Oracle® Virtual Networking Host Drivers for VMware ESX 6.0 Release Notes

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Contents

Using This Documentation

- **Overview** – Provides late-breaking information and known issues for Oracle Virtual Networking host drivers release 6.0.0 for VMware ESXi 6.0 hypervisor
- **Audience** – System administrators, authorized service providers, and users who have experience in administering advanced networks
- **Required knowledge** – Advanced experience in using OVN host drivers for VMware ESXi hypervisor

Product Documentation Library

Documentation and resources for this product and related products are available at http://www.oracle.com/goto/Oracle-Virtual-Networking/docs.

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Late-Breaking Information

These release notes provide important late-breaking information and known issue for Oracle Virtual Networking host drivers release 6.0.0 for VMware ESXi 6.0 hosts.

These notes contain the following topics:

What's New in This Release

The latest version of Oracle Virtual Networking host drivers for VMware ESX servers is version 6.0.0, which supports:

- PXE install and SAN boot for ESXi 6.0 hosts. For information about these boot types, see the *XgOS Remote Boot Guide*.
- Fixes for problems in previous releases. See “Fixed Issues” on page 18.

Minimum Requirements

These topics provide minimum system requirements for the host drivers.

Supported OS Levels

The 6.0.0-ESX release of host drivers was tested with and supports the VMware ESXi 6.0 GA with ESXi 6.0.0 build-2494585 version of VMware hypervisor.

Note - Update to the latest version of the operating system and apply pertinent patches to help configure your server for ideal performance.

Note - You do not need a new driver for the minor patches or updates from VMware. The existing driver does not break when you upgrade to latest patches or minor updates. For example, if you have installed OVN-ESX-6.0.0 drivers on VMware ESXi-6.0-GA build-2494585 and you get a latest patch or update from VMware with fixes, then you can just apply the patch to your ESXi host and the existing OVN-ESX-6.0.0 works for the minor update or patch without breaking.

▼ 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 by following this procedure. For third-party HCAs, consult the manufacturer's documentation to obtain required firmware version.

1. **Go to:**
   `https://support.us.oracle.com/oip/faces/index.jspx`
2. **Log in to internal support portal.**
3. **Select the Patch and Updates tab on the top right pane.**
   This directs you to My Oracle Support.
4. **Select the Product or Family (Advanced) tab and search for Oracle QDR Infiniband Adapter and verify available version of firmware under the Release tab.**
5. **Click Search to check all available patches with the supported operating systems.**
6. **Select suitable product patch and click Save.**
7. **Copy the software from the network-accessible node to the host server.**
8. **Unzip the `.zip` file.**

9. **Install the firmware and option ROM into the Oracle HCA as described in the HCA documentation.**

System Limitations and Restrictions

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

OS Upgrade Paths

Supported upgrade paths:

- ESXi 5.5 update 2 to ESXi 6.0.0
- ESXi 5.1 update 3 to ESXi 6.0.0
- ESXi 5.0 update 3 to ESXi 6.0.0

OS Upgrade Methods

Supported upgrade methods:

- Remastered ISO
- `esxcli` profile update (supports upgrading only from ESXi-5.5U2 to ESXi-6.0)

  `esxcli software profile update -d` *custom-depot* **`-p`** *profile-name*

Unsupported upgrade methods:

- VMware update manager
- `esxcli vib update`

Features Not Supported

- Scripted installation

- SAN LUN masking (Oracle Virtual Networking drivers on ESXi-6.0 ignore SAN LUN masking from Oracle Fabric Interconnect and display all available LUNs from corresponding vHBA.)

Enabling or Disabling IP Over IB

Oracle Virtual Networking host drivers support IP over InfiniBand (IPoIB) functionality. By default, the IPoIB module is loaded and enabled when the Oracle Virtual Networking host drivers for ESX are correctly installed on the host. However, if needed, you can manually enable IPoIB.

▼ Enable IPoIB

1. **After the host drivers are installed on the ESX host, type:**

   ```
   /usr/lib/vmware/xsigo/sbin/xg_ctrl_ipoib enable|disable
   ```

   Note that you can also disable IPoIB through this command, if needed.

2. **Restart the `xsigodevs` service:**

   ```
   /etc/init.d/xsigodevs restart
   ```

Unique Names Required for vNICs and vHBAs

Ensure that vNIC and vHBA names are unique. If a vNIC and vHBA share the same name, for example, `tenchi.profile1`, the ESXi host might crash and display a pink screen.

Virtual Resources Supported per ESXi 6.0 Server

This table lists the maximum number of virtual I/O resources of type supported by the host drivers on a VMware ESXi 6.0 server with 8 GB of memory.

I/O Resource	Maximum of Type
vNICs	■ Eight 10-Gbps vNICs ■ Sixteen 1-Gbps vNICs ■ Four jumbo vNICs, either 1-Gbps or 10-Gbps vNICs with a 9014-byte MTU ■ Four iSCSI vNICs (for iSCSI storage) ■ Eight PVI vNICs ■ PVI vNICs and standard vNICs can be configured in any combination as long as they comply with the listed maxima
vHBAs	■ Eight vHBAs

I/O Resource	Maximum of Type
	■ Four multipath vHBAs

Downloading and Installing Supported Host Drivers

▼ Download and Install Host Drivers

1. **Go to:**

   `http://www.oracle.com/technetwork/indexes/downloads`

2. **Scroll down to Drivers.**

3. **Click Xsigo Drivers.**

4. **Scroll down 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 host driver software from the network-accessible node to the ESXi 6.0 host.**

7. **On the ESXi 6.0 host, remove the `net-mlx4-en` driver.**

   ```
   esxcli software vib remove -n net-mlx4-en
   ```

8. **Remove the `net-mlx4-core` driver.**

   ```
   esxcli software vib remove -n net-mlx4-core
   ```

9. **Remove the `nmlx4-en` driver.**

   ```
   esxcli software vib remove -n nmlx4-en
   ```

10. **Remove the `nmlx4-core` driver.**

    ```
    esxcli software vib remove -n nmlx4-core
    ```

11. **Reboot the server.**

12. **Install the new driver.**

```
esxcli software vib install --depot=/xsigo-6.0.0.ESX.1-1vmw.600.0.0.2494585.zip
```

13. **Reboot the server.**

Remastered ISO Creation for ESXi 6.0 Hosts

For Oracle vNICs and vHBAs to be available to the ESXi 6.0 OS, you must inject the Oracle Virtual Networking host drivers into the native ESXi OS. This process is called *creating a remastered ISO*.

For this procedure, be aware of the following:

- You must have a Microsoft Windows server capable of supporting Microsoft Windows PowerShell.
- Creating the remastered ISO occurs through the VMware vSphere plug-in for Microsoft Windows PowerShell. The Windows server must have this tool installed on it.
- Creating a remastered ISO for ESXi 6.0 hosts is supported only on a Windows server running the plug-in. The Windows server's requirements are determined by the version of PowerShell.
- You must use a preconfigured ESXi bundle as a baseline, which is available from VMware's web site. Then, inject the Oracle Virtual Networking bits into that bundle.
- You must have full administrator rights on the Windows server where you will be creating the remastered ISO.

▼ Create the Remastered ISO

Use this procedure to create a remastered ISO. For this task, assume you are using the working directory `\images\New` for the user named `admin`.

1. **Install PowerShell on the Windows server if you have not already done so.**
2. **Install the vSphere PowerCLI plug-in if you have not done so already.**
3. **Download the `VMware-6.`*x*`.`*x*`.zip` file to the Windows server.**
4. **If you have not already done so, download the current Oracle Virtual Networking host driver for ESXi 6.0 hosts as documented in "Download and Install Supported Firmware Versions for HCAs" on page 10.**
5. **Start PowerCLI and connect to the vCenter server.**

```
PowerCLI C:\images\New PowerCLI> Connect-VIServer 192.168.11.12
```

This example shows connecting to a vCenter server with the IP address `192.168.11.12`, but you can also connect by using a fully-qualified domain name.

6. In PowerCLI, import the ESXi 6.0.0 bundle and the Oracle Virtual Networking host drivers for ESXi 6.0 hosts in the PowerCLI application.

This example adds the VMware distribution bundle (`.zip` file) and Oracle Virtual Networking host drivers to a template.

This documentation uses `VMware-ESXi-6.0.0 build-2494585-depot.zip` and `xsigo-6.0.0-ESX1` drivers for illustrative purposes. Follow the same procedure for other versions.

```
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwareDepot -DepotUrl C:\Users\Administrator
\Downloads\VMware-ESXi-6.0.0-2494585-depot.zip
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwareDepot -DepotUrl C:\Users\Administrator
\Desktop\ESX6.0Drivers\xsigo_6.0.0-ESX.1-1vmw.600.0.0-2494585.zip
```

This example imports the VMware distribution bundle (`VMware-ESXi-6.0.0-2494585-depot.zip`) and Oracle Virtual Networking host drivers (`xsigo_6.0.0-ESX.1-1vmw.600.0.0-2494585.zip`) to a template.

When you upload the ESX software depot, it creates VMware standard profiles by default. The profiles can be either cloned or created new to make a Custom-ESXISO. This procedure uses the cloned-profile installation procedure.

7. List the ESX image profiles.

```
PowerCLI C:\images\New PowerCLI > Get-EsxImageProfile
Name                           Vendor         Last Modified     Acceptance Level
----                           ------         -------------     ----------------
ESXi-6.0.0-2494585-standard    VMware, Inc.   2/6/20156:...     PartnerSupported
ESXi-6.0.0-2494585-no-tools    VMware, Inc.   2/6/20156:...     PartnerSupported
```

As shown in this example, two ESX image profiles are available by default. To make the remastered ISO, you will clone the `ESXi-6.0.0-2494585-standard` profile.

8. Create an image profile to make the `Custom-ESX-6.0.0` ISO.

```
PowerCLI C:\images\New PowerCLI> New-EsxImageProfile -CloneProfile ESXi-6.0.0-2494585-
standard -Name "Custom-ESX-6.0.0" -Vendor VMware
```

In this example, a new ESX image profile named `Custom-ESX-6.0.0` is created by cloning the default ESX image profile.

9. Verify that the custom ESX image profile is present.

```
PowerCLI C:\images\New PowerCLI > Get-EsxImageProfile
Name                        Vendor         Last Modified     Acceptance Level
```

```
----                           ------
Custom-ESX-6.0.0               VMware         2/6/20156:...     PartnerSupported
ESXi-6.0.0-2494585-standard    VMware, Inc.   2/6/20156:...     PartnerSupported
ESXi-6.0.0-2494585-no-tools    VMware, Inc.   2/6/20156:...     PartnerSupported
```

When the custom image profile is present, you can add and remove necessary packages to make a custom ISO.

10. Remove the `net-mlx4-en`, `net-mlx4-core`, `nmlx4-en`, and `nmlx4-core` packages from the depot so that they are not included in the remastered ISO.

```
PowerCLI C:\images\New PowerCLI> Remove-EsxSoftwarePackage -ImageProfile Custom-ESX-
6.0.0 -SoftwarePackage net-mlx4-en
PowerCLI C:\images\New PowerCLI> Remove-EsxSoftwarePackage -ImageProfile Custom-ESX-
6.0.0 -SoftwarePackage net-mlx4-core
PowerCLI C:\images\New PowerCLI> Remove-EsxSoftwarePackage -ImageProfile Custom-ESX-
6.0.0 -SoftwarePackage nmlx4-en
PowerCLI C:\images\New PowerCLI> Remove-EsxSoftwarePackage -ImageProfile Custom-ESX-
6.0.0 -SoftwarePackage nmlx4-core
```

11. Add Oracle Virtual Networking packages in the order shown.

```
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-ib-core
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-mlx4-core
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-ib-mad
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-ib-sa
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-ib-ipoib
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-mlx4-ib
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-ib-cm
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-xscore
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-xsvnic
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage net-xve
PowerCLI C:\images\New PowerCLI> Add-EsxSoftwarePackage -ImageProfile Custom-ESX-6.0.0 -
SoftwarePackage scsi-xsvhba
```

12. Export the modified image profile to the remastered ISO.

```
PowerCLI C:\images\New PowerCLI> Export-EsxImageProfile -ImageProfile Custom-ESX-6.0.0 -
FilePath C:\Users\Administrator\Desktop\ESX6.0Drivers\Custom-6.0.-OVN.iso –ExportToIso
```

13. (Optional) Export the modified image to the remastered bundle.

This step is required if your deployments use a bundle for installation.

```
PowerCLI C:\images\New PowerCLI> Export-EsxImageProfile -ImageProfile Custom-ESX-6.0.0
 -FilePath C:\Users\Administrator\Desktop\ESX6.0Drivers\Custom-ESX-6.0.0-OVN.zip –
ExportToBundle
```

14. **Reboot the server using the remastered ISO.**

Uninstalling Oracle Virtual Networking Drivers Using VIB Uninstall Method

To uninstall Oracle Virtual Networking drivers, remove each of the VIB packages that are installed with the Oracle Virtual Networking driver.

esxcli software vib remove -n *package-name*

Remove the following VIB packages one after the other:

- `scsi-xsvhba`
- `net-xve`
- `net-xsvnic`
- `net-xscore`
- `net-ib-cm`
- `net-mlx4-ib`
- `net-ib-ipoib`
- `net-ib-sa`
- `net-ib-mad`
- `net-ib-core`
- `net-mlx4-core`

Known Issues

Bug ID	Description
20978336	**A physical uplink or vNIC/PVI-vNIC vanishes with reboot** A physical link or vNIC/PVI-vNIC that is assigned to DV switch as uplink, will not be available after ESXi-host reboot (VMware bug). **Workaround:** Reassign physical link or vNIC/PVI-vNIC as uplinks to the respective DV switch ports.

Bug ID	Description
18411379	**Required VIB Is Not Present** The `net-ib-cm` VIB is not present with ESXi 5.1 with version 5.3.1 of Oracle Virtual Networking host drivers for ESXi hosts. As a result, `esxcli-update` operations going from ESXi 5.0 releases to ESXi 5.1 or later will fail because of the absence of the VIB in the older versions of host drivers. Upgrading from ESXi 5.1 to another release equal to, or greater than, ESXi 5.1 should not experience this problem. **Workaround:** Use a remastered ISO when updating to the latest version of host drivers.
18389464	**Incorrect Stat for vNICs That Have Been Configured, Deleted, and Re-added With a New Name** Assume you have successfully created a PVI vNIC on a PVI Cloud. If you then remove that PVI vNIC, rename it, and attempt to add it back to the PVI cloud, the vNIC is put into up/fail state. **Workaround:** Do either of the following: ■ Reboot the host server after deleting the original PVI vNIC, then create the new PVI vNIC. ■ Reboot the host server after the PVI vNIC is adding in up/fail state. After reboot, the PVI vNIC will be in up/up state.
16337075	**When Multiple Virtual Connections of the Same Type Use the Same Name, Only the First One Added Comes Online Properly** If you add vNICs and vHBAs with the same name to an ESXi host, the first virtual I/O device comes up. When you add the second virtual I/O device, it comes up in a failed state. **Workaround:** Ensure that vNICs and vHBAs have unique names.
16336591	**PowerPath Problem When FibreChannel Frames Get Dropped** Consider the situation where EMC storage is directly connected to the Oracle Fabric Interconnect and is available to an ESXi server running at least version 5.1, and also running PowerPath. If FibreChannel frames get dropped, the ESXi server might crash and display a pink screen of death (PSOD). This issue originates in PowerPath code. **Workaround:** No workaround exists for this issue.
16334716	**Problem With Multipath vHBAs and PowerPath** Consider the situation where an ESXi server is running at least version 5.1, is connected to storage through multipath vHBAs, and is running PowerPath 5.7. If you delete the active vHBA, the server might crash and display a pink screen of death (PSOD). **Workaround:** Reboot the server, then stop traffic on the active vHBA that you want to delete by running the `set vhba` *name* `down` command before deleting the active vHBA.

Fixed Issues

Bug ID	Description
19294372	A problem causes the state of checksumming on a PVI vNIC to be the opposite of the state you specifically set. For example, if you create a PVI vNIC with checksum enabled, then check the PVI vNIC on the ESXi 5.5.2 host, the checksum flag shows disabled. And if you disable checksumming on the PVI, the checksum flag shows enabled on the PVI.
18403614	In a previous version, after enabling IP over IB (IPoIB) on the ESXi host, IPoIB adapters are not listed when you list network adapters with `esxcfg-nics -l`. This problem is present in the current release of Oracle Virtual Networking host drivers for ESX hosts.

Bug ID	Description
18673049	An internal function call (GET_COALESCE) in the host driver caused ESXi 5.5 servers to crash to pink screen of death (PSOD) when attaching an Oracle Virtual Networking vNIC adapter as an uplink to a distributed Vswitch through the ESX web client.
18552328	In earlier versions of ESX host drivers, vNICs or vHBAs could take too long to come up during a server boot up, which prevented ESX autodeploy functionality in some build versions of ESXi hypervisor.
18546492	The Oracle Virtual Networking host drivers contain an IP over InfiniBand (IPoIB) module in the host drivers archive that you download and install. A problem prevented this IPoIB module from loading automatically on ESXi hosts. The module now loads automatically, but you can manually enable or disable the IPoIB module by following te instructions in "Enabling or Disabling IP Over IB" on page 12.
18181421	Deleting a vNIC was successful, but the vNIC was still displayed in VMware vSphere in a down state.
16337984	With XgOS 3.7.2 and ESXi 5.x hosts running Oracle Virtual Networking driver version at least version 5.2.1, a problem caused server profiles to transition to up/down state. When the problem occurred, vNICs and vHBAs were put into up/ indeterminate state, and host connections to storage and networking resources were lost.
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.
16334855	Oracle 1-Gbps vNICs connected into a vSwitch on an ESXi server running at least version 5.1 were erroneously reported as 10 Gbps. This issue was cosmetic only, and the actual traffic speed on the vNIC was as configured.