Release Notes for Host Drivers for VMware ESX Servers, 5.3.1

These release notes document information about version 5.3.1-ESX of Oracle's host driver for ESX Servers.

Additional release notes exist for:

- Oracle Virtual Networking host drivers for Oracle Solaris 11.1 servers
- Oracle Virtual Networking host drivers for Oracle Solaris 10 1/13 servers
- Oracle Virtual Networking host drivers for Oracle VM servers
- Oracle Virtual Networking host drivers for Oracle Linux servers
- Oracle Virtual Networking host drivers for Windows servers
- Oracle Virtual Networking host drivers for VMware ESX Server Classic 4.1 and ESXi 4.1 servers
- Oracle Fabric Interconnect and XgOS
- Oracle Fabric Manager

These notes contain the following sections:

ORACLE
VIRTUAL NETWORKING

2

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 send comments and report bugs to Oracle by filing a customer case through the Oracle Technical Support site. Oracle is fully committed to responding to all feedback regarding our product and greatly appreciates customer involvement. If you need to contact Oracle Customer Support, you can facilitate your interaction with Customer Support by gathering some troubleshooting information. For more information, see Accessing Oracle Support on page 9.

What's New

This version of Oracle Virtual Networking host drivers for ESX Servers contains the following new content:

- Support for ESX 5.0 Update 3 (build 1311175)
- Fixes have been added. For more information, see Fixed Problems on page 8.
- Be aware that VUM does not currently work for upgrading from ESXi 5.0 to ESXi 5.1. Use a remastered ISO for this upgrade path. (See Injecting the Oracle Host Drivers into the ESXi 5.1 Bundle.)

System Requirements

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

Supported OS Levels

This release of Oracle Virtual Networking host drivers for ESX Server supports the following versions of VMware® hypervisors:

- ESXi 5.0 GA and ESXi 5.0 Update 1 and later
- ESXi 5.1 GA

Supported Firmware Version for 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. 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.

System Limitations and Restrictions

This section documents system limitations and restrictions for this version of the Oracle ESX Server 5.1 host drivers.

To Upgrade Fabric Interconnects Connected to ESXi 5.1 Hosts with PVI vNICs, Set Server Profiles "Down"

If your Fabric Interconnect(s) are connected to ESXi 5.1 hosts which have one or more PVI vNICs, use this procedure to upgrade the Fabric Interconnect. This upgrade procedure is required only for Fabric Interconnects that are connected to ESXi 5.1 hosts that have PVI vNICs.

For each server profile connected to an ESXi 5.1 host:

Step 1 Before upgrading chassis, set the server profile(s) connected to ESXi 5.1 hosts to "down" state.

```
set server-profile <profile-name> down
```

Step 2 Perform the Fabric Interconnect reboot or XgOS upgrade.

Step 3 After the reboot (or upgrade) is complete, set the server profile(s) connected to ESXi 5.1 hosts to "up":

```
set server-profile <profile-name> up
```

Use Unique Names for vNICs and vHBAs

When naming vNICs and vHBAs, make sure that each name is unique. For example, do not name a vNIC tenchi.profile1 and a vHBA tenchi.profile1. If vNIC and vHBA have the same name, the ESX server can PSOD.

Virtual Resources Supported per Server

On VMware ESXi 5.1 servers with 8 GB of memory, the following number of Oracle virtual I/O resources are supported:

Virtual NICs

- Eight 10 Gbps vNICs
- 16 1 Gbps vNICs
- Four jumbo vNICs, either 1 Gbps or 10 Gbps vNICs with a 9014-byte MTU
- Eight iSCSI vNICs (for iSCSI storage)

Virtual HBAs

- Eight vHBAs
- 4 multipath vHBAs

User Guides

User guides are available by download from the Oracle Technical Network web portal. Oracle 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*
- *Oracle Fabric Manager User's Guide*
- *XgOS vNIC Switching Configuration Guide*

You can access these documents and the release notes for other releases of Oracle Virtual Networking by accessing http://docs.oracle.com/cd/E38500_01/.

Documentation Addition

The following text supplements the existing Oracle product documentation.

Injecting the Oracle Host Drivers into the ESXi 5.1 Bundle

To have the Oracle vNICs and vHBAs available to the ESXi 5.1 OS for PXE or SAN Booting, you will need to inject the Oracle host drivers into the native ESX OS. This procedure documents how to inject the Oracle devices into the ESXi 5.1 bundle for a freshly created ESX server.

The procedure for PXE Booting or SAN Booting an ESXi 5.1 host is the same as for an ESXi 4.1 host, with the exception of injecting the Oracle host drivers into the ESXi 5.1 bundle. The following text documents how to inject the Oracle host drivers. Use the following text instead of the text for the `remaster-iso` script in the *XgOS Remote Booting Guide*. After completing the following procedure, you can use the SAN Boot procedure for ESXi 4.1 hosts in that document to configure the ESXi 5.1 host for SAN Booting.

Considerations

Be aware of the following:

- Creating the custom ISO is accomplished through Microsoft Windows PowerShell—and specifically the VMware vSphere PowerCLI plug-in for PowerShell. The Windows server will need this tool installed.
- Creating the custom ISO is supported on a Windows host server only. The server requirements are determined by the PowerShell application.
- You use a pre-configured ESXi bundle as a baseline, then inject the Oracle bits into it. The OS file is `VMware-ESXi-5.1.0-799733-depot.zip` and is available from VMware's website.
- You will need full administrative rights on the Windows server where you will be creating the custom ISO.

Manually Injecting the Oracle Host Drivers into the ESXi 5.1 Bundle

The following procedure assumes you are the working directory is `\images\New` for the user "adminA". To inject the Oracle host drivers into the ESXi 5.1 bundle, follow this procedure:

Step 1 Install PowerShell on the Windows server if you have not done so already.

Step 2 Install the PowerCLI plug-in if you have not done so already.

Step 3 Download the `VMware-ESXi-5.1.0-799733-depot.zip` file to the Windows server.

Step 4 Download the current Oracle host driver as documented in Downloading Supported Drivers on page 6.

Step 5 Start PowerCLI.

Step 6 In PowerCLI, run the following commands to import the ESXi 5.1 bundle and the Oracle host drivers into PowerCLI:

```
Add-EsxSoftwareDepot -DepotUrl C:\Users\adminA\Desktop\images\New\VMware-ESXi-5.1.0-
799733-depot.zip

Add-EsxSoftwareDepot -DepotUrl C:\Users\adminA\Desktop\images\New\xsigo_5.3.1.ESX.1-
1vmw.500.0.0.472560.zip
```

Step 7 Run the following commands to specify the profile that you want to use when creating the output ISO. The profile determines metadata about the output ISO, such as formatting, compression method, and so on.

```
Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage
                       net-ib-core

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage
                       net-mlx4-core

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage net-ib-mad

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage net-ib-sa

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage
                       net-ib-ipoib

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage
                       net-mlx4-ib

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage net-xscore

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage net-xsvnic

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage net-xve

Add-EsxSoftwarePackage -ImageProfile <profile name> -SoftwarePackage
                       scsi-xsvhba
```

Step 8 Run the following commands to create single output ISO containing all required files from the depot. The following example assumes unsigned drivers to provide the most complete example.

```
Export-EsxImageProfile -ImageProfile ESXi-5.1.0-799733-standard-xsigo -ExportToIso
-FilePath C:\Users\adminA\Desktop\images\New\VMware-VMvisor-Installer-5.1.0-
799733_Xsigo.x86_64.iso -NoSignatureCheck
```


Note

Oracle makes every effort to release signed, certified host drivers. However, on some occasions, Oracle might release unsigned drivers. If you receive unsigned Oracle host drivers, the `Export-EsxImageProfile` command has the `-NoSignatureCheck` option which will bypass signature checking.

Use the `-NoSignatureCheck` for unsigned drivers.

Omit the `-NoSignatureCheck` option if the drivers are signed.

Supported Host Drivers

This section documents information about the supported ESX host drivers and how to obtain them.

Downloading Supported Drivers

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 documentation is not. For information about how to obtain product documentation, User Guides on page 4.

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*, *GPL* 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 (**`esxcli software vib update –d`**) it to the appropriate version: For example:

```
esxcli software vib update –d xsigo_5.3.1.ESX.1-1vmw.500.0.0.472560.zip
```

Known Problems

Table 1 shows the known problems in this version of Oracle 5.3.1-ESX host drivers.

Table 1 Known Problem in Oracle 5.3.1-ESX Host Drivers

Number	Description
16337984	With XgOS 3.7.2 and ESXi 5 hosts running Oracle driver version 5.2.1 and later, a problem can cause Server Profiles to transition to up/down state. When the problem occurs, vNICs and vHBAs are put into `up/indeterminate` state. and host connections to storage and networking resources are lost. You can work around this problem by rebooting the affected hosts. This problem is under investigation and will be fixed in a subsequent release.
16337075	If you use VMware Update Manager (VUM) to update a host running Oracle ESXi 5.0 host drivers to ESXi 5.1, a different naming convention with the new Oracle host driver bundle for ESX hosts causes VUM will reject the upgrade. You can work around this problem by creating a remastered ISO and using that remastered ISO to upgrade the host. For information, see the *Remote Boot Guide, 3.8.0*.
16337746	With Compellent storage arrays after a failover completes and VM load is manually rebalanced, a problem in the vHBA driver software can cause a flood of ABORT and RSCN messages. When the messages occur, the vHBA is also attempting a rescan (RSCN). This series of events can cause a VM kernel panic. If you encounter this problem, you can work around it by resetting the VM where the vHBA is connected.
16337849	If you add one or more vNICs and vHBAs with the same name to an ESX server, a problem causes the ESX server to crash to pink screen (PSOD). For example, a vNIC named `tenchi.profile1` and a vHBA named `tenchi.profile1` can cause this problem. Be aware that this problem exists, and use unique names for vNICs and vHBAs.
16336591	When EMC storage is direct connected to the Fabric Interconnect, and the EMC storage is available to an ESX 5.1 server running PowerPath, a problem can cause the ESX server to sometimes crash to pink screen (PSOD) during runtime when FC frames get dropped. This issue is a problem in PowerPath code and not a Oracle problem. Be aware that this problem is possible in environments where EMC storage is directly connected to the Fabric Interconnect and ESX 5.1 servers are running PowerPath.
16336569	Some modules required to remaster an ESXi 5.1 boot image are no longer available. As a result, a new procedure exists to SAN Boot or iSCSI boot an ESX 5.1 server. See the XgOS Remote Boot Guide for information about the correct procedure to SAN Boot your ESXi 5.1 servers.
16336454	On ESXi 5.1 servers with one or more PVI vNICs configured, a problem sometimes causes the host to crash to pink screen (PSOD) during a Fabric Interconnect reboot or upgrade of the XgOS. Be aware that this condition can occur. You can work around this problem by following the procedure documented in To Upgrade Fabric Interconnects Connected to ESXi 5.1 Hosts with PVI vNICs, Set Server Profiles “Down” on page 3.
16334855	Oracle 1 Gbps vNICs connected into an ESXi 5.1 vSwitch are erroneously reported as 10 Gbps. This issue is cosmetic only. The actual traffic speed on the vNIC is correct.

Table 1 (continued) Known Problem in Oracle 5.3.1-ESX Host Drivers

Number	Description
16334716	When PowerPath 5.7 is running on an ESXi 5.1 server, and the server is connected to storage through multipath vHBAs, the ESXi server can PSOD if you delete the active vHBA. • To avoid this problem, stop traffic on the active vHBA that you want to delete by issuing the **`set vhba <name> down`** command before deleting the active vHBA. • To work around this problem, clear the PSOD by rebooting the server, then stop traffic on the vHBA as documented in the preceding bullet.
16334700	ESXi 5.1 servers with ConnectX DDR HCAs running Oracle firmware version 2.9.100 experience a problem that prevents the servers from being discovered by the Fabric Interconnect. When the problem occurs, the host remains in INIT state and never transitions to PORT_ACTIVE state. This problem occurs on ESXi 5.1 servers running on Dell R610 and R910 hardware platforms only, and only if the HCA is running 2.9.100 firmware. These are the only conditions where the problem has been observed.
16334494	On ESXi 5.0 hosts (*but not* ESXi 5.1 hosts), a problem prevents Oracle vNICs from being available as selectable objects when creating a standard vSwitch through vSphere even though the vNICs are visible under vSphere's *Network Adapters* tab. This problem is cosmetic only since the vNICs are actually present and fully functional. This problem has not been seen when creating a distributed vSwitch. To work around this problem, you can manually add and uplink each vNIC through the ESX CLI to create the vSwitch. Use the **`esxcfg-vswitch`** command to uplink the vNICs as needed.

Fixed Problems

Table 2 shows the fixes in this version of Oracle host drivers for VMware ESX servers. This version contains fixes from previous host drivers also. Such fixes are indicated in text.

Table 2 Known Problem in Oracle 5.3.1-ESX Host Drivers

Number	Description
16733434	A problem prevented one or more paths on a Linux host from coming back up if multiple paths to an FC switch were taken down. For example, assume you had a Linux host with 4 paths. If you did any of the following, a Linux **`lsscsi`** or **`powermt`** command would only return 3 of the 4 paths: • rebooted an FC switch • disabled an FC port on either the initiator or target • reset the FC card in the Fabric Interconnect This problem always caused one path to be missed or treated as `dead`, `unknown`, or `down` regardless of the MPxIO software on the host. This problem is fixed in Oracle Virtual Networking 5.3.1-ESX host drivers.
16336863	With Compellent storage, the Oracle host drivers experienced a problem during failover between arrays. The problem occurred due to the way that `Abort` and LUN Reset messages were handled in the host driver software. This problem was fixed in host driver version 5.3.0 by improving the method of handling `Aborts` and `LUN Resets`.

Table 2 (continued) Known Problem in Oracle 5.3.1-ESX Host Drivers

Number	Description
16334494	A problem prevented Oracle vNICs from being available as selectable objects when a standard vSwitch was created through vSphere even though the vNICs were visible under vSphere's *Network Adapters* tab. This problem was fixed in 5.3.0-ESX host drivers for *ESXi 5.1 hosts only*. This problem is not yet fixed for ESXi 5.0 hosts.

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.

Gathering Information for Xsigo Technical Support — ESX

If the Xsigo Fabric Interconnect is supporting ESX servers and you encounter problems, 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 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 the **`xsigo-support`** script.