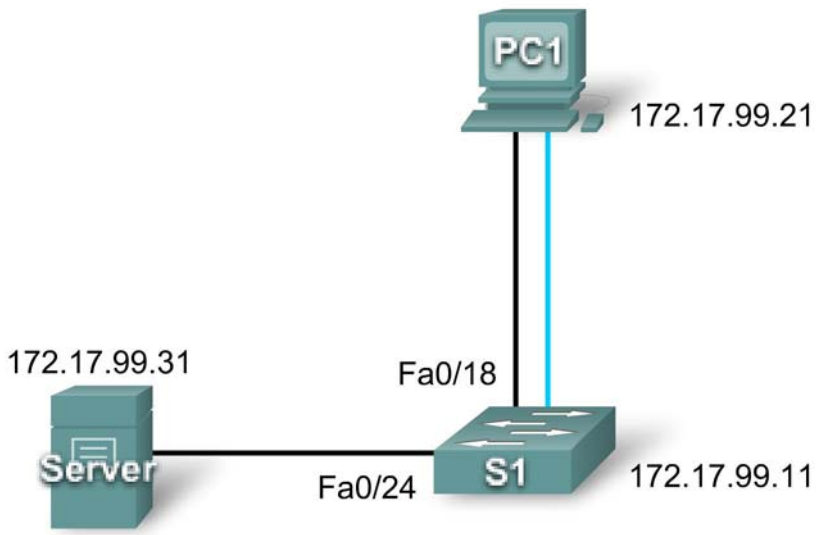
# PT Activity 2.3.8: Configuring Basic Switch Management

## Topology Diagram




### Addressing Table

| Device | Interface | IP Address | Subnet Mask |
|---|---|---|---|
| **S1** | **VLAN99** | 172.17.99.11 | 255.255.255.0 |
| **PC1** | **NIC** | 172.17.99.21 | 255.255.255.0 |
| **Server** | **NIC** | 172.17.99.31 | 255.255.255.0 |

### Learning Objectives

- Connect to the switch using a console connection
- Navigate through various CLI modes
- Use the Help Facility to configure the clock
- Access and configure command history
- Configure the boot sequence
- Configure a PC and connect it to a switch
- Configure full duplex
- Manage the MAC address table
- Manage the switch configuration file

### Introduction

Basic switch management is the foundation for configuring switches. This activity focuses on navigating command-line interface modes, using help functions, accessing the command history, configuring boot

sequence parameters, setting speed and duplex settings, as well as managing the MAC address table and switch configuration file. Skills learned in this activity are necessary for configuring basic switch security in later chapters.

## Task 1: Connect to the Switch

### Step 1: Connect S1 and PC1.

- Using a console cable, connect the RS 232 interface on PC1 to the console interface on switch S1.
- Click **PC1** and then click the **Desktop** tab. Select **Terminal** in the Desktop tab.
- Keep these default settings for Terminal Configuration and then click **OK**:

  Bits Per Second = 9600
  Data Bits = 8
  Parity = None
  Stop Bits = 1
  Flow Control = None
- You are now consoled into S1. Press **Enter** to get the Switch prompt.

### Step 2: Check results.

Your completion percentage should be 6%. If not, click **Check Results** to see which required components are not yet completed.

## Task 2: Navigate Through CLI Modes

### Step 1: In user EXEC mode, type ?. Note the list of available commands.

While in user EXEC mode, the available commands are limited to basic monitoring commands.

### Step 2: Use the enable command to go to privileged EXEC mode.

```
Switch>enable
Switch#
```

The prompt changes from **>** to **#**.

### Step 3: In privileged EXEC mode, type ?. Note the list of available commands.

There are now more available commands compared to user EXEC mode. In addition to the basic monitoring commands, configuration and management commands can now be accessed.

### Step 4: Change to global configuration mode.

```
Switch#configure terminal
Switch(config)#
```

### Step 5: In global configuration mode, type ?. Note the list of available commands.

### Step 6: Configure S1 as the hostname.

```
Switch(config)#hostname S1
S1(config)#
```

**Step 7: Change to interface configuration mode for VLAN99.**

The **interface vlan 99** command creates the interface and changes to interface configuration mode for VLAN99.

```
S1(config)#interface vlan 99
S1(config-if)#
```

**Step 8: Configure VLAN99 with 172.17.99.11/24 and activate the interface.**

Use the **ip address** and **no shutdown** commands to assign the correct IP address/subnet mask and activate the interface.

```
S1(config-if)#ip address 172.17.99.11 255.255.255.0
S1(config-if)#no shutdown
```

**Step 9: Change to interface configuration mode for Fa0/18.**

```
S1(config-if)#interface fa0/18
S1(config-if)#
```

**Step 10: Set the port mode to access.**

To allow for frames to be sent and received from the interface, change the switching mode to access using the **switchport mode access** command.

```
S1(config-if)#switchport mode access
```

**Step 11: Assign VLAN99 to the port.**

To allow the Fa0/18 interface to act as a member of VLAN 99, issue the **switchport access vlan 99** command.

```
S1(config-if)#switchport access vlan 99
```

**Step 12: Exit interface configuration mode.**

Issue the **exit** command to leave interface configuration mode and enter global configuration mode.

**Step 13: Enter configuration mode for the console line.**

```
S1(config)#line console 0
S1(config-line)#
```

**Step 14: In line configuration mode, type ?. Note the list of available commands.**

**Step 15: Enter cisco as the password and require users to login.**

```
S1(config-line)#password cisco
S1(config-line)#login
```

**Step 16: Return to privileged EXEC mode using the end command.**

```
S1(config-line)#end
S1#
```

**Step 17: Check results.**

Your completion percentage should be 31%. If not, click **Check Results** to see which required components are not yet completed.

## Task 3: Use Help Facility to Configure the Clock

### Step 1: At the privileged EXEC command prompt, type clock ?.

```
S1#clock ?
```

The only option is **set**.

### Step 2: Use Help to assist setting the clock to the current time.

```
S1#clock ?
  set  Set the time and date

S1#clock set ?
  hh:mm:ss Current Time

S1#clock set 12:12:12 ?
  <1-31>  Day of the month
  MONTH   Month of the year
```

Continue issuing the **?** command until you have completed configuring the clock. You are warned with a **% Incomplete command message** if the **clock** command is not fully entered with all the required arguments.

### Step 3: Verify that the clock is set.

To verify that the clock is set, issue the **show clock** command.

**Note:** Packet Tracer does not always show the correct time configured.

Completion is still at 31% at the end of this Task.

## Task 4: Access and Configure Command History

### Step 1: View the most recent commands entered.

Issue the **show history** command. Remember how many commands are listed.

```
S1#show history
```

### Step 2: Change the number of commands stored in the history buffer.

Enter line configuration mode for both the console and Telnet lines. Set the number of commands held in the history buffer to 35.

```
S1(config)#line console 0
S1(config-line)#history size 35
S1(config-line)#line vty 0 4
S1(config-line)#history size 35
```

### Step 3: Verify that the size of the history buffer has changed.

Return to privileged EXEC mode and issue the **show history** command again. There should be more commands displayed than previously.

### Step 4: Check results.

Your completion percentage should be 50%. If not, click **Check Results** to see which required components are not yet completed.

## Task 5: Configure the Boot Sequence

### Step 1: Check which Cisco IOS software version is currently loaded.

```
S1#show version
Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX,
RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 12-Oct-05 22:05 by pt_team
<output omitted>
```

The version is listed in the first line.

### Step 2: Check which Cisco IOS images are loaded in flash memory.

```
S1#show flash
Directory of flash:/

    3  -rw-     4414921          <no date>  c2960-lanbase-mz.122-25.FX.bin
    2  -rw-     4670455          <no date>  c2960-lanbase-mz.122-25.SEE1.bin
    6  -rw-         616          <no date>  vlan.dat

32514048 bytes total (23428056 bytes free)
S1#
```

Note that there are two versions in flash memory. The version that is currently loaded is **c2960-lanbase-mz.122-25.FX.bin**.

### Step 3: Configure the system to boot using a different Cisco IOS image.

In global configuration mode, issue this command.

```
S1(config)#boot system flash:c2960-lanbase-mz.122-25.SEE1.bin
```

**Note:** Although you can enter this command in Packet Tracer, the switch still loads the first image listed in flash.

In this lab, Packet Tracer does not grade the **boot system** command, so completion remains at 50% at the end of this task.

## Task 6: Configure a PC and Connect it to a Switch

### Step 1: Configure PC1 with the IP address/subnet mask 172.17.99.21/24.

- Exit the terminal to return to the **Desktop** tab.
- Click **IP Configuration** and set the IP address to 172.17.99.21 and subnet mask to 255.255.255.0

### Step 2: Connect PC1 to Fa0/18 on the switch.

Using the copper straight-through cable, connect the FastEthernet port of the PC to the Fa0/18 port on the switch.

### Step 3: Test connectivity between S1 and PC1.

Ping between S1 and PC1. It may take a few attempts, but it should be successful.

**Step 4: Check results.**

Your completion percentage should be 69%. If not, click **Check Results** to see which required components are not yet completed.

## Task 7: Configure Duplex and Speed

**Step 1: Use the Config tab change the settings.**

On PC1, select the **Config** tab. Set the bandwidth of the FastEthernet interface to 100 Mbps and Full Duplex.

**Step 2: Use Cisco IOS commands to set Fa0/18.**

Return to the desktop and select **Terminal**, and then configure the interface.

```
S1(config)#interface fa0/18
S1(config-if)#duplex full
S1(config-if)#speed 100
```

**Step 3: Test connectivity between S1 and PC1.**

Issue a ping from S1 to PC1. It may take a few attempts, but it should be successful.

**Step 4: Check results.**

Your completion percentage should be 81%. If not, click **Check Results** to see which required components are not yet completed.

## Task 8: Manage the MAC Address Table

**Step 1: Check the MAC address of the server.**

Click the **Server**, then the **Config** tab, and then **FastEthernet**. The MAC Address is 0060.3EDD.19A3.

**Step 2: Configure static MAC for the TFTP server.**

By configuring a static MAC for the TFTP server, the switch always knows which port to use to send out traffic destined for the server. In global configuration mode on S1, add the MAC address to the addressing table of the switch:

```
S1(config)#mac-address-table static 0060.3EDD.19A3 vlan 99 int fa0/24
```

**Step 3: Verify that the static MAC address is now in the MAC address table.**

```
S1#show mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

  99    0060.3edd.19a3    STATIC      Fa0/24
  99    0060.5c5b.cd23    DYNAMIC     Fa0/18
S1#
```

Notice how the MAC address from PC1 was added dynamically. This entry may or may not be in your table depending on how long it has been since you pinged from PC1 to S1.

**Step 4: Test connectivity between S1 and PC1.**

Issue a ping from S1 to PC1. It may take a few attempts, but the command should be successful.

Packet Tracer does not grade this command. This command is needed to allow the switch to know where to send traffic destined for the server. Completion is still at 81% at the end of this task.

## Task 9: Manage the Switch Configuration File

Using a copper straight-through cable, connect the FastEthernet port on the server to the Fa0/24 port on the switch.

**Step 1: Enter interface configuration mode for Fa0/24.**

```
S1#configure terminal
S1(config)#interface fa0/24
S1(config-if)#
```

**Step 2: Set the port mode to access.**

Setting the port mode to access allows frames to be sent and received from the interface.

```
S1(config-if)#switchport mode access
```

**Note:** Packet Tracer does not grade the **switchport mode access** command. However, the command is needed to change the interface from its default mode to access mode.

**Step 3: Assign VLAN99 to the port.**

Assigning VLAN99 to the port allows the Fa0/24 interface to act as a member of VLAN 99.

```
S1(config-if)#switchport access vlan 99
```

**Step 4: Verify S1 can ping the server.**

Ping the server from S1. It may take a few attempts, but it should be successful.

**Step 5: Back up the startup configuration to the server.**

In privileged EXEC mode, copy the startup configuration to the sever. When you are prompted for the address of the remote host, enter IP address of the server, 172.17.99.31. For the destination filename, use the default filename by pressing **Enter**.

```
S1#copy startup-config tftp:
Address or name of remote host []? 172.17.99.31
Destination filename [S1-confg]? [Enter]
```

**Step 6: Verify that the server has the startup configuration.**

To determine if the startup configuration was successfully transferred to the server, click the server and then click the **Config** tab. The S1-confg file should be listed under Services and TFTP.

**Note:** Restoring the startup from the server is not fully simulated in Packet Tracer.

**Step 7: Check results.**

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