

Netra SPARC T3-1BA Blade Server

Product Notes



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Netra SPARC T3-1BA Blade Server Product Notes

This document contains important and late-breaking information about Oracle's Netra SPARC T3-1BA blade server. This document includes information about upgrading to ATCA R3U3 software and firmware.

This document contains the following:

- ["System Requirements"](#) on page 3
- ["Related Documentation"](#) on page 4
- ["Enhancements"](#) on page 4
- ["New Features"](#) on page 6
- ["Oracle Solaris Operating System Versions"](#) on page 10
- ["Checking Firmware Versions"](#) on page 11
- ["Upgrading the Software and Firmware"](#) on page 12
- ["Removing and Installing Blade Servers"](#) on page 26

The most recent versions of the Netra SPARC T3-1BA blade server and Sun Netra CT900 server documentation are available at:

<http://www.oracle.com/pls/topic/lookup?ctx=nst31ba&id=homepage>

<http://www.oracle.com/pls/topic/lookup?ctx=ct900&id=homepage>

Known Issues

Reset Command Failure

The commands for board reset and FRU control cold reset have known issues with host power on. The host might not come up after board reset command is executed. Perform a deactivate and activate of the blade server instead of using the board reset command.

USB Hot Plugging

When a Netra SPARC T3-1BA blade server is booted using the CF device, hot plugging of devices into the front USB ports might not be automatically detected. (CR 7009182).

If this issue is encountered after attempting to hot plug a USB device, use either of the following workarounds:

- Use the Oracle Solaris command `devfsadm -C`
- While the USB device is inserted, use the `reboot` command to reboot the system from the internal CF device.

Prior to hot plugging a USB device, use either of the following workarounds to enable USB device hot plugging:

- Boot from the ARTM disk or USB device:
 - Get device name by using either `show-disks` or `show-devs` command at the ok prompt.
Device name will look like `/pci@___/pci@___/pci...`
 - Enter the boot command followed by the device name.
- Boot from the network:
 - Set up the `/etc/ethers` correctly on the install server/remote server.
 - Connect the Ethernet management port to the local network.
 - Use the `boot net` command to obtain information about Oracle Solaris 10 Netboot configuration.

<http://download.oracle.com/docs/cd/E19253-01/index.html>

SB Flash Drive Type Unknown

If the SB flash disk appears as “drive type unknown” with format, perform the following:

- **Turn off Volume Management before starting `sunvts` test.**

Disktest/CF will be in the test menu under USB-device:

```
/etc/init.d/volmgt stop
```

```
/opt/SUNWvts/bin/sunvts
```

Extraneous Serial Port Output

When the blade is powered off to M1 state, the blade’s serial port might output extraneous characters on the console. There is no functional impact to the blade, and the characters can be ignored. The problem occurs only on some models of serial concentrator.

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System Requirements

- Oracle Solaris 10 (9/10) or newer and it’s bundled Oracle VTS
- Software and firmware version ATCA R3 or newer
- 10G switch
- Midplane FRUID upgrade
- ShMM upgrade

Related Documentation

The following documents ship with the Netra SPARC T3-1BA blade server:

- *Important Safety Information for Sun Hardware Systems*
- *Netra SPARC T3-1BA Blade Server Start Here*

Refer to the *Netra SPARC T3-1BA Blade Server Start Here* for information on obtaining the rest of the Netra SPARC T3-1BA blade server documentation or go to the following web sites.

<http://www.oracle.com/pls/topic/lookup?ctx=nst31ba&id=homepage>

<http://www.oracle.com/pls/topic/lookup?ctx=ct900&id=homepage>

Enhancements

The R3U3 release and patches provide the following enhancements:

- Deferred firmware activation feature
- Retaining custom IPMC configurations during upgrades.

The latest release of bcfutool and upgradefw tool introduced support for the deferred firmware activation feature on the blade server. Refer to the README file in the firmware release bundle for detailed information.

IPMC configuration variables are now retained across firmware upgrades and downgrades, as long as the version being downgraded to supports this feature.

IPMC has a group of parameters that are stored in SEEPROM (NV Storage). All variables are part of one data structure. Each of these variables performs a function and can be set or read via commands. These variables are stored across IPMC resets.

This enhancement retains any custom values you configured for the following variables.

TABLE 1 IPMC Variables for Which You Can Retain Configurations

Variable	Description
log_level	Controls the log level of the debug messages.
Payload timeout	Controls the timeout for payload response. IPMC, after sending payload alert, expects OS to respond within this time. Used in graceful reboot and graceful shutdown features.
Payload shutdown timeout	Controls the payload shutdown timeout as described in the graceful reboot/shutdown specification. This is the time that an OS would take to shutdown its applications before IPMC shuts it down or resets the payload.
Verbosity	Controls the debug mode verbosity of the messages. Selectively, messages from/to a particular interface can be enabled/disabled. Used for debugging only.
AMC power up timeout	Controls the time it would take for the AMCs/ARTM to come up before the payload is brought to M4 state.
IPMC Control	Reflects IPMC's control bits. Currently two bits, Bit 0 and Bit 1 control LED2 and LED1 on the boards.
Set SOL Fail Over Link Change Timeouts	Controls the time for which IPMC waits to switch to second serial over LAN (SOL) link when primary link fails, and the time it waits to switch back to primary channel if the primary channel link comes back up.
Get SOL Fail Over Link Change Timeouts	Gets the time for which IPMC waits to switch to second serial over LAN (SOL) link when primary link fails.

If you want to reset these variables to their default, use the `Reset IPMC configuration variables` command.

For detailed command information, refer to the *Sun Netra CT900 Server Administration and Reference Manual*.

New Features

The R3U3 release and patches provide the following new features.

- Thermal trip settings for war-zone mode
- Commands for setting and displaying management port access
- Commands for setting and displaying management port routing
- Low power FBDIMM sensor support
- Multiplexing to zones 2 or 3 on Netra SPARC T3-1BA blade server
- Firmware upgrade from payload for blade servers
- System firmware progress sensor (SFPS)

Thermal Trip Settings for War-Zone Mode

Two new commands for use *only* with the Netra SPARC T3-1BA blade server allow users to override thermal thresholds and display current settings. The thermal trip setting determines if a blade server shuts down because maximum temperature is reached.

- `Set Thermal Trip`: Enables or disables the thermal trip threshold that determines when to shut down a blade server. Enabled is the default setting.
- `Get Thermal Trip`: Displays the value of the thermal trip setting.



Caution – Damage to blades and systems can occur if temperature thresholds are reached and shut down does not occur. Unless the operating situation warrants overriding the default, use the default value.

In extreme situations such as operating in a war zone, there may be a requirement by the user to override the maximum temperature thresholds to prevent shutdown of blade servers. Referred to as “war-zone mode,” users can override thermal trip to keep blade servers, and consequently, their systems, running, even if they reach maximum temperature thresholds.

For more information and instructions, refer to the *Sun Netra CT900 Software Developer’s Guide*.

Commands for Setting and Displaying Management Port Access

Two new commands are available to set and get the management port configuration to access either the rear or front panel:

- Set Management Port
- Get Management Port

For command syntax and descriptions, refer to the *Sun Netra CT900 Server Administration and Reference Manual*.

Commands for Setting and Displaying Management Port Routing

Three new commands are available to set and query the management port routing configuration:

- `setmgmtportroute`: Sets the management port route, including front or rear access.
- `getmgmtportroute`: Displays the ShMM management port routing configuration.
- `mgmtportstate`: Queries the IPMC for management port state or port routing configuration.

For command syntax and descriptions, refer to the *Sun Netra CT900 Server Administration and Reference Manual*.

Low-Power FB-DIMM Support

The Netra SPARC T3-1BA blade server supports a low power FB-DIMM @1.55 volts, in addition to the FB-DIMM@1.8 volts.

The FB-DIMM sensor accommodates the new voltage range with the following thresholds:

- Critical range: 1.44 <--> 1.93 volts (LC, UC)
- Non recover: 1.39 <--> 1.98 volts (LNR, UNR)

Note – These critical and non recoverable voltage ranges are threshold ranges.

For information about sensors, refer to the *Sun Netra CT900 Software Developer's Guide*.

Multiplexing to Zones 2 or 3 on Netra SPARC T3-1BA Blade Server

A multiplexer (MUX) controller and ShMM configuration is available for use on Netra SPARC T3-1BA blade server to multiplex 10GbE network interface unit (NIU) ports to Zone 2 (backplane) and/or to Zone 3 (ARTM). You can configure both ports independently.

Note – The host must be configured to match the MUX configuration.

For customers using the blade servers in a Sun Netra CT900 chassis, a complete end-to-end solution is provided. This feature is implemented through the ShMM firmware and new IPMI commands on the IPMC. These commands extend MUX configuration access to the management software so that during blade server hot-swaps, the MUX configuration is persistent across blade server activations and deactivations.

Customers who use Netra SPARC T3-1BA blade server in a third-party chassis, which does not have the Sun Netra CT900 chassis ShMM management software implemented, can save MUX configurations in a configuration file or in a persistent storage managed by system management software. When a system management software detects blade server activation, it sends the command to set MUX to the programmed state. Because management software sends the command during every blade server activation, the configuration is persistent across blade server deactivation and activation.

Refer to the following documentation:

- For information about this feature, *Netra SPARC T3-1BA Blade Server User's Guide*.
- For ShMM commands, refer to the *Sun Netra CT900 Server Administration and Reference Manual*.
- For IPMI commands, refer to the *Sun Netra CT900 Software Developer's Guide*.

Firmware Upgrade From Payload for Blade Servers

The Blade Centric Firmware Update Tool (`bcfutool`) consolidates the functionality from existing utilities and provides an easy-to-use interface for upgrading the IPMC, MMC, and system firmware from the Netra SPARC T3-1BA blade server payload running Oracle Solaris OS.

This version of `bcfutool` introduces support for deferred firmware activation and firmware bank switching (for system firmware).

For more information, refer to the README file included in the R3U3 release package and the instructions in these Product Notes.

System Firmware Progress Sensor (SFPS)

With the R3U3 release, a new systems firmware progress sensor (SFPS) is available. The purpose of the sensor is to model the firmware running on the payload and provide various states to the external management software (ShMM on Sun Netra CT900 servers). This occurs via a standard IPMI event mechanism.

The firmware states are Progress, Hang, and Error, with various substates. The sensor generates an IPMI event message for each state. You can verify the messages by using `cli a sel` command on the ShMM, through HPI event and SNMP traps for each state of a sensor event.

Refer to the following documentation:

- For information about this feature, *Netra SPARC T3-1BA Blade Server User's Guide*.
<http://www.oracle.com/pls/topic/lookup?ctx=nst31ba&id=homepage>
- For detailed command syntax and options, *Sun Netra CT900 Software Developer's Guide*. (Even if you are using a third-party chassis, the SFPS commands and options apply, and this document is available online.)
<http://www.oracle.com/pls/topic/lookup?ctx=ct900&id=homepage>

Oracle Solaris Operating System Versions

The Netra SPARC T3-1BA blade server supports the Oracle Solaris 10 (9/10) OS and subsequent compatible versions, with supported Netra patches. The Oracle Solaris OS software can be downloaded from Oracle at:

<https://support.oracle.com>

For information on these versions of the Oracle Solaris OS, including installation, see the appropriate Oracle Solaris documentation collection at the Sun Documentation web site at:

<http://www.oracle.com/technetwork/server-storage/solaris/documentation/index.html>

Note – Users might experience an incomplete download due to the 2.9 GB size of the Oracle Solaris 10 `netinstall` image file. If you are using a Mozilla browser, be sure to disable Mozilla’s download manager, which prevents larger file downloads. To disable it, choose Edit->Preference->Navigator->Downloads. Next, uncheck the default “Open the download manager option.”

After you download the Oracle Solaris OS, check the downloaded file to ensure that it downloaded correctly, for example:

```
# sum sol-10-u9-ga-sparc-dvd-iso.zip
63840 4061988 sol-10-u9-ga-sparc-dvd-iso.zip
```

```
# sum Netra_CP3360_S10U4_RR.cpio
1795 5823104 Netra_CP3360_S10U4_RR.cpio
```

Checking Firmware Versions

Systems

To display current version information, preview required upgrades, and to perform an upgrade of the Sun Netra CT900 system and installed blade servers, invoke the `autofwupgrade` command from the ShMM. The command syntax is as follows.

```
autofwupgrade [-h] [ [-vp] [-q <release>] [-a <release>] -f <FTP-  
server-IP-address>:<release-archive-root-dir>[:<user-  
name>:<password>] [-s <board-slot-number>] [-t <board-type> ]
```

Tip – We recommend that you use the `-p` option to preview the required updates before performing the upgrade.

Note – The `autofwupgrade` tool does not support system firmware version query/upgrade of the Netra SPARC T3-1BA blade server.

▼ To Display Firmware Versions for Systems

Use the following command at the `cli` prompt.

```
cli> showhost <slot#>
```

or use the `autofwupgrade` command.

Note – The `showhost` command works for systems and many blades; however, it does not work for the Netra SPARC T3-1BA blade server. See next section.

Blades Only

For users who do not have access to the ShMM or who want manual control of the FW upgrade process, use the `bcfutool` upgrade tool instead of the ShMM `autofwupgrade`. Refer to the README and these Product Notes for information and instructions.

The Netra SPARC T3-1BA blade server firmware should be at the versions listed in the README.

The command syntax is as follows.

```
bcfutool [-h][-g][-c sysfw | ipmc | mmc] [-m <mmcadddr>] [-f  
<file_name>] [-y] [-v] [-d] [-ax]
```

▼ To Display Firmware Versions

Use the `bcfutool` command at the Oracle Solaris prompt.

```
#> bcfutool -g
```

Upgrading the Software and Firmware

This release contains the most up-to-date features, enhancements, and bug fixes. Using an earlier release could limit your use of features and enhancements, and could affect your blade servers and systems with known issues.

Note – R3U3 includes changes from previous releases.



Caution – Asynchronous events such as power outage, latch opening, or blade extraction during a firmware upgrade might corrupt the blade server firmware such that the blade will not be able to boot, and you will not be able to retry the upgrade. Be careful not to cause any these events during upgrades. For more information, see [“Troubleshooting Upgrades” on page 21](#).

Upgrading Systems (Sun Netra CT900 Servers With Netra SPARC T3-1BA Blade Servers)

A single bundled software and firmware package is available to apply the applicable portions to your chassis and blade servers. To download the release package and upgrade your Netra SPARC T3-1BA blade server and Sun Netra CT900 servers, refer to the Netra SPARC T3-1BA blade server README files and *Sun Netra CT900 Server Product Notes*.

Be sure to follow the upgrade sequence documented in the README files.

The `autofwupgrade` tool upgrades the following automatically from the ShMM:

- IPMC firmware
- MMC firmware on Sun Netra CP32x0-ARTMs

Note – To access and use the automated firmware upgrade tool, you must upgrade the ShMM firmware to the newest release before running the automated upgrade tool.

The following firmware are *not* upgraded by the `autofwupgrade` tool and must be upgraded manually. (For upgrade instructions, refer to README files included in the release download package.)

- NIC and BIOS firmware
- ATCA switch card firmware
- ShMM firmware
- T3-1BA system firmware

Upgrading Blade Servers Only

A single bundled software and firmware package is available to apply the applicable portions to your blade servers. To download the release package and upgrade your Netra SPARC T3-1BA blade server, refer to the README files and following instructions in this section.

Be sure to follow the upgrade sequence documented in the README files.

▼ To Download Firmware

1. **Log in to <https://support.oracle.com>.**

If this is your first time logging in to Oracle Support, register as a new user, following the links and instructions on the site.

2. **Select Patches & Updates.**
3. **In the Patch Search area, click on the Advanced Search link.**
4. **For Product select Netra SPARC T3-1BA from the pull-down menu.**
5. **For Release, select the newest release, unless you require an earlier release.**
6. **For Platform, enter or select the platform that matches your system.**
7. **Click on the Search button.**
8. **From the Patch Search Results, find the package that you want to download.**
9. **Select each package you want, then download it and the associated README.**
You can download both the firmware package and the patches from the same search results screen.
10. **Check the current firmware versions on your blade server, using the `bcfutool -g` command.**
All firmware versions are listed in the results from this command. Individual commands for checking system, IPMC, and MMC firmware are also available.
11. **Perform the procedures for upgrading system firmware, IPMC firmware, and MMC firmware, as applicable.**
12. **Apply the patches as described in “[Applying Patches](#)” on page 17.**

▼ To Upgrade System Firmware

1. Update the system firmware by entering the `bcfutool` command as follows:

```
bcfutool -c sysfw -f ./Sun_System_Firmware-<x_x_x_x>-  
Netra_SPARC_T3-1BA.pkg
```

where `<x_x_x_x>` is the newest system firmware version that you are replacing the earlier version with.

2. Enter `yes` or `y` to continue.

Entering `yes` will continue the process of upgrading the firmware.

3. When the upgrade is complete, check the system firmware version.

```
bcfutool -g -c sysfw
```

If the upgrade was successful, the newest version will be returned after you enter the command.

If you encountered problems during the upgrade, see [“Troubleshooting Upgrades” on page 21](#).

▼ To Upgrade IPMC Firmware

1. Update the IPMC firmware by entering the `bcfutool` command as follows:

```
bcfutool -c ipmc -f Netra_T3-1BA_ipmc-boot-<x.x.x>.hpm  
bcfutool -c ipmc -f Netra-T3-1BA_ipmc_main_<x.x.x>.hpm
```

where `<x.x.x>` is the newest IPMC boot and main firmware versions that you are replacing the earlier versions with.

Note – Even though IPMC has boot and main images, it is usually not mandatory to update both of them. Because most of features are part of the main image, you typically only apply the main image update. Refer to the README files to check which components need to be updated.

2. Enter `yes` or `y` to continue.

Entering `yes` will continue the process of upgrading the firmware.

When the service processor has been successfully updated, the user will be presented with the Oracle Solaris login prompt.

3. When the upgrade is complete, check the IPMC firmware version.

```
bcfutool -g -c ipmc
```

If the upgrade was successful, the newest versions will be returned after you enter the command.

If you encountered problems during the upgrade, see [“Troubleshooting Upgrades” on page 21](#).

▼ To Upgrade MMC Firmware

1. Update the MMC firmware by entering the `bcfutool` command as follows:

```
bcfutool -c mmc -f XCP32X0-HDD-MMC-<x.x.x>.hpm
```

where `<x.x.x>` is the newest MMC firmware version that you are replacing the earlier version with.

Note – Even though MMC has boot and main images, it is usually not mandatory to update both of them. Because most of features are part of the main image, you typically only apply the main image update. Refer to the README files to check which components need to be updated.

2. Enter `yes` or `y` to continue.

Entering `yes` will continue the process of upgrading the firmware.

When the service processor has been successfully updated, the user will be presented with the Oracle Solaris login prompt.

3. When the upgrade is complete, check the MMC firmware version.

```
bcfutool -g -c mmc
```

If the upgrade was successful, the newest versions will be returned after you enter the command.

If you encountered problems during the upgrade, see [“Troubleshooting Upgrades” on page 21](#).

Applying Patches

This section provides information on the Sun Netra patches that you must download from the Oracle Support web site for the Netra SPARC T3-1BA blade server and instructions on how to apply these patches. If the Oracle Solaris OS was pre-installed on your system, these patches might already be installed; verify that they are present.

Note – Refer to the *System Administration Guide: Basic Administration* documentation for the Oracle Solaris OS that you are using for more information on managing and applying patches.

There are two types of patches to download: regular patches and point patches. If you specify the base Patch ID number (the first six digits) in the Search field, you see the most recent version of the patch.

Always install point patches *after* you have installed the regular patches.

Note – Whenever patches are updated, the revision number increases (117530-02, 117530-03, and so on). To find the latest version of a patch, perform the search without the revision number. For example, if this document asks you to download patch 117530-03, search for “117530” to find the most recent version of the patch.

Before you start downloading, identify or create a directory on your system for receiving the downloaded patches. This directory will be referred to as the *patch-download-dir* in the following procedures.

There are two procedures for downloading and installing patches for the Netra SPARC T3-1BA blade server.

- If you are applying patches to a boot device (if you installed Oracle Solaris onto a Compact Flash or other bootable device), go to “[Applying Sun Netra Patches to a Boot Device](#)” on page 18.
- If you are applying patches to a network installation image for diskless clients, go to “[Applying Sun Netra Patches to a Oracle Solaris 10 OS Boot Server for Diskless Clients](#)” on page 20.

Applying Sun Netra Patches to a Boot Device

Following are the instructions for downloading and installing the patches on a boot device.

▼ To Apply Patches to a Boot Device

1. If you already downloaded the patches, skip to [Step 12](#).
2. If you need to download the patches, log in to <https://support.oracle.com>.
If this is your first time logging in to Oracle Support, register as a new user, following the links and instructions on the site.
3. Select Patches & Updates.
4. In the Patch Search area, click on the Advanced Search link.
5. For Product select Netra SPARC T1-1BA from the pull-down menu.
6. For Release, select the newest release, unless you require an earlier release.
7. For Platform, enter or select the platform that matches your system.
8. Click on the Search button.
A list of patches with their IDs is displayed.

9. Review the Patch Search Results to find the patches that you want to download.

The mandatory Oracle Solaris 10 OS patches are listed in the following table.

Patch ID
126143-01
128593-01
118843-01
125416-05

10. Click on the patch ID you want to download.

Each patch ID is shown in blue text, which is a link to the download page.

11. Download each patch and associated README.

12. Use the `unzip` command on the patches that you downloaded to extract the contents of the downloaded zip files.

Refer to the `unzip(1)` man page for additional information.

13. Review the patch README files for specific Install Instructions and follow those instructions.

14. To install a patch, become superuser and type the `patchadd` and the full path to the patch.

```
# patchadd /patch-download-dir/patch-id
```

15. Perform a `patchadd` for each of the patches in the order listed in [Step 14](#).



Caution – You *must* install the patches using the `patchadd` command in the order listed. Some of the patches require software that was added through previous patches, so installing the patches out of order could result in error messages and corrupted software.

Refer to the `patchadd(1M)` man page for instructions on using the command.

Applying Sun Netra Patches to a Oracle Solaris 10 OS Boot Server for Diskless Clients

These patches are required for the diskless client boot server installation process documented in the *Netra SPARC T3-1BA Blade Server User's Guide*.

Note – Refer to the Oracle Solaris 10 OS *System Administration Guide: Basic Administration* documentation for more information on managing diskless services.

Following are the instructions for downloading and installing the Netra patches that you will apply to a Oracle Solaris 10 OS diskless service.

▼ To Apply Patches to Oracle Solaris 10 OS Diskless Clients

1. **Log in to** <https://support.oracle.com>.

If this is your first time logging in to Oracle Support, register as a new user, following the links and instructions on the site.

2. **Select "Patches & Updates."**

3. **Locate and download the mandatory Oracle Solaris 10 OS patches listed in the following table.**

Patch ID

126143-01

128593-01

118843-01

125416-05

4. **In the "Patch Search" area, enter the patch ID, omitting the revision number (last two numbers).**

5. **Click "Search" button.**

If a newer revision is listed for a patch, select and download it.

6. **Move the patch zip files into the *patch-download-dir* directory.**

Where *patch-download-dir* is the path to the directory where the Oracle Solaris 10 OS patches are stored. The *patch-download-dir* directory might already contain patches that were copied during the OS installation.

7. Use the `unzip` command on all of the patches that you downloaded to extract the contents of the downloaded zip files.

Refer to the `unzip(1)` man page for instructions on using the command.

8. Change directories to the `/usr/sadm/bin` directory.

```
# cd /usr/sadm/bin
```

9. Install the required patches to the diskless service.

Use the `smosservice patch` command to install the patches to the installation image.

Install the software patches on the server *in the order shown*, where `root-password` is the root password of the server and `patch-download-dir` is the path to the directory where the Oracle Solaris 10 OS patches are stored.

Note – Note that you must add an additional `-U` option when you install the last patch.

```
# ./smosservice patch -u root -p root-password -- -a patch-download-dir/126143-01 -m
# ./smosservice patch -u root -p root-password -- -a patch-download-dir/128593-01 -m
# ./smosservice patch -u root -p root-password -- -a patch-download-dir/118843-01 -m
# ./smosservice patch -u root -p root-password -- -a patch-download-dir/125416-05 -m -U
```

10. Refer to the instructions in the *Netra SPARC T3-1BA Blade Server User's Guide* to complete the installation procedures for diskless clients.

Troubleshooting Upgrades

To prevent issues during `bcfutool` command upgrades, review the following information.



Caution – There are vulnerability windows during the firmware upgrade operation that might corrupt the blade firmware, causing the blade not be able to boot. In these cases, these blades can only be recovered by board-external (chassis vendor supplied) tools, if available. If not recoverable, these blades have to be returned to SunService for repair or replacement.

To avoid firmware corruption, prevent the following events from occurring while the firmware is being upgraded:

- Latch open causing blade power off
- Chassis power outage
- Sudden extraction of the blade from chassis

A recommendation for avoiding failures during upgrade vulnerability periods is to monitor the upgrade manually or by using a script.

If you encounter any issues during an upgrade when using the `bcfutool` command, see the following tables for information helpful when troubleshooting the issue.

TABLE 2 System Firmware Troubleshooting

Error Message or Description	Probable Cause	Possible Fix
send/receive failed	An incomplete firmware image download caused the upgrade to abort.	Retry <code>bcfutool</code> command.
PCP FW Download: Fail to start Auto FW update	After successful transfer of sysfw image, <code>bcfutool</code> was invoked but the invocation failed.	Retry <code>bcfutool</code> command.
FAIL to power off host - System Firmware is not updated	Service processor tried to power off the Sparc processor and checked for successful power off. Power off failure caused upgrade to abort.	Retry <code>bcfutool</code> command.
FAIL to update System Firmware Power on host	Service processor invoked the update sequence to update flash components and encountered an error. The Sparc is powered on again.	Retry <code>bcfutool</code> command.
FAIL to reset SP	An error occurred when the service processor invoked the reset to complete the update.	Retry <code>bcfutool</code> command <i>after</i> power cycling the blade. Power cycling the blade server can be done either by hot swapping the blade server or from ATCA standard ShMM using deactivate/activate sequence.

TABLE 2 System Firmware Troubleshooting (*Continued*)

Error Message or Description	Probable Cause	Possible Fix
Latch opened during upgrade	<p>An open latch event will be detected by IPMC, and after negotiating with ShMM, the blade can be brought down to M0 state, which will cause the system firmware update to fail. Because the new firmware is not fully activated, the blade will come up with original firmware on the next boot up.</p> <p>However, there is a small vulnerability window (less than two minutes) where the non-redundant firmware portion is updated. If the latch is opened during this window, the non-redundant firmware becomes corrupted.</p>	<p>Close the latch then retry bcfutool command.</p> <p>If the upgrade fails, then the redundant firmware is probably corrupted.</p> <p>If the system will not power on ultraSparc T2 and boot Oracle Solaris OS, then the firmware is corrupted.</p> <p>Recover as follows:</p> <p>If using a Sun Netra CT900 chassis, use the autofwupgrade utility from the ShMM.</p> <p>If using a third-party chassis, return the blade to Sun Service for repair or replacement.</p>

TABLE 2 System Firmware Troubleshooting (*Continued*)

Error Message or Description	Probable Cause	Possible Fix
Shelf power outage	<p>If Shelf lost power during the system firmware update, the blade is booted with the old image.</p> <p>However, there is a small vulnerability window (less than two minutes) where the non-redundant firmware portion is updated. If Shelf power is lost during this window, the non-redundant firmware becomes corrupted.</p>	<p>After power is returned to the Shelf, retry bcfutool command.</p> <p>If the upgrade fails, then the redundant firmware is probably corrupted.</p> <p>If the system will not power on ultraSparc T2 and boot Oracle Solaris OS, then the firmware is corrupted.</p> <p>Recover as follows:</p> <p>If using a Sun Netra CT900 chassis, use the autofwupgrade utility from the ShMM.</p> <p>If using a third-party chassis, return the blade to Sun Service for repair or replacement.</p>
Sudden blade extraction	<p>The blade was extracted suddenly without following standard PICMG hotswap procedures. The service processor will function normally with old image booted up on next insertion.</p> <p>However, there is a small vulnerability window (less than two minutes) where the non-redundant firmware portion is updated. If the blade is extracted during this window, the non-redundant firmware becomes corrupted.</p>	<p>After blade is reinserted, retry bcfutool command.</p> <p>If the upgrade fails, then the redundant firmware is probably corrupted.</p> <p>If the system will not power on ultraSparc T2 and boot Oracle Solaris OS, then the firmware is corrupted.</p> <p>Recover as follows:</p> <p>If using a Sun Netra CT900 chassis, use the autofwupgrade utility from the ShMM.</p> <p>If using a third-party chassis, return the blade to Sun Service for repair or replacement.</p>
Flash hardware issues	<p>If any of the flash devices used to store system firmware components are broken (unlikely), the blade will not come up after the update.</p>	<p>Because it is a hardware issue, there is no recovery for this situation. Return the blade to Sun Service for repair or replacement.</p>

TABLE 3 IPMC and MMC Firmware Troubleshooting

Error Message or Description	Probable Cause	Possible Fix
IPMC communication Failure, aborting upgrade	If IPMC is reset during firmware update (for example, an internal WDT reset), the upgrade will abort.	Retry bcfutool command.
IPMC communication Failure, aborting upgrade	Because the service processor is a proxy for payload communication, a service processor reset will disrupt the upgrade.	Retry bcfutool command.
User interruption during upgrade	If a user interrupts the upgrade (for example, abruptly terminating bcfutool or rebooting Oracle Solaris OS), the upgrade will abort. There might not be any message displayed.	Retry bcfutool command.
Latch opened during upgrade	If the latch is opened, the event is ignored and the upgrade is completed.	
Shelf power outage	If Shelf lost power during the firmware update, IPMC firmware is corrupted.	If the upgrade fails, then the firmware is probably corrupted. If the system will not power on and boot Oracle Solaris OS, then recover as follows: <ul style="list-style-type: none"> • If using a Sun Netra CT900 chassis, use the upgradefw utility from the ShMM. • If using a third-party chassis, check with the vendor for a recovery method or tool.
Sudden blade extraction	The blade was extracted suddenly without following standard PICMG hotswap procedures. The IPMC firmware is corrupted and the blade will not power up.	If the upgrade fails, then the firmware is probably corrupted. If the system will not power on and boot Oracle Solaris OS, then recover as follows: <ul style="list-style-type: none"> • If using a Sun Netra CT900 chassis, use the upgradefw utility from the ShMM. • If using a third-party chassis, check with the vendor for a recovery method or tool.
Flash hardware issues	If any of the IPMC/MMC flash devices used to store system firmware components are broken (unlikely), the blade will not come up after the update.	Because it is a hardware issue, there is no recovery for this situation. Return the blade to Sun Service for repair or replacement.

Removing and Installing Blade Servers

To remove and replace a blade server safely, manually shut down Oracle Solaris from the Oracle Solaris prompt. For detailed instructions, refer to the Oracle Solaris Operating System documentation and the *Netra SPARC T3-1BA Blade Server User's Guide*.

```
sync;halt
```

When the shutdown is completed, the `ok` prompt is displayed.