

**Oracle® Virtual Networking Host Drivers
for Oracle Linux Product Notes**

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Using This Documentation

- **Overview** – Provides last-minute information about Oracle Virtual Networking host drivers version 5.0.8 for Oracle Linux.
- **Audience** – System administrators, authorized service providers, and users who have experience administering advanced networks.
- **Required knowledge** – Advanced experience administering InfiniBand networks, and managing host servers and their OSs.

Product Documentation Library

Documentation and resources for this product and related products are available at <http://www.oracle.com/goto/fabric-interconnect/docs>.

Feedback

Provide feedback about this documentation at <http://www.oracle.com/goto/docfeedback>.

◆◆◆ CHAPTER 1

Late-Breaking Information

These topics provide late-breaking information about version 5.0.8 of the Oracle Virtual Networking host drivers for Oracle Linux and Red Hat Enterprise Linux (RHEL) servers.

- [“What's New in This Release” on page 9](#)
- [“Minimum Requirements” on page 9](#)
- [“Downloading and Installing the Host Drivers” on page 12](#)
- [“Known Issues” on page 13](#)
- [“Issue Resolved” on page 14](#)
- [“Documentation Issues” on page 14](#)

What's New in This Release

This version of host drivers provides the following new functionality:

- Support for hosts running Oracle Linux version 5 Update 10 with Red Hat Enterprise Linux kernel 2.6.18-371.11.1.el5
- Support for hosts running Oracle Linux version 6 Update 5 with Red Hat Enterprise Linux kernel 2.6.32-431.23.3.el6.x86_64
- Support for Oracle Software Defined Networking (Oracle SDN) functionality is supported for both of the new Red Hat-compatible kernels.
- Fixes have been added. See [“Issue Resolved” on page 14](#).

Minimum Requirements

These topics provide minimum system requirements for the host drivers.

- [“Supported OS Levels” on page 10](#)
- [“Supported HCAs” on page 10](#)
- [“System Limitations and Restrictions” on page 11](#)

Supported OS Levels

The 5.0.8 release of the host drivers were tested with and support the following OSes.

- Oracle Linux 5 Update 10 with a Red Hat Enterprise Linux kernel.
- Oracle Linux with 6 Update 5 with a Red Hat Enterprise Linux kernel.

Although Red Hat Enterprise kernels are supported, Oracle Virtual Networking host drivers are tested and qualified on Oracle Linux with RHEL-compatible kernels, not “pure” Red Hat Enterprise Linux ISO images.

Supported HCAs

This host driver release supports Oracle HCAs as well as third-party manufacturers' HCAs with the requirement that the HCAs use the required version of firmware. Refer to the HCA's product notes for latest firmware versions.

Supported Oracle HCAs include:

- Sun InfiniBand Dual Port 4x QDR PCIe Low Profile Host Channel Adapter M2. Refer to <http://docs.oracle.com/cd/E19241-01/index.html> for documentation.
- Sun InfiniBand Dual Port 4x QDR PCIe ExpressModule Host Channel Adapter M2. Refer to <http://docs.oracle.com/cd/E19157-01/index.html> for documentation.
- Oracle Dual Port QDR InfiniBand Adapter M3. Refer to http://docs.oracle.com/cd/E40985_01/index.html for documentation.

For third-party HCAs, consult the manufacturer's documentation for the required firmware version.

▼ Download and Install Supported Firmware Versions for HCAs

Oracle HCAs might require a firmware upgrade to support the host drivers. You can download the firmware and option ROM following this procedure. For third-party HCAs, consult the manufacturer's documentation for the required firmware version.

1. **Go to:**
<http://www.oracle.com/technetwork/indexes/downloads>
2. **Scroll down the page to Drivers.**

3. **Click Xsigo Drivers.**
4. **Under HCA FW Utils, click the link for your operating system and version, and download the file to a network-accessible node in your network.**
5. **Copy the software from the network-accessible node to the host server.**
6. **Unzip the .zip file.**
7. **Install the firmware and option ROM into the Oracle HCA as described in the HCA documentation or in [“Upgrade HCA Firmware and Option ROM” on page 15.](#)**

System Limitations and Restrictions

These topics describe system limitations and restrictions for the host drivers.

- [“Virtual Resources Supported” on page 11](#)
- [“Boot Methods” on page 11](#)

Virtual Resources Supported

This release of the host drivers support the following number of virtual resources for each host:

- VNICs – eight
- VHBAs – four
- Bonded VNICs – four pairs
- Multipath VHBAs – two pairs

Boot Methods

The following boot methods are supported:

- SAN boot
 - Oracle Linux 5 Update 10 with the 2.6.18-371.el5 kernel
 - Oracle Linux 6 Update 5 with the 2.6.32-431.el6 kernel
- PXE boot
- iSCSI boot
- Local boot from server's hard drive

Downloading and Installing the Host Drivers

These topics provide a summary of steps to download and install the host drivers.

- “Host Driver Selection” on page 12
- “Download the Host Drivers From Oracle Technical Network” on page 12
- “Install Host Drivers for Red Hat-Compatible Kernels” on page 13

Host Driver Selection

The host driver file names identify which version of Linux they support and have this format:

`OLversionupdate-5.0.8.tar.gz`

Where:

- *version* is the Linux major version release number.
- *update* is the Linux version update number.

For example:

- `OL5u10-5.0.8.tar.gz` is for Oracle Linux/RHEL 5 Update 10
- `OL6u5-5.0.8.tar.gz` is for Oracle Linux/RHEL 6 Update 5

▼ Download the Host Drivers From Oracle Technical Network

As an alternative to this task, you can also download drivers from <https://edelivery.oracle.com>.

1. Go to <http://www.oracle.com/technetwork/indexes/downloads>.
2. Scroll down the page to Drivers.
3. Click Xsigo Drivers.
4. Scroll down the page to Xsigo Downloads, GPL.
5. Under Host Drivers, click the link for your operating system and version, and download the file to a network-accessible node in your network.
6. Copy the software from the network-accessible node to the host server.

7. **Uncompress the .tgz file.**
8. **Read any README or other text file for more information about the included .rpm files.**
9. **Install the host drivers.**
See [“Install Host Drivers for Red Hat-Compatible Kernels” on page 13.](#)

▼ Install Host Drivers for Red Hat-Compatible Kernels

1. **Remove any InfiniBand stack that is earlier than version 1.5.3.2.**
2. **Remove the existing host drivers.**
3. **Install the correct host driver for the host's architecture.**

For example:

```
# rpm -ivh xsigo-hostdrivers-kmod-2.6.32_358.el6.5.0.7.LX-native.x86_64.rpm
```

4. **Reboot the host to load the new host drivers.**

Known Issues

The following known issues are for the Red Hat-compatible kernels for Oracle Linux 5 Update 10 and Oracle Linux 6 Update 5.

Bug ID	Description
1948587	<p>On RHEL 6 Update 5 Hosts, Host Drivers Cannot Load When Using a Standard <code>initrd/vmlinuz</code> Image for PXE Boot</p> <p>If you use the <code>vmlinuz</code> and <code>initrd.img</code> from the RHEL ISO, a problem prevents the vNICs and vHBAs from being accessible even though they are injected in to the custom boot image. Consequently, the RHEL 6 Update 5 host will not PXE or SAN Boot.</p> <p>Workaround: For SAN or PXE Boot of RHEL 6 Update 5 hosts over an Oracle Fabric Interconnect, you must always use the <code>vmlinuz</code> and <code>initrd.img</code> from Oracle Linux instead of the Red Hat Enterprise Linux versions of these tools.</p>
19455744	<p>On RHEL 6 Update 5 hosts, SAN Booting Causes Kernel Panic When Accessing Boot Image</p> <p>While creating a SAN boot image, an internal script inserts the Oracle Virtual Networking host drivers into <code>initrd.img</code> file instead of the <code>initramfs.img</code> that the REHL 6 Update 5 host expects. Although SAN install works correctly, when the server attempts to boot up, it experiences a kernel panic with an <code>Init Not Tainted</code> message.</p>

Issue Resolved

Bug ID	Description
	Workaround: Run the following command <i>after</i> SAN install but <i>before</i> rebooting the server: <pre>/sbin/mkinitrd -f --preload mlx4_ib --preload mlx4_core --preload xscore --preload xsvhba --preload xsvnic --with dm-multipath /boot/initramfs-2.6.32-431.el6.x86_64.img 2.6.32-431.el6.x86_64</pre>
19380352	During Reboot, an Oracle Linux 5 Update 10 Server With Multiple vNICs Experiences a Kernel Panic and Crashes If you reboot an Oracle Linux 5 Update 10 host running 5.0.8 host drivers with two or more vNICs configured on it, the host will experience a kernel panic, then crash. Workaround: Stop the openibd service before rebooting the server with two or more vNICs: <ol style="list-style-type: none">1. Stop the xsigo service: <code>service xsigo stop</code>2. Stop the openibd service: <code>service openibd stop</code>3. Deactivate the openibd service so that it will not start again after server reboot: <code>chkconfig openibd off</code>4. Start the xsigo service: <code>service xsigo start</code>
16862166	Server Profile Staysup/down During PXE Boot on Oracle Linux During a PXE boot image installation, the server profile on the Oracle Fabric Interconnect might stay in up/down state. After the host reboots and the host driver is loaded into memory, the server profile successfully comes online in an up/up state. Workaround: No workaround exists at this time. The PXE installation is successful.
16335100	Seven-Second Multicast Traffic Hit When Subnet Manager Is Started If an event causes a failover or restart of the OpenSM InfiniBand Subnet Manager, multicast traffic is delayed for approximately seven seconds while the failover or restart occurs. Workaround: No workaround exists at this time.

Issue Resolved

Bug ID	Description
18379006	Enabled State of Checksum Offload for PVI Was Opposite of What Was Expected When you created a PVI vNIC on the fabric interconnect, the checksum offload feature was not enabled. However, the PVI interface on Oracle Linux hosts has checksum offload enabled by default. This inconsistency caused checksum errors on traffic sent across the PVI. This problem is fixed in this version of host driver by setting the default state of checksum offloading to <code>disabled</code> , which now matches the Oracle Fabric Interconnect.

Documentation Issues

This topic discusses information missing or incorrect in the product documentation.

- [“Upgrade HCA Firmware and Option ROM” on page 15](#)

▼ Upgrade HCA Firmware and Option ROM

The procedure to upgrade HCA firmware and option ROM is not properly described in the *Remote Booting Guide*. This procedure describes how to upgrade the firmware and option ROM on an HCA installed into a RHEL host and is similar for an Oracle Linux host.

1. **Log in to the host as the root user.**

2. **Unpack the HCA firmware package.**

```
# rpm -ivh firmware-package-name.rpm
```

The firmware package contains the `xg_config` utility that you use to perform the upgrade. The `xg_config` utility is menu driven, and when run, displays both the firmware and option ROM version numbers by default.

3. **Start the `xg_config` utility.**

```
# /opt/xsigo/bin/xg_config
#####
# Main menu
#####

Selected card:
Node GUID       : '0002:c902:0020:4934'
Board ID        : 'MT_0150000001'
CA type         : 'MT25208'
Firmware version : '5.3.0'
Hardware version : 'a0'
Option ROM version : 'XgBoot Version 2.2.11'

1) Flash HCA Firmware
2) Flash HCA Firmware + Option ROM
3) Flash Option ROM
4) Change selected card
0) Quit
Select option>
```

At the `Select option>` prompt, you can:

- Flash firmware to this HCA.
- Flash both firmware and option ROM to this HCA.
- Flash option ROM to this HCA.
- Switch to another HCA.
- Quit the `xg_config` utility.

4. **Verify that your version levels are supported for the displayed HCA.**

The firmware version must be 2.7.0 or greater.

5. Consider your next step.

- If your firmware version is 2.7.0 or greater, go to [Step 9](#).
- If your firmware version is less than 2.7.0, or if you want to upgrade your firmware anyway, go to [Step 6](#).

6. Decide which firmware you want to upgrade, and press 1 or 2 as appropriate.

For example, to upgrade both the firmware and option ROM, press 2.

The menu refreshes and displays which firmware is available for upgrade.

Select option>2

```
#####  
# Flash HCA Firmware + Option ROM Menu  
#####
```

Selected card:

```
Node GUID       : '0002:c902:0020:4934'  
Board ID        : 'MT_0150000001'  
CA type         : 'MT25208'  
Firmware version : '5.3.0'  
Hardware version : 'a0'  
Option ROM version : 'XgBoot Version 2.2.11'
```

- 1) 5.3.0 (XgBoot Version 2.2.11)
- 2) 5.1.400 (XgBoot Version 1.5)
- 0) Return to previous menu

Select firmware to use>

```
*****
```

7. Press the number respective to the firmware version you want to install.

The version you select is loaded into the HCA, however, the HCA must power cycle before the new firmware becomes active.

8. Press 0 to return to the previous menu.

9. Consider your next step.

- If there are other HCAs installed, press 4, and then press the number appropriate for the next card to check. Repeat the procedure, starting at [Step 4](#).
- If there are no other HCAs installed, go to [Step 10](#).

10. **Press 0 to quit the `xg_config` utility.**
11. **Power cycle the HCA by rebooting the host.**

