LAB NO: 6

Designing Computer Network using SWITCH and ROUTER on Cisco Router

A. Designing Computer Network using ROUTER

Objective:

To design and configure a computer network using a Cisco router, allowing different devices in the network to communicate effectively through routing.

Required Equipment:

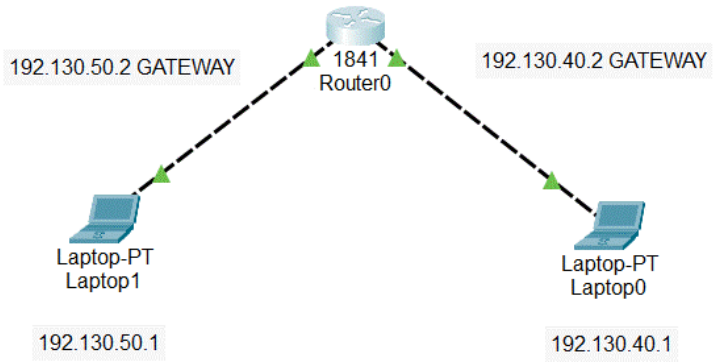
- Cisco Packet Tracer software
- 1 Router (e.g., 1841)
- 2 PCs
- Cables (automatic connection type)

Step 1: Set Up the Topology

1. **Drag and Drop Devices**:
    - Add **one router** and **two PCs** from the device list into the workspace in Cisco Packet Tracer.
2. **Connect the Devices**:
    - Use **crossover cables** to connect each PC directly to the router's **FastEthernet ports**.

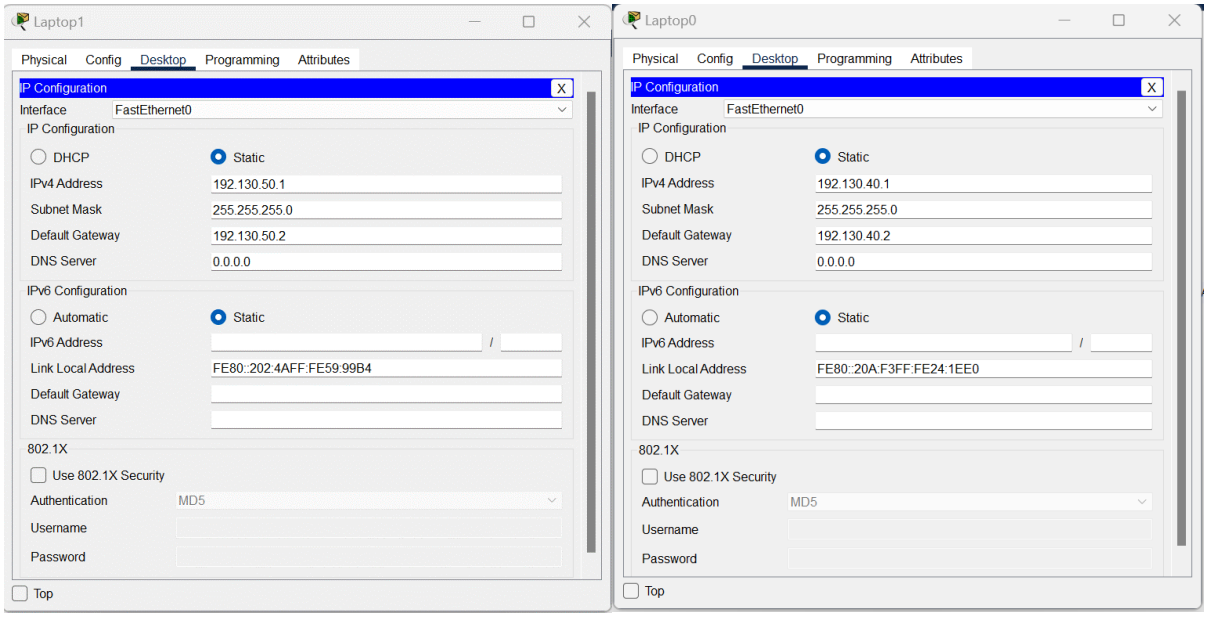
Example:

- PC0 ↔ Router (FastEthernet 0/0)
- PC1 ↔ Router (FastEthernet 0/1)

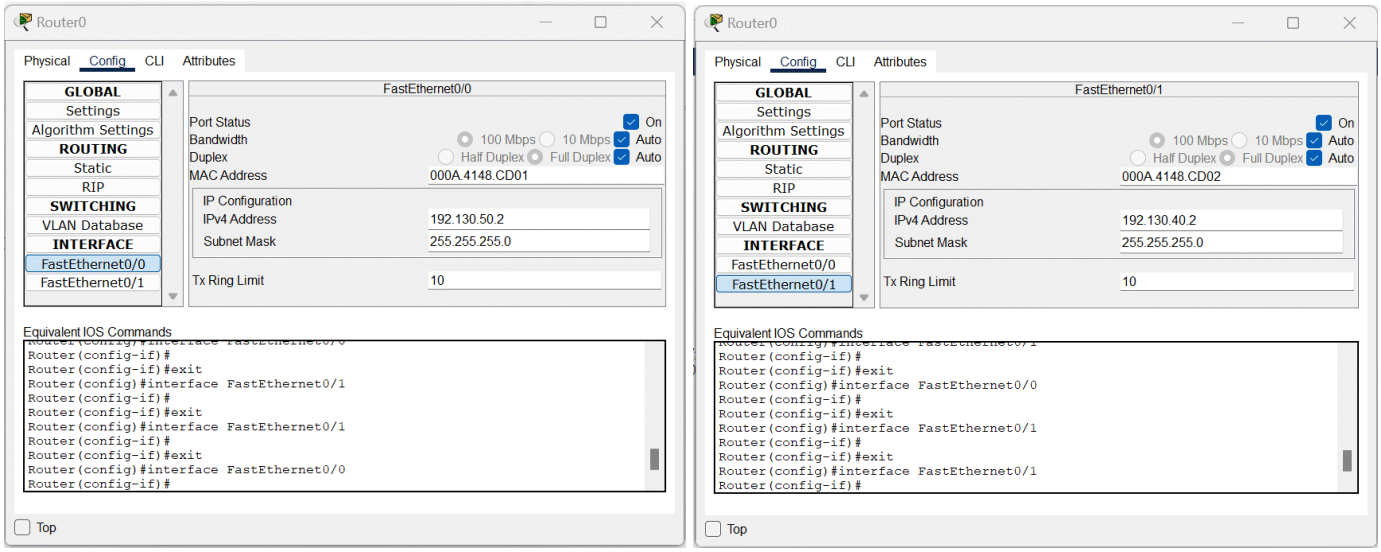


Step 2: Configure the IP Address on Each PC

1. **PC0 Configuration**:
    - Click **PC0** → **Desktop** → **IP Configuration**.
    - Set IP address: 192.130.50.1.
    - Set Subnet Mask: 255.255.255.0.
    - Set Default Gateway: 192.130.50.2
2. **PC1 Configuration**:
    - Set IP address: 192.130.40.1.
    - Set Subnet Mask: 255.255.255.0.
    - Set Default Gateway: 192.130.40.2



- Set Router's IP for FastEthernet 0/0: 192.130.50.2
- Set Router's IP for FastEthernet 0/1: 192.130.40.2



Step 3: Testing Connectivity

1. **Ping Test**:
   - From **PC0**, go to the command prompt and type:

     ping 192.130.50.1

   - From **PC1**, ping 192.130.40.1 to ensure communication between the two PCs.

B. Designing Computer Network using SWITCH
C.

Objective:

To design and configure a simple network in Cisco Packet Tracer using switches to connect multiple PCs.

Required Equipment:

- Cisco Packet Tracer software
- 1 Cisco Switch (Switch-PT)
- 3PCs
- Cables (Copper Straight-through Ethernet cables)

Step-by-Step Procedure:

Step 1: Set Up the Topology

1. **Add Devices**:
    - Drag and drop **one switch** and **three PCs** from the device list into the workspace in Cisco Packet Tracer.
2. **Connect Devices**:
    - Use **straight-through cables** to connect each PC to the switch.

Example:

- PC0 ↔ Switch (FastEthernet 0/1)
- PC1 ↔ Switch (FastEthernet 0/2)
- Laptop0 ↔ Switch (FastEthernet 0/3)

Step 2: Configure IP Addresses on Each PC

1. **PC0 Configuration**:
    - Click **PC0** → **Desktop** → **IP Configuration**.
    - Set the **IP Address**: 192.30.20.1

- Set the **Subnet Mask**: 255.255.255.0
- Leave the Default Gateway field blank, as there is no router in this setup.

2. **PC1 Configuration**:
   - Set the **IP Address**: 192.30.20.2
   - Set the **Subnet Mask**: 255.255.255.0
3. **PC2 Configuration**:
   - Set the **IP Address**: 192.30.20.3
   - Set the **Subnet Mask**: 255.255.255.0

Step 4: Test the Connectivity

1. **Ping Between PCs**:
   - From **PC0**, go to the command prompt and ping **PC1** by typing:

     ping 192.30.20.1

Test connectivity by pinging from PC0 to other PCs (PC2, PC3) as well.

2. **Verify**:

- If the pings are successful, it indicates that the PCs are correctly communicating with each other through the switch.