



# CHAPTER 13

## Upgrading, Downgrading, and Installing System Images

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This chapter describes how to upgrade, downgrade, and install system images. It contains the following sections:

- [Overview, page 13-1](#)
- [Upgrading the Sensor, page 13-2](#)
- [Configuring Automatic Upgrades, page 13-6](#)
- [Downgrading the Sensor, page 13-9](#)
- [Recovering the Application Partition, page 13-9](#)
- [Installing System Images, page 13-11](#)



### Caution

The BIOS on Cisco IDS/IPS sensors is specific to Cisco IDS/IPS sensors and must only be upgraded under instructions from Cisco with BIOS files obtained from the Cisco website. Installing a non-Cisco or third-party BIOS on Cisco IDS/IPS sensors voids the warranty. For more information on how to obtain instructions and BIOS files from the Cisco website, see [Obtaining Cisco IPS Software, page 12-1](#).

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## Overview



### Note

After you upgrade any IPS software on your sensor, you must restart the IDM to see the latest software features.

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You can upgrade and downgrade the software on the sensor. Upgrading applies a service pack, signature update, minor version, major version, or recovery partition file. Downgrading removes the last applied upgrade from the sensor.



### Caution

You cannot use the **downgrade** command to go from 5.x to 4.x. To revert to 4.x, you must reimage the sensor.

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You can recover the application partition image on your sensor if it becomes unusable. Using the **recover** command lets you retain your host settings while other settings revert to the factory defaults.

To install a new system image on the sensor, use the recovery /upgrade CD, ROMMON, the bootloader/helper file, or the maintenance partition depending on which platform you have.

When you install a new system image on your sensor, all accounts are removed and the default cisco account is reset to use the default password **cisco**. After installing the system image, you must initialize the sensor again. For the procedure, see [Initializing the Sensor, page 1-4](#).

After you reimage and initialize your sensor, upgrade your sensor with the most recent service pack, signature update, minor version, major version, and recovery partition file. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

## Upgrading the Sensor

This section explains how to use the **upgrade** command to upgrade the software on the sensor. It contains the following topics:

- [Overview, page 13-2](#)
- [Upgrade Command and Options, page 13-3](#)
- [Using the Upgrade Command, page 13-3](#)
- [Upgrading the Recovery Partition, page 13-5](#)

## Overview

You can upgrade the sensor with the following files, all of which have the extension .pkg:



### Note

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Upgrading the sensor changes the software version of the sensor.

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Cisco IPS 5.1(1) through 5.1(4):

- Signature updates, for example, IPS-sig-S150-minreq-5.1-1.pkg
- Major updates, for example, IPS-K9-maj-6.0-1-pkg
- Minor updates, for example, IPS-K9-min-5.1-1.pkg
- Service packs, for example, IPS-K9-sp-5.1-2.pkg
- Recovery packages, for example, IPS-K9-r-1.1-a-5.1-1.pkg

Cisco IPS 5.1(5)E1 and later:

- Signature updates, for example, IPS-sig-S700-req-E1.pkg
- Signature engine updates, for example, IPS-engine-E1-req-5.1-3.pkg
- Major updates, for example, IPS-K9-5.1-1-E1.pkg
- Minor updates, for example, IPS-K9-5.1-1-E1.pkg
- Service packs, for example, IPS-K9-5.1-3-E1.pkg
- Patch releases, for example, IPS-K9-patch-5.1-1pl-E1.pkg
- Recovery packages, for example, IPS-K9-r-1.1-a-5.1-1-E1.pkg

## Upgrade Command and Options

Use the **auto-upgrade-option enabled** command in the service host submode to configure automatic upgrades.

The following options apply:

- **default**— Sets the value back to the system default setting.
- **directory**— Directory where upgrade files are located on the file server.  
A leading '/' indicates an absolute path.
- **file-copy-protocol**— File copy protocol used to download files from the file server. The valid values are **ftp** or **scp**.



### Note

If you use SCP, you must use the **ssh host-key** command to add the server to the SSH known hosts list so the sensor can communicate with it through SSH. For the procedure, see [Defining Known Host Keys, page 2-10](#).

- **ip-address**— IP address of the file server.
- **password**— User password for authentication on the file server.
- **schedule-option**— Schedules when automatic upgrades occur. Calendar scheduling starts upgrades at specific times on specific days. Periodic scheduling starts upgrades at specific periodic intervals.
  - **calendar-schedule**— Configure the days of the week and times of day that automatic upgrades will be performed.
    - days-of-week**— Days of the week on which auto-upgrades will be performed. You can select multiple days: *sunday* through *saturday* are the valid values.
    - no**— Removes an entry or selection setting.
    - times-of-day**— Times of day at which auto-upgrades will begin. You can select multiple times. The valid value is *hh:mm[:ss]*.
  - **periodic-schedule**— Configure the time that the first automatic upgrade should occur, and how long to wait between automatic upgrades.
    - interval**— The number of hours to wait between automatic upgrades. Valid values are 0 to 8760.
    - start-time**— The time of day to start the first automatic upgrade. The valid value is *hh:mm[:ss]*.
- **user-name**— Username for authentication on the file server.

## Using the Upgrade Command

To upgrade the sensor, follow these steps:

- Step 1** Download the major update file (for example, IPS-K9-6.0-2-E1.pkg) to an FTP, SCP, HTTP, or HTTPS server that is accessible from your sensor.



### Note

You must log in to Cisco.com using an account with cryptographic privileges to download the file. Do not change the file name. You must preserve the original file name for the sensor to accept the update.

For the procedure for locating software on Cisco.com and using an account with cryptographic privileges, see [Obtaining Cisco IPS Software, page 12-1](#).

**Step 2** Log in to the CLI using an account with administrator privileges.

**Step 3** Enter configuration mode:

```
sensor# configure terminal
```

**Step 4** Upgrade the sensor:

```
sensor# configure terminal
sensor(config)# upgrade scp://tester@10.1.1.1//upgrade/IPS-K9-6.0-2-E1.pkg
```

**Step 5** Enter the password when prompted:

```
Enter password: *****
Re-enter password: *****
```

**Step 6** Type **yes** to complete the upgrade.



**Note** Major and minor updates and service packs may force a restart of the IPS processes or even force a reboot of the sensor to complete installation.

**Step 7** Verify your new sensor version:

```
sensor# show version
Application Partition:

Cisco Intrusion Prevention System, Version 6.0(2)E1

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S280.0          2007-04-11
  Virus Update        V1.2           2005-11-24
OS Version:          2.4.30-IDS-smp-bigphys
Platform:             IPS-4260
Serial Number:        AZBW5470042
No license present
Sensor up-time is 2 days.
Using 1897000960 out of 3569864704 bytes of available memory (53% usage)
system is using 17.8M out of 29.0M bytes of available disk space (61% usage)
application-data is using 43.8M out of 166.8M bytes of available disk space (28%
usage)
boot is using 37.9M out of 69.5M bytes of available disk space (57% usage)

MainApp      2007_MAR_29_14_06   (Release)   2007-03-29T14:44:36-0600   Running
AnalysisEngine 2007_MAR_29_14_06   (Release)   2007-03-29T14:44:36-0600   Running
CLI          2007_MAR_29_14_06   (Release)   2007-03-29T14:44:36-0600
```

Upgrade History:

IPS-K9-6.0-2-E1 14:06:00 UTC Thu Mar 29 2007

Recovery Partition Version 1.1 6.0(2)E1

sensor#

## Upgrading the Recovery Partition

Use the **upgrade** command to upgrade the recovery partition with the most recent version so that it is ready if you need to recover the application partition on your sensor.



### Note

Recovery partition images are generated for major and minor software releases and only in rare situations for service packs or signature updates.



### Note

To upgrade the recovery partition the sensor must already be running version 5.0(1) or later.

To upgrade the recovery partition on your sensor, follow these steps:

- Step 1** Download the recovery partition image file (IPS-K9-r-1.1-a-5.0-1-E1.pkg) to an FTP, SCP, HTTP, or HTTPS server that is accessible from your sensor.

For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).



### Caution

Some browsers add an extension to the filename. The filename of the saved file must match what is displayed on the download page or you cannot use it to upgrade the recovery partition.

- Step 2** Log in to the CLI using an account with administrator privileges.

- Step 3** Enter configuration mode:

```
sensor# configure terminal
```

- Step 4** Upgrade the recovery partition:

```
sensor(config)#
```

```
upgrade scp://user@server_ipaddress//upgrade_path/IPS-K9-r-1.1-a-5.0-1-E1.pkg
```

```
sensor(config)#
```

```
upgrade ftp://user@server_ipaddress//upgrade_path/IPS-K9-r-1.1-a-5.0-1-E1.pkg
```

- Step 5** Type the server password.  
The upgrade process begins.



**Note** This procedure only reimages the recovery partition. The application partition is not modified by this upgrade. To reimage the application partition after the recovery partition, use the **recover application-partition** command. For the procedure, see [Using the Recover Command, page 13-10](#).

## Configuring Automatic Upgrades

This section describes how to configure the sensor to automatically look for upgrades in the upgrade directory. It contains the following topics:

- [Overview, page 13-6](#)
- [Auto-upgrade Command and Options, page 13-6](#)
- [Using the auto-upgrade Command, page 13-7](#)
- [UNIX-Style Directory Listings, page 13-8](#)

### Overview

You can configure the sensor to look for new upgrade files in your upgrade directory automatically.

You must download the software upgrade from Cisco.com and copy it to the upgrade directory before the sensor can poll for automatic upgrades. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

### Auto-upgrade Command and Options

Use the **auto-upgrade-option enabled** command in the service host submode to configure automatic upgrades.

The following options apply:

- **default**— Sets the value back to the system default setting.
- **directory**— Directory where upgrade files are located on the file server.  
A leading '/' indicates an absolute path.
- **file-copy-protocol**— File copy protocol used to download files from the file server. The valid values are **ftp** or **scp**.



**Note** If you use SCP, you must use the **ssh host-key** command to add the server to the SSH known hosts list so the sensor can communicate with it through SSH. For the procedure, see [Defining Known Host Keys, page 2-10](#).

- **ip-address**— IP address of the file server.

- **password**— User password for authentication on the file server.
- **schedule-option**—Schedules when automatic upgrades occur. Calendar scheduling starts upgrades at specific times on specific days. Periodic scheduling starts upgrades at specific periodic intervals.
  - **calendar-schedule**—Configure the days of the week and times of day that automatic upgrades will be performed.
    - days-of-week**—Days of the week on which auto-upgrades will be performed. You can select multiple days: *sunday* through *saturday* are the valid values.
    - no**—Removes an entry or selection setting.
    - times-of-day**—Times of day at which auto-upgrades will begin. You can select multiple times. The valid value is *hh:mm[:ss]*.
  - **periodic-schedule**—Configure the time that the first automatic upgrade should occur, and how long to wait between automatic upgrades.
    - interval**—The number of hours to wait between automatic upgrades. Valid values are 0 to 8760.
    - start-time**—The time of day to start the first automatic upgrade. The valid value is *hh:mm[:ss]*.
- **user-name**—Username for authentication on the file server.

## Using the auto-upgrade Command

To schedule automatic upgrades, follow these steps:

- 
- Step 1** Log in to the CLI using an account with administrator privileges.
- Step 2** Configure the sensor to automatically look for new upgrades in your upgrade directory.
- ```
sensor# configure terminal
sensor(config)# service host
sensor(config-hos)# auto-upgrade-option enabled
```
- Step 3** Specify the scheduling:
- a. For calendar scheduling, which starts upgrades at specific times on specific day:
 

```
sensor(config-hos-ena)# schedule-option calendar-schedule
sensor(config-hos-ena-cal# days-of-week sunday
sensor(config-hos-ena-cal# times-of-day 12:00:00
```
  - b. For periodic scheduling, which starts upgrades at specific periodic intervals:
 

```
sensor(config-hos-ena)# schedule-option periodic-schedule
sensor(config-hos-ena-per)# interval 24
sensor(config-hos-ena-per)# start-time 13:00:00
```
- Step 4** Specify the IP address of the file server:
- ```
sensor(config-hos-ena-per)# exit
sensor(config-hos-ena)# ip-address 10.1.1.1
```
- Step 5** Specify the directory where the upgrade files are located on the file server:
- ```
sensor(config-hos-ena)# directory /tftpboot/update/5.1_dummy_updates
```
- Step 6** Specify the username for authentication on the file server:
- ```
sensor(config-hos-ena)# user-name tester
```

**Step 7** Specify the password of the user:

```
sensor(config-hos-ena)# password
Enter password[]: *****
Re-enter password: *****
```

**Step 8** Specify the file server protocol:

```
sensor(config-hos-ena)# file-copy-protocol ftp
```



**Note** If you use SCP, you must use the **ssh host-key** command to add the server to the SSH known hosts list so the sensor can communicate with it through SSH. For the procedure, see [Defining Known Host Keys, page 2-10](#).

**Step 9** Verify the settings:

```
sensor(config-hos-ena)# show settings
enabled
-----
schedule-option
-----
periodic-schedule
-----
start-time: 13:00:00
interval: 24 hours
-----
ip-address: 10.1.1.1
directory: /tftpboot/update/5.0_dummy_updates
user-name: tester
password: <hidden>
file-copy-protocol: ftp default: scp
-----
sensor(config-hos-ena)#
```

**Step 10** Exit auto upgrade submode:

```
sensor(config-hos-ena)# exit
sensor(config-hos)# exit
Apply Changes?[yes]:
```

**Step 11** Press **Enter** to apply the changes or type **no** to discard them.

## UNIX-Style Directory Listings

To configure Auto Update using an FTP server, the FTP server must provide directory listing responses in UNIX style. MS-DOS style directory listing is not supported by the sensor Auto Update feature.



**Note** If the server supplies MS-DOS style directory listings, the sensor cannot parse the directory listing and does not know that there is a new update available.



To change Microsoft IIS to use UNIX-style directory listings, follow these steps:

- 
- Step 1** Choose **Start > Program Files > Administrative Tools**.
- Step 2** Click the **Home Directory** tab.
- Step 3** Click the **UNIX directory listings style** radio button.
- 

## Downgrading the Sensor

Use the **downgrade** command to remove the last applied upgrade from the sensor.



### Caution

You cannot use the **downgrade** command to go from 5.x to 4.x. To revert to 4.x, you must reimage the sensor.

To remove the last applied upgrade from the sensor, follow these steps:

- 
- Step 1** Log in to the sensor using an account with administrator privileges.
- Step 2** Enter global configuration mode:
- ```
sensor# configure terminal
```
- Step 3** Downgrade the sensor:
- ```
sensor(config)# downgrade
Warning: Executing this command will reboot the system and downgrade to
IPS-K9-sp.5.0-2.pkg. Configuration changes made since the last upgrade will be lost and
the system may be rebooted.
Continue with downgrade?:
```
- Step 4** Type **yes** to continue with the downgrade.
- Step 5** If there is no recently applied service pack or signature update, the **downgrade** command is not available:
- ```
sensor(config)# downgrade
No downgrade available.
sensor(config)#
```
- 

## Recovering the Application Partition

This section explains how to recover the application partition, and contains the following topics:

- [Overview, page 13-10](#)
- [Using the Recover Command, page 13-10](#)

## Overview

You can recover the application partition image for the appliance if it becomes unusable. Some network configuration information is retained when you use this method, which lets you have network access after the recovery is performed.

Use the **recover application-partition** command to boot to the recovery partition, which automatically recovers the application partition on your appliance.

**Note**

If you have upgraded your recovery partition to the most recent version before you recover the application partition image, you can install the most up-to-date software image. For the procedure for upgrading the recovery partition to the most recent version, see [Using the Recover Command, page 13-10](#).

Because you can execute the **recover application-partition** command through a Telnet or SSH connection, we recommend using this command to recover sensors that are installed at remote locations.

**Note**

If the appliance supports it, you can also use the recovery/upgrade CD to reinstall both the recovery and application partitions. For the procedure, see [Using the Recovery/Upgrade CD, page 13-22](#).

**Note**

When you reconnect to the sensor after recovery, you must log in with the default username and password `cisco`.

## Using the Recover Command

To recover the application partition image, follow these steps:

- Step 1** Download the recovery partition image file (IPS-K9-r-1.1-a-5.0-1-E1.pkg) to the tftp root directory of a TFTP server that is accessible from your sensor.

For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

**Note**

Make sure you can access the TFTP server location from the network connected to the Ethernet port of your sensor.

- Step 2** Log in to the CLI using an account with administrator privileges.

- Step 3** Enter configuration mode:

```
sensor# configure terminal
```

- Step 4** Recover the application partition image:

```
sensor(config)# recover application-partition
```

Warning: Executing this command will stop all applications and re-image the node to version 5.0(0.27)S91(0.27). All configuration changes except for network settings will be reset to default.

Continue with recovery? [ ]:

- Step 5** Type **yes** to continue.

Shutdown begins immediately after you execute the **recover** command. Shutdown can take a while, and you will still have access to the CLI, but access will be terminated without warning.

The application partition is reimaged using the image stored on the recovery partition. You must now initialize the appliance with the **setup** command. For the procedure, see [Initializing the Sensor, page 1-4](#).

**Note**

The IP address, netmask, access lists, time zone, and offset are saved and applied to the reimaged application partition. If you executed the **recover application-partition** command remotely, you can SSH to the sensor with the default username and password (cisco/cisco) and then initialize the sensor again with the **setup** command. You cannot use Telnet until you initialize the sensor because Telnet is disabled by default.

If you cannot access the CLI to execute the **recover application-partition** command, you can reboot the sensor and select the option from the boot menu during the bootup process. This lets you boot to the recovery partition and reimage the application partition. Executing the **recovery** command in this way requires console or keyboard and monitor access to the sensor, which is possible on the appliances and NM-CIDS, but not on IDSM-2 or AIP-SSM.

## Installing System Images

This section contains the procedures for installing system images on the appliances and modules. It contains the following topics:

- [Understanding ROMMON, page 13-12](#)
- [TFTP Servers, page 13-12](#)
- [Connecting an Appliance to a Terminal Server, page 13-12](#)
- [Installing the IDS-4215 System Image, page 13-14](#)
- [Upgrading the IDS-4215 BIOS and ROMMON, page 13-16](#)
- [Installing the IPS-4240 and IPS-4255 System Image, page 13-17](#)
- [Installing the IPS-4260 System Image, page 13-20](#)
- [Using the Recovery/Upgrade CD, page 13-22](#)
- [Installing the NM-CIDS System Image, page 13-23](#)
- [Installing the IDSM-2 System Image, page 13-25](#)
- [Installing the AIP-SSM System Image, page 13-36](#)

**Caution**

All user configuration settings are lost when you install the system image. Before trying to recover the sensor by installing the system image, try to recover by using the **recover application-partition** command or by selecting the recovery partition during sensor bootup. For the procedure see [Recovering the Application Partition, page 13-9](#).

## Understanding ROMMON

Some Cisco sensors include a preboot CLI called ROMMON, which lets you boot images on sensors where the image on the primary device is missing, corrupt, or otherwise unable to boot the normal application. ROMMON is particularly useful for recovering remote sensors as long as the serial console port is available.

Access to ROMMON is available only through the serial console port, a Cisco-standard asynchronous RS-232C DTE available in an RJ-45F connector on the sensor chassis. The serial port is configured for 9600 baud, 8 data bits, 1 stop bit, no parity, and no flow control. For the procedure for using a terminal server, see [Connecting an Appliance to a Terminal Server, page 13-12](#).

## TFTP Servers

ROMMON uses TFTP to download an image and launch it. TFTP does not address network issues such as latency or error recovery. It does implement a limited packet integrity check so that packets arriving in sequence with the correct integrity value have an extremely low probability of error. But TFTP does not offer pipelining so the total transfer time is equal to the number of packets to be transferred times the network average RTT. Because of this limitation, we recommend that the TFTP server be located on the same LAN segment as the sensor. Any network with an RTT less than a 100 milliseconds should provide reliable delivery of the image. Be aware that some TFTP servers limit the maximum file size that can be transferred to ~32 MB.

## Connecting an Appliance to a Terminal Server

A terminal server is a router with multiple, low speed, asynchronous ports that are connected to other serial devices. You can use terminal servers to remotely manage network equipment, including appliances.

To set up a Cisco terminal server with RJ-45 or hydra cable assembly connections, follow these steps:

- 
- Step 1** Connect to a terminal server using one of the following methods:
- For IDS-4215, IPS-4240, and IPS-4255:
    - For RJ-45 connections, connect a 180 rollover cable from the console port on the appliance to a port on the terminal server.
    - For hydra cable assemblies, connect a straight-through patch cable from the console port on the appliance to a port on the terminal server.
  - For all other appliances, connect the M.A.S.H. adapter (part number 29-4077-01) to COM1 on the appliance and:
    - For RJ-45 connections, connect a 180 rollover cable from the M.A.S.H. adapter to a port on the terminal server.
    - For hydra cable assemblies, connect a straight-through patch cable from the M.A.S.H. adapter to a port on the terminal server.
- Step 2** Configure the line and port on the terminal server as follows:
- a. In enable mode, enter the following configuration, where # is the line number of the port to be configured:  

```
config t
```

```
line #
login
transport input all
stopbits 1
flowcontrol hardware
speed 9600
exit
exit
wr mem
```

- b. If you are configuring a terminal server for an IDS-4215, IPS-4240, or IPS-4255, go to Step 3. Otherwise, for all other supported appliances, to direct all output to the terminal server, log in to the CLI and enter the following commands:

```
sensor# configure terminal
sensor(config)# display-serial
```

Output is directed to the serial port. Use the **no display-serial** command to redirect output to the keyboard and monitor.

**Note**

You can set up a terminal server and use the **display-serial** command to direct all output from the appliance to the serial port. This option lets you view system messages on a console connected to the serial port, even during the boot process. When you use this option, all output is directed to the serial port and any local keyboard and monitor connection is disabled. However, BIOS and POST messages are still displayed on the local keyboard and monitor. For the procedure, refer to [Directing Output to a Serial Connection](#).

**Note**

There are no keyboard or monitor ports on an IDS-4215, IPS-4240, or IPS-4255; therefore, the **display-serial** and **no display-serial** commands do not apply to those platforms.

**Step 3** Be sure to properly close a terminal session to avoid unauthorized access to the appliance.

If a terminal session is not stopped properly, that is, if it does not receive an exit(0) signal from the application that initiated the session, the terminal session can remain open. When terminal sessions are not stopped properly, authentication is not performed on the next session that is opened on the serial port.

**Caution**

Always exit your session and return to a login prompt before terminating the application used to establish the connection.

**Caution**

If a connection is dropped or terminated by accident, you should reestablish the connection and exit normally to prevent unauthorized access to the appliance.

## Installing the IDS-4215 System Image

You can install the IDS-4215 system image by using the ROMMON on the appliance to TFTP the system image onto the compact flash device.



### Caution

Before installing the system image, you must first upgrade the IDS-4215 BIOS to version 5.1.7 and the ROMMON to version 1.4 using the upgrade utility file IDS-4215-bios-5.1.7-rom-1.4.bin. For the procedure, see [Upgrading the IDS-4215 BIOS and ROMMON, page 13-16](#).

To install the IDS-4215 system image, follow these steps:

**Step 1** Download the IDS-4215 system image file (IPS-4215-K9-sys-1.1-a-5.1-5-E1.img) to the tftp root directory of a TFTP server that is accessible from your IDS-4215. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#). Make sure you can access the TFTP server location from the network connected to your IDS-4215 Ethernet port.

**Step 2** Boot IDS-4215.

**Step 3** Press **Ctrl-R** at the following prompt while the system is booting:

```
Evaluating Run Options...
```



### Note

You have five seconds to press **Ctrl-R**.

The console display resembles the following:

```
CISCO SYSTEMS IDS-4215
Embedded BIOS Version 5.1.7 02/23/04 15:50:39.31
Compiled by dnshep
Evaluating Run Options...
Cisco ROMMON (1.4) #3: Mon Feb 23 15:52:45 MST 2004
Platform IDS-4215

Image Download Memory Sizing
Available Image Download Space: 510MB

0: i8255X @ PCI(bus:0 dev:13 irq:11)
1: i8255X @ PCI(bus:0 dev:14 irq:11)

Using 1: i82557 @ PCI(bus:0 dev:14 irq:11), MAC: 0000.0001.0001
Use ? for help.
rommon>
```

**Step 4** Verify that IDS-4215 is running BIOS version 5.1.7 or later and ROMMON version 1.4 or later.



### Note

If IDS-4215 does not have the correct BIOS and ROMMON versions, you must upgrade the BIOS and ROMMON before reimaging. For the procedure, see [Upgrading the IDS-4215 BIOS and ROMMON, page 13-16](#).

The current versions are shown in the console display information identified in Step 3.

**Step 5** If necessary, change the port used for the TFTP download:

```
rommon> interface port_number
```

The port in use is listed just before the rommon prompt. In the example, port 1 is being used as noted by the text, Using 1: i82557 @ PCI(bus:0 dev:14 irq:11), MAC: 0000.0001.0001.



**Note** The default port used for TFTP downloads is port 1, which corresponds with the command and control interface of IDS-4215.



**Note** Ports 0 (monitoring interface) and 1 (command and control interface) are labeled on the back of the chassis.

**Step 6** Specify an IP address for the local port on IDS-4215:

```
rommon> address ip_address
```



**Note** Use the same IP address that is assigned to IDS-4215.

**Step 7** Specify the TFTP server IP address:

```
rommon> server ip_address
```

**Step 8** Specify the gateway IP address:

```
rommon> gateway ip_address
```

**Step 9** Verify that you have access to the TFTP server by pinging it from the local Ethernet port:

```
rommon> ping server_ip_address
rommon> ping server
```

**Step 10** Specify the path and filename on the TFTP file server from which you are downloading the image:

```
rommon> file path/filename
```

UNIX example:

```
rommon> file /system_images/IPS-4215-K9-sys-1.1-a-5.1-5-E1.img
```



**Note** The path is relative to the UNIX TFTP server's default tftpboot directory. Images located in the default tftpboot directory do not have any directory names or slashes in the file location.

Windows example:

```
rommon> file C:\tftp_directory\IPS-4215-K9-sys-1.1-a-5.1-5-E1.img
```

**Step 11** Download and install the system image:

```
rommon> tftp
```



**Note** IDS-4215 reboots several times during the reimaging process. Do not remove power from IDS-4215 during the update process or the upgrade can become corrupted.

## Upgrading the IDS-4215 BIOS and ROMMON

The BIOS/ROMMON upgrade utility (IDS-4215-bios-5.1.7-rom-1.4.bin) upgrades the BIOS of IDS-4215 to version 5.1.7 and the ROMMON to version 1.4.

To upgrade the BIOS and ROMMON on IDS-4215, follow these steps:

- Step 1** Download the BIOS ROMMON upgrade utility (IDS-4215-bios-5.1.7-rom-1.4.bin) to the TFTP root directory of a TFTP server that is accessible from IDS-4215. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).



**Note** Make sure you can access the TFTP server location from the network connected to the Ethernet port of IDS-4215.

- Step 2** Boot IDS-4215. While rebooting, IDS-4215 runs the BIOS POST. After the completion of POST, the console displays the message: Evaluating Run Options ... for about 5 seconds.

- Step 3** Press **Ctrl-R** while this message is displayed to display the ROMMON menu.

The console display resembles the following:

```
CISCO SYSTEMS IDS-4215
Embedded BIOS Version 5.1.3 05/12/03 10:18:14.84
Compiled by ciscouser
Evaluating Run Options ...
Cisco ROMMON (1.2) #0: Mon May 12 10:21:46 MDT 2003
Platform IDS-4215
0: i8255X @ PCI(bus:0 dev:13 irq:11)
1: i8255X @ PCI(bus:0 dev:14 irq:11)
Using 1: i82557 @ PCI(bus:0 dev:14 irq:11), MAC: 0000.c0ff.ee01
Use ? for help.
rommon>
```

- Step 4** If necessary, change the port number used for the TFTP download:

```
rommon> interface port_number
```

The port in use is listed just before the rommon prompt. Port 1 (default port) is being used as indicated by the text, Using 1: i82557 @ PCI(bus:0 dev:14 irq:11), MAC: 0000.c0ff.ee01.



**Note** Ports 0 (monitoring port) and 1 (command and control port) are labeled on the back of the chassis.

- Step 5** Specify an IP address for the local port on IDS-4215:

```
rommon> address ip_address
```



**Note** Use the same IP address that is assigned to IDS-4215.

- Step 6** Specify the TFTP server IP address:

```
rommon> server ip_address
```

- Step 7** Specify the gateway IP address:

```
rommon> gateway ip_address
```



**Step 8** Verify that you have access to the TFTP server by pinging it from the local Ethernet port:

```
rommon> ping server_ip_address
rommon> ping server
```

**Step 9** Specify the filename on the TFTP file server from which you are downloading the image:

```
rommon> file filename
```

Example:

```
rommon> file IDS-4215-bios-5.1.7-rom-1.4.bin
```



**Note** The syntax of the file location depends on the type of TFTP server used. Contact your system or network administrator for the appropriate syntax if the above format does not work.

**Step 10** Download and run the update utility:

```
rommon> tftp
```

**Step 11** Type **y** at the upgrade prompt and the update is executed.

IDS-4215 reboots when the update is complete.



**Caution**

Do not remove power to IDS-4215 during the update process, otherwise the upgrade can get corrupted. If this occurs, IDS-4215 will be unusable and require an RMA.

## Installing the IPS-4240 and IPS-4255 System Image

You can install the IPS-4240 and IPS-4255 system image by using the ROMMON on the appliance to TFTP the system image onto the compact flash device.



**Note**

This procedure is for IPS-4240, but is also applicable to IPS-4255. The system image for IPS-4255 has “4255” in the filename.

To install the IPS-4240 and IPS-4255 system image, follow these steps:

**Step 1** Download the IPS-4240 system image file (IPS-4240-K9-sys-1.1-a-5.1-5-E1.img) to the tftp root directory of a TFTP server that is accessible from your IPS-4240. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).



**Note**

Make sure you can access the TFTP server location from the network connected to the Ethernet port of your IPS-4240.

**Step 2** Boot IPS-4240. The console display resembles the following:

```
Booting system, please wait...
```

```
CISCO SYSTEMS
```

```
Embedded BIOS Version 1.0(5)0 09/14/04 12:23:35.90
```

```
Low Memory: 631 KB
```

```
High Memory: 2048 MB
```

```
PCI Device Table.
```

| Bus | Dev | Func | VendID | DevID | Class             | Irq |
|-----|-----|------|--------|-------|-------------------|-----|
| 00  | 00  | 00   | 8086   | 2578  | Host Bridge       |     |
| 00  | 01  | 00   | 8086   | 2579  | PCI-to-PCI Bridge |     |
| 00  | 03  | 00   | 8086   | 257B  | PCI-to-PCI Bridge |     |
| 00  | 1C  | 00   | 8086   | 25AE  | PCI-to-PCI Bridge |     |
| 00  | 1D  | 00   | 8086   | 25A9  | Serial Bus        | 11  |
| 00  | 1D  | 01   | 8086   | 25AA  | Serial Bus        | 10  |
| 00  | 1D  | 04   | 8086   | 25AB  | System            |     |
| 00  | 1D  | 05   | 8086   | 25AC  | IRQ Controller    |     |
| 00  | 1D  | 07   | 8086   | 25AD  | Serial Bus        | 9   |
| 00  | 1E  | 00   | 8086   | 244E  | PCI-to-PCI Bridge |     |
| 00  | 1F  | 00   | 8086   | 25A1  | ISA Bridge        |     |
| 00  | 1F  | 02   | 8086   | 25A3  | IDE Controller    | 11  |
| 00  | 1F  | 03   | 8086   | 25A4  | Serial Bus        | 5   |
| 00  | 1F  | 05   | 8086   | 25A6  | Audio             | 5   |
| 02  | 01  | 00   | 8086   | 1075  | Ethernet          | 11  |
| 03  | 01  | 00   | 177D   | 0003  | Encrypt/Decrypt   | 9   |
| 03  | 02  | 00   | 8086   | 1079  | Ethernet          | 9   |
| 03  | 02  | 01   | 8086   | 1079  | Ethernet          | 9   |
| 03  | 03  | 00   | 8086   | 1079  | Ethernet          | 9   |
| 03  | 03  | 01   | 8086   | 1079  | Ethernet          | 9   |
| 04  | 02  | 00   | 8086   | 1209  | Ethernet          | 11  |
| 04  | 03  | 00   | 8086   | 1209  | Ethernet          | 5   |

```
Evaluating BIOS Options ...
```

```
Launch BIOS Extension to setup ROMMON
```

```
Cisco Systems ROMMON Version (1.0(5)0) #1: Tue Sep 14 12:20:30 PDT 2004
```

```
Platform IPS-4240-K9
```

```
Management0/0
```

```
MAC Address: 0000.c0ff.ee01
```

- Step 3** Press **Break** or **Esc** at the following prompt while the system is booting to interrupt boot. Press the spacebar to begin boot immediately.



**Note** You have ten seconds to press **Break** or **Esc**.

```
Use BREAK or ESC to interrupt boot.
```

```
Use SPACE to begin boot immediately.
```

The system enters ROMMON mode. The `rommon>` prompt appears.

- Step 4** Check the current network settings:

```
rommon> set
```

The output on the configured system resembles the following:

```
ROMMON Variable Settings:
  ADDRESS=0.0.0.0
  SERVER=0.0.0.0
  GATEWAY=0.0.0.0
  PORT=Management0/0
  VLAN=untagged
```

```
IMAGE=
CONFIG=
```

The variables have the following definitions:

- Address—Local IP address of IPS-4240
- Server—TFTP server IP address where the application image is stored
- Gateway—Gateway IP address used by IPS-4240
- Port—Ethernet interface used for IPS-4240 management
- VLAN—VLAN ID number (leave as untagged)
- Image—System image file/path name
- Config—Unused by these platforms



**Note** Not all values are required to establish network connectivity. The address, server, gateway, and image values are required. If you are not sure of the settings needed for your local environment, contact your system administrator.

**Step 5** If necessary, change the interface used for the TFTP download:



**Note** The default interface used for TFTP downloads is Management0/0, which corresponds to the MGMT interface of IPS-4240.

```
rommon> PORT=interface_name
```

**Step 6** If necessary, assign an IP address for the local port on IPS-4240:

```
rommon> ADDRESS=ip_address
```



**Note** Use the same IP address that is assigned to IPS-4240.

**Step 7** If necessary, assign the TFTP server IP address:

```
rommon> SERVER=ip_address
```

**Step 8** If necessary, assign the gateway IP address:

```
rommon> GATEWAY=ip_address
```

**Step 9** Verify that you have access to the TFTP server by pinging it from your local Ethernet port with one of the following commands:

```
rommon> ping server_ip_address
rommon> ping server
```

**Step 10** If necessary define the path and filename on the TFTP file server from which you are downloading the image:

```
rommon> IMAGE=path/file_name
```

**Caution**

Make sure that you enter the **IMAGE** command in all uppercase. You can enter the other ROMMON commands in either lower case or upper case, but the **IMAGE** command specifically must be all uppercase.

UNIX example:

```
rommon> IMAGE=/system_images/IPS-4240-K9-sys-1.1-a-5.1-5-E1.img
```

**Note**

The path is relative to the UNIX TFTP server's default tftpboot directory. Images located in the default tftpboot directory do not have any directory names or slashes in the IMAGE specification.

Windows example:

```
rommon> IMAGE=C:\system_images\IPS-4240-K9-sys-1.1-a-5.1-5-E1.img
```

**Step 11** Type **set** and press **Enter** to verify the network settings.

**Note**

You can use the **sync** command to store these settings in NVRAM so they are maintained across boots. Otherwise, you must type this information each time you want to boot an image from ROMMON.

**Step 12** Download and install the system image:

```
rommon> tftp
```

**Caution**

To avoid corrupting the system image, do not remove power from IPS-4240 while the system image is being installed.

**Note**

If the network settings are correct, the system downloads and boots the specified image on IPS-4240. Be sure to use the IPS-4240 image.

## Installing the IPS-4260 System Image

You can install the IPS-4260 system image by using the ROMMON on the appliance to TFTP the system image onto the flash device.

To install the IPS-4260 system image, follow these steps:

**Step 1** Download the IPS-4260 system image file (IPS-4260-K9-sys-1.1-a-5.1-5-E1.img) to the tftp root directory of a TFTP server that is accessible from your IPS-4260. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#). Make sure you can access the TFTP server location from the network connected to your IPS-4260 Ethernet port.

**Step 2** Boot IPS-4260.

**Step 3** Press **Ctrl-R** at the following prompt while the system is booting:

```
Evaluating Run Options...
```



**Note** You have five seconds to press **Ctrl-R**.

The console display resembles the following:

```
Assuming IPS-4260-K9 Platform
 2 Ethernet Interfaces detected

Cisco Systems ROMMON Version (1.0(11)1c) #26: Mon Mar 13 18:05:54 CST 2006

Platform IPS-4260-K9
Management0/0
Link is UP
MAC Address: 0004.23cc.6047

Use ? for help.
rommon #0>
```

**Step 4** If necessary, change the port used for the TFTP download:

```
rommon #1> interface name
```

The port in use is listed just after the platform identification. In the example, port Management0/0 is being used.



**Note** The default port used for TFTP downloads is Management0/0, which corresponds with the command and control (MGMT) interface of the IPS-4260.



**Note** Ports Management0/0 (MGMT) and GigabitEthernet0/1 (GE 0/1) are labeled on the back of the chassis.

**Step 5** Specify an IP address for the local port on IPS-4260:

```
rommon> address ip_address
```



**Note** Use the same IP address that is assigned to IPS-4260.

**Step 6** Specify the TFTP server IP address:

```
rommon> server ip_address
```

**Step 7** Specify the gateway IP address:

```
rommon> gateway ip_address
```

**Step 8** Verify that you have access to the TFTP server by pinging it from the local Ethernet port:

```
rommon> ping server_ip_address
rommon> ping server
```

**Step 9** Specify the path and filename on the TFTP file server from which you are downloading the image:

```
rommon> file path/filename
```

UNIX example:

```
rommon> file /system_images/IPS-4260-K9-sys-1.1-a-5.1-5-E1.img
```



**Note** The path is relative to the UNIX TFTP server's default tftpboot directory. Images located in the default tftpboot directory do not have any directory names or slashes in the file location.

Windows example:

```
rommon> file <tftpboot_directory>IPS-4260-K9-sys-1.1-a-5.1-5-E1.img
```

**Step 10** Download and install the system image:

```
rommon> tftp
```



**Note** IPS-4260 reboots once during the reimaging process. Do not remove power from IPS-4260 during the update process or the upgrade can become corrupted.

## Using the Recovery/Upgrade CD

You can use the recovery/upgrade CD on appliances that have a CD-ROM, such as the IDS-4210, IDS-4235, and IDS-4250. The recovery/upgrade CD reimages both the recovery and application partitions.



### Caution

You are installing a new software image. All configuration data is overwritten.

After you install the system image with the recovery/upgrade CD, you must use the **setup** command to initialize the appliance. You will need your configuration information. You can obtain this information by generating a diagnostics report through IDM.

Signature updates occur approximately every week or more often if needed. The most recent signature update will not be on the recovery/upgrade CD that shipped with your appliance. Download the most recent signature update and apply it after you have recovered the system image.

To recover the system image with the recovery/upgrade CD, follow these steps:

**Step 1** Obtain your configuration information from IDM:

- a. To access IDM, point your browser to the appliance you are upgrading.
- b. Select **Monitoring > Diagnostics**. The Diagnostics panel appears.
- c. Click **Run Diagnostics**. Running the diagnostics may take a while.
- d. Click **View Results**. The results are displayed in a report.
- e. To save the diagnostics report, select **Menu > Save As** in your browser.

- Step 2** Insert the recovery/upgrade CD into the CD-ROM drive.
- Step 3** Power off the appliance and then power it back on. The boot menu appears, which lists important notices and boot options.
- Step 4** Type **k** if you are installing from a keyboard, or type **s** if you are installing from a serial connection.



**Note** A blue screen is displayed for several minutes without any status messages while the files are being copied from the CD to your appliance.

- Step 5** Log in to the appliance by using a serial connection or with a monitor and keyboard.



**Note** The default username and password are both cisco.

- Step 6** You are prompted to change the default password.



**Note** Passwords must be at least eight characters long and be strong, that is, not be a dictionary word.

After you change the password, the `sensor#` prompt appears.

- Step 7** Type the **setup** command to initialize the appliance. For the procedure, see [Initializing the Sensor, page 1-4](#).
- Step 8** Install the most recent service pack and signature update. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

## Installing the NM-CIDS System Image

This section describes how to install the NM-CIDS system image, and contains the following topics:

- [Overview, page 13-23](#)
- [Installing the NM-CIDS System Image, page 13-23](#)

### Overview

You can reimage the NM-CIDS using the system image file (IPS-NM-CIDS-K9-sys-1.1-a-5.1-1.pkg). If NM-CIDS is already running version 5.0, the bootloader has been upgraded. If NM-CIDS is not running 5.0, you must upgrade the bootloader before installing the 5.1 image. For the procedure to upgrade the bootloader, refer to [Installing the NM-CIDS System Image](#).

### Installing the NM-CIDS System Image



**Note** The bootloader has a timeout of 10 minutes, which means reimages over slow WAN links will fail. To avoid this situation, download the bootloader file to a local TFTP server and have the NM-CIDS reimage from the local TFTP server.

To reimage NM-CIDS, follow these steps:

- Step 1** Download the NM-CIDS system image file (IPS-NM-CIDS-K9-sys-1.1-a-5.1-5-E1.img) to the TFTP root directory of a TFTP server that is accessible from your NM-CIDS. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).



**Note** Make sure you can access the TFTP server location from the network connected to the NM-CIDS Ethernet port.

- Step 2** Log in to the router.

- Step 3** Enter enable mode:

```
router# enable
router(enable)#
```

- Step 4** Session to NM-CIDS:

```
router(enable)# service-module IDS-Sensor slot_number/0 session
```



**Note** Use the **show configuration | include interface IDS-Sensor** command to determine the NM-CIDS slot number.

- Step 5** Suspend the session by pressing **Shift-Ctrl-6 X**. You should see the `router#` prompt. If you do not see this prompt, try **Ctrl-6 X**.

- Step 6** Reset NM-CIDS:

```
router(enable)# service-module IDS-Sensor slot_number/0 reset
```

You are prompted to confirm the **reset** command.

- Step 7** Press **Enter** to confirm.

- Step 8** Press **Enter** to resume the suspended session. After displaying its version, the bootloader displays this prompt for 15 seconds:

```
Please enter '***' to change boot configuration:
```

- Step 9** Enter **\*\*\*** during the 15-second delay. The bootloader prompt appears.

- Step 10** Display the bootloader configuration:

```
ServicesEngine boot-loader> show config
```



**Caution** If the bootloader version is not 1.0.17-1, you must upgrade it before installing 5.1. For the procedure, refer to [Installing the NM-CIDS System Image](#).

- Step 11** Configure the bootloader parameters:

```
ServicesEngine boot-loader> config
```

- Step 12** You are prompted for each value line by line.

- a. Specify the IP address—The external fast Ethernet port on NM-CIDS. This must be a real IP address on your network.



- b. Specify the subnet mask—The external fast Ethernet port on NM-CIDS. This must be a real IP address on your network.
- c. Specify the TFTP server IP address—The IP address of the TFTP server from which to download the NM-CIDS system image.
- d. Specify the gateway IP address—The IP address of the default gateway for hosts on your subnet.
- e. Specify the default helper file—The name of the helper image to boot. The NM-CIDS helper file is boot helper IPS-NM-CIDS-K9-sys-1.1-a-5.1-1-1.img.
- f. Specify the Ethernet interface—The Ethernet interface is always set to **external**.
- g. Specify the default boot device—The default boot device is always set to **disk**.
- h. Specify the default bootloader—The default bootloader is always set to **primary**.

If you made any changes, the bootloader stores them permanently. The bootloader command prompt appears.



#### Caution

The next step erases all data from the NM-CIDS hard-disk drive.

#### Step 13 Boot the system image:

```
ServicesEngine boot-loader> boot helper IPS-NM-CIDS-K9-sys-1.1-a-5.1-5-E1.img
```

The bootloader displays a spinning line while loading the system image from the TFTP server. When the system image is loaded, it is booted. The system image installs IPS 5.1(1) on NM-CIDS. When the installation is complete, NM-CIDS reboots. The system is restored to default settings. The user account and password are set to `cisco`. You must initialize NM-CIDS with the **setup** command. For the procedure, see [Initializing the Sensor, page 1-4](#).

## Installing the IDSM-2 System Image

If the IDSM-2 application partition becomes unusable, you can reimage it from the maintenance partition. After you reimage the application partition of IDSM-2, you must initialize IDSM-2 using the **setup** command. For the procedure, see [Initializing the Sensor, page 1-4](#). When there is a new maintenance partition image file, you can reimage the maintenance partition from the application partition.

This section describes how to reimage the application partition and maintenance partition for Catalyst software and Cisco IOS software. It contains the following topics:

- [Installing the System Image, page 13-25](#)
- [Configuring the Maintenance Partition, page 13-28](#)
- [Upgrading the Maintenance Partition, page 13-35](#)

## Installing the System Image

This section describes how to install the IDSM-2 system image, and contains the following topics:

- [Catalyst Software, page 13-26](#)
- [Cisco IOS Software, page 13-26](#)

## Catalyst Software

To install the system image, follow these steps:

**Step 1** Download the IDSM-2 system image file (WS-SVC-IDSM2-K9-sys-1.1-a-5.1-5-E1.bin.gz) to the FTP root directory of a FTP server that is accessible from your IDSM-2. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

**Step 2** Log in to the switch CLI.

**Step 3** Boot IDSM-2 to the maintenance partition:

```
cat6k> (enable) reset module_number cf:1
```

**Step 4** Log in to the maintenance partition CLI:

```
login: guest
Password: cisco
```



**Note** You must configure the maintenance partition on IDSM-2. For the procedure, see [Configuring the Maintenance Partition, page 13-28](#).

**Step 5** Install the system image:

```
guest@hostname.localdomain# upgrade ftp://user@ftp server IP/directory  
path/WS-SVC-IDSM2-K9-sys-1.1-a-5.1-5-E1.bin.gz
```

**Step 6** Specify the FTP server password. After the application partition file has been downloaded, you are asked if you want to proceed:

```
Upgrading will wipe out the contents on the hard disk. Do you want to proceed installing  
it [y|n]:
```

**Step 7** Type **y** to continue. When the application partition file has been installed, you are returned to the maintenance partition CLI.

**Step 8** Exit the maintenance partition CLI and return to the switch CLI.

**Step 9** Reboot IDSM-2 to the application partition:

```
cat6k> (enable) reset module_number hdd:1
```

**Step 10** When IDSM-2 has rebooted, check the software version. For the procedure, refer to [Verifying IDSM-2 Installation](#).

**Step 11** Log in to the application partition CLI and initialize IDSM-2. For the procedure, see [Initializing the Sensor, page 1-4](#).

## Cisco IOS Software

To install the system image, follow these steps:

**Step 1** Download the IDSM-2 system image file (WS-SVC-IDSM2-K9-sys-1.1-a-5.1-5-E1.bin.gz) to the FTP root directory of an FTP server that is accessible from your IDSM-2.

**Step 2** Log in to the switch CLI.

**Step 3** Boot IDSM-2 to the maintenance partition.

```
router# hw-module module module_number reset cf:1
```

**Step 4** Session to the maintenance partition CLI.

```
router# session slot slot_number processor 1
```

**Step 5** Log in to the maintenance partition CLI.

```
login: guest
Password: cisco
```

**Step 6** Configure the maintenance partition interface IP address.

```
guest@localhost.localdomain# ip address ip_address netmask
```



**Note** Choose an address that is appropriate for the VLAN on which the IDSM-2 management interface is located based on the switch configuration.

**Step 7** Configure the maintenance partition default gateway address.

```
guest@localhost.localdomain# ip gateway gateway_address
```

**Step 8** Install the system image.

```
guest@hostname.localdomain# upgrade
ftp://user@ftp_server_ip_address/directory_path/WS-SVC-IDSM2-K9-sys-1.1-a-5.1-5-E1.bin.gz
-install
```

**Step 9** Specify the FTP server password. After the application partition file has been downloaded, you are asked if you want to proceed:

```
Upgrading will wipe out the contents on the hard disk.
Do you want to proceed installing it [y|n]:
```

**Step 10** Enter **y** to continue. When the application partition file has been installed, you are returned to the maintenance partition CLI.

**Step 11** Exit the maintenance partition CLI and return to the switch CLI.

**Step 12** Reboot IDSM-2 to the application partition.

```
router# hw-module module module_number reset hdd:1
```

**Step 13** Verify that IDSM-2 is online and that the software version is correct and that the status is ok.

```
router# show module module_number
```

**Step 14** Session to the IDSM-2 application partition CLI.

```
router# session slot slot_number processor 1
```

**Step 15** Initialize IDSM-2 using the **setup** command. For the procedure, see [Initializing the Sensor, page 1-4](#).

## Configuring the Maintenance Partition

This section describes how to configure the maintenance partition on IDSM-2, and contains the following topics:

- [Catalyst Software, page 13-28](#)
- [Cisco IOS Software, page 13-32](#)

### Catalyst Software

To configure the IDSM-2 maintenance partition, follow these steps:

---

**Step 1** Log in to the switch CLI.

**Step 2** Enter privileged mode:

```
cat6k# enable
cat6k(enable)#
```

**Step 3** Session to IDSM-2:

```
cat6k# session 9
Trying IDS-9...
Connected to IDS-9.
Escape character is '^]'.

Cisco Maintenance image
```




---

**Note** You cannot Telnet or SSH to the IDSM-2 maintenance partition. You must session to it from the switch CLI.

---

**Step 4** Log in as user **guest** and password **cisco**.




---

**Note** You can change the guest password, but we do not recommend it. If you forget the maintenance partition guest password, and you cannot log in to the IDSM-2 application partition for some reason, you will have to RMA IDSM-2.

---

```
login: guest
Password: cisco
```

```
Maintenance image version: 2.1(2)
```

```
guest@idsm2.localdomain#
```

**Step 5** View the IDSM-2 maintenance partition host configuration:

```
guest@idsm2.localdomain# show ip

IP address       : 10.89.149.74
Subnet Mask      : 255.255.255.128
IP Broadcast     : 10.255.255.255
DNS Name         : idsm2.localdomain
Default Gateway  : 10.89.149.126
Nameserver(s)    :

guest@idsm2.localdomain#
```

**Step 6** Clear the IDSM-2 maintenance partition host configuration (ip address, gateway, hostname):

```

guest@idsm2.localdomain# clear ip
guest@localhost.localdomain# show ip

IP address      : 0.0.0.0
Subnet Mask     : 0.0.0.0
IP Broadcast    : 0.0.0.0
DNS Name        : localhost.localdomain
Default Gateway : 0.0.0.0
Nameserver(s)   :

guest@localhost.localdomain#

```

**Step 7** Configure the maintenance partition host configuration:**a.** Specify the IP address:

```

guest@localhost.localdomain# ip address ip_address netmask

```

**b.** Specify the default gateway:

```

guest@localhost.localdomain# ip gateway gateway_ip_address

```

**c.** Specify the hostname:

```

guest@localhost.localdomain# ip host hostname

```

**Step 8** View the maintenance partition host configuration:

```

guest@idsm2.localdomain# show ip

IP address      : 10.89.149.74
Subnet Mask     : 255.255.255.128
IP Broadcast    : 10.255.255.255
DNS Name        : idsm2.localdomain
Default Gateway : 10.89.149.126
Nameserver(s)   :

guest@idsm2.localdomain#

```

**Step 9** Verify the image installed on the application partition:

```

guest@idsm2.localdomain# show images
Device name      Partition#      Image name
-----
Hard disk(hdd)   1              5.0(1)
guest@idsm2.localdomain#

```

**Step 10** Verify the maintenance partition version (including the BIOS version):

```

guest@idsm2.localdomain# show version

Maintenance image version: 2.1(2)
mp.2-1-2.bin : Thu Nov 18 11:41:36 PST 2004 :
integ@kplus-build-lx.cisco.com

Line Card Number :WS-SVC-IDSM2-XL
Number of Pentium-class Processors : 2
BIOS Vendor: Phoenix Technologies Ltd.
BIOS Version: 4.0-Rel 6.0.9

Total available memory: 2012 MB
Size of compact flash: 61 MB
Size of hard disk: 19077 MB

```

Daughter Card Info: Falcon rev 3, FW ver 2.0.3.0 (IDS), SRAM 8 MB, SDRAM 256 MB

guest@idsm2.localdomain#

### Step 11 Upgrade the application partition:

```
guest@idsm2.localdomain# upgrade
ftp://jsmith@10.89.146.11//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
Downloading the image. This may take several minutes...
Password for jsmith@10.89.146.114:
500 'SIZE WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz': command not understood.

ftp://jsmith@10.89.146.11//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
(unknown size)
/tmp/upgrade.gz          []      28616K
29303086 bytes transferred in 5.34 sec (5359.02k/sec)

Upgrade file
ftp://jsmith@10.89.146.114//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
is downloaded.
Upgrading will wipe out the contents on the storage media.
Do you want to proceed installing it [y|N]:
```

### Step 12 Type **y** to proceed with the upgrade.

Proceeding with upgrade. Please do not interrupt.  
If the upgrade is interrupted or fails, boot into maintenance image again and restart upgrade.

Creating IDS application image file...

Initializing the hard disk...

Applying the image, this process may take several minutes...

Performing post install, please wait...

Application image upgrade complete. You can boot the image now.

guest@idsm3.localdomain#

### Step 13 Display the upgrade log:

guest@idsm3.localdomain# **show log upgrade**

```
Upgrading the line card on Fri Mar 11 21:21:53 UTC 2005
Downloaded upgrade image
ftp://jsmith@10.89.146.114//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
Extracted the downloaded file
Proceeding with image upgrade.
Fri Mar 11 21:22:06 2005 : argv1 = 0, argv2 = 0, argv3 = 3, argv4 = 1
Fri Mar 11 21:22:06 2005 : Creating IDS application image file...
Fri Mar 11 21:22:06 2005 : footer: XXXXXXXXXXXXXXXXXXXX
Fri Mar 11 21:22:06 2005 : exeoff: 0000000000031729
Fri Mar 11 21:22:06 2005 : image: 0000000029323770
Fri Mar 11 21:22:06 2005 : T: 29323818, E: 31729, I: 29323770
Fri Mar 11 21:22:07 2005 : partition: /dev/hdc1
Fri Mar 11 21:22:07 2005 : startIDSAppUpgrade:Image: /tmp/cdisk.gz
Fri Mar 11 21:22:07 2005 : startIDSAppUpgrade:Device: /dev/hdc1
Fri Mar 11 21:22:07 2005 : startIDSAppUpgrade:Install type: 1
Fri Mar 11 21:22:07 2005 : Initializing the hard disk...
Fri Mar 11 21:22:07 2005 : Required disk size: 524288 Kb (blocks)
Fri Mar 11 21:22:07 2005 : Available disk size: 19535040 Kb (blocks)
Fri Mar 11 21:22:13 2005 : Partitions created on '/dev/hdc'.
Fri Mar 11 21:22:13 2005 : Device '/dev/hdc' verified for OK.
Fri Mar 11 21:22:19 2005 : Created ext2 fileSystem on '/dev/hdc1'.
Fri Mar 11 21:22:19 2005 : Directory '/mnt/hd/' created.
Fri Mar 11 21:22:19 2005 : Partition '/dev/hdc1' mounted.
Fri Mar 11 21:22:19 2005 : Finished initializing the hard disk.
```

```

Fri Mar 11 21:22:19 2005 : Applying the image, this process may take several minutes...
Fri Mar 11 21:22:19 2005 : Directory changed to '/mnt/hd'.
Fri Mar 11 21:22:20 2005 : Performing post install, please wait...
Fri Mar 11 21:22:20 2005 : File /mnt/hd/post-install copied to /tmp/post-install.
Fri Mar 11 21:22:20 2005 : Directory changed to '/tmp'.
Fri Mar 11 21:22:28 2005 : Partition '/dev/hdc1' unmounted.
Fri Mar 11 21:22:28 2005 : Directory changed to '/tmp'.
Application image upgrade complete. You can boot the image now.
Partition upgraded successfully
guest@idsm2.localdomain#

```

**Step 14** Clear the upgrade log:

```

guest@idsm2.localdomain# clear log upgrade
Cleared log file successfully

```

**Step 15** Display the upgrade log:

```

guest@idsm2.localdomain# show log upgrade
guest@idsm2.localdomain#

```

**Step 16** Ping another computer:

```

guest@idsm2.localdomain# ping 10.89.146.114
PING 10.89.146.114 (10.89.146.114) from 10.89.149.74 : 56(84) bytes of data.
64 bytes from 10.89.146.114: icmp_seq=0 ttl=254 time=381 usec
64 bytes from 10.89.146.114: icmp_seq=1 ttl=254 time=133 usec
64 bytes from 10.89.146.114: icmp_seq=2 ttl=254 time=129 usec
64 bytes from 10.89.146.114: icmp_seq=3 ttl=254 time=141 usec
64 bytes from 10.89.146.114: icmp_seq=4 ttl=254 time=127 usec

--- 10.89.146.114 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max/mdev = 0.127/0.182/0.381/0.099 ms
guest@idsm2.localdomain#

```

**Step 17** Reset IDSM-2:


---

**Note** You cannot specify a partition when issuing the **reset** command from the maintenance partition. IDSM-2 boots to whichever partition is specified in the boot device variable. If the boot device variable is blank, IDSM-2 boots to the application partition.

---

```

guest@idsm2.localdomain# reset
guest@idsm2.localdomain#
2005 Mar 11 21:55:46 CST -06:00 %SYS-4-MOD_SHUTDOWNSTART:Module 9 shutdown in progress. Do
not remove module until shutdown completes

Broadcast message from root Fri Mar 11 21:55:47 2005...

The system is going down for system halt NOW !!
cat6k> (enable)

```

---

## Cisco IOS Software

To configure the IDSM-2 maintenance partition, follow these steps:

**Step 1** Log in to the switch CLI.

**Step 2** Session to IDSM-2:

```
switch# session slot 11 processor 1
The default escape character is Ctrl-^, then x.
You can also type 'exit' at the remote prompt to end the session
Trying 127.0.0.111 ... Open

Cisco Maintenance image
```



**Note** You cannot Telnet or SSH to the IDSM-2 maintenance partition. You must session to it from the switch CLI.

**Step 3** Log in as user **guest** and password **cisco**.



**Note** You can change the guest password, but we do not recommend it. If you forget the maintenance partition guest password, and you cannot log in to the IDSM-2 application partition for some reason, you will have to RMA IDSM-2.

```
login: guest
password: cisco

Maintenance image version: 2.1(2)

guest@idsm2.localdomain#
```

**Step 4** View the maintenance partition host configuration:

```
guest@idsm2.localdomain# show ip

IP address      : 10.89.149.74
Subnet Mask     : 255.255.255.128
IP Broadcast    : 10.255.255.255
DNS Name        : idsm2.localdomain
Default Gateway : 10.89.149.126
Nameserver(s)   :

guest@idsm2.localdomain#
```

**Step 5** Clear the maintenance partition host configuration (ip address, gateway, hostname):

```
guest@idsm2.localdomain# clear ip
guest@localhost.localdomain# show ip

IP address      : 0.0.0.0
Subnet Mask     : 0.0.0.0
IP Broadcast    : 0.0.0.0
DNS Name        : localhost.localdomain
Default Gateway : 0.0.0.0
Nameserver(s)   :

guest@localhost.localdomain#
```



**Step 6** Configure the maintenance partition host configuration:**a.** Specify the IP address:

```
guest@localhost.localdomain# ip address ip_address netmask
```

**b.** Specify the default gateway:

```
guest@localhost.localdomain# ip gateway gateway_ip_address
```

**c.** Specify the hostname:

```
guest@localhost.localdomain# ip host hostname
```

**Step 7** View the maintenance partition host configuration:

```
guest@idsm2.localdomain# show ip

IP address      : 10.89.149.74
Subnet Mask     : 255.255.255.128
IP Broadcast    : 10.255.255.255
DNS Name        : idsm2.localdomain
Default Gateway : 10.89.149.126
Nameserver(s)   :

guest@idsm2.localdomain#
```

**Step 8** Verify the image installed on the application partition:

```
guest@idsm2.localdomain# show images
Device name      Partition#      Image name
-----
Hard disk(hdd)   1              5.0(1)
guest@idsm2.localdomain#
```

**Step 9** Verify the maintenance partition version (including the BIOS version):

```
guest@idsm2.localdomain# show version

Maintenance image version: 2.1(2)
mp.2-1-2.bin : Thu Nov 18 11:41:36 PST 2004 :
integ@kplus-build-lx.cisco.com

Line Card Number :WS-SVC-IDSM2-XL
Number of Pentium-class Processors : 2
BIOS Vendor: Phoenix Technologies Ltd.
BIOS Version: 4.0-Rel 6.0.9

Total available memory: 2012 MB
Size of compact flash: 61 MB
Size of hard disk: 19077 MB
Daughter Card Info: Falcon rev 3, FW ver 2.0.3.0 (IDS), SRAM 8 MB, SDRAM 256 MB

guest@idsm2.localdomain#
```

**Step 10** Upgrade the application partition:

```
guest@idsm2.localdomain# upgrade
ftp://jsmith@10.89.146.11//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
Downloading the image. This may take several minutes...
Password for jsmith@10.89.146.114:
500 'SIZE WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz': command not understood.

ftp://jsmith@10.89.146.11//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
(unknown size)
/tmp/upgrade.gz          [ ] 28616K
```

```
29303086 bytes transferred in 5.34 sec (5359.02k/sec)
```

```
Upgrade file
ftp://jsmith@10.89.146.114//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
is downloaded.
Upgrading will wipe out the contents on the storage media.
Do you want to proceed installing it [y|N]:
```

### Step 11 Type **y** to proceed with the upgrade.

```
Proceeding with upgrade. Please do not interrupt.
If the upgrade is interrupted or fails, boot into maintenance image again and restart
upgrade.
```

```
Creating IDS application image file...
```

```
Initializing the hard disk...
Applying the image, this process may take several minutes...
Performing post install, please wait...
Application image upgrade complete. You can boot the image now.
guest@idsm3.localdomain#
```

### Step 12 Display the upgrade log:

```
guest@idsm3.localdomain# show log upgrade
```

```
Upgrading the line card on Fri Mar 11 21:21:53 UTC 2005
Downloaded upgrade image
ftp://jsmith@10.89.146.114//RELEASES/Latest/5.0-1/WS-SVC-IDSM2-K9-sys-1.1-a-5.0-1.bin.gz
Extracted the downloaded file
Proceeding with image upgrade.
Fri Mar 11 21:22:06 2005 : argv1 = 0, argv2 = 0, argv3 = 3, argv4 = 1
Fri Mar 11 21:22:06 2005 : Creating IDS application image file...
Fri Mar 11 21:22:06 2005 : footer: XXXXXXXXXXXXXXXXXX
Fri Mar 11 21:22:06 2005 : exeoff: 0000000000031729
Fri Mar 11 21:22:06 2005 : image: 0000000029323770
Fri Mar 11 21:22:06 2005 : T: 29323818, E: 31729, I: 29323770
Fri Mar 11 21:22:07 2005 : partition: /dev/hdc1
Fri Mar 11 21:22:07 2005 : startIDSAppUpgrade:Image: /tmp/cdisk.gz
Fri Mar 11 21:22:07 2005 : startIDSAppUpgrade:Device: /dev/hdc1
Fri Mar 11 21:22:07 2005 : startIDSAppUpgrade:Install type: 1
Fri Mar 11 21:22:07 2005 : Initializing the hard disk...
Fri Mar 11 21:22:07 2005 : Required disk size: 524288 Kb (blocks)
Fri Mar 11 21:22:07 2005 : Available disk size: 19535040 Kb (blocks)
Fri Mar 11 21:22:13 2005 : Partitions created on '/dev/hdc'.
Fri Mar 11 21:22:13 2005 : Device '/dev/hdc' verified for OK.
Fri Mar 11 21:22:19 2005 : Created ext2 fileSystem on '/dev/hdc1'.
Fri Mar 11 21:22:19 2005 : Directory '/mnt/hd/' created.
Fri Mar 11 21:22:19 2005 : Partition '/dev/hdc1' mounted.
Fri Mar 11 21:22:19 2005 : Finished initializing the hard disk.
Fri Mar 11 21:22:19 2005 : Applying the image, this process may take several minutes...
Fri Mar 11 21:22:19 2005 : Directory changed to '/mnt/hd'.
Fri Mar 11 21:22:20 2005 : Performing post install, please wait...
Fri Mar 11 21:22:20 2005 : File /mnt/hd/post-install copied to /tmp/post-install.
Fri Mar 11 21:22:20 2005 : Directory changed to '/tmp'.
Fri Mar 11 21:22:28 2005 : Partition '/dev/hdc1' unmounted.
Fri Mar 11 21:22:28 2005 : Directory changed to '/tmp'.
Application image upgrade complete. You can boot the image now.
Partition upgraded successfully
guest@idsm2.localdomain#
```

### Step 13 Clear the upgrade log:

```
guest@idsm2.localdomain# clear log upgrade
Cleared log file successfully
```

**Step 14** Display the upgrade log:

```
guest@idsm2.localdomain# show log upgrade
guest@idsm2.localdomain#
```

**Step 15** Ping another computer:

```
guest@idsm2.localdomain# ping 10.89.146.114
PING 10.89.146.114 (10.89.146.114) from 10.89.149.74 : 56(84) bytes of data.
64 bytes from 10.89.146.114: icmp_seq=0 ttl=254 time=381 usec
64 bytes from 10.89.146.114: icmp_seq=1 ttl=254 time=133 usec
64 bytes from 10.89.146.114: icmp_seq=2 ttl=254 time=129 usec
64 bytes from 10.89.146.114: icmp_seq=3 ttl=254 time=141 usec
64 bytes from 10.89.146.114: icmp_seq=4 ttl=254 time=127 usec

--- 10.89.146.114 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max/mdev = 0.127/0.182/0.381/0.099 ms
guest@idsm2.localdomain#
```

**Step 16** Reset IDSM-2:

**Note** You cannot specify a partition when issuing the **reset** command from the maintenance partition. IDSM-2 boots to whichever partition is specified in the boot device variable. If the boot device variable is blank, IDSM-2 boots to the application partition.

```
guest@idsm2.localdomain# reset
guest@idsm2.localdomain#
Broadcast message from root Fri Mar 11 22:04:53 2005...

The system is going down for system halt NOW !!

[Connection to 127.0.0.111 closed by foreign host]
switch#
```

## Upgrading the Maintenance Partition

This section describes how to upgrade the maintenance partition, and contains the following topics:

- [Catalyst Software, page 13-35](#)
- [Cisco IOS Software, page 13-36](#)

### Catalyst Software

To upgrade the maintenance partition, follow these steps:

**Step 1** Download the IDSM-2 maintenance partition file (c6svc-mp.2-1-1.bin.gz) to the FTP root directory of a FTP server that is accessible from your IDSM-2.

For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

**Step 2** Log in to the IDSM-2 CLI.

**Step 3** Enter configuration mode:

```
idsm2# configure terminal
```

**Step 4** Upgrade the maintenance partition:

```
idsm2# upgrade ftp://user@ftp_server_IP_address/directory_path/c6svc-mp.2-1-1.bin.gz
```

You are asked whether you want continue.

**Step 5** Type **y** to continue.

The maintenance partition file is upgraded.

---

## Cisco IOS Software

To upgrade the maintenance partition, follow these steps:

---

**Step 1** Download the IDSM-2 maintenance partition file (c6svc-mp.2-1-1.bin.gz) to the FTP root directory of a FTP server that is accessible from your IDSM-2. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).

**Step 2** Log in to the switch CLI.

**Step 3** Session in to the application partition CLI:

```
switch# session slot slot_number processor 1
```

**Step 4** Enter configuration mode:

```
idsm2# configure terminal
```

**Step 5** Upgrade the maintenance partition:

```
idsm2(config)# upgrade
ftp://user@ftp_server_IP_address/directory_path/c6svc-mp.2-1-1.bin.gz
```

**Step 6** Specify the FTP server password:

```
Password: *****
```

You are prompted to continue:

```
Continue with upgrade?:
```

**Step 7** Type **yes** to continue.

---

## Installing the AIP-SSM System Image

You can reimage the AIP-SSM in one of the following ways:

- From ASA using the **hw-module module 1 recover configure/boot** command. See the following procedure.
- Recovering the application image from the sensor's CLI using the **recover application-partition** command. For the procedure, see [Recovering the Application Partition, page 13-9](#).

- Upgrading the recovery image from the sensor's CLI using the **upgrade** command. For the procedure, see [Upgrading the Recovery Partition, page 13-5](#).

To install the AIP-SSM system image, follow these steps:

- Step 1** Download the AIP-SSM system image file (IPS-SSM-K9-sys-1.1-a-5.1-5-E1.img) to the TFTP root directory of a TFTP server that is accessible from your AIP-SSM. For the procedure for locating software on Cisco.com, see [Obtaining Cisco IPS Software, page 12-1](#).



**Note** Make sure you can access the TFTP server location from the network connected to the AIP-SSM Ethernet port.

- Step 2** Log in to the ASA.

- Step 3** Enter enable mode:

```
asa> enable
```

- Step 4** Configure the recovery settings for AIP-SSM:

```
asa# hw-module module 1 recover configure
```



**Note** If you make an error in the recovery configuration, use the **hw-module module 1 recover stop** command to stop the system reimaging and then you can correct the configuration.

- Step 5** Specify the TFTP URL for the system image:

```
Image URL [tftp://0.0.0.0/]:
```

Example:

```
Image URL [tftp://0.0.0.0/]: tftp://10.89.146.1/IPS-SSM-K9-sys-1.1-a-5.1-5-E1.img
```

- Step 6** Specify the command and control interface of AIP-SSM:

```
Port IP Address [0.0.0.0]:
```

Example:

```
Port IP Address [0.0.0.0]: 10.89.149.231
```

- Step 7** Leave the VLAN ID at 0.

```
VLAN ID [0]:
```

- Step 8** Specify the default gateway of the AIP-SSM:

```
Gateway IP Address [0.0.0.0]:
```

Example:

```
Gateway IP Address [0.0.0.0]: 10.89.149.254
```

- Step 9** Execute the recovery:

```
asa# hw-module module 1 recover boot
```

**Step 10** Periodically check the recovery until it is complete:



**Note** The status reads *Recovery* during recovery and reads *Up* when reimaging is complete.

```
asa# show module 1
```

| Mod | Card Type                                   | Model      | Serial No.  |
|-----|---------------------------------------------|------------|-------------|
| 0   | ASA 5540 Adaptive Security Appliance        | ASA5540    | P2B00000019 |
| 1   | ASA 5500 Series Security Services Module-20 | ASA-SSM-20 | P1D000004F4 |

| Mod | MAC Address Range                | Hw Version | Fw Version | Sw Version      |
|-----|----------------------------------|------------|------------|-----------------|
| 0   | 000b.fcf8.7b1c to 000b.fcf8.7b20 | 0.2        | 1.0(7)2    | 7.0(0)82        |
| 1   | 000b.fcf8.011e to 000b.fcf8.011e | 0.1        | 1.0(7)2    | 5.0(0.22)S129.0 |

```
Mod Status
```

```
-----
0 Up Sys
1 Up
```

```
asa#
```



**Note** To debug any errors that may happen in the recovery process, use the **debug module-boot** command to enable debugging of the system reimaging process.

**Step 11** Session to AIP-SSM and initialize AIP-SSM with the **setup** command. For the procedure, see [Initializing the Sensor, page 1-4](#).