

How to Upgrade from ROMmon Using the Boot Image

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Introduction

This page describes how to upgrade a router from the ROM monitor (ROMmon) prompt using the TFTP functionality of the boot image.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

What Is the Boot Image? (Rx-boot)

The boot image is a subset of the Cisco IOS® software that is used to download main Cisco IOS software images to the router using TFTP in recovery situations. The user can interact with this image through a command line interface signified by the prompt `Router (boot) #`. Some platforms (Cisco 1600, 2500) have it in ROM; others (high-end routers) have it in bootflash. This image can be called xboot image, rxboot image, bootstrap image, or boot loader or helper image, which depends on your platform.

The boot image has limited capabilities. For example, it does not contain routing information.



Warning: Never save your configuration while in boot mode, as part of the configuration (such as the routing part) is lost if saved this way.

Loading the Boot Image

If the router contains a valid boot image, it can be used to download a valid Cisco IOS Software image into the Flash using TFTP. In order to do this, perform these steps:

1. Change the configuration register to boot the boot image by setting the configuration register as follows (depending on the prompt you have):

```
rommon 1 > confreg 0x2101
or
> o/r 0x2101
You must reset or power cycle for the new configuration to take effect.

!--- This is the router output when a configuration register command is entered.
```

The configuration register has now been changed to boot the boot image.

2. Boot the boot image by resetting the router:

```
rommon 2 > reset
or

> i
```

The System Bootstrap message appears and the router boots its boot image. On the screen, you should see something like this:

```
System Bootstrap, Version 11.1(10)AA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
Copyright (c) 1997 by cisco Systems, Inc.
C1600 processor with 18432 Kbytes of main memory
program load complete, entry point: 0x4018060, size: 0x1e1568
Restricted Rights Legend
.
.

!--- Output omitted.

.
.

Router(boot)>
```

You should now have a prompt similar to Router(boot)>.

3. If you are still in ROMmon, that means your boot image is either missing or corrupted. If your router has no valid image in Flash or Bootflash, and no other ROMmon upgrade procedure, the only way to recover is to have a similar router with a compatible Flash card, download the image on that router, and then move the Flash card to the one that is stuck.
4. Check the PCMCIA Filesystem Compatibility Matrix and Filesystem Information for Flash card compatibility information.
5. Connect the Ethernet interface 0 of your router to the network, through which you can reach the TFTP server. Configure the IP address on the Ethernet interface of the router.

```
Router(boot)>enable
Router(boot)#configure terminal
Router(boot)(config)#interface ethernet 0
Router(boot)(config-if)#ip address 10.77.241.160 255.255.255.0
```

```
Router(boot)(config-if)#no shutdown
```

6. Routers that run boot images do not have routing capabilities. Therefore, a default gateway for this router must be configured. Issue the **ip default-gateway** global configuration command to set the appropriate default gateway for this router. This should point to the IP address of the router attached to the same subnet as your Ethernet 0 interface.

```
Router(boot)(config)#ip default-gateway 10.77.241.129
```

7. Before you copy the Cisco IOS image from the TFTP server, make sure that the router has connectivity to the TFTP server.

```
Router(boot)#ping 10.77.233.94
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 10.77.233.94, timeout is 2 seconds:
.!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
```

```
Router(boot)#
```

8. Copy the Cisco IOS image from the TFTP server to the Flash memory on the router.

```
Router(boot)#copy tftp flash
PCMCIA flash directory:
No files in PCMCIA flash
[0 bytes used, 16777216 available, 16777216 total]
Address or name of remote host [255.255.255.255]? 10.77.233.94
```

```
!--- Enter the IP address of the TFTP Server.
```

```
Source file name? c1600-y-1.122-10d.bin
```

```
!--- This is the filename of the Cisco IOS image that you want to copy from
```

```
!--- the TFTP server.
```

```
Destination file name [c1600-y-1.122-10d.bin]?
```

```
!--- Press 'Enter'.
```

```
Accessing file 'c1600-y-1.122-10d.bin' on 10.77.233.94...
Loading c1600-y-1.122-10d.bin from 10.77.233.94 (via Ethernet0):
! [OK] Device needs erasure before copying new file
Erase flash device before writing? [confirm]
```

```
!--- Press 'y' or 'Enter'.
```

```
!--- On Class B Flash file systems, the router gives you the option of erasing
!--- the existing contents of Flash memory before writing to it. If no free Flash
!--- memory is available, or if no files have ever been written to Flash memory,
!--- the erase routine is required before new files can be copied. If there is
!--- enough free Flash memory, the router gives you the option of erasing the
!--- existing Flash memory before writing to it. The system will inform you
!--- of these conditions and prompt you for a response.
```

```
!--- If you enter 'n' after the "Erase flash before writing?" prompt, the copy
!--- process continues. If you enter 'y' and confirm the erasure, the erase
!--- routine begins. Make sure to have ample Flash memory space before entering "n"
!--- at the erasure prompt.
```

```
Copy 'c1600-y-1.122-10d.bin' from server as 'c1600-y-1.122-10d.bin' into Flash
WITH erase? [yes/no]yes
```

```
!--- Entering 'yes' erases all the files in Flash.
```



```
Image text-base: 0x0803A510, data-base: 0x02005000

ROM: System Bootstrap, Version 11.1(10)AA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

ROM: 1600 Software (C1600-BOOT-R), Version 11.1(10)AA, EARLY DEPLOYMENT RELEASE
SOFTWARE (fc1)

1603 uptime is 19 hours, 26 minutes

System returned to ROM by reload

System image file is "flash:c1600-y-1.122-10d.bin"

cisco 1603 (68360) processor (revision C) with 13824K/4608K bytes of memory.

Processor board ID 10240382, with hardware revision 00000000

Bridging software.

X.25 software, Version 3.0.0.

Basic Rate ISDN software, Version 1.1.

1 Ethernet/IEEE 802.3 interface(s)

1 ISDN Basic Rate interface(s)

System/IO memory with parity disabled

2048K bytes of DRAM onboard 16384K bytes of DRAM on SIMM

System running from FLASH

7K bytes of non-volatile configuration memory.

16384K bytes of processor board PCMCIA flash (Read ONLY)

Configuration register is 0x2102

Router>
```

You are now running the new Cisco IOS image that has been loaded from a TFTP server.

Related Information

- [Maintaining System Memory](#)
 - [Technical Support & Documentation – Cisco Systems](#)
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