Hardware Troubleshooting for Catalyst 8540/8510 MSRs and LightStream 1010 ATM Switch: Start Up Issues

This document is part of a documentation set. Refer to the Hardware Troubleshooting for Catalyst 8540/8510 MSRs and LightStream 1010 ATM Switch Index page for the Introduction to this documentation set.

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Introduction

This document provides troubleshoot steps to take when a Cisco Catalyst multiservice ATM switch router (MSR) fails to boot. The document also describes how to recover Cisco IOS® Software images.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

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

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Catalyst MSR Does Not Boot

The capture of information from the console of the switch router is essential to troubleshoot a Catalyst MSR that does not boot. Log the console output in a file for later analysis or for Cisco Technical Support, if you need to create a service request.

The Catalyst MSR has a Bootstrap image and the Boot image embedded in the ROM. Even if there are no valid images on the Flash, the switch router is always able to load these images. If you are not familiar with the boot process of Cisco switch routers, refer to *Figure 354: Booting Process* in the document Rebooting. Also refer to the Cisco IOS Configuration Fundamentals Configuration Guide, Release 12.2.

This table lists symptoms and actions to take if you encounter boot problems:

Symptom	Action to T
The LEDs are on after you power on the switch router, but there is nothing on the console.	Verify that you have set the ba second (bps). If the baud rate i that the equipment that you us console operates properly. Co switch router to check your co you successfully test the equip remains, replace the switch ro

The router displays the system Bootstrap version and hangs at that point or falls into a boot loop:
 	
`System Bootstrap, Version 11.1(7)AX [kuong (7)AX],`
 	
`EARLY DEPLOYMENT RELEASE SOFTWARE (fc2)`
 	
`Copyright (c) 1994-1996 by cisco Systems, Inc.`
	The memory may not be well reseat the single inline memor memory. To reseat the SIMM, reinsert it. If the switch router replace the switch router.

The router boots in ROM monitor (ROMmon); there are no error messages on the console.	Set the configuration register t the switch router:
	
	`rommon 1 > confreg 0x210`
	`rommon 2 > reset`

The router boots in boot mode; there are no error messages on the console.	Set the configuration register t the switch router. There is no running configuration before y
	
	`Switch(boot)# configure`
	`Enter configuration comm`
	`Switch(boot)(config)# co`
	`Switch(boot)(config)# en`
	`Switch(boot)# reload`
	`System configuration has`

	`Proceed with reload? [co` **Note:** The **config-register** cor Cisco IOS Software configura does not save in NVRAM. Th configuration register immedi effect at the time of the next b

The router boots in boot mode and displays these messages on the console:
 	
`getdevnum warning: device "PCMCIA slot 1" has size of zero`
`getdevnum warning: device "PCMCIA slot 1" has size of zero`
`pen: read error...requested 0x4 bytes, got 0x0`
`trouble reading device magic number`
`boot: cannot open "flash:"`
`boot: cannot determine first file name on device "flash:"`
	You have removed the Flash c insertion is incorrect. Issue the command to verify the presen
	
	`Switch(boot)# show flash`
	`%Device in REMOVED state`
	
	Insert or reseat the Flash. If th replace the Flash card. If a Fla does not resolve the problem, router.

The switch router boots in boot mode and displays these messages on the console:
 	
`device does not contain a valid magic number`
 	
`boot: cannot open "flash:"`
 	
`boot: cannot determine first file name on device "flash:"`
	The Flash is empty or the file a valid image on the Flash, era prompt, and reload the switch

The switch router boots in boot mode and displays this message on the console: `SYSTEM INIT: INSUFFICIENT MEMORY TO BOOT THE IMAGE!`	This message only occurs whe run from RAM. Switch routers run in RAM and images that r such as relocatable images. Th for the problem: 1. Upgrade the DRAM. 2. Load a relocatable imag For more information on imag *Image Naming Conventions* se Loading and Maintaining Syst For information on memory re *Memory Requirements* section to Choose a Cisco IOS Softwa For information on the upgrad SIMMs, refer to the Release N Flash Memory SIMM.
	The Cisco IOS Software imag the switch router, or the image

The switch router boots in boot mode and displays this message on the console: `loadprog: error - Invalid image for platform`	Flash and download a new, va image. For more information on the l refer to the document Loading System Images.

Recover from Corrupt or Lost Cisco IOS Images

Normally, if your ATM switch comes up in ROMmon mode, you can use the **boot** command to tell the switch which image to load.

Note: The Loading and Maintaining System Images chapter of the Cisco IOS Configuration Fundamentals Configuration Guide, Release 12.2 provides step-by-step instructions for file system management for all platforms that run Cisco IOS Software.

Issue the **?** help command to list the commands that are available while in ROMmon mode.

```
rommon 1 > ?
alias              set and display aliases command
boot               boot up an external process
break              set/show/clear the breakpoint
confreg            configuration register utility
cont               continue executing a downloaded image
context            display the context of a loaded image
dev                list the device table
dir                list files in file system
dis                disassemble instruction stream
dnld               serial download a program module
frame              print out a selected stack frame
help               monitor builtin command help
history            monitor command history
meminfo            main memory information
repeat             repeat a monitor command
reset              system reset
set                display the monitor variables
stack              produce a stack trace
sync               write monitor environment to NVRAM
sysret             print out info from last system return
unalias            unset an alias
unset              unset a monitor variable
rommon 2 >
```

Note: The ROMmon command-line interface (CLI) lists a **dnld** command. The Cisco LightStream 1010 ATM switch does not support Xmodem download. The **dnld** command still exists from the Cisco IOS branch that ported it.

If the image in bootflash becomes corrupt and your ATM switch goes into ROMmon, you can manually boot from a network file. Issue the **boot** command.

Note: For more information on how to manually boot from a network file, refer to the document Rebooting.

The only other recovery method is to use a PC card. Cisco platforms support three flash memory file system types: Class A, Class B, and Class C. The LightStream 1010 and Catalyst 8500 series use a Class A file system. If you do not have a PC card in your ATM switch, you can use a card from one of these platforms, which also use a Class A file system and format:

- Route Switch Module (RSM) from the Catalyst 5000
- Gigabit Switch Router (GSR) Route Processor (GRP)
- Cisco 7500 series Route Switch Processor (RSP) 2, 4, or 8
- Cisco 7000 series RSP (RSP7000)

Use the document PCMCIA Filesystem Compatibility Matrix and Filesystem Information to confirm that the PC card in use is from a platform with the same file system.

You can format the PC card for your ATM switch in other RSP-based systems or in an ATM switch that operates. After you format the PC card, copy the appropriate image to the card via the **copy tftp slot0:** command or a similar command. Then, move the PC card back to the ATM switch PC card slot.

Use these steps to boot an image from a PC card slot:

1. Issue the **dev** command to determine the device names of the PC card slots.

```
rommon 18 > dev
Devices in device table:
        id  name
bootflash:  boot flash
    slot0:  PCMCIA slot 0
    slot1:  PCMCIA slot 1
    eprom:  eprom
```

2. Issue the **dir** command to view the files on your PC card.

```
rommon 19 > dir
usage: dir <device>
rommon 20 > dir slot0:
         File size         Checksum   File name
   401756 bytes (0x80335c) 0x2a290d95 cat8540m-wp-mz_120-10_W5_18c.bin
```

3. Issue the **boot** command and specify a PC card slot number and a Cisco IOS image name.

```
rommon 21 > boot slot0:cat8540m-wp-mz_120-10_W5_18c.bin
Self decompressing the image : ######################
########################################################
########################################################
########################################################
#################################################

   PRIMARY CPU:
Booting on Mar 23 2001 13:10:06

 Cat8540 Diagnostics V1.4, Dated Aug 19 2000 00:54:12
 Model ACTIVE CPU-Card, Serial# MIC025006YD, H/W V5.5
```

```
 Copyright (c) Cisco Systems Inc.  1999

.....................................

Power-on Diagnostics Passed.
Reading cubi version..Done
```

In rare cases, you see these error messages:

```
rommon 20 > dir slot0:
PCMCIA slot0 device is not initialized
open: read error...requested 0x4 bytes, got 0x0
trouble reading device magic number
dir: cannot open device "slot0:"
```

These messages indicate that ROMmon detected a bad checksum or one that ROMmon did not expect when you issued the **directory** command. To fix the problem, try these:

- Read the PC card in another system.
- Swap the PC card with a known good card from another system.
- If necessary, reformat the card on a system that operates and copy the appropriate image to the card via the **copy tftp slot0:** command or a similar command. Move the PC card back to the ATM switch PC card slot.

Class A File System Commands

The methods you use to erase, delete, and recover files depend on the class of the file system. Class A file systems support these file management commands:

- **delete**—"Marks" files as deleted, but the files still occupy space in flash memory. Issue the **undelete** command to recover these files later.
- **squeeze**—Permanently removes all the files with the "deleted" mark from the specific flash memory device. You can no longer recover these files. The squeeze operation can take several minutes if the erase and rewrite of most of the flash memory space on a PC card is necessary.
- **format**—Erases all the files on a flash device.
- **verify**—Recomputes and verifies the checksum of a file in flash memory.

Related Information

- **Loading and Maintaining System Images**
- **Cisco IOS Configuration Fundamentals Configuration Guide, Release 12.2**
- **Rebooting**
- **Technical Support - Cisco Systems**