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# Sun Fire™ X4100/X4200 Servers Release Notes for Software Release 1.3

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# Contents

# Preface

This document contains procedures and special information for updating Sun Fire X4100/X4200 servers to software release 1.3.

## Related Documentation

For a description of the document set for these servers, see the *Where To Find Documentation* sheet that is packed with your system and also posted at the product's documentation site. See the following URL, then navigate to your product.

http://www.sun.com/products-n-solutions/hardware/docs/Servers/x64_servers/index.html

Translated versions of some of these documents are available at the Web site described above in French, Simplified Chinese, Traditional Chinese, Korean, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

For all Sun hardware documentation, visit:

http://www.sun.com/documentation

For Solaris and other software documentation, visit:

http://docs.sun.com

# Product Updates

For downloadable product updates, visit:

http://www.sun.com/servers/entry/x4100/downloads.jsp

This site contains the latest updates for firmware and drivers, as well as CD-ROM
.iso images.

To see all the updates, go to http://www.sun.com/download, and search for your
model number.

# Contacting Sun Technical Support

If you have technical questions that are not answered in this document, go to:

http://www.sun.com/service/contacting

See the Support menu for links to the Knowledgebase.

If you need to contact Sun technical support, please have the following information
available so that we can best assist you in resolving problems:

■ Description of the problem, including the situation where the problem occurs and
its impact on your operation

■ Machine type, operating system version, and product version, including any
patches and other software that might be affecting the problem

■ Detailed steps on the methods you have used to reproduce the problem

■ Any error logs or core dumps

## Third-Party Web Sites

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Please include the title and part number of your document with your feedback.

# New Features and Support

This software release contains the following new OS support:

- New PXE support for SUSE Linux Enterprise Server 9 (SLES9) SP3 installation
- New OS support for the following:
  - Solaris 10 11/06
  - RHEL4_U4 (32- and 64-bit
  - SLES10 (64-bit)
  - VMware ESX 3.0.1

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**Note –** VMware customers – If you update to software release 1.3, you must first upgrade your OS to version 3.0.1.

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- Sun Installation Assistant CD image for Linux, version 2.0.127, now supports:
  - RHEL4_U4 (32- and 64-bit)
  - SLES10 (64-bit)
- Bootable Diagnostics CD now includes SunVTS 6.3
- New MegaRAID Storage Manager – Integrated RAID utility with a SAS-IR SNMP agent for Windows. For details, refer to the *X64 Servers Utilities Reference Manual*, 820-1120.

For a current list of supported operating systems for these servers, refer to one of the following Web sites:

http://www.sun.com/servers/entry/x4100/os.jsp

http://www.sun.com/servers/entry/x4200/os.jsp

# Component Versions by Release

The service processor (SP) and BIOS software and the LSI firmware versions might be updated in each new release.

TABLE 1 lists the component versions for Release 1.3.

**TABLE 1**    Server Release 1.3 Component Versions

| Component Name | Sun Fire X4100 Server Version | Sun Fire X4200 Server Version |
| --- | --- | --- |
| ILOM FW 1.1.1 | Version 1.1.1, build 15632 | Version 1.1.1, build 15632 |
| BIOS | 0ABGA039 | 0ABGA039 |
| LSI Firmware | fw1.16.00-bios6.10.00B | fw1.16.00-bios6.10.00B |
| Motherboard | 501-7513 (RoHS compliant) | 501-7514 (RoHS compliant) |

TABLE 2 lists the component versions for Release 1.2.1.

**TABLE 2**    Server Release 1.2.1 Component Versions

| Component Name | Sun Fire X4100 Server Version | Sun Fire X4200 Server Version |
| --- | --- | --- |
| ILOM FW 1.0.5a | SP build 12513 | SP build 12513 |
| BIOS | 0ABGA036 | 0ABGA036 |
| LSI Firmware (Required for BIOS 36) | fw1.10.00-bios6.06.06A | fw1.10.00-bios6.06.06A |
| Motherboard | 501-7513 (RoHS compliant) | 501-7514 (RoHS compliant) |

TABLE 3 lists the component versions for Release 1.2.

**TABLE 3**    Server Release 1.2 Component Versions

| Component Name | Sun Fire X4100 Server Version | Sun Fire X4200 Server Version |
| --- | --- | --- |
| ILOM FW 1.0.5 | SP build 12029C | SP build 12029C |
| BIOS | 0ABGA034 | 0ABGA034 |
| LSI Firmware | fw1.10.00-bios6.06.06A | fw1.10.00-bios6.06.06A |
| Motherboard | 501-7513 (RoHS compliant) | 501-7514 (RoHS compliant) |

TABLE 4 lists the component versions for Release 1.1.

**TABLE 4**    Server Release 1.1 Component Versions

| Component Name | Sun Fire X4100 Server Version | Sun Fire X4200 Server Version |
| --- | --- | --- |
| ILOM FW 1.0.1 | SP build 9306 | SP build 9306 |
| BIOS | 0ABGA031 | 0ABGA031 |
| LSI Firmware | fw1.08.01A-bios6.40.70A | fw1.08.01A-bios6.40.70A |
| Motherboard | 501-7261 | 501-6974 |

TABLE 5 lists the component versions for the initial release (Release 1.0).

**TABLE 5**    Server Release 1.0 Component Versions

| Component Name | Sun Fire X4100 Server Version | Sun Fire X4200 Server Version |
| --- | --- | --- |
| ILOM FW 1.0 | SP build 6169 | SP build 6169 |
| BIOS | 0ABGA022 | 0ABGA022 |
| LSI Firmware | fw1.04.00-bios6.02.0A | fw1.04.00-bios6.02.0A |
| Motherboard | 501-7261 | 501-6974 |

# Software Release Special Considerations

This section describes considerations that might affect the firmware update.

## Do Not Downgrade LSI Firmware Version 1.16 (6495476)

Once you update to version 1.16, downgrading the firmware to a previous version is not supported. Doing so can cause the LSI card and SCSI devices to become undetectable.

## Cannot Enter the I/O Card BIOS Using the Serial Console (6510058, 6487085)

The hot key to enter the option card BIOS does not work in serial console. This issue will be addressed in a future release.

## Upgrading from LSI Firmware 1.04 Causes Degraded Arrays (6499176)

If you upgrade LSI firmware from 1.04 to the current release, and the system contains a RAID, the RAID will be degraded.

### Workaround

For details and a workaround, see http://sunsolve.central.sun.com/search/document.do?assetkey=1-25-88023

# Special Considerations Regarding the ILOM Firmware 1.1.1 Update

This section describes considerations that might affect the firmware upgrade. For issues on ILOM in general, refer to the *Sun Fire X4100/X4200 Servers Product Notes*.

## ILOM Upgrade Might Fail BIOS Flash (6499287)

The ILOM service processor might not successfully update the BIOS version, if a previous flash upgrade has failed. If the BIOS version is not correct after ILOM flash upgrade completes, use the `-f` force flag on the ILOM CLI `load` command, to force the BIOS flash upgrade.

This issue applies to ILOM 1.1.1 and earlier, and will be addressed in future releases.

## FRU Information Appears Empty After Updating the ILOM Firmware and the BIOS (6406138)

The host CPU and DIMM FRU information shown by the service processor is provided to the service processor during each BIOS power-on-self-test (POST). Therefore, after a BIOS/ILOM upgrade, this FRU information is empty until the first host BIOS POST.

### Workaround

This is expected behavior. Reset the server and allow it to complete POST during boot to repopulate the FRU lists.

# Performing Update From CLI Might Result in Keyboard Redirection Error Dialog Box in JavaRConsole (6485951)

If you use the CLI to perform the update and JavaRConsole is active, a dialog box might appear in JavaRConsole with the following message and an OK button:

```
Keyboard redirection error: an established connection was
aborted by the software in your host machine
```

## *Workaround*

This is expected behavior. Click OK in the dialog box to continue.

Clicking OK might not close the dialog box. If not, terminate the JavaRConsole process. For example, on a Windows platform, press Control+Alt+Delete to bring up the list of open processes, then terminate the JavaRConcole process.

# Serial Console on Host System Might Stop Working After BIOS Update Until CMOS Settings Are Cleared (6489959)

After updating the system BIOS, you might need to clear CMOS settings to get serial console output from the host. This is because CMOS defaults might be changed from your existing settings in the new BIOS.

## *Workaround*

If you cannot get serial console output, clear the CMOS settings. To clear CMOS settings, use the following commands (in this example, the default username, root, and the default password, changeme, are used):

**ipmitool -U root -P changeme -H** *SP-IP* **chassis power off**

**ipmitool -U root -P changeme -H** *SP-IP* **chassis bootdev disk clear-cmos= yes**

# New ILOM Flash Update Layout

ILOM 1.1.1 service processor provides a new, more reliable flash layout. Because of the layout changes, special steps might be required to downgrade to previous ILOM 1.0.x releases.

You might have to perform the flash downgrade to 1.0.x process twice to reformat the flash layout to the old format. If the flash downgrade through GUI, CLI, or N1 System Manager, does not succeed the first time, retry a second time to complete the process.

The new ILOM flash process only powers off the host if a new BIOS version is needed. The ILOM CLI load command provides the `-f` option to force update of all components. Use the following command to force updating all firmware components:

```
load -f tftp://tftpserver/firmware.ima
```

where *tftpserver* is a trivial file-transfer protocol (TFTP) server and *firmware.ima* is the name of the image file, such as, `ILOM.X4100-1.1.1.ima`.

# User Cannot Log In to ILOM WebGUI Sometimes After Flashing New Image (6513809)

Sometimes after flashing an image on SP, the ILOM WebGUI will not allow you to log in and gives "Authentication fail" error. Clearing the cache and cookies of the Web browser enables you to log in as usual.

# Flash-Updating Your Server

This chapter describes how to update to Release 1.3 from earlier releases. See the following sections:

**Caution –** Be sure that you apply only Sun Fire X4100 or X4200 updates to your server. If your server is a X4100 M2 or X4200 M2 server, be sure to get the correct downloads and documentation. For details on how to tell which server you have, refer to *Methods to Differentiate Sun Fire X4100 and X4200 from Sun Fire X4100 M2 and X4200 M2 Servers*, 820-0373.

# Flash-Updating Your Server

The Integrated Lights Out Manager (ILOM) firmware (FW) and BIOS are tightly coupled and are always updated together. This release update contains new ILOM FW and BIOS updates, plus a number of optional enhancements to the software that was shipped with earlier releases.

This release contains ILOM Service Processor firmware version 1.1.1, which includes service processor build 15632 and BIOS 39. The following enhancements are available:

- BIOS enhancements include:
  - AMD PowerNow! enabled by default
  - Removed DQ drive strength reduction
  - Added support for Qimonda DIMMs

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**Note –** You must have LSI firmware fw1.16.00-bios6.10.00B installed to use BIOS 39.

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- Bootable diagnostics CD image includes SunVTS 6.3.
- Resource CD version 1.3 (22191e) includes:
  - LSI MegaRAID Storage Manager (MSM-IR 1.19) with LSI SAS-IR SNMP agent for Windows
  - Windows drivers for MSM-IR support
- Sun Installation Assistant CD image, version 2.0.127 for Linux, now includes:
  - RHEL4_U4 (32- and 64-bit)
  - SLES10 (64-bit)

# Summary of ILOM SP/BIOS Flash Update Steps

**Caution –** Do not load (backflash) ILOM service processor and BIOS firmware older than release 1.2. Newer systems require more current firmware to operate properly. The format of FRU data has also been extended and is not displayed properly with older ILOM firmware.

**Caution –** If your current software is earlier than Release 1.2, you must use the preflash script (see "Running the Preflash Script" on page 16) to avoid possible corruption of the SP. The flash recovery process from this corruption is complicated and might not succeed, requiring replacement of the SP hardware (see "Recovering from a Failed Flash Update" on page 28 for details).

1. Determine the current version of the ILOM firmware. See "Verifying the Firmware Version" on page 13.

2. Download and run the `ilom.X4100-preflash_1.2.sh` (or later) preflash script file to prepare your server for the flash update.

   For detailed instructions, including automated procedures for running the preflash script on multiple servers, see "Running the Preflash Script" on page 16. Download the file at:

   `http://www.sun.com/servers/entry/x4100/downloads.jsp`

3. Review the section "Software Release Special Considerations" on page 4 for known issues and considerations regarding the flash update.

**Note –** The LSI firmware version and the BIOS version must be from the same software release.

4. Download the `ilom.X4100-1.0.5a.ima` flash image at:

   `http://www.sun.com/servers/entry/x4100/downloads.jsp`

5. Use the ILOM GUI, the ILOM CLI `load` command, or N1 System Manager to perform the flash update.

   Due to the increased memory use during Web-based GUI operations, you might need to use N1 System Manager or the ILOM CLI `load` command to update the ILOM firmware. For details, refer to the N1 System Manager documentation or the *Integrated Lights Out Manager Administration Guide for ILOM 1.1.1*, 820-0820.

   From the ILOM CLI, use the following command:

   load -source tftp://*tftpserver*/*firmware*.ima

   where *tftpserver* is the server that contains the update and *firmware*.ima is the image file, for example, `ilom.x4100.1.1.1-r15632.ima`.

   Online documentation for Sun N1 System Manager can be found at:

   http://docs.sun.com/coll/1283.2

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⚠ **Caution –** To ensure a successful flash update, do *not* attempt to modify the ILOM configuration, or use other ILOM GUI, CLI, SNMP, or IPMI interfaces, during the flash update process. Wait until after the flash update succeeds to make further ILOM configuration changes. Note that the ILOM update procedure might reset the SP if it detects recent ILOM configuration changes, or multiple ILOM users or connections. The update runs for 20 minutes, and requires a reset.

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   For full instructions on performing a flash update, refer to the *Integrated Lights Out Manager (ILOM) Administration Guide for ILOM 1.1.1*, 820-0820, at:

   http://www.sun.com/products-n-solutions/hardware/docs/Servers/x64_servers/x4100/index.html

6. If you have any problems with the flash update, refer to the section "Recovering from a Failed Flash Update" on page 28.

# Verifying the Firmware Version

There are three alternate procedures in this section that you can use:

## Verifying the Firmware Version Using the CLI Through the Management Ethernet Port

1. **Connect an RJ-45 Ethernet cable to the NET MGT Ethernet port on the back panel.**

2. **Establish an SSH connection using the following command, then enter the default password** (changeme) **when you are prompted:**

   # **ssh -l root** *sp_ip_address*

   **changeme**

   where *sp_ip_address* is the IP address of the server's ILOM SP.

   After you have successfully logged in, the SP displays its default command prompt:

   ->

3. **Type the** version **command, which returns output similar to the following:**

   ```
   -> version
   SP firmware version: 1.0
   SP firmware build number: 10644
   SP firmware date: Tue Sep 13 12:50:37 PDT 2006
   SP filesystem version: 0.1.13
   ```

   The ILOM firmware build version is the build number listed above.

# Verifying the Firmware Version Using the CLI Through the Serial Port

1. **Configure your terminal device or the terminal emulation software running on a laptop or PC to the following settings:**

   - 8N1: eight data bits, no parity, one stop bit
   - 9600 baud
   - Disable hardware flow control (CTS/RTS)
   - Disable software flow control (XON/XOFF)

2. **Connect a serial cable from the RJ-45 SER MGT port on your server's back panel to your terminal device or PC.**

3. **Press Enter on the terminal device to establish a connection between that terminal device and the server's SP.**

   The SP displays a login prompt.

   SUNSP*0003BA84D777* login:

   In this example login prompt, *0003BA84D777* is the Ethernet MAC address of the SP. This will be different for each server.

4. **Log in to the ILOM SP and type the default user name (`root`) with the default password (`changeme`).**

   After you have successfully logged in, the SP displays its default command prompt:

   ->

5. **Type the `version` command, which returns output similar to the following:**

   ```
   -> version
   SP firmware version: 1.0
   SP firmware build number: 10644
   SP firmware date: Tue Sep 13 12:50:37 PDT 2006
   SP filesystem version: 0.1.13
   ```

   The ILOM firmware build version is the `build number` listed above.

# Verifying the Firmware Version Using the Web GUI

1. **Connect to the ILOM Web GUI by typing the IP address of the server's SP into your browser's URL field. For example:**

   ```
   https://129.146.53.150
   ```

2. **Log in to the ILOM SP and type the default user name (`root`) with the default password (`changeme`).**

   The first Web page displayed is the System Information -> Versions page, which includes the build number.

# Running the Preflash Script

Use the preflash script only if your current firmware is Release 1.2 or earlier.

> ⚠ **Caution –** This procerdure is needed to avoid possible corruption of the SP. The flash recovery process from this corruption is complicated, and might not succeed, requiring replacement of the SP hardware (see "Recovering from a Failed Flash Update" on page 28 for details

This section contains a summary of the preflash script process, followed by detailed instructions for supported operating system platforms.

- "Summary Preflash Script Procedure" on page 16
- "Detailed Preflash Script Procedures" on page 17
- "Verifying the Preflash Script" on page 26
- "Locating ILOM SP Addresses" on page 27
- "Resetting the ILOM SP" on page 27

## Summary Preflash Script Procedure

This `ilom.X4100-preflash_1.2.sh` (or later) preflash update script prepares the ILOM SPs for safe update from version `r10664.rom.ima` or earlier to the latest release. The preflash script is only required for updating from version `r10664.rom.ima` or earlier.

To use this script, copy the script to each ILOM SP using the secure copy command `scp(1)`, then execute the script using the secure remote shell command `ssh(1)`. Use the `sunservice` shell account, which has the same password as the root account on the ILOM SP.

See the sample commands below:

**ssh -l sunservice** *sp_ip_address* **rm -f /coredump/\***

**scp** *preflash_script_name* **sunservice@***sp_ip_address***:/coredump**

**ssh -l sunservice** *sp_ip_address* **sh /coredump/***preflash_script_name*

> ⚠ **Caution –** The ILOM SP includes the `sunservice` user account, which shares the same password as the root account. It is provided solely to allow Sun Services personnel to perform diagnosis and recovery tasks. Customer use of the `sunservice` account might interfere with the correct operation of the ILOM SP and is not supported unless it is used to perform procedures documented by Sun Microsystems.

When done, the script displays one of the following two messages:

- `*** Success ***`

  If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

- `*** Failure ***`

  If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

# Detailed Preflash Script Procedures

This section describes options for transferring the preflash script to the ILOM SP and running it on different OS platforms.

- "Options For Linux and Solaris Platforms" on page 17
- "Options for Windows Platforms" on page 22

## Options For Linux and Solaris Platforms

- "Transferring and Running the Script Using SSH and SCP" on page 17
- "Transferring and Running the Script using TFTP" on page 18
- "Transferring and Running the Script Using NFS" on page 19
- "Automated Solaris and Linux Procedure For Running the Script Using Expect and Tcl/Tk Software" on page 21

### *Transferring and Running the Script Using* SSH *and* SCP

This procedure can be done without logging in to the SP, by using the secure remote shell command ssh(1) and the secure copy command scp(1).

Required Tools:

- `ssh`
- `scp`

1. **Download the preflash script and save it in a known directory.**

2. **Copy the script to the SP using the following commands:**

   **ssh sunservice@**_sp_ip_address_ **rm -f /coredump/\***

   **scp** _preflash_script_name_ **sunservice@**_sp_ip_address_**:/coredump**

   where _sp_ip_address_ is **the IP address of the server's ILOM SP** and _preflash_script_name_ is the name of the script.

3. **Run the script using the following command:**

   **ssh sunservice@**_sp_ip_address_ **sh /coredump/**_preflash_script_name_

4. **Whe done, the script displays one of the following two messages:**

   - `*** Success ***`

     If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

   - `*** Failure ***`

     If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

### _Transferring and Running the Script using TFTP_

Required Tools:

- Trivial file transfer protocol (TFTP) server

1. **Set up a TFTP server or use an existing one.**

   Refer to your OS documentation for instructions on setting up a TFTP server.

2. **Download and save the preflash script to your TFTP root directory.**

3. **Log in as the sunservice account.**

   Use sunservice as the user name and the root password for the password.

   **ssh sunservice@**_sp_ip_address_ **rm -f /coredump/\***

   where _sp_ip_address_ is the IP address of the server's ILOM SP.

4. **Transfer the preflash script to the SP using TFTP and the following commands:**

   **cd /coredump**

   **rm -f /coredump/\***

   **tftp** _tftpserver_ip_address_ **-c get** _preflash_script_name_

   where _tftpserver_ip_address_ is the address of the server containing the script and _preflash_script_name_ is the name of the script.

5. **Run the preflash script:**

   **sh /coredump/***preflash_script_name*

   where *preflash_script_name* is the name of the script.

6. **When done, the script displays one of the following two messages:**
   - ```*** Success ***```

     If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

   - ```*** Failure ***```

     If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

## *Transferring and Running the Script Using NFS*

Required tools:
- A network file system (NFS) directory

1. **Export an NFS directory if none is available.**

2. **Copy the preflash script to the exported NFS directory.**

3. **Log in to the SP as the sunservice account.**

   Use sunservice as the user name and the root password for the password.

4. **Mount the NFS directory.**

   **mount** *nfs_server***:***nfs_directory* **/mnt**

5. **Remove any current coredump files using the following commands:**

   **cd /coredump**

   **rm -f /coredump/***

6. **Run the preflash script:**

   **cd /mnt**

   **sh** *preflash_script_name*

   where *preflash_script_name* is the name of the script.

7. **When done, the script displays one of the following two messages:**

- ■ `*** Success ***`

  If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

- ■ `*** Failure ***`

  If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

*Automated Solaris and Linux Procedure For Running the Script Using Expect and Tcl/Tk Software*

Required tools:

- Tool Command Language (Tcl) and Tk (toolkit) programming language software
- Expect software application

1. **Install Tcl/Tk and Expect software, if not already installed.**

   You can download Expect at:

   `http://expect.nist.gov`

2. **Download the preflash script and save it in the same directory in which you saved the Expect files.**

3. **Open the Start menu Run dialog and type** `cmd.exe` **to open a command shell.**

4. **Change directory to the directory where you saved the Expect files and the preflash script.**

5. **Download the** `apply-preflash-1.3-unix.tcl` **script from the URL below and save it in the same directory as the preflash and Expect files:**

   `http://www.sun.com/servers/entry/x4100/downloads.jsp`

6. **Run the** `apply-preflash-1.3-unix.tcl` **file on the command shell with the following command and options:**

   **expect** `apply-preflash-1.3-unix.tcl` *[options]*

---

**Note –** To automate running the script on multiple SPs, put all the SP IP addresses into a file that can be read by the `apply-preflash-1.3-unix.tcl` script. List only one SP IP address per line. Then supply the file name to the script with the `-splist` option. See the Table 2 for all script options.

---

**TABLE 1**    Script Options

| Option | Description |
|---|---|
| `-sp` *ip_address*<br>or<br>`-splist` *file_name* | The IP address of the server's ILOM SP<br><br>The file that lists all the SPs to update, for automated multiple-server updates |
| `-password` *password* | The root password if the default password is not used |
| `-scriptname` *name* | The preflash script name, if the default is not used |
| `-query` | Query whether the preflash script has already been run |

7. **When done, the script displays one of the following two messages:**

   ■ `*** Success ***`

   If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

   ■ `*** Failure ***`

   If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

## Options for Windows Platforms

### *Transferring and Running the Script Using PuTTY*

Required Tools:

■ PuTTY software, including `plink.exe` (command line) and `pscp.exe`.

1. **Download PuTTY** `plink.exe` **and** `pscp.exe` **files and save them in a directory.**

   You can download these files at:

   http://www.chiark.greenend.org.uk/~sgtatham/putty/

2. **Download the preflash script and save it in the same directory in which you saved the PuTTY files.**

3. **Use the Start menu Run dialog and run** `cmd.exe` **to open a command shell.**

4. **Go to the directory where you saved the PuTTY files and the preflash script.**

5. **Copy the preflash script to the SP with the following PuTTY commands:**

   **plink sunservice@***sp_ip_address* **"rm -f /coredump/*"**

   **pscp** *preflash_script_name* **sunservice@***sp_ip_address***:/coredump**

   where *sp_ip_address* is **the IP address of the server's ILOM SP** and *preflash_script_name* is the name of the script.

6. **Run the preflash script on the SP with the following PuTTY command:**

   `plink sunservice@`*sp_ip_address* `"sh /coredump/`*preflash_script_name*`"`

   where *sp_ip_address* is the IP address of the server's ILOM SP and *preflash_script_name* is the name of the script

7. **When done, the script displays one of the following two messages:**

   - `*** Success ***`

     If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

   - `*** Failure ***`

     If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

### *Transferring and Running the Script using TFTP*

Required Tools:

- TFTP server software: `tftpd32.exe`

Optional Tools:

- PuTTY software, including `plink.exe` (command line)

1. **Download the** `tftpd32.exe` **file and save it in a directory.**

   You can download this file at:

   `http://tftpd32.jounin.net`

   ---

   **Note –** This TFTP server does not require installation. The tftpd32 software will make all the files in the directory it is launched from available for TFTP. It can be started and stopped as desired.

   ---

2. **Download and save the preflash script into the same directory in which you saved** `tftpd32.exe`**.**

3. **Start** `tftpd32.exe` **by running it from a command shell, or use File Browser to start it.**

4. **Make note of the IP address of the TFTP server that tftpd32 reports.**

5. **Log in to the SP as the sunservice account.**

   Use `sunservice` as the user name and the root password for the password.

6. **Transfer and run the preflash script on the SP with following commands:**

   **plink sunservice@**_sp_ip_address_ **"rm -f /coredump/*"**

   **cd /coredump**

   **tftp** _tftpserver_ip_address_ **-c get** _preflash_script_name_

   **sh** _preflash_script_name_

   where _sp_ip_address_ is the IP address of the server's ILOM SP, _tftpserver_ip_address_ is the server that contains the update, and _preflash_script_name_ is the name of the script.

7. **When done, the script displays one of the following two messages:**

   - `*** Success ***`

     If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

   - `*** Failure ***`.

     If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

## Automated Windows Procedure for Running the Script Using Expect and PuTTY Software

**Note –** This procedure and the sample automated script text are also included in the README file that is included with the preflash script.

Required tools:

- Tool Command Language (Tcl) and Tk (toolkit) programming language software
- Expect software application

1. **Install Tcl/Tk and Expect software, if not already installed.**

   You can download Expect at:

   http://expect.nist.gov

2. **Download the preflash script and save it in the same directory in which you saved the Expect files.**

3. **Use the Start menu Run dialog and run** cmd.exe **to open a command shell.**

4. **Change directory to the directory where you saved the Expect files and the preflash script.**

5. **Download the** `apply-preflash-1.3-windows.tcl` **script from the following URL and save it in the same directory as the preflash and Expect files:**

   http://www.sun.com/servers/entry/x4100/downloads.jsp

6. **Run the** `apply-preflash-1.3-windows.tcl` **file on the command shell with the following command and options:**

   **expect** `apply-preflash-1.3-windows.tcl` *[options]*

---

**Note –** To automate running the script on multiple SPs, put all the SP IP addresses into a file that can be read by the `apply-preflash-1.3-unix.tcl` script. List only one SP IP address per line. Then supply the file name to the script with the `-splist` option. See Table 2 for all script options.

---

**TABLE 2**    Script Options

| Option | Description |
| --- | --- |
| `-sp` *ip_address*<br>or | The IP address of the server's ILOM SP |
| `-splist` *file_name* | The file that lists all the SPs to update for automated, multiple-server updates |
| `-password` *password* | The root password if the default password is not used |
| `-scriptname` *name* | The preflash script name, if the default is not used |
| `-query` | Query whether the preflash script has already been run |

7. **When done, the script displays one of the following two messages:**

   - `*** Success ***`

     If this message is displayed, the ILOM SP can be safely updated using any of the firmware update methods (CLI, GUI, Sun N1 System Manager), with or without configuration preservation. Return to Step 3 of "Summary of ILOM SP/BIOS Flash Update Steps" on page 11.

   - `*** Failure ***`

     If this message is displayed, reset the SP, and then apply the preflash script again (see "Resetting the ILOM SP" on page 27).

# Verifying the Preflash Script

There are several methods you can use to determine whether the preflash script has been applied.

- The preflash script prints the following messages at the conclusion of a successful preflash process:

```
*** Patch installed ***

You may now upgrade your firmware

Please ensure you upgrade to the latest version available.

*** Success ***
```

> **Caution –** Do not attempt to update directly from Release 1.0 (the initial release) to the current release. You must update to Release 1.1 first. Otherwise, you may see the the FRUID information (product part number, product serial number, chassis serial number) displayed incorrectly. For example, the values may show as all zeros. For instructions on updating from Release 1.0 to Release 1.1, refer to the *Sun Fire X4100/X4200 Server Release Notes for Software Release 1.1*, 819-5033.

  **ssh sunservice@***sp_ip_address* **ls /var/patchit**

  If the text returned does *not* contain the following message, the patch is applied and running.

  ```
  No such file or directory
  ```

- The automated methods for applying the preflash script provide a -query option that you can use to determine whether the preflash script was applied. See "Automated Solaris and Linux Procedure For Running the Script Using Expect and Tcl/Tk Software" on page 21 and "Automated Windows Procedure for Running the Script Using Expect and PuTTY Software" on page 24.

# Locating ILOM SP Addresses

There are several methods you can use to locate ILOM SPs and their IP addresses.

- Sun N1 System Manager: Provides the capability to display the ILOM SP addresses of managed systems with the n1sh command.

  For example, the following command can be used to create a list of Sun Fire X4100 and X4200 servers:

  **`n1sh show server | grep 'X4[12]00'`**

- DHCP server. Refer to the *Integrated Lights Out Manager (ILOM) Administration Guide for ILOM 1.1.1*, 820-0820, for instructions on how to determine the IP address of a single server.

- Linux and Solaris open-source nmap command. The open-source nmap command provides a –p port option to scan for port 623, which can be used to quickly detect IPMI-enabled devices on a network. For example:

  **`nmap -p 623 10.6.154.1/24`**

# Resetting the ILOM SP

You can use any of the following methods to reset the ILOM SP:

- From the ILOM SP Web GUI, navigate to the Maintenance tab, then use the Reset SP action.

- From the ILOM CLI, use the following command:

  **`reset /SP`**

- Using IPMItool, use the following command:

  **`ipmitool -U root -P`** *password* **`-H`** *sp_ipaddress* **`bmc reset cold`**

- You can also reset the ILOM SP by shutting down the host, and then removing and restoring AC power cords to the system.

For more on this topic, refer to the *Integrated Lights Out Manager (ILOM) Administration Guide for ILOM 1.1.1*, 820-0820.

# Recovering from a Failed Flash Update

Several issues have been identified with the firmware update that could result in a failed or incomplete firmware update. This section describes how to recover from a failed ILOM firmware update.

---

**Note –** If no output is displayed on the SP serial port, the Graphics Redirect and Service Processor (GRASP) board must be replaced.

---

## *Prerequisites*

- A trivial file-transfer protocol (TFTP) server is required to reload the ILOM firmware.
- The host system must also remain powered off for the duration of the recovery process.

## *Recovery Steps*

1. **Determine if the ILOM SP first-level booter (called U-Boot) is intact. Follow documented procedures to connect to the SP serial port, apply power to the system, and observe the initial ILOM boot messages.**

   Refer to the *Sun Fire X4100/4100 M2 and X4200/4200 M2 Servers Installation Guide*, 819-1155, for details.

   - If no screen output is displayed, stop here. The GRASP board must be replaced. Refer to the *Sun Fire X4100/4100 M2 and X4200/4200 M2 Servers Service Manual*, 819-1157, for instructions.
   - If screen output is displayed, continue to the next step.

2. **Enter the ILOM SP U-Boot command interpreter with `xyzzy`.**

   When you see `Booting linux in 2 seconds...` during ILOM initial boot, type `xyzzy` to enter the U-Boot command interpreter.

---

**Note –** The characters you type are not echoed. Cutting and pasting the characters improves the chance of success. You might need to try applying power to the system and entering `xyzzy` several times.

---

3. **Disable automatic reboot.**

   Set the U-Boot environment variable, `bootretry`, to `-1` to temporarily disable automatic reboot:

   **`set bootretry -1`**

4. **Configure the network for TFTP access.**

   a. **Copy the ILOM SP firmware image to a TFTP server that is accessible on the same IP subnet as the ILOM SP network port.**

   b. **Set the IP address for the ILOM SP and the TFTP server IP address by setting the `ethaddr` and `serverip` U-Boot variables.**

   **`set ipaddr`** *n.n.n.n*
   **`set serverip`** *n.n.n.n*

5. **Use the U-Boot `tftp` command to download the ILOM firmware image.**

   **`tftp 100000`** *firmware image*

   ---

   **Note –** If the TFTP server or filename is incorrect, you might need to enter Ctrl-C to halt the `tftp` command, and then repeat this recovery procedure.

   ---

   Be sure that the complete flash image is actually downloaded successfully before proceeding. You should see a message similar to:

   ```
   => tftp 100000 r10644.rom.ima
   Using FCC1 ETHERNET device
   TFTP from server 10.6.154.8; our IP address is 10.6.154.99
   Filename 'r10644.rom.ima'.
   Load address: 0x100000
   Loading:
   #########################################################
   #########################################################
   #########################################################
   #########################################################
   ########################
   done
   Bytes transferred = 13107200 (c80000 hex)
   ```

6. **Confirm that the download succeeded:**

a. **Confirm that the** `tftp` **command output ends with**
   `Bytes transferred = ` *ByteCount*

b. **Use the** `md` **command and confirm that its output displays strings from the beginning of the firmware image file. For example:**

   => **md 100000**

```
00100000: 244d4f44 554c4524 01004000 00000200    $MODULE$..@.....
00100010: 00000000 000000f2 67726173 70000000    ........grasp...
00100020: 01000200 40000000 61000000 0000ffff    ....@...a.......
00100030: ffff0000 00000100 00000000 0000aa55    ...............U
00100040: 46575f56 45525349 4f4e3d31 2e302e31    FW_VERSION=1.0.1
00100050: 0a46575f 44415445 3d4d6172 20203320    .FW_DATE=Mar  3
00100060: 32303036 0a46575f 4255494c 4454494d    2006.FW_BUILDTIM
00100070: 453d3130 3a35363a 30370a46 575f4445    E=10:56:07.FW_DE
00100080: 53433d57 41524e49 4e47203a 20554e4f    SC=WARNING : UNO
00100090: 46464943 49414c20 4255494c 44212120    FFICIAL BUILD!!
001000a0: 0affffff ffffffff ffffffff ffffffff    ................
```

7. **Erase the existing ILOM flash image:**

⚠

**Caution –** Interrupting the flash recovery process from this point onwards, or entering an incorrect U-Boot command, might result in a disabled service processor, which will require replacement. DO NOT stop or remove power from the system from this point onward.

a. **Erase the exiting flash image with the** `erase ff380000 ffffffff` **command.**

   A series of dots will be displayed indicating the progress of the erase. For example:

   => **erase ff380000 ffffffff**

```
...............................................................
..............Erased 200/200 sectors
```

b. **If a failure occurs, retry the** `erase` **command repeatedly until it succeeds.**

**Note –** If a persistent failure occurs, the service processor is not flash-updatable, and must be replaced. Refer to the *Sun Fire X4100/4100 M2 and X4200/4200 M2 Servers Service Manual*, 819-1157, for details on replacing the GRASP board.

8. **Program the new ILOM firmware image:**

   a. **Use the U-Boot** cp.b **command to copy the new ILOM firmware image from the download location at 100000 to ff380000, until end address ffffffff.**

      For example:

      ```
      => cp.b 100000 ff380000 ffffffff
      ```

      ```
      Copy to Flash
      ..............................................................
      ..............................................................
      .......done
      ```

   b. **Use the** fmh **command to verify the new ILOM firmware image.**

      Before resetting, make sure the copy succeeded, using the fmh command, which should display firmware sections. For example:

      ```
      => fmh
      ```

      ```
      Listing FMH Modules
      Flash Size : 32768 KB
      Erase Size : 64 KB
      Sector Count : 512


      FMH Located at 0xff380000 of Size 0x00020000
      Name    : grasp
      Ver     : 1.0
      Type    : 0x0002
      Flags   : 0x0000
      Size    : 0x00000061
      Location: 0xff380040
      LoadAddr: 0xffffffff
      CheckSum: Not Computed
      ---------------------------------------------------


      FMH Located at 0xff3a0000 of Size 0x00120000
      Name    : sysbios
      Ver     : 1.31
      Type    : 0x0000
      Flags   : 0x0100
      Size    : 0x00100000
      Location: 0xff3c0000
      LoadAddr: 0xffffffff
      CheckSum: Valid
      ```

```
--------------------------------------------------

FMH Located at 0xff4c0000 of Size 0x000c0000
Name    : osimage
Ver     : 1.0
Type    : 0x0006
Flags   : 0x0119
Size    : 0x000ac9c8
Location: 0xff4c0040
LoadAddr: 0x00c00000
CheckSum: Valid
...
```

---

**Note –** If the command output does not show anything, you may have entered an incorrect memory address. Repeat the `tftp`, `erase` and `cp.b` commands until the image is properly copied. Note that you must erase the existing firmware image before attempting to copy a new image.

---

9. **Reset the ILOM service processor.**

   Once you are certain that the service processor firmware image has been recovered, you can restart the service processor with the `reset` command.

   => **reset**

10. **Recover the system BIOS.**

---

**Note –** This manual ILOM SP recovery process does *not* reflash the system BIOS. Repeat the firmware update process using the ILOM GUI or CLI procedures as described in "Flash-Updating Your Server" on page 10, and then refer to the *Integrated Lights Out Manager (ILOM) Administration Guide for ILOM 1.1.1*, 820-0820.

---

Be sure to reset your service processor and BIOS configuration settings as needed, because they might be lost during this recovery.

# Downgrading to a Previous ILOM Release

The ILOM flash update in this release has a very new and different structure that is designed to be more reliable. However, should you use this update and later find that you need to downgrade to a previous release, you may need perform the flash downgrade twice to reformat the flash layout to the old format. If so, a message will prompt you. This is not a failure. Just repeat the procedure as instructed and the process will succeed.

# Updating LSI Firmware and BIOS

For information about the LSI FW and BIOS, see the documentation files that accompany the LSI download. For LSI firmware versions included in this release, see "Component Versions by Release" on page 2.

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