LAB EXPERIMENT-4 (2023000608)

Aim:

To configure a host device (PC, laptop, server, etc.) in Cisco Packet Tracer with a sta c IPv4 address, subnet mask, default gateway, and DNS server, enabling it to communicate within the simulated network and poten ally access external networks (if configured).

Prerequisites:

- Cisco Packet Tracer installed and running.
- A network topology created with at least one host device and network infrastructure (router, switch, etc.). The host should be connected to the network.

Procedure:

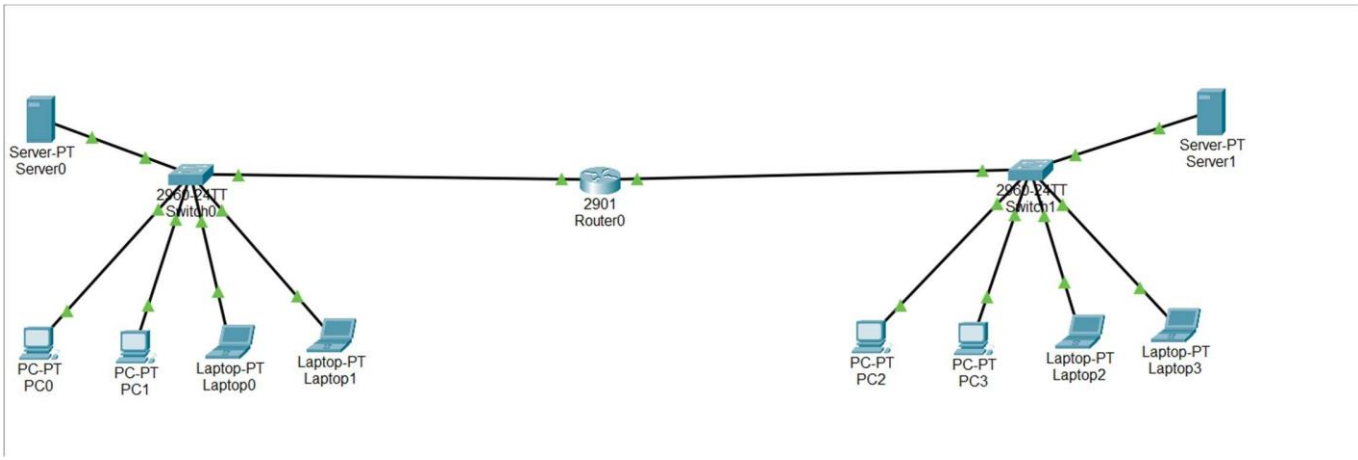
1. Navigate to IP Configura on: o Within the Desktop tab, locate and click on "IP Configura on
2. Select Sta c Addressing:
    - In the IP Configura on window, you will see op ons for obtaining an IP address. The screenshot shows radio bu ons for "DHCP" and "Sta c."
    - Click the radio bu on next to "Sta c" to choose sta c IP addressing.
3. Enter IP Address Informa on:
    - IPv4 Address: Enter the desired sta c IPv4 address for the host. In the screenshot, the address 192.168.100.4 is used. Ensure this address is unique within your network and falls within the correct subnet.
    - Subnet Mask: Enter the appropriate subnet mask for your network. The screenshot shows 255.255.255.0, which is a common subnet mask for a /24 network. The subnet mask defines the size of your network and the range of usable IP addresses.
    - Default Gateway (Crucial for External Communica on): Enter the IP address of the default gateway (usually your router's interface IP address). The default gateway is the device that allows the host to communicate with networks outside its local subnet. While the screenshot shows 0.0.0.0, it must be configured with the correct gateway IP for proper external network func onality (e.g., internet access).
    - DNS Server (Essen al for Domain Name Resolu on): Enter the IP address of a DNS server. The DNS server translates domain names (like google.com) into IP addresses. The screenshot shows 0.0.0.0, but for proper internet access, a valid DNS server IP should be provided (e.g., a public DNS server like 8.8.8.8 or your local DNS server).
4. Close Configura on Window:
    - Close the IP Configura on window. The se ngs are usually applied automa cally.
5. Verifica on:
    - Ping Test (Basic Connec vity): Open a command prompt or terminal window on the host (within Packet Tracer) and use the ping command to test network connec vity. For example, ping <default

gateway IP address> to verify communica on with the router. ping <another host's IP address> to verify communica on within the local network.

- Web Browser Test (Applica on-Level Connec vity): If you have a web server configured on your network, open a web browser on the host and try to access the web server's IP address to verify HTTP communica on.
- External Connec vity Test (If Configured): If you have configured a default gateway and DNS server, try ping google.com or access a website by its domain name in the web browser to test internet connec vity.

Troubleshooting:

- Connec vity Issues: If the ping tests fail, double-check the IP address, subnet mask, and default gateway se ngs. Ensure there are no IP address conflicts on the network. Verify the physical or logical connec ons in your Packet Tracer topology.
- Incorrect Subnet Mask: An incorrect subnet mask can prevent the host from communica ng properly. Make sure it aligns with your network design.
- Firewall Issues (if applicable): If you have firewalls enabled in your Packet Tracer simula on (less common in basic setups), ensure they are not blocking ICMP (ping) traffic or other necessary ports.



Example

To configure the host with the informa on shown in the screenshot (corrected and enhanced for func onality):

- IPv4 Address: 192.168.100.4
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.100.1 (Example - replace with your actual gateway IP)
- DNS Server: 8.8.8.8 (Google Public DNS - or your preferred DNS server)

Output (Explanation):

A er successfully configuring the sta c IP address and related se ngs, the host device should exhibit the following behavior:

1. Network Connec vity: The host should be able to communicate with other devices on the same subnet. This can be verified using the ping command. For instance, ping 192.168.100.1 (the gateway) should result in successful replies. Pinging other hosts on the 192.168.100.0/24 network should also succeed.
2. External Network Access (If Configured): If the default gateway and DNS server are correctly configured, the host should be able to access external networks (e.g., the internet). ping google.com should resolve the domain name to an IP address and receive replies. Web browsers should be able to access websites using domain names.
3. Web Server Access (If Applicable): If a web server is present on the local network or an external network, the host should be able to access web pages hosted on the server using the server's IP address or domain name (if DNS is configured).
4. Consistent IP Address: The host will retain the configured sta c IP address across reboots or when the Packet Tracer simula on is restarted. This is the key difference between sta c and dynamic (DHCP) addressing.
5. No DHCP Requests: The host will not send out DHCP requests to obtain an IP address automa cally since it is configured sta cally.