CHAPTER 5

Loading the MWAM

Note Typically, the MWAM is already pre-loaded with the necessary images.

This chapter describes the procedures required to load/upgrade the MWAM to the latest version of the MWAM image:

- Supervisor Image Pre-requisite, page 5-2
- MWAM Images, page 5-2
- Image Loading Process, page 5-2
- Upgrading AP and MP Images, page 5-3
- Upgrading the ROMMON Image, page 5-11
- Booting the Application Image, page 5-12

Supervisor Image Pre-requisite

The Supervisor Engine 2 must have a Cisco IOS image [Cisco IOS 12.2(14)ZA or higher] that supports the application image on the MWAM. The latest image is available from the Cisco Software Center at:

http://www.cisco.com/cgi-bin/tablebuild.pl/ssg

For more information on the Supervisor Engine 2 for the MWAM, refer to the following publications:

http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/relnotes/

MWAM Images

As described earlier in the "MWAM Ordering Information" section on page 1-2, the MWAM comes from manufacturing in one of two product types:

- WS-SVC-MWAM-1—Pre-loaded with an application image (no loading is necessary unless you want to load a later version of the application software). Two options are available:
  - MEM-MWAM-512MB—Standard option for 512 MB memory per MWAM processor
  - MEM-MWAM-1GB—Option for 1 GB memory per MWAM processor
- SC-SVC-NAP-1.0—No application (NOAP) image (application image must be loaded)

Image Loading Process

Perform the following procedure if you have a NOAP MWAM or if you want to upgrade your MWAM images to a later version.

Note The NOAP MWAM is not operational until you download an AP image from the Cisco Software Center.

Note The pre-loaded MWAM already has the necessary images; therefore, the download procedure is required *only* when you want to upgrade the images to a later version.

The image loading process requires the following basic steps:

1. Boot the MWAM from the MP.
2. Copy the AP image to the compact flash (cf) card.
3. Reset the MWAM to the AP (to load the application image).
4. Copy the MP image to the compact flash card.

The image upgrade process loads the application image onto the three MWAM processor complexes.

Upgrading AP and MP Images

The compact flash on the MWAM has two bootable partitions: application partition (AP) and maintenance partition (MP). By default, the application partition boots every time. The application partition contains the binaries necessary to run the MWAM. The maintenance partition is booted if you need to upgrade the application partition.

You can upgrade both the application software and the maintenance software. However, you are not required to upgrade both images at the same time.

The entire application and maintenance partitions are stored on the FTP or TFTP server. The images are downloaded and extracted to the application partition or maintenance partition depending on which image is being upgraded.

To upgrade the application partition, change the boot sequence to boot the module from the maintenance partition. To upgrade the maintenance partition, change the boot sequence to boot the module from the application partition. Set the boot sequence for the module using the supervisor engine CLI commands. The maintenance partition downloads and installs the application image. The supervisor engine must be executing the run-time image to provide network access to the maintenance partition.

Before starting the upgrade process, you will need to download the application partition image or maintenance partition image from the TFTP server.

Note An AP upgrade will always upgrade an IOS image, whether it is a different version or not. However a ROMMON image will only be upgraded using **upgrade rom-monitor** command from the IOS login (**copy ... <slot>-fs:** command only updates the ROMMON image stored in the compactflash which is just an idle copy. It must be again copied to bootflash which is actually used by the processors using additional upgrade commands). For example: a GGSN MWAM image bundle like **c6svc6fmwam-g8is-mz.12.3(14)T** is made up of three components:

a.) Linux image running on processor 1. Version 2.1(2.0)

b.) IOS image running on processors 2 and above. Version 12.3(14)T

c.) ROMMON image for processors 2 and above. Version 12.2(11)YS2.

Whenever any of the 3 components change, the version of the image bundle will be different. When you copy an image bundle using **copy .. <slot>-fs:** it will overwrite all these 3 images on the compact flash of the MWAM. Both the Linux image and the IOS image are stored in compact flash and; so, the previous images are overwritten. After a following reset, the images from the new bundle will be used to boot the MWAM. However, the ROMMON is actually available in two places — compact flash and bootflash. The bootflash version is the one used by the processor and can be upgraded only by executing an explicit upgrade **rom-monitor** command. Even though we have a ROMMON image in every bundle, it is rarely changed. For example, the last ROMMON release was in 3/2004 along with AP-2.1(1.0). The same ROMMON has been used with all later image bundles.

NOAP MWAM Upgrade Procedure

The MWAM automatically attempts to boot to the AP when it is initially installed. However, if the card is a NOAP MWAM, it will fail the boot attempt because no application image is loaded. In this case, a message similar to the following is displayed on the console:

```
*May  5 18:03:35.839:SP:oir_disable_notice:slot6:lcp failed to go online
```

To bring the NOAP MWAM back on line, perform the following procedure.

	Command	Purpose
Step 1	`Router# configure terminal`	Enters the configuration mode.
Step 2	`Router(config)# no power enable module slot_number`	Disables power on the MWAM.
Step 3	`Router(config)# boot device module slot_number cf:1`	Forces the MWAM to boot to the maintenance partition (MP) at the next power on.
Step 4	`Router(config)# power enable module slot_number`	Enables power on the MWAM, which then boots to the MP.
Step 5	`Router(config)# no boot device module slot_number cf:1`	Enables the MWAM to boot to the default partition (AP) at the next boot cycle.

The NOAP MWAM can now be loaded using the "Standard Upgrade Procedures" that follow.

Standard Upgrade Procedures

The standard upgrade procedures available for the MWAM are listed in Table 5-1.

Table 5-1 Standard Upgrade Procedures

Upgrade Procedure	Description
AP Upgrade Procedure, page 5-5	Upgrades an application image to the latest available version. This procedure is performed from the MP and requires resetting the module.
MP Upgrade Procedure, page 5-7	Rarely used, this procedure upgrades the maintenance partition. Use this procedure only when instructed.
Inline IOS Image Upgrade Procedure, page 5-8	Uses an IOS-only image to upgrade an application. This procedure is performed from the AP and significantly reduces the down time associated with module resets. It is also called the fast upgrade procedure.

AP and MP Upgrades

The AP and MP upgrade procedures involve upgrading the AP and MP images on the compact flash of the MWAM. You upgrade one partition from the other partition. Usually, you upgrade the AP from the MP, then upgrade the MP from the AP. You upgrade the AP or MP to use new features or fixes.

Inline IOS Image Upgrade

The inline IOS image upgrade procedure, also called the fast upgrade procedure, is similar to the AP upgrade in that both procedures upgrade the image used by the application. However, because this procedure is performed from the AP, you are not required to reset the module. After the upgrade, you must reload each MWAM processor to activate the images. This procedure significantly reduces the amount of down time associated with module resets.

Upgrade Notes

Read the upgrade notes before performing these procedures. (For an explanation of the MP and AP software, see the "MWAM Software" section on page 1-8.)

- Use the **hw-module module** *slot_number* **reset cf:1** command to switch to the MP. In the MP mode, the processor complexes do not fully initialize and cannot run the IOS image. The main purpose for operating in the MP mode is to upgrade the AP image.
- Use the **hw-module module** *slot_number* **reset** command to switch to the AP. This is the normal operating mode.
- The **show module** command displays the software version of the partition image you are running. If you are running the AP image, **show module** displays the AP image version. If you are running the MP image, the MP image version displays.
- The MWAM images use the following formats:
  - The MP image: *mp.2-1-0-11.bin.gz* (example)
  - The AP image: *c6svc-5mwam-g4js-bf21_10.123-5a.B* (example)
  - The inline IOS image: *c6svc-mwam-g4js-bi21_10.123-5a.B* (example)

AP Upgrade Procedure

Note The total time to download an application image can be up to 30 minutes.

To upgrade an application image to the latest available version, first locate the image in the Software Center at Cisco.com:

http://www.cisco.com/cgi-bin/tablebuild.pl/ssg

Caution Cisco recommends that you globally configure the **logging console** command on the Supervisor module to display the output details of the upgrade procedure.

To upgrade the application image, perform the following tasks:

	Command	Purpose
Step 1	`Sup-7600# hw-module module slot_number reset cf:1`	Reset the MP on the MWAM (this takes about 3 minutes). **Note** Skip this step if you are already running the MP image.
Step 2	`Sup-7600# show module slot_number`	Verify that the MP has booted and MWAM status is OK.
Step 3	`Sup-7600# copy tftp://path/filename pclc#slot-fs:`	Copy the AP image to the compact flash. **Note** Copy operation could last several minutes.
Step 4	`Sup-7600# show module slot_number`	Monitor the copy process and verify that the module is on line (OK) before proceeding.

	Command	Purpose
Step 5	Sup-7600# **hw-module module** *slot_number* **reset**	Reset the MWAM to the AP. **Note** You must be running the AP image to perform the MP upgrade procedure.
Step 6	Sup-7600# **show module** *slot_number*	Verify that the AP image you copied is displayed in the output.

The following example shows how to upgrade the AP image:

AP Upgrade Example

```
Sup-7606# hw-module module 4 reset cf:1
Device BOOT variable for reset = <cf:1>
Warning:Device list is not verified.<<<<<<<<<<<< This message is informational.

Proceed with reload of module? [confirm]

% reset issued for module 4

Sup-7606# show module 4
.
. Following output displays MP image version because MWAM is reset to MP (cf:1)
.
Mod MAC addresses                          Hw    Fw           Sw            Status
--- ------------------------------------ ------ ------------ ------------ -------
 4  0010.7b00.0c98 to 0010.7b00.0c9f   0.301 7.2(1)       2.1(0.11)m   Other
.
.
.
Sup-7606# copy tftp://mwamimages/ap/c6svc-5mwam-g4js-bf21_10.123-5a.B pclc#4-fs:
Upgrade has started
Do not reset the card till upgrade is complete
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

[OK - 29048727/58096640 bytes]

29048727 bytes copied in 1230.204 secs (23616 bytes/sec)
Sup-7606#
2d21h: %SVCLC-SP-5-STRRECVD: mod 4: <Application upgrade has started>
2d21h: %SVCLC-SP-5-STRRECVD: mod 4: <Do not reset the module till upgrade completes!!>
Sup-7606#

2d21h: %SVCLC-SP-5-STRRECVD: mod 4: <Application upgrade has succeeded>
2d21h: %SVCLC-SP-5-STRRECVD: mod 4: <You can now reset the module

Sup-7606# show module 4
.
.
.
Mod MAC addresses                          Hw    Fw           Sw            Status
--- ------------------------------------ ------ ------------ ------------ -------
 4  0010.7b00.0c98 to 0010.7b00.0c9f   0.301 7.2(1)       2.1(0.11)m   OK
.
.
.
Sup-7606# hw-module module 4 reset <<<<< Resets MWAM to AP
Device BOOT variable for reset = <cf:4>
Proceed with reload of module? [confirm]
```

```
% reset issued for module 4
SP:The PC in slot 4 is shutting down. Please wait ...
SP:PC shutdown completed for module 4
%C6KPWR-SP-4-DISABLED:power to module in slot 4 set off (Reset)
%C6KPWR-SP-STDBY-4-DISABLED:power to module in slot 4 set off (Reset)
%DIAG-SP-3-NO_TEST:Module 4:No test to run
%OIR-SP-6-INSCARD:Card inserted in slot 4, interfaces are now online
```

MP Upgrade Procedure

Caution Perform the MP upgrade procedure only when directed by Cisco TAC personnel.

The MP image rarely requires upgrading. If you are instructed to update the MP, perform the following tasks:

	Command	Purpose
Step 1	Router# **copy tftp://***path***/***filename* **pclc#***slot***-fs:**	Copy the MP image to the compact flash. **Note** You must be running the AP image to perform this step.
Step 2	Router# **show module** *slot_number*	Monitor the copy process and verify that the module is on line (OK) before proceeding.
Step 3	Router# **hw-module module** *slot_number* **reset cf:1**	Reset the MWAM to the MP.
Step 4	Router# **show module** *slot_number*	Verify that the MP image you copied is displayed in the output.
Step 5	Router# **hw-module module** *slot_number* **reset**	Reset the MWAM to the AP.

The following example shows how to upgrade the MP image:

MP Upgrade Example

```
Sup-7606# copy tftp://mwamimages/mp/mp.2-1-0-11.bin.gz pclc#4-fs:

Accessing tftp://mwamimages/mp/mp.2-1-0-11.bin.gz...
Loading mwamimages/mp/mp.2-1-0-11.bin.gz from 10.69.1.129 (via Vlan172):!
OOO!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!


10300959 bytes copied in 124.360 secs (82832 bytes/sec)
Sup-7606#

3d19h:%SVCLC-SP-5-STRRECVD:mod 4:<Upgrade of MP was successful.>
3d19h:%SVCLC-SP-5-STRRECVD:mod 4:<You can now reset the module>

Sup-7606# show module 4
.
. Following output shows AP image version because MWAM is reset to AP (cf:4)
.
```

```
Mod Ports Card Type                                Model              Serial No.
--- ----- ---------------------------------------- ------------------ -----------
  4     3  MWAM Module                             WS-SVC-MWAM-1      SAD063703NL

Mod MAC addresses                          Hw     Fw           Sw           Status
--- ------------------------------------ ------ ------------ ------------ -------
  4  0010.7b00.0c98 to 0010.7b00.0c9f   0.301 7.2(1)       1.2(2.1)     Ok

Sup-7606# hw-module module 4 reset cf:1
Device BOOT variable for reset = <cf:1>
Warning:Device list is not verified.<<<<<<<<<<<< This message is informational.

Proceed with reload of module? [confirm]

% reset issued for module 4

Sup-7606# show module 4
.
. Following output shows MP image version because MWAM is reset to MP (cf:1)
.
Mod MAC addresses                          Hw     Fw           Sw           Status
--- ------------------------------------ ------ ------------ ------------ -------
 4  0010.7b00.0c98 to 0010.7b00.0c9f   0.301 7.2(1)       2.1(0.11)m   Other
.
.
.
Sup-7606# hw-module module 4 reset <<<<< Resets MWAM to AP (normal operation)
Device BOOT variable for reset = <cf:4>
Proceed with reload of module? [confirm]

% reset issued for module 4
SP:The PC in slot 4 is shutting down. Please wait ...
SP:PC shutdown completed for module 4
%C6KPWR-SP-4-DISABLED:power to module in slot 4 set off (Reset)
%C6KPWR-SP-STDBY-4-DISABLED:power to module in slot 4 set off (Reset)
%DIAG-SP-3-NO_TEST:Module 4:No test to run
%OIR-SP-6-INSCARD:Card inserted in slot 4, interfaces are now online
```

Inline IOS Image Upgrade Procedure

This feature was introduced in IOS release 12.3(5a)B.

The "AP Upgrade Procedure" section on page 5-5 requires you to reset the MWAM, upgrade the image, then reset the module again. The inline IOS image upgrade, also called the fast upgrade, allows you to upgrade an IOS image without resetting the module. You must still reset each MWAM processor to load its image.

To upgrade an IOS image to the latest available version, first locate the image in the Software Center at Cisco.com:

http://www.cisco.com/cgi-bin/tablebuild.pl/ssg

Note The inline IOS image also includes a ROMMON image.

To upgrade the IOS image using this procedure, perform the following tasks:

	Command	Purpose
Step 1	`Sup-7606#` **`copy tftp://`***`path`***`/`***`filename`* **`pclc#`***`slot`***`-fs:`**	Copy the IOS-only image to the compact flash. **Note** You must be running the AP image to perform this step.
Step 2	`Sup-7606#` **`show module`** *`slot_number`*	Monitor the copy process and verify that the module is on line (OK) before proceeding.
Step 3	`root@mwam-5#` **`reload all`**	Session down to the PC and issue the **reload all** command. **Note** Alternatively, you can reset the MWAM using **hw-module module** *slot_number* **reset** command to load the new image on all the processors.
Step 4	`root@mwam-5#` **`show images`**	Show the images on the processor.
Step 5	`root@mwam-5#` **`show version`**	Show the image version.

The following example shows how to perform an inline IOS upgrade:

Inline IOS Upgrade Example

```
Sup-7606# copy tftp://mwamimages/ios/c6svc-5mwam-g4js-bi21_10.123-5a.B.bin pclc#5-fs:

Destination filename [svcmwam-js-mz.geo_t_040205.bin]?


Accessing tftp://mwamimages/ios/svcmwam-js-mz.geo_t_040205.bin...


Loading mwamimages/ios/svcmwam-js-mz.geo_t_040205.bin from 10.102.16.25 (via Vlan1):
!OOO!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!


[OK - 11549631 bytes]


11549631 bytes copied in 107.552 secs (107386 bytes/sec)


Sup-7606#
2w1d: %SVCLC-SP-5-STRRECVD: mod 5: <Application upgrade has started>
2w1d: %SVCLC-SP-5-STRRECVD: mod 5: <Do not reset the module till upgrade completes!!>
2w1d: %SVCLC-SP-5-STRRECVD: mod 5: <Configuring svcmwam-js-mz.geo_t_040205>
2w1d: %SVCLC-SP-5-STRRECVD: mod 5: <Application upgrade has succeeded>
2w1d: %SVCLC-SP-5-STRRECVD: mod 5: <You can now reset the module>

Sup-7606#
Sup-7606# show module 5
.
```

```
.
Mod MAC addresses                         Hw    Fw           Sw           Status
--- ------------------------------------ ------ ------------ ------------ -------
 4  0010.7b00.0c98 to 0010.7b00.0c9f   0.301 7.2(1)       2.1(0.11)m   Other
.
.
.
Sup-7606#session slot 5 processor 1
The default escape character is Ctrl-^, then x.
You can also type 'exit' at the remote prompt to end the session
Trying 127.0.0.91 ... Open


SVCMWAM Image version 2.1(0.1b)
Tue Oct 14 11:04:43 EDT 2003
Copyright (c) 2002-2003 by cisco Systems, Inc.
All rights reserved.
Kernel 2.4.10.komodo on an i686
login: root
Password:

SVCMWAM Image version 2.1(0.1b)
Tue Oct 14 11:04:43 EDT 2003
Copyright (c) 2002-2003 by cisco Systems, Inc.
All rights reserved.


SVCMWAM Image version 2.1(0.1b)
Tue Oct 14 11:04:43 EDT 2003
Copyright (c) 2002-2003 by cisco Systems, Inc.
All rights reserved.


root@mwam-5# reload all

root@mwam-5# show images
Device name Partition#  Image name
-----------------------------
Compact flash(cf)6     SIMPSON_RAM.bin
Version Information:Compiled Tue 19-Aug-03 13:35 by dchih
Compact flash(cf)6
svcmwam-g4js-mz.123-7.3.T
Version Information:
Compiled Wed 11-Feb-04 21:26 by eaarmas$

AP software is c6svc-5mwam-g4js-bi21_10.123-5a.B

root@mwam-5# show version

SVCMWAM Image version 2.1(0.3b)
Thu Feb 19 05:30:06 EST 2004
Copyright (c) 2002-2003, 2004 by cisco Systems, Inc.
All rights reserved.

AP software is c6svc-5mwam-g4js-bi21_10.123-5a.B
AP software is based upon Maintenance image version:3.1(0.2)
IOS Software is svcmwam-g4js-mz.123-7.3.T
6 Processor Configuration

Line Card Number :WS-SVC-MWAM-1
Number of Pentium-class Processors :      1
BIOS Vendor:Phoenix Technologies Ltd.
BIOS Version:4.0-Rel 6.0.4
Total available memory:500 MB
```

```
Size of compact flash:122 MB

root@mwam-5#
```

Reverting to Previous IOS Image

If you decide to revert to the previous IOS image, establish a session to the processor control complex, log in as root, and run the following command:

```
root@mwam-5# restore ios
Restoring image
Restoring configuration files
Operation completed successfully
root@mwam-5#
```

This action restores the previous IOS image. You must then reload the MWAM processor(s) to activate the image.

Note You can revert to the previous image only if you have not reset or rebooted the MWAM. The previous IOS image is in temporary storage. If the MWAM has been reset/rebooted, the previous image is no longer available.

Upgrading the ROMMON Image

After downloading/upgrading the application image, you may need to upgrade the ROMMON images on each processor complex.

Note The ROMMON image is bundled with the application image. Upgrade the ROMMON image only when required. Refer to the release note for your application to determine if a ROMMON upgrade is required.

To upgrade the ROMMON image, perform the following tasks from the appropriate console:

	Command	Purpose
Step 1	`Sup-7606# enable`	Enters privileged EXEC mode.
Step 2	`Sup-7606# session slot` *slot_number* `processor` *processor_number (2-6)*	Establishes a session to an MWAM processor. **Note** When you session to one processor on a complex, both processors on the complex will be upgraded (see Table 1-2 on page 1-5 for processor-to-complex mapping.)
Step 3	`Proc-4-2# upgrade rom-monitor`	Gets the ROMMON image (from the compact flash card) for the processor complex.
Step 4	Repeat above steps for each processor complex.	Loads the ROMMON image on all complexes.
Step 5	`Sup-7606# hw-module module` *slot_number* `reset`	Resets the MWAM to upgrade the ROMMON images on the module.

The following example shows how to perform a ROMMON image upgrade:

ROMMON Image Upgrade Example

```
Sup-7606# enable
Sup-7606# session slot 4 processor 2
The default escape character is Ctrl-^, then x.
You can also type 'exit' at the remote prompt to end the session
Trying 127.0.0.42 ... Open <<<<< last part of address indicates slot 4, processor 2

Proc-4-2#



Press RETURN to get started!

Proc-4-2#upgrade rom-monitor
MWAM: ROMMON image upgrade in progress.
Loading SIMPSON_RAM.bin from 128.0.1.1 (via GigabitEthernet0/1):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 190592/380928 bytes]
MWAM: Erasing FUR Region.
MWAM: Programming Flash.
MWAM: Verifying new ROMMON image.
MWAM: ROMMON image upgrade complete.
MWAM: The card must be reset for this to take effect.

~Upgrade commands and output for processors 4 and 6 elided~

Sup-7606# hw-module module 4 reset
Device BOOT variable for reset = <cf:4>
Proceed with reload of module? [confirm]

% reset issued for module 4
SP:The PC in slot 4 is shutting down. Please wait ...
SP:PC shutdown completed for module 4
%C6KPWR-SP-4-DISABLED:power to module in slot 4 set off (Reset)
%C6KPWR-SP-STDBY-4-DISABLED:power to module in slot 4 set off (Reset)
%DIAG-SP-3-NO_TEST:Module 4:No test to run
%OIR-SP-6-INSCARD:Card inserted in slot 4, interfaces are now online
```

Booting the Application Image

The Application Partition (AP) is specific to each MWAM and stores a Cisco IOS application image for the processors on the MWAM. By default, the MWAM boots to the application image when initially powered on.

To boot the application image manually, use the following command:

	Command	Purpose
Step 1	`Sup-7606# enable`	Enters privileged EXEC mode.
Step 2	`Sup-7606# hw-module module` *slot_number* `reset`	Reboots the MWAM.

For example, if you have an MWAM installed in slot 4, you would enter the following commands:

```
Sup-7606# enable
Sup-7606# hw-module module 4 reset
Device BOOT variable for reset = <cf:4>
```

```
Proceed with reload of module? [confirm]

% reset issued for module 4
SP:The PC in slot 4 is shutting down. Please wait ...
SP:PC shutdown completed for module 4
%C6KPWR-SP-4-DISABLED:power to module in slot 4 set off (Reset)
%C6KPWR-SP-STDBY-4-DISABLED:power to module in slot 4 set off (Reset)
%DIAG-SP-3-NO_TEST:Module 4:No test to run
%OIR-SP-6-INSCARD:Card inserted in slot 4, interfaces are now online
```