255.255.255.0	192.168.1.1
PC3	192.168.2.2	255.255.255.0	192.168.2.1
PC4	192.168.2.3	255.255.255.0	192.168.2.1
PC5	192.168.3.2	255.255.255.0	192.168.3.1
PC6	192.168.3.3	255.255.255.0	192.168.3.1

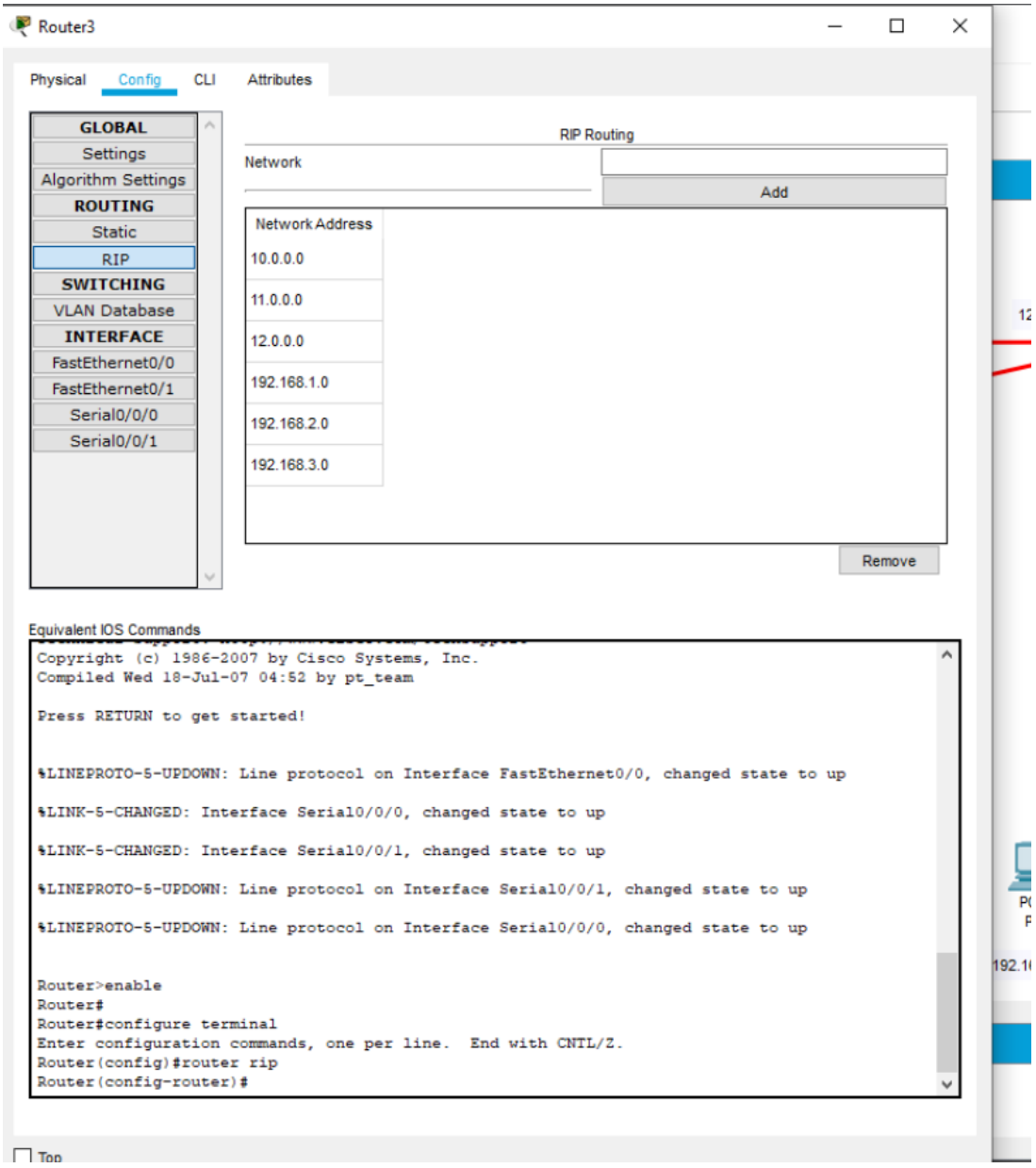


3. RIP Configuration

Dynamic Routing Setup:

Each router is configured to advertise all connected networks. The **RIP Version 1** configuration is as follows:

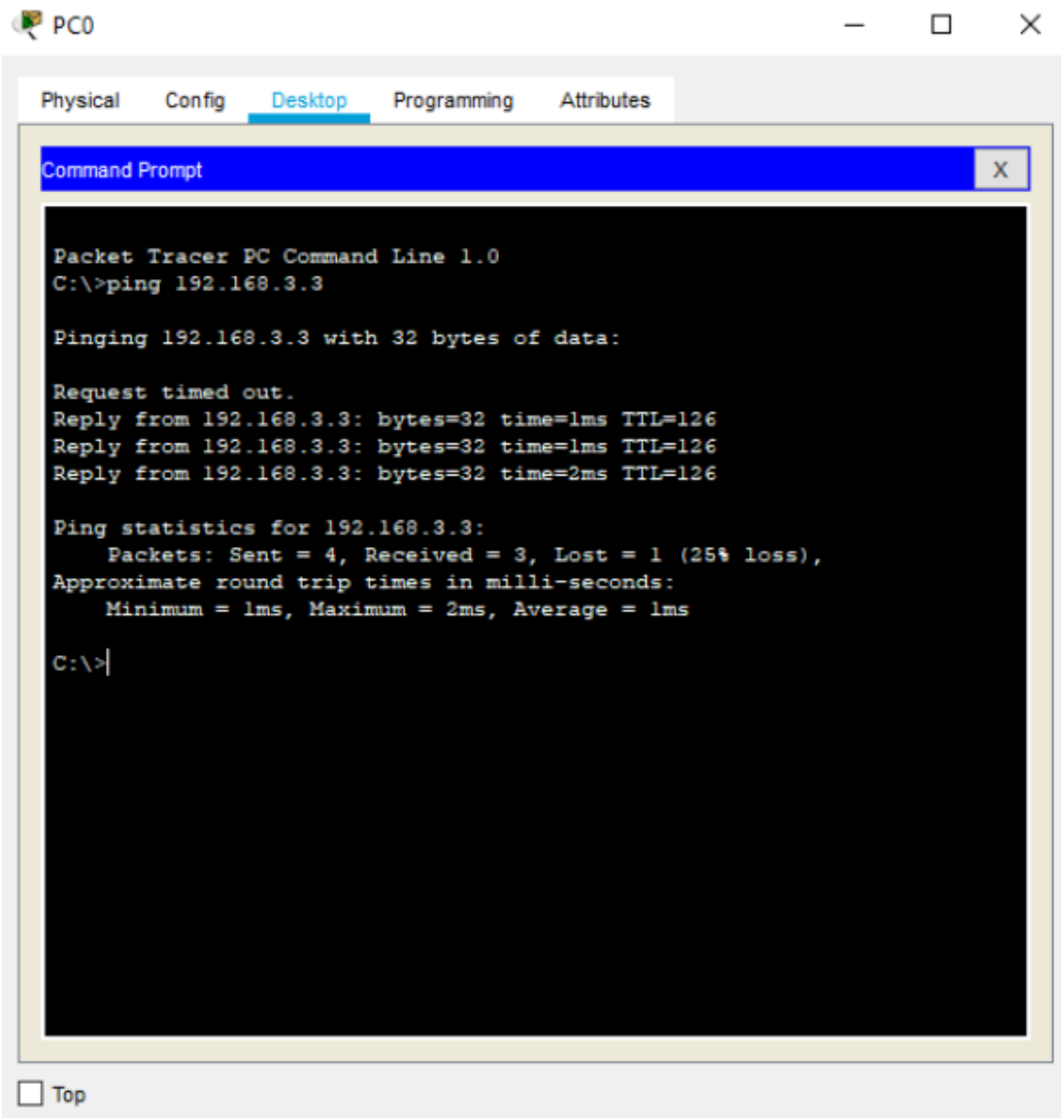
- **Router1**:
  - Advertised Networks: **10.0.0.0**, **11.0.0.0**, **12.0.0.0**, **192.168.1.0**, **192.168.2.0**, **192.168.3.0**.
- **Router2**:
  - Advertised Networks: **10.0.0.0**, **11.0.0.0**, **12.0.0.0**, **192.168.1.0**, **192.168.2.0**, **192.168.3.0**.
- **Router3**:
  - Advertised Networks: **10.0.0.0**, **11.0.0.0**, **12.0.0.0**, **192.168.1.0**, **192.168.2.0**, **192.168.3.0**.



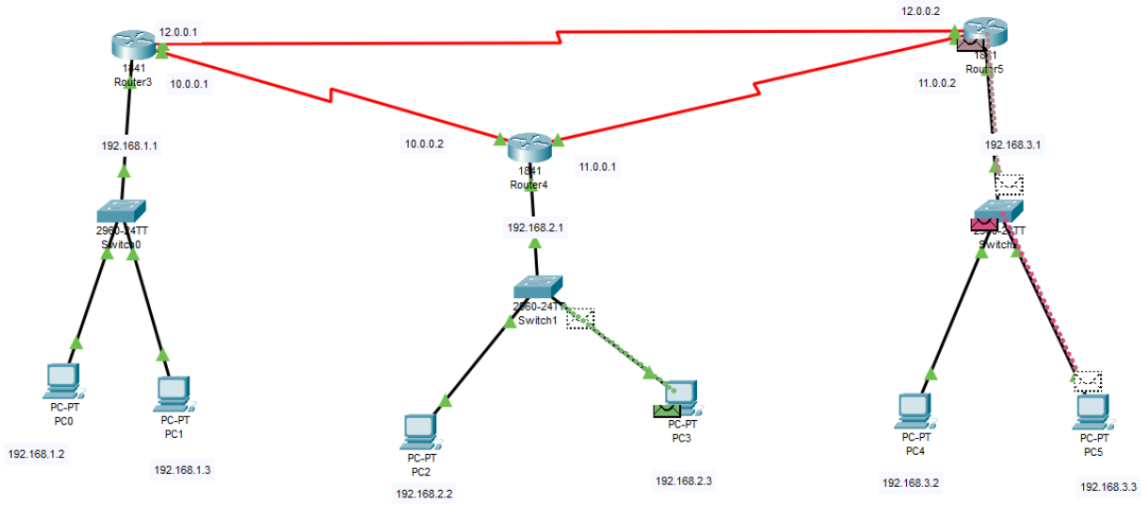
4. Verify Connectivity

1. **Ping Tests**:
   - Test connectivity between PCs on different subnets to confirm dynamic routing is operational.
     - Example:
       - From PC1 (192.168.1.2) to PC5 (192.168.3.2).
       - From PC2 (192.168.1.3) to PC4 (192.168.2.3).
   - Go to **Command Prompt** on each PC and use the `ping` command:

```
ping 192.168.3.2
```



5. Final Network Topology



Conclusion

The implementation of **RIP Version 1** for dynamic routing successfully enabled communication between devices across the network. The advertisement of all networks (including **192.168.1.0**, **192.168.2.0**, and **192.168.3.0**) through all routers ensured seamless communication and redundancy in the routing paths.

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