

Exp: no: 2

Analyze the network traffic using Packet tracer tool .

[Write the syntax, execute and place the screenshot for all the commands you work.]

Aim:

- a. Configure a simple network connecting two LANs using Cisco Packet Tracer.

Equipment:

- 2 x 2960-24TT Switches
- 1 x ISR4331 Router
- 4 x PCs

Syntax:

Step 1: Open Cisco Packet Tracer

1. Open Cisco Packet Tracer on your computer.

Step 2: Create the Network Topology

1. **Drag and Drop Devices:** Drag two 2960-24TT Switches, one ISR4331 Router, and four PCs onto the workspace.

2. Connect Devices:

- Use the Copper Straight-Through cable to connect:
 - PC0 to Switch0 (Port FastEthernet0/1)
 - PC1 to Switch0 (Port FastEthernet0/2)
 - PC2 to Switch1 (Port FastEthernet0/1)
 - PC3 to Switch1 (Port FastEthernet0/2)
 - Switch0 (Port GigabitEthernet0/1) to Router (Port GigabitEthernet0/0)
 - Switch1 (Port GigabitEthernet0/1) to Router (Port GigabitEthernet0/1)

Step 3: Configure IP Addresses on PCs

1. PC0:

- IP Address: 192.168.1.2
- Subnet Mask: 255.255.255.0

- Default Gateway: 192.168.1.1
2. **PC1:**
- IP Address: 192.168.1.3
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.1.1
3. **PC2:**
- IP Address: 192.168.2.2
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.2.1
4. **PC3:**
- IP Address: 192.168.2.3
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.2.1

Step 4: Configure IP Addresses on Router

1. **Router:**
- Enter the CLI of the ISR4331 Router.
 - Execute the following commands:
- ```
Router> enable

Router# configure terminal

Router(config)# interface GigabitEthernet0/0

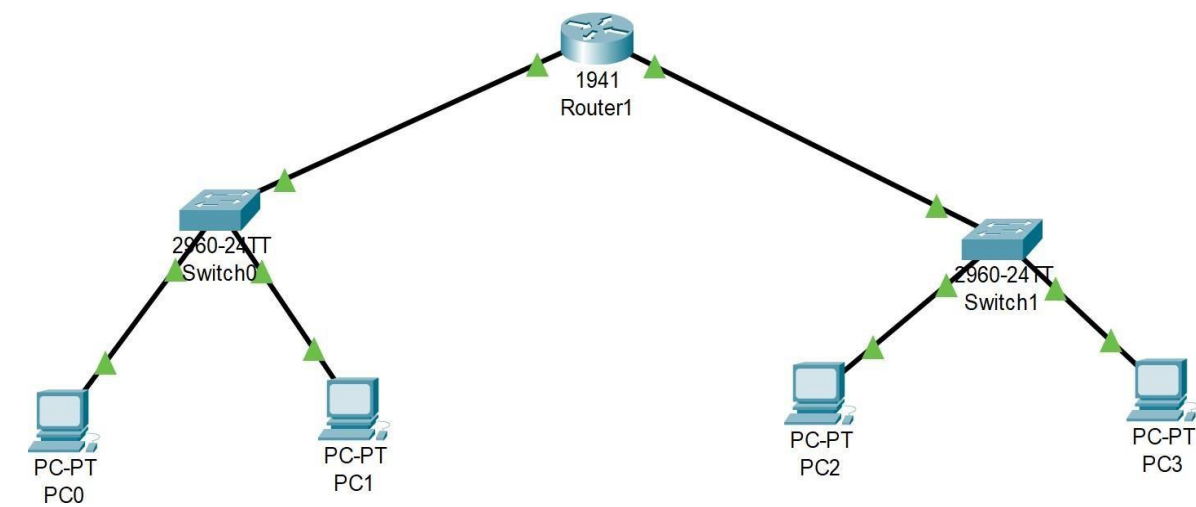
Router(config-if)# ip address 192.168.1.1
255.255.255.0Router(config-if)# no shutdown

Router(config-if)# exit

Router(config)# interface GigabitEthernet0/1

Router(config-if)# ip address 192.168.2.1
255.255.255.0Router(config-if)# no shutdown

Router(config-if)# exit
```



| Realtime Simulation    |            |             |         |             |      |       |           |          |        |             |
|------------------------|------------|-------------|---------|-------------|------|-------|-----------|----------|--------|-------------|
| Scenario 0             | Fire       | Last Status | Source  | Destination | Type | Color | Time(sec) | Periodic | Num    | Edit Delete |
| New Delete             | Successful | PC0         | Router1 | ICMP        |      | 0.000 | N         | 0        | (edit) | (delete)    |
| Toggle PDU List Window | Successful | PC2         | Router1 | ICMP        |      | 0.000 | N         | 1        | (edit) | (delete)    |
|                        | Successful | PC0         | PC2     | ICMP        |      | 0.000 | N         | 2        | (edit) | (delete)    |

- b. Configure a network using Ring/Bus/Tree Topology using Packet tracer tool.

*Sol:*

## Equipment:

- 2960-24TT Switches
- ISR4331 Router
- PCs
- Appropriate cables (Copper Straight-Through and Copper Cross-Over)

## Steps for Different Topologies:

### 1. Ring Topology:

**Ring Topology** connects each device to exactly two other devices, forming a single continuous pathway for signals through each device.

## Step 1: Open Cisco Packet Tracer

1. Open Cisco Packet Tracer on your computer.

## Step 2: Create the Network Topology

1. **Drag and Drop Devices:** Drag three 2960-24TT Switches and four PCs onto the workspace.

### 2. Connect Devices:

- Use the Copper Cross-Over cable to connect:
  - Switch0 (Port GigabitEthernet0/1) to Switch1 (PortGigabitEthernet0/1)
  - Switch1 (Port GigabitEthernet0/2) to Switch2 (PortGigabitEthernet0/1)
  - Switch2 (Port GigabitEthernet0/2) to Switch0 (PortGigabitEthernet0/2)
- Use the Copper Straight-Through cable to connect:
  - PC0 to Switch0 (Port FastEthernet0/1)
  - PC1 to Switch1 (Port FastEthernet0/1)
  - PC2 to Switch2 (Port FastEthernet0/1)
  - PC3 to Switch0 (Port FastEthernet0/2)

## Step 3: Configure IP Addresses on PCs

1. **PC0:**

- IP Address: 192.168.1.2
- Subnet Mask: 255.255.255.0

2. **PC1:**

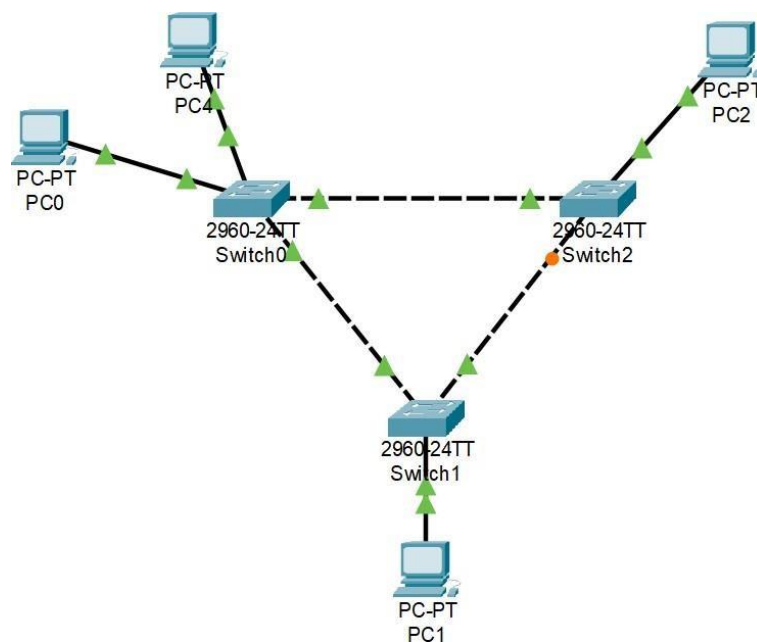
- IP Address: 192.168.1.3
- Subnet Mask: 255.255.255.0

3. **PC2:**

- IP Address: 192.168.1.4
- Subnet Mask: 255.255.255.0

4. **PC3:**

- IP Address: 192.168.1.5
- Subnet Mask: 255.255.255.0



| Realtime Simulation    |      |             |        |             |      |       |           |          |     |                 |
|------------------------|------|-------------|--------|-------------|------|-------|-----------|----------|-----|-----------------|
| Scenario 0             | Fire | Last Status | Source | Destination | Type | Color | Time(sec) | Periodic | Num | Edit Delete     |
| New Delete             |      | Successful  | PC0    | PC1         | ICMP |       | 0.000     | N        | 0   | (edit) (delete) |
| Toggle PDU List Window |      | Successful  | PC2    | PC4         | ICMP |       | 0.000     | N        | 1   | (edit) (delete) |
|                        |      | Successful  | PC1    | PC2         | ICMP |       | 0.000     | N        | 2   | (edit) (delete) |

## 2. Bus Topology:

**Bus Topology** connects all devices to a single central cable, called the bus or backbone.

## Step 1: Open Cisco Packet Tracer

1. Open Cisco Packet Tracer on your computer.

## Step 2: Create the Network Topology

1. **Drag and Drop Devices:** Drag one 2960-24TT Switch and four PCs onto the workspace.

2. **Connect Devices:**

- Use the Copper Straight-Through cable to connect:
  - PC0 to Switch0 (Port FastEthernet0/1)
  - PC1 to Switch0 (Port FastEthernet0/2)
  - PC2 to Switch0 (Port FastEthernet0/3)
  - PC3 to Switch0 (Port FastEthernet0/4)

## Step 3: Configure IP Addresses on PCs

1. **PC0:**

- IP Address: 192.168.1.2
- Subnet Mask: 255.255.255.0

2. **PC1:**

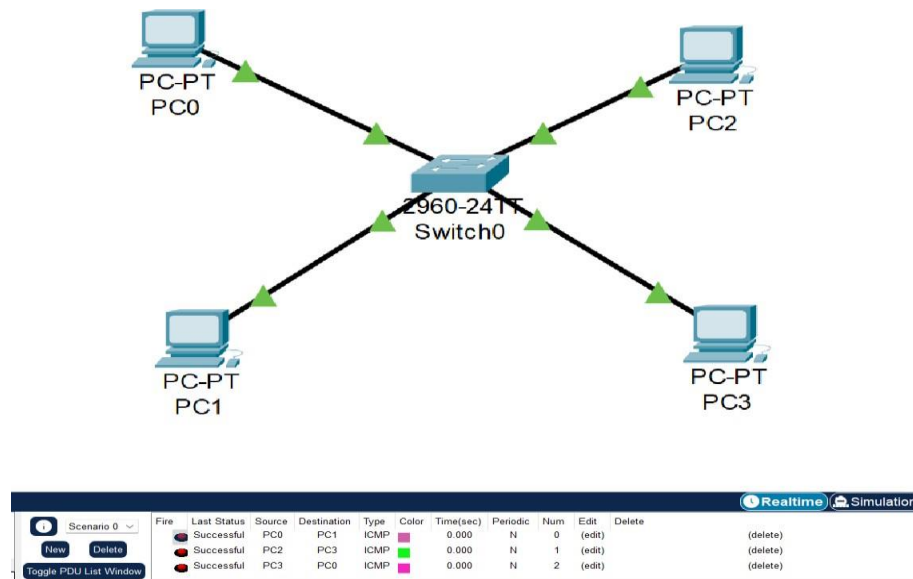
- IP Address: 192.168.1.3
- Subnet Mask: 255.255.255.0

3. **PC2:**

- IP Address: 192.168.1.4
- Subnet Mask: 255.255.255.0

4. **PC3:**

- IP Address: 192.168.1.5
- Subnet Mask: 255.255.255.0



### 3. Tree Topology:

**Tree Topology** combines characteristics of Star and Bus topologies. It consists of groups of star-configured networks connected to a linear bus backbone.

## Step 1: Open Cisco Packet Tracer

1. Open Cisco Packet Tracer on your computer.

## Step 2: Create the Network Topology

1. **Drag and Drop Devices:** Drag three 2960-24TT Switches, one ISR4331 Router, and six PCs onto the workspace.
2. **Connect Devices:**
  - Use the Copper Straight-Through cable to connect:
    - Router (Port GigabitEthernet0/0) to Switch0 (Port GigabitEthernet0/1)
    - Switch0 (Port GigabitEthernet0/2) to Switch1 (PortGigabitEthernet0/1)
    - Switch0 (Port GigabitEthernet0/3) to Switch2 (PortGigabitEthernet0/1)
    - PC0 to Switch1 (Port FastEthernet0/1)

- PC1 to Switch1 (Port FastEthernet0/2)
- PC2 to Switch1 (Port FastEthernet0/3)
- PC3 to Switch2 (Port FastEthernet0/1)
- PC4 to Switch2 (Port FastEthernet0/2)
- PC5 to Switch2 (Port FastEthernet0/3)

## Step 3: Configure IP Addresses on PCs

### 1. PC0:

- IP Address: 192.168.1.2
- Subnet Mask: 255.255.255.0

### 2. PC1:

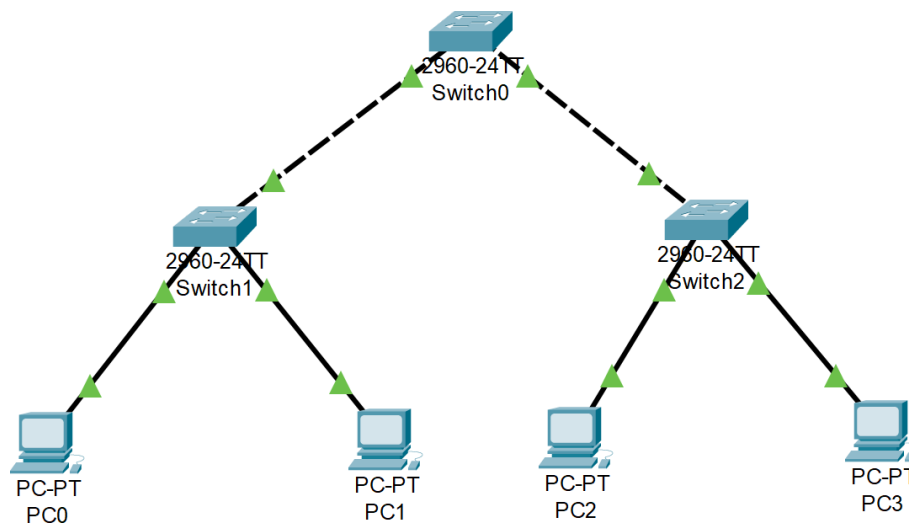
- IP Address: 192.168.1.3
- Subnet Mask: 255.255.255.0

### 3. PC2:

- IP Address: 192.168.1.4
- Subnet Mask: 255.255.255.0

### 4. PC3:

- IP Address: 192.168.1.5
- Subnet Mask: 255.255.255.0





| Realtime Simulation    |             |        |             |      |       |           |          |     |        |          |  |
|------------------------|-------------|--------|-------------|------|-------|-----------|----------|-----|--------|----------|--|
| Scenario 0             |             |        |             |      |       |           |          |     |        |          |  |
| New Delete             |             |        |             |      |       |           |          |     |        |          |  |
| Toggle PDU List Window |             |        |             |      |       |           |          |     |        |          |  |
| Fire                   | Last Status | Source | Destination | Type | Color | Time(sec) | Periodic | Num | Edit   | Delete   |  |
|                        | Successful  | PC0    | PC1         | ICMP |       | 0.000     | N        | 0   | (edit) | (delete) |  |
|                        | Successful  | PC2    | PC3         | ICMP |       | 0.000     | N        | 1   | (edit) | (delete) |  |
|                        | Successful  | PC0    | PC2         | ICMP |       | 0.000     | N        | 2   | (edit) | (delete) |  |

- c. Configure a network for four departments in your college with a minimum of five PCs in a network.

*Sol:*

## Equipment:

- 2960-24TT Switches
- PCs
- Appropriate cables (Copper Straight-Through)

## Steps:

**Step 1:** Open Cisco Packet Tracer

**Step 2:** Create the Network Topology

1. Drag and Drop Devices:

- Drag four 2960-24TT Switches onto the workspace (one for each department).
- Drag twenty PCs onto the workspace (five for each department).

## Step 3: Connect Devices

1. CSE Department:

- **Switch0 (CSE Department):**

- **Use Copper Straight-Through cable to connect:**

- PC0 to Switch0 (Port FastEthernet0/1)
    - PC1 to Switch0 (Port FastEthernet0/2)
    - PC2 to Switch0 (Port FastEthernet0/3)
    - PC3 to Switch0 (Port FastEthernet0/4)
    - PC4 to Switch0 (Port FastEthernet0/5)

2. IT Department:

- **Switch1 (IT Department):**

- **Use Copper Straight-Through cable to connect:**

- PC5 to Switch1 (Port FastEthernet0/1)
    - PC6 to Switch1 (Port FastEthernet0/2)
    - PC7 to Switch1 (Port FastEthernet0/3)
    - PC8 to Switch1 (Port FastEthernet0/4)
    - PC9 to Switch1 (Port FastEthernet0/5)

3. AIDS Department:

- **Switch2 (AIDS Department):**

- **Use Copper Straight-Through cable to connect:**

- PC10 to Switch2 (Port FastEthernet0/1)
    - PC11 to Switch2 (Port FastEthernet0/2)
    - PC12 to Switch2 (Port FastEthernet0/3)
    - PC13 to Switch2 (Port FastEthernet0/4)

- PC14 to Switch2 (Port FastEthernet0/5)

#### 4. MECH Department:

- Switch3 (MECH Department):
  - Use Copper Straight-Through cable to connect:
    - PC15 to Switch3 (Port FastEthernet0/1)
    - PC16 to Switch3 (Port FastEthernet0/2)
    - PC17 to Switch3 (Port FastEthernet0/3)
    - PC18 to Switch3 (Port FastEthernet0/4)
    - PC19 to Switch3 (Port FastEthernet0/5)

### Step 4: Configure IP Addresses on PCs

#### CSE Department (Subnet: 192.168.1.1/24):

1. PC0: IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0
2. PC1: IP Address: 192.168.1.3, Subnet Mask: 255.255.255.0
3. PC2: IP Address: 192.168.1.4, Subnet Mask: 255.255.255.0
4. PC3: IP Address: 192.168.1.5, Subnet Mask: 255.255.255.0
5. PC4: IP Address: 192.168.1.6, Subnet Mask: 255.255.255.0

#### IT Department (Subnet: 192.168.2.1/24):

1. PC5: IP Address: 192.168.1.7, Subnet Mask: 255.255.255.0
2. PC6: IP Address: 192.168.1.8, Subnet Mask: 255.255.255.0
3. PC7: IP Address: 192.168.1.9, Subnet Mask: 255.255.255.0
4. PC8: IP Address: 192.168.1.10, Subnet Mask: 255.255.255.0
5. PC9: IP Address: 192.168.1.11, Subnet Mask: 255.255.255.0

#### AIDS Department (Subnet: 192.168.3.1/24):

1. PC10: IP Address: 192.168.1.12, Subnet Mask: 255.255.255.0
2. PC11: IP Address: 192.168.1.13, Subnet Mask: 255.255.255.0
3. PC12: IP Address: 192.168.1.14, Subnet Mask: 255.255.255.0
4. PC13: IP Address: 192.168.1.15, Subnet Mask: 255.255.255.0
5. PC14: IP Address: 192.168.1.16, Subnet Mask: 255.255.255.0

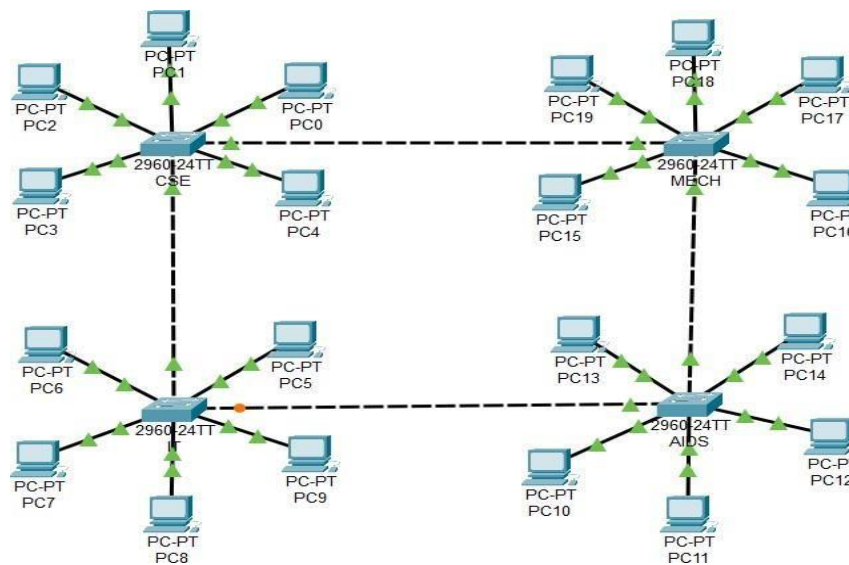
## MECH Department (Subnet: 192.168.4.1/24):

1. PC15: IP Address: 192.168.1.17, Subnet Mask: 255.255.255.0
2. PC16: IP Address: 192.168.1.18, Subnet Mask: 255.255.255.0
3. PC17: IP Address: 192.168.1.19, Subnet Mask: 255.255.255.0
4. PC18: IP Address: 192.168.1.20, Subnet Mask: 255.255.255.0
5. PC19: IP Address: 192.168.1.20, Subnet Mask: 255.255.255.0

## Step 5: Connect Switches

### 1. Use Copper Straight-Through cables to interconnect the switches:

- Switch0 (Port GigabitEthernet0/1) to Switch1 (Port GigabitEthernet0/1)
- Switch0 (Port GigabitEthernet0/2) to Switch2 (Port GigabitEthernet0/1)
- Switch3 (Port GigabitEthernet0/1) to Switch1 (Port GigabitEthernet0/2)
- Switch3 (Port GigabitEthernet0/2) to Switch2 (Port GigabitEthernet0/2)



| Realtime Simulation |             |        |             |      |       |           |          |     |        |          |
|---------------------|-------------|--------|-------------|------|-------|-----------|----------|-----|--------|----------|
| Fire                | Last Status | Source | Destination | Type | Color | Time(sec) | Periodic | Num | Edit   | Delete   |
|                     | Successful  | PC2    | PC7         | ICMP |       | 0.000     | N        | 2   | (edit) | (delete) |
|                     | Successful  | PC19   | PC11        | ICMP |       | 0.000     | N        | 3   | (edit) | (delete) |
|                     | Successful  | PC16   | PC8         | ICMP |       | 0.000     | N        | 4   | (edit) | (delete) |

**PostLab:**

Complete the Cisco Packet tracer fundamental course and post the certificate.

[https://skillsforall.com/topics/cisco-packet-tracer?utm\\_source=n...](https://skillsforall.com/topics/cisco-packet-tracer?utm_source=n...)



### Result:

All experiments have been successfully executed, with no errors or issues encountered. The expected results have been achieved, as demonstrated by the attached screenshots