

Network Setup Documentation

Name: Omar Abdulrahim

University Number: 202011259237

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Project Overview:

This network simulation was designed using Cisco Packet Tracer. The primary goal was to create a VLAN-based network for different departments, assign IP addresses, set up a server, and test communication between devices within VLANs. Here's a breakdown of the setup:

Objectives:

1. Create VLANs for Each Department:

- VLANs were configured for various groups, likely corresponding to different departments (e.g., HR, IT, etc.).
- Each VLAN was assigned its own subnet based on subnetting principles.

2. Assign IP Addresses:

- Devices were assigned IP addresses based on the appropriate VLAN and subnet. For instance:
 - 192.168.5.0/24 is a network used for devices such as laptops and PCs connected to VLANs on Switch0 and Switch1.
 - 192.168.4.0/24 network is used for the department connected to Switch3.
 - The server is configured on 8.8.8.0/24, representing an external network for testing purposes.

3. Server Setup:

- A server (labeled "google") was configured under the subnet 8.8.8.0/24.
- This setup was tested by sending messages between VLANs, which confirmed that internal communication within VLANs was functioning.

4. Router Setup:

- A 2911 Router was introduced into the network to allow communication between VLANs (inter-VLAN routing).
- The VLANs and router are connected through Layer 2 switches (2960-24TT).

Issue Encountered:

While the internal communication between devices within the VLANs was successful, the inter-VLAN routing configuration did not fully work. Devices in different VLANs were unable to communicate with each other through the router. The issue likely lies in the router configuration (e.g., incorrect routing setup, trunking issues, or misconfigured router sub-interfaces).

Network Overview:

- Router: Cisco 2911
- Switches: 2960-24TT (4 switches)
- VLANs:
 - VLAN for 192.168.5.0/24 devices (e.g., Switch0, Switch1)
 - VLAN for 192.168.4.0/24 devices (Switch3)
 - External Server connected to 8.8.8.0/24 (Switch2)

This project involved setting up a multi-VLAN network, assigning IP addresses based on subnets, and configuring inter-VLAN communication. Although there was an issue with the routing, the setup within the VLANs is functional, and further troubleshooting will focus on the router configuration.