
Cisco Packet Tracer Lab-1 Report

Course: Computer Networks

Roll #: BSDSF22A028

Lab Title: Be the Master of Cisco Packet Tracer

Muhammad Shoaib Ahmad

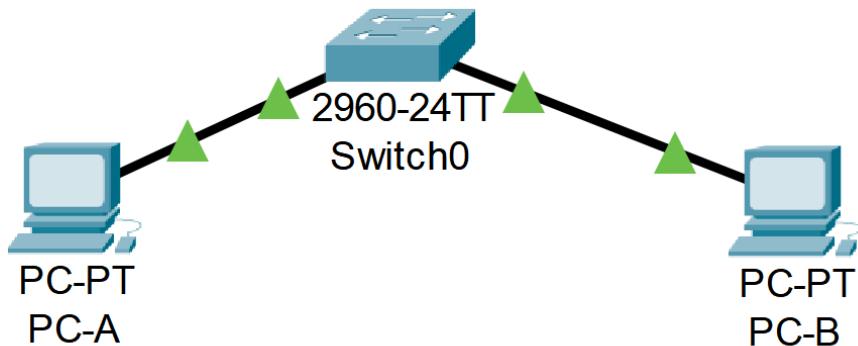
Objective

The objective of this lab is to:

- Develop an understanding of Packet Tracer's functions.
 - Prototype a network with two PCs connected to a switch and configure basic settings.
 - Observe network traffic behavior, including ARP and ICMP messages.
 - Validate network configurations using connectivity tests.
 - Troubleshoot basic network issues using Packet Tracer's simulation tools.
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Step 1: Set Up the Network Topology

1. Open **Cisco Packet Tracer**.
2. Add two **end devices (PCs)** from the **End Devices menu**.
3. Add a **Cisco 2950T switch** from the **Switches menu**.
4. Use **Copper Straight-Through cables** to connect:
 - PC-A to Switch (Fa0/1)
 - PC-B to Switch (Fa0/2)



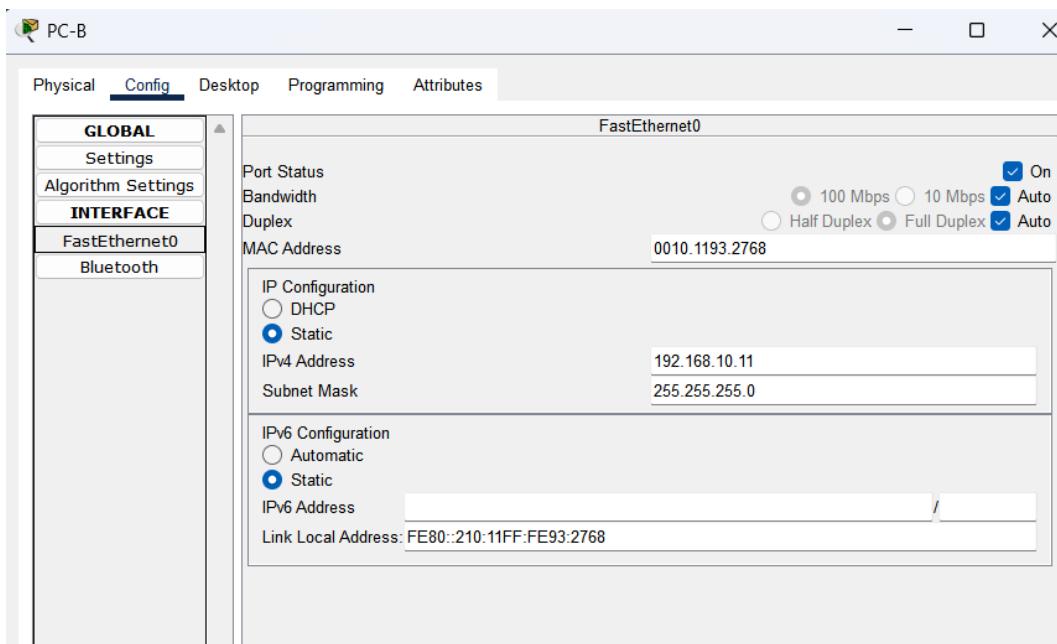
Step 2: Configure the Devices

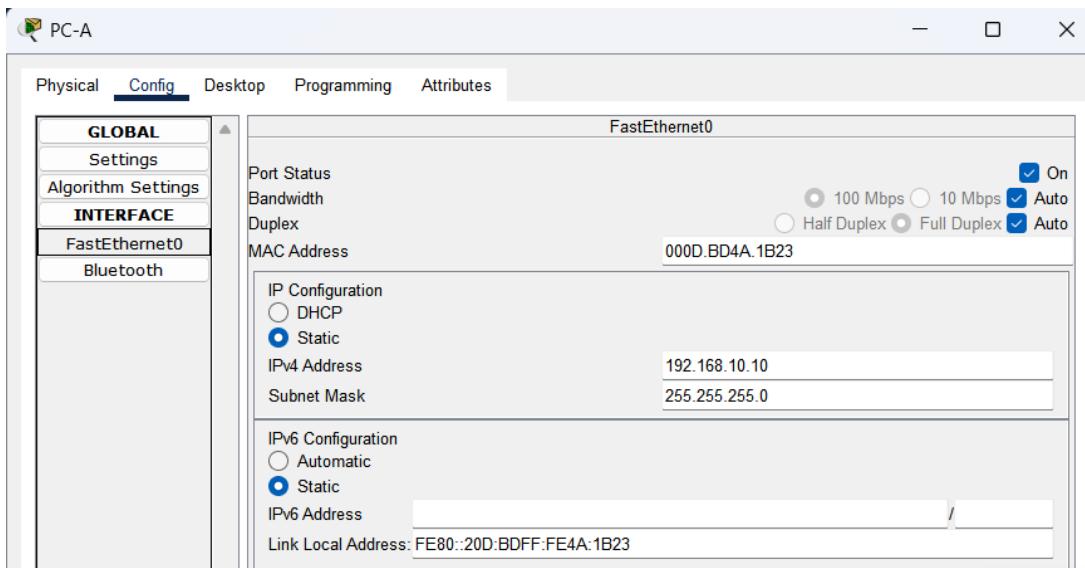
Configuring PC-A:

1. Click on **PC0**.
2. Go to the **Config tab** and set:
 - o **Display Name:** PC-A
 - o **IP Address:** 192.168.10.10
 - o **Subnet Mask:** 255.255.255.0

Configuring PC-B:

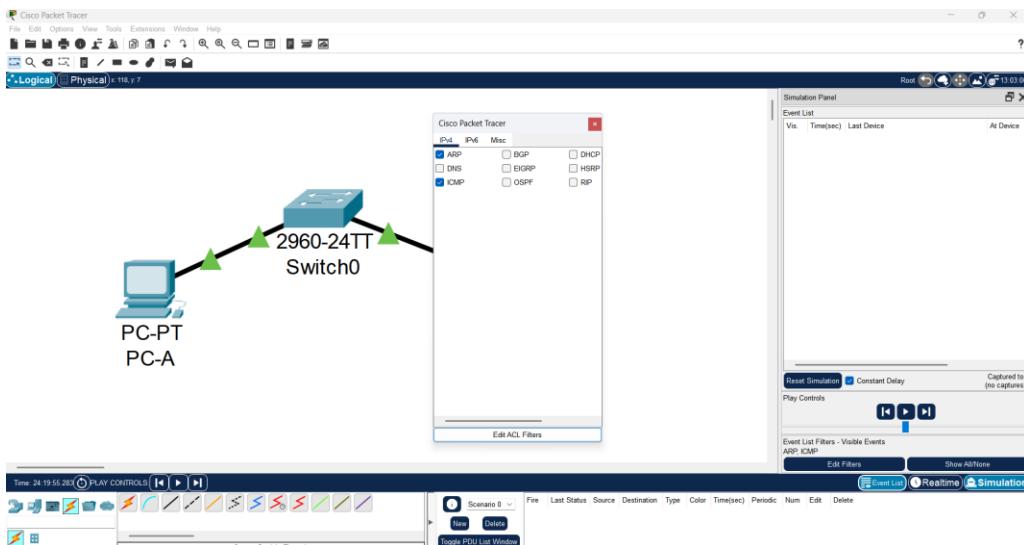
1. Click on **PC1**.
2. Go to the **Config tab** and set:
 - o **Display Name:** PC-B
 - o **IP Address:** 192.168.10.11
 - o **Subnet Mask:** 255.255.255.0

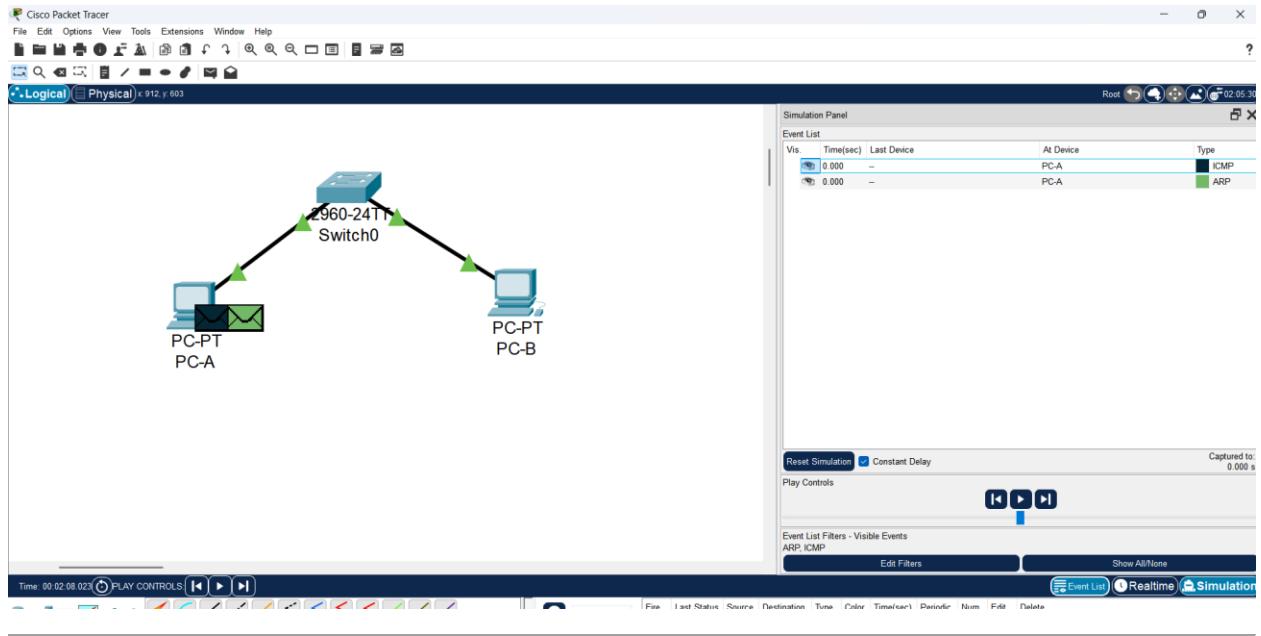




Step 3: Observe Data Flow Using Simulation Mode

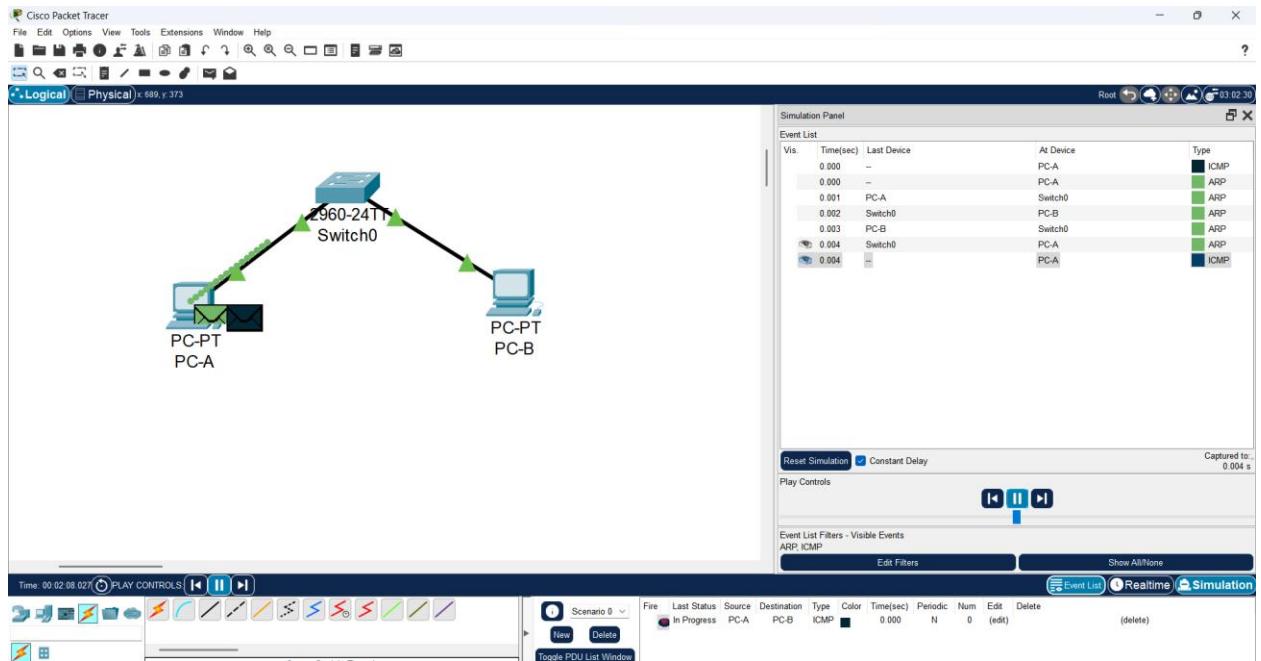
1. Click on the **Stopwatch Icon (Simulation Mode)** in the bottom-right corner.
2. Click **Edit Filters** in the **Simulation Panel**.
3. **Deselect all protocols, then select only ARP and ICMP.**
4. Click on the **Simple PDU Tool (Envelope Icon)** from the toolbar.
5. Click **PC-A** (as the source), then **PC-B** (as the destination).
6. You should now see **two envelopes** appear next to PC-A:
 - o **One for ARP Request**
 - o **One for ICMP (Ping) Request**

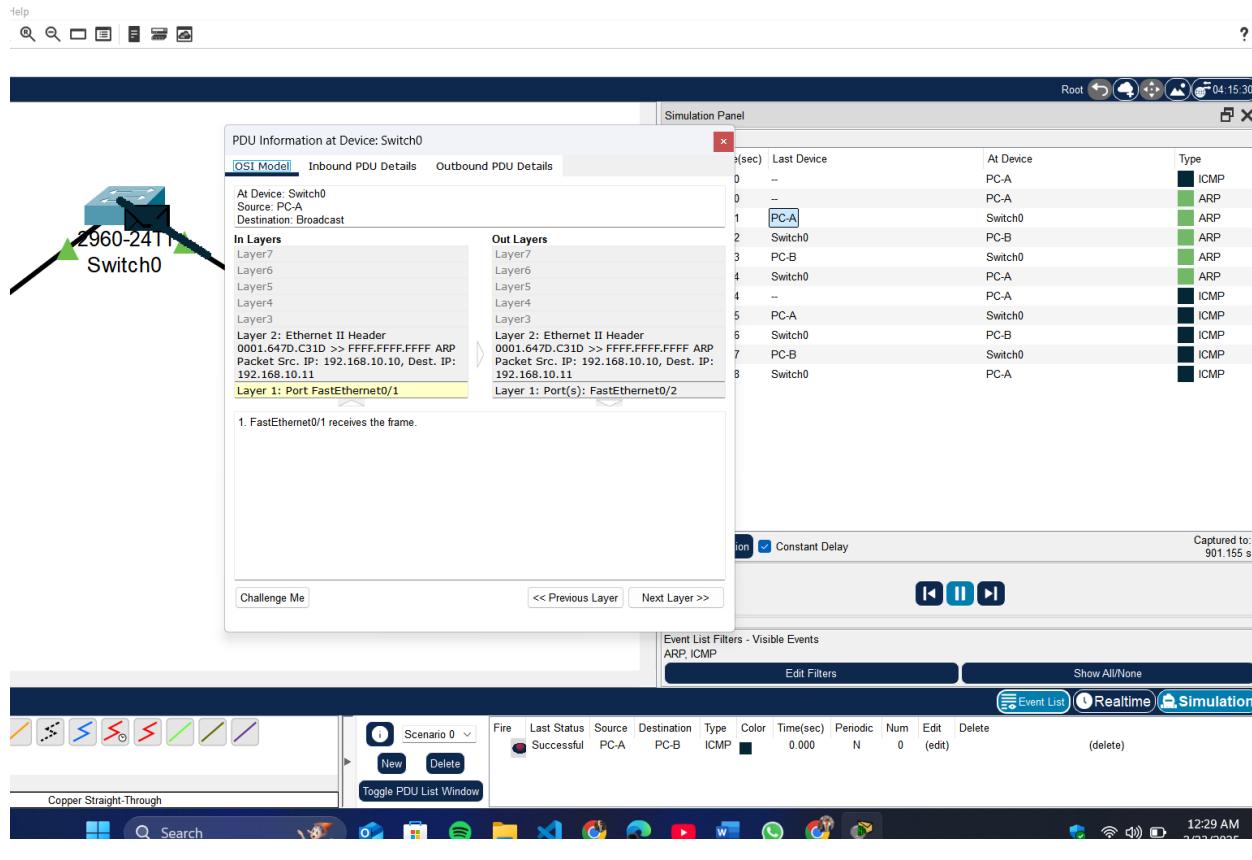




Step 4: Run and Analyze Network Traffic

1. Click **Auto Capture / Play** to observe packet movement.
2. Click **Capture / Forward** to step through each stage manually.
3. Observe the **ARP request and reply** before ICMP packets start flowing.





Step 5: Verify and Troubleshoot Network Connectivity

1. Click on **PC-A > Desktop > Command Prompt**.
2. Type the command:
3. `ping 192.168.10.11`
4. Press **Enter**.

Expected Output:

```
Pinging 192.168.10.11 with 32 bytes of data:
Reply from 192.168.10.11: bytes=32 time=70ms TTL=128
Reply from 192.168.10.11: bytes=32 time=72ms TTL=128
Reply from 192.168.10.11: bytes=32 time=68ms TTL=128
Reply from 192.168.10.11: bytes=32 time=71ms TTL=128
```

```
Ping statistics for 192.168.10.11:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
```

- If **ping is successful**, the network is correctly configured.
- If **ping fails**, check:
 - IP address configuration on both PCs.
 - Proper cable connections.
 - Switch is powered on.

The screenshot shows a software application window titled "PC-A". The top menu bar includes "Physical", "Config", "Desktop" (which is underlined), "Programming", and "Attributes". Below the menu is a toolbar with icons for "File", "Edit", "View", "Tools", and "Help". A "Command Prompt" window is open, displaying the following terminal session:

```
C:\>
C:\>arp -a
   Internet Address      Physical Address      Type
   192.168.10.11          0001.641c.0809      dynamic

C:\>ping 192.168.10.11

Pinging 192.168.10.11 with 32 bytes of data:

Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time=1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.10.11:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

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Step 6: View and Analyze ARP Tables

1. Click on **PC-A > Desktop > Command Prompt**.
2. Type the command:
3. `arp -a`
4. Press **Enter**.

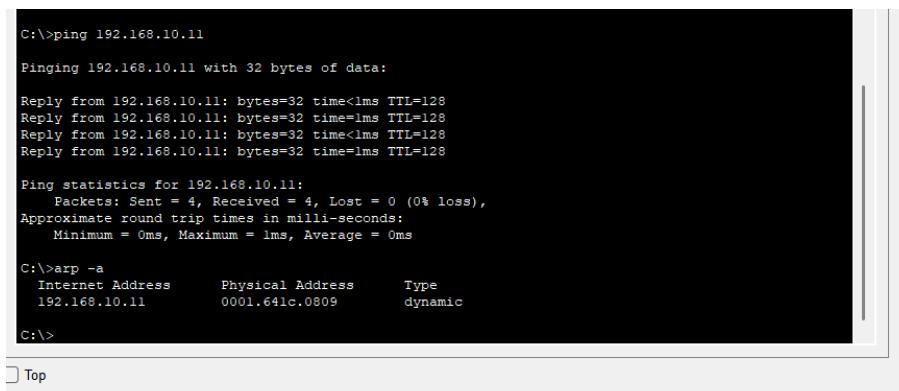
Expected Output:

```

Interface: 192.168.10.10 --- 0x2
Internet Address      Physical Address      Type
 192.168.10.11        00-1A-2B-3C-4D-5E    Dynamic

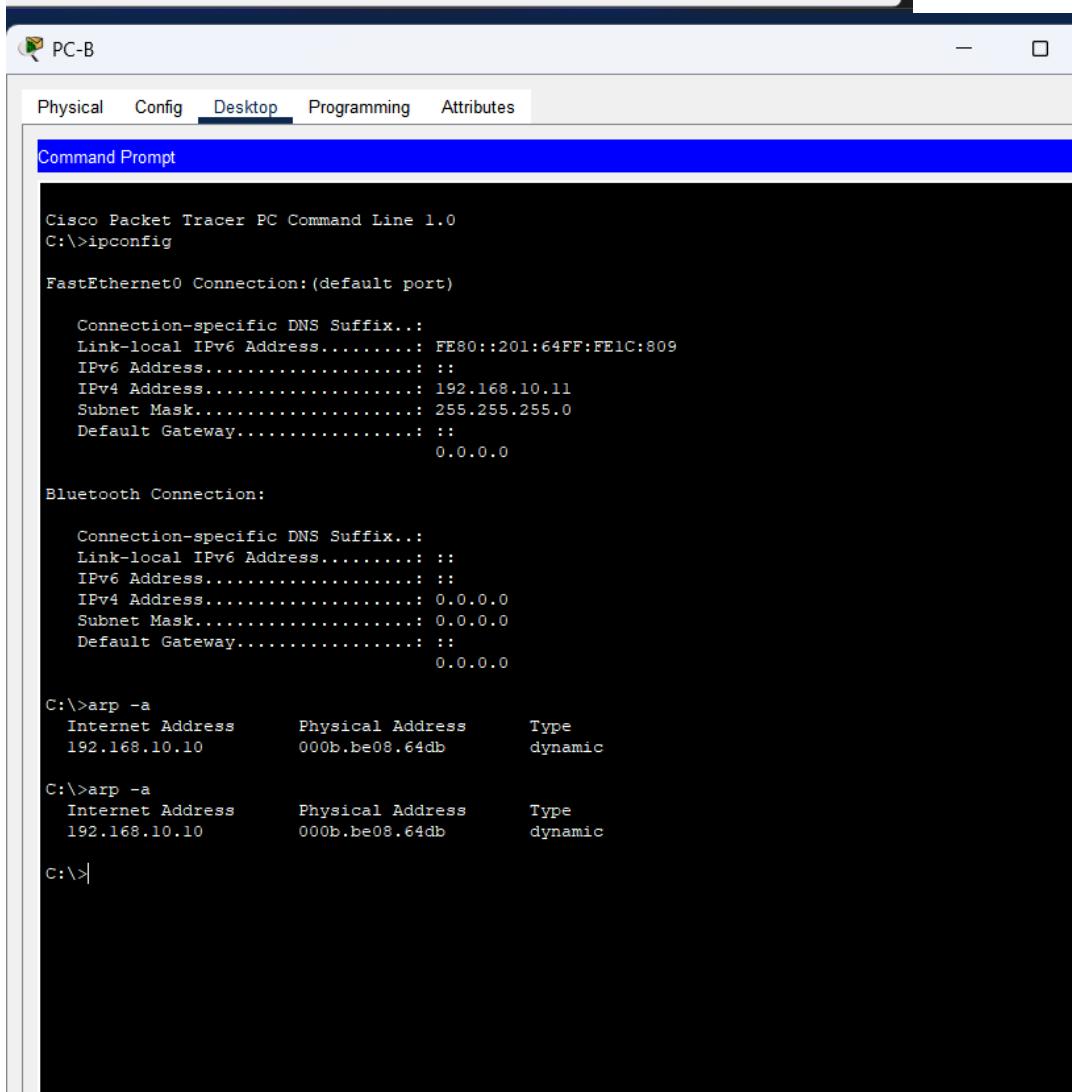
```

4. Repeat the process on **PC-B**.
5. Verify that both PCs have **each other's MAC address** in the ARP table.



C:\>ping 192.168.10.11
Pinging 192.168.10.11 with 32 bytes of data:
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.10.11:
 Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>arp -a
 Internet Address Physical Address Type
 192.168.10.11 0001.641c.0809 dynamic
C:\>

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PC-B

Physical Config Desktop Programming Attributes

Command Prompt

```

Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

  Connection-specific DNS Suffix...:
  Link-local IPv6 Address.....: FE80::201:64FF:FE1C:809
  IPv6 Address.....: :::
  IPv4 Address.....: 192.168.10.11
  Subnet Mask.....: 255.255.255.0
  Default Gateway.....: :::
                           0.0.0.0

Bluetooth Connection:

  Connection-specific DNS Suffix...:
  Link-local IPv6 Address.....: :::
  IPv6 Address.....: :::
  IPv4 Address.....: 0.0.0.0
  Subnet Mask.....: 0.0.0.0
  Default Gateway.....: :::
                           0.0.0.0

C:\>arp -a
  Internet Address      Physical Address      Type
  192.168.10.10        000b.be08.64db    dynamic

C:\>arp -a
  Internet Address      Physical Address      Type
  192.168.10.10        000b.be08.64db    dynamic

C:\>

```

Conclusion

In this lab, we successfully:

- Set up a basic network in **Cisco Packet Tracer**.
- Configured **IP addresses** and **subnet masks** for two PCs.
- Used **Simulation Mode** to analyze **ARP and ICMP messages**.
- Verified network connectivity using the **ping command**.
- Checked the **ARP table** to confirm successful communication.

This lab provided a **hands-on experience** with **Packet Tracer's simulation and troubleshooting tools**, helping to **understand basic network communication principles**.
