

HP-UX and Windows OS Installation Guide for HP PCIe 8Gb and 4Gb 2 Port Fibre Channel QLogic Mezzanine HBA

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Table of Contents

About this guide.....	7
Intended audience.....	7
Related documentation.....	7
Document conventions and symbols.....	7
Subscribers choice.....	8
HP technical support.....	8
Subscription service.....	8
Helpful websites.....	8
Supported Operating Systems.....	9
Supported Server Platforms.....	9
1 Installing the HBA.....	11
Website Link for Installation Instructions.....	11
2 Installing the Windows Smart Component/Linux Driver Kit.....	13
Prerequisites.....	13
Locating and downloading the Windows Smart Component or Linux driver kit from the website....	13
Installing the Windows device driver using the HP Smart Component kit.....	13
Installing the Linux Driver.....	14
3 Installing the HP-UX Operating System Components.....	15
Fibre Channel Adapter Installation for HP-UX.....	15
Prerequisites.....	15
Important patches and updates.....	15
Installing driver software.....	16
Installing Online Diag.....	17
Verify the Fibre Channel adapter installation.....	17
Obtaining card information after installation.....	17
Verifying connectivity.....	20
Interpreting hardware paths.....	20
4 Troubleshooting.....	23
Using the Event viewer.....	23
Viewing the Event log.....	23
Linux Driver Events.....	23
Accessing the Windows miniport event log codes.....	23
Index.....	25

List of Tables

1	HP Model numbers and Product numbers for the FC Mezzanine QLogic HBA.....	7
2	Document conventions.....	7
3	Supported Operating Systems.....	9
4	Supported Server Platforms.....	9
3-1	Hardware path field descriptions.....	21

List of Examples

3-1	Example of the “fcmsutil /dev/fcd3” command.....	18
3-2	Example of Vital Product Data (VPD) after installation.....	19
3-3	Example of “ioscan” report of agile (new-style) hardware paths after installation (HP-UX 11i v3 only).....	19
3-4	Example of “ioscan” report of legacy hardware paths after installation.....	20
3-5	Legacy (pre-HP-UX 11i v3) hardware path for a direct fabric attach device.....	21
3-6	Hardware path for a private loop device.....	21

About this guide

This guide provides information about installing, configuring, and troubleshooting the following dual channel host bus adapter.

Table 1 HP Model numbers and Product numbers for the FC Mezzanine QLogic HBA

HP Model Number	HP Product Number	Description
QMH2562	451871-B21	PCIe 8Gb 2 Port FC Mezzanine Type 1 HBA
QMH2462	403619-B21	PCIe 4Gb 2 Port FC Mezzanine Type 1 HBA

Intended audience

This guide is intended for technical support personnel.

Related documentation

In addition to this guide, see the release notes for *HP StorageWorks QLogic host bus adapters for Linux and Windows*.

These and other HP documents can be found on the HP website:

<http://www.docs.hp.com>

Document conventions and symbols

Table 2 Document conventions

Convention	Element
Medium blue text: Related documentation	Cross-reference links and e-mail addresses
Medium blue, underlined text (http://www.hp.com)	website addresses
Bold font	<ul style="list-style-type: none">• Key names• Text typed into a GUI element, such as into a box• GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes
<i>Italic font</i>	Text emphasis
Monospace font	<ul style="list-style-type: none">• File and directory names• System output• Code• Text typed at the command line
<i>Monospace, italic font</i>	<ul style="list-style-type: none">• Code variables• Command-line variables
Monospace, bold font	Emphasis of file and directory names, system output, code, and text typed at the command line



WARNING! Indicates that failure to follow directions could result in bodily harm or death.



CAUTION: Indicates that failure to follow directions could result in damage to equipment or data.



IMPORTANT: Provides clarifying information or specific instructions.



NOTE: Provides additional information.



TIP: Provides helpful hints and shortcuts.

Subscribers choice

HP strongly recommends that customers sign up online using the Subscriber's choice website:
<http://www.hp.com/go/e-updates>.

- Subscribing to this service provides you with e-mail updates on the latest product enhancements, newest versions of drivers, and firmware documentation updates, as well as instant access to numerous other product resources.
- After signing up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

HP technical support

Telephone numbers for worldwide technical support are listed on the HP support website:
<http://www.hp.com/support/>.

Collect the following information before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

Subscription service

HP strongly recommends that customers register online using the Subscriber's choice website:
<http://www.hp.com/go/e-updates>.

Subscribing to this service provides you with e-mail updates on the latest product enhancements, newest driver versions, and firmware documentation updates as well as instant access to numerous other product resources.

After subscribing, you can locate your products by selecting **Business support** and then **Storage** under Product Category.

Helpful websites

For other product information, see the following HP websites:

- <http://www.hp.com>
- <http://www.hp.com/go/storage>

- <http://www.hp.com/support/>
- <http://www.docs.hp.com>

Supported Operating Systems

See the following table to determine which operating systems are supported on each FC card.

Table 3 Supported Operating Systems

Product #	Speed and Description	HP-UX	OVMS	Windows	Linux
451871-B21	8Gb 2P FC QLogic Mezz HBA	11i v3 0903 Release	n/a	Smart Setup 6.2	n/a
403619-B21	4Gb 2P FC QLogic Mezz HBA	11i V3 0903 Release		Smart Setup 6.2	

Supported Server Platforms

See the following table of supported platforms for the QLogic FC HBA's.

Table 4 Supported Server Platforms

Product #	Speed and Description	BL860c	BL870c
451871-B21	8Gb 2P FC QLogic Mezz HBA	yes	yes
403619-B21	4Gb 2P FC QLogic Mezz HBA	yes	yes

1 Installing the HBA

The mezzanine FC HBA card is shipped with the installation instructions. If the installation instruction sheet is unavailable, see the following to obtain a copy.

Website Link for Installation Instructions

Installation instructions for the mezzanine FC HBA card are available at the following link:

<http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c01070160/c01070160.pdf>

Further information to complete the installation is available at the following link:

<http://www.hp.com/go/bladesystem/mezzanines>

2 Installing the Windows Smart Component/Linux Driver Kit

This chapter describes how to locate and download the Windows Smart Component or Linux driver kit from the web. This chapter also describes how to install or update your Windows driver. It contains the following topics:

- “Prerequisites” (page 13)
- “Locating and downloading the Windows Smart Component or Linux driver kit from the website” (page 13)
- “Installing the Linux Driver” (page 14)

Prerequisites

Perform the following tasks before you install or update the driver for your Windows server:

- Obtain a copy of the latest release notes for your HP StorageWorks QLogic HBA from the following website:
<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>.
- Be familiar with the operating system under which the HBA is to operate, and have access to standard system documentation.
- Review any restrictions or mandatory hot fixes that apply to your configuration and operating system.

Locating and downloading the Windows Smart Component or Linux driver kit from the website

To locate and download the driver kit from the website:

1. See <http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>.
2. Select your server type.
3. Using the HP model # as your guide, select your HBA.
4. In the support section, select the **HBA's Software and Driver** link.
5. Select **Download drivers and software**.
6. Select your HBA.
7. Select your operating system.
8. Select the Windows Smart Component or Linux driver kit and download it to your server.

Installing the Windows device driver using the HP Smart Component kit

To install the HBA Windows drivers:

1. Obtain the latest Smart Component for your configuration and copy it to your Windows desktop.
2. Double-click the Smart Component executable to begin the installation, and then click **Install**.
3. Launch the Smart Component kit `CPxxxx.exe`.
4. Click **Install** to install the driver.
5. Click **Reboot** to complete the installation.
6. Click **Extract** to extract the contents of the Smart Component.

Installing the Linux Driver

This section describes how to install the Linux QLA2xxx driver.



NOTE: HP does not support building the HBA driver from source code.

To install the Linux driver:

1. Access the driver:
 - a. Go to the HP website: <http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>
 - b. Select the HBA from the Fibre Channel Host Bus Adapters list.
 - c. Click **Software & Drivers**.
The web page for your HBA appears.
 - d. Select a Linux operating system.
 - e. In the **Driver Storage Controllers — FC HBA** section, click **Download**.
 - f. Save the `.tar.gz` file to your system.



NOTE: The driver versions for kernel-based distributions list as follows:

- Driver 7.x for the 2.4 kernel
 - Driver 8.x for the 2.6 kernel
-

2. Install the driver:
 - a. Copy the `.tar.gz` file to the servers on which you will deploy the updated driver.
 - b. Enter the following command:

```
tar zxvf hp-qla2x00-yyyy-mm-dd.tar.gz
```

The command unpacks the files in the driver kit to the `hp-qla2x00-yyyy-mm-dd` directory.
 - c. Change to the `hp-qla2x00-yyyy-mm-dd` directory.
 - d. Enter the following command:

```
./INSTALL
```
3. Reload the driver or reboot the system.

3 Installing the HP-UX Operating System Components

The following sections describe the installation instructions for HP-UX operating systems.

Fibre Channel Adapter Installation for HP-UX

This section contains installation prerequisites, guidelines, and procedures for the QLogic FC HBA card.

The following topics are addressed:

- “Prerequisites” (page 15)
- “Important patches and updates” (page 15)
- “Installing driver software” (page 16)
- “Installing Online Diag” (page 17)

Prerequisites

Before installing the adapter, follow these steps:

1. Verify compliance with supported configurations using the *HP Fibre Channel Host Bus Adapter Support Matrix* at:
<http://docs.hp.com/en/netcom.html#Fibre%20Channel>.
2. Check the following conditions:
 - Verify that the `/usr/bin`, `/usr/sbin`, and `/sbin` directories are in the `PATH` by entering the following command:
`echo $PATH`
 - Verify that you have the following items:
 - Grounding wrist strap
 - Fibre Channel driver software media (included with the OS or application CD)
 - Verify that you have the following cable items:
 - Fiber optic cable terminated with a duplex LC connector
 - Cable map (optional)

Important patches and updates

Review the *FibrChanl-01 (fcd) Fibre Channel Mass Storage Driver for HP-UX Release Notes* located at:

<http://docs.hp.com/> for the latest patch and dependency requirements.

Install all driver software and dependency patches before you install the adapter.



NOTE: Patches are available from the website:

<http://h20392.www2.hp.com/portal/swdepot/index.do>.

Installing driver software



NOTE: Use the following instructions if the driver is provided on a DVD-ROM. If the driver software is downloaded, follow the instructions provided with that file. The driver software, `FibrChan1-01`, may be downloaded from the following website:

<http://h20392.www2.hp.com/portal/swdepot/index.do>.

The `FibrChan1-01` bundle is also provided on the Operating Environment media or Application Release media for HP-UX v3.

Install all driver software and dependency patches before you install the adapter. See the *FibrChan1-01 (fcd) Fibre Channel Mass Storage Driver Release Notes* available at:

<http://docs.hp.com/> for details.

Use the following procedure to load the driver from a DVD-ROM:

1. Log in to the system as `root`.
2. Insert the DVD into the DVD drive.
3. Mount the DVD using the following command:

```
mount /dev/dsk/<dvd_rom_dev_file> /<tmp_mnt>
```

4. Run `swinstall` to install the software. Enter the following command:

```
/usr/sbin/swinstall
```

The **Software Selection** window and the **Specify Source** window open.

5. In the **Specify Source** window, change the **Source Host Name** if necessary. Enter the mount point of the drive in the **Source Depot Path** field and click **OK** to return to the **Software Selection** Window.

Click **Help** to get more information.

6. Select the appropriate software bundle for your adapter.
7. Select **Mark for Install** from the **Actions** menu.
8. Select **Install** from the **Actions** menu. Installation begins and the **Install Analysis** window opens.
9. Click **OK** in the **Install Analysis** window to confirm that you want to install the software. The **Install** window opens.

View the **Install** window to read processing data while the software installs. When the **Status** field indicates **Ready**, the **Confirmation** window opens.

10. Click **OK**. A second **Confirmation** window opens.
11. Click **OK** again. The **Install** window opens.
12. Click **Done**. The **Note** window opens.
13. Click **OK** in the **Note** window to reboot. The user interface disappears and the system reboots.
14. Once the system returns to a login, log in as `root` and open the following files to see any error or warning messages that may have occurred during the installation:

```
/var/adm/sw/swagent.log
```

```
/var/adm/sw/swinstall.log
```

15. Install OnlineDiag, which is available at:

<http://h20392.www2.hp.com/portal/swdepot/index.do>

OnlineDiag is also available from the *HP Support PLUS CD*. Installation instructions are available at:

http://docs.hp.com/en/diag/st/st_inst.htm

Installing Online Diag

Failure to properly complete the steps in this procedure may result in erratic system behavior or system failure and may void the warranty. For assistance with this procedure, contact your local HP Authorized Service Provider.

Install OnlineDiag, which is available at the following website:

<http://h20392.www2.hp.com/portal/swdepot/index.do>. OnlineDiag is also available from the HP Support Plus CD for PA-RISC systems or the IPF CD for Itanium®-based systems. Installation instructions are available at:

http://docs.hp.com/en/diag/st/st_inst.htm

Install all driver software and dependency patches before you install the adapter. See the *FibrChanl-01 (fcd) Fibre Channel mass storage driver release notes* available at:

<http://docs.hp.com/>.

Verify the Fibre Channel adapter installation

1. To verify that the system recognizes the HBA, view the output listing from the following command:

```
# ioscan -fnC fc
```

2. Verify the following drivers appear for each installed adapter. If all the drivers are listed, proceed to the section titled verifying connectivity.

The `ioscan -fnC fc` output will display the following:

```
# ioscan -nC fc
Class      I  H/W Path      Driver S/W State  H/W Type      Description
-----
fc         0  0/3/0/0/0/0  fcd   CLAIMED        INTERFACE      HP 4Gb Dual Port PCIe Fibre Channel Mezzanine
(Fibre Channel Port 1)
                /dev/fcd0
fc         1  0/3/0/0/0/1  fcd   CLAIMED        INTERFACE      HP 4Gb Dual Port PCIe Fibre Channel Mezzanine
(Fibre Channel Port 2)
                /dev/fcd1
fc         2  0/4/0/0/0/0  fcd   CLAIMED        INTERFACE      HP 8Gb Dual Port PCIe Fibre Channel Mezzanine
(Fibre Channel Port 1)
                /dev/fcd2
fc         3  0/4/0/0/0/1  fcd   CLAIMED        INTERFACE      HP 8Gb Dual Port PCIe Fibre Channel Mezzanine
(Fibre Channel Port 2)
                /dev/fcd3
```

The third column represents the hardware path of the slot that the adapter is installed. This path will be different for each installed adapter port.

3. Observe whether the `ioscan` output reports the following:

```
fc 0/4/0/0/0/1 UNCLAIMED UNKNOWN
```

If reported, HP-UX detected the adapter but the `fcd` driver is not recognized.

4. If the correct driver is installed and the adapter is not listed in the `ioscan` output, contact HP for assistance.

Obtaining card information after installation

Review the following reports for the HBA card information after installation.

Example 3-1 Example of the “fcmsutil /dev/fcd3” command

```
fcmsutil /dev/fcd3
Vendor ID is = 0x1077
Device ID is = 0x2532
PCI Sub-system Vendor ID is = 0x103C
PCI Sub-system ID is = 0x3261
PCI Mode = PCI Express x8
ISP Code version = 4.4.4
ISP Chip version = 2
Topology = PTTOPT_FABRIC
Link Speed = 4Gb
Local N_Port_id is = 0x690700
Previous N_Port_id is = None
N_Port Node World Wide Name = 0x50060b0000c28607
N_Port Port World Wide Name = 0x50060b0000c28606
Switch Port World Wide Name = 0x2004000dec3b4c80
Switch Node World Wide Name = 0x2002000dec3b4c81
N_Port Symbolic Port Name = sisl111_fcd3
N_Port Symbolic Node Name = sisl111_HP-UX_B.11.31
Driver state = ONLINE
Hardware Path is = 0/4/0/0/0/1
Maximum Frame Size = 2048
Driver-Firmware Dump Available = NO
Driver-Firmware Dump Timestamp = N/A
Driver Version = @(#) fcd B.11.31.0903 Mar 16 2009#
```

This card is capable of running at bus speeds up to PCIe x8 link width. The actual link width is displayed as the PCI Mode.

Example 3-2 Example of Vital Product Data (VPD) after installation

```
# fcmsutil /dev/fcd3 vpd
          V I T A L   P R O D U C T   D A T A
          -----
Product Description      : PCI-Express Dual Channel 8Gb Fibre Channel Mezzanine H
BA
Part number              : 451872-001
Engineering Date Code   : X-4743
Part Serial number      : MY57492025
Misc. Information       : PW=6W
Mfd. Date               : 4749
Mfd. ID                 : CU0410406-02 04
Check Sum               : 0xa4
EFI version             : 02.04
ROM Firmware version    : 04.04.04
BIOS version           : 02.08
FCODE version          : 02.03
Asset Tag               : NA
```

Example 3-3 Example of "ioscan" report of agile (new-style) hardware paths after installation (HP-UX 11i v3 only)

```
# ioscan -fNH 0/4/0/0/1
Class   I  H/W Path      Driver S/W State  H/W Type      DescriptionClass   I  H/W Path      Driver S/W
State  H/W Type      Description
=====
fc      5  0/4/0/0/0/1  fcd      CLAIMED      INTERFACE      HP AH401A 8Gb Dual Port PCIe Fibre Channel Adapter
(FC Port 2)
          /dev/fcd5
tgtpath 0  0/4/0/0/0/1.0x50001fe1500d6f3a  estp  CLAIMED      TGT_PATH      fibre_channel
target served by fcd driver, target port id

0x10b00
lunpath 0  0/4/0/0/0/1.0x50001fe1500d6f3a.0x0  eslpt CLAIMEDLUN_PATH  LUN path for ct131
lunpath 2  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4001000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10257
lunpath 3  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4002000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10258
lunpath 4  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4003000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10259
lunpath 5  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4004000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10260
lunpath 6  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4005000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10261
lunpath 7  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4006000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10262
lunpath 8  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4007000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10263
lunpath 9  0/4/0/0/0/1.0x50001fe1500d6f3a.0x4008000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10264
lunpath 10 0/4/0/0/0/1.0x50001fe1500d6f3a.0x4009000000000000  eslpt CLAIMEDLUN_PATH  LUN path for disk10265
```

Example 3-4 Example of “ioscan” report of legacy hardware paths after installation

```
# ioscan -fnH 0/4/0/0/0/1
Class   I  H/W Path      Driver  S/W State  H/W Type  Description
-----
fc      3  0/4/0/0/0/1  fcd     CLAIMED    INTERFACE  HP 8Gb Dual Port PCIe Fibre Channel Mezzanine (FC
Port 2)
        /dev/fcd3
fc      0  0/4/0/0/0/1.105  fcd_fcp CLAIMED    INTERFACE  FCP Domain
ext_bus 2  0/4/0/0/0/1.105.0.9.0  fcd_vbus CLAIMED    INTERFACE  FCP Array Interface
target 21 0/4/0/0/0/1.105.0.9.0.0  tgt     CLAIMED    DEVICE
disk    3  0/4/0/0/0/1.105.0.9.0.0  sdisk  CLAIMED    DEVICE      HP      OPEN-V
        /dev/dsk/c2t0d0      /dev/dsk/c2t0d0s2  /dev/rdisk/c2t0d0      /dev/rdisk/c2t0d0s2
        /dev/dsk/c2t0d0s1  /dev/dsk/c2t0d0s3  /dev/rdisk/c2t0d0s1  /dev/rdisk/c2t0d0s3
disk    4  0/4/0/0/0/1.105.0.9.0.0.1  sdisk  CLAIMED    DEVICE      HP      OPEN-V
        /dev/dsk/c2t0d1      /dev/rdisk/c2t0d1
disk    5  0/4/0/0/0/1.105.0.9.0.0.2  sdisk  CLAIMED    DEVICE      HP      OPEN-V
        /dev/dsk/c2t0d2      /dev/rdisk/c2t0d2
disk    6  0/4/0/0/0/1.105.0.9.0.0.3  sdisk  CLAIMED    DEVICE      HP      OPEN-V
        /dev/dsk/c2t0d3      /dev/rdisk/c2t0d3
disk    7  0/4/0/0/0/1.105.0.9.0.0.4  sdisk  CLAIMED    DEVICE      HP      OPEN-V
        /dev/dsk/c2t0d4      /dev/rdisk/c2t0d4
```

Verifying connectivity

Once the HP Fibre Channel Mass Storage software and hardware are installed and running, use the following steps to verify connectivity:

1. Check the state of all Fibre Channel hardware and interfaces. Enter the `ioscan` command and verify the *Hardware State* and the *hw Interface* state are *CLAIMED*.

If the Fibre Channel device file has not been created, enter the following commands:

```
# insf -e
# ioscan -f
```

2. Verify that all devices you have attached to the Fibre Channel adapter are listed in the `ioscan` output. For example, if you have a direct attach Fibre Channel device installed in the system, the `ioscan` output may look like the following:

```
8/12.8.0.255.0.1.0  sdisk  CLAIMED  DEVICE  DGC C3400WDR5
```

The example above is the hardware path of LUN0 of a directly attached Fibre Channel Mass Storage device with a Loop ID of 1.

If all the attached devices are listed and appear as *CLAIMED*, the HP Fibre Channel Mass Storage installation is verified.

If all the attached devices are not listed or appear as *CLAIMED*, see the *Troubleshooting and Maintenance* chapter of the *HP Fibre Channel Adapters Support Guide*.

Interpreting hardware paths

The following examples illustrate the Fibre Channel hardware path format.



NOTE: With HP-UX 11i v3, there is a new option for displaying the hardware path format called agile (new-style) display format.

In this new display format, there are two components in the hardware path: 1) the target port worldwide name (for example, 0x50001fe1500d6f3a); and 2) the LUN ID (for example, 0x4001000000000000)

To display hardware path information in the agile (new-style) format, use the N option in the command line; for example, `ioscan -fNH /0/4/0/0/0/1`.

Example 3-5 Legacy (pre-HP-UX 11i v3) hardware path for a direct fabric attach device

Adapter Domain Area Port Bus Target LUN
 0/1/2/0.1.19.255.0.0.0

Example 3-6 Hardware path for a private loop device

Adapter Domain Area Port Bus Target LUN
 0/1/2/0.8.0.255.0.1.0

Table 7 describes each field in the hardware path.

Table 3-1 Hardware path field descriptions

Field	Value	Fibre channel topology	
		Fabric topologies	Private loop
Adapter	This is the hardware path of the Fibre Channel adapter that the Logical Unit Number (LUN) is seen. For multiport adapters, this field describes a specific port on the adapter.		
Domain	Dependent on the Fibre Channel topology of the HBA.	Typically the Domain ID of the switch the target device is attached, taken from the most significant byte of the N_Port ID of the target device.	8 HP-UX uses a Domain ID of 8 to indicate private loops. Fibre Channel switches seen by HP-UX hosts cannot be configured with domain ID of 8.
Area	Depends on the Fibre Channel topology of the HBA.	Taken from the second byte of the N_Port ID of the target device. On some switches, the second byte of the N_PORT encodes the switch port to the connected device. The encoding method depends on the switch. See your switch manual to interpret this field.	0
Port	Depends on the Fibre Channel topology of the HBA, the target device, and the LUN addressing method used.	For LUNs with Peripheral Device Addressing, the value of the field is always 255.	

Table 3-1 Hardware path field descriptions (continued)

		For other LUN methods, the value of this field is the least significant byte of the N_Port ID of the target device.	For other LUN methods, the value of this field is the Loop ID of the target device.
Bus	Depends on the Fibre Channel topology of the HBA, the target device, and the LUN addressing method used.	For LUNs with Peripheral Device Addressing, the value of this field is the upper 4 bits of the least significant byte of the N_Port ID of the target device. For LUNs with Logical Unit Addressing, the value is the Bus Number field of the LUN. For LUNs with Volume Set Addressing (Flat Space Addressing), the value are bits 7–13 of the LUN.	For LUNs with Peripheral Device Addressing, the value of this field is the upper 4 bits of the Loop ID of the target device.
Target	Depends on the Fibre Channel topology and the LUN addressing method used.	For Luns with Peripheral Device Addressing, the value of this field is the lower 4 bits of the third byte of the N_Port ID of the target device. This field usually corresponds to the Arbitrated Loop Physical Address (AL_PA_) of the target device. For LUNs with Logical Unit Addressing, the value id the Target field of the LUN. For LUNs with Volume Set Addressing (Flat Space Addressing), the value are bits 3–6 of the LUN.	With Peripheral Device Addressing, the value of this field is the lower 4 bits of the Loop ID of the target device.
LUN	Depends only on the LUN addressing method used.		

LUN Addressing Method	Value of LUN field in Fibre Channel hardware path.
Peripheral Device Addressing	The Target or LUN field of the Logical Unit Number.
Logical Unit Addressing	The LUN field of the Logical Unit Number.
Volume Set Addressing (Flat Space Addressing)	Bits 0 – 2 of the Logical Unit Number.

For more information about the fields in the Logical Unit Number, see the *SCSI Architecture Model – 3 (SAM-3)* standards document.

4 Troubleshooting

This chapter contains information to help resolve HBA problems that might occur. The chapter contains the following sections:

- “Using the Event viewer” (page 23)
- “Viewing the Event log” (page 23)
- “Linux Driver Events” (page 23)
- “Accessing the Windows miniport event log codes” (page 23)

Using the Event viewer

The miniport drivers verify the condition of the HBA's POST LED states. If there is a failure or a suspected failure, an error log entry is issued to the Windows event log. Use the **Event Viewer** to access the event log.

Viewing the Event log

Use the following procedure to view the Event log.

1. Click **Start > Programs > Administrative Tools > Event Viewer**, or right-click **My Computer** and select **Manage**.
2. Click **Event Viewer** in Computer Management.
The Event Viewer window appears.
3. See the following link for information about interpreting the event codes.
<http://solutions.qlogic.com/KanisaSupportSite/supportcentral/supportcentral.do?id=m1>

Linux Driver Events

If the QLA2400 driver detects any fabric or driver events, the information about these events appear in the `var/log/messages` file. Check this file periodically to review any Linux driver events.

Accessing the Windows miniport event log codes

To obtain the relevant documentation from the Smart Component kit you used to install the driver:

1. Click the Smart Component.
2. Click **EXTRACT**.
3. In the pop-up window, select a folder for extracting the files, and then click **OK**.
4. Review the error code information from the relevant file.



NOTE: The QLogic Storport miniport driver records error events in the Windows System Event log. The Storport and SCSI PORT minidrivers documentation describes the event log format and how to interpret the information in the log. Use the documentation specific to the miniport driver that you are running.

Index

A

audience, 7

D

driver kit, 13

drivers

installing with Smart Component, 13

lpfc, 13

E

Event viewer

using, 23

H

HP

Subscriber's choice website, 8

HP technical support, 8

I

installation

drivers, 13

installing

Windows Smart component, 13

L

log codes, miniport driver, 23

lpfc driver

installation prerequisites, 13

P

prerequisites

Windows Smart component, 13

R

related documentation, 7

S

Smart Component, 13

style conventions, 8

Subscriber's choice, HP, 8

T

troubleshooting

miniport driver event logs, 23

Windows Event viewer, 23

W

websites

HP documentation, 7

HP Subscriber's choice, 8

Windows

driver installation, 13

Event viewer, 23

Windows miniport

event log codes, 23

Windows server update prerequisites, 13

Windows Smart Component, 13

downloading, 13