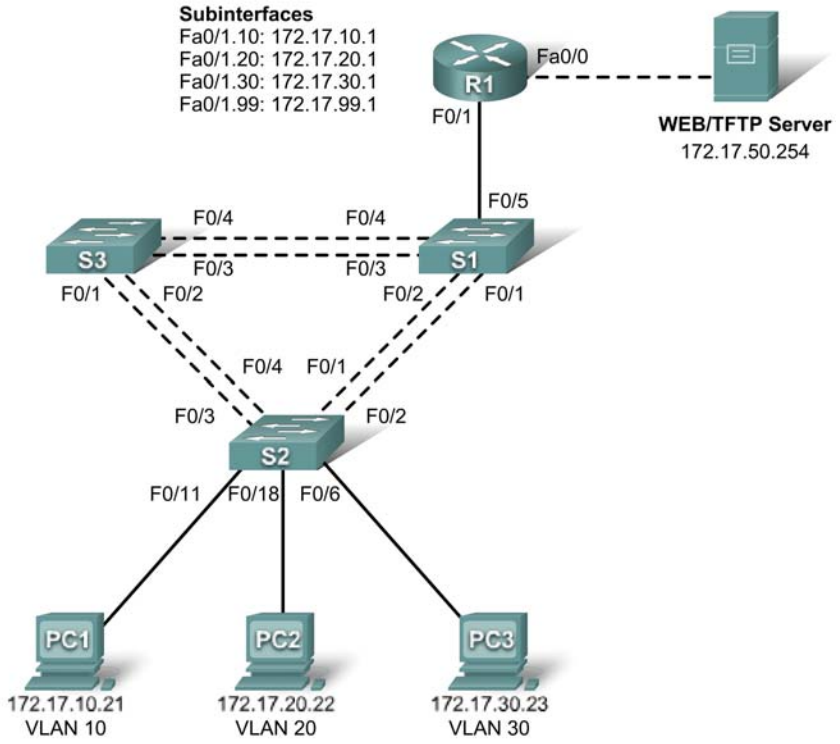
PT Activity 6.5.1: Packet Tracer Skills Integration Challenge

Topology Diagram



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	**Fa0/0**	172.17.50.1	255.255.255.0	N/A
	Fa0/1.10	172.17.10.1	255.255.255.0	N/A
	Fa0/1.20	172.17.20.1	255.255.255.0	N/A
	Fa0/1.30	172.17.30.1	255.255.255.0	N/A
	Fa0/1.99	172.17.99.1	255.255.255.0	N/A
S1	**VLAN 99**	172.17.99.31	255.255.255.0	172.17.99.1
S2	**VLAN 99**	172.17.99.32	255.255.255.0	172.17.99.1
S3	**VLAN 99**	172.17.99.33	255.255.255.0	172.17.99.1
PC1	**NIC**	172.17.10.21	255.255.255.0	172.17.10.1
PC2	**NIC**	172.17.20.22	255.255.255.0	172.17.20.1
PC3	**NIC**	172.17.30.23	255.255.255.0	172.17.30.1

Learning Objectives

- Configure and verify basic device configurations.
- Configure VTP.
- Configure trunking.
- Configure VLANs.
- Assign VLANs to ports.
- Configure STP.
- Configure router-on-a-stick Inter-VLAN routing.
- Verify end-to-end connectivity.

Introduction

In this activity, you will demonstrate and reinforce your ability to configure switches and routers for inter-VLAN communication. Among the skills you will demonstrate are configuring VLANs, VTP, and trunking on switches. You will also administer STP on switches and configure a router-on-a-stick using subinterfaces.

Task 1: Configure and Verify Basic Device Configurations

Step 1: Configure basic commands.

Configure the router and each switch with the following basic commands. Packet Tracer grades only the hostnames and default gateways.

- Hostnames
- Banner
- Enable secret password
- Line configurations
- Service encryption
- Switch default gateways

Step 2: Configure the management VLAN interface on S1, S2, and S3.

Create and enable interface VLAN 99 on each switch. Use the addressing table for address configuration.

Step 3: Check results.

Your completion percentage should be 17%. If not, click **Check Results** to see which required components are not yet completed.

Task 2: Configure VTP

Step 1: Configure the VTP mode on all three switches.

Configure S1 as the server. Configure S2 and S3 as clients.

Step 2: Configure the VTP domain name on all three switches.

Use **CCNA** as the VTP domain name.

Step 3: Configure the VTP domain password on all three switches.

Use **cisco** as the VTP domain password.

Step 4: Check results.

Your completion percentage should be 28%. If not, click **Check Results** to see which required components are not yet completed.

Task 3: Configure Trunking

Step 1: Configure trunking on S1, S2, and S3.

Configure the appropriate interfaces in trunking mode and assign VLAN 99 as the native VLAN.

Step 2: Check results.

Your completion percentage should be 62%. If not, click **Check Results** to see which required components are not yet completed.

Task 4: Configure VLANs

Step 1: Create the VLANs on S1.

Create and name the following VLANs on S1 only. VTP advertises the new VLANs to S1 and S2.

- VLAN 10 **Faculty/Staff**
- VLAN 20 **Students**
- VLAN 30 **Guest(Default)**
- VLAN 99 **Management&Native**

Step 2: Verify that VLANs have been sent to S2 and S3.

Use the appropriate commands to verify that S2 and S3 now have the VLANs you created on S1. It may take a few minutes for Packet Tracer to simulate the VTP advertisements.

Step 3: Check results.

Your completion percentage should be 67%. If not, click **Check Results** to see which required components are not yet completed.

Task 5: Assign VLANs to Ports

Step 1: Assign VLANs to access ports on S2.

Assign the PC access ports to VLANs:

- VLAN 10: PC1 connected to Fa0/11
- VLAN 20: PC2 connected to Fa0/18
- VLAN 30: PC3 connected to Fa0/6

Step 2: Verify the VLAN implementation.

Use the appropriate commands to verify your VLAN implementation.

Step 3: Check results.

Your completion percentage should be 75%. If not, click **Check Results** to see which required components are not yet completed.

Task 6: Configure STP

Step 1: Ensure S1 is the root bridge.

Set priorities to 4096.

Step 2: Verify that S1 is the root bridge.

Step 3: Check results.

Your completion percentage should be 82%. If not, click **Check Results** to see which required components are not yet completed.

Task 7: Configure Router-on-a-Stick Inter-VLAN Routing

Step 1: Configure the subinterfaces.

Configure the Fa0/1 subinterfaces on R1 using the information from the addressing table.

Step 2: Check results.

Your completion percentage should be 100%. If not, click **Check Results** to see which required components are not yet completed.

Task 8: Verify End-to-End Connectivity

Step 1: Verify that PC1 and Web/TFTP Server can ping each other.

Step 2: Verify that PC1 and PC2 can ping each other.

Step 3: Verify that PC3 and PC1 can ping each other.

Step 4: Verify that PC2 and PC3 can ping each other.

Step 5: Verify that the switches can ping R1.

