Experiment 1

Aim: To construct and understand RJ45 connectors.

Theory: T568A and T568B are two standards for wiring twisted-pair Ethernet cables using 8-position, 8-contact (8P8C) connectors, commonly known as RJ45 connectors. The main difference between the two is the order of the green and orange wire pairs. T568A arranges the wires with the white/green and green pair first, while T568B places the white/orange and orange pair first. Both standards are functionally equivalent, providing the same electrical performance, and can be used interchangeably. However, it's important to use the same standard on both ends of a cable for a straight-through connection. T568B is more widely used in North America, while T568A is common in government installations and in Europe.

Tools and Materials Needed:

1. Twisted-pair cable (Cat5, Cat5e, Cat6)
2. RJ45 connectors
3. Cable stripper
4. Crimping tool
5. Cable tester (optional but recommended)

T568A Wiring Standard:

The T568A standard arranges the wires as follows, from Pin 1 to Pin 8:

1. White/Green
2. Green
3. White/Orange
4. Blue
5. White/Blue
6. Orange
7. White/Brown
8. Brown

T568B Wiring Standard:

The T568B standard arranges the wires as follows, from Pin 1 to Pin 8:

1. White/Orange
2. Orange
3. White/Green
4. Blue
5. White/Blue
6. Green
7. White/Brown
8. Brown

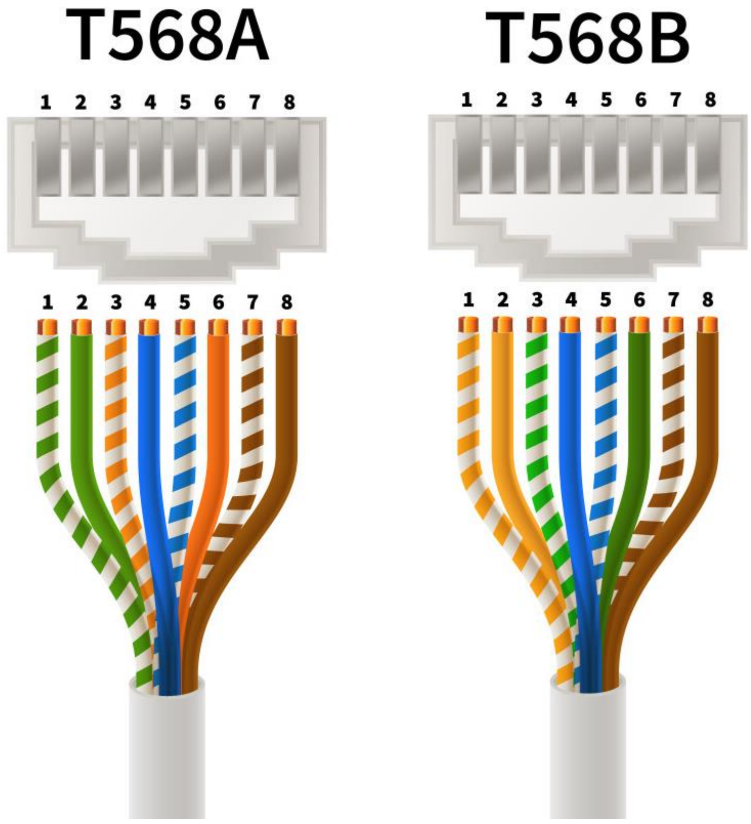
Building a Straight-Through Cable:

1. Strip the Cable: Remove about 1-2 inches of the outer jacket of the Ethernet cable, exposing the twisted pairs inside.
2. Untwist and Arrange Wires: Untwist the pairs and arrange them according to either the T568A or T568B standard, ensuring that the wires are straightened out and in the correct order.
3. Trim the Wires: Trim the wires evenly, leaving about 0.5 inches exposed beyond the jacket.
4. Insert Wires into the RJ45 Connector: With the clip side down, insert the wires into the RJ45 connector, making sure each wire goes into its correct slot.
5. Crimp the Connector: Use the crimping tool to secure the connector onto the cable, ensuring a firm connection.
6. Repeat for the Other End: Repeat the process for the other end of the cable, using the same wiring standard (T568A or T568B) to create a straight-through cable.
7. Test the Cable: Optionally, use a cable tester to verify that the connections are correct and that the cable is functioning properly.

Building a Crossover Cable:

A crossover cable is used to connect similar devices, such as two computers or two switches, directly. It involves wiring one end with T568A and the other end with T568B.

1. Prepare the Cable: As before, strip the cable jacket and untwist the pairs.
2. Wiring One End (T568A): Follow the T568A wiring standard for the first connector.
3. Wiring the Other End (T568B): Follow the T568B wiring standard for the second connector.
4. Crimp the Connectors: Securely crimp both connectors onto the cable.
5. Test the Cable: Use a cable tester to ensure that the crossover wiring is correct and the cable is functional.



Experiment 2

Aim: Navigate the IOS (Packet Tracer 2.3.7)

Theory: In this exercise, the objective is to familiarize with the Cisco IOS by learning to access and navigate the Command Line Interface (CLI). This includes establishing basic connections, exploring different EXEC modes (User and Privileged), and using the Help system to understand commands. Additionally, the exercise involves practical tasks such as setting the system clock, demonstrating how to apply basic configuration commands.

Instructions:

- ### Part 1: Establish Basic Connections, Access the CLI, and Explore Help

Step 1: Connect PC1 to S1 using a console cable.

a. Click the **Connections** icon (the one that looks like a lightning bolt) in the lower left corner of the Packet Tracer window.

b. Select the light blue Console cable by clicking it. The mouse pointer will change to what appears to be a connector with a cable dangling from it.

c. Click **PC1**. A window displays an option for an RS-232 connection. Connect the cable to the RS-232 port.

d. Drag the other end of the console connection to the S1 switch and click the switch to access the connection list.

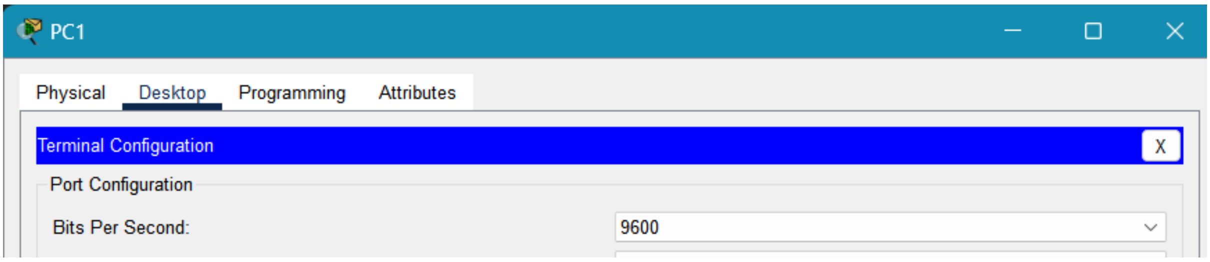
e. Select the **Console** port to complete the connection.

Step 2: Establish a terminal session with S1.

a. Click **PC1** and then select the **Desktop** tab.

b. Click the **Terminal** application icon. Verify that the Port Configuration default settings are correct.

What is the setting for bits per second?

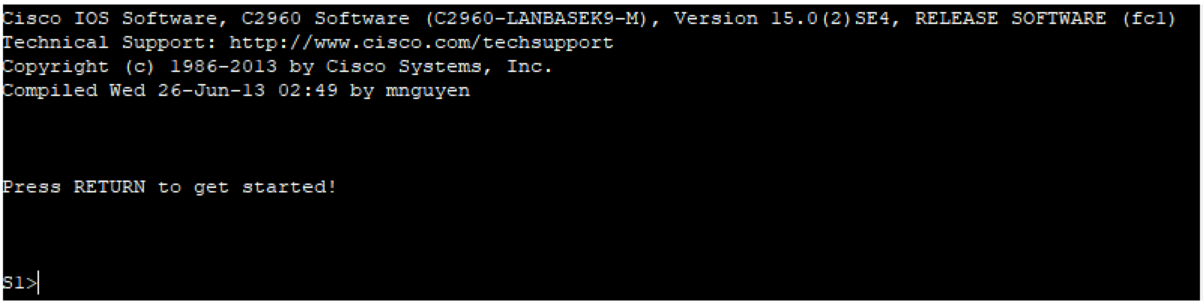


Port Configuration

Bits Per Second: 9600

c. The screen that appears may have several messages displayed. Somewhere on the screen there should be a **Press RETURN to get started!** message. Press ENTER.

What is the prompt displayed on the screen?



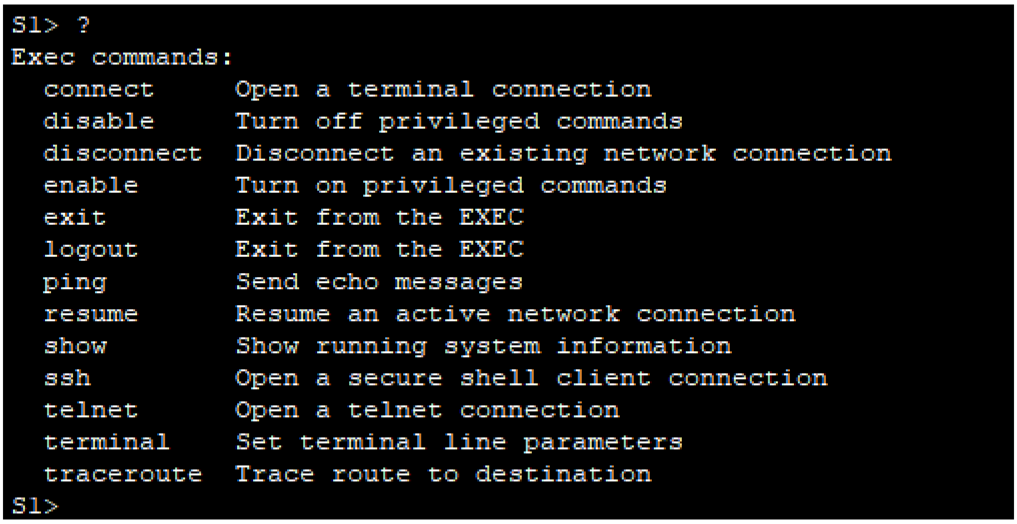
```
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2013 by Cisco Systems, Inc.
Compiled Wed 26-Jun-13 02:49 by mnguyen



Press RETURN to get started!



S1>
```

Step 3: Explore the IOS Help.

a. The IOS can provide help for commands depending on the level accessed. The prompt currently displayed is called **User EXEC**, and the device is waiting for a command. The most basic form of help is to type a question mark (?) at the prompt to display a list of commands.

```
S1> ?
```

Which command begins with the letter ‘C’?

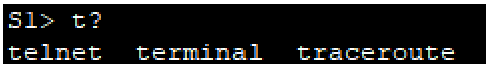


```
S1> ?
Exec commands:
  connect     Open a terminal connection
  disable     Turn off privileged commands
  disconnect  Disconnect an existing network connection
  enable      Turn on privileged commands
  exit        Exit from the EXEC
  logout      Exit from the EXEC
  ping        Send echo messages
  resume      Resume an active network connection
  show        Show running system information
  ssh         Open a secure shell client connection
  telnet      Open a telnet connection
  terminal    Set terminal line parameters
  traceroute  Trace route to destination
S1>
```

b. At the prompt, type t and then a question mark (?).

```
S1> t?
```

Which commands are displayed?

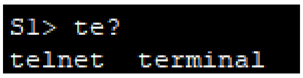


```
S1> t?
telnet  terminal  traceroute
```

At the prompt, type te and then a question mark (?).

```
S1> te?
```

Which commands are displayed?



```
S1> te?
telnet  terminal
```

This type of help is known as context-sensitive help. It provides more information as the commands are expanded.

Part 2: Explore EXEC Modes

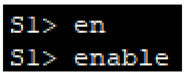
In Part 2 of this activity, you will switch to privileged EXEC mode and issue additional commands

Step 1: Enter privileged EXEC mode.

a. At the prompt, type the question mark (**?**).

```
S1> ?
```

What information is displayed for the **enable** command?

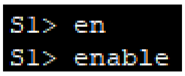


```
S1> en
S1> enable
```

b. Type **en** and press the **Tab** key.

```
S1> en<Tab>
```

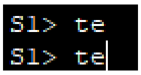
What displays after pressing the **Tab** key?



```
S1> en
S1> enable
```

This is called command completion (or tab completion). When part of a command is typed, the **Tab** key can be used to complete the partial command. If the characters typed are enough to make the command unique, as in the case of the **enable** command, the remaining portion of the command is displayed.

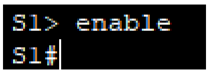
What would happen if you typed **te<Tab>** at the prompt?



```
S1> te
S1> te
```

c. Enter the **enable** command and press ENTER.

How does the prompt change?



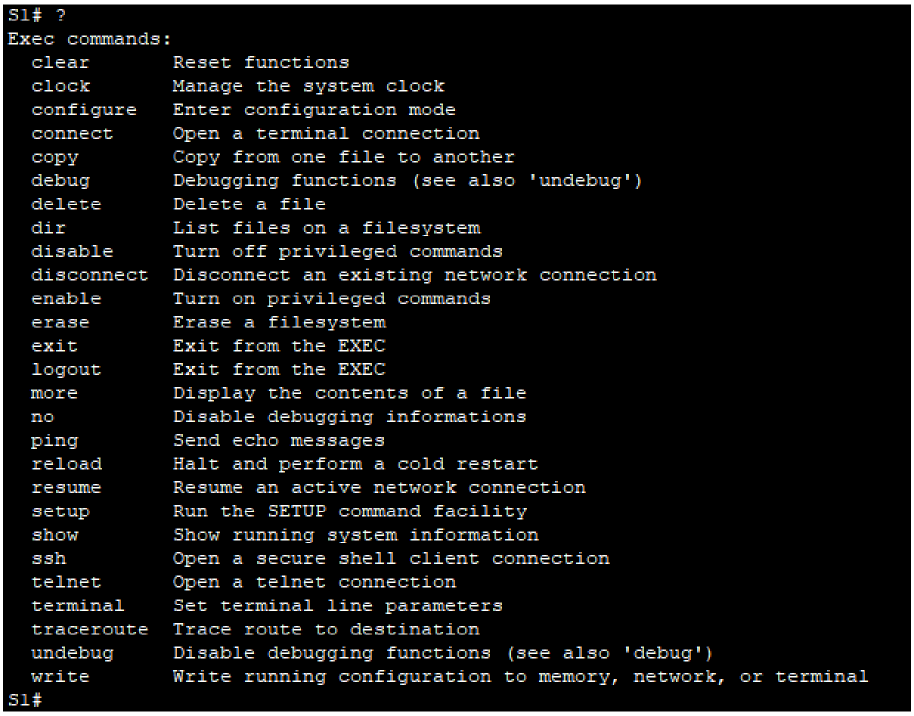
```
S1> enable
S1#
```

d. When prompted, type the question mark (**?**).

```
S1# ?
```

One command starts with the letter ‘C’ in user EXEC mode.

How many commands are displayed now that privileged EXEC mode is active? (**Hint**: you could type c? to list just the commands beginning with ‘C’.)



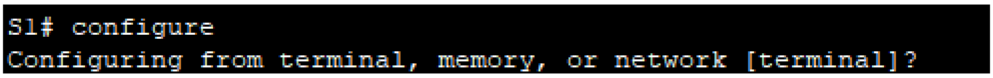
```
S1# ?
Exec commands:
  clear       Reset functions
  clock       Manage the system clock
  configure   Enter configuration mode
  connect     Open a terminal connection
  copy        Copy from one file to another
  debug       Debugging functions (see also 'undebug')
  delete      Delete a file
  dir         List files on a filesystem
  disable     Turn off privileged commands
  disconnect  Disconnect an existing network connection
  enable      Turn on privileged commands
  erase       Erase a filesystem
  exit        Exit from the EXEC
  logout      Exit from the EXEC
  more        Display the contents of a file
  no          Disable debugging informations
  ping        Send echo messages
  reload      Halt and perform a cold restart
  resume      Resume an active network connection
  setup       Run the SETUP command facility
  show        Show running system information
  ssh         Open a secure shell client connection
  telnet      Open a telnet connection
  terminal    Set terminal line parameters
  traceroute  Trace route to destination
  undebug     Disable debugging functions (see also 'debug')
  write       Write running configuration to memory, network, or terminal
S1#
```

Step 2: Enter Global Configuration mode

a. When in privileged EXEC mode, one of the commands starting with the letter ‘C’ is **configure**. Type either the full command or enough of the command to make it unique. Press the <**Tab**> key to issue the command and press ENTER.

```
S1# configure
```

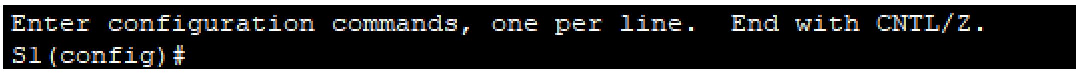
What is the message that is displayed?



```
S1# configure
Configuring from terminal, memory, or network [terminal]?
```

b. Press Enter to accept the default parameter that is enclosed in brackets **[terminal]**.

How does the prompt change?



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

c. This is called global configuration mode. This mode will be explored further in upcoming activities and labs. For now, return to privileged EXEC mode by typing **end**, **exit**, or **Ctrl-Z**.

```
S1(config)# exit
S1#
```

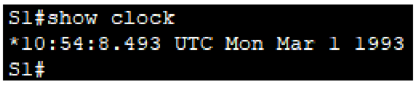
Part 3: Set the Clock

Step 1: Use the clock command.

a. Use the **clock** command to further explore Help and command syntax. Type **show clock** at the privileged EXEC prompt.

```
S1# show clock
```

What information is displayed? What is the year that is displayed?

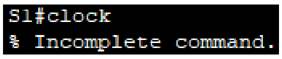


```
S1#show clock
*10:54:8.493 UTC Mon Mar 1 1993
S1#
```

b. Use the context-sensitive help and the **clock** command to set the time on the switch to the current time. Enter the command **clock** and press ENTER.

```
S1# clock<ENTER>
```

What information is displayed?

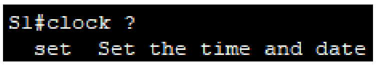


```
S1#clock
% Incomplete command.
```

c. The "% Incomplete command" message is returned by the IOS. This indicates that the **clock** command needs more parameters. Any time more information is needed, help can be provided by typing a space after the command and the question mark (?).

```
S1# clock ?
```

What information is displayed?



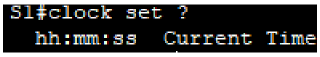
```
S1#clock ?
  set  Set the time and date
```

d. Set the clock using the **clock set** command. Proceed through the command one step at a time.

```
S1# clock set ?
```

What information is being requested?

What would have been displayed if only the **clock set** command had been entered, and no request for help was made by using the question mark?



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

e. Based on the information requested by issuing the **clock set ?** command, enter a time of 3:00 p.m. by using the 24-hour format of 15:00:00. Check to see if more parameters are needed.

```
S1# clock set 15:00:00 ?
```

The output returns a request for more information:

```
<1-31> Day of the month
MONTH Month of the year
```

f. Attempt to set the date to 01/31/2035 using the format requested. It may be necessary to request additional help using context-sensitive help to complete the process. When finished, issue the **show clock** command to display the clock setting. The resulting command output should display as:

```
S1# show clock
*15:0:4.869 UTC Tue Jan 31 2035
```

g. If you were not successful, try the following command to obtain the output above:

```
S1# clock set 15:00:00 31 Jan 2035
```

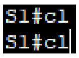
Step 2: Explore additional command messages.

a. The IOS provides various outputs for incorrect or incomplete commands. Continue to use the **clock** command to explore additional messages that may be encountered as you learn to use the IOS.

b. Issue the following commands and record the messages:

```
S1# cl<tab>
```

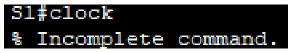
What information was returned?



```
S1#cl
S1#cl
```

S1# **clock**

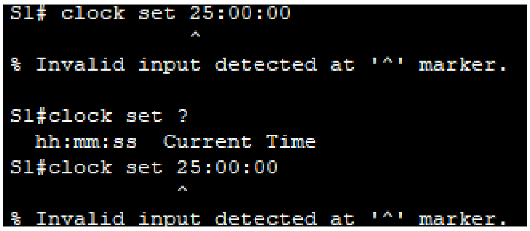
What information was returned?



```
S1#clock
% Incomplete command.
```

S1# **clock set 25:00:00**

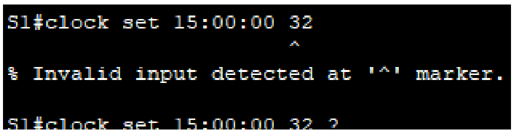
What information was returned?



```
S1# clock set 25:00:00
                 ^
% Invalid input detected at '^' marker.

S1#clock set ?
  hh:mm:ss  Current Time
S1#clock set 25:00:00
                 ^
% Invalid input detected at '^' marker.
```

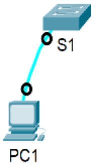
S1# **clock set 15:00:00 32**

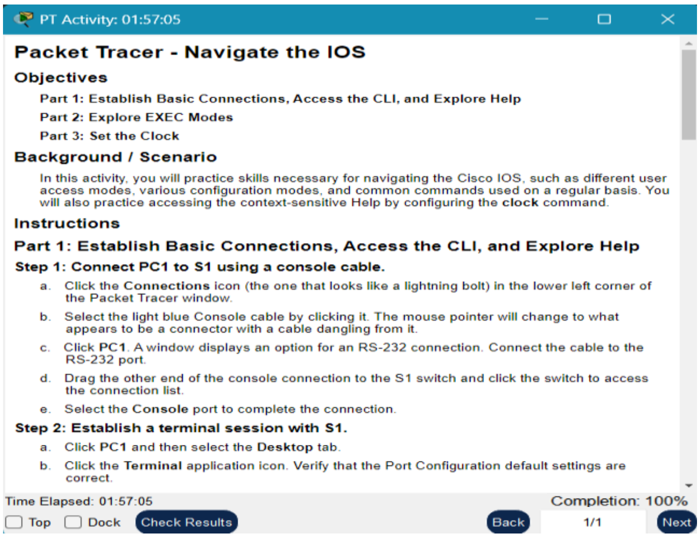
What information was returned?



```
S1#clock set 15:00:00 32
                      ^
% Invalid input detected at '^' marker.

S1#clock set 15:00:00 32 ?
```

Result:





Packet Tracer - Navigate the IOS

Objectives

Part 1: Establish Basic Connections, Access the CLI, and Explore Help

Part 2: Explore EXEC Modes

Part 3: Set the Clock

Background / Scenario

In this activity, you will practice skills necessary for navigating the Cisco IOS, such as different user access modes, various configuration modes, and common commands used on a regular basis. You will also practice accessing the context-sensitive Help by configuring the **clock** command.

Instructions

Part 1: Establish Basic Connections, Access the CLI, and Explore Help

Step 1: Connect PC1 to S1 using a console cable.

a. Click the **Connections** icon (the one that looks like a lightning bolt) in the lower left corner of the Packet Tracer window.

b. Select the light blue Console cable by clicking it. The mouse pointer will change to what appears to be a connector with a cable dangling from it.

c. Click **PC1**. A window displays an option for an RS-232 connection. Connect the cable to the RS-232 port.

d. Drag the other end of the console connection to the S1 switch and click the switch to access the connection list.

e. Select the **Console** port to complete the connection.

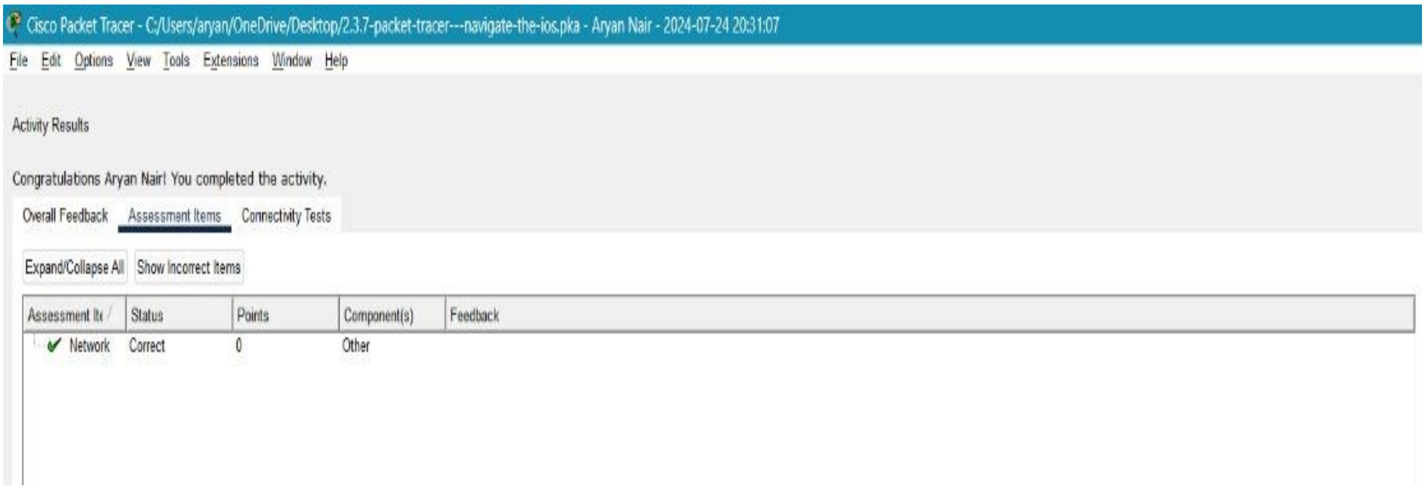
Step 2: Establish a terminal session with S1.

a. Click **PC1** and then select the **Desktop** tab.

b. Click the **Terminal** application icon. Verify that the Port Configuration default settings are correct.

Time Elapsed: 01:57:05

Completion: 100%



Cisco Packet Tracer - C:/Users/aryan/OneDrive/Desktop/2.3.7-packet-tracer---navigate-the-ios.pka - Aryan Nair - 2024-07-24 20:31:07
File
Edit
Options
View
Tools
Extensions
Window
Help

Activity Results

Congratulations Aryan Nair! You completed the activity.

Assessment Ite	Status	Points	Component(s)	Feedback
✓ Network	Correct	0	Other	

Experiment 3

Aim: Configure Initial Switch Settings (Packet Tracer 2.5.5)

Theory: In this exercise, the goal is to understand and apply basic configurations to a network switch. The exercise begins with verifying the default switch settings to establish a baseline. Next, it involves configuring fundamental settings such as hostname, passwords, and VLANs, which are essential for securing and managing the network environment. A Message of the Day (MOTD) banner is configured to provide important information or warnings to users accessing the switch. The final steps include saving the configuration changes to NVRAM to ensure they persist after a reboot and configuring an additional switch, S2, to replicate the setup and ensure network consistency.

Instructions:

- ### Part 1: Verify the Default Switch Configuration

Step 1: Enter privileged EXEC mode.

You can access all switch commands from privileged EXEC 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 the commands available in user EXEC mode, many additional commands, and the **configure** command through which access to the configuration modes is 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 to reflect privileged EXEC mode.

Step 2: Examine the current switch configuration.

Enter the show running-config command.

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

Answer the following questions:

How many Fast Ethernet interfaces does the switch have?

How many Gigabit Ethernet interfaces does the switch have?

What is the range of values shown for the vty lines?

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

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

- ### Part 2: Create a Basic Switch Configuration

Step 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#
```

Step 2: Secure access to the console line.

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?

Step 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.

Step 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#
```

Step 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 configuration by examining the contents of the running-configuration file:

```
S1# show running-config
```

Notice that the console and enable passwords are both in plain text. This could pose a security risk if someone is looking over your shoulder or obtains access to config files stored in a backup location.

Step 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.

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

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

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

```
S1# show run
```

What is displayed for the enable secret password?

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

Step 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.

Part 3: Configure a MOTD Banner

Step 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?

Why should every switch have a MOTD banner?

Part 4: Save and Verify Configuration Files to NVRAM

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

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?

Examine the startup configuration file.

Which command will display the contents of NVRAM?

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

- ## Part 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. Device name: **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**.

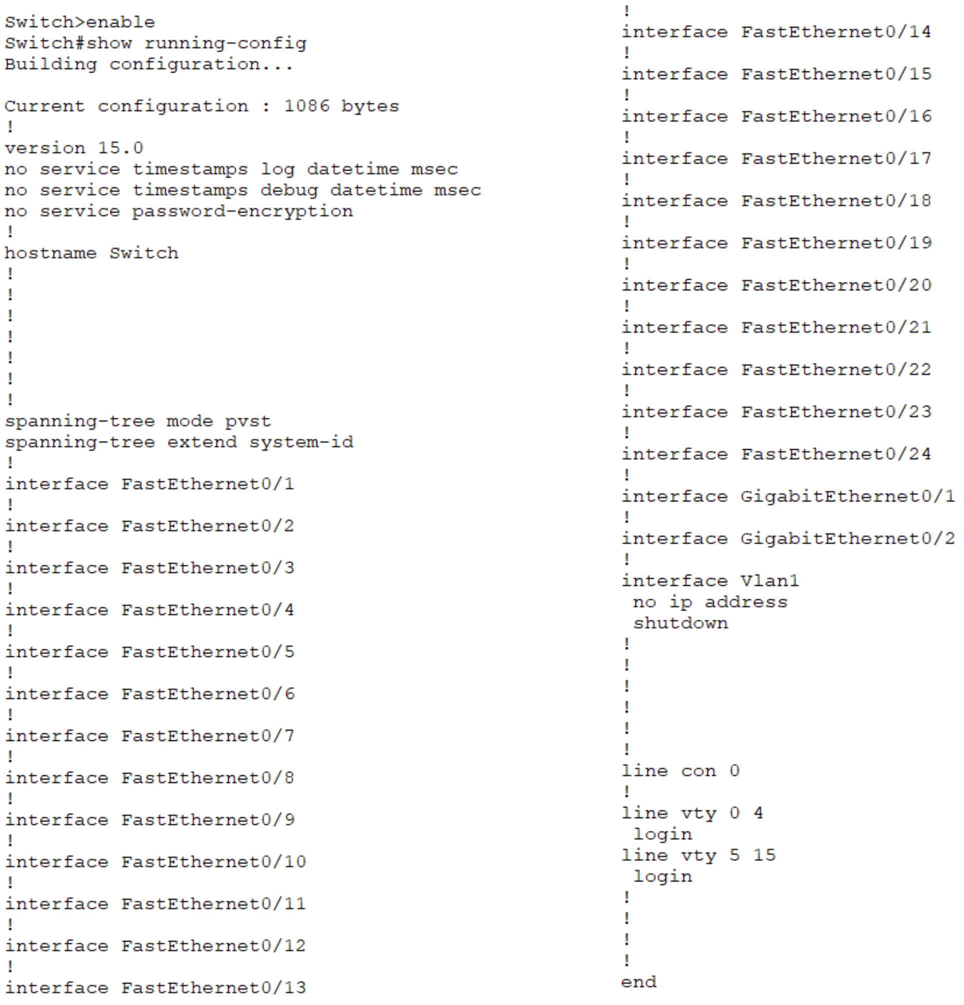
d. Configure an appropriate message to those logging into the switch.

e. Encrypt all plain text passwords.

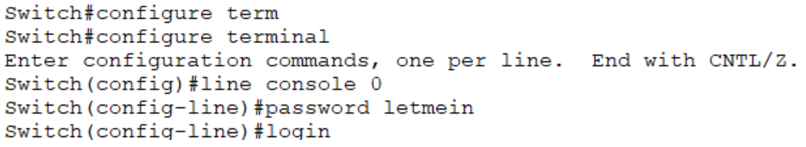
f. Ensure that the configuration is correct.

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

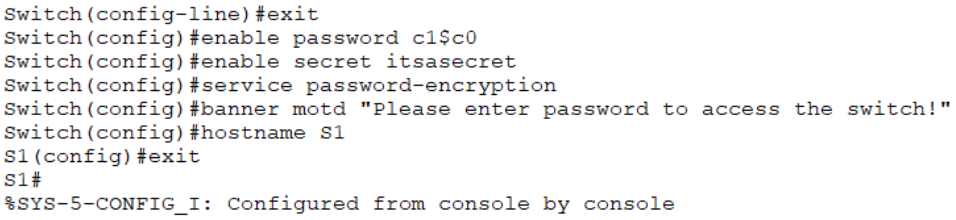
Commands:



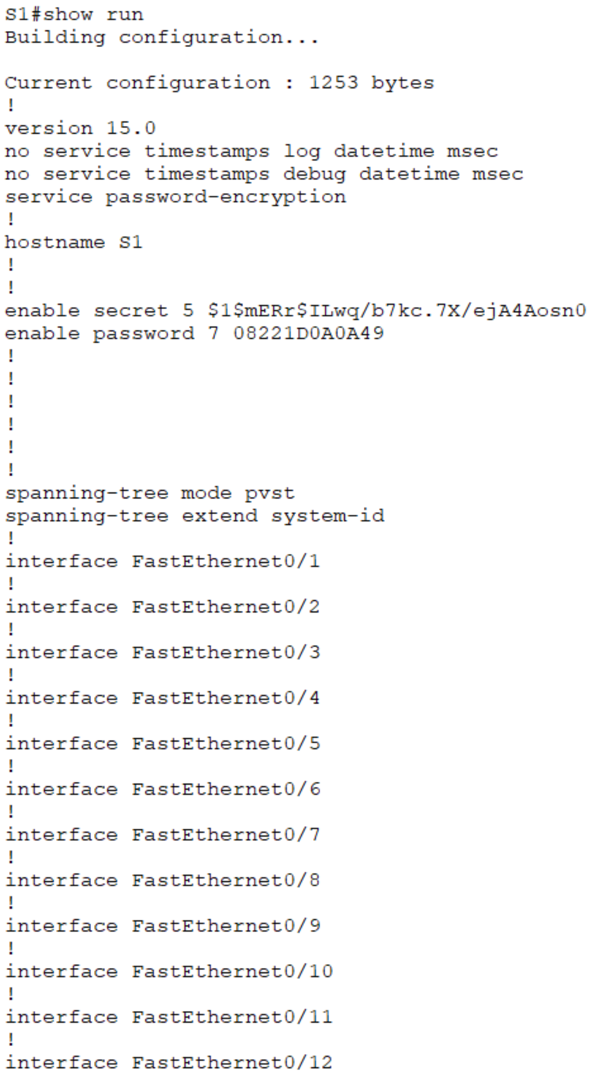
```
Switch>enable
Switch#show running-config
Building configuration...

Current configuration : 1086 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
!
!
!
!
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
!
!
end
```



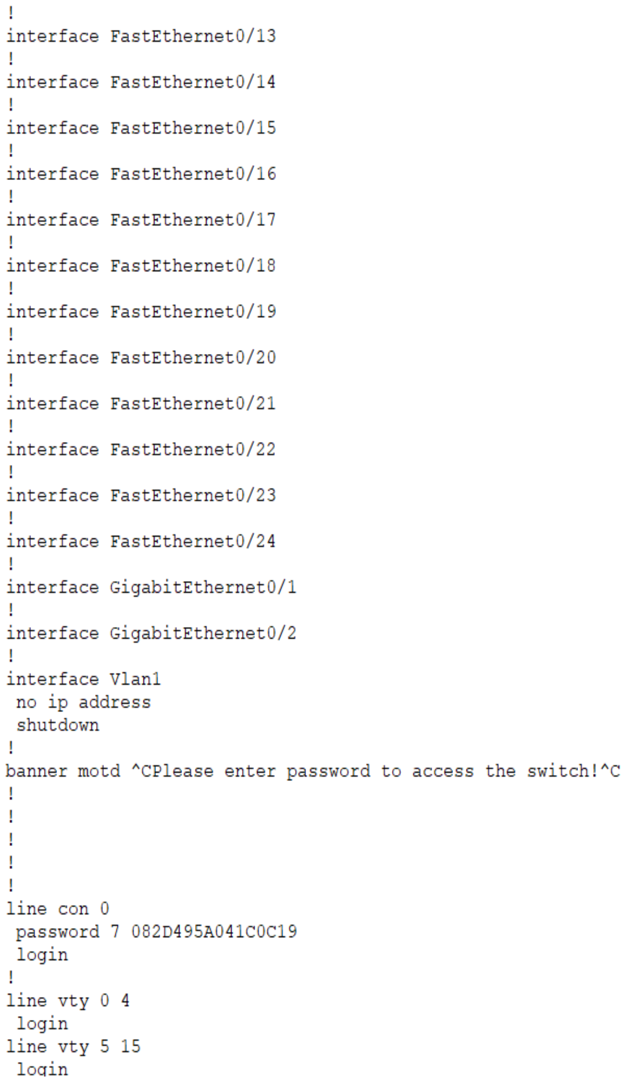
```
Switch#configure term
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#line console 0
Switch(config-line)#password letmein
Switch(config-line)#login
```



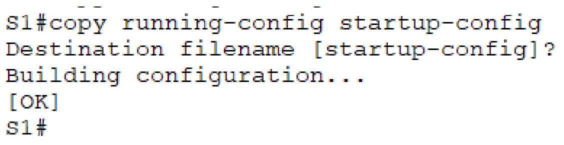
```
Switch(config-line)#exit
Switch(config)#enable password c1$c0
Switch(config)#enable secret itsasecret
Switch(config)#service password-encryption
Switch(config)#banner motd "Please enter password to access the switch!"
Switch(config)#hostname S1
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console
```



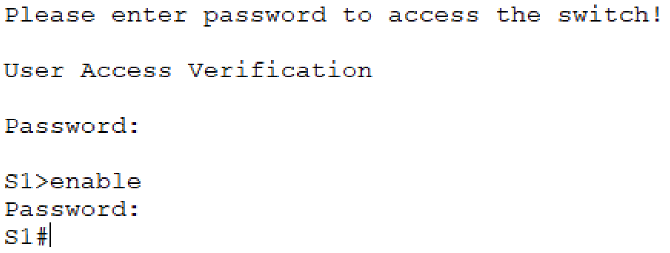
```
S1#show run
Building configuration...

Current configuration : 1253 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname S1
!
!
enable secret 5 $1$mERr$ILwq/b7kc.7X/ejA4Aosn0
enable password 7 08221D0A0A49
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
```



```
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
banner motd ^CPlease enter password to access the switch!^C
!
!
!
!
!
line con 0
 password 7 082D495A041C0C19
 login
!
line vty 0 4
 login
line vty 5 15
 login
```

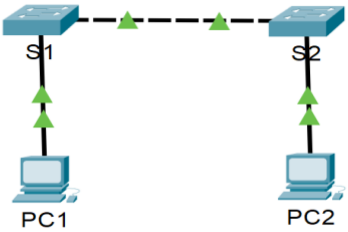


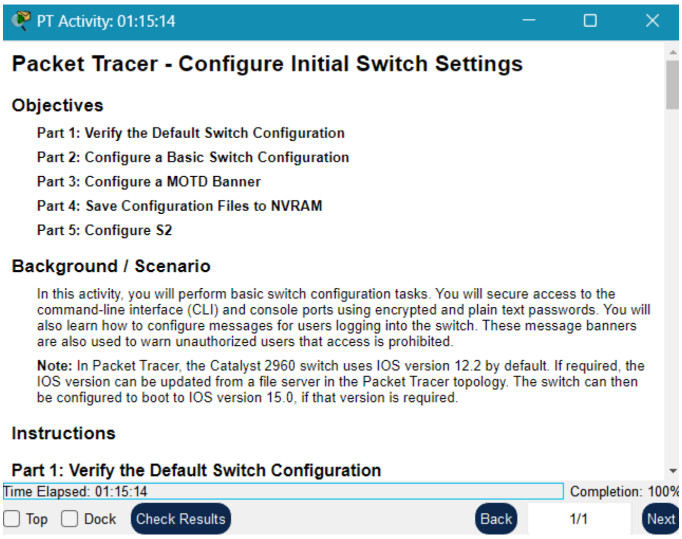
```
S1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
S1#
```



```
Please enter password to access the switch!

User Access Verification

Password:

S1>enable
Password:
S1#
```

Result:





Packet Tracer - Configure Initial Switch Settings

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 / Scenario

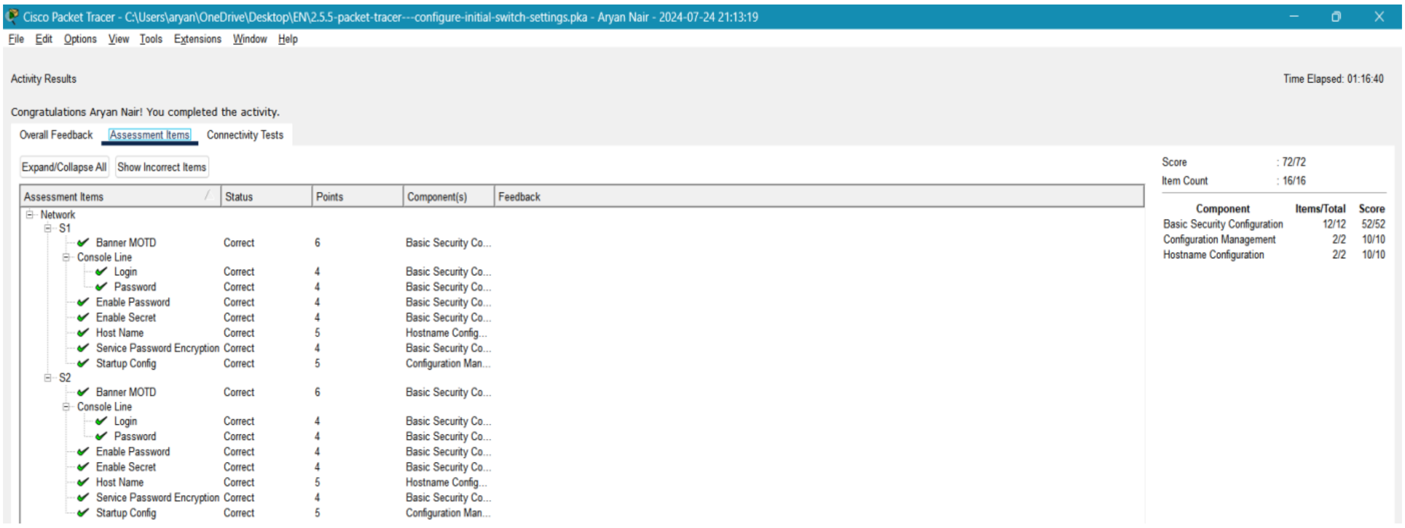
In this activity, you will perform basic switch configuration tasks. You will secure access to the command-line interface (CLI) and console ports using encrypted and plain text passwords. You will also learn how to configure messages for users logging into the switch. These message banners are also used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

Note: In Packet Tracer, the Catalyst 2960 switch uses IOS version 12.2 by default. If required, the IOS version can be updated from a file server in the Packet Tracer topology. The switch can then be configured to boot to IOS version 15.0, if that version is required.

Instructions

Part 1: Verify the Default Switch Configuration

Time Elapsed: 01:15:14 Completion: 100%


Cisco Packet Tracer - C:\Users\aryan\OneDrive\Desktop\EN\2.5.5-packet-tracer---configure-initial-switch-settings.pka - Aryan Nair - 2024-07-24 21:13:19
File
Edit
Options
View
Tools
Extensions
Window
Help

Activity Results

Time Elapsed: 01:16:40

Congratulations Aryan Nair! You completed the activity.

Assessment Items	Status	Points	Component(s)	Feedback
Network				
S1				
✓ Banner MOTD	Correct	6	Basic Security Co...	
Console Line				
✓ Login	Correct	4	Basic Security Co...	
✓ Password	Correct	4	Basic Security Co...	
✓ Enable Password	Correct	4	Basic Security Co...	
✓ Enable Secret	Correct	4	Basic Security Co...	
✓ Host Name	Correct	5	Hostname Config...	
✓ Service Password Encryption	Correct	4	Basic Security Co...	
✓ Startup Config	Correct	5	Configuration Man...	
S2				
✓ Banner MOTD	Correct	6	Basic Security Co...	
Console Line				
✓ Login	Correct	4	Basic Security Co...	
✓ Password	Correct	4	Basic Security Co...	
✓ Enable Password	Correct	4	Basic Security Co...	
✓ Enable Secret	Correct	4	Basic Security Co...	
✓ Host Name	Correct	5	Hostname Config...	
✓ Service Password Encryption	Correct	4	Basic Security Co...	
✓ Startup Config	Correct	5	Configuration Man...	

Score : 72/72

Item Count : 16/16

Component	Items/Total	Score
Basic Security Configuration	12/12	52/52
Configuration Management	2/2	10/10
Hostname Configuration	2/2	10/10

Experiment 4

Aim: Configure Initial Switch Settings (Packet Tracer 2.7.6)

Theory: In Packet Tracer, establishing basic connectivity involves configuring switches (S1 and S2) and PCs (PC1 and PC2) with appropriate settings. First, each switch is given a hostname and secured with console and privileged EXEC mode passwords. A warning banner is added for unauthorized access, and configurations are saved to NVRAM. Next, PCs are configured with IP addresses (192.168.1.1 for PC1 and 192.168.1.2 for PC2), allowing them to communicate within the network. The switch management interfaces are configured with IP addresses, enabling remote management. Finally, network connectivity is verified using the ping command, ensuring that all devices can communicate successfully. This process ensures the foundational setup for a functioning network.

Instructions:

- ## Part 1: Perform a Basic Configuration on S1 and S2

  Complete the following steps on S1 and S2.

Step 1: Configure S1 with a hostname.

a. Click S1 and then click the CLI tab.

b. Enter the correct command to configure the hostname as S1.

Step 2: Configure the console and encrypted privileged EXEC mode passwords.

a. Use **cisco** for the console password.

b. Use **class** for the privileged EXEC mode password.

Step 3: Verify the password configurations for S1.

How can you verify that both passwords were configured correctly?

Use an appropriate banner text to warn unauthorized access. The following text is an example:

Authorized access only. Violators will be prosecuted to the full extent of the law.

Step 4: Save the configuration file to NVRAM.

Which command do you issue to accomplish this step?

Step 5: Repeat Steps 1 to 5 for S2.

- ## Part 2: Configure the PCs

  Configure PC1 and PC2 with IP addresses.

Step 1: Configure both PCs with IP addresses.

a. Click PC1 and then click the Desktop tab.

b. Click IP Configuration. In the Addressing Table above, you can see that the IP address for PC1 is 192.168.1.1 and the subnet mask is 255.255.255.0. Enter this information for PC1 in the IP Configuration window.

c. Repeat steps 1a and 1b for PC2.

Step 2: Test connectivity to switches.

a. Click PC1. Close the IP Configuration window if it is still open. In the Desktop tab, click Command Prompt.

b. Type the **ping** command and the IP address for S1 and press Enter.

```
Packet Tracer PC Command Line 1.0
PC> ping 192.168.1.253
```

Part 3: Configure the Switch Management Interface

Configure S1 and S2 with an IP address.

Step 1: Configure S1 with an IP address.

Switches can be used as plug-and-play devices. This means that they do not need to be configured for them to work. Switches forward information from one port to another based on MAC addresses.

If this is the case, why would we configure it with an IP address?

Use the following commands to configure S1 with an IP address.

```
S1# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)# interface vlan 1
S1(config-if)# ip address 192.168.1.253 255.255.255.0
S1(config-if)# no shutdown
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state
to up
S1(config-if)#
S1(config-if)# exit
S1#
```

Why do you enter the **no shutdown** command?

Step 2: Configure S2 with an IP address.

Use the information in the Addressing Table to configure S2 with an IP address.

Step 3: Verify the IP address configuration on S1 and S2.

Use the **show ip interface brief** command to display the IP address and status of all the switch ports and interfaces. You can also use the **show running-config** command.

Step 4: Save configurations for S1 and S2 to NVRAM.

Which command is used to save the configuration file in RAM to NVRAM?

Step 5: Verify network connectivity.

Network connectivity can be verified using the **ping** command. It is very important that connectivity exists throughout the network. Corrective action must be taken if there is a failure. Ping S1 and S2 from PC1 and PC2.

a. Click PC1 and then click the Desktop tab.

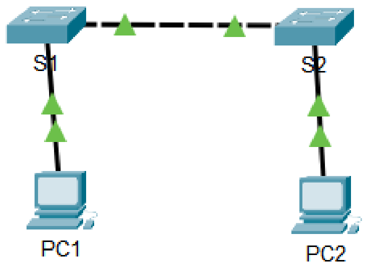
b. Click Command Prompt.

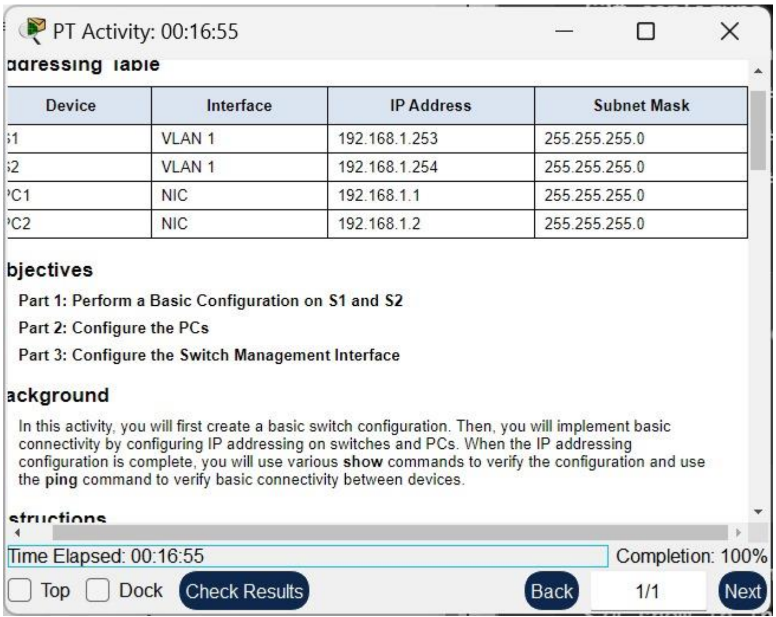
c. Ping the IP address for PC2.

d. Ping the IP address for S1.

e. Ping the IP address for S2.

Result:





ddressing Table

Device	Interface	IP Address	Subnet Mask
;1	VLAN 1	192.168.1.253	255.255.255.0
;2	VLAN 1	192.168.1.254	255.255.255.0
'C1	NIC	192.168.1.1	255.255.255.0
'C2	NIC	192.168.1.2	255.255.255.0

bjectives

Part 1: Perform a Basic Configuration on S1 and S2

Part 2: Configure the PCs

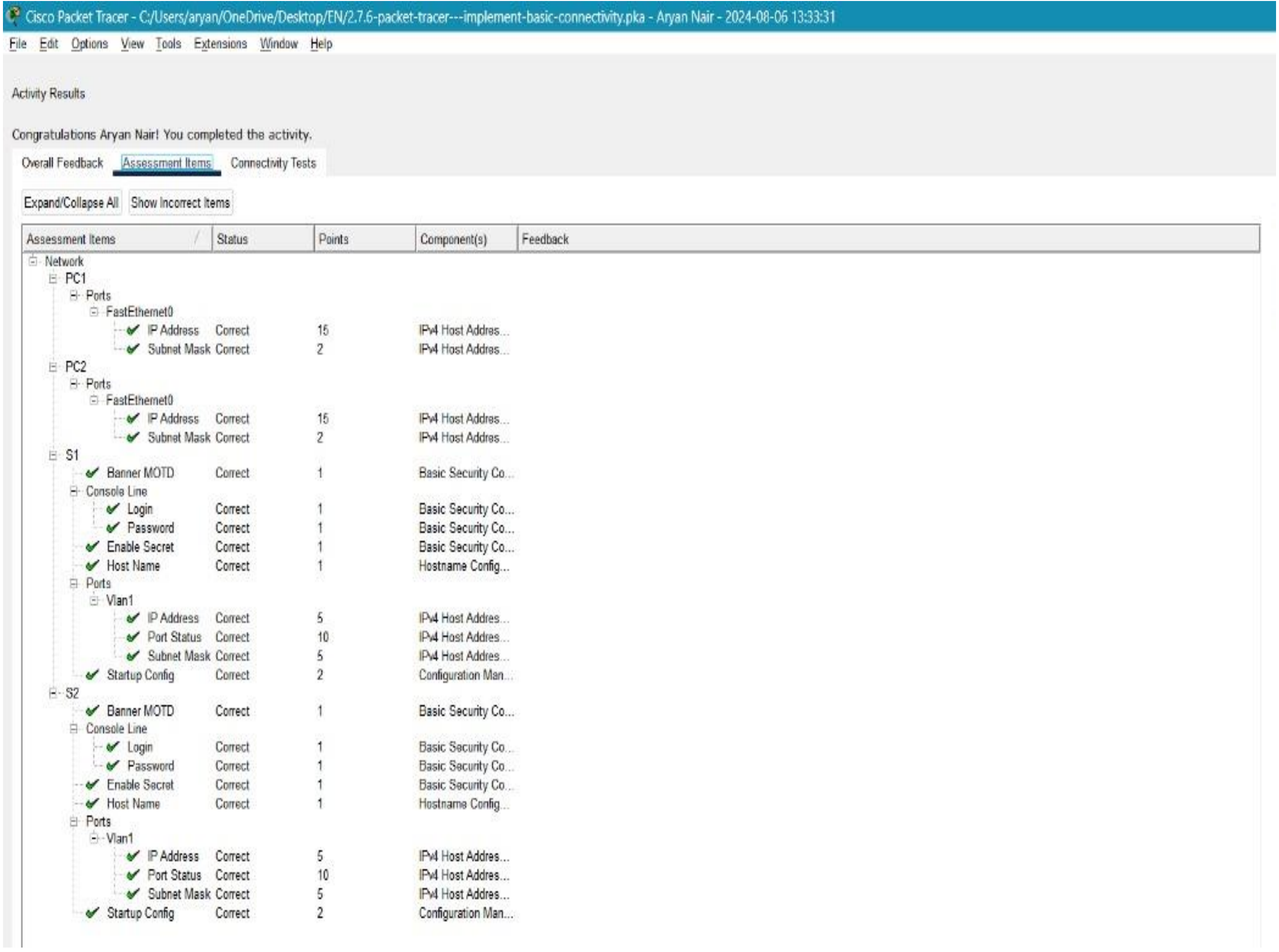
Part 3: Configure the Switch Management Interface

ackground

In this activity, you will first create a basic switch configuration. Then, you will implement basic connectivity by configuring IP addressing on switches and PCs. When the IP addressing configuration is complete, you will use various **show** commands to verify the configuration and use the **ping** command to verify basic connectivity between devices.

structions

Time Elapsed: 00:16:55 Completion: 100%


Cisco Packet Tracer - C:/Users/aryan/OneDrive/Desktop/EN/2.7.6-packet-tracer---implement-basic-connectivity.pka - Aryan Nair - 2024-08-06 13:33:31
File
Edit
Options
View
Tools
Extensions
Window
Help

Activity Results

Congratulations Aryan Nair! You completed the activity.

Assessment Items	Status	Points	Component(s)	Feedback
Network				
PC1				
Ports				
FastEthernet0				
✓ IP Address	Correct	15	IPv4 Host Addres...	
✓ Subnet Mask	Correct	2	IPv4 Host Addres...	
PC2				
Ports				
FastEthernet0				
✓ IP Address	Correct	15	IPv4 Host Addres...	
✓ Subnet Mask	Correct	2	IPv4 Host Addres...	
S1				
✓ Banner MOTD	Correct	1	Basic Security Co...	
Console Line				
✓ Login	Correct	1	Basic Security Co...	
✓ Password	Correct	1	Basic Security Co...	
✓ Enable Secret	Correct	1	Basic Security Co...	
✓ Host Name	Correct	1	Hostname Config...	
Ports				
Vlan1				
✓ IP Address	Correct	5	IPv4 Host Addres...	
✓ Port Status	Correct	10	IPv4 Host Addres...	
✓ Subnet Mask	Correct	5	IPv4 Host Addres...	
✓ Startup Config	Correct	2	Configuration Man...	
S2				
✓ Banner MOTD	Correct	1	Basic Security Co...	
Console Line				
✓ Login	Correct	1	Basic Security Co...	
✓ Password	Correct	1	Basic Security Co...	
✓ Enable Secret	Correct	1	Basic Security Co...	
✓ Host Name	Correct	1	Hostname Config...	
Ports				
Vlan1				
✓ IP Address	Correct	5	IPv4 Host Addres...	
✓ Port Status	Correct	10	IPv4 Host Addres...	
✓ Subnet Mask	Correct	5	IPv4 Host Addres...	
✓ Startup Config	Correct	2	Configuration Man...	