

Oracle® Fabric Interconnect and XgOS

Product Notes



**VIRTUAL
NETWORKING**

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Using This Documentation

This document provides information about Oracle Fabric Interconnect and XgOS release 4.0 Beta.

- “Related Documentation” on page v
- “Feedback” on page v
- “Access to Oracle Support” on page vi

Related Documentation

Documentation	Links
All Oracle products	http://www.oracle.com/documentation
Oracle Virtual Networking Documentation	http://www.oracle.com/goto/FABRIC-INTERCONNECT/docs
Oracle Fabric Interconnect Documentation	http://www.oracle.com/goto/FABRIC-INTERCONNECT/docs

Feedback

Provide feedback on this documentation at:

<http://www.oracle.com/goto/docfeedback>

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Late-Breaking Information

These topics provide important information and late-breaking news about the Oracle Fabric Interconnect and XgOS release 4.0.

- [“What’s New in XgOS”](#) on page 1
- [“Minimum Requirements”](#) on page 3
- [“Supported HCAs”](#) on page 4
- [“System Limitations and Restrictions”](#) on page 5
- [“Downloading Updates From MOS”](#) on page 5
- [“Known Issues”](#) on page 6
- [“Fixed Issues”](#) on page 7
- [“Documentation Issues”](#) on page 7

What’s New in XgOS

- Security updates:
 - Compiled with Fortify.
 - AES-128 and SHA-2 support for these users: `root`, `recovery cli`, `admin` and `cli` created users.
 - Support AES-128 for SNMP V3 users.
 - Avoid caching of clear text credential of the client.
- New kernel support: 2.6.39.
- Latest OpenSM: 1.5.4.1
- Rebranding to Oracle.
- SNMP Agent: Added PVI support for enterprise MIB.
- IOP changes (2x4G and 2x8G):
 - Upgraded Qlogic firmware to version 5.07.00.

- Added support to dump Qlogic firmware registers with vHBA Configurator command.
- Ensured that Qlogic dump is properly saved in `syslog`.
- XCM improvements:
 - FC card HAL up to reduce times of repush vHBA configuration.
 - SCP HCA port down alarm.
 - vStar and xStar oper_state sync.
 - HOST report build version in SA query.
 - Flow statistics.
 - Log XT information before IOCARD reboot due to XT Fatal error.
 - XT3 debug counter.
- Support for Windows 2012 SAN Boot.
- XgOS CLI command to disable and enable root login over ssh:
 - `set system root-ssh-login disable | enable`
- First Boot (XgOS Configuration Wizard) includes steps to allow root login over ssh and enable strong password configuration:

```

Do you want to allow root login over ssh? [Y/n]

Do you want enable strong password configuration? [y/N] y
Set the minimum number of characters in the password [0]
Set the minimum number of lower case letters in the password [0]
Set the minimum number of digits in the password [0]
Set the minimum number of special characters in the password [0]

```

- Customer-reported issues have been fixed. See [“Fixed Issues” on page 7](#).

Minimum Requirements

Software	Release
XgOS	4.0
Oracle Solaris OS	<ul style="list-style-type: none">• Oracle Solaris 11.1• Oracle Solaris 10 1/13
Oracle Linux OS	<ul style="list-style-type: none">• Oracle Linux 6 Update 4 and Oracle's Red Hat-compatible kernel• Oracle Linux 5 Update 9 and Oracle's Red Hat-compatible kernel
Oracle Virtual Machine (OVM)	3.1.1
Red Hat Enterprise Linux (RHEL)	<ul style="list-style-type: none">• Oracle's Red Hat-compatible kernel, Linux 6 Update 4• Oracle's Red Hat-compatible kernel, Linux 5 Update 9
Microsoft Windows Server	<ul style="list-style-type: none">• 2003 R2 with SP2• 2008 SP2 and 2008 R2• 2012 and 2012 R2
VMware ESXi Server	4.x, 5x, and 5.5
Oracle VM for X86	3.0
Oracle Virtual Networking Host Drivers	Separate host driver release notes exist for each platform. For host driver release notes, go to: http://www.oracle.com/goto/FABRIC-INTERCONNECT/docs

Fabric Interconnect Requirements

An Oracle Fabric Interconnect with a PCI Gen 2 chassis and FP2 front panel is required for XgOS 4.0 and 3.9.0. See [“Upgrading to the FP-2 Front Panel” on page 8](#) for more information on FP2 front panel.

Supported HCAs

XgOS 4.0 supports Oracle HCAs as well as third-party manufacturers' HCAs with the requirement that the HCAs use the required version of firmware. Refer to the HCA's product notes for latest firmware versions.

Supported Oracle HCAs include:

- Sun InfiniBand Dual Port 4x QDR PCIe Low Profile Host Channel Adapter M2. Refer to <http://docs.oracle.com/cd/E19241-01/index.html> for documentation.
- Sun InfiniBand Dual Port 4x QDR PCIe ExpressModule Host Channel Adapter M2. Refer to <http://docs.oracle.com/cd/E19157-01/index.html> for documentation.
- Oracle Dual Port QDR InfiniBand Adapter M3. Refer to http://docs.oracle.com/cd/E40985_01/index.html for documentation.

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

Ethernet Network Switches and Routers

The Oracle Fabric Interconnect I/O ports operate with any 1 Gbps or 10 Gbps network switch that supports established IEEE standards for Ethernet.

Storage and SAN Switches

The Oracle Fabric Interconnect can operate with industry-standard Fibre Channel SAN storage devices, and any SAN switches that support NPIV login through the Fibre Channel SAN. For Oracle vHBAs to successfully connect to a Fibre Channel switch, NPIV must be enabled on the switch.

System Limitations and Restrictions

These topics document system limitations and restrictions for the Oracle Fabric Interconnect and XgOS Release 4.0.

- [“Limitations and Restrictions for XgOS 4.0” on page 5](#)

Limitations and Restrictions for XgOS 4.0

- **Virtual Resources Supported per Host Server**

vNIC support:

- A maximum of 16 vNICs, which can be 8 vNICs and 8 PVI vNICs (typical configuration), 16 vNICs and 0 PVI vNICs, or 0 vNICs and 16 PVI vNICs.
- HA vNICs are not supported on Oracle Solaris from the Oracle Fabric Interconnect. However, server-based HA vNICs are available natively through the IPMP on the Oracle Solaris server.

vHBA support:

- A maximum of eight standalone vHBAs allowed

Downloading Updates From MOS

The host driver software is available through My Oracle Support (MOS). Access to MOS requires a valid user account and password. To register as a new user, view related documentation, or download software, go to:

<http://support.oracle.com>

▼ Download Software from MOS

1. **Go to My Oracle Support:**

<http://support.oracle.com>

2. **Log in with your account name and password.**

3. **On the MOS home page, click the Patches & Updates tab.**

4. In the Patch Search panel, click the Product Or Family (Advanced) link.
5. From the Product is drop-down menu, start typing "Oracle Fabric Interconnect."
When you enter enough characters for the string to be unique, the drop-down will contain the entry you seek.
6. Click Oracle Fabric Interconnect.
7. From the Release drop-down menu, select the checkbox for the version of the host drivers you want to download (for example, Oracle Fabric Interconnect 3.9.2).
8. Click the Search button to display the search results.
9. Select the version of the package by clicking the patch number.
10. (Optional) Click the Read Me button to get more patch information.
11. Click the Download button to download the package.

Known Issues

- ["Known Issues in Release 4.0" on page 6](#)

Known Issues in Release 4.0

Bug ID	Description
18308097	Can not log in any more after downgrade from 4.0.0 to 3.9.2. Workaround: Due to incompatibility between SHA-1 and SHA-5, downgrading from 4.0 to 3.9.x or earlier should not be performed. Customer will lose access to chassis. If downgrade is absolutely necessary, customer has to preserve chassis <code>config</code> file, re-install from USB and reload the preserved <code>config</code> file.
18224679	vhbaagent crashes. Workaround: No workaround needed, <code>vhbaagent</code> recovers without user interaction.
16334795	xsm is crashing in multiple testbeds. Workaround: No workaround needed, <code>xsm</code> recovers without user interaction.

Fixed Issues

- [“Fixed Issues in Release 4.0” on page 7](#)

Fixed Issues in Release 4.0

Bug ID	Description
18651015	Checksum 0x0000 Not Passing Director on XgOS 3.9.2.
17643371	Configuration needed to enable or disable ssh for root.
16710600	Unable to Clear an vNIC Alarm.
16635509	Ethernet Card Is Failing.
16332478	UCLI Session Hangs When Removing Partial Card Failure Alarm.
16336525	XT/XT2 Driver Reset the Card Whenever ibport logical state != ACTIVE and the ibport logical state Is Down By opensm.
16336867	Massive Memoty Leak xc_manager.
16333708	10GE: L2D Lockup Occurred After Resetting SCP
16336750	1/10GE: Complaints About Messages Type 131.
16336201	XgOS: Cards Show xtLidInvalid While Coming Up.

Documentation Issues

These topics describe issues related to the product documentation.

- [“Upgrading to the FP-2 Front Panel” on page 8](#)

Upgrading to the FP-2 Front Panel

XgOS 3.9.0 and later supports a new front panel, called the FP-2. This hardware component contains the SCP, and the main difference between the FP-2 and its predecessor is that the SCP is embedded on the FP-2 and is no longer a field-replaceable part. Existing front panels are still supported in the field, but will no longer be an orderable item.

Some considerations for upgrading to the FP-2 are:

- The minimum version that supports the FP-2 is XgOS 3.9.0. As a result, you cannot downgrade an Oracle Fabric Interconnect that has an FP-2 to XgOS version 3.8.x or earlier and have a functional FP-2.
- For existing customers with the previous front panel (not new customers who received the FP-2 with their shipment from the factory), Oracle recommends keeping the previous front panel to allow flexibility in downgrading to XgOS 3.8.x if needed.
- If you are upgrading an Oracle Fabric Interconnect that has ESX hosts connected, make sure to set the Server Profiles for the ESX hosts to “down” before attempting this upgrade.

The FP-2 is a field-upgradeable part (the SCP on the FP-2 is not). For the upgrade procedure you will need:

- #2 Phillips (cross-head) screwdriver
- an ESD wrist strap
- an ESD-safe work surface
- an ESD bag for the old front panel assembly

Note – This upgrade procedure requires you to power down the Oracle Fabric Interconnect, so a service interruption will occur. Oracle recommends that you perform the upgrade during a scheduled service window.

The upgrade procedure has the following main phases:

- **Backing Up the Configuration**

Optional, but recommended if you want to preserve your existing configuration after the hardware upgrade. If you do not save your existing configuration, you will need to recreate your entire configuration after the upgrade.

See “[Back Up the Configuration](#)” on page 9.

- **Removing the front panel assembly**

See “[Remove the Front Panel Assembly](#)” on page 10.

- **Installing the FP-2**

See [“Install the FP-2 Front Panel”](#) on page 11.

- **Restoring the Configuration**

This is conditional depending on whether the configuration was saved or not.

See [“Restore the Configuration”](#) on page 12.

▼ Back Up the Configuration

If you wish to retain your current setup after the replacement is finished you will need to follow these steps to save the configuration to a storage device other than the chassis. For illustrative purposes, this procedure will assume you are using a USB token to store the `config` and user files while the Oracle Fabric Interconnect is powered down.

1. **Export your configuration to an external storage device. For example, insert the USB token into the USB port on the Management Module.**
2. **Issue the `system export file-name` command to save the `config` and all user files that you want to keep.**
 - The `file-name` argument is alphanumeric character string that names the current `config` file. You can assign any name to the configuration you are saving. You do not need to specify the file extension or type as part of the `file-name` string.
 - The `system config` file is saved to XML format by default.
 - The user files are typically located in the user home directory in `/var/fsroot/` on the Oracle Fabric Interconnect. So, for example, for the default admin user, the user files would be located in `/var/fsroot/admin`.

For example, to save the current running configuration to a file `xgos-old-config`, you would issue the command as follows:

```
system export /usb/xgos-old-config.xml
```

Note – You can also save the `config` file in two steps, by:

1) Saving the `config` file to the `/home` directory of the account you logged in with.

For example: **system export xgos-old-config.xml**

2.) Copying the `config` file to the USB token by using either the `file copy` or `cp` commands, for example:

```
file copy xgos-old-config.xml /usb/xgos-old-config.xml
```

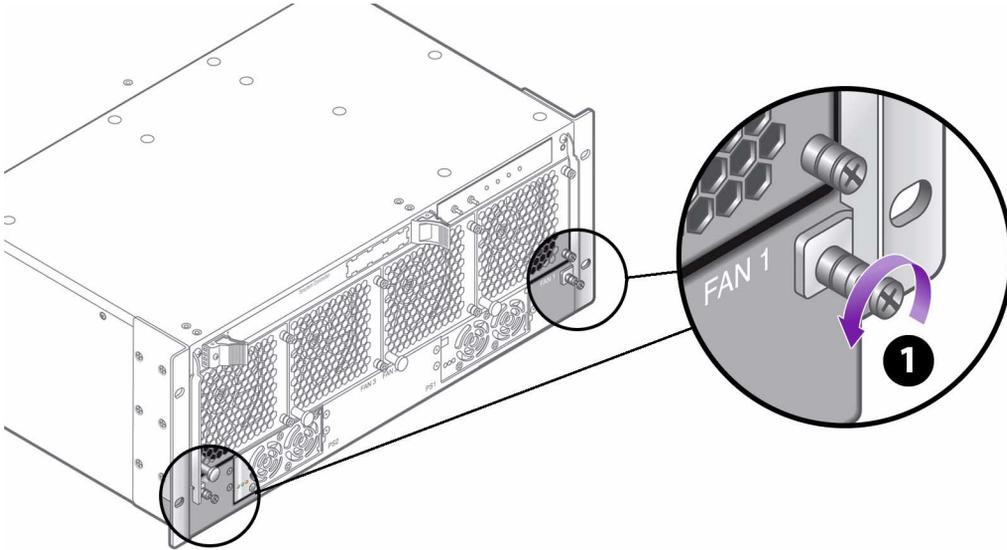
```
or cp xgos-old-config.xml /usb/xgos-old-config.xml
```

3. **When files are on the USB token, remove it.**

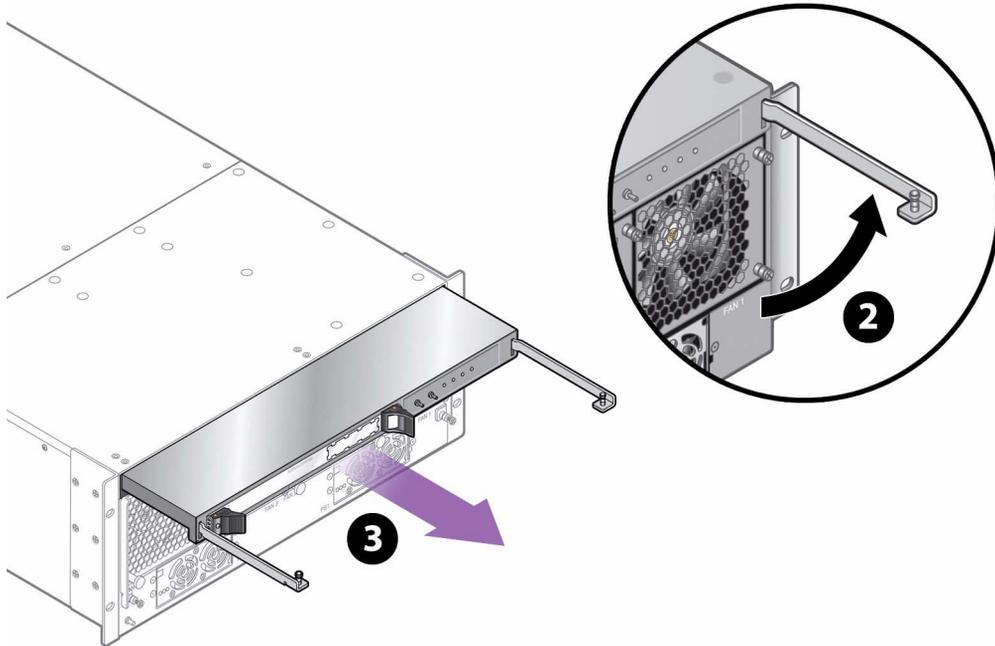
4. **Proceed to [“Remove the Front Panel Assembly”](#) on page 10.**

▼ Remove the Front Panel Assembly

1. Power down the Oracle Fabric Interconnect.
2. Using the screwdriver, release the two spring-loaded screws (1) securing the release levers to the chassis.



3. Simultaneously grasp both of the release levers and slowly raise them until they are horizontal (2), then use the levers to carefully slide the assembly out of the chassis (3).



4. Proceed to “Install the FP-2 Front Panel” on page 11.

▼ Install the FP-2 Front Panel

1. Carefully align the FP-2 with the front panel bay in the chassis. Make sure that the FP-2 is facing up, and the handles are pointing straight towards you as shown in (3) in Figure 2
2. Keeping the FP-2 level and holding it by the edges, gently slide the FP-2 into the chassis until you feel some resistance when the FP-2 is almost all the way inserted.

Note – This resistance is normal and occurs when the FP-2 plug contacts the power socket inside the chassis. When you feel this resistance, stop pushing on the FP-2.

3. When the FP-2 plug has contacted the socket inside the chassis, simultaneously grasp both of the release levers and slowly lower them until they are vertical and flush with the chassis. This step is the reverse of (2) in Figure 2.

4. Using the screwdriver, tighten the two spring-loaded screws securing the release levers to the chassis. This step is the reverse of Figure 1. *Do not overtighten the screws!*
5. Power on the system.
6. As an option, you can attach to serial port 1 (SER-1) at 115200 baud and leave the session open to watch the progress of the installation and start up while the Oracle Fabric Interconnect is brought back online.
7. When the chassis is up, log in as `admin/admin`.

If it does not immediately allow you to log in, wait until it does. During startup, the Oracle Fabric Interconnect waits for a specific Ethernet interface called `ethMgmt` to become ready before allowing admin logon the first time.

Also, if you are not using the serial port, you will not be able to `ssh` to the chassis until the network is ready. In this case you can log on as `admin` as soon as it will accept your connection.

Also, be aware that the management Ethernet interface address is assigned by static addressing by default. The default address for the management interface is 192.168.1.1. This address is the default management interface address for the FP2 also, so when you install the FP2, it will use 192.168.1.1. Be aware that if you have manually set the management interface address to something other than 192.168.1.1, that non-default address will not be used after the FP2 is installed. You will not be able to connect to the non-default address, and you will need to use 192.168.1.1 instead.
8. Complete the First Boot (XgOS Configuration Wizard) by entering the system name, subnet manager settings, phone home settings (if desired) and so on.
9. Proceed to “Restore the Configuration” on page 12.

▼ Restore the Configuration

If you have a saved a configuration and want to reload the configuration, you can import the saved configuration. The configuration file was saved to an off-SCP device (such as a USB token), so when you import the configuration, make sure you specify the path and file name when you import the saved configuration.

Caution – When a saved configuration is being imported, the current I/O module configuration on the Oracle Fabric Interconnect must match the I/O Module configuration in the saved `config` file. Do not add or remove I/O cards during the FP-2 hardware replacement procedure. If you change the I/O module configuration during the replacement procedure, the I/O module configuration will not match the saved configuration, and importing the `config` file will abort.

1. Insert the USB token into the USB port on the Management Module.
2. Copy all user files off of the USB token into the correct directory.
3. Import the configuration from the USB token by issuing the `system import file-name` command.

For example, to load the saved configuration called `xgos-old-config.xml` from a USB device, you would issue:

```
system import /usb/xgos-old-config.xml
```

Note – You can also import the `config` file in two steps, by:

1) Copying the `config` file from the USB token to the `/home` directory of the current account by using either the `file copy` or `cp` commands at the XgOS prompt. For example:

```
file copy /usb/xgos-old-config.xml xgos-old-config.xml
```

```
or cp /usb/xgos-old-config.xml xgos-old-config.xml
```

2) Importing the `config` file from the `/home` directory (the default location). For example, **`system import xgos-old-config.xml`**

When the saved `config` file is successfully re-imported, the Oracle Fabric Interconnect will prompt you for a reboot.

4. When prompted for the reboot, enter `Y` to accept the reboot. You must enter `Y` to re-import the saved `config` file.



Caution – Do not press `N` or the saved `config` file will not be imported and the Oracle Fabric Interconnect will be put into an indeterminate state.

5. Allow the reboot to complete, then remove the USB token from the USB port

