Release Notes for Oracle Virtual Networking Host Drivers for Oracle VM

These release notes document information about Oracle Virtual Networking host drivers for Oracle VM. This document is for Oracle VM version 3.2.6 and 3.2.7. Other host OSes or hypervisors are supported in previous versions of Oracle Virtual Networking host drivers.

Additional release notes exist for:

- Oracle Fabric Interconnect hardware, and the XgOS CLI that runs on it
- Oracle Fabric Manager GUI
- Oracle Virtual Networking host drivers for Oracle Linux hosts (Red Hat Enterprise Linux compatible)
- Oracle Virtual Networking host drivers for Oracle Solaris 11.1 and Oracle Solaris 10 1/13 hosts
- Oracle Virtual Networking host drivers for Microsoft Windows Server 2008 and Microsoft Windows Server 2012 hosts
- Oracle Virtual Networking host drivers for VMware ESX Server Classic 4.1 and ESXi Server 4.1 hosts
- Oracle Virtual Networking host drivers for VMware ESXi 5.0 Server hosts

These notes contain the following sections:

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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 Accessing Oracle Support on page 9.

What's New in this Release

Oracle VM 3.2.7

This release of Oracle Virtual Networking host drivers support hosts running Oracle VM 3.2.7 hypervisor. This release provides initial support for kernel versions2.6.39-300.32.6.el5uek. This release supports the following:

- Oracle Software Defined Networking (SDN) and PVI vNICs

- Support for InfiniBand stack version `kernel-ib 1.5.5.151`

- Local boot from the Oracle VM server's hard drive

- ConnectX-2 Single and Dual Port HCAs. See Supported Firmware Version for ConnectX Family of HCAs 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

> **Note**
> The existing functionality for Oracle VM 3.2.6 is also supported in this release. See Support for Oracle VM 3.2.6.

System Requirements

This section documents the system requirements for Oracle Virtual Networking host drivers for Oracle VM 3.2.6 and 3.2.7.

Support for Oracle VM 3.2.6

Although introduced earlier, this release of Oracle Virtual Networking host drivers support hosts running Oracle VM 3.2.6 hypervisor. This release provides initial support for kernel version 2.6.39-300.32.5.el5uek. The following features or functionality is supported in this release:

- Oracle Software Defined Networking (SDN) and PVI vNICs
- Support for InfiniBand stack (`kernel-ib 1.5.5.151`)
- Local boot from the Oracle VM server's hard drive
- ConnectX-2 Single and Dual Port HCAs. See Supported Firmware Version for ConnectX Family of HCAs 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 Oracle VM 3.2.6 has a consideration about adding LUNs. For more information, see Adding a Virtual or Physical Disk Requires User Intervention in Oracle VM.

Supported Firmware Version for ConnectX Family of HCAs

This release of Oracle Virtual Networking host drivers supports Oracle HCAs as well as third-party manufacturers' HCAs with the requirement that the HCAs use the required version of firmware. Oracle HCAs include:

- Sun InfiniBand Dual Port 4x QDR PCIe Low Profile Host Channel Adapter M2. For information, including the required firmware version, see http://docs.oracle.com/cd/E19241-01/index.html
- Sun InfiniBand Dual Port 4x QDR PCIe ExpressModule Host Channel Adapter M2. For information, including the required firmware version, see http://docs.oracle.com/cd/E19157-01/index.html
- Oracle Dual Port QDR InfiniBand Adapter M3. For information, including the required firmware version, see http://docs.oracle.com/cd/E40985_01/index.html

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

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

To correctly support HA vNICs on an Oracle VM server, create two separate vNICs (one from each Fabric Interconnect). Then, on the Oracle VM Server, use Oracle VM Manager to create a bonded interface for the two vNICs. For information about creating a bonded interface, see the documentation that accompanied your Oracle VM server software.

Creating HA vNICs on an Oracle VM server by using the Oracle XgOS CLI or Oracle Fabric Manager is not supported in this release.

System Limitations and Restrictions

This section documents system limitations and restrictions for Oracle Virtual Networking host drivers for this version for Oracle VM 3.2.6 and 3.2.7.

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.

Adding a Virtual or Physical Disk Requires User Intervention in Oracle VM

A newly added storage disk is not automatically recognized. As a result, you must issue the `xsigo-scan -r -a` command from the Oracle VM server. Issuing this command is a requirement in some situations, but not others:

- On storage, if the LUN is already created and associated with the vHBA WWPN before adding the vHBA on the Fabric Interconnect, then the target is already visible on the Fabric Interconnect as the vHBA comes up. In this situation, `xsigo-scan -r -a` is not required.

- If the vHBA is created on the Fabric Interconnect first, and then the LUN is created on storage and mapped to the vHBA, the target is not already visible. In this situation, `xsigo-scan -r -a` is required to make the LUN visible to Oracle VM hosts.

- Regardless of whether the LUN is configured before or after the vHBA is added to the Fabric Interconnect, anytime LUN Masking is enabled to the vHBA, `xsigo-scan -r -a` is required to make the LUN visible to the Oracle VM hosts.

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 as PDF files by download from the Oracle Technical Network. 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

The following sections contain corrected and additional text for the Oracle Fabric Interconnect technical documentation.

Documentation Erratum

The following section contains a fix for errors in the Fabric Interconnect 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 Oracle VM 3.2.6 server, use the following corrected text:

Step 1 Log in to the host server as root.

Step 2 Upgrade the 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 HCA 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 3.9.7'
```

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

```
/opt/oracle/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 3.9.7'

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 3.9.7'

1) 5.3.0 (XgBoot Version 3.9.7)
2) 5.1.400 (XgBoot Version 2.2.11)
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 Oracle VM 3.2.6 and 3.2.7 servers.

Supported Host Drivers

This release of host drivers supports Oracle VM 3.2.6 and 3.2.7 hosts through the following RPM file:

```
xsigo-hostdrivers-kmod-2.6.39_300.32.5.el5uek.5.0.7.LX-1.x86_64.rpm
```

Downloading Software

These host drivers are available through Oracle Technical Network (OTN). 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 *Xsigo Downloads* 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 node to the host server.

Step 6   When the new host driver is on the host server, run the command to install or upgrade (**rpm -ivh** or or **rpm -uvh**) it to the appropriate version

Installing the Oracle VM Host Drivers

Installing the Oracle VM 3.2.6 or 3.2.7 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 Oracle VM 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-1.5.5.151-2.6.39_300.32.6.el5uek.x86_64.rpm
```

For example, to install the kernel IB rpm, you issue:

rpm -ivh kernel-ib-1.5.5.151-2.6.39_300.32.5.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_300.32.6.el5uek.5.0.7.LX-1.x86_64.rpm
```

For example, to install the host drivers, you would issue:

rpm -ivh xsigo-hostdrivers-kmod-2.6.39_300.32.6.el5uek.5.0.7.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

Documentation for currently available Oracle Virtual Networking products is available as downloadable PDF files. To get documentation:

Step 1 Point your browser to the following web page:

http://docs.oracle.com/cd/E38500_01/index.html

Step 2 Scroll down the page to find the documentation that you want.

Step 3 Click the *Download* button to push a copy of the PDF file to your local system.

Known Problems

shows the known problems in this version of host drivers.

Table 1   Known Problems in this Release

Number	Description
16338092	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 Oracle VM 3.2.6 or Oracle VM 3.2.7 server.
16338065	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 Oracle VM 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 Oracle VM Manager. Be aware that to delete an iSCSI LUN, you must explicitly delete the LUN from Oracle VM Manager. This requirement exists for vNICs and physical NICs alike.
16338007	A problem with Oracle VM 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. Using a 9 K MTU on a PVI vNIC should be used.
16337950	For Oracle VM 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-scan -r -a` command from the Oracle VM server.
16335100	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.

Table 1   (continued) Known Problems in this Release

Number	Description
16334399	Disks can be prevented from being displayed on a Linux host (or VM running in an Oracle VM 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 Oracle VM 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 Oracle VM 3.2.6 or 3.2.7 host to make the LUN visible.

Accessing Oracle Support

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

http://www.oracle.com/us/corporate/acquisitions/xsigo/support-1849142.html

http://www.oracle.com/us/corporate/accessibility/support/index.html if you are hearing impaired.

Gathering Information for Oracle Technical Support

If the Oracle Fabric Interconnect is supporting Oracle VM 3.2.6 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 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 the 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/oracle/bin/xsigo-support**