

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:

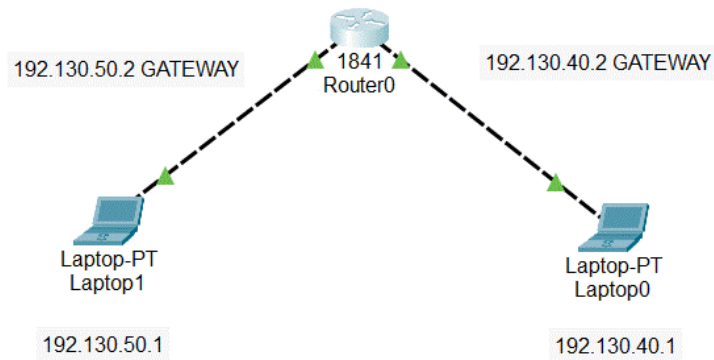
- Add **one router** and **two PCs** from the device list into the workspace in Cisco Packet Tracer.

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)



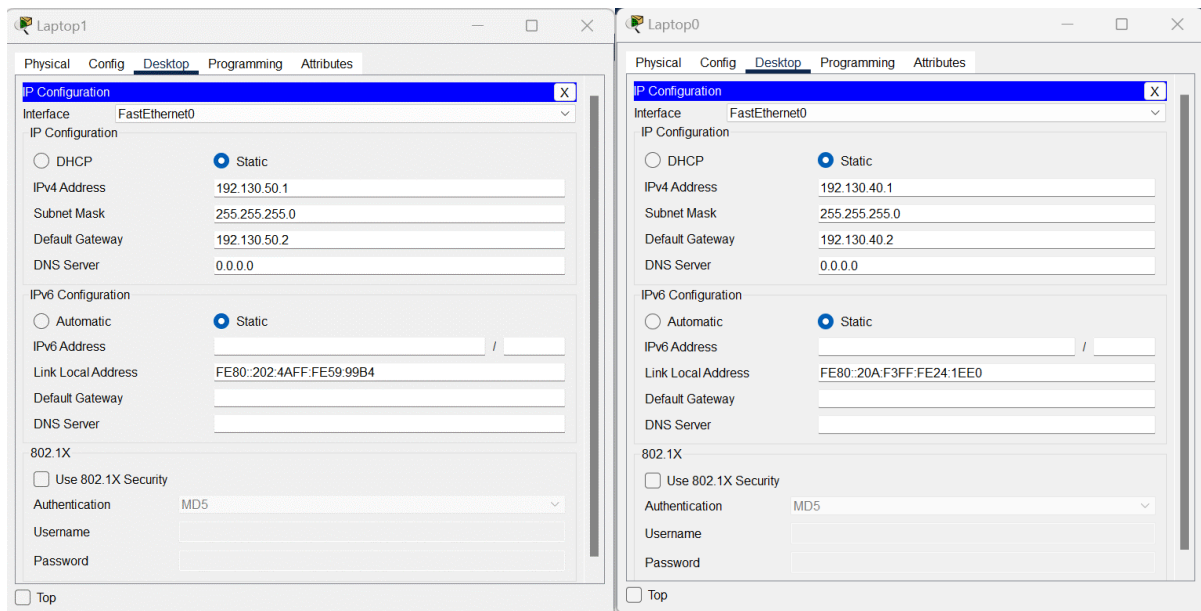
Step 2: Configure the IP Address on Each PC

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



-
- Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

100 Mbps

10 Mbps

Half Duplex

Full Duplex

On

Auto

Auto

000A.4148.CD01

192.130.50.2

255.255.255.0

10

Equivalent IOS Commands

```

Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit

```

☐ Top
- Router0

Physical Config CLI Attributes

GLOBAL

Settings

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ROUTING

Static

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SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/1

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

100 Mbps

10 Mbps

Half Duplex

Full Duplex

On

Auto

Auto

000A.4148.CD02

192.130.40.2

255.255.255.0

10

Equivalent IOS Commands

```

Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit

```

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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

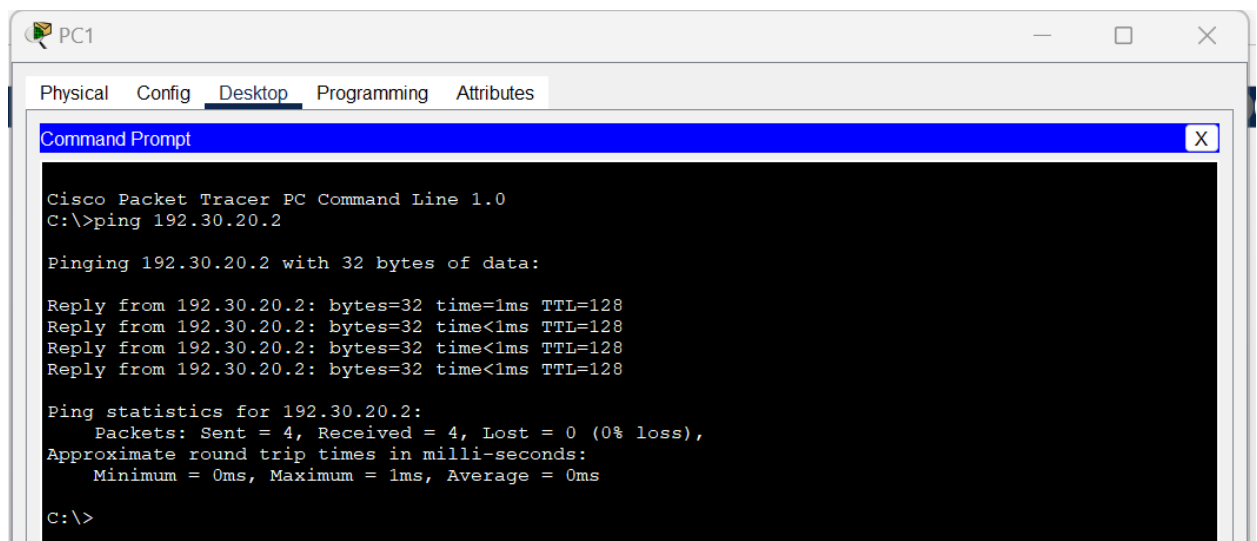
1. Ping Between PCs:

- 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.



The screenshot shows a Cisco Packet Tracer PC Command Line window for PC1. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, showing a Command Prompt window. The Command Prompt displays the output of a ping command from PC0 to PC1 (192.30.20.2). The output shows four successful replies with 32 bytes of data, a time of 1ms, and a TTL of 128. The ping statistics show 4 packets sent, 4 received, and 0% loss.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.30.20.2

Pinging 192.30.20.2 with 32 bytes of data:

Reply from 192.30.20.2: bytes=32 time=1ms TTL=128
Reply from 192.30.20.2: bytes=32 time<1ms TTL=128
Reply from 192.30.20.2: bytes=32 time<1ms TTL=128
Reply from 192.30.20.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.30.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```