EX.NO:04

Date :

WLAN Configuration

Aim:

To configure a Wireless Local Area Network (WLAN) using Access Points and Switch in Cisco Packet Tracer, enabling wireless devices (Laptop, Smartphone, Tablet) to connect and communicate with each other and with a server.

Theory: VLAN Configuration:

A **Wireless Local Area Network (WLAN)** allows devices to connect without physical cables using wireless signals. In this topology:

1. **Access Points (APs):** Provide wireless connectivity for end devices (Laptop, Smartphone, Tablet).
2. **Switch:** Connects all APs and the Server, forming the backbone of the network.
3. **Server:** Provides services like DHCP, HTTP, or DNS for wireless clients.
4. **End Devices:** Connect wirelessly to APs via SSID.

WLANs improve mobility, flexibility, and scalability compared to wired LANs.

Required Equipment:

1. **Switch (2960):** Central device connecting APs and server.
2. **Access Points (APs):** Provide wireless connectivity to end devices.
3. **Server:** Provides network services.
4. **End Devices:** Laptop, Smartphone, Tablet (with wireless adapters).
5. **Ethernet Cables (Cat5e/Cat6):** To connect APs and server to the switch.
6. **Cisco Packet Tracer Software.**

Procedure: VLAN Configuration in Cisco Packet Tracer

1. Build the Topology

1. Place a Switch, Server, Access Points (APs), and Wireless End Devices (Laptop, Smartphone, Tablet).
2. Connect APs to the Switch using copper straight-through cables.
3. Connect Server to the Switch using a copper straight-through cable.

2. Configure the Access Points

1. Click on Access Point0 → Config tab.
    a) Set SSID: Campus-WLAN
    b) Enable DHCP (optional) or leave to server/router.
    c) Set Security: WPA2-PSK with password (e.g., 12345).
2. Repeat the same for AP1 and AP2 (using same SSID if you want a unified WLAN).

3. Configure the Server

1. Click on Server0 → go to Config tab → select Services.
2. Enable DHCP service and set IP pool:
    a) Default Gateway: 192.168.1.1
    b) Subnet Mask: 255.255.255.0
    c) Start IP: 192.168.1.10
    d) Maximum Users: 50
3. Set the Server's static IP as 192.168.1.1 with subnet 255.255.255.0.

4. Configure Wireless End Devices

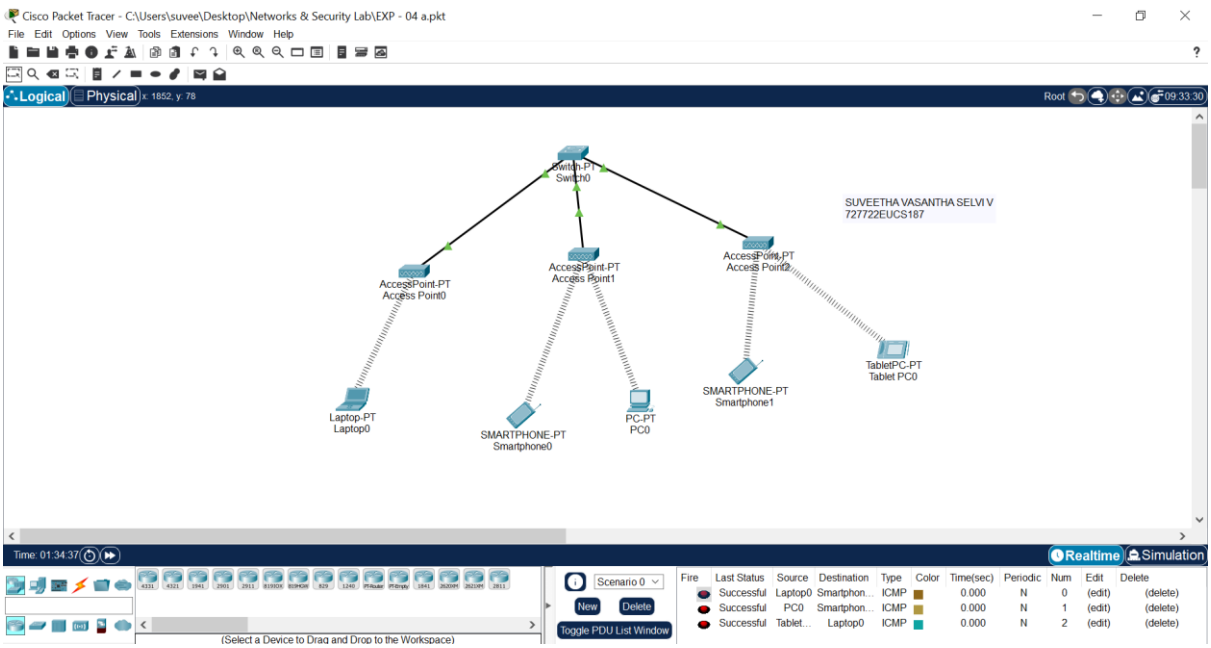
1. On Laptop0 → Desktop → PC Wireless → Connect to Campus-WLAN SSID → enter WPA2 password.
2. On Smartphone0 and Tablet0 → enable wireless adapter → connect to Campus-WLAN.
3. Devices will automatically obtain IPs from the server via DHCP.

5. Test Connectivity

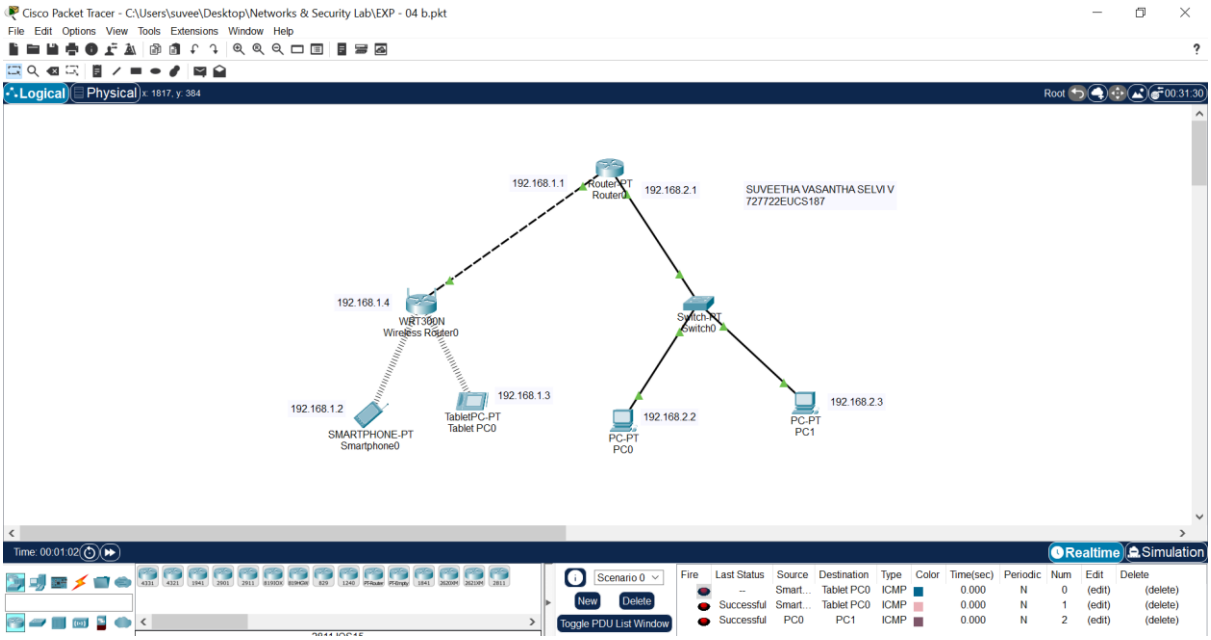
1. On Laptop0 → Command Prompt → ping 192.168.1.1 (Server IP) → Reply should be received.
2. On Smartphone0 → ping Tablet0's IP → Reply should be received.
3. Communication between all WLAN devices and the server should be successful.

MODEL OUTPUT:

WLAN USING SWITCH AND SERVER :



WLAN MESSAGE PASS :



RESULTS:

The WLAN was successfully configured using access points and a switch. Wireless devices (Laptop, Smartphone, Tablet) were able to connect to the WLAN using the configured SSID and security key. Communication between wireless devices and the server was tested successfully using ping, verifying proper WLAN connectivity.