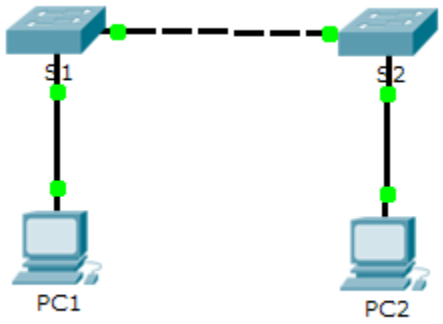
Packet Tracer - Configuring Initial Switch Settings

Topology



Objectives

Part 1: Verify the Default Switch Configuration

Part 2: Configure a Basic Switch Configuration

Part 3: Configure a MOTD Banner

Part 4: Save Configuration Files to NVRAM

Part 5: Configure S2

Background

In this activity, you will perform basic switch configurations. You will secure access to the command-line interface (CLI) and console ports using encrypted and plain text passwords. You will also learn how to configure messages for users logging into the switch. These banners are also used to warn unauthorized users that access is prohibited.

1. Verify the Default Switch Configuration

1. Enter privileged mode.

You can access all switch commands from privileged mode. However, because many of the privileged commands configure operating parameters, privileged access should be password-protected to prevent unauthorized use.

The privileged EXEC command set includes those commands contained in user EXEC mode, as well as the **configure** command through which access to the remaining command modes are gained.

a. Click **S1** and then the **CLI** tab. Press **<Enter>**.

b. Enter privileged EXEC mode by entering the **enable** command:

```
Switch> enable
Switch#
```

Notice that the prompt changed in the configuration to reflect privileged EXEC mode.

2. Examine the current switch configuration.

a. Enter the **show running-config** command.

```
Switch# show running-config
```

b. Answer the following questions:

How many FastEthernet interfaces does the switch have? 24

How many Gigabit Ethernet interfaces does the switch have? 2

What is the range of values shown for the vty lines? 0-15

Which command will display the current contents of non-volatile random-access memory (NVRAM)?

-show running-config

-command to display contents;

-privileged EXEC mode command to view the running configuration file.

-Save the Running Configuration File (2.2.3.1)

-Introduction to Networks v6

Why does the switch respond with `startup-config is not present`?

-The startup config file is stored in NVRAM and contains the configuration that will be used by the device upon reboot:
-Typically the running config is saved as the startup config.
-If power is interrupted, it is not lost or erased.
-Use the show running-config command to display contents.

There are two system files that store the device configuration:

-startup-config – The file stored in Non-volatile Random Access Memory (NVRAM) that contains all of the commands that will be used by the device upon startup or reboot. NVRAM does not lose its contents when the device is powered off.

-running-config – The file stored in Random Access Memory (RAM) that reflects the current configuration. Modifying a running configuration affects the operation of a Cisco device immediately. RAM is volatile memory. It loses all of its content when the device is powered off or restarted.

-Save the Running Configuration File (2.2.3.1)
-Introduction to Networks v6

2. Create a Basic Switch Configuration

1. Assign a name to a switch.

To configure parameters on a switch, you may be required to move between various configuration modes. Notice how the prompt changes as you navigate through the switch.

```
Switch# configure terminal
Switch(config)# hostname S1
S1(config)# exit
S1#
```

2. Secure access to the console linee.

To secure access to the console line, access config-line mode and set the console password to **letmein**.

```
S1# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)# line console 0
```

```
S1(config-line)# password letmein
S1(config-line)# login
S1(config-line)# exit
S1(config)# exit
%SYS-5-CONFIG_I: Configured from console by console
S1#
```

Why is the **login** command required?

-Login command makes the switch require the password;

3. Verify that console access is secured.

Exit privileged mode to verify that the console port password is in effect.

```
S1# exit
Switch con0 is now available
Press RETURN to get started.

User Access Verification
Password:
S1>
```

Note: If the switch did not prompt you for a password, then you did not configure the **login** parameter in Step 2.

4. Secure privileged mode access.

Set the **enable** password to **c1$c0**. This password protects access to privileged mode.

Note: The **0** in **c1$c0** is a zero, not a capital O. This password will not grade as correct until after you encrypt it in Step 8.

```
S1> enable
S1# configure terminal
S1(config)# enable password c1$c0
S1(config)# exit
%SYS-5-CONFIG_I: Configured from console by console
S1#
```

5. Verify that privileged mode access is secure.

a. Enter the **exit** command again to log out of the switch.

b. Press **<Enter>** and you will now be asked for a password:

```
User Access Verification
Password:
```

c. The first password is the console password you configured for **line con 0**. Enter this password to return to user EXEC mode.

d. Enter the command to access privileged mode.

e. Enter the second password you configured to protect privileged EXEC mode.

f. Verify your configurations by examining the contents of the running-configuration file:

```
S1# show running-configuration
```

Notice how the console and enable passwords are both in plain text. This could pose a security risk if someone is looking over your shoulder.

6. Configure an encrypted password to secure access to privileged mode.

The **enable password** should be replaced with the newer encrypted secret password using the **enable secret** command. Set the enable secret password to **itsasecret**.

```
S1# config t
S1(config)# enable secret itsasecret
S1(config)# exit
S1#
```

Note: The **enable secret** password overrides the **enable** password. If both are configured on the switch, you must enter the **enable secret** password to enter privileged EXEC mode.

7. Verify that the enable secret password is added to the configuration file.

a. Enter the **show running-configuration** command again to verify the new **enable secret** password is configured.

Note: You can abbreviate **show running-configuration** as

```
S1# show run
```

b. What is displayed for the **enable secret** password?

```
enable secret 5 $1$mERr$ILwq/b7kc.7X/ejA4Aosn0
enable password c1$c0
```

c. Why is the **enable secret** password displayed differently from what we configured?

- The startup-config and running-config files display most passwords in plaintext. This is a security threat because anyone can see the passwords if they have access to these files.

8. Encrypt the enable and console passwords.

As you noticed in Step 7, the **enable secret** password was encrypted, but the **enable** and **console** passwords were still in plain text. We will now encrypt these plain text passwords using the **service password-encryption** command.

```
S1# config t
S1(config)# service password-encryption
S1(config)# exit
```

If you configure any more passwords on the switch, will they be displayed in the configuration file as plain text or in encrypted form? Explain why?

- Use the service password-encryption global config command to encrypt all passwords.
- The command applies weak encryption to all encrypted passwords.

3. Configure a MOTD Banner

1. Configure a message of the day (MOTD) banner.

The Cisco IOS command set includes a feature that allows you to configure messages that anyone logging onto the switch sees. These messages are called message of the day, or MOTD banners. Enclose the banner text in quotations or use a delimiter different from any character appearing in the MOTD string.

```
S1# config t
```

```
S1(config)# banner motd "This is a secure system. Authorized Access Only!"

S1(config)# exit
%SYS-5-CONFIG_I: Configured from console by console
S1#
```

When will this banner be displayed?

- Banners are messages that are displayed when someone attempts to gain access to a device. Banners are an important part of the legal process in the event that someone is prosecuted for breaking into a device.

Why should every switch have a MOTD banner?

- Configured using the banner motd delimiter message delimiter command from global configuration mode. The delimiting character can be any character as long as it is unique and does not occur in the message (e.g., #$%^&*).

4. Save Configuration Files to NVRAM

1. Verify that the configuration is accurate using the show run command.

2. Save the configuration file.

You have completed the basic configuration of the switch. Now back up the running configuration file to NVRAM to ensure that the changes made are not lost if the system is rebooted or loses power.

```
S1# copy running-config startup-config
Destination filename [startup-config]?[Enter]
Building configuration...
[OK]
```

What is the shortest, abbreviated version of the **copy running-config startup-config** command?

- copy ru st; copy r s

-You can also abbreviate commands and keywords by entering just enough characters to make the command unique from other commands.

For example, you can abbreviate the **show** command to **sh**.

-cisco.com

Examine the startup configuration file.

Which command will display the contents of NVRAM?

-Use the show startup-config command to display contents.

-startup-config – The file stored in Non-volatile Random Access Memory (NVRAM) that contains all of the commands that will be used by the device upon startup or reboot. NVRAM does not lose its contents when the device is powered off.

-Save the Running Configuration File (2.2.3.1)
-Introduction to Networks v6

Are all the changes that were entered recorded in the file?

-Save the Running Configuration file:
-Cisco devices use a running configuration file and a startup configuration file.

If power to the device is lost or if the device is restarted, all configuration changes will be lost unless they have been saved. To save changes made to the running configuration to the startup configuration file use the copy running-config startup-config privileged EXEC mode command.

-Save the Running Configuration File (2.2.3.1)
-Introduction to Networks v6

5. Configure S2

You have completed the configuration on S1. You will now configure S2. If you cannot remember the commands, refer to Parts 1 to 4 for assistance.

Configure S2 with the following parameters:

a. Name device: **S2**

b. Protect access to the console using the **letmein** password.

c. Configure an enable password of **c1$c0** and an enable secret password of **itsasecret**.

d. Configure a message to those logging into the switch with the following message:

```
Authorized access only. Unauthorized access is prohibited and violators
will be prosecuted to the full extent of the law.
```

e. Encrypt all plain text passwords.

f. Ensure that the configuration is correct.

g. Save the configuration file to avoid loss if the switch is powered down.

Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Verify the Default Switch Configuration	Step 2b, q1	2	
	Step 2b, q2	2	
	Step 2b, q3	2	
	Step 2b, q4	2	
	Step 2b, q5	2	
	Part 1 Total	**10**	
Part 2: Create a Basic Switch Configuration	Step 2	2	
	Step 7b	2	
	Step 7c	2	
	Step 8	2	
	Part 2 Total	**8**	
Part 3: Configure a MOTD Banner	Step 1, q1	2	
	Step 1, q2	2	
	Part 3 Total	**4**	
Part 4: Save Configuration Files to NVRAM	Step 2	2	
	Step 3, q1	2	
	Step 3, q2	2	
	Part 4 Total	**6**	
	Packet Tracer Score	**72**	
	Total Score	**100**	