Lab 9 - Backing Up & Upgrading Network Devices

Objectives

Part 1: Establish Connectivity to TFTP Server

Part 2: Transfer the Configuration File from TFTP Server

Part 3: Backup Configuration and IOS to TFTP Server

Part 4: Upgrade an IOS Image on a Cisco Device

Background / Scenario

In this activity you will restore a configuration from a backup and then perform a new backup. Due to an equipment failure, a new router has been put in place. Fortunately, backup configuration files have been saved to a Trivial File Transfer Protocol (TFTP) Server. You are required to restore the files from the TFTP Server to get the router back online as quickly as possible. You will then upgrade the IOS image on another existing router from the TFTP server.

Instructions

Part 1: Establish Connectivity to the TFTP Server

Note: Because this is a new router, the initial configuration will be performed using a console connection to the router.

a. Click **PCA**, then the **Desktop** tab, followed by **Terminal** to access the **R1** command line.

b. Configure and activate the **Gigabit Ethernet 0/0** interface. The IP address should match the default gateway for the **TFTP Server**.

QUESTION 1 What IP address did you assign to G0/0 on R1.

Before proceeding, go to the "Lab 9 - Backing Up & Upgrading Network Devices - PT ACTIVITY QUESTIONS (2025)" quiz on the Brightspace page and enter your answer for question 1. Leave the quiz open while you complete the rest of the lab sheet.

c. Test connectivity from R1 to the **TFTP Server**. e.g. You should be able to ping the TFTP server from R1. Troubleshoot, if necessary.

d. Before moving onto Part 2, run the following command to review the current configuration of the router.

```
Router# show run
```

Part 2: Transfer the Configuration File from the TFTP Server

a. From privileged EXEC mode, issue the following command (note <cr> below means carriage return - this means to press the Enter key on your keyboard) :

```
Router# copy tftp running-config
Address or name of remote host []? 192.168.2.254
Source filename []? R1-confg
Destination filename [running-config]? <cr>
Note <cr> means to press Enter key (on your keyboard).This will accept the choice indicated in [ brackets ] (in this case running-config).
```

The router should return the following (if it doesn't return to Part 1 and ensure you have ping connectivity from the Router R1 to the TFTP server):

```
Accessing tftp://192.168.2.254/RTA-confg...
Loading R1-confg from 192.168.2.254: !
[OK - 860 bytes]
860 bytes copied in 0.001 secs
R1#
%SYS-5-CONFIG_I: Configured from console by console
R1#
```

b. Issue the command to display the current configuration.

QUESTION 2 What changes have been made to the current configuration compared to the initial factory settings?

QUESTION 3 What is the current console/vty line password?

c. Issue the appropriate **show** command to display the interface status.

QUESTION 4 Are all of the physical interfaces on the device currently active?

Before proceeding, return to the quiz on the Brigthtspace page and enter your answers for questions 2-4. Leave the quiz open while you complete the rest of the lab sheet.

d. Correct any issues related to interface problems and test connectivity between PCA and the TFTP server.

Part 3: Back Up Configuration and IOS to TFTP Server

a. Change the hostname of **R1** to **RT-1**.

b. Save the configuration to NVRAM.

c. Copy the configuration to the **TFTP Server** using the **copy** command. Accept the default destination filename of **RT-1-confg**.

d. Issue the command to display the files in flash.

QUESTION 5 What size is the current IOS file on the device?

Before proceeding, return to the quiz on the Brightspace page and enter your answer for question 5. Leave the quiz open while you complete the rest of the lab sheet.

e. Backup the IOS in flash to the **TFTP Server** using the following command:

```
RT-1# copy flash tftp:
Source filename []? c1900-universalk9-mz.SPA.151-4.M4.bin
Address or name of remote host []? <Insert TFTP Server IPv4 address here >
Destination filename [c1900-universalk9-mz.SPA.151-4.M4.bin]? <cr>
```

QUESTION 6 What special character repeatedly displays indicating that the IOS file is being copied to the TFTP server successfully?

Before proceeding, return to the quiz on the Brightspace page and enter your answer for question 6. Leave the quiz open while you complete the rest of the lab sheet.

f. Open the TFTP Server and click the Services tab, select TFTP, and scroll through the list of IOS files.

QUESTION 7 Has the IOS file **c1900-universalk9-mz.SPA.151-4.M4.bin** been copied to the TFTP Server?

Before proceeding, return to the quiz on the Brightspace page and enter your answer for question 7. Leave the quiz open while you complete the rest of the lab sheet.

Part 4: Upgrade an IOS Image on a Cisco Device

a. From **R2**, issue the **show flash:** command.

QUESTION 8 What is the current amount of available flash?

Before proceeding, return to the quiz on the Brightspace page and enter your answer for question 8. Leave the quiz open while you complete the rest of the lab sheet.

b. Copy the CISCO1941/K9 IOS version 15.5 image for the 1941 router from the TFTP Server to R2.

Note: In an actual network, if there is more than one interface active on the router, you may need to enter the **ip tftp source interface** command to specify which interface should be used to contact the TFTP server. This command is not supported in PT 7.2 and older versions and is not necessary to complete this activity.

```
R2# copy tftp: flash:
Address or name of remote host []? 192.168.2.254
Source filename []? c1900-universalk9-mz.SPA.155-3.M4a.bin
Destination filename [c1900-universalk9-mz.SPA.155-3.M4a.bin]? <cr>

Accessing tftp://192.168.2.254/c1900-universalk9-mz.SPA.155-3.M4a.bin....
Loading c1900-universalk9-mz.SPA.155-3.M4a.bin from 192.168.2.254:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 33591768 bytes]

33591768 bytes copied in 4.099 secs (860453 bytes/sec)
```

c. Verify that the IOS image has been copied to flash.

QUESTION 9 How many IOS images are now currently in flash?

Before proceeding, return to the quiz on the Brightspace page and enter your answer for question 9. Leave the quiz open while you complete the rest of the lab sheet.

d. Use the **boot system** command to load the version 15.5 IPBase image on the next reload.

```
R2(config)# boot system flash c1900-universalk9-mz.SPA.155-3.M4a.bin
```

e. Save the configuration and reload **R2**.

f. Use the **show version** command to verify the upgraded IOS image is loaded after **R2** reboots.

```
R2# show version
Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version 15.5(3)M4a, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2016 by Cisco Systems, Inc.
Compiled Thu 06-Oct-16 13:56 by mnguyen

ROM: System Bootstrap, Version 15.0(1r)M9, RELEASE SOFTWARE (fc1)

R2 uptime is 21 seconds
System returned to ROM by power-on
System image file is "flash0:c1900-universalk9-mz.SPA.155-3.M4a.bin"
---- output omitted -----
```

QUESTION 10 Is the device now running the version 15.5 IOS image?

Before proceeding, return to the quiz on the Brightspace page and enter your answer for question 10. Leave the quiz open while you complete the rest of the lab sheet.

If you have correctly configured all parts of the lab your activity score should now be showing as 100%. If so, click on "check results" in the activity window. Return to the Brightspace quiz one last time and enter the code into the appropriate question box (Q11) of the quiz.

You have completed the lab – please submit the Brightspace quiz