

Release Notes for Linux Host Drivers, V5.0.5-LX

These release notes document information about Oracle's Xsigo host drivers for Red Hat Enterprise Linux 6 Update 3 (RHEL 6U3) and 6 Update 2 (RHEL 6U2) hosts as well as Oracle Enterprise Linux 6 Update 3 (OEL 6U3) hosts which are new in this release. All previously supported RHEL are also supported in this release.

Additional release notes exist for:

- Oracle's Xsigo Windows host drivers
- Oracle's XgOS and Oracle's Xsigo Fabric Director
- Oracle's Xsigo Fabric Manager
- Oracle's Xsigo ESX 4.1 host drivers for ESX Server Classic and ESXi Server
- Oracle's Xsigo ESXi 5.0 host drivers.
- Oracle's Xsigo OVM release notes

These notes contain the following sections:

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Overview

Oracle's Xsigo Fabric Director is a service-oriented platform that interconnects data-center resources based on application demands.

Customers and partners are requested to send comments and report bugs to Xsigo by filing a customer case through the Xsigo Technical Support web portal (<http://support.xsigo.com>). Xsigo is fully committed to responding to all feedback regarding our product and greatly appreciates customer involvement. If you need to contact Xsigo Customer Support, you can facilitate your interaction with Customer Support by gathering some troubleshooting information. For more information, see [Technical Support Contact Information](#) on page 10.

What's New in this Release

Release 5.0.5-LX host drivers support the following new features and enhancements:

- Support for ConnectX-3 dual-port HCAs (QDR or DDR) running a minimum firmware version of 2.10.700.
- Oracle Enterprise Linux 6 Update 3 hosts (OEL6u3) are supported. PXE Boot, iSCSI Boot, and SAN Boot of these hosts is supported in addition to booting from local disk. The OEL6u3 OS contains a native InfiniBand stack, so the Xsigo host driver package for this OS does not have a separate IB stack—just host drivers. This is the first release of Xsigo host drivers that contains support for this host OS.



Note

For Oracle Enterprise Linux host drivers, UEK compatibility mode is not yet supported. As a result, you will need to boot the server in Red Hat compatibility mode. For information, see [For Oracle Enterprise Linux Host Drivers, Comment Out the EL5 UEK Image](#).

- Red Hat Enterprise Linux 6 Update 3 hosts (kernel 2.6.32_279) are supported. PXE Boot, iSCSI Boot, and SAN Boot of these hosts is supported in addition to booting from local disk. The RHEL 6u3 OS contains a native InfiniBand stack, so the Xsigo host driver package for this OS does not have a separate IB stack—just host drivers.
- Red Hat Enterprise Linux 6 Update 2 hosts (kernel 2.6.32_220) are supported. PXE Boot, iSCSI Boot, and SAN Boot of these hosts is supported in addition to booting from local disk. The RHEL 6u2 OS does not have InfiniBand native to the OS, so the Xsigo host driver package for this OS contains a separate IB stack in addition to host drivers.
- This version of host drivers contains support for Xsigo Fabric Accelerator for Red Hat Enterprise Linux 6 update 1 hosts or later. With this version of host drivers, you can purchase and install Xsigo Fabric Accelerator functionality (if desired) and have access to Fabric Accelerator functionality without having to download and install a separate version of host drivers.
- Support a streamlined SAN Boot and iSCSI Boot configuration process. The SAN Boot and iSCSI Boot installation and configuration is more intuitive and easier to use starting in this release. For the updated SAN Boot and iSCSI Boot procedure, see the Linux Host Driver chapter in the *Remote Booting Guide, V 3.8.0*.

System Requirements

This section documents the system requirements for this version of host drivers.

Supported Firmware Levels

The following firmware levels of firmware are supported for InfiniHost and Connect-X HCAs in this release:

- Infinihost Single Port HCA: 1.2.0
- Infinihost Dual Port HCA: 5.3.0
- Connect-X Dual Port HCA: 2.7.0 or higher
- ConnectX-2 Single or Dual-Port HCA: 2.7.0 or higher

System Limitations and Restrictions

This section documents system limitations and restrictions for this version of Xsigo host driver.

For Oracle Enterprise Linux Host Drivers, Comment Out the EL5 UEK Image

Currently, the OEL host drivers are supported only in Red Hat compatibility mode even though UEK compatible drivers are packaged in the host driver bundle. UEK compatibility mode is not supported for OEL host drivers, so you must comment out the UEK kernel parameter in `/boot/grub/grub.conf`.

For this change to take effect you must comment out the UEK kernel after installing the 5.0.5-LX host drivers and before rebooting the server.

To comment out the UEK kernel, follow this procedure:

Step 1 After installing the 5.0.5-LX host drivers, but before rebooting the server, edit `/boot/grub/grub.conf`.

Step 2 Do either of the following:

- Add comment marks (#) before each of the UEK stanzas, as shown:

```
[root@snogger ~]# cat /boot/grub/grub.conf
default=0
timeout=5
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
#title Oracle Linux Server (2.6.32-200.13.1.el5uek)
#   root (hd0,0)
#   kernel /vmlinuz-2.6.32-200.13.1.el5uek ro root=/dev/VolGroup00/LogVol100 rhgb quiet
#   initrd /initrd-2.6.32-200.13.1.el5uek.img
title Oracle Linux Server-base (2.6.18-274.el5)
   root (hd0,0)
   kernel /vmlinuz-2.6.18-274.el5 ro root=/dev/VolGroup00/LogVol100 rhgb quiet
   initrd /initrd-2.6.18-274.el5.img
```

By adding comment marks (#) before each of the lines highlighted in the example, the UEK compatibility mode is skipped, and Red Hat compatibility is used. Make sure not to comment out any of the `el5` stanzas (`2.6.18-274.el5`).

- Set the default parameter to 1, as shown:

```
[root@snogger ~]# cat /boot/grub/grub.conf
default=0
timeout=5
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
title Oracle Linux Server (2.6.32-200.13.1.el5uek)
    root (hd0,0)
    kernel /vmlinuz-2.6.32-200.13.1.el5uek ro root=/dev/VolGroup00/LogVol100 rhgb quiet
    initrd /initrd-2.6.32-200.13.1.el5uek.img
title Oracle Linux Server-base (2.6.18-274.el5)
    root (hd0,0)
    kernel /vmlinuz-2.6.18-274.el5 ro root=/dev/VolGroup00/LogVol100 rhgb quiet
    initrd /initrd-2.6.18-274.el5.img
```

By setting the default parameter to 1, you skip the el5uek kernel, and boot from the el5 kernel instead.

Step 3 Regardless of which method you use to skip UEK, you must save and close `grub.conf`.

Step 4 Reboot the server.

Virtual Resources Supported per Server

This release of host drivers has been tested to support the following number of virtual resources:

- Standalone vNICs: 8
- Standalone vHBAs: 4
- Bonded vNICs: 4 pairs
- Multipath vHBAs: 2 pairs

User Guides

User guides are available on CD for shipments to new customers, and by download from the Xsigo Technical Support site.

Xsigo Systems provides the following Fabric Director product documentation in PDF format:

- *Fabric Director Hardware and Host Drivers Installation Guide*
- *XgOS Software Upgrade Guide*
- *XgOS Command-Line User Guide*
- *XgOS Remote Booting Guide*
- *Fabric Manager Web User's Guide*
- *XgOS vNIC Switching Configuration Guide*

You can download these manuals by going to the Xsigo Support page (www.xsigo.com/support) and clicking the “Documentation” tab on the toolbar at the top of the page. You will need a login and password before downloading the manuals. See [page 10](#).

Documentation Erratum and Addition

The following sections contain corrected and additional text for the Xsigo technical documentation.

Documentation Erratum

The following section contains a fix for errors in the Xsigo technical documentation.

Corrected Text for Linux Firmware and Option ROM Updates

Note the following correction to the “Firmware and Option ROM Levels” chapter of the *Remote Booting Guide*.

In the “Linux Firmware and Option ROM” section, the procedure is incorrect. The procedure instructs you to run the Option ROM upgrade tool (`xg_config`) first, then load the new HCA firmware by running an RPM. These steps are reversed because the `xg_config` tool is actually in the RPM.

If you are upgrading the HCA firmware and Option ROM for a RHEL 5U8 server, use the following corrected text:

- Step 1** Log in into the host server as root.
- Step 2** Upgrade the Xsigo HCA firmware package on the server. For example:

```
rpm -ivh <xsigo-hca-firmware_number.i386.rpm>
```



Note

Replace `xsigo-hca-firmware_2.6.6.i386.rpm` with the xsigo firmware for your server. Supported host drivers for each operating system are listed in the release notes.

This step unpacks the `xg_config` tool, which you can use to update the HCA firmware and Option ROM.

- Step 3** Run `xg_config` to view the firmware and option ROM levels.

```
/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'
```

Verify that the firmware version is one of the following:

InfiniHost Single-Port HCA: 1.3.0 or higher

InfiniHost Dual-Port HCA: 5.3.0 or higher

ConnectX Dual-Port HCA: 2.8.0 or higher

ConnectX-2 Single and Dual-Port HCA: Firmware version 2.8.0 or higher

If your firmware and XgBoot versions are the same as listed above, you can skip [Step 4](#).

Step 4 Run `xg_config` to upgrade the firmware and option ROM.

```
/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>
```

If you are using SAN Boot or might decide to in the future, select option 2. Otherwise, select option 1.

In the following example, option 2 was selected:

```
#####
# 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>
*****
```

Step 5 Select the most recent firmware (the one displayed first). The one you select will be loaded into memory when the server reboots.

You will need to reboot for the firmware upgrade to take effect. However, you can wait to reboot until you have upgraded the host drivers.

- For other servers that were not used for remastering the ISO, you can just boot once from the remastered ISO which can be used as a golden master image to boot any number of RHEL 5U8 servers.

Supported Host Drivers

This release of host drivers supports Red Hat Enterprise Linux 6 Update 3 and 6 Update 2 hosts through separate `tar.gz` bundles.

- RHEL6u3 hosts are supported by the `RHEL6u3-5.0.5-LX.tar.gz` bundle, which contains:
 - `xsigo-boot-2.6.32-279.2.1.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-boot-2.6.32-279.4.1.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-boot-2.6.32-279.4.2.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-boot-2.6.32-279.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-hostdrivers-kmod-2.6.32_279.2.1.el6.5.0.5.LX-native.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_279.5.1.el6.5.0.5.LX-native.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_279.el6.5.0.5.LX-native.x86_64.rpm`



Note

The RHEL 6u3 OS contains native IB support, so host drivers for RHEL 6u3 contain no `kernel-ib` RPM.

- RHEL 6u2 hosts are supported by the `RHEL6u2-5.0.5-LX.tar.gz` bundle, which contains:
 - `kernel-ib-1.5.3-2.6.32_220.2.1.el6.x86_64.x86_64.rpm`
 - `kernel-ib-1.5.3-2.6.32_220.4.1.el6.x86_64.x86_64.rpm`
 - `kernel-ib-1.5.3-2.6.32_220.4.2.el6.x86_64.x86_64.rpm`
 - `kernel-ib-1.5.3-2.6.32_220.el6.x86_64.x86_64.rpm`
 - `xsigo-boot-2.6.32-220.2.1.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-boot-2.6.32-220.4.1.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-boot-2.6.32-220.4.2.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-boot-2.6.32-220.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-hostdrivers-kmod-2.6.32_220.13.1.el6.5.0.5.LX-1.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_220.17.1.el6.5.0.5.LX-1.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_220.2.1.el6.5.0.5.LX-1.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_220.4.1.el6.5.0.5.LX-1.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_220.4.2.el6.5.0.5.LX-1.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_220.7.1.el6.5.0.5.LX-1.x86_64.rpm`
 - `xsigo-hostdrivers-kmod-2.6.32_220.el6.5.0.5.LX-1.x86_64.rpm`
- OEL6u3 hosts are supported by the `OEL6U3-5.0.5-LX.tar.gz` bundle, which contains:
 - `xsigo-boot-2.6.32-279.el6.x86_64-5.0.5.LX-x86_64.tar`
 - `xsigo-hostdrivers-kmod-2.6.32_279.el6.5.0.5.LX-native.x86_64.rpm`

Downloading the Host Drivers

You need access to the Xsigo support site to download the drivers. To get the drivers:

- Step 1 Log in to the support portal (<http://support.xsigo.com/support/>) with a user name and password.
- Step 2 Navigate to the **SOFTWARE** tab and select **CURRENT RELEASE**. Choose the file(s) you need:

```
RHEL6u3-5.0.5-LX.tar.gz
```

```
RHEL6u2-5.0.5-LX.tar.gz
```

```
OEL6u3-5.0.5-LX.tar.gz
```
- Step 3 Download and untar the corresponding file(s).
- Step 4 When the file is unpacked, select the driver you need based on whether you have a 32-bit or 64-bit OS. If the driver you need is not present, contact Xsigo Customer Support as documented in [Technical Support Contact Information](#) on page 10.
- Step 5 Proceed to the appropriate section:
 - For OEL 6u3 or RHEL 6u3 hosts, proceed to [Installing the OEL 6u3 or RHEL 6u3 Host Drivers](#).
 - For RHEL 6u2 hosts, proceed to [Installing the RHEL 6u2 Host Drivers](#) on page 8.

Installing the OEL 6u3 or RHEL 6u3 Host Drivers

Installing the OEL 6u3 host drivers or RHEL 6u3 (and variants thereof, such as CentOS) occurs through the `rpm -ivh` command. Be aware that you must install the correct host drivers for your architecture—for example, do not put 64-bit host drivers on a 32-bit server.

To install the host drivers, follow this procedure, which uses the RHEL6u3 host drivers for illustrative purposes:

- Step 1 Remove any existing host drivers completely before installing the new host drivers.
- Step 2 After any existing host drivers are completely uninstalled, install the correct host driver for your architecture. For example:

```
xsigo-hostdrivers-kmod-2.6.32_279.2.1.el6.5.0.5.LX-1.x86_64.rpm
```

For example:

```
rpm -ivh xsigo-hostdrivers-kmod-2.6.32_279.2.1.el6.5.0.5.LX-1.x86_64.rpm
```

After the host drivers are installed, the server requires a reboot to load the new drivers into memory.

Installing the RHEL 6u2 Host Drivers

Installing the RHEL 6u2 host drivers (and variants thereof, such as CentOS) occurs through the `rpm -ivh` command. Be aware of the following:

- You must install the correct host drivers for your architecture—for example, do not put 64-bit host drivers on a 32-bit server.
- There is a dependency that the appropriate `kernel-ib` RPM is installed before the corresponding host drivers.

To install the RHEL 6 u2 host drivers, follow this procedure:

Step 1 Remove any existing host drivers completely before installing the new host drivers.

Step 2 Install the IB stack for your architecture. For example:

```
kernel-ib-1.5.3-2.6.32_220.2.1.el6.x86_64.x86_64.rpm
```

For example:

```
rpm -ivh kernel-ib-1.5.3-2.6.32_220.2.1.el6.x86_64.x86_64.rpm
```

Step 3 After the IB stack is installed, install the correct host driver for your architecture. For example:

```
xsigo-hostdrivers-kmod-2.6.32_220.2.1.el6.5.0.5.LX-1.x86_64.rpm
```

For example:

```
rpm -ivh xsigo-hostdrivers-kmod-2.6.32_220.2.1.el6.5.0.5.LX-1.x86_64.rpm
```

After the host drivers are installed, the server requires a reboot to load the new drivers into memory.

Known Problems

[Table 1](#) shows the known problems in this version of host driver.

Table 1 Known Problems in Version 5.0.5-LX

Number	Description
22380	<p>Red Hat Enterprise Linux 6 Update 3 hosts encounter a problem that prevents them from fully iSCSI booting from an iSCSI LUN. When the problem occurs, the server boots off the iSCSI LUN and completes the RHEL 6U3 initialization screen as expected. However, after pressing <i>CTRL-ALT-F2</i>, error messages are displayed and the login screen is never displayed. This problem occurs because vNICs used for iSCSI Booting are set to <code>onboot=no</code> by default.</p> <p>To work around this problem: use any of the following methods:</p> <p>Step 1 During install, you can specify the vNIC is not to be used on boot up.</p> <p>Step 2 Edit <code>/etc/sysconfig/network-scripts/ifcfg-<interface></code>, and set <code>onboot</code> to <code>no</code>.</p> <p>Step 3 Delete the <code>/etc/sysconfig/network-scripts/ifcfg-<interface></code> file.</p>
19969	<p>If an event causes failover or restart of the OpenSM InfiniBand subnet manager, multicast traffic is delayed for approximately seven seconds while the failover or restart occurs.</p>

Fixed Problem

Table 2 shows the fix in this version of host driver.

Table 2 Known Problems in Version 5.0.5-LX

Number	Description
21317	In this release, if you configured a VLAN interface on a PVI vNIC, no traffic was supported on that vNIC. As a result, VLAN functionality was not supported on a PVI vNIC in this release. This problem is fixed in 5.0.5-LX, and VLAN functionality is supported on PVI vNICs.

Technical Support Contact Information

Xsigo Systems is a wholly owned subsidiary of Oracle. Xsigo customers may contact support via the Xsigo website, telephone or e-mail. In order to expedite troubleshooting, all new support requests must be submitted via the Xsigo self-service portal at: <http://support.xsigo.com>. In addition to opening cases, the Xsigo Support Portal will allow you to update your support cases, download software, search for and view knowledge-base articles, and access technical documentation.

In order to access the customer support portal, you will need to have a Xsigo Support Portal login. Your account team will provide you with the necessary login information to access the support portal. If you need additional logins for your staff, please contact your account team for assistance.

For all Critical (P1) cases, please call the Xsigo support center at either of the following phone numbers:

- **866-974-4647** (toll free)
- **1 408-736-3013** (international).

Alternatively, you can email supportP1@xsigo.com and you will be responded to within 30 minutes.

Gathering Information for Xsigo Technical Support

If the Xsigo Fabric Director is supporting RHEL 6U8 or RHEL 5U8 servers and problems are encountered, please gather the information in the following section before contacting Xsigo Technical Support or filing a case through the support website.

On the Xsigo Fabric Director

- Type and number of servers connected (brand, model, number of CPUs, size and type of memory)
- Output from the `get-log-files -all` command (for Oracle's Xsigo Fabric Director), which will gather the `show tech-support` information plus all log files, and place this information into `xsigo-logs.tar.gz`

On the Host Server

- The file output from `/opt/xsigo/bin/xsigo-support`