Release Notes for Oracle HCA Firmware, Option ROM, and Upgrade Utility 4.0.3

These release notes contain information about the various versions of the Oracle HCA firmware, Option ROM, and Upgrade utility, all of which are components of one downloadable archive referred to in this document as the Oracle firmware package.

These release notes document the following topics:

Additional release notes exist for:

- Oracle host drivers for Oracle VM
- Oracle host drivers for Solaris
- Oracle host drivers for Windows
- Oracle host drivers for Linux
- XgOS and the Fabric Interconnect
- Oracle Fabric Manager GUI
- Oracle host drivers for ESX Server Classic and ESXi 4.1, 5.0, and later

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What's New in This Release

XgBoot 4.0.3 contains the following:

- Support for new non-Oracle HCAs, for example Mellanox ConnectX-3 HCAs. Oracle HCAs are still supported in this version of XgBoot.
- Refreshed Option ROM for QDR HCA and blade server functionality.
  - The Option ROM is enhanced to support iPXE configuration of Native VLAN in XgBoot. With this enhancement, VLAN Tagging is supported for PXE traffic as per functionality documented on the iPXE.org website.
  - The Option ROM's device boot order is enhanced to support the ability to boot from a vNIC before a vHBA.
  - The Option ROM is enhanced to enable HTTPS option in iPXE, which allows the listed enhancements to be supported through VMware Auto-Deploy.
- Option ROM 4.0.3 is supported by Red Hat Enterprise Linux 6 Update 3 hosts, as well as the currently available version of Oracle Linux.
- A fix has been added. For information, see Fixed Problem in the Option ROM.


Note

XgOS 3.9.0 or higher is required with XgBoot 4.0.3. Do not upgrade to XgBoot 4.0.3 unless your Fabric Directors are running XgOS 3.9.0 or higher.

Option ROM

This section of these release notes contains information about the Option ROM on Oracle HCAs. This section includes the following topics:


Note

For Solaris hosts, Oracle does not have a specific tool to configure or upgrade the Option ROM. However, you can use the `mstflint` toolset for firmware upgrades of most HCAs. Information about using this toolset is in the public domain, and out of the scope of this document.

Current Versions of Option ROM Supported

Oracle HCAs require Option ROM installed to support connection to the IB fabric. Table 1 shows current versions supported for some widely used HCA firmware.

Table 1 Current Versions of Supported HCA Option ROM

HCA Option ROM	Current Version	Comments
ConnectX-3 (non-Oracle) HCAs	4.0.3	Third-party ConnectX-3 HCAs can use this version of Option ROM
ConnectX-2 HCAs	4.0.3	
ConnectX HCAs	2.7.9	

Known Problems in the Option ROM

Table 2 shows the known problems in this version of the Option ROM. This version might also include fixes from previous version of the Option ROM. If so, such fixes are indicated in text.

Table 2 Known Problems in XgBoot 4.0.3 Option ROM

Number	Description
17006424	XgBoot references `supported_hca.txt` file and a limited number of 3rd party vendors and board IDs, instead of allowing an open and undefined number and type of 3rd party vendors.
16689161	Windows script for updating the Option ROM is using old Mellanox burn tools that do not understand the firmware on ConnectX-3 HCAs.

Fixed Problem in the Option ROM

Table 3 shows the fix in this version of Option ROM. This version might also include fixes from previous versions of Option ROM. If so, such fixes are indicated in text.

Table 3 Fixed Problems in XgBoot 4.0.3 Option ROM

Number	Description
17011552	Added a timing delay that fixes a link up problem which prevented some non-Oracle ConnectX-3 cards and QDR blade servers from coming up. See Refreshed Option ROM for QDR HCA and blade server functionality.

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Oracle HCA Firmware

This section of these release notes contains information about the Option ROM on Oracle HCAs. This section includes the following topics:

Oracle HCA Firmware Utility

The firmware utility is revised and released independent of the XgOS or Oracle host drivers, so the version number of the firmware upgrade utility and the corresponding host drivers might match, but are not necessarily the same. For example, it is possible to have the firmware upgrade utility for Windows hosts at version level 4.0.3, but the actual Windows host driver version at level 3.0.6. As this example shows, it is not intuitive to determine which version of firmware utility is applicable to which version of host driver.

Also, the version numbers of the various firmware upgrade utilities can be different among host OSes. For example, it is possible for the firmware upgrade utility for Linux hosts to be at version 4.0.2, but the firmware upgrade utility for Windows hosts to be at 4.0.3, and despite the version number difference, it is possible that both utilities are the most recent.

Table 4 on page 4 shows the most recent version of firmware utility. If you do not have the latest version, Oracle recommends that you update to the latest available version. You can get the latest version of firmware upgrade utility from the Oracle Technical Network (OTN):

`http://www.oracle.com/technetwork/server-storage/xsigo-1870185.html`

If you need assistance with determining what version of firmware utility is required, or cannot locate the correct version of firmware utility, you can contact Oracle Customer Support. See Accessing Oracle Support.

Table 4 Firmware Upgrade Utility Versions

Host OS Platform	Firmware Utility Information
Linux	**Current Version:** 4.0.3 **File Name:** xsigo-hca-firmware-4.0.3.XGBOOT.r102-1.i386.rpm **Comments:**
Windows	**Current Version:** 4.0.3 **File Name:** windows-xsigo-hca-firmware-4.0.3.XGBOOT-r102.zip **Comments:** Use the **`system upgrade hca`** command to upgrade the HCA, or use server-based tools that are native to Windows, such as mstflint.
ESX	**Current Version:** 4.0.3 **File Name:** xsigo-hca-firmware-4.0.3.XGBOOT.r102-1.i386.rpm **Comments:** For ESX 4.1 hosts, the same upgrade utility for Linux hosts is applicable to ESX Server Classic 4.x hosts. For ESX5 and later hosts, you will need to use a firmware ISO to upgrade the firmware on the ESX server's HCA.

Table 4 (continued) Firmware Upgrade Utility Versions

Host OS Platform	Firmware Utility Information
Solaris	Solaris does not currently have a supported firmware update tool for OVN. If you need to update the firmware on an HCA in a Solaris host, please contact Oracle support through any of the methods documented in Accessing Oracle Support on page 6.

Known Problems in the HCA Firmware Utility

Table 5 shows the known problems in this release of HCA firmware utility.

Table 5 Known Problem in XgBoot 4.0.3 Firmware Utility

Number	Description

16583786	HCA firmware upgrade started through the XgOS 3.9.0 does not complete successfully. When this problem occurs, the following error message is displayed:
	`set physical-server moe upgrade-hca 6 firmware`
	`Verifying HCA Firmware ...`
	`Upgrade of HCA for (lid 6) failed: -E- Image file open failed: Read error on`
	`file "/var/data/hca_firmware/" - read only 0 bytes (from 4096)`
	`.`

Running the Firmware Upgrade Utility

After getting the newest version of Oracle firmware (if needed), you might need to upgrade the firmware. Oracle provides an upgrade tool for each appropriate host OS:

- For Solaris hosts, Oracle does not have a specific tool to configure or upgrade the HCA firmware. However, you can use the mstflint toolset for firmware upgrades of most HCAs. Information about using this toolset is in the public domain, and out of the scope of this document.
- For Linux hosts, Oracle has created a script called `xg_config`, which has many uses:
  - Flashing an HCA with new firmware and Option ROM.
  - Checking the current running HCA version and Option ROM version.
  - Permitting scriptable options (non-interactive mode). This mode is useful for customers automating their firmware upgrade. See **`xg_config --help`** for more information.

  Be aware that a server reboot is required after the HCA firmware is upgraded. For more information about the `xg_config` script, see “HCA and Option ROM Upgrades” in the “Installing Linux Host Software” chapter of the *Fabric Interconnect Hardware and Host Drivers Installation Guide*.
- For Windows hosts, Oracle has created a script called `xg_fwupdate.vbs`, which has many uses:
  - Checking the HCA’s hardware ID for compatibility with Fabric Interconnect. This check occurs before the firmware upgrade is attempted, and if the HCA is not supported by Oracle, the firmware will not be upgraded.

— Checking that the firmware on the HCA is within a range of minimum and maximum version supported by the Fabric Interconnect. This check occurs before the firmware upgrade is attempted, and if the HCA firmware is not within the supported range of versions, the upgrade will not run. You should contact Oracle Customer Support if this issue occurs.

— Flashing the HCA with new firmware and Option ROM.

— Permitting scriptable options (non-interactive mode). This mode is useful for customers automating their firmware upgrade. See **`cscript xg_fwupdate.vbs -h`** for more information.

Be aware that a server reboot is required after the HCA firmware is upgraded. For more information about the `xg_fwupdate.vbs` script, see “Upgrading the Windows Server’s HCA Firmware” in the “Installing Windows Host Software” chapter of the *Fabric Interconnect Hardware and Host Drivers Installation Guide*.

Accessing Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/us/corporate/acquisitions/xsigo/support-1849142.html or visit http://www.oracle.com/us/corporate/accessibility/support/index.html if you are hearing impaired.