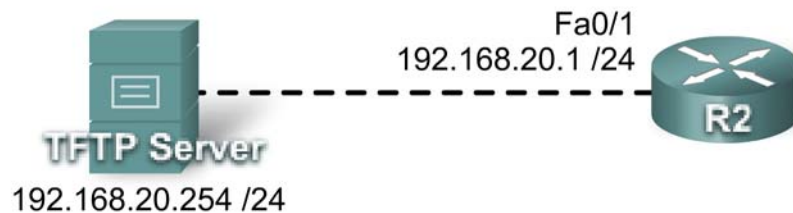


PT Activity 4.5.4: Using a TFTP Server to Upgrade a Cisco IOS Image

Topology Diagram



Learning Objectives

- Verify the current Cisco IOS image.
- Configure access to the TFTP server.
- Upload a new Cisco IOS image.
- Configure the **boot system** command.
- Test the new Cisco IOS image.

Introduction

In this activity, you will configure access to a TFTP server and upload a newer, more advanced Cisco IOS image. Although Packet Tracer simulates upgrading the Cisco IOS image on a router, it does not simulate backing up a Cisco IOS image to the TFTP server. In addition, although the image you are upgrading to is more advanced, this Packet Tracer simulation will not reflect the upgrade by enabling more advanced commands. The same Packet Tracer command set will still be in effect.

Task 1: Verify the Current Cisco IOS Image

Step 1. Use the show version command to verify the image currently loaded in RAM.

```
R2#show version
```

```
Cisco IOS Software, 1841 Software (C1841-IPBASE-M), Version 12.3(14)T7,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2006 by Cisco Systems, Inc.
Compiled Mon 15-May-06 14:54 by pt_team
```

```
ROM: System Bootstrap, Version 12.3(8r)T8, RELEASE SOFTWARE (fc1)
```

```
System returned to ROM by power-on
```

```
System image file is "flash:c1841-ipbase-mz.123-14.T7.bin"
```

```
<output omitted>
```

The image currently loaded in RAM does not support SSH or many other advanced features.

Step 2. Use the show flash command to verify any images currently available in flash.

R2#**show flash**

```
System flash directory:
File Length Name/status
  1 13832032 c1841-ipbase-mz.123-14.T7.bin
[13832032 bytes used, 18682016 available, 32514048 total]
32768K bytes of processor board System flash (Read/Write)
```

Only one Cisco IOS image is available. Before you can use SSH and additional security features, you must upgrade the image to a more advanced version.

Task 2: Configure Access to the TFTP Server

R2 needs to establish a connection to a TFTP server that has the Cisco IOS image you need.

Step 1. Connect R2 and the TFTP server.

Refer to the topology diagram for the correct interface.

Step 2. Configure R2 with an IP address.

Refer to the topology diagram for the correct IP addressing.

Step 3. Configure the TFTP server with IP addressing and a default gateway.

Refer to the topology diagram for the correct IP addressing.

Step 4. Test connectivity.

R2 should be able to successfully ping the TFTP server. If not, check your cabling and addressing.

Step 5. Check results.

Your completion percentage should be 80%. If not, click **Check Results** to see which required components are not yet completed.

Task 3: Upload a New Cisco IOS Image

Step 1. Check the TFTP server for Cisco IOS images.

Click TFTP Server and then the **Config** tab. Next, click the **TFTP** tab. Notice that there are several images available. You will upload the c1841-ipbasek9-mz.124-12.bin image to R2.

Step 2. Upload the c1841-ipbasek9-mz.124-12.bin image to R2.

- On R2, begin the upload process with the **copy tftp flash** command.
- Enter the IP address for TFTP Server.
- Enter the entire filename of the Cisco IOS image.

```
R2#copy tftp flash
Address or name of remote host []? 192.168.20.254
Source filename []? c1841-ipbasek9-mz.124-12.bin
Destination filename [c1841-ipbasek9-mz.124-12.bin]? Enter
Accessing tftp://192.168.20.254/c1841-ipbasek9-mz.124-12.bin...
Loading c1841-ipbasek9-mz.124-12.bin from 192.168.20.254:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!
[OK - 16599160 bytes]
```

```
16599160 bytes copied in 13.047 secs (284682 bytes/sec)
R2#
```

Step 3. Verify that the new image is now in flash.

```
R2#show flash
```

```
System flash directory:
File Length Name/status
  1  13832032 c1841-ipbase-mz.123-14.T7.bin
  2  16599160 c1841-ipbasek9-mz.124-12.bin
[30431192 bytes used, 2082856 available, 32514048 total]
32768K bytes of processor board System flash (Read/Write)
```

```
R2#
```

Step 4. Check results.

Your completion percentage should be 90%. If not, click **Check Results** to see which required components are not yet completed.

Task 4: Configure the boot system Command

By default, the router bootup sequence loads the first Cisco IOS image listed in flash. One way to make sure that the router loads the new image is to configure the **boot system flash** command. On R2, enter the following command:

```
R2(config)#boot system flash c1841-ipbasek9-mz.124-12.bin
```

This command is now part of the running configuration. However, the running configuration must also be saved to NVRAM; otherwise, the configuration is overwritten the next time you reload the router.

```
R2(config)#end
R2#copy running-config startup-config
```

Your completion percentage should be 100%. If not, click **Check Results** to see which required components are not yet completed.

Task 5: Test the New Image

Reload R2 and wait for it to reboot. When the router reloads, verify that the new image is in RAM with the **show version** command.

```
R2#reload
Proceed with reload? [confirm][Enter]
```

```
%SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload Command.
<output omitted>
```

```
R2>show version
Cisco IOS Software, 1841 Software (C1841-IPBASEK9-M), Version 12.4(12),
RELEASE SOFTWARE (fcl)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2006 by Cisco Systems, Inc.
```

Compiled Mon 15-May-06 14:54 by pt_team

ROM: System Bootstrap, Version 12.3(8r)T8, RELEASE SOFTWARE (fc1)

System returned to ROM by power-on

System image file is "flash:c1841-ipbasek9-mz.124-12.bin"

<output omitted>