

Practical 5: To configure and test static routing in Cisco Packet Tracer among five interconnected networks

Objectives

1. To learn and apply the principles of static routing by manually configuring routes on interconnected routers to enable communication between multiple, non-directly connected networks.
2. To verify and troubleshoot network connectivity using essential networking commands such as `ping`, `traceroute`, and `show ip route` to confirm proper routing and packet forwarding.

Lab Task

1. Build the Network Topology As shown below

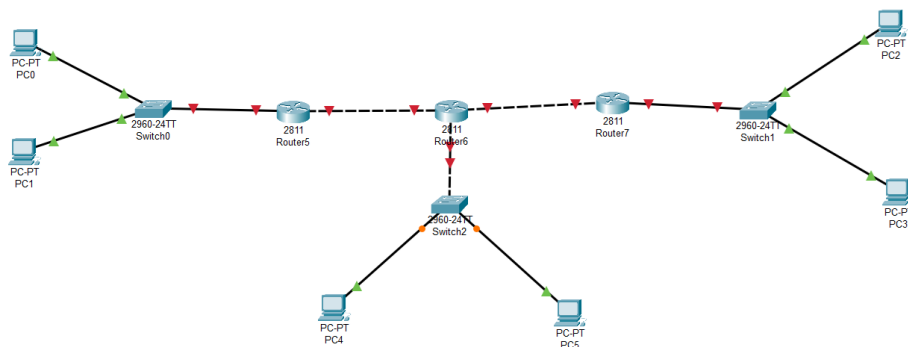


Figure 1: Network Topology

2. Configure All Devices

- **PC Configuration:** Assign a static IP address, subnet mask, and default gateway to each PC. The default gateway must be the IP address of its connected router's LAN interface.
- **Router Configuration:**
 - Configure interfaces with the specified IP addresses and subnet masks.
 - Configure static routes on each router to reach all non-directly connected networks.

3. Verify and Test Connectivity

- **View Routing Tables:** On each router, use the `show ip route` command to confirm that all configured static routes are present and correctly listed.
- **Ping Test:** From a PC in one LAN, use the `ping` command to test connectivity to PCs and router interfaces in all other networks.
- **Traceroute Test:** Use the `tracert` command from a PC to trace the path of packets to a destination in a different network.

Report Submission Requirements

Your report must include the following sections.

1. Network Topology Diagram

- Provide a clear screenshot of the network diagram created in Packet Tracer.

2. Configuration of All Devices

- **PC Configurations:** Provide screenshots of the **IP Configuration** window for all PCs, showing the assigned IP address, subnet mask, and default gateway.
- **Router Configurations:** Copy and paste the full CLI configuration output for each router (R1, R2, and R3). The configurations should show the interface configurations, and all static routes.

3. Routing Tables

- Provide screenshots of the `show ip route` command output for each of the three routers.

4. Connectivity Testing

- **Ping Results:** Provide screenshots of successful `ping` commands from one PC to at least two different destinations in different networks.

5. Packet Traceroute

- Provide a screenshot of the `tracert` command output from a PC in network 1 to a PC in network 2. The output must show the sequence of hops through the intermediate routers.