REDNET
Networking & Internet

Upgrading Your Cisco Router IOS Software

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(This procedure is based on documents made available by Cisco)

Audience

REDNET Customers

Procedure

1) First you will need to download a TFTP server from the Internet, there are several available free on www.download.com. You will need this server application to transfer the new software image to the router.

Important: You must have a valid Cisco IOS software image on your router. Make sure the image supports your hardware and software features, and that your router has enough memory to run the image. If you do not yet have a Cisco IOS software image, or if you are not sure the image you have meets all the requirements, go to the Software Center in the Technical Support area at www.cisco.com and use the Hardware-Software compatibility matrix to determine the version of software you require.

2) Download the Cisco IOS software image to your workstation or PC.

Install the new Cisco IOS software image in the outbound directory of the TFTP server.

The TFTP server looks for the router's Cisco IOS software image in this directory. Make sure that the image you want to copy to your Flash is in this directory.

Memory requirements for each image are also in the outbound directory of the TFTP server. Using the **show version** command, verify that you have enough memory.

```
Router# show version
Cisco Internetwork Operating System Software
IOS (tm) C827-4V Software (C827V-Y6-M), Version
12.1(1)XB, EARLY DEPLOYMENT RELE
ASE SOFTWARE (fc1)
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Mon 10-Apr-00 13:45 by phanguye
Image text-base: 0x80013170, data-base: 0x8067D780

ROM: System Bootstrap, Version 12.1(1r)XB1, RELEASE
SOFTWARE (fc1)

Router uptime is 0 minutes
System returned to ROM by reload
System image file is "flash:c827v-y6-mz.121-1.XB"

CISCO C827-4V (MPC855T) processor (revision 0x502)
with 15360K/1024K bytes of memory.
```

```
Processor board ID JAD043100FS (1979977378), with
hardware revision 1987
CPU rev number 5
Bridging software.
4 POTS Ports
1 Ethernet/IEEE 802.3 interface(s)
1 ATM network interface(s)
128K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash
(Read/Write)

Configuration register is 0x2102
```

3) Establish a console session to the router.

This can be done with a direct console connection or a virtual TELNET connection. A direct console connection is preferred because a TELNET connection is lost during the reboot phase of the software installation (see step 8). The console connection is made with a rolled cable (flat black or blue cable), and connects the console port of the router to the COM-port of the PC.

Launch HyperTerminal on the PC, and use the following settings:

9600 bits per second

8 data bits

0 parity bits

1 stop bit

No Flow Control

4) Verify that the TFTP server has IP connectivity to the router.

The TFTP server must have a network connection to the router and must be able to ping the IP address of the router targeted for a TFTP software upgrade. To achieve this, the router interface and the TFTP server must have:

An IP address in the same range, or

A default gateway configured.

Note: After you verify network connectivity with your TFTP server, write all the changes to memory by issuing a **write memory** command on the router.

```
Router# write memory
Building configuration...
[OK]
Router#
```

5) Issue the **show flash** command to check the available space in the Flash memory.

```
Router# show flash
System flash directory:
File  Length   Name/status
  1   3802992  c827v-y6-mz.121-1.XB
[3803056 bytes used, 4585552 available, 8388608 total]
8192K bytes of processor board System flash (Read/Write)
```

You should ideally have enough Flash memory to install the new Cisco IOS software image alongside your existing image. If you do not have the required memory available, ensure that the total amount of system flash is enough to accept the required new IOS image and then the upgrade process will overwrite your existing IOS image, leaving you with just the new image.

6) *Optional but HIGHLY Recommended*: Back up the existing Cisco IOS software image stored in Flash.

```
Router# copy flash tftp
Source filename []? c827v-y6-mz.121-1.XB
Address or name of remote host []? 10.1.1.1
Destination filename [c827v-y6-mz.121-1.XB]?
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3802992 bytes copied in 27.276 secs (140851 bytes/sec)
```

7) *Optional but HIGHLY Recommended*: Back up your configuration.

```
Router# copy startup-config tftp
Address or name of remote host []? 10.1.1.1
Destination filename [startup-config]?
!!
   676 bytes copied in 0.100 secs
```

8) Enter the **show version** command to verify that the configuration register setting is set to 0x2102. This setting is required so that the router boots from Flash.

If the router's configuration register is not set to 0x2102, record the current value, and use the following commands to set it to the required value:

```
Router# configure terminal
Router(config)# config-reg 0x2102
Router(config)# exit
router#reload
```

9) Copy the Cisco IOS software image from the TFTP Server to Flash in the router. Under NO circumstances should you halt the copy process or power off your router or the TFTP server. If you do so, you will not be able to recover from the situation.

```
Router# copy tftp flash
Address or name of remote host []? 10.1.1.1
Source filename []? c827v-y6-mz.121-1.XB
Destination filename [c827v-y6-mz.121-1.XB]?
%Warning:There is a file already existing with this name
Do you want to over write? [confirm]
Accessing tftp://10.1.1.1/c827v-y6-mz.121-1.XB...
Erase flash: before copying? [confirm]
Erasing the flash filesystem will remove all files!
Continue? [confirm]
Erasing device...
eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
eeeeee
ee ...erased
Erase of flash: complete
Loading c827v-y6-mz.121-1.XB from 10.1.1.1 (via
Ethernet0): !!!!!!!!!!!!!!!!!!!!
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!!!
[OK - 3802992/7605248 bytes]

Verifying checksum...  OK (0x1ABC)
3802992 bytes copied in 58.236 secs (65568 bytes/sec)
Router#
```

10) Confirm the router upgrade by issuing the following command:

```
Router>show flash
```
Make sure the Cisco IOS software image name in the **show flash** command output is the name of the upgrade image.

11) If you now have only one IOS image in flash, reload the router to make it boot from the new Cisco IOS software image.

```
Router#reload
```

If you have more than one image, you will need to add or alter the BOOT SYSTEM FLASH: command in your configuration. Please speak to REDNET Support about this process.

12) Confirm that the router booted from the new Cisco IOS software image by issuing a **show version** command.

```
Router#show version
```

The output from the **show version** command should show the name of the upgraded Cisco IOS software image.