

Objectives

- Part 1: Verify the Default Router Configuration
- Part 2: Configure and Verify the Initial Router Configuration
- Part 3: Save the Running Configuration File

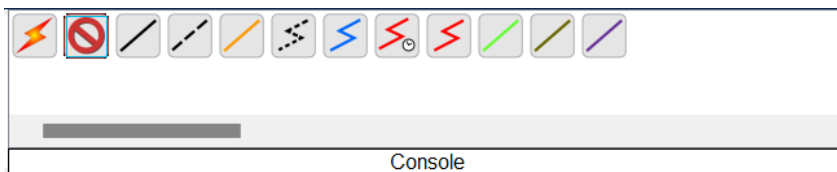
Background

In this activity, you will perform basic router configuration tasks. You will secure access to the CLI and console port using encrypted and plain-text passwords. You will also configure messages for users who are logging into the router. These banners warn unauthorized users that access is prohibited. Finally, you will verify and save your running configuration.

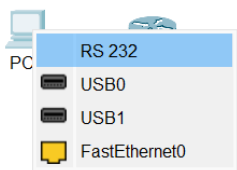
Part 1: Verify the Default Router Configuration

Step 1: Establish a console connection to R1.

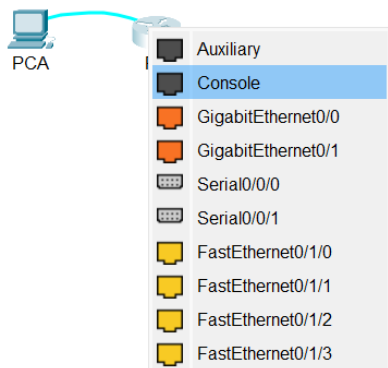
- a. Choose a **Console** cable from the available connections.



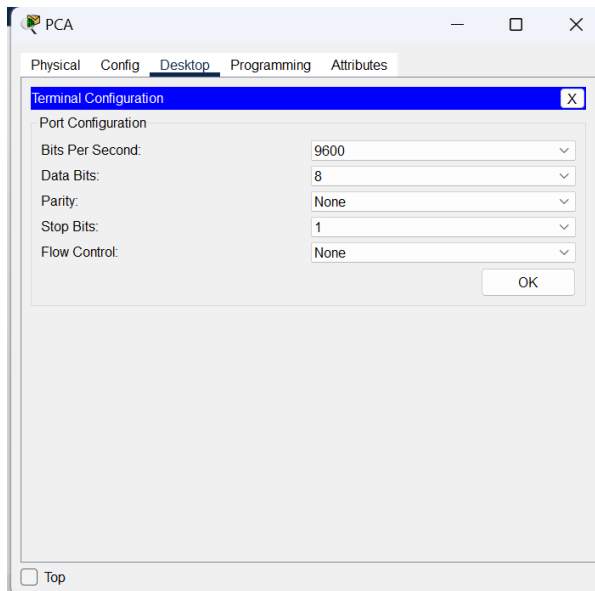
- b. Click **PCA** and select **RS 232**.



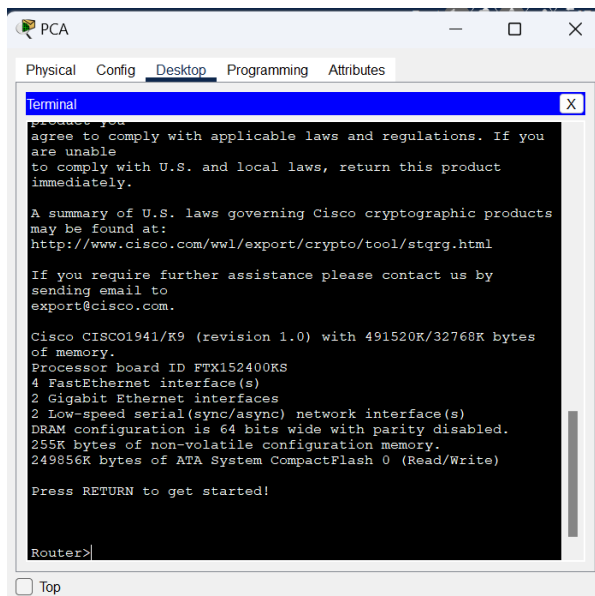
- c. Click **R1** and select **Console**.



- d. Click **PCA** > **Desktop** tab > **Terminal**.



- e. Click **OK** and press **ENTER**. You are now able to configure **R1**.



Step 2: Enter privileged mode and examine the current configuration.

You can access all the router 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.

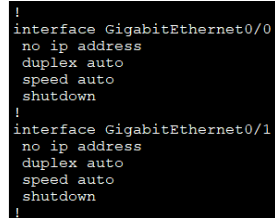
- a. Enter privileged EXEC mode by entering the **enable** command.

```
Router> enable
Router#
```

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

```
Router>enable
Router#
```

- ```
Router# show running-config
```



How many Serial interfaces does the router have?

2

```
!
interface Serial10/0/0
 no ip address
 clock rate 2000000
 shutdown
!
interface Serial10/0/1
 no ip address
 clock rate 2000000
 shutdown
!
```

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

0 to 4

```
!
line vty 0 4
 login
!
```

- c. Display the current contents of NVRAM.

```
Router# show startup-config
startup-config is not present
```

```
Router#show startup-config
startup-config is not present
```

Why does the router respond with the startup-config is not present message?

Because there is no content in NVRAM. Configurations are saved to the RAM by default (but are lost once the device loses power), but we can save them to the NVRAM so they don't get lost even when there's no power.

## Part 2: Configure and Verify the Initial Router Configuration

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

### Step 1: Configure the initial settings on R1.

**Note:** If you have difficulty remembering the commands, refer to the content for this topic. The commands are the same as you configured on a switch.

- a. Configure **R1** as the hostname.

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#
```

- b. Configure Message of the day text: **Unauthorized access is strictly prohibited.**

```
R1(config)#banner motd &Unauthorized access is strictly prohibited.&
```

- c. Encrypt all plain text passwords.

Use the following passwords:

- 1) Privileged EXEC, unencrypted: **cisco**

```
R1(config)#enable password cisco
```

- 2) Privileged EXEC, encrypted: **itsasecret**

```
R1(config)#enable secret itsasecret
```

- 3) Console: **letmein**

```
R1(config-line)#password letmein
R1(config-line)#login
```

```
R1(config-line)#service password-encryption
```

### Step 2: Verify the initial settings on R1.

- a. Verify the initial settings by viewing the configuration for R1.

```
R1#show running-config
Building configuration...

Current configuration : 1277 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname R1
!
!
!
enable secret 5 1mERr$ILWq/b7kc.7X/ejA4Aosn0
enable password 7 0822455D0A16
!
banner motd ^CUnauthorized access is strictly prohibited.^C
!
!
!
line con 0
 password 7 082D495A041C0C19
 login
```

What command do you use?

show running-config

- b. Exit the current console session until you see the following message:

R1 con0 is now available

Press RETURN to get started.

```
R1#exit

R1 con0 is now available

Press RETURN to get started.
```

- c. Press **ENTER**; you should see the following message:

Unauthorized access is strictly prohibited.

User Access Verification

Password:

```
Unauthorized access is strictly prohibited.
User Access Verification
Password:
```

Why should every router have a message-of-the-day (MOTD) banner?

It serves as a warning message to intruders.

If you are not prompted for a password before reaching the user EXEC prompt, what console line command did you forget to configure?

I might have forgotten the login command while in line configuration mode.

- d. Enter the passwords necessary to return to privileged EXEC mode.

```
Unauthorized access is strictly prohibited.
User Access Verification
Password: letmein
R1>enable
Password: Itsasecret (cisco is not accepted)
R1#
```

Why would the **enable secret password** allow access to the privileged EXEC mode and the **enable password** no longer be valid?

The **enable secret password** command will override the **enable password** command.

If you configure any more passwords on the router, are they displayed in the configuration file as plain text or in encrypted form? Explain.

They will be displayed in encrypted form because I already gave the **service password-encryption** command.

## Part 3: Save the Running Configuration File

### Step 1: Save the configuration file to NVRAM.

- a. You have configured the initial settings for **R1**. 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.

```
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

What command did you enter to save the configuration to NVRAM?

copy running-config startup-config

What is the shortest, unambiguous version of this command?

cop r st

### Step 2: Optional: Save the startup configuration file to flash.

Although you will be learning more about managing the flash storage in a router in later chapters, you may be interested to know that, as an added backup procedure, you can save your startup configuration file to flash. By default, the router still loads the startup configuration from NVRAM, but if NVRAM becomes corrupt, you can restore the startup configuration by copying it over from flash.

Complete the following steps to save the startup configuration to flash.

- a. Examine the contents of flash using the **show flash** command:

```
R1# show flash
```

```
R1#show flash

System flash directory:
File Length Name/status
 3 33591768 c1900-universalk9-mz.SPA.151-4.M4.bin
 2 28282 sigdef-category.xml
 1 227537 sigdef-default.xml
[33847587 bytes used, 221896413 available, 255744000 total]
249856K bytes of processor board System flash (Read/Write)
```

How many files are currently stored in flash?

3

Which of these files would you guess is the IOS image?

File 3: c1900-universalk9-mz.SPA.151-4.M4.bin

Why do you think this file is the IOS image?

It has the .bin file extension. It also takes up more memory space than the other 2 files.



```
R1# copy startup-config flash
Destination filename [startup-config]
```

The router prompts you to store the file in flash using the name in brackets. If the answer is yes, then press **ENTER**; if not, type an appropriate name and press **ENTER**.

```
R1#copy startup-config flash
Destination filename [startup-config]?

1277 bytes copied in 0.416 secs (3069 bytes/sec)
R1#
```

- b. Use the **show flash** command to verify the startup configuration file is now stored in flash.

```
R1#show flash

System flash directory:
File Length Name/status
 3 33591768 c1900-universalk9-mz.SPA.151-4.M4.bin
 2 28282 sigdef-category.xml
 1 227537 sigdef-default.xml
 4 1277 startup-config
[33848864 bytes used, 221895136 available, 255744000 total]
249856K bytes of processor board System flash (Read/Write)
```