

## Oracle Dual Port QDR InfiniBand Adapter M4 Product Notes

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## Using This Documentation

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- **Overview** – Provides late-breaking information on the Oracle Dual Port QDR InfiniBand Adapter M4.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware.

## Product Documentation Library

Documentation and resources for this product and related products are available at [http://www.oracle.com/goto/dual\\_port\\_qdr\\_infiniband\\_m4/docs](http://www.oracle.com/goto/dual_port_qdr_infiniband_m4/docs).

## Feedback

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## Late-Breaking Information

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This document contains important and late-breaking information about Oracle's Dual Port QDR InfiniBand Adapter M4.

- [“Known Issues” on page 9](#)
- [“Hardware and Software Requirements” on page 10](#)
- [“OS Patches and Updates” on page 11](#)
- [“Install the Oracle Solaris SIF Package” on page 12](#)
- [“Install the Latest Oracle Linux Psif Driver and Libsif Library” on page 12](#)
- [“Oracle Dual Port QDR InfiniBand Adapter M4 Firmware and Oracle Linux Firmware Upgrade Tool” on page 13](#)
- [“Upgrade the Firmware Using the Oracle Solaris FWFLASH Tool” on page 13](#)
- [“Upgrade the Bootloader \(Oracle Solaris\)” on page 15](#)
- [“Upgrade the Bootloader \(Oracle Linux\)” on page 16](#)
- [“Documentation Errata” on page 17](#)

## Known Issues

These are the known issues for the adapter.

- [“Oracle Solaris SIF Package Must be Manually Installed \(Bug ID 23602502\)” on page 10](#)
- [“Features Not Currently Supported” on page 10](#)

## **PSIF Driver Logs a Warning Message Related to Node-Description During Driver Attach (BugID 22495519)**

PSIF driver attach can log the following error message during system boot or when a PSIF IB controller is added to the system.

```
WARNING: psif-rev-2 : 0 - psif_attach : Failed to read nodedesc from persistent store
```

**Workaround:** This warning can be safely ignored. Running `set_nodedesc.sh(1M)` will eliminate the warning in the future.

## Oracle Solaris SIF Package Must be Manually Installed (Bug ID 23602502)

For Oracle Solaris versions earlier than SRU12, you must manually install the Oracle Solaris SIF Package when updating the OS.

**Workaround:** Follow the instructions in [“Install the Oracle Solaris SIF Package” on page 12.](#)

## Features Not Currently Supported

These Oracle Solaris features are not currently supported in this release:

- Versaboot
- Kernel zones
- IOR (I/O Domain Resiliency)
- Offload (Checksum, TSO/LSO)
- EOIB (Ethernet Over Infiniband)
- RDSv1 (Reliable Datagram Service version1)
- User Direct Access Programming Language (uDAPL)

For Oracle Linux, the NFSoRDMA protocol is not currently supported in this release.

## Hardware and Software Requirements

Before using the adapter, ensure that your server meets the hardware and software requirements. For additional information, check the product web page at:

<https://www.oracle.com/networking/dual-port-qdr-infiniband-adapter-m4/index.html>

Supported Hardware and Operating Systems	Supported Products
Hardware, Oracle servers	Oracle Solaris SPARC (Oracle Solaris x86 is currently not supported for this release).
Operating systems	<ul style="list-style-type: none"><li>■ Oracle Solaris 11.3 SRU9 or newer</li><li>■ Oracle Linux systems supported with UEK4: Oracle Linux 6.7 and newer, Oracle Linux 7.1 and newer</li><li>■ Hypervisors: Oracle VM 3.4.1</li></ul>

Supported Hardware and Operating Systems	Supported Products
	For the most up-to-date supported OSs, check the product web page for the specific server.

InfiniBand Copper Cables	Part Number
QSFP to QSFP passive copper cable: 1 meter	X2121A - 1M - N
QSFP to QSFP passive copper cable: 2 meter	X2121A - 2M
QSFP to QSFP passive copper cable: 3 meter	X2121A - 3M - N
QSFP to QSFP passive copper cable: 5 meter	X2121A - 5M - N

Two transceivers are required for each of these high-bandwidth cables.

InfiniBand Optical Cable	Part Number
QSFP parallel fiber optics short wave transceiver	X2124A - N
NOTE : Quantity of 2 transceivers are required for each cable below.	
High bandwidth QSFP optical cable: 5 meters, MPO to MPO	7105199
High bandwidth QSFP optical cable: 10 meters, MPO to MPO	7102869
High bandwidth QSFP optical cable : 20 meters, MPO to MPO	7102870
High bandwidth QSFP optical cable : 50 meters, MPO to MPO	7102871
High bandwidth QSFP optical cable : 100 meters, MPO to MPO	7105206

When connecting to the Oracle Dual Port QDR InfiniBand Adapter M4, these switches require firmware version 2.2.3 at a minimum:

- Sun Datacenter InfiniBand Switch 36
- Sun Network QDR InfiniBand Gateway Switch

## OS Patches and Updates

Before you patch the current OS due to version differences, update the entire OS image, if possible, on the server.

If you cannot update the entire OS image, download the latest patch that contains the software driver at:

<https://support.oracle.com>

For additional information, check the product web page at:

<https://www.oracle.com/networking/dual-port-qdr-infiniband-adapter-m4/index.html>

## ▼ Install the Oracle Solaris SIF Package

1. **Set the publisher to the Oracle Solaris 11 official support repository.**  

```
# pkg set-publisher -g https://pkg.oracle.com/solaris/support solaris
```
2. **Refresh the metadata (catalog).**  

```
$ pkg refresh --full
```
3. **Update to latest SRU (SRU9 or newer) and accept when prompted to do so.**  

```
$ pkg update [--be-name BE ]
```
4. **Follow the instructions to reboot the system on the new boot environment.**
5. **Log in to the server and type:**  

```
$ pkg install sif
```
6. **Check for the network/open-fabrics package.**  

```
# pkg info network/open-fabrics
```
7. **If the package is not found, install it.**  

```
# pkg install network/open-fabrics
```
8. **Reboot the server *twice*.**

## ▼ Install the Latest Oracle Linux Psif Driver and Libsif Library

1. **From the Oracle Linux public Yum, ensure that the following prerequisites have been completed.**
  - The Yum repository is reachable through the network by the Oracle Linux server.
  - The Yum service is running correctly.
  - You have root access to the Yum repository.
2. **For the latest Oracle Linux psif driver, ensure the latest kernel is installed.**

The psif driver is integrated in the kernel, which is also known as Unbreakable Enterprise Kernel Release 4 Update 2 (UEK R4u2).

  - For Oracle Linux 6 (6.7 and newer): [http://public-yum.oracle.com/repo/OracleLinux/OL6/UEKR4/x86\\_64/index.html](http://public-yum.oracle.com/repo/OracleLinux/OL6/UEKR4/x86_64/index.html)  
Use the minimum rpm version `kernel-uek-4.1.12-61.1.6.el6uek.x86_64.rpm`.

- For Oracle Linux 7 (7.1 and newer): [http://public-yum.oracle.com/repo/OracleLinux/OL7/UEKR4/x86\\_64/index.html](http://public-yum.oracle.com/repo/OracleLinux/OL7/UEKR4/x86_64/index.html)

Use the minimum rpm version `kernel-uek-4.1.12-61.1.6.el7uek.x86_64.rpm`.

### 3. Locate and download for installation the `libsif` from the public Yum.

The `libsif` is the name of the rpm, which is bundled in the Oracle Linux package.

- For Oracle Linux 6 (6.7 and newer): [http://public-yum.oracle.com/repo/OracleLinux/OL6/UEKR4/OFED/x86\\_64/index.html](http://public-yum.oracle.com/repo/OracleLinux/OL6/UEKR4/OFED/x86_64/index.html)

Use the minimum rpm version `libsif-1.1-1880.el6.x86_64.rpm`.

- For Oracle Linux 7 (7.1 and newer): [http://public-yum.oracle.com/repo/OracleLinux/OL7/UEKR4/OFED/x86\\_64/index.html](http://public-yum.oracle.com/repo/OracleLinux/OL7/UEKR4/OFED/x86_64/index.html)

Use the minimum rpm version `libsif-1.1-1880.el6.x86_64.rpm`.

## Oracle Dual Port QDR InfiniBand Adapter M4 Firmware and Oracle Linux Firmware Upgrade Tool

Locate and download for installation the latest firmware and firmware upgrade tool from My Oracle Support at <https://support.oracle.com>.

In addition to this documentation, readme files are often available with downloaded software or firmware. Make sure to read any readme file related to your downloaded files.

More more information, see “[Upgrade the Firmware Using the Oracle Solaris FWFLASH Tool](#)” on page 13.

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**Note** - For the latest patch information, search patch number 23702457. You can also search by product name, Oracle Dual Port QDR InfiniBand Adapter M4.

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### ▼ Upgrade the Firmware Using the Oracle Solaris FWFLASH Tool

The Oracle Dual Port QDR InfiniBand Adapter M4 comes with a Factory Default firmware of 0.056 and the Oracle Solaris Driver will attach only in Maintenance Mode.

The following error messages will appear on the console and `/var/adm/messages`.

```
WARNING: psif-rev-2 : 0 - psif_eps_api_version_ok : *** EPSC API Major
VersionMismatch: Driver Expects v.2.4, FirmwareImplements v.0.101 ***
```

```
WARNING: psif-rev-2 : 0 - psif_eps_api_version_ok : *** Incompatible
Firmware detected.Driver attaching in maintenance mode.Only Firmware update is
supported
in this mode ***
```

For the card to become operational, upgrade to the latest firmware available on MOS.

**1. Verify the firmware on the card.**

```
# fwflash -l
List of available devices:
.....
.....
Device[200] /devices/pci@400/pci@1/pci@0/pci@8/pciex108e,2088@0:devctl
Driver psif
Class [IB]
GUID : System Image - 0010e07b78a00007
Node Image - 0010e07b78a00004
Port 1 - 0010e07b78a00005
Port 2 - 0010e07b78a00006 Firmware Revision : 0.056 Tue Dec 22 17:44:44 2015
Install Time : Wed Nov 30 17:21:41 1983
Bootloader : 0.034 Wed Oct 7 20:11:13 2015
Install Time : -
Vendor Id : ORACLE
HW Revision : 3
Device Id : 0
Description : ORACLE DUAL PORT QDR INFINIBAND ADAPTER M4
```

**2. Download the Latest firmware Patch (23702457) from My Oracle Support (MOS) at <https://support.oracle.com>.**

**3. Upgrade the firmware.**

```
#fwflash -d <Device Path> -f <FW binary>
Eg:
# fwflash -d /devices/pci@400/pci@1/pci@0/pci@8/pciex108e,2088@0:devctl -f titan-psif-epsc-0.067.bin
The current HCA firmware version is :0.056
Will be updated to HCA firmware ver of :0.067
About to update firmware on /devices/pci@400/pci@1/pci@0/pci@8/pciex108e,2088@0:devctl
with file titan-psif-epsc-0.067.bin.
Do you want to continue? (Y/N): Y
fwflash: New firmware will be activated after you reboot
```

**4. Reboot the server for the changes to take effect.**

**5. After Reboot, the Firmware Flash Tool will display and the card will become functional.**

```
# fwflash -l
List of available devices:
```

```

.....
.....
Device[200] /devices/pci@400/pci@1/pci@0/pci@8/pciex108e,2088@0:devctl
Driver psif
Class [IB]
GUID : System Image - 0010e07b78a00007
Node Image - 0010e07b78a00004
Port 1 - 0010e07b78a00005
Port 2 - 0010e07b78a00006 Firmware Revision : 0.067 Mon Jun 13 11:46:36 2016
Install Time : Thu Sep 15 18:53:55 2016
Bootloader : 0.034 Wed Oct 7 20:11:13 2015
Install Time : -
Vendor Id : ORACLE
HW Revision : 3
Device Id : 2088
Description : ORACLE DUAL PORT QDR INFINIBAND ADAPTER M4

```

## ▼ Upgrade the Bootloader (Oracle Solaris)

When you upgrade your firmware, ensure that your bootloader uses the minimum version of 0.036. If it does not, upgrade your bootloader.

The bootloader is part of the patch bundle on My Oracle Support.

1. Use the `fwflash -l` command to determine which bootloader version you have.

```

# fwflash -l
Device[200] /devices/pci@400/pci@1/pci@0/pci@8/pciex108e,2088@0:devctl
Driver psif
Class [IB]
GUID : System Image           - 0010e07a9ba00007
      Node Image              - 0010e07a9ba00004
      Port 1                   - 0010e07a9ba00005
      Port 2                   - 0010e07a9ba00006
Firmware Revision             : 0.067 Mon Jun 13 11:46:36 2016
Bootloader                    : 0.036
Wed Feb                       10 22:01:34 2016
Vendor Id                     : ORACLE
HW Revision                   : 3
Device Id                     : 2088
Description                    : Titan QSFP Infiniband HCA

```

2. If the version is not a minimum of 0.036, use the `fwflash -d` command to upgrade to the new bootloader.

```
# fwflash -d dev-id -f bootloader-img file
```

For example:

```
#fwflash -d /devices/pci@400/pci@1/pci@0/pci@8/pciex108e,2088@0:devctl -f titan-psif-bbimage-0.036.bin
```

## ▼ Upgrade the Bootloader (Oracle Linux)

When you upgrade your firmware, ensure that your bootloader uses the minimum version of 0.036. If it does not, upgrade your bootloader.

The bootloader is part of the patch bundle on My Oracle Support.

### 1. Use the `pflash` command to determine which bootloader version you have.

```
# pflash -d 06:00.0 q boot

boot loader
Revision      : 0.036
Date/time    : 2016-02-10 16:31:34

Image size (bytes)      : 26632
Flash offset           : 0x003f0000
Start Addr             : 0xffff0000
Flash Exec Load       : 0xffbf97d0
Exec Base              : 0x001ba000
Exec Length            : 0x00004de4
Flash Low Vector Load  : 0xffbfe5b4
Low Vector Length     : 0x0000250
#
```

### 2. If the version is not a minimum of 0.036, use the `pflash -d` command to upgrade to the new bootloader.

```
#pflash -d dev-id -i bootloader-img file burn boot
```

For example:

```
#pflash -d 06:00.0 -i /lib/firmware/titan-psif-bbimage-0.036.bin burn boot
```



## Documentation Errata

This table lists documentation errata for the *Oracle Dual Port QDR InfiniBand Adapter M4 User's Guide* (E64150) at: [http://www.oracle.com/goto/dual\\_port\\_qdr\\_infiniband\\_m4/docs](http://www.oracle.com/goto/dual_port_qdr_infiniband_m4/docs).

Page	Section	Correction
page 30	IB Overview (Oracle Solaris)	IB software is bundled with the Oracle Solaris OS. For Oracle Solaris 11.3 SRU9 or newer, the package containing the device driver for the adapter is <code>driver/infiniband/sif</code> .
pages 33 and 34	<ul style="list-style-type: none"> <li>■ Enable Ethernet Over IB for the Oracle IB Switch IS2-46 or Oracle IB Switch IS2-254 (Oracle Solaris)</li> <li>■ Disable Ethernet Over IB for the Oracle IB Switch IS2-46 or Oracle IB Switch IS2-254 (Oracle Solaris)</li> </ul>	Complete sections can be removed.
page 43	Update the OS (Oracle Solaris)	The following lines can be removed from Step 2:  # pkg contents siftools  # pkginfo SUNWstc-infiniband-ofuv

