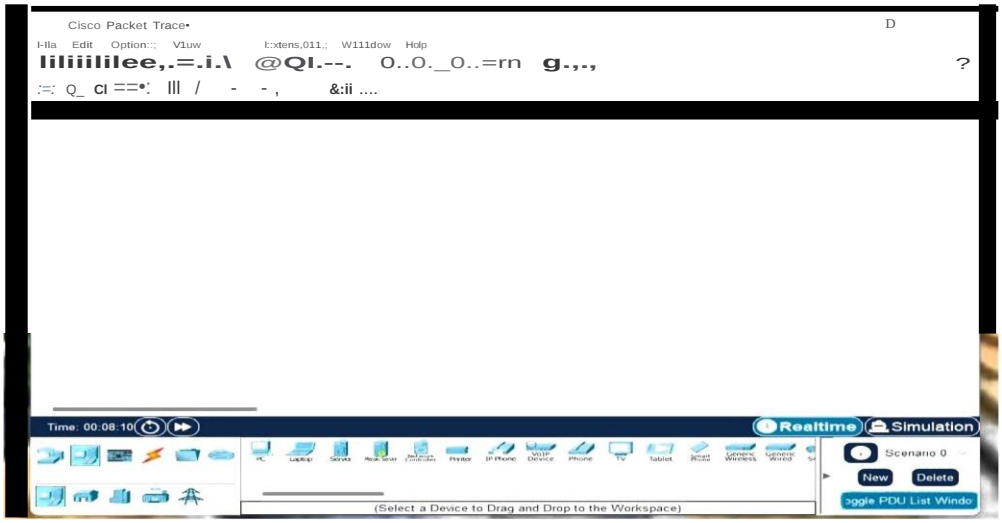
Practical 1:-

To Study basic network command and Network configuration commands.

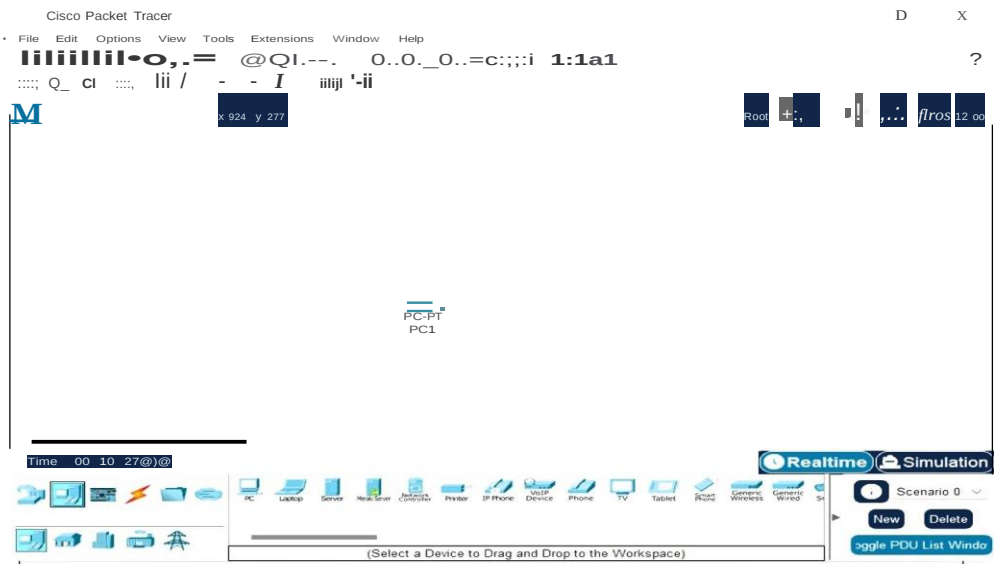
Steps:

1. Open Cisco Packet Tracer.



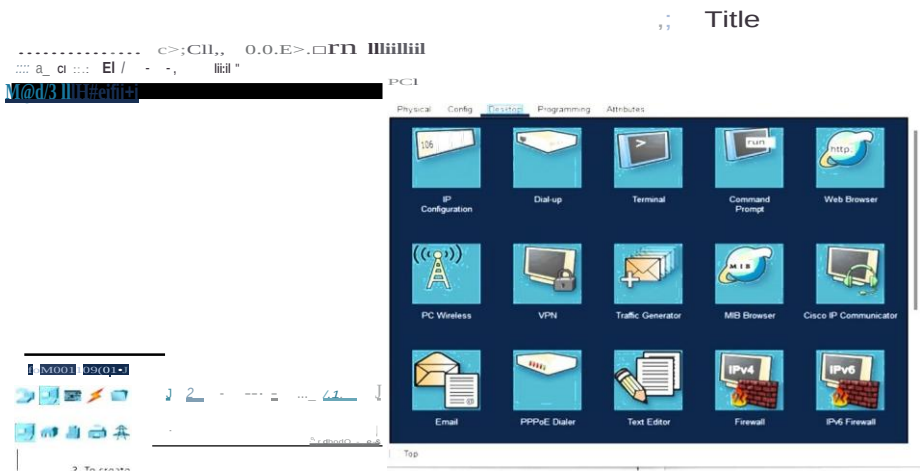
2. At the bottom left, go to the End Devices category.

   - Drag and drop PC to the workspace.



3. Assign Ip address to PC :-

- Right Click on PC > Go to desktop > Choose IP configuration

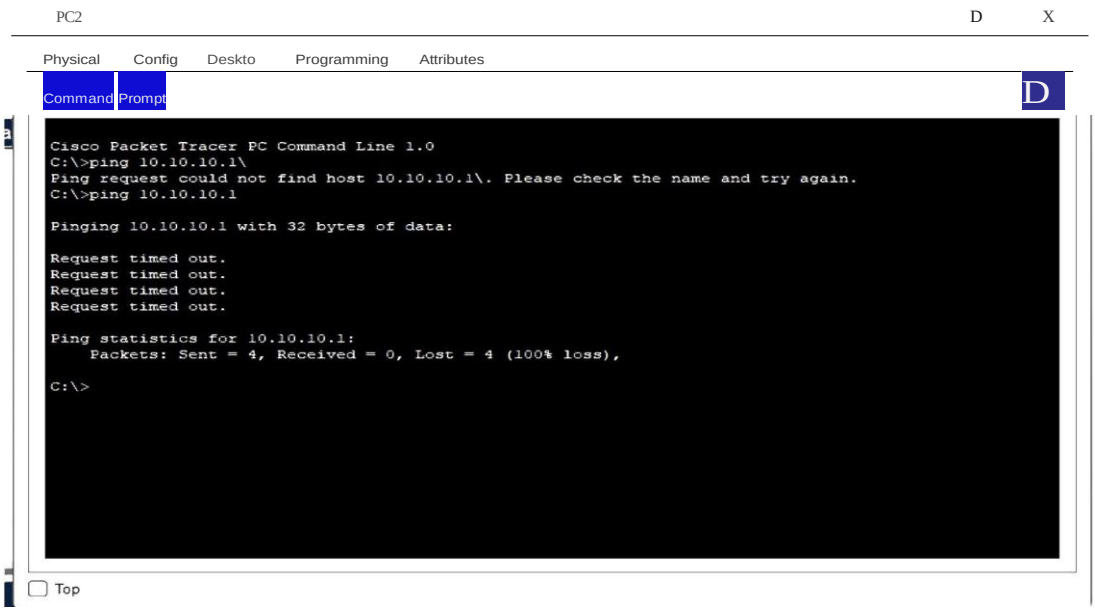


- Assign PC ip address - 10.10.10.1

4. On PC0 Go to Desktop > Command Prompt:

- Type: ipconfig 10.10.10.1 Check successfully assigned ip address.

- Type: ping 192.168.1.2 Check reply

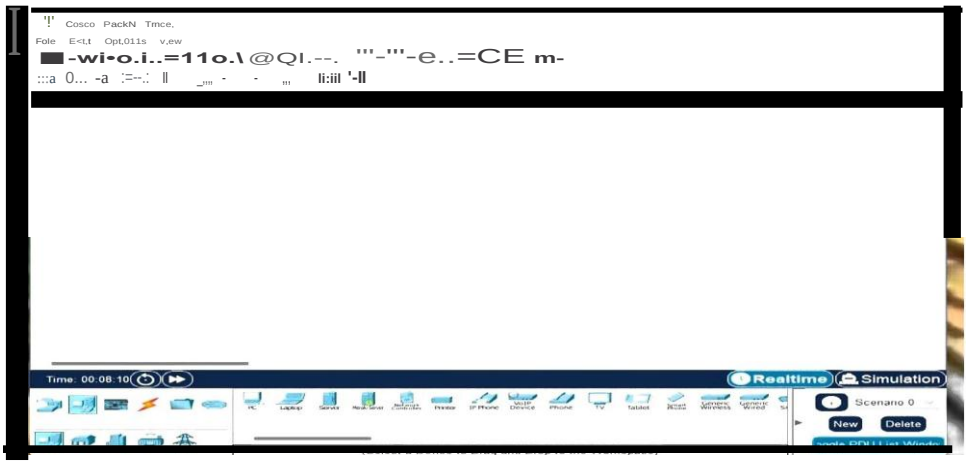


Practical 2 :-

To study and perform PC to PC communication.

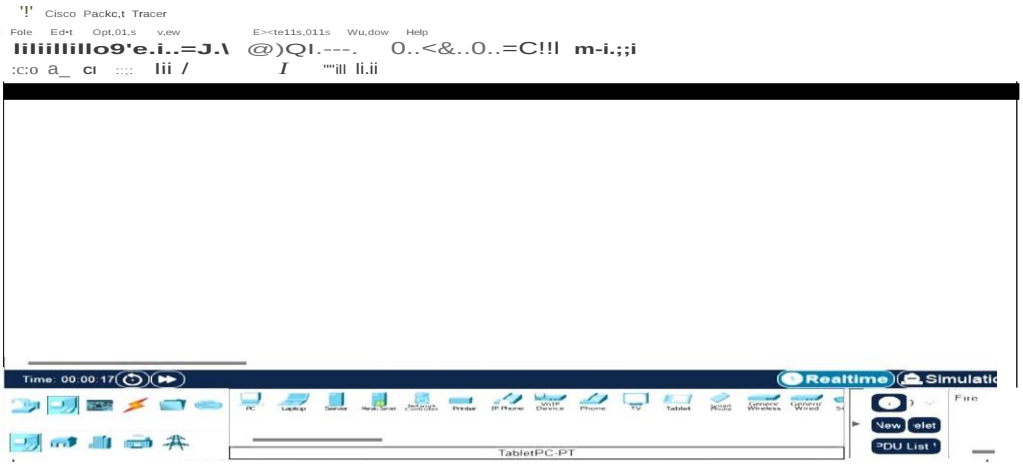
Steps:

1. Open Cisco Packet Tracer.



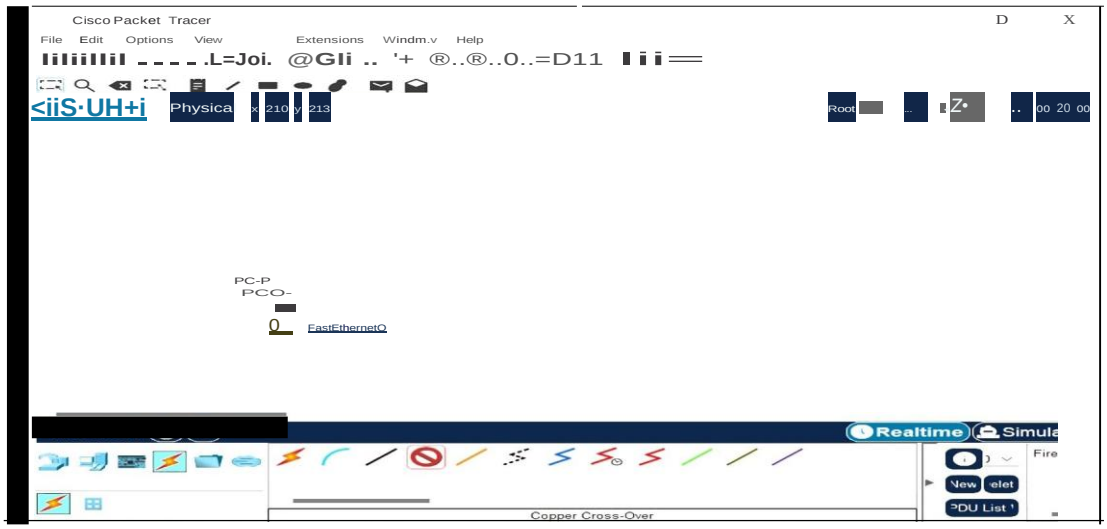
2. At the bottom left, go to the End Devices category.

   - Drag and drop 2 PCs to the workspace.



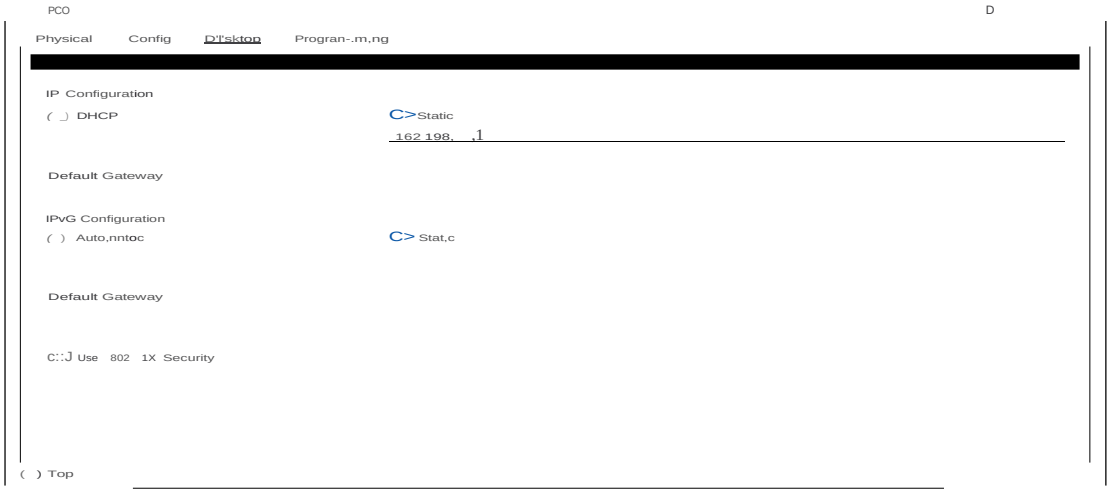
3. Go to the Connections category (lightning bolt icon).

   - Select "Copper Cross-Over Cable".
   - Click PC0 FastEthernet0, then PCl FastEthernet0.

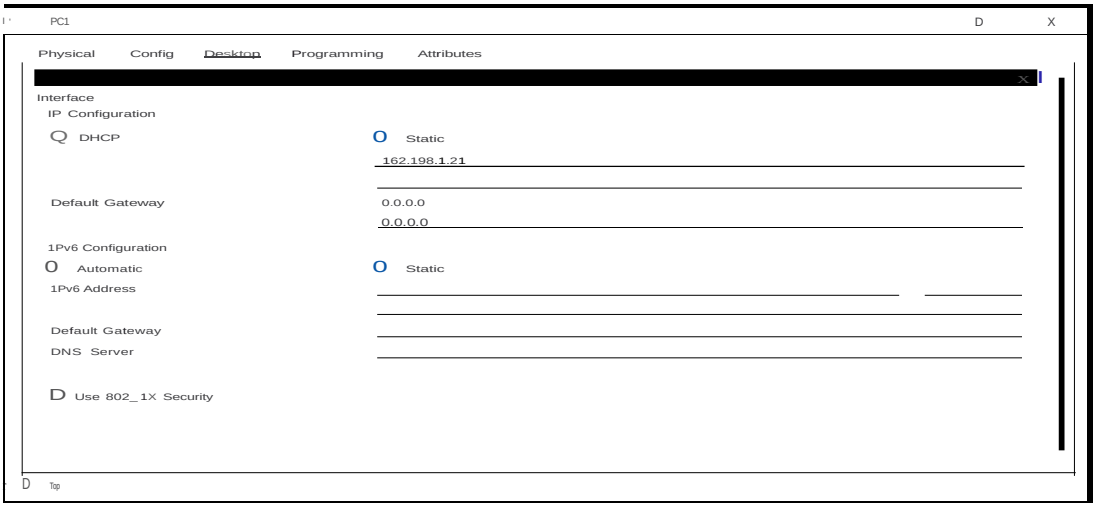


4. Click on PC0 Go to Desktop > IP Configuration:

   - IP Address: 162.198.1.1
   - Subnet Mask: 255.255.255.0

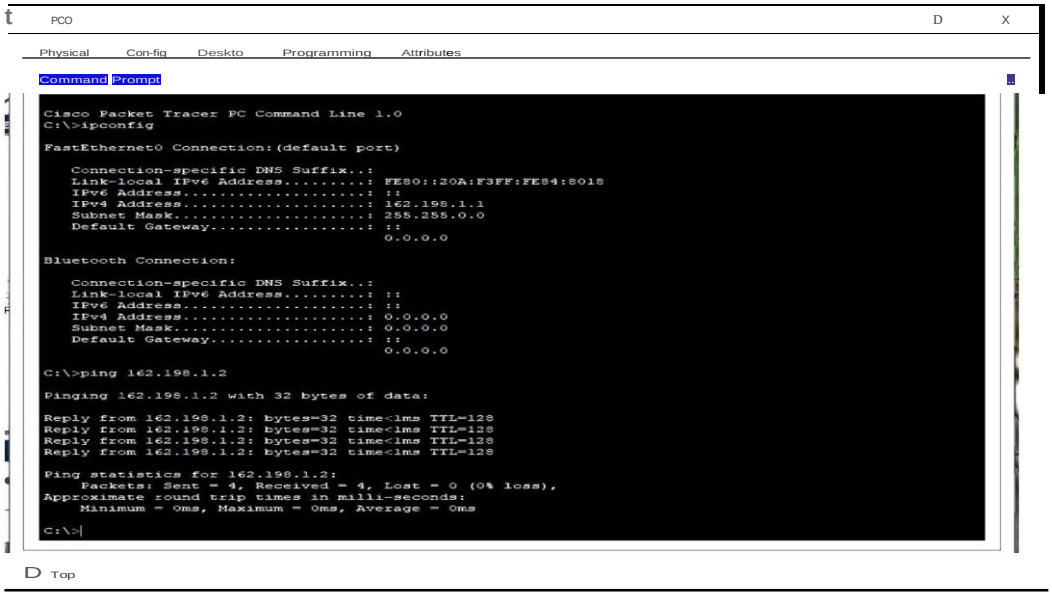


5. Do the same for PCl, set IP: 162.198.1.2

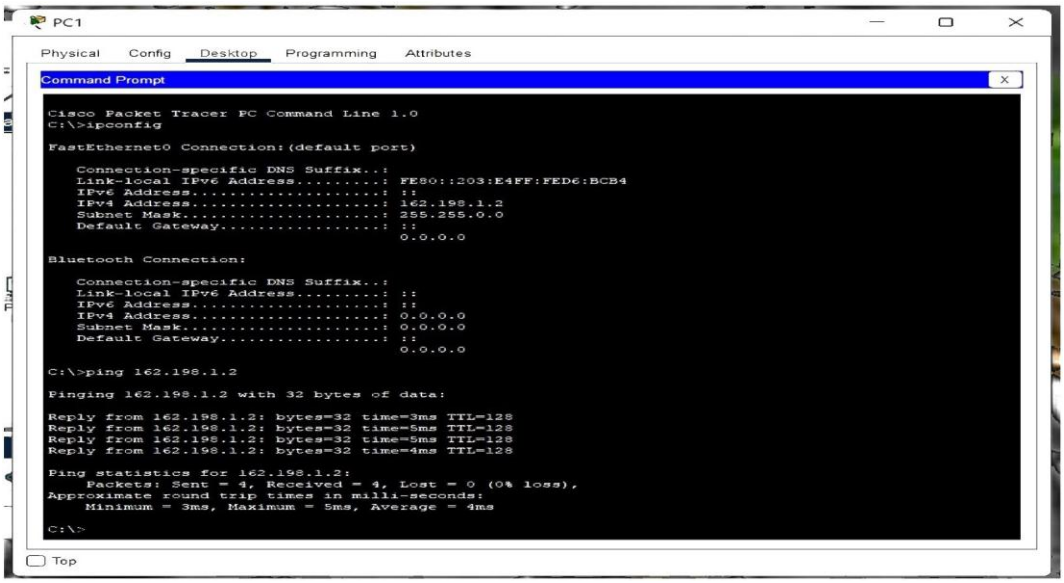


6. On PC0 Go to Desktop > Command Prompt:

- Type: ping 192.168.1.2 Check reply.



7. On PC0Goto Desktop> Command Prompt:
   - Type: ping 192.168.1.2 Check reply.

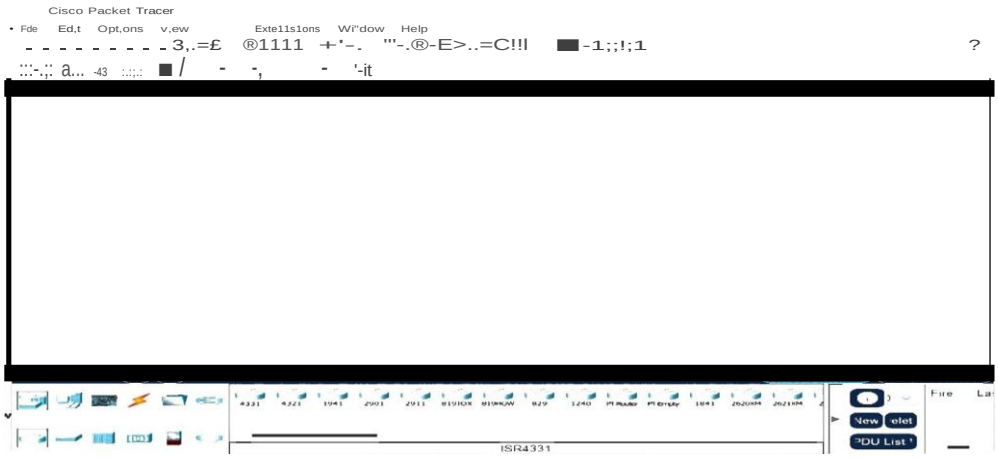


Practical 3 :-

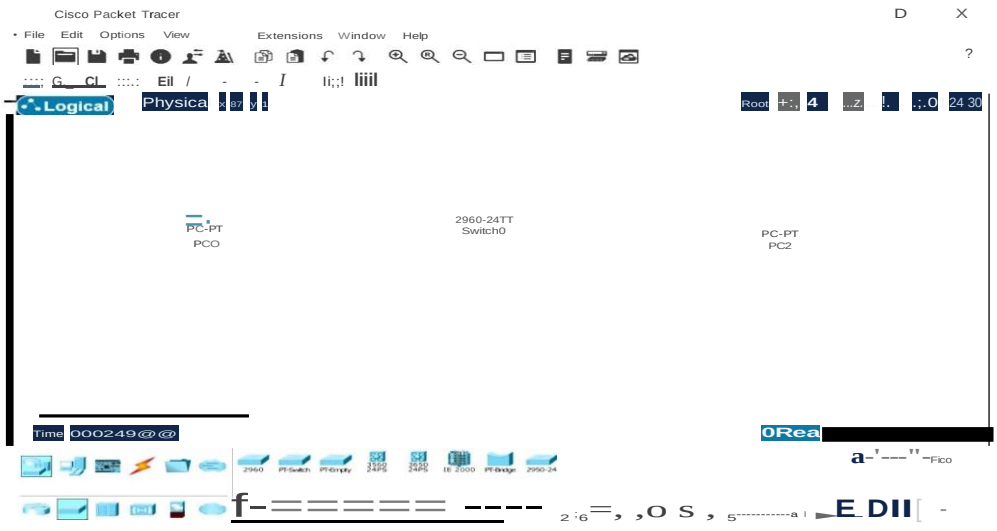
- To create Star topology using Switch.

Steps:

1. Add Devices :
   - Go to End Devices (bottom-left panel) drag 3 PCs into the workspace.

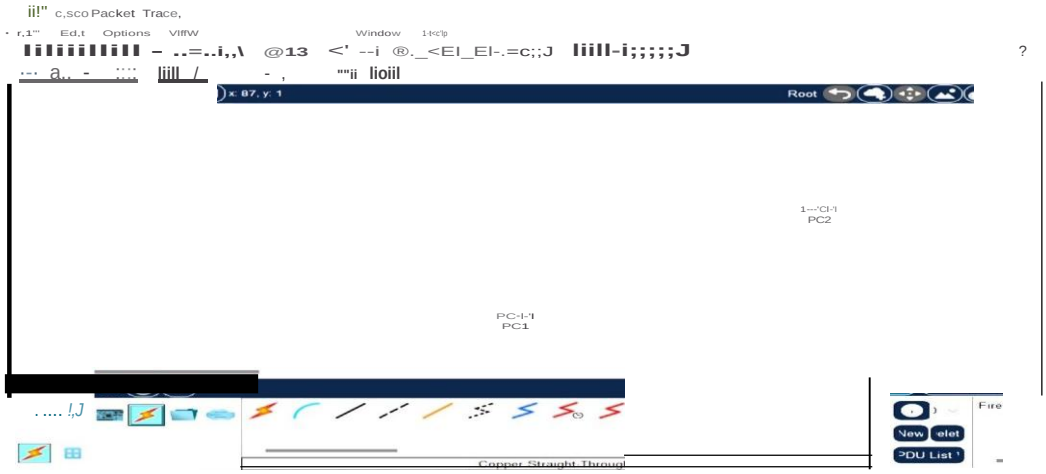


   - Go to Network Devices > Switches drag a Switch (2960) into the center of the workspace.



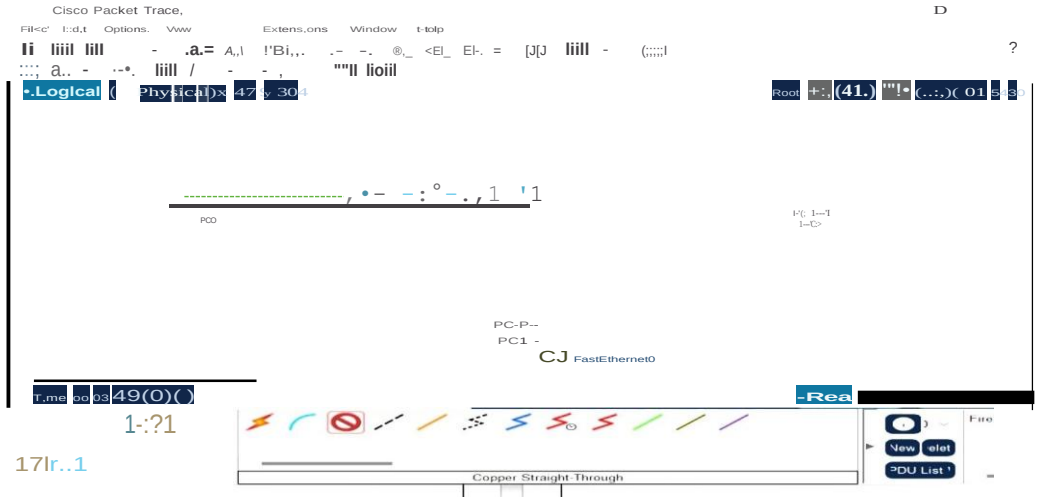
2. Connect Devices :

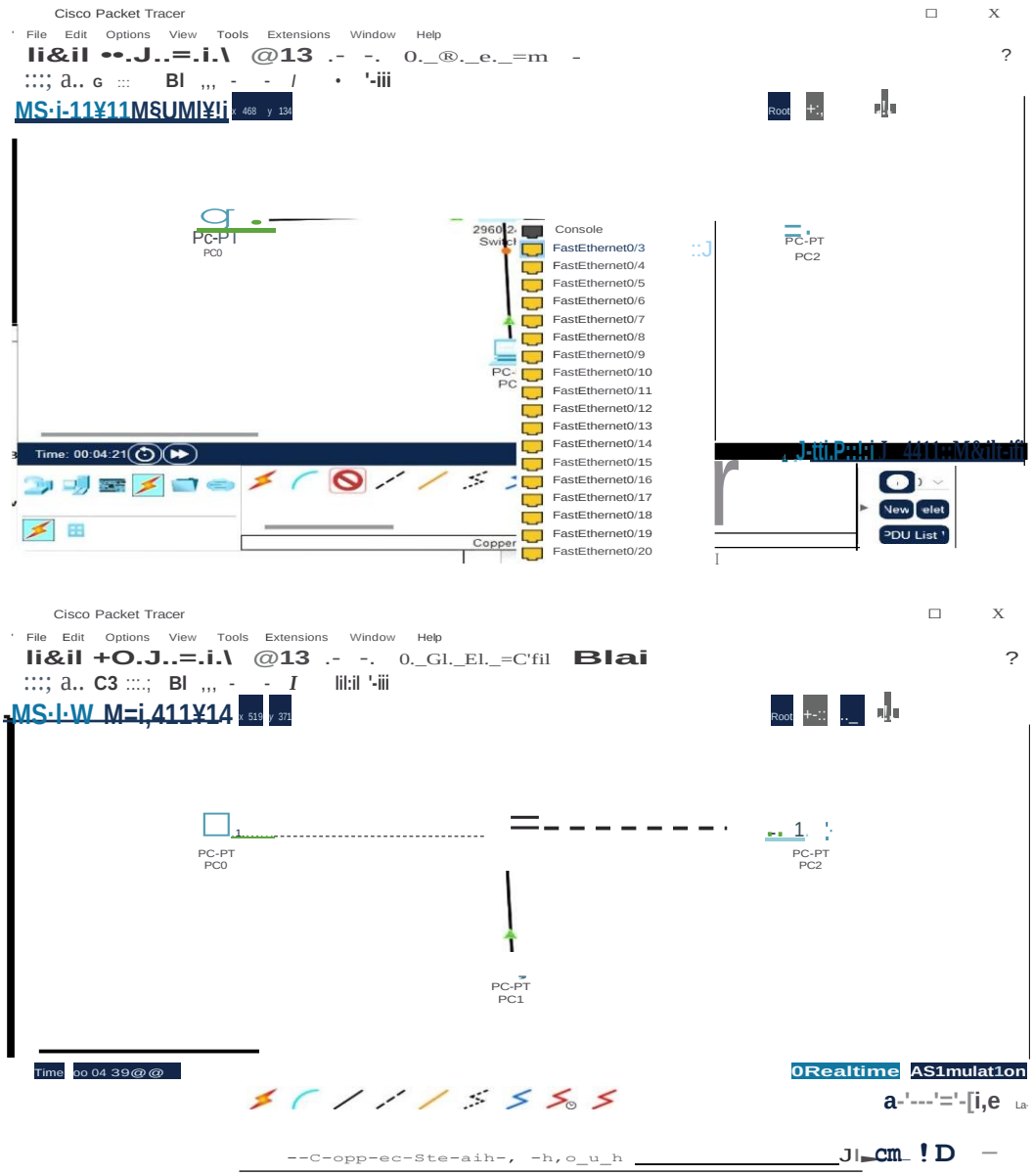
- Go to Connections (Lightning Icon), Select Copper Straight-Through Cable (first solid line).



- Connect each PC to the Switch:

PC0 Switch (FastEthernet0/1), PCl Switch (FastEthernet0/2) , PC2 Switch (FastEthernet0/3)



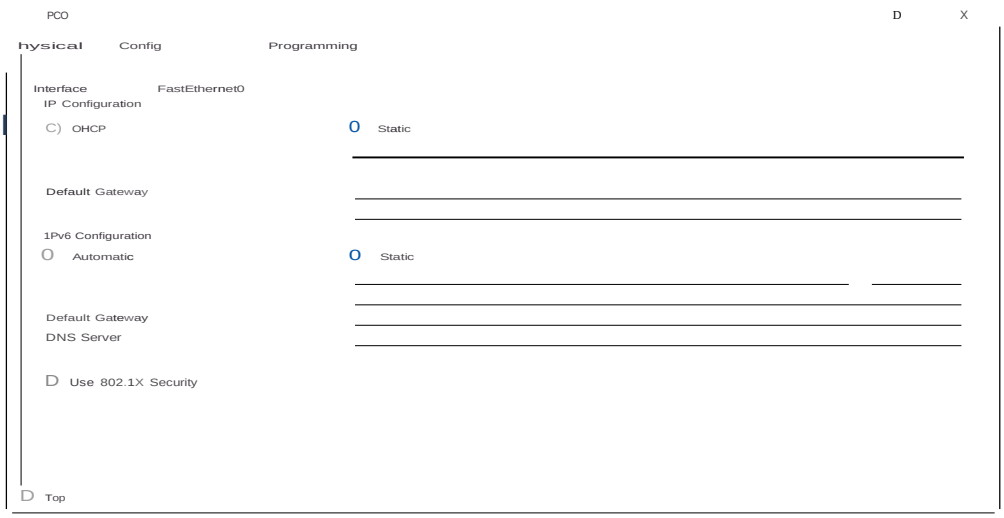


3. Configure IP Addresses:

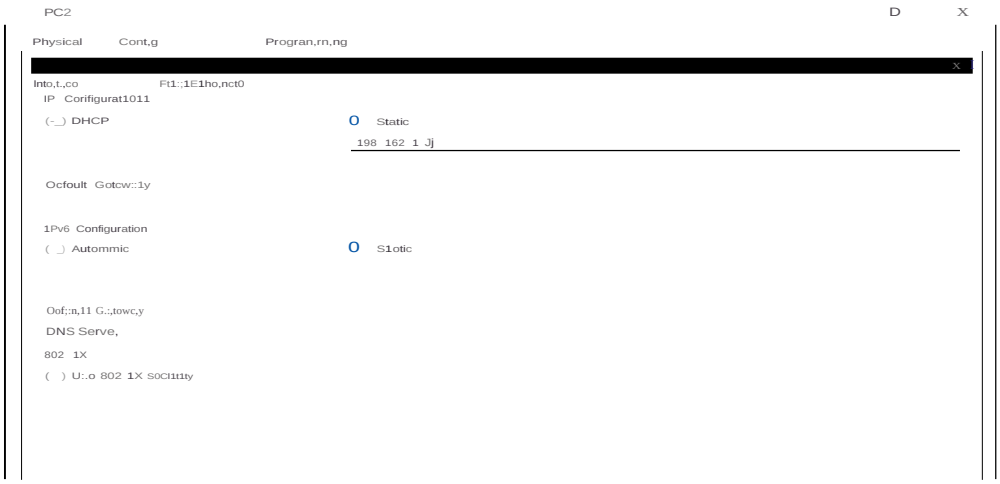
   - Click on each PC Desktop> IP Configuration.

- Assign IPs as follows:

  PC0: 192.168.1.1 PCl: 192.168.1.2 PC2: 192.168.1.3 , Subnet Mask: 255.255.255.0 for all .

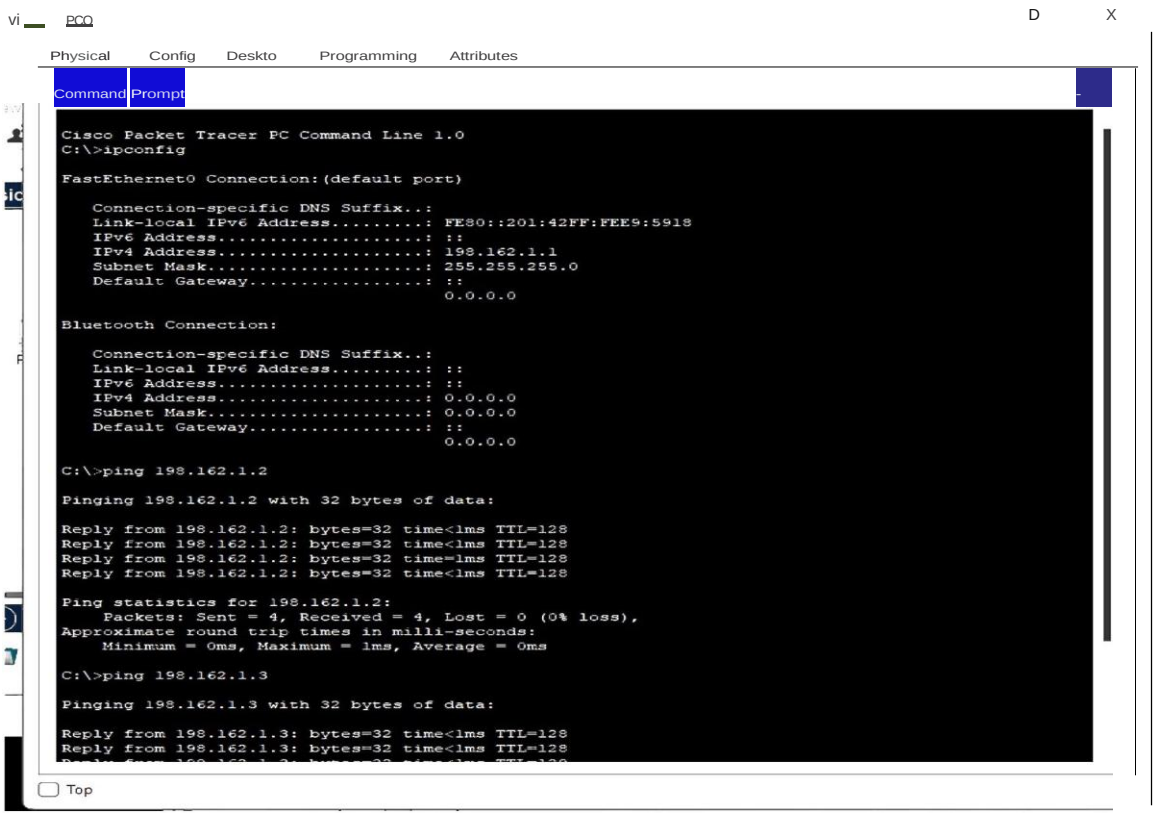


Same as for PCl and PC2:



4. Test Connectivity :

   - On PC0 Desktop> Command Prompt
   - Type: ping 192.168.1.2 Check reply
   - Type: ping 192.168.1.3



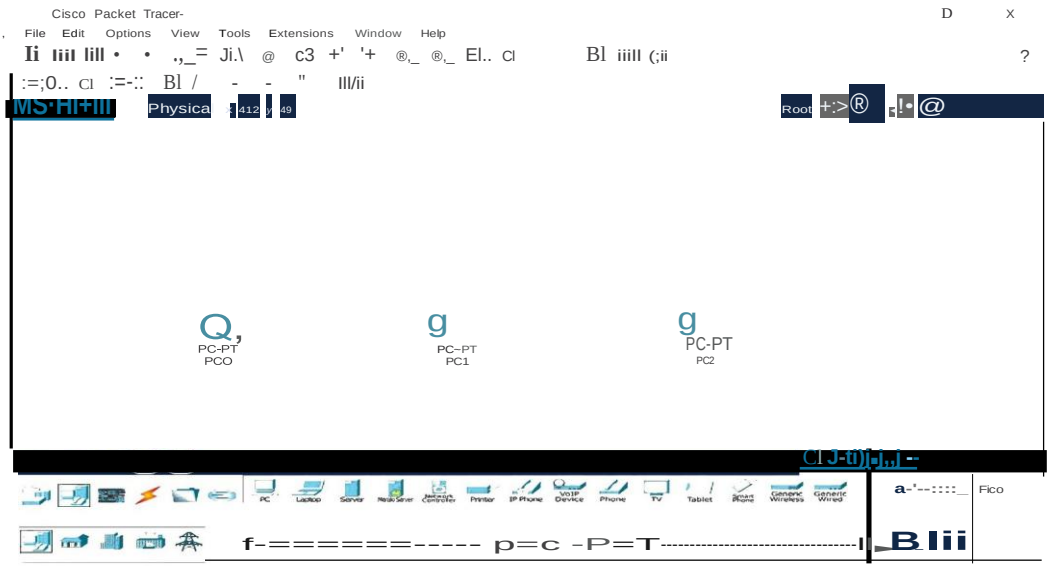
1

2. To create Star topology using Hub :

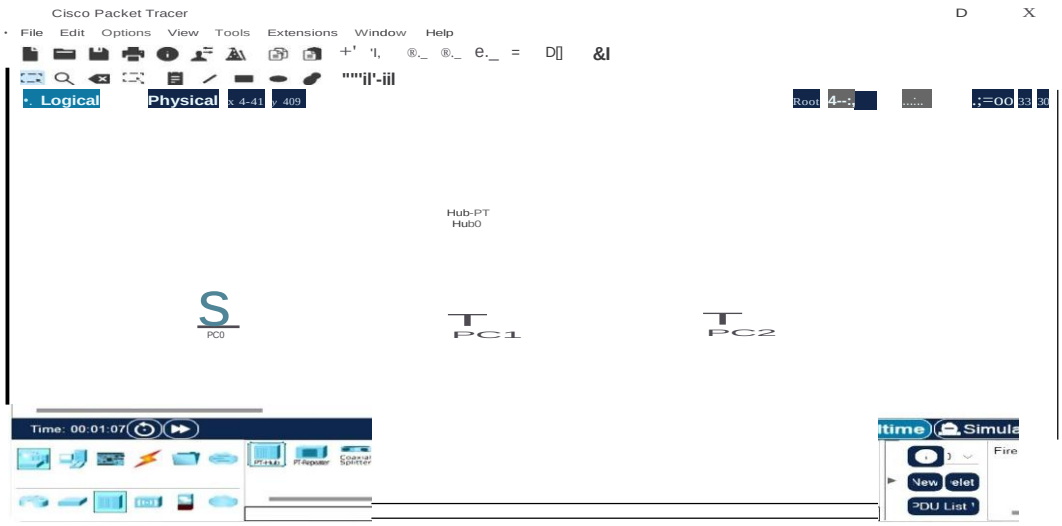
Step:

1. Add Devices

- In End Devices, Drag 3 more PCs.

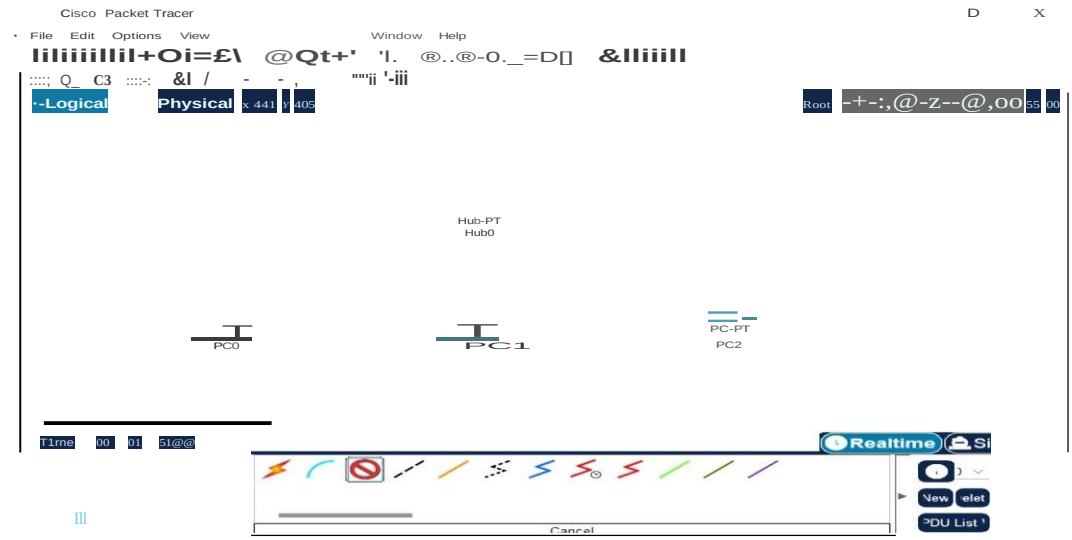


- InNetwork Devices> Hubs, drag 1 Hub (PT-HUB).

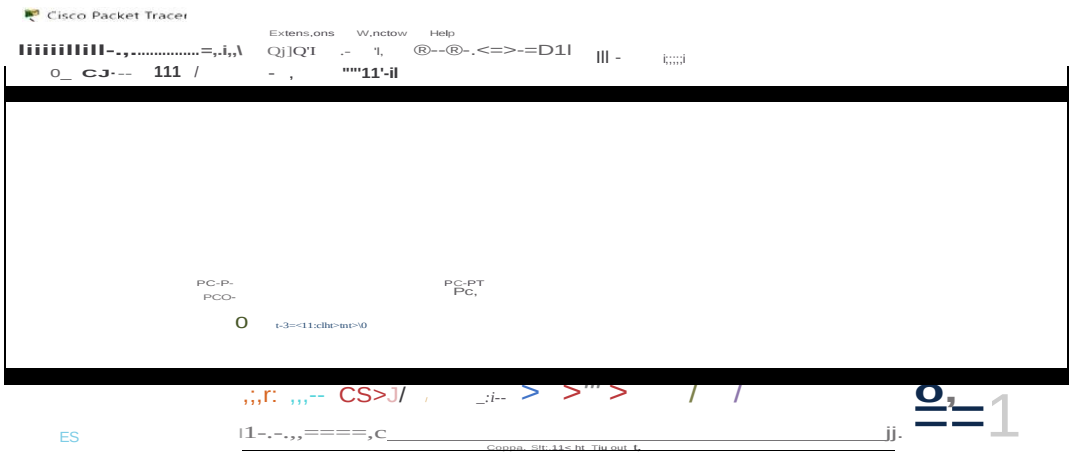


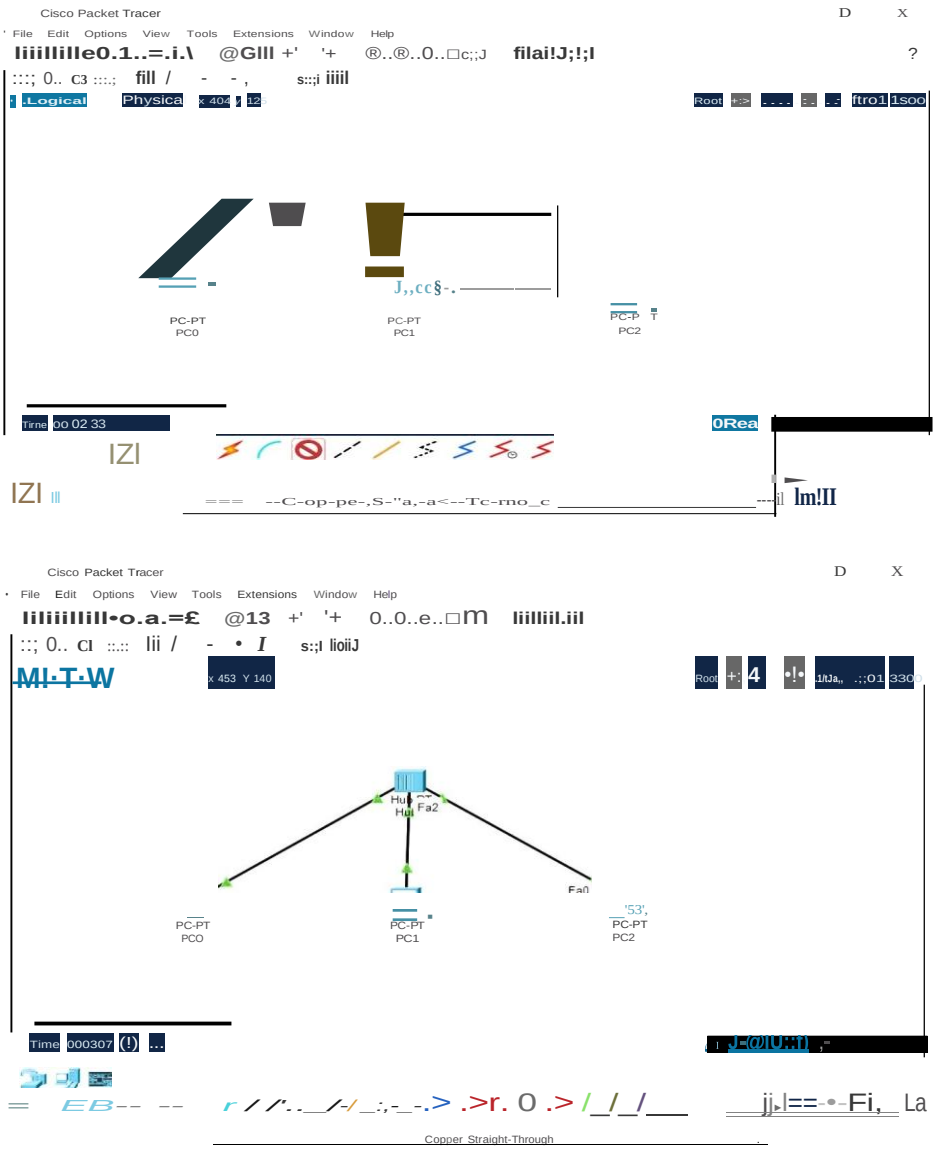
2. Connect Devices

- Use Copper Straight-Through Cable.



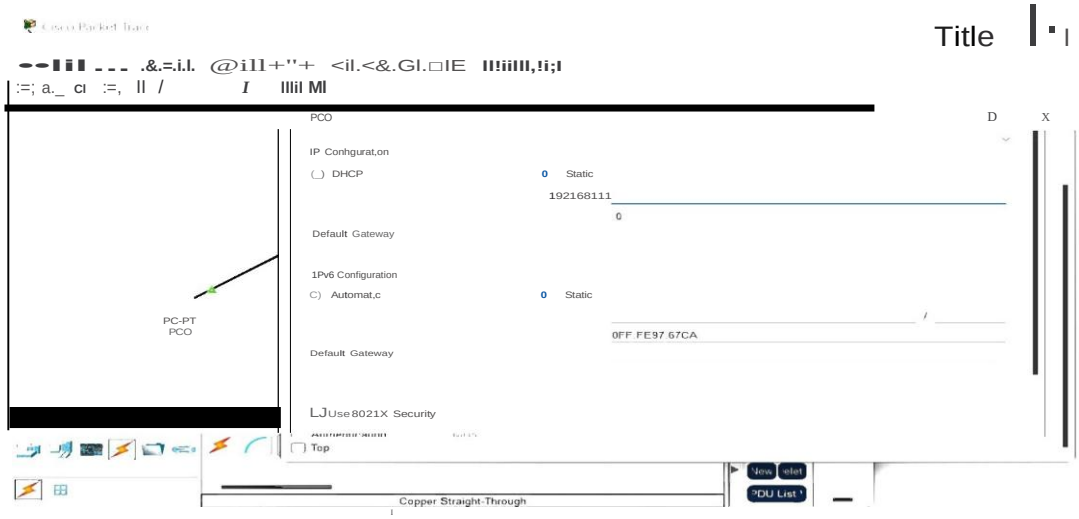
- Connect:
  1. PCO Hub (Port 0)
  2. PCl Hub (Port 1)
  3. PC2 Hub (Port 2)





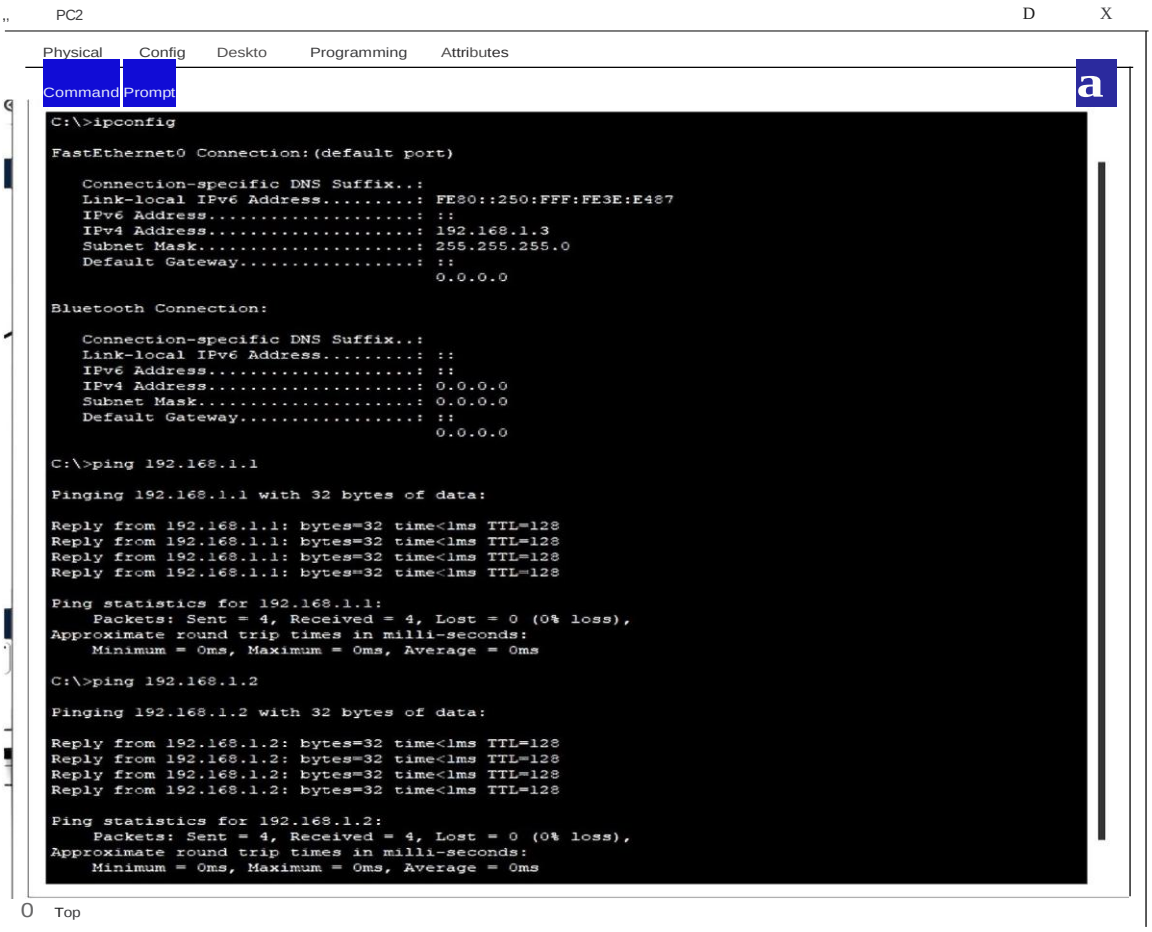
3. Configure IP Addresses

- **Click each PC IP Configuration:**
  1. **PCO: 192.168.1.4**
  2. **PCI: 192.168.1.5**
  3. **PC2: 192.168.1.6**
  4. **Subnet Mask: 255.255.255.0**



4. Test Connectivity

- On PC2 ping 192.168.1.1, ping 192.168.1.2



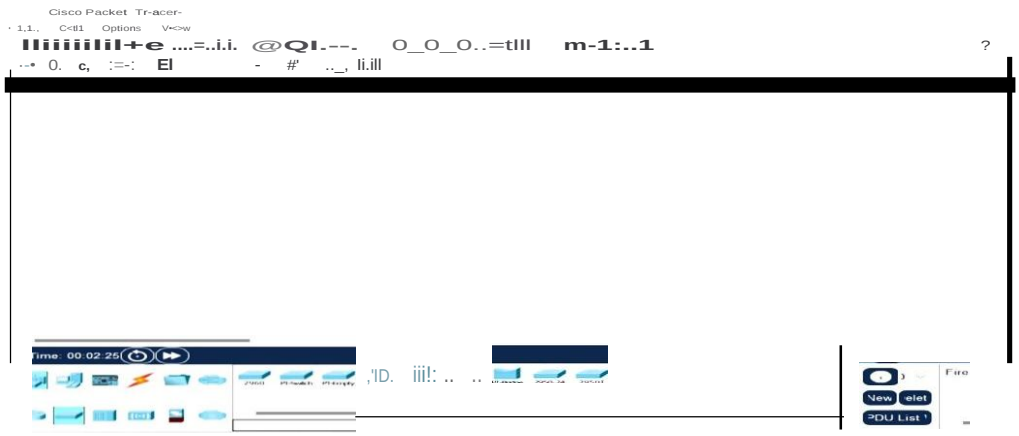
Practical 4 :-

To create Bus topologies.

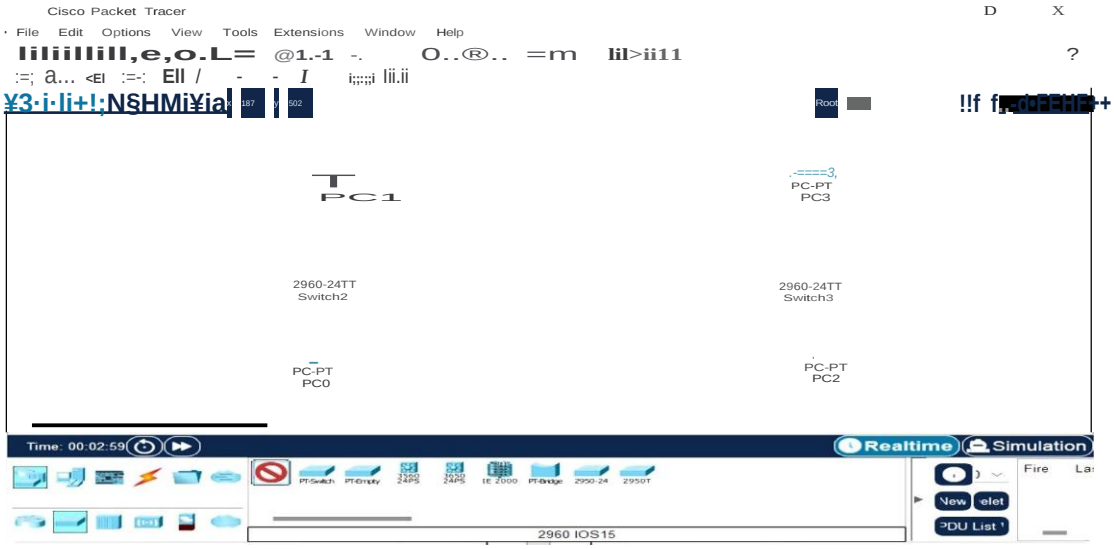
Steps:

1. Add Devices

- In End Devices, Drag 4 more PCs.

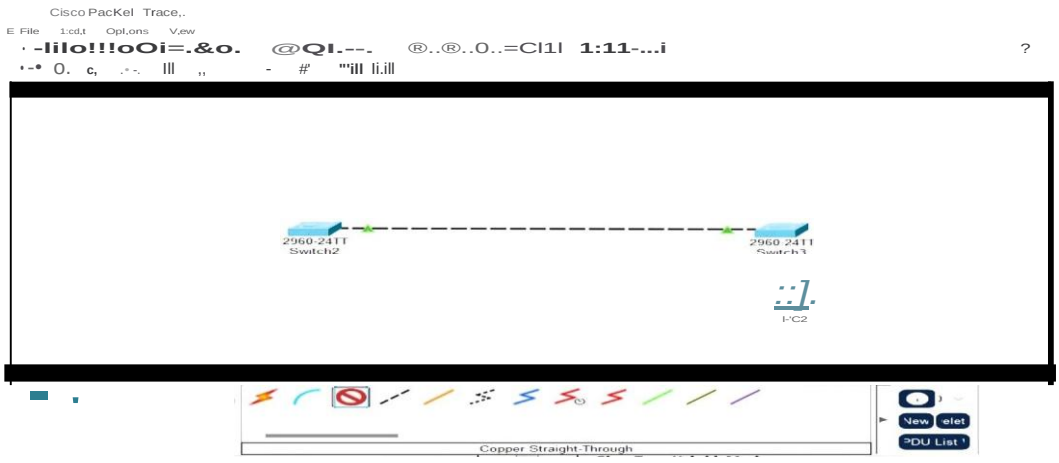


- Go to Network Devices> Switches drag a Switch {2960) into the center of the workspace.

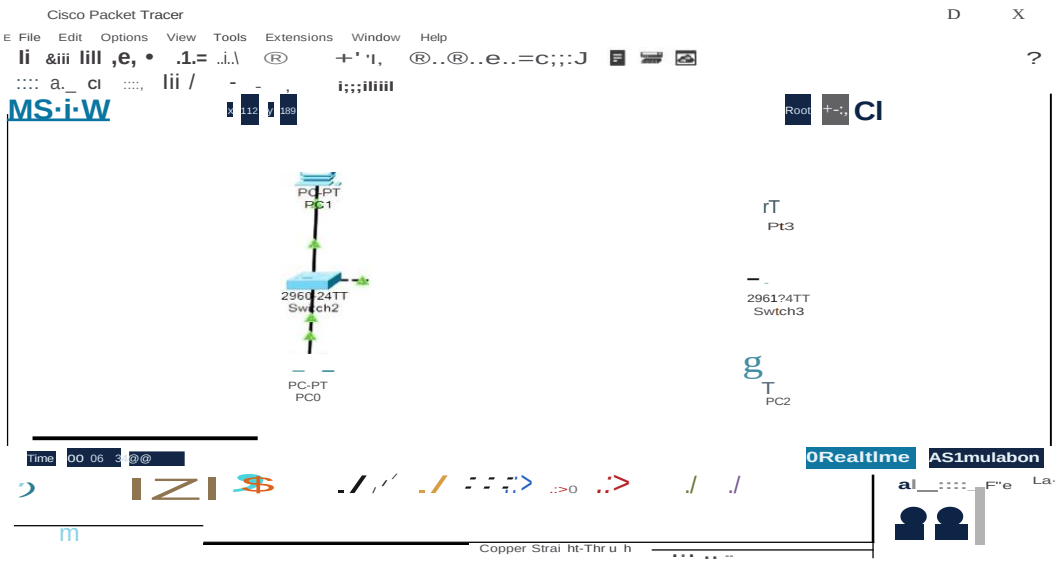


2. Connect Devices :

- Go to Connections (Lightning Icon), "Copper Cross-Over Cable" for Connecting Switches.



- Go to Connections (Lightning Icon), Select Copper Straight-Through Cable (first solid line) and Connect all PCs to switch.



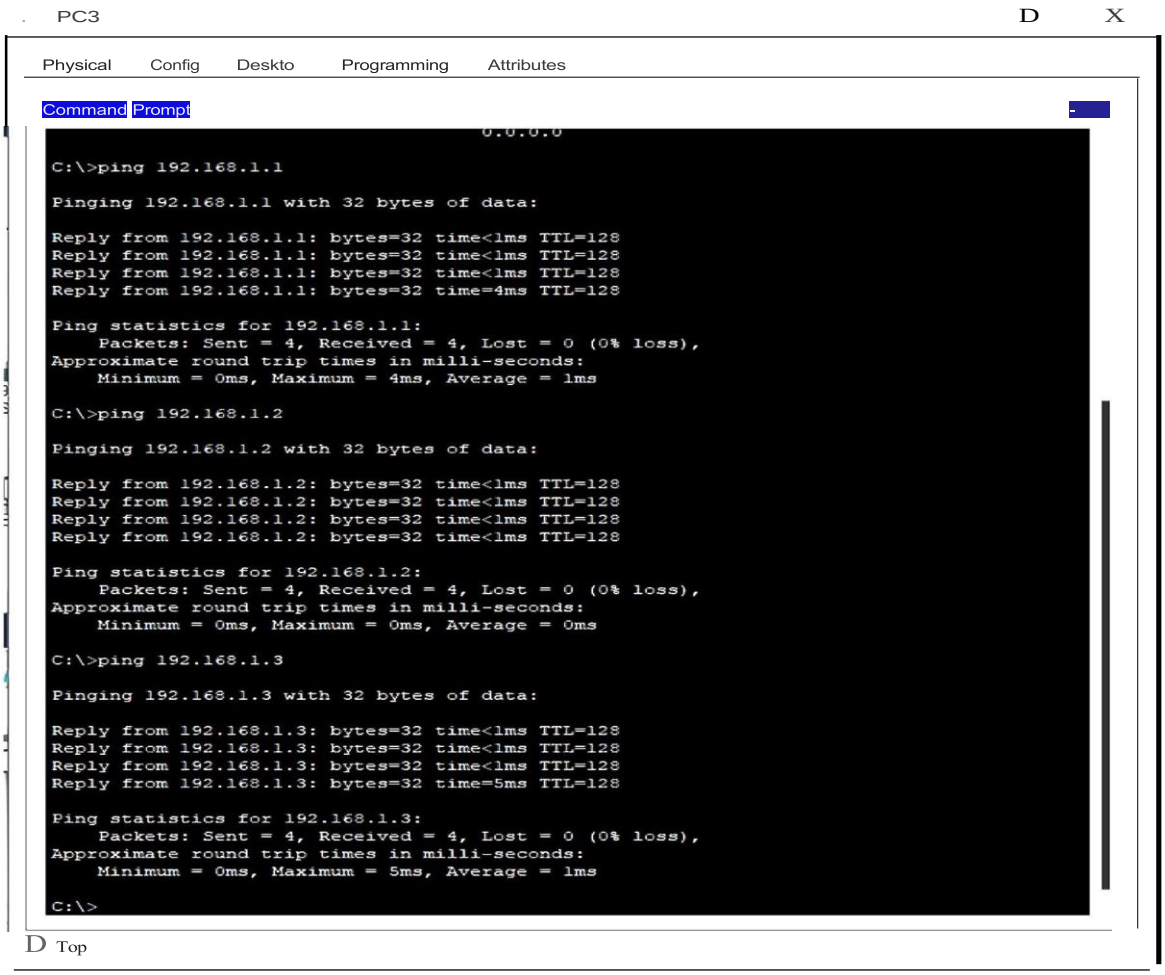
3. Configure IP Addresses

Click each PC IP Configuration:

- PC0: 192.168.1.4
- PCI: 192.168.1.5
- PC2: 192.168.1.6
- Subnet Mask: 255.255.255.0

4. Test Connectivity

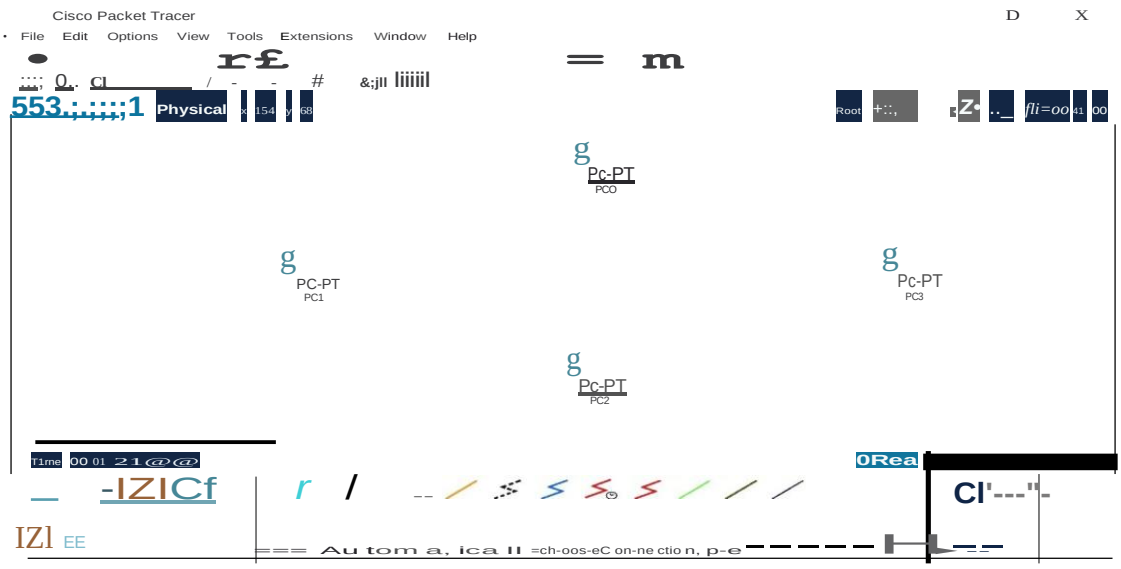
- On PC4 ping 192.168.1.1, ping 192.168.1.2, ping 192.168.1.3



Ring Topology :-

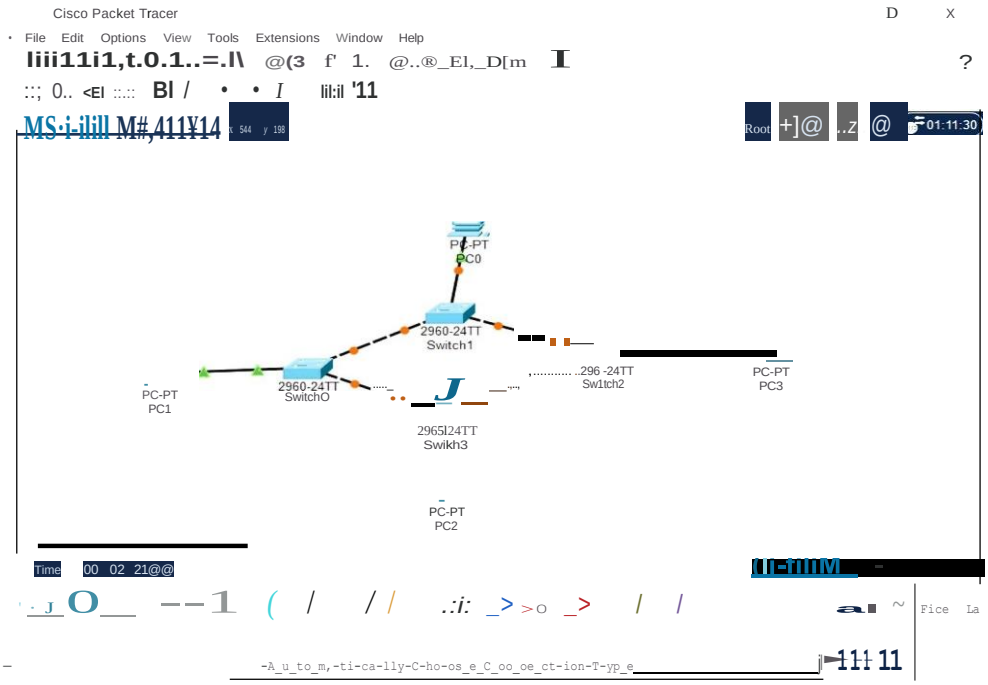
Steps:

1. **Add 4 PCs: PCO, PCl, PC2, PC3 (End Devices section)**

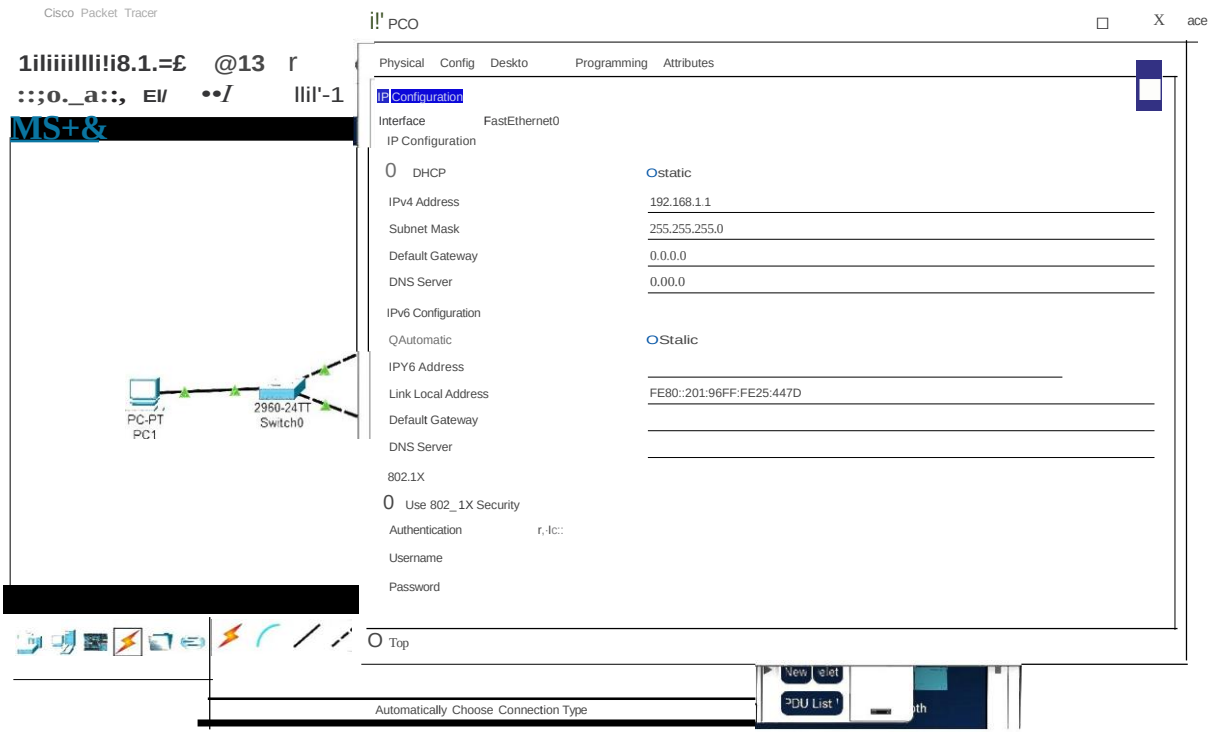


2. Connections:

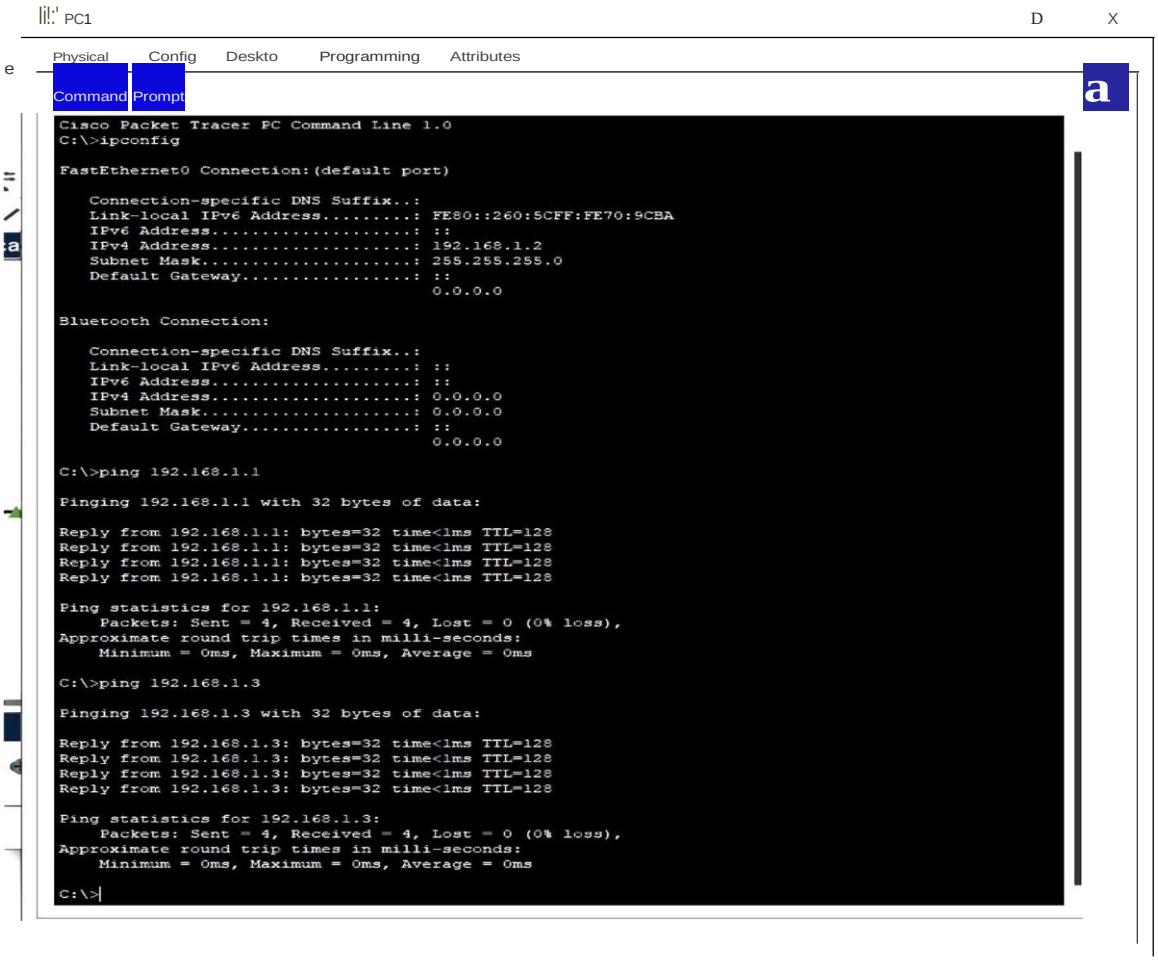
- Use Select Copper Straight-Through Cable (first solid line) and Connect all PCs to switch.
    - Connect all PCs to Switch and Switch to a close loop.



3. Assign IPs:
    - PCO: 192.168.1.1
    - PCI: 192.168.1.2
    - PC2: 192.168.1.3
    - PC3: 192.168.1.4
    - Subnet Mask: 255.255.255.0 for all.



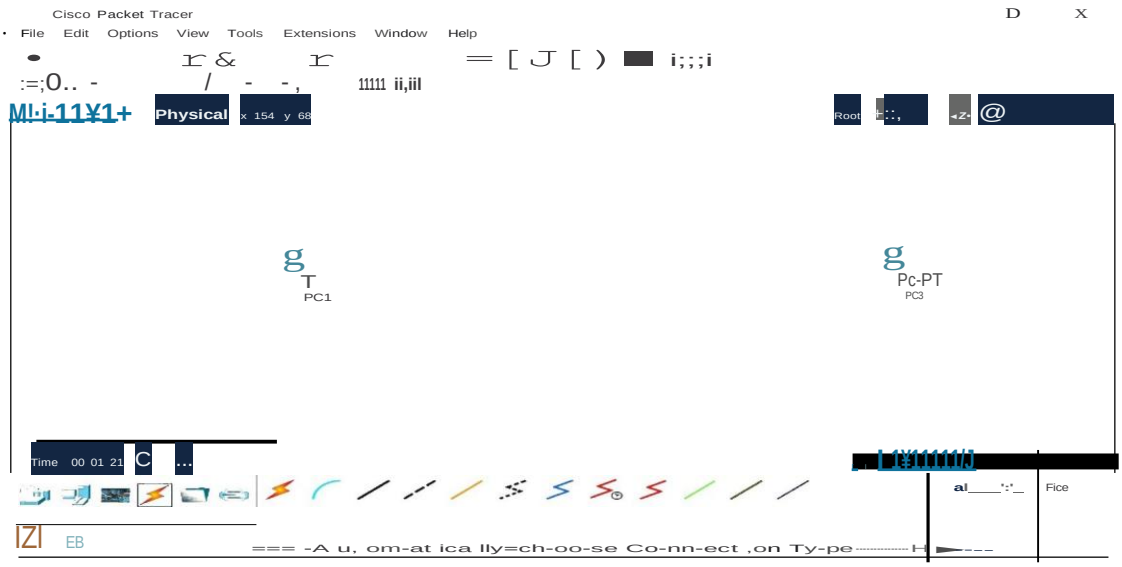
4. Test: Ping between PCs.



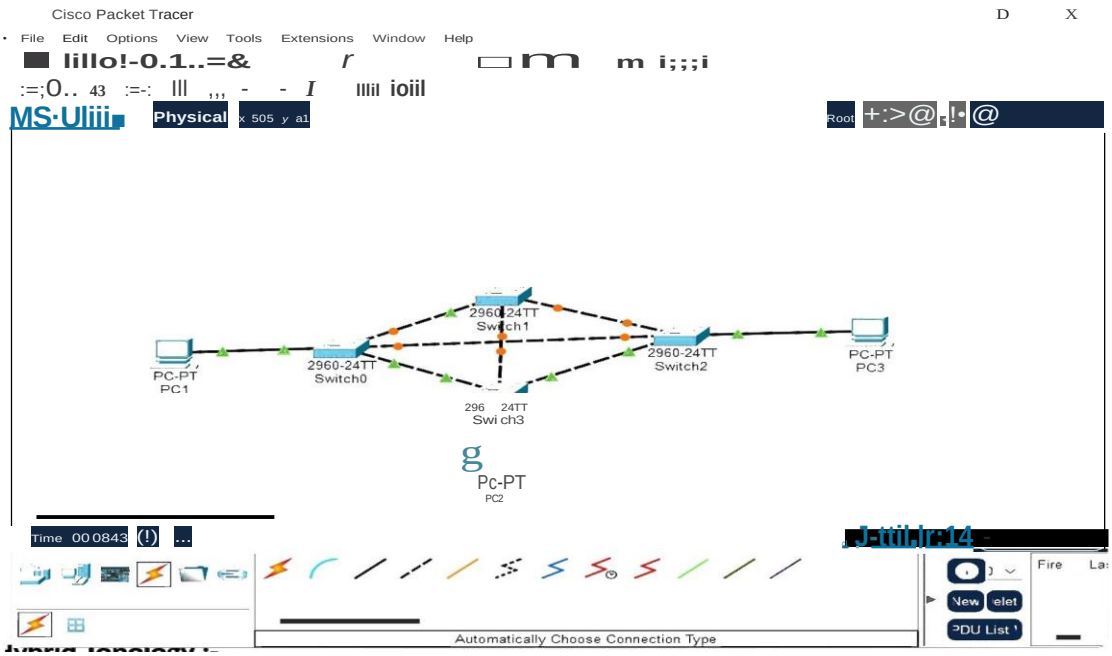
Mesh Topology :-

Steps:

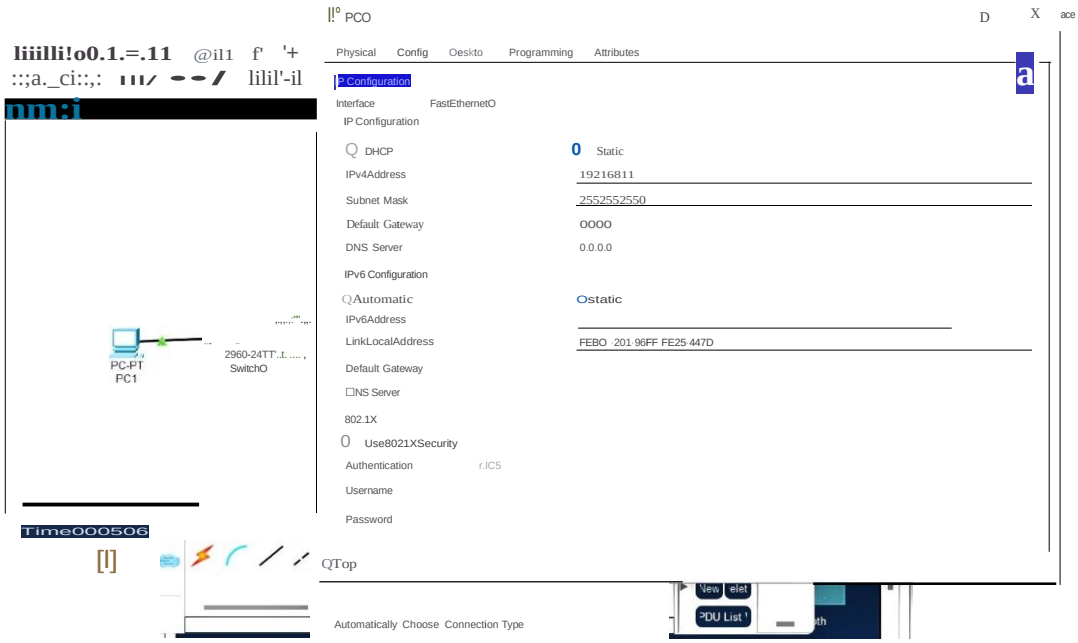
1. Add 4 PCs: PCO, PCl, PC2, PC3.
2. Arrange in a square or diamond shape.



3. Connections:
   - Use Select Copper Straight-Through Cable (first solid line) and Connect all PCs to switch.
     - Connect all PCs to Switch and Switch to Switch a close loop.



4. Assign IPs:
   - PCO: 192.168.2.1
   - PCl: 192.168.2.2
   - PC2: 192.168.2.3
   - PC3: 192.168.2.4



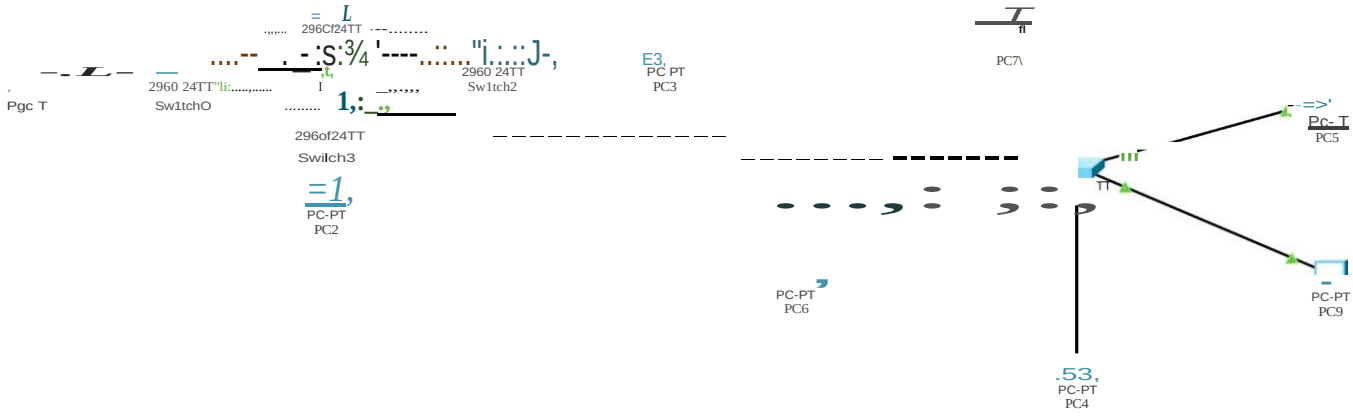
5. Test: Ping all PCs to each other.

   {Same as we do for Ring topology)

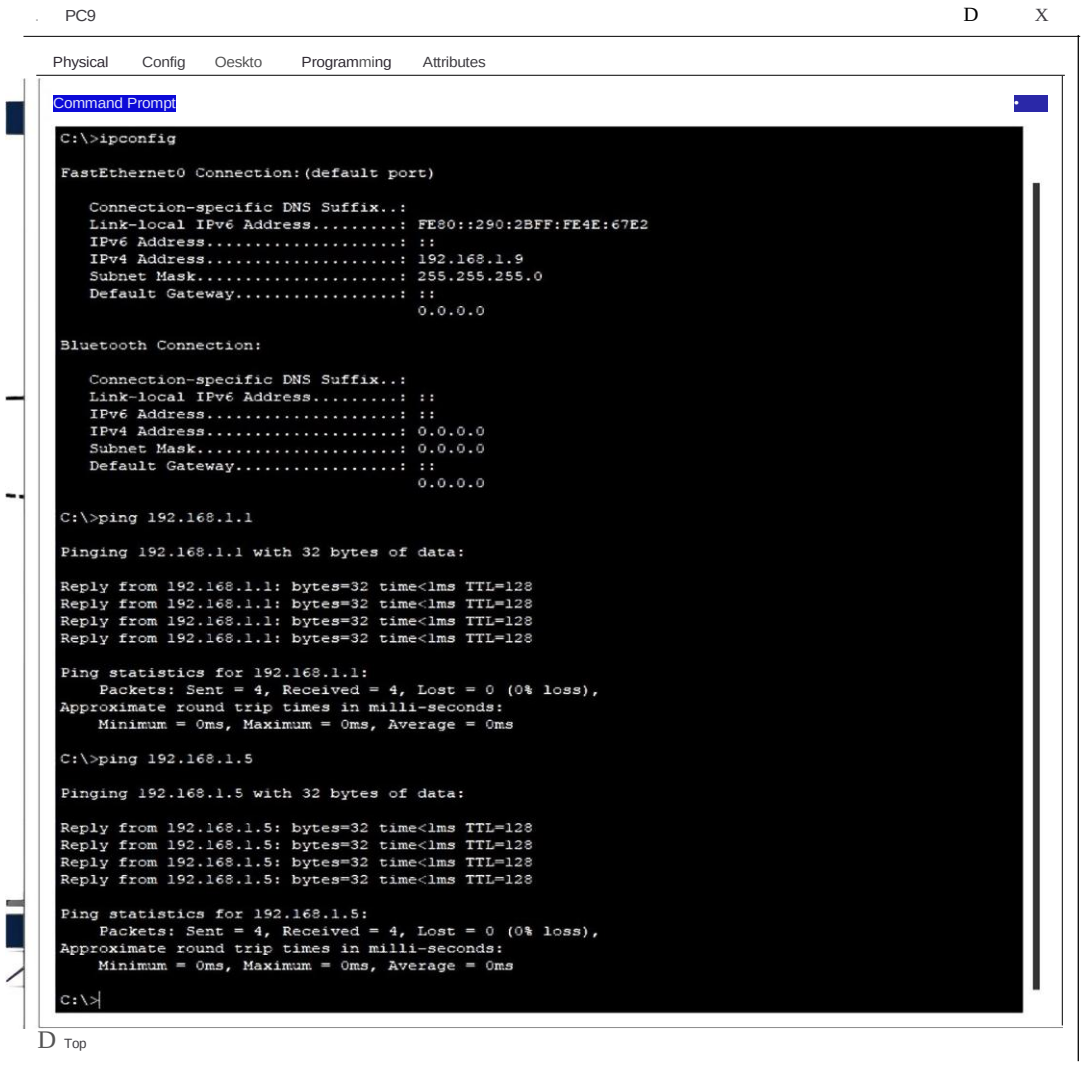
Hybrid Topology :-

Steps:

1. Add a Switch and 5 PCs: PCO, PCl, PC2, PC3, PC4.
2. Star Part:
   - Connect PC4,PC5, PC6,PC7, PCS to Switch using Straight-Through Cables.
3. Ring Part:
   - Connect PCO , PCl , PC2 and PC3



4. Assign IPs and Do ping Test :-



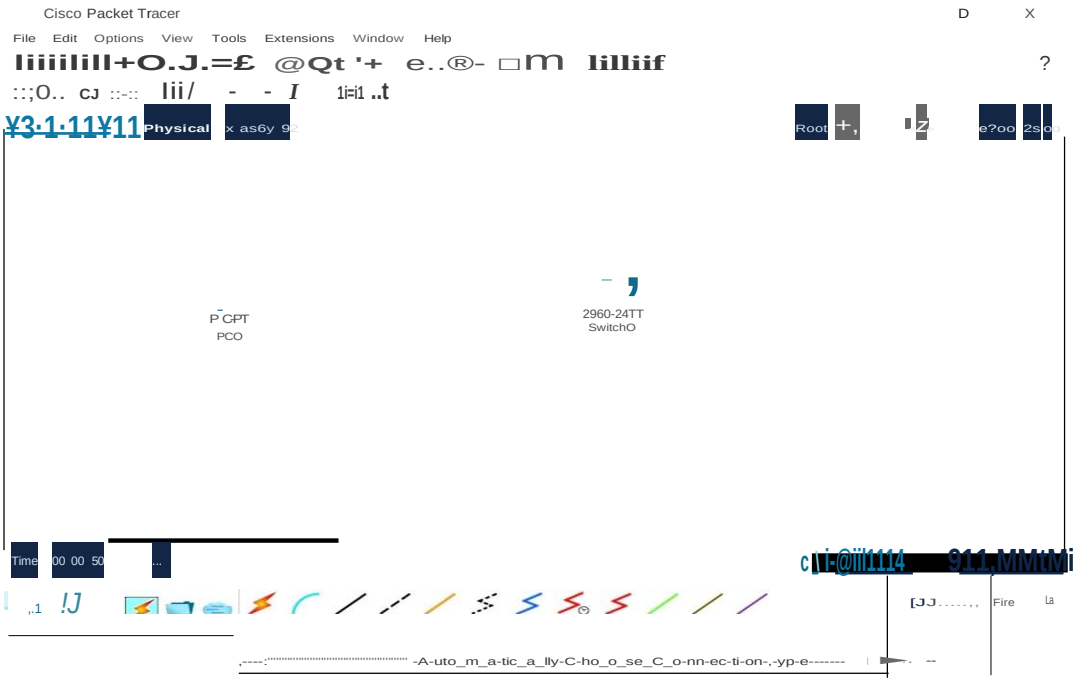
Practical 5 :-

Perform an initial Switch configuration.

Steps:

1. Add Devices

- Drag 1 Switch and 1 PC into the workspace.



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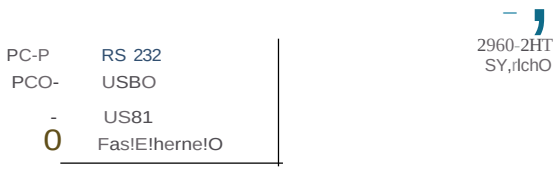
2. Connect Devices

- Use Console Cable:
  - o Connect PC RS-232 (Serial Port).



  - o Connect Switch Console port.

---

3. Open Terminal

- Click on PC Desktop tab Terminal Press OK.

---

4. Enter CLI Commands

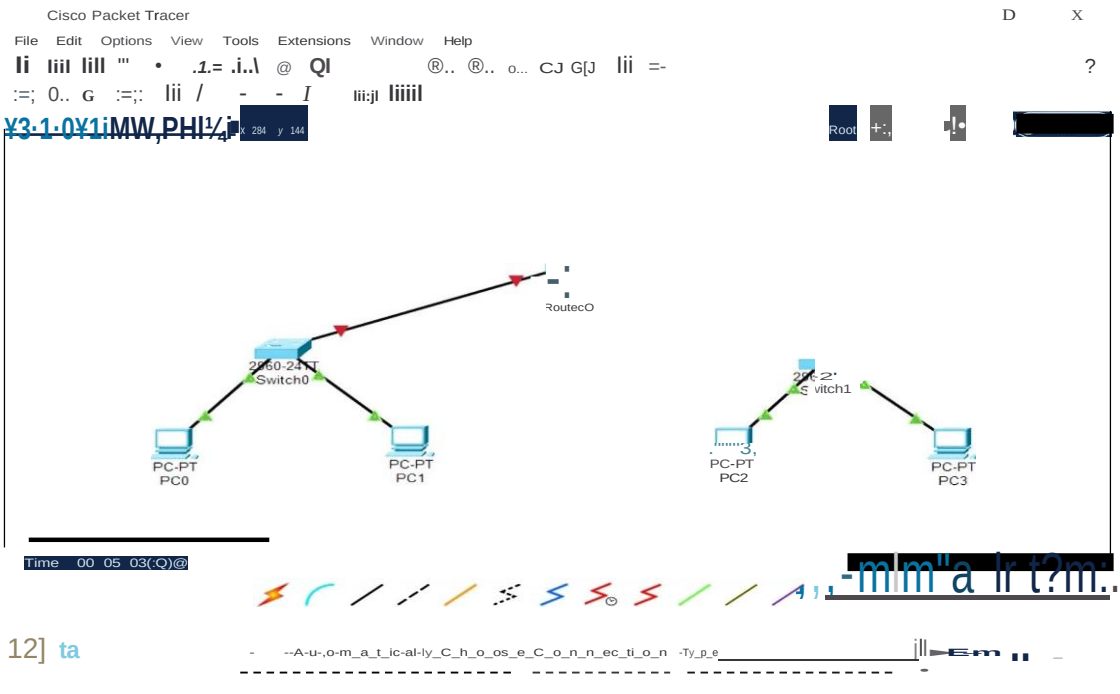
Practical 6 :-

Perform an initial Router configuration.

Steps:

- **Add Devices**
  - **Drag Router (e.g., 1941)**
  - **Drag 4 PCs and switches (for CLI access)**
  - **Drag 2 switches.**

- **Connect Switches to Router and PCs to Swtches using Straight Copper through cable.**



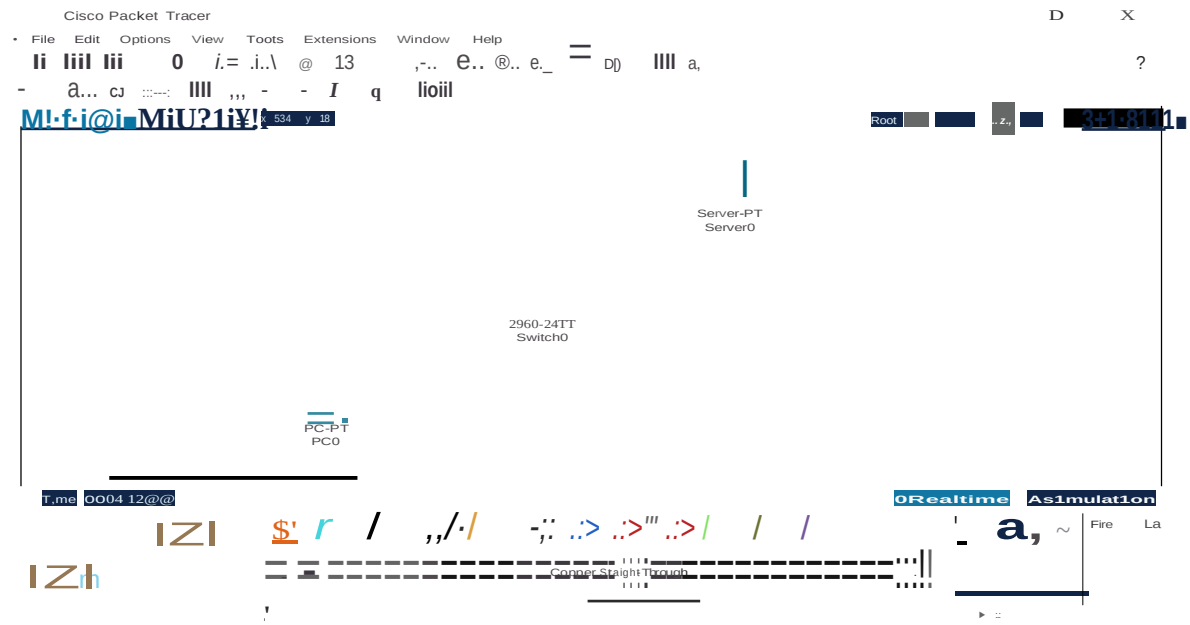
- **Access CLI**
  - **Click PC Desktop > Terminal OK.**
- **Configure Basic Settings**

Practical 7 :-

To implement Client Server Network.

Steps:

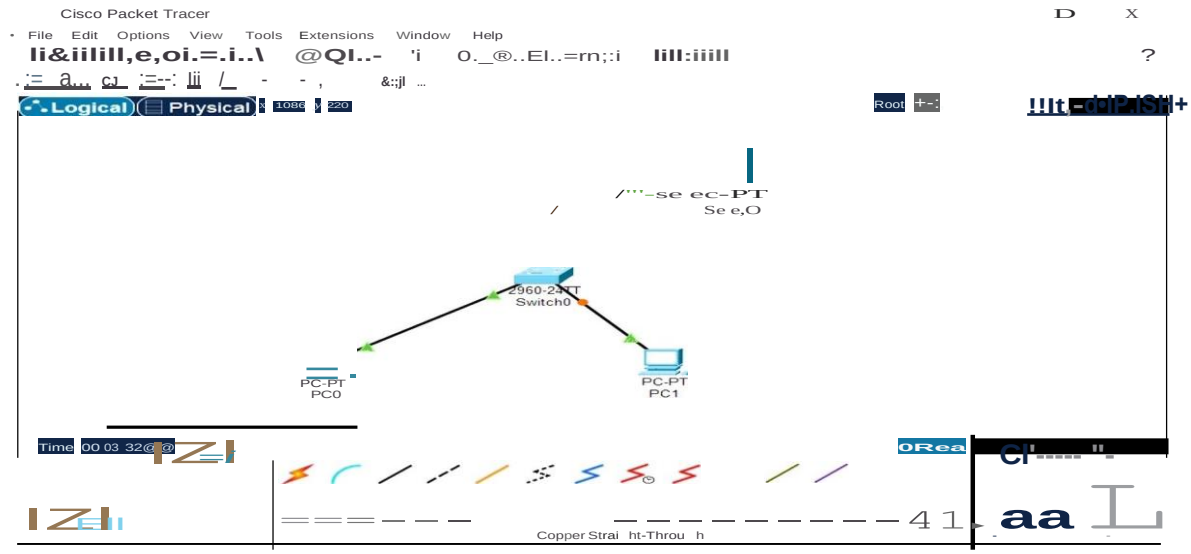
- **Step 1: Add Devices**
  - **SwitchO**
  - **PCO, PC1**
  - **ServerO**



- Step 2: Connect Devices

Use Copper Straight-Through Cable:

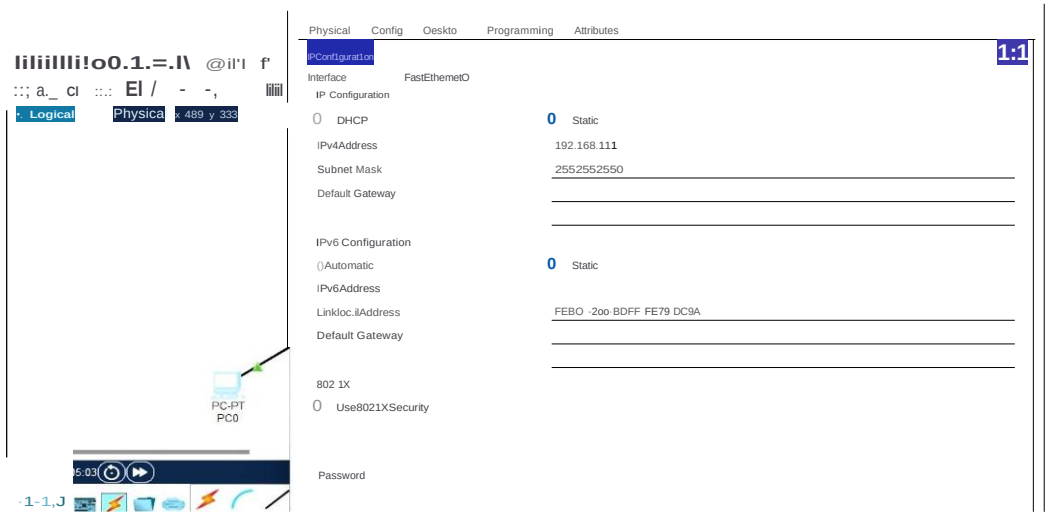
- PC0 Switch
- PCl Switch
- Server0 Switch



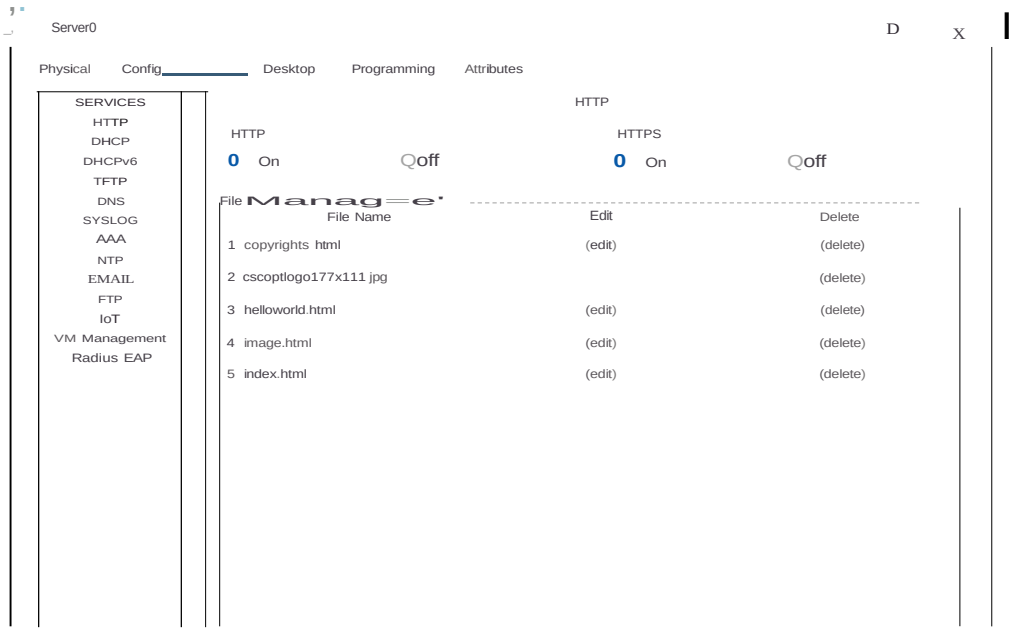
- Step 3: Assign IPs

Click each device Desktop IP Configuration:

- PC0: 192.168.1.1 and Default gateway IP of server
- PCl: 192.168.1.2 and Default gateway IP of server
- Subnet Mask: 255.255.255.0
- Server0: 10.10.10.1 255.0.0.0

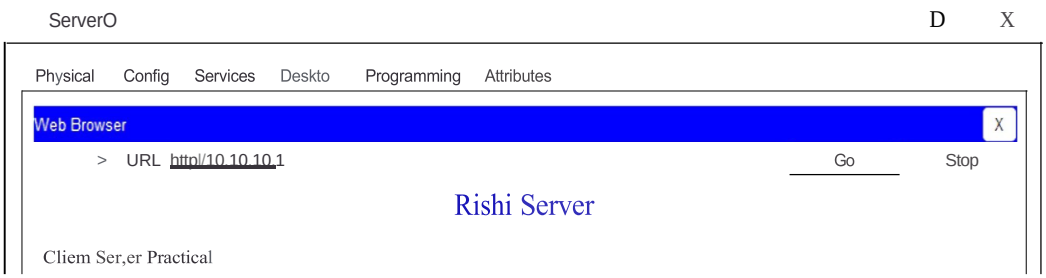


- **Step 4: Configure Server**
  - **Click Server0 Desktop Set service (HTTP, FTP, DHCP) ON as needed.**



- **Step 5: Test**

- **Server Web Browser type http://10.10.10.1**
- **Ping Server from PCs.**

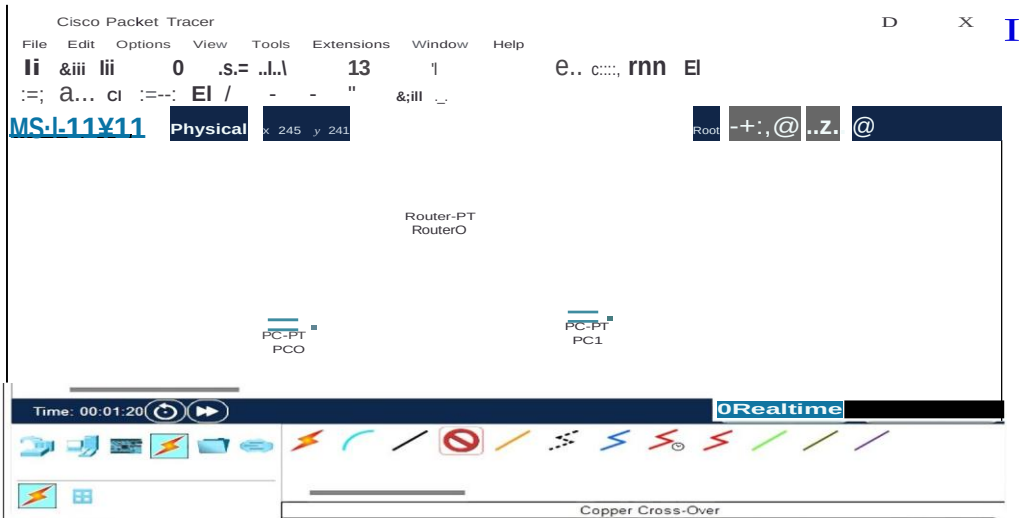


Practical 8 :-

To implement connection between devices using router.

Steps:

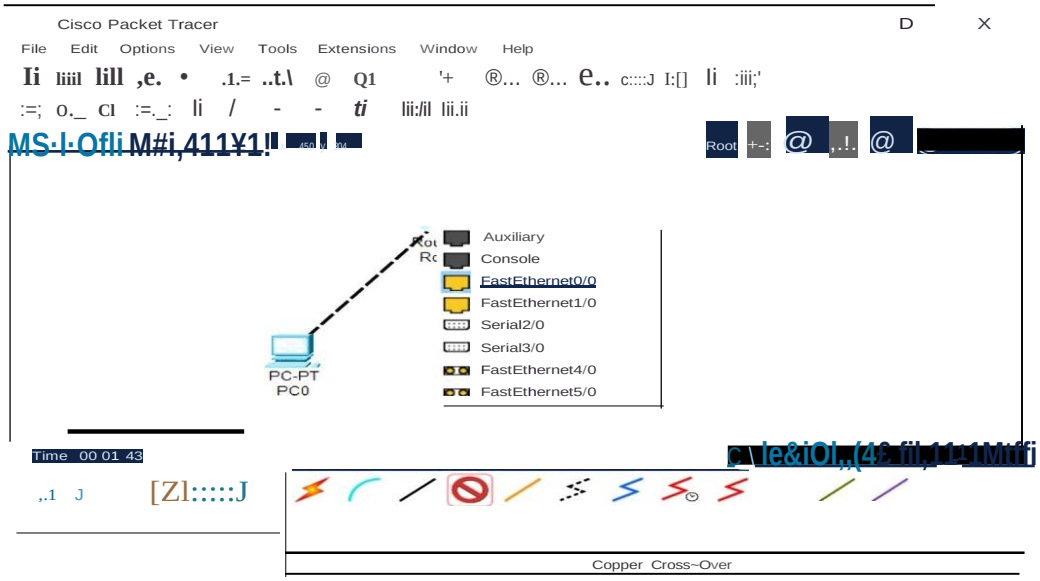
- **Step 1: Add Devices**
  - **Router0**
  - **PC0**
  - **PCl**

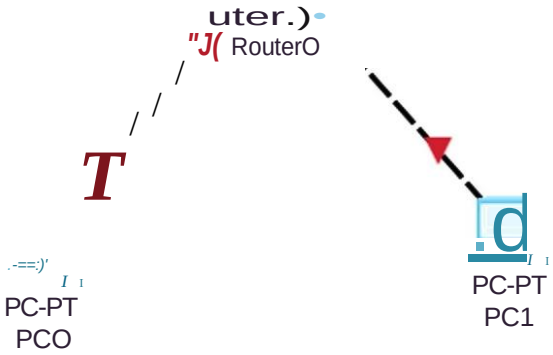


- **Step 2: Connect Devices**

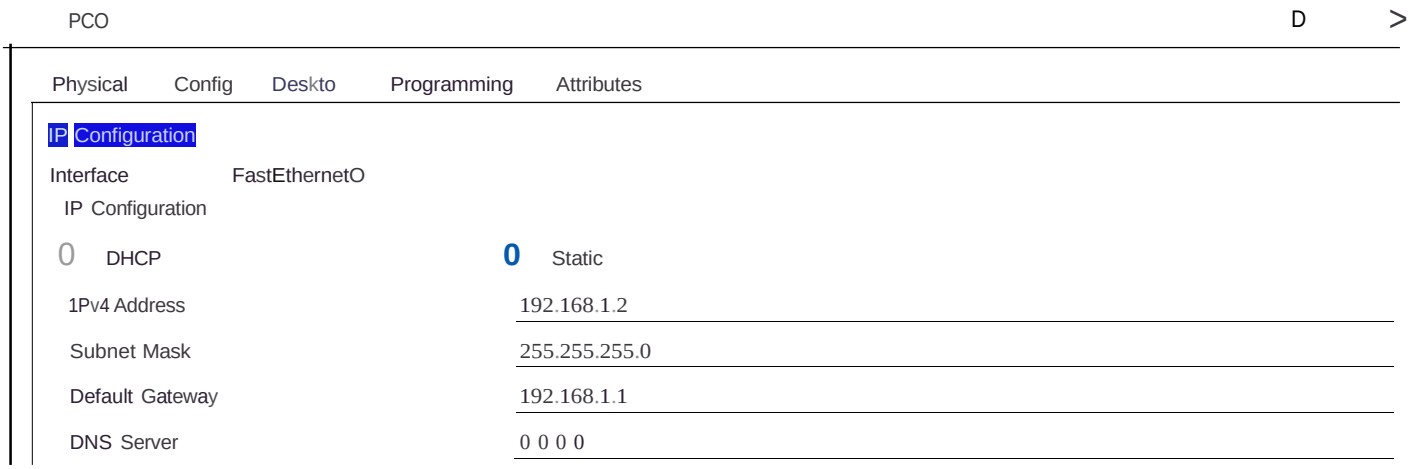
Use Copper Cross-Over Cable:

- **PC0 Router (Gig0/0)**
- **PCl Router (Gig0/1)**





- **Step 3: Assign IPs to PCs**
  - **PCO: 192.168.1.2, Gateway: 192.168.1.1**



  - **PCl: 192.168.2.2, Gateway: 192.168.2.1**

PC1 D X

Physical Config Oeskto Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

DHCP 0 Static

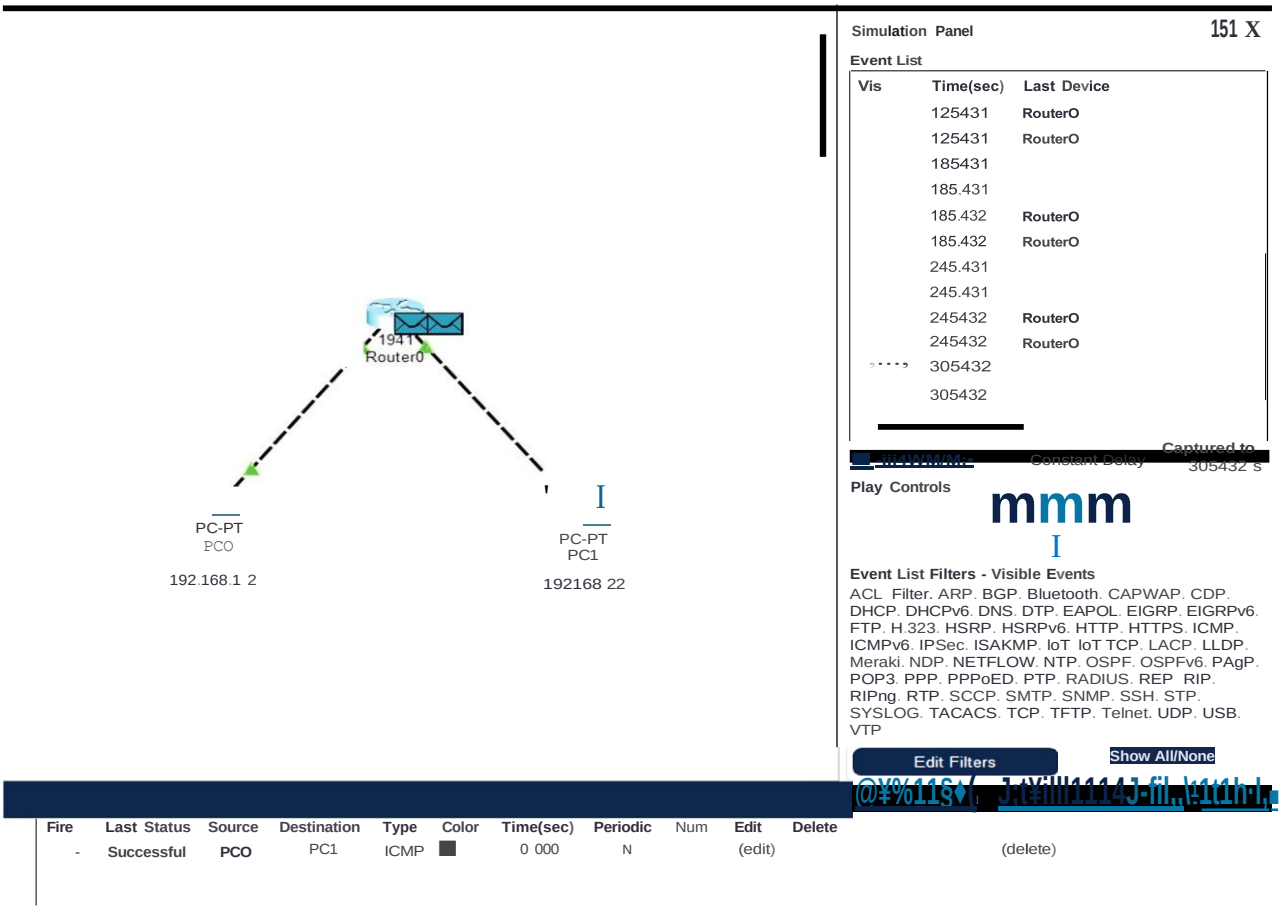
1Pv4 Address 192.168.2.2

Subnet Mask 255.255 255.0

Default Gateway 192.168.2.1

ONS Seiver 0.0 0.0

- **Step 5: Test**
  - **PCO ping 192.168.2.2**
  - **PCl ping 192.168.1.2**



+ Cables Reminder:

Connection		Cable Type
PC	Switch	Copper Straight-Through
PC	Router	Copper Cross-Over
PC	PC (direct)	Copper Cross-Over
Router	Switch	Copper Straight-Through