

NPS LAB EXPERIMENT 1

Objective: Execute the following networking commands: ipconfig, tracert, telnet, netsh, ping, nslookup, and netstat in the command prompt using a simple network topology.

STEPS:

1. Set Up Network Topology:

- **Open Cisco Packet Tracer.**
- **Add two or more PCs** (from the "End Devices" section).
- **Add a switch** (from the "Switches" section).
- **Connect the devices** using the "Copper Straight-Through" cable:
 - Click on the cable, and then click on one PC, choosing the FastEthernet port.
 - Connect the other end to the switch's port (e.g., FastEthernet 0/1).
 - Repeat the process for the second PC.
- **Optionally, add a router** if you'd like to explore more complex commands (from the "Routers" section).
- Connect the router to the switch using a "Copper Straight-Through" cable.

2. Configure IP Addresses:

- **Click on a PC.**
- Go to the **"Desktop" tab** and select **"IP Configuration"**.
- Assign a static IP address to each PC (e.g., PC1: 192.168.1.2, PC2: 192.168.1.3) and set the subnet mask (e.g., 255.255.255.0).
- Ensure the default gateway is configured if you have a router (e.g., 192.168.1.1).

3. Run Basic Network Commands:

Command 1: Ping

- Go to the **Desktop** of PC1.
- Select the **Command Prompt**.
- Type ping 192.168.1.3 (Ping the IP of PC2) and press Enter. This will test connectivity between the two devices.

Command 2: Tracert

- In the same command prompt on PC1, type tracert 192.168.1.3 to trace the route packets take from PC1 to PC2.
- If you have a router, this will display the hops.

Command 3: Nslookup

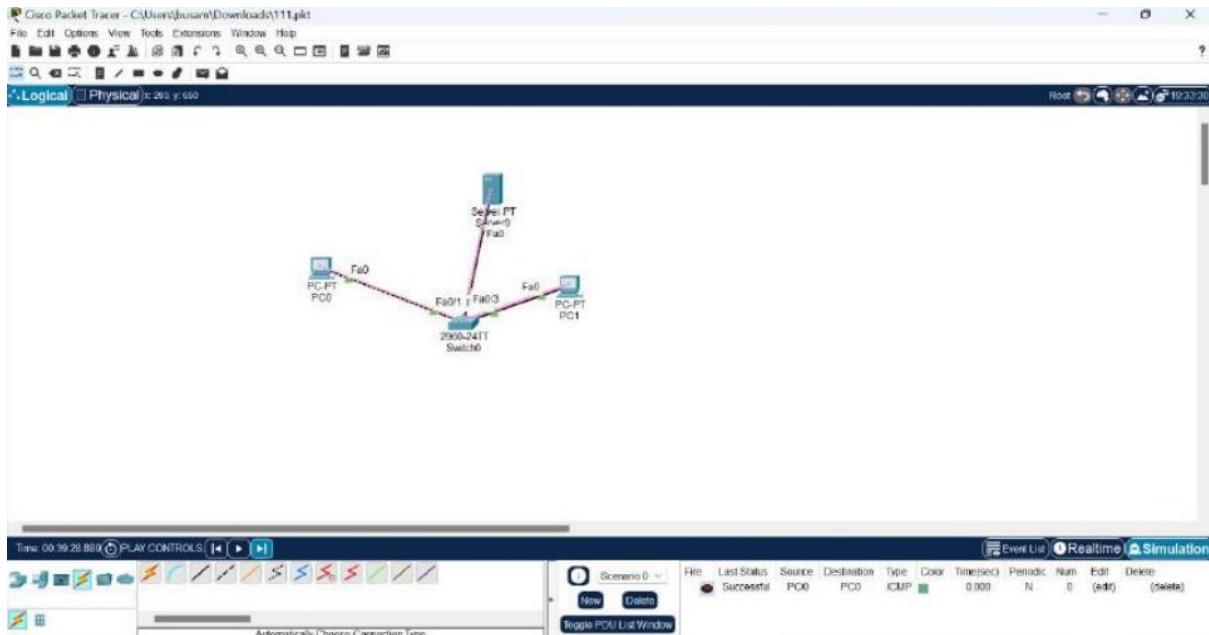
- Nslookup is used for DNS queries. To simulate this, you need a DNS server configured in your network.
- After configuring a DNS server, go to the **Command Prompt** and type nslookup <domain_name> (e.g., nslookup www.example.com).

4. Using Routers for Advanced Commands:

- If you've added a router, you can use **Telnet** and **Netstat**:
 - **Telnet** can be simulated by enabling the Telnet service on the router and accessing it from the PC's command prompt by typing telnet <router_IP>.
 - **Netstat** would typically require using a real operating system command prompt and is not fully simulated in Packet Tracer.

5. Testing and Verifying Network:

- After setting up the devices and running these commands, you should see results that verify network connectivity, DNS resolution, and packet routing.



The image shows a PC Command Prompt window in Cisco Packet Tracer. The user has entered the following commands and received the following output:

```
C:\>ping 156.32.6.8

Pinging 156.32.6.8 with 32 bytes of data:

Reply from 156.32.6.8: bytes=32 time=4ms TTL=128
Reply from 156.32.6.8: bytes=32 time=4ms TTL=128
Reply from 156.32.6.8: bytes=32 time=4ms TTL=128
Reply from 156.32.6.8: bytes=32 time=4ms TTL=128

Ping statistics for 156.32.6.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 4ms, Average = 4ms

C:\>netstat

Active Connections

Proto Local Address           Foreign Address         State
TCP    0.0.0.0:1552             0.0.0.0:1552            SYN_SENT
TCP    0.0.0.0:1552             156.32.6.8:80           ESTABLISHED
C:\>ipconfig/all

Invalid Command.

C:\>ipconfig/all

Invalid Command.

C:\>ipconfig

FastEthernet0 Connection (default port)

    Connection-specific DNS Suffix...: 
    Link-local IPv6 Address . . . . .: FE80::2F0:A3FF:FE7C:15A0
    IPv6 Address. . . . .: 156.32.6.8
    Subnet Mask . . . . .: 255.255.0.0
    Default Gateway . . . . .: 0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Link-local IPv6 Address . . . . .: 11
```