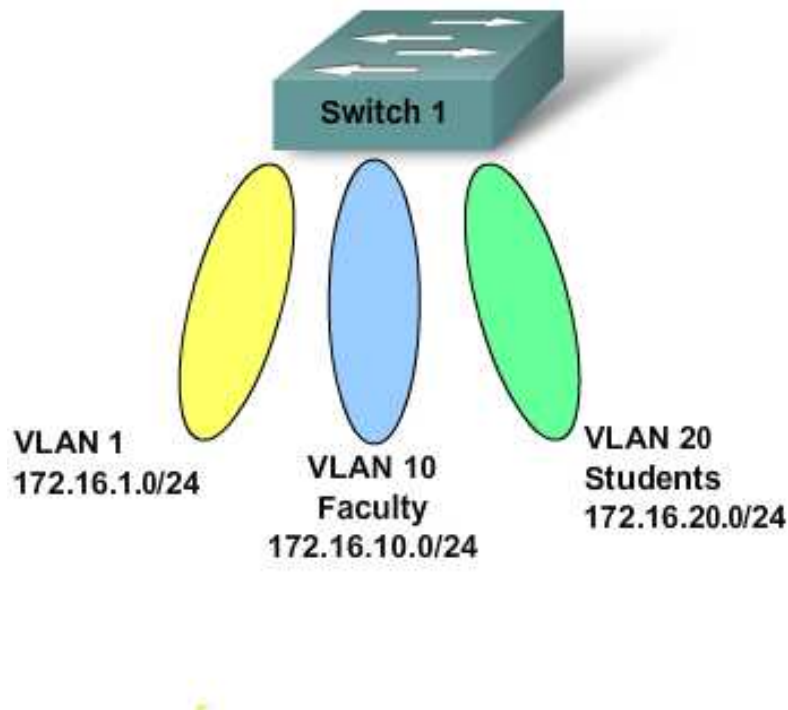


## Lab 3.4.1 Creating VLANs and Assigning Ports



Device	Host Name	VLAN 10	VLAN 20	VLAN 1	VLAN 1 IP Address
Switch 1	Switch 1	Fa0/5 – Fa0/6	Fa0/7 – Fa0/8	All Remaining Ports	172.16.1.2/24

### Objectives

- Configure three VLANs on a switch.
- Verify connectivity.

## Background / Preparation

This lab focuses on the basic VLAN configuration of the Cisco 2960 switch (or similar) using Cisco IOS commands. The information in this lab applies to other switches; however, command syntax may vary. Depending upon the switch model, the interface designations may differ. For example, modular switches have multiple slots; therefore, the Fast Ethernet ports may be Fast Ethernet 0/1 or Fast Ethernet 1/1, depending on the slot and port.

The following resources are required:

- One Cisco 2960 switch or other comparable switch
- Three Windows-based PCs with a terminal emulation program
- One RJ-45-to-DB-9 connector console cable to configure the switch
- Three straight-through Ethernet cables to connect from the PCs to Switch 1

**NOTE:** Make sure that the switch has been erased and has no startup configurations. Instructions for erasing the switch are provided in the Lab Manual, located on Academy Connection in the Tools section.

### Step 1: Connect the equipment

- Connect PC1 to the switch with a console cable.
- Connect PC1 to switch port Fast Ethernet 0/4 with a straight-through Ethernet cable.
- Connect PC2 to switch port Fast Ethernet 0/5 with a straight-through Ethernet cable.
- Connect PC3 to switch port Fast Ethernet 0/7 with a straight-through Ethernet cable.

### Step 2: Perform basic PC configuration

Use this table to configure addressing on the PCs.

Computer	IP Address	Subnet Mask	Default Gateway
PC 1	172.16.1.3	255.255.255.0	172.16.1.1
PC 2	172.16.10.3	255.255.255.0	172.16.10.1
PC 3	172.16.20.3	255.255.255.0	172.16.20.1

### Step 3: Configure Switch 1

- Configure Switch 1 with a hostname and console, Telnet, and privileged passwords.
- Configure Switch 1 with the VLAN 1 IP address of 172.16.1.2/24.

```
Switch1(config)#interface vlan1
Switch1(config-if)#ip address 172.16.1.2 255.255.255.0
Switch1(config-if)#no shutdown
Switch1(config-if)#exit
```

- Create VLAN 10, named **Faculty**, and VLAN 20, named **Students**.

```
Switch1(config)#vlan 10
Switch1(config-vlan)#name Faculty
Switch1(config-vlan)#exit
Switch1(config)#vlan 20
Switch1(config-vlan)#name Students
Switch1(config-vlan)#exit
```

- d. Configure Switch 1 with the default gateway address of 172.16.1.1.

```
Switch1(config)#ip default-gateway 172.16.1.1
```

- e. Configure Switch 1 to place interfaces Fa0/5 and Fa0/6 in VLAN 10.

```
Switch1(config)#interface Fa0/5
Switch1(config-if)#switchport mode access
Switch1(config-if)#switchport access vlan 10
Switch1(config-if)#interface Fa0/6
Switch1(config-if)#switchport mode access
Switch1(config-if)#switchport access vlan 10
Switch1(config-if)#exit
```

- f. Configure Switch 1 to place interfaces Fa0/7 and Fa0/8 in VLAN 20.

```
Switch1(config)#interface Fa0/7
Switch1(config-if)#switchport mode access
Switch1(config-if)#switchport access vlan 20
Switch1(config-if)#interface Fa0/8
Switch1(config-if)#switchport mode access
Switch1(config-if)#switchport access vlan 20
Switch1(config-if)#end
Switch1#
```

- g. Save the configuration.

```
Switch1#copy running-config startup-config
```

- h. By default, there is only a single VLAN for all ports. You cannot rename or delete VLAN 1. Therefore, no further configuration is necessary to assign the rest of the ports to VLAN 1. To prove this, issue the command **show vlan brief**.

Are all other switch ports in VLAN 1? \_\_\_\_\_

Which switch ports are in VLAN 10? \_\_\_\_\_

Which switch ports are in VLAN 20? \_\_\_\_\_

- i. Issue the command **show vlan**.

What difference is noticed between the two commands **show vlan brief** and **show vlan**?

\_\_\_\_\_

\_\_\_\_\_

#### Step 4: Verify connectivity

- a. Ping from each PC to Switch1 address of 172.16.1.2.

Are PC1 pings successful? \_\_\_\_\_

Are PC2 pings successful? \_\_\_\_\_

Are PC3 pings successful? \_\_\_\_\_

- b. Ping from PC1 to PC2 and PC3.

Can PC1 ping PC2? \_\_\_\_\_

Can PC1 ping PC3? \_\_\_\_\_

#### Step 5: Reflection

- a. Why can PC1 ping Switch1 when PC2 and PC3 cannot?

- b. The PCs cannot ping each other. Why?