Release Notes for Linux Host Drivers, V5.0.6-LX

These release notes document information about Oracle Fabric Interconnect host drivers for Oracle Virtual Machine (OVM) version 3.2.1. This is the only version of host OS or hypervisor supported in this release. Other host OSes or hypervisors are supported in previous versions of Oracle Fabric Interconnect host drivers.

Additional release notes exist for:

- Oracle Fabric Interconnect host drivers for Windows servers
- Oracle Fabric Interconnect hardware, and the XgOS CLI that runs on it
- Oracle Fabric Manager GUI
- Oracle Fabric Interconnect host drivers for ESX Server Classic 4.1 and ESXi 4.1 host drivers.
- Oracle Fabric Interconnect host drivers for ESXi 5.0 host drivers

These notes contain the following sections:

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ORACLE | **XSigo** systems

Overview

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

Customers and partners are requested to report bugs for the Oracle Fabric Interconnect and Oracle Virtual Networking products by filing a customer case through either the Oracle web site or a phone call to Oracle Global Customer Services. If you need support, you can facilitate your interaction with Oracle Customer Support by gathering some troubleshooting information. For more information, see Technical Support Contact Information on page 9.

What's New in this Release

Release 5.0.6-LX host drivers support hosts running Oracle Virtual Machine 3.2.1 hypervisor. This release provides initial support for kernel version 2.6.39-300.22.2.el5uek. The following features or functionality is supported in this release:

- Oracle Software Defined Networking (SDN) and PVI vNICs

- Local boot from the OVM server's hard drive

- ConnectX-2 Single and Dual Port HCAs. See Supported Firmware Levels for the firmware that must be running on the supported HCA(s).

The following features or functionality are not yet supported:

- PXE install, SAN install

- SAN boot, iSCSI boot

Support for OVM 3.2.1 has the following restrictions or limitations:

- a naming requirement. For more information, see Name Restrictions for vNICs in OVM 3.2.1.

- newly added LUNs are not automatically detected. For more information, see Adding a Virtual or Physical Disk Requires User Intervention in OVM.

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 ConnectX-2 Single or Dual-Port HCAs running 2.7.8130 and later firmware.

For HA vNICs, Create Two Separate vNICs and Create a Bonded Interface in OVM

To correctly support HA vNICs on an OVM server, use the HA vNIC functionality available in either the XgOS CLI or the Oracle Fabric Manager GUI. These features will create two vNICs. Then, on the OVM Server, use OVM Manager to create a bonded interface for the two vNICs. For information about creating a bonded interface, see the documentation that accompanied your OVM server software.

System Limitations and Restrictions

This section documents system limitations and restrictions for this version of Oracle Virtual Networking host driver.

PXE Install and PXE Boot are Not Yet Supported

In this release, NFS/SAN Install, PXE Install, and SAN/iSCSI Boot are not yet supported. As a result, you will need to boot locally from the servers's hard drive.

Name Restrictions for vNICs in OVM 3.2.1

In this release, the names of vNICs must be structured with the `eth` prefix and a number. The `eth` prefix plus an alphabetic string is not supported. For example, `eth5` is supported, but `ethfive` is not. If the vNIC is not named with `eth` and number, that vNIC does not appear in OVM Manager.

- When creating vNICs, make sure to follow this `ethX` format.
- If you are upgrading from a previous version of OVM, you will need to recreate the vNICs and follow the name restriction documented in this section.

Adding a Virtual or Physical Disk Requires User Intervention in OVM

For OVM 3.2.1 hosts, a newly added storage disk is not automatically recognized. As a result, you must issue the **xsigo-rescan -r -a** command from the OVM 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

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User Guides

User guides are available on CD for shipments to new customers, and by download from the Oracle Technical Network.

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

- *Fabric Interconnect 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 Oracle Technical Network (OTN) at http://docs.oracle.com/cd/E38500_01/index.html.

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 an OVM 3.2.1 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_number.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 2.7.8130 or later

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 OVM 3.2.1 servers.

Supported Host Drivers

This release of host drivers supports Oracle Virtual Machine 3.2.1 hosts through the following RPM file:

```
xsigo-hostdrivers-kmod-2.6.39_300.22.2.el5uek.5.0.6.LX-1.x86_64.rpm
```

Downloading Software

You can get software for this version of host driver from either of the following locations:

- Oracle's Technical Network (OTN)
- Oracle's Software Delivery Cloud

Oracle's Technical Network (OTN)

You can download this version of host driver through Oracle's Technical Network (OTN), which is available without a user account or password. Software is available through this method, but not documentation. For release notes for this release, see Getting Documentation.

To get the software:

Step 1 Point your browser to http://www.oracle.com/technetwork/indexes/downloads/index.html

Step 2 Scroll down to the *Drivers* section.

Step 3 Click the Xsigo Drivers link.

Step 4 In the *Fabric Interconnect* section, find this version of host driver, and click the link to download the software to a network-accessible node in your network.

Step 5 Using file copy, SCP, or another file transfer protocol, copy the host driver software from the network-accessible node to the Fabric Interconnect.

Step 6 When the new host driver is on the Fabric Interconnect, run the **system upgrade** command on the Fabric Interconnect to upgrade it to the appropriate version.

Oracle's Software Delivery Cloud

You can download this version of host driver through Oracle's Software Delivery Cloud (also called "edelivery").

> **Note** To access the Oracle Software Delivery Cloud, you will first need to get a user account and password. To get a user account and password, please follow the instructions on https://edelivery.oracle.com which is the Oracle Software Delivery Cloud website.

Software is available through this method, but not documentation. For release notes for this release, see Getting Documentation.

To get the software:

Step 1   Point your browser to https://edelivery.oracle.com.

Step 2   Log in with your account name and password.

Step 3   Accept the terms and conditions of usage (if prompted) and click *Continue* to display the Media Pack Search page as shown in Figure 1.
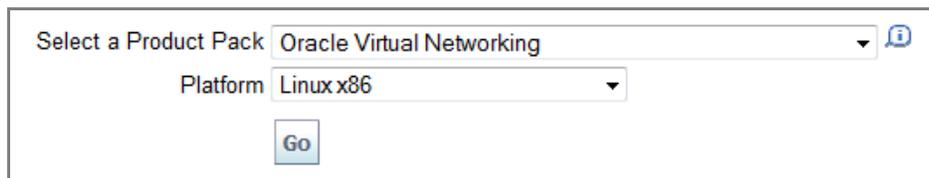

Figure 1 Searching for Oracle Virtual Networking Software

Step 4   From the *Select a Product Pack* dropdown menu, select Oracle Virtual Network.

Step 5   From the *Platform* dropdown menu, select any value. For host driver software the platform does not matter. However, you can use the *Platform* dropdown to search for host drivers by OS or hypervisor type.

Step 6   Click *Go* to display the result of your search.

Step 7   On the resulting page, locate `Oracle Virtual Networking Drivers (5.0.6-LX) for Oracle VM 3.2.1` and click the *Download* button to get the host driver on a network-accessible node in your network.

Step 8   Using file copy, SCP, or another file transfer protocol, copy the host driver software from the network-accessible node to the Fabric Interconnect.

Step 9   When the new host driver is on the Fabric Interconnect, run the **`system upgrade`** command on the Fabric Interconnect to upgrade it to the appropriate version.

Installing the OVM 3.2.1 Host Drivers

Installing the OVM 3.2.1 host drivers 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 <u>before</u> the corresponding host drivers.

To install the OVM 3.2.1 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-1.5.5-2.6.39_300.22.2.el5uek.x86_64.rpm
```

For example:

```
rpm -ivh kernel-ib-1.5.5-2.6.39_300.22.2.el5uek.x86_64.rpm
```

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

```
xsigo-hostdrivers-kmod-2.6.39_300.22.2.el5uek.5.0.6.LX-1.x86_64.rpm
```

For example:

```
rpm -ivh xsigo-hostdrivers-kmod-2.6.39_300.22.2.el5uek.5.0.6.LX-
1.x86_64.rpm
```

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

Getting Documentation

Xsigo documentation for this release is on the Oracle Technical Network website. If you are looking for software, you will need to download it by using the procedure documented in either of the previous sections.

To download documentation:

Step 1   Point your browser to http://docs.oracle.com/cd/E38500_01/index.html

Step 2   On the resulting page, scroll down to the *Release Notes* section.

Step 3   Find the entry for *Release Notes for Linux Host Drivers, V5.0.6-LX*, and click ***Download***.

Known Problems

Table 1 shows the known problems in this version of host driver.

Table 1   Known Problems in Version 5.0.6-LX

Number	Description
22968	For a PVI vNIC connected to a VM running any OS other than RHEL 6u2, a PVI vNIC will stay in up state even if the vNIC is actually set down on the Fabric Interconnect. This problem occurs if you first create the vNIC in a PVI, then set the vNIC interface to none, set the vNIC interface back to the PVI, then attempt to set the vNIC to down.
	After this series of events, the PVI vNIC will not be set to down state unless the vNIC is in a RHEL 6u2 VM on an OVM 3.2.1 server.
22941	With iSCSI storage, a problem prevents the deletion of iSCSI LUNs from the array. If you attempt to delete an iSCSI LUN from the iSCSI array, after refreshing OVM Manager the LUN will still be displayed and the port connected to the LUN will be put into an error state. This problem also occurs with physical NICs, so it appears that this is a problem in OVM Manager. Be aware that to delete an iSCSI LUN, you must explicitly delete the LUN from OVM Manager. This requirement exists for vNICs and physical NICs alike.
22883	A problem with OVM hosts prevents passing traffic (even pings) across a PVI vNIC if the MTU is set to 64000 on a RHEL 5u8 virtual machine. During testing, an MTU of 9138 K passed traffic in all cases. We recommend using a 9 K MTU on a PVI vNIC.

Table 1 (continued) Known Problems in Version 5.0.6-LX

Number	Description
22826	For OVM hosts, a problem in the host drivers prevents a newly added LUN from being automatically recognized.
	You can work around this problem by issuing the **xsigo-rescan -r -a** command from the OVM server.
19969	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.
19268	Disks can be prevented from being displayed on a Linux host (or VM running in an OVM server). This problem manifests in either of the following ways:

1. If LUN Masks are *not* configured on the Fabric Interconnect and the vHBA is present, if you then create the LUN and map it to storage the disk is not automatically displayed.

   In this situation, you can work around the problem by running a target rescan on the Fabric Interconnect and then running a **xsigo-scan -r -a** on the OVM host to make the LUN visible.

2. If LUN Masks are configured on the Fabric Interconnect, but the vHBA is not already present. when you create the vHBA and attach it to storage the disk is not automatically displayed.

   In this situation, you can use the work around in 1 (above). Or, in cases where the vHBA is not already present and is added later, you will need to run a **xsigo-scan -r -a** on the OVM 3.2.1 host to make the LUN visible.

Technical Support Contact Information

Oracle customers can receive support through Oracle's Support website or through Oracle's Support telephone number. Support cases must be opened through either a phone call or the web.

Oracle Support Website

Oracle customers have access to electronic support through My Oracle Support. For information, visit any of the following links:

- https://support.oracle.com. In order to access this site, you will need to follow the instructions to create an account.

- http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info

- If you are hearing impaired, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs

Oracle Support Phone Number

Oracle customers have access to telephone support through the Oracle Global Customers Services phone line. For information, call **+1 800-223-1711** to speak with a Support representative.

Gathering Information for Oracle Technical Support

If the Oracle Fabric Interconnect is supporting OVM 3.2.1 servers and problems are encountered, please gather the information in the following section before contacting Oracle Technical Support or filing a case through the support website.

On the Xsigo Fabric Interconnect

- 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 Interconnect), 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**