Networking Academy

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LAB 1
10.1.4: Packet Tracer - Configure Initial Router Settings

Objectives

Part 1: Verify the Default Router Configuration

Part 2: Configure and Verify the Initial Router Configuration

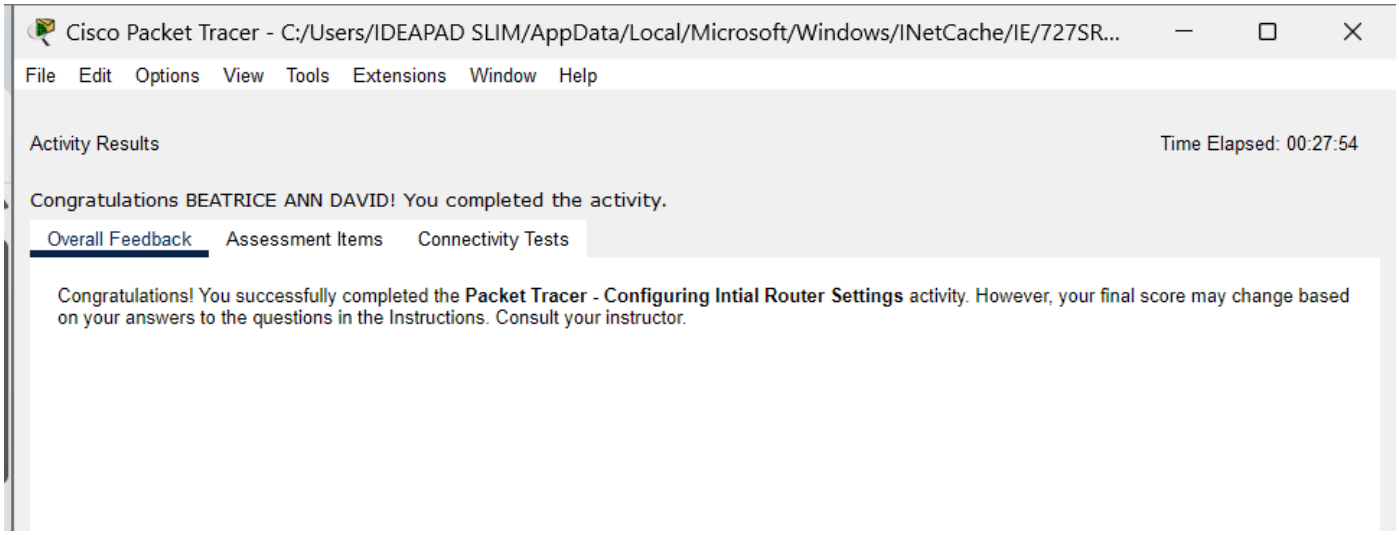
Part 3: Save the Running Configuration File

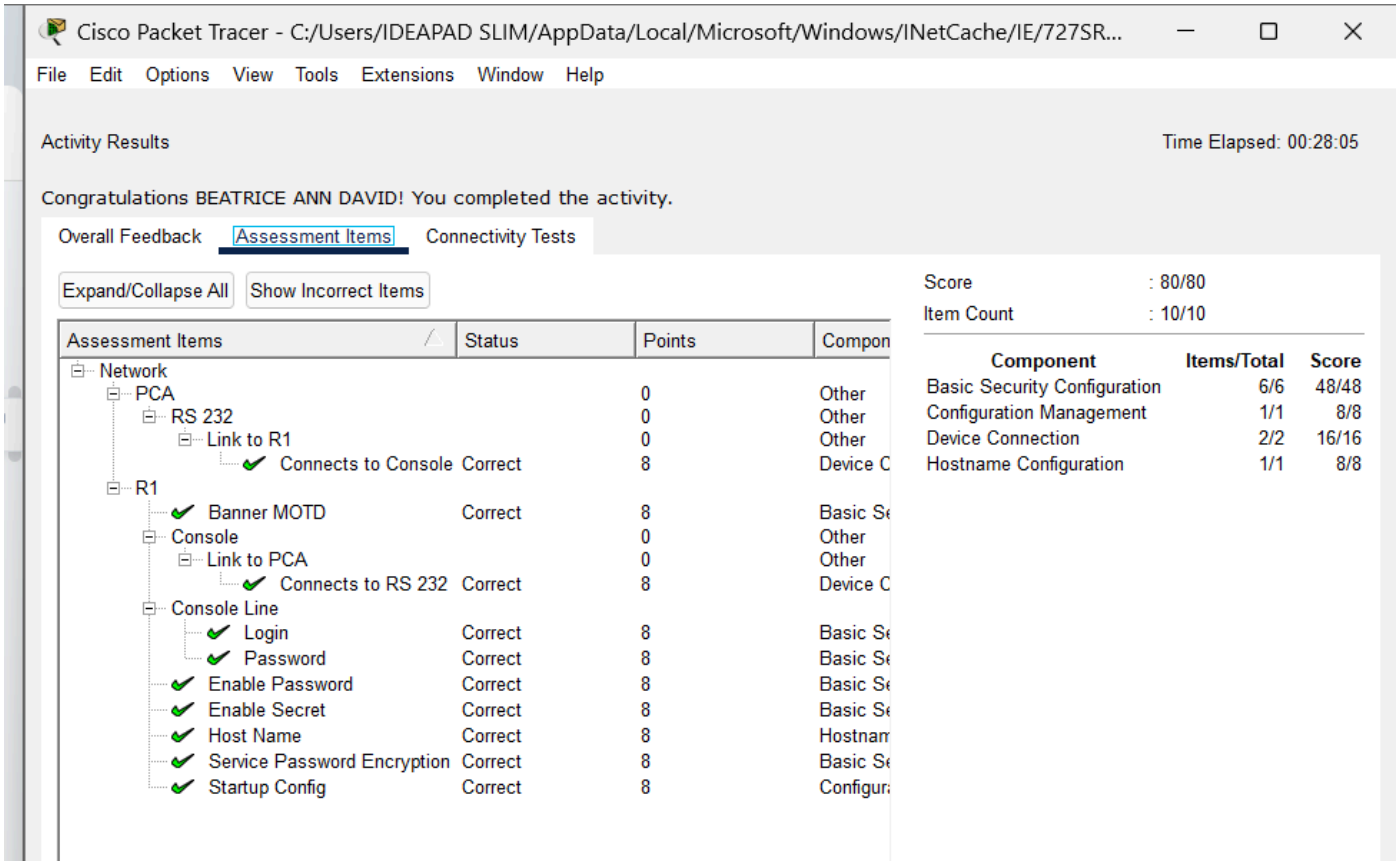
Background

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.

Screenshots:

A. Results:





B. Working:

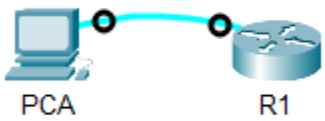
Part 1: Verify the Default Router Configuration

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**.

```
Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
4 FastEthernet interface(s)
2 Gigabit Ethernet interfaces
2 Low-speed serial(sync/async) network interface(s)
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!



Router>
```

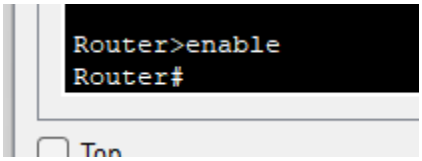
Step 2: Enter privileged mode and examine the current configuration.

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.

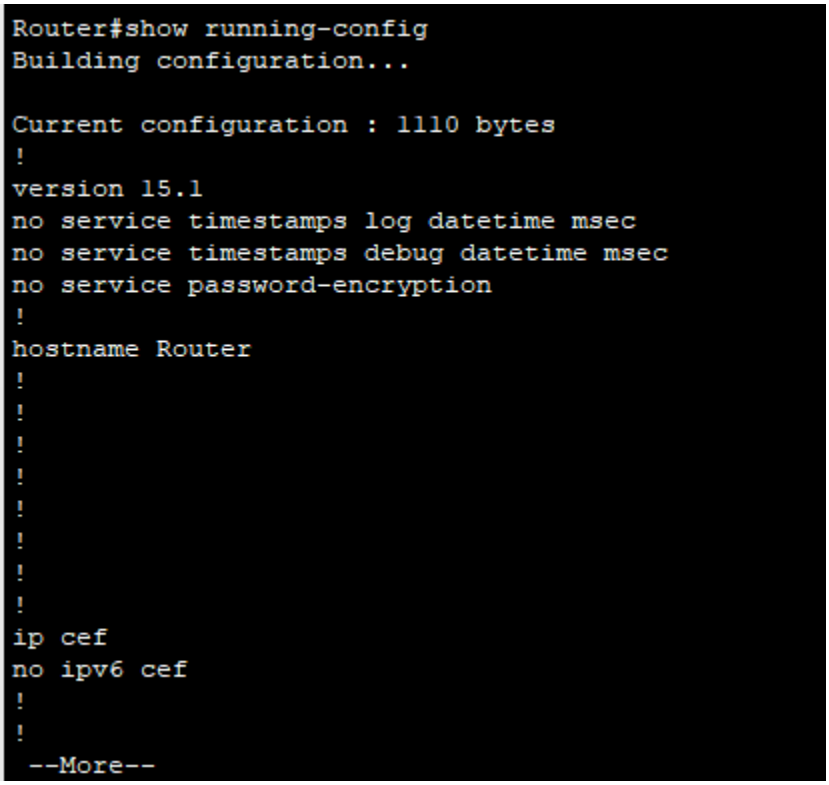
```
Router> enable
Router#
```

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



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

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



What is the router's hostname?

Router

How many Fast Ethernet interfaces does the Router have?

4

How many Gigabit Ethernet interfaces does the Router have?

2

How many Serial interfaces does the router have?

2

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

0 to 4

c. Display the current contents of NVRAM.

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

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

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

Because there is no content in NVRAM

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#show startup-config
startup-config is not present
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.**

```
Router(config)#hostname R1
R1(config)#banner motd "Unauthorized access is strictly prohibited."
R1(config)#
```

c. Encrypt all plain text

passwords. Use the following

passwords:

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

```
R1(config)#enable password
% Incomplete command.
R1(config)#enable password cisco
R1(config)#
```

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

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

3) Console: **letmein**

```
R1(config)#line console 0
R1(config-line)#password letmein
R1(config-line)#login
R1(config-line)#service password-encryption
R1(config)#
```

Step 2: Verify the initial settings on R1.

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

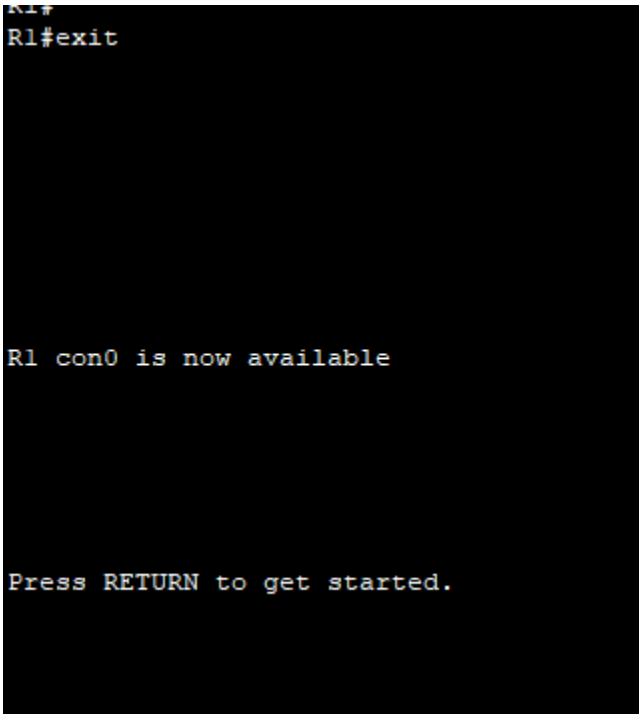
What command do you use?

```
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 $1$mERr$ILwq/b7kc.7X/ejA4Aosn0
enable password 7 0822455D0A16
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO1941/K9 sn FTX152459PZ
!
```

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.
```



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

```
Unauthorized access is strictly prohibited.

User Access Verification

Password:
```

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

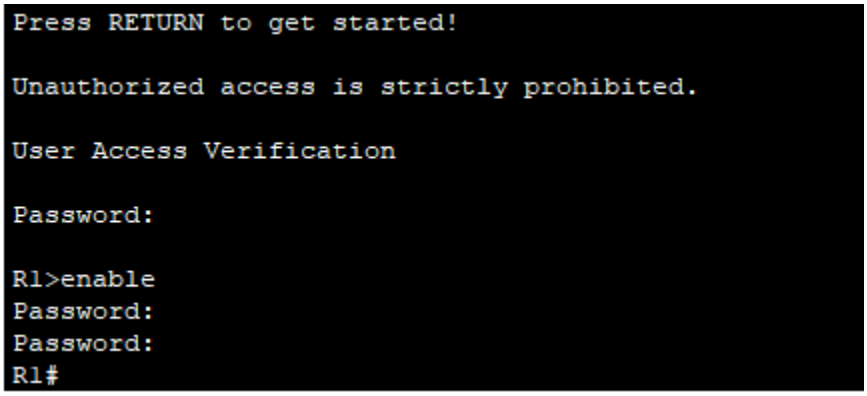
It's a warning message to the intruders.

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

The login command.

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

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



Because the enable secret password will override the enable password

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

It will be encrypted including future passwords.

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.

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

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

copy running-config startup-config

What is the shortest, unambiguous version of this command?

```
R1#co?
configure  connect  copy
R1#cop?
copy
R1#cop r?
running-config
R1#cop r s?
scp:  startup-config
R1#cop r st?
startup-config
R1#cop r st
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

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`

How many files are currently 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
[33847587 bytes used, 221896413 available, 255744000 total]
249856K bytes of processor board System flash (Read/Write)


R1#
```

3

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

```
File  Length    Name/status
  3   33591768  c1900-universalk9-mz.SPA.151-4.M4.bin
```

Why do you think this file is the IOS image?

Because the extension is .bin and it uses more memory space

```
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)
```