CCNA Exploration: LAN Switching and Wireless Student Skills-based Assessment Lab

Topology Diagram



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
	Fa0/1	N/A	N/A	N/A
	F0/1.10	172.17.10.1	255.255.255.0	N/A
R1	F0/1.20	172.17.20.1	255.255.255.0	N/A
	F0/1.30	172.17.30.1	255.255.255.0	N/A
	F0/1.99	172.17.99.1	255.255.255.0	N/A
S1	VLAN99	172.17.99.11	255.255.255.0	172.17.99.1
S2	VLAN99	172.17.99.12	255.255.255.0	172.17.99.1

Device	Interface	IP Address	Subnet Mask	Default Gateway
S3	VLAN99	172.17.99.13	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

To complete this lab:

- Cable a network according to the topology diagram
- Erase the startup configuration and reload a router to the default state
- Perform basic configuration tasks on a router
- Configure and activate interfaces
- Configure VTP servers and client
- Configure VLANs on the switches
- Configure STP
- Configure inter-VLAN routing

Scenario

This lab tests you on the skills and knowledge that you learned in Exploration 3. Use **cisco** for all passwords in this lab, except for the enable secret password, which is **class**.

Port Assignments

Switch 2

Ports	Assignment	Network
Fa0/1 - 0/4	802.1q Trunks (Native VLAN 99)	172.17.99.0 /24
Fa0/6 - 0/10	VLAN 30 – Guest (Default)	172.17.30.0 /24
Fa0/11 - 0/17	VLAN 10 – Faculty/Staff	172.17.10.0 /24
Fa0/18 – 0/24	VLAN 20 – Students	172.17.20.0 /24

Switch 1

Ports	Assignment	Network
Fa0/1 - 0/4	802.1q Trunks (Native VLAN 99)	172.17.99.0 /24
Fa0/5	802.1q Trunks	172.17.99.0 /24

Switch 3

Ports	Assignment	Network
Fa0/1 - 0/4	802.1q Trunks (Native VLAN 99)	172.17.99.0 /24

Task 1: Prepare the Network

- Step 1: Cable a network that is similar to the one in the topology diagram.
- Step 2: Clear any existing configurations on the devices.
- Step 3: Disable all ports using the shutdown command.
- Step 4: Re-enable the active user ports on S2 in access mode.

Task 2: Perform Basic Device Configurations

Configure the S1, S2, and S3 switches according to the following guidelines:

- Configure the hostname.
- Disable DNS lookup.
- Configure an EXEC mode password.
- Configure a message-of-the-day banner.
- Configure a password for console connections.
- Configure synchronous logging.
- Configure a password for vty connections.

Task 3: Configure and Activate Network Addresses

- Step 1: Configure the Management VLAN interface on S1, S2, and S3.
- Step 2: Configure the PC1, PC2, and PC3 Ethernet interfaces.

Task 4: Configure VTP

- Step 1: Configure all trunks.
- Step 2: Configure S1 as the VTP server, with domain name cisco and password cisco.

Step 3: Configure S2 and S3 as VTP clients, with domain name and password.

Task 5: Configure VLANs

Step 1: Configure the VLANs on the VTP server.

Configure the VLANs in the table below on the VTP server.

VLAN	VLAN Name
VLAN 99	management
VLAN 10	faculty-staff
VLAN 20	students
VLAN 30	guest

Step 2: Verify that the VTP clients are receiving VLAN configurations from the server.

Task 6: Configure STP

- Step 1: Configure S1 to always be root.
- Step 2: Configure RSTP.
- Step 3: Verify that STP is running correctly.

Task 7: Configure Inter-VLAN routing

Step 1: Create a basic configuration on the router.

Step 2: Configure the trunking interface on R1.

Step 3: Verify Inter-VLAN routing.

Ping from each host to every other host.

Task 8: Document the Configurations

On each device, issue the **show run** command and capture the configurations.

Task 9: Clean Up

Erase the configurations and reload the routers. Disconnect and store the cabling. For PC hosts that are normally connected to other networks, such as the school LAN or to the Internet, reconnect the appropriate cabling and restore the TCP/IP settings.