



**Hewlett Packard
Enterprise**

HPE QLogic Adapters Release Notes

Abstract

Abstract This document contains driver, firmware, and other supplemental information for the QLogic Fibre Channel host bus adapters (HBAs) and converged network adapters (CNAs) for ProLiant and Integrity servers using Linux, Windows, VMware, or Citrix operating systems.

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New features

This release supports the following adapters:

- HPE SN1610Q 32Gb Single Port Fibre Channel Host Bus Adapter
- HPE SN1610Q 32Gb Dual Port Fibre Channel Host Bus Adapter
- HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter
- HPE Synergy 6820C 25/50Gb Converged Network Adapter

Product models

This section lists the supported Fibre Channel HBAs and CNAs on HPE ProLiant and Integrity servers.

NOTE: Although CNAs have FCoE, iSCSI, NIC, and RoCE functionality, this document addresses only FCoE functionality.

Supported CNA, HBA, and mezzanine product models

Supported CNA lists the CNA supported on ProLiant servers running Linux, Windows, VMware, or Citrix operating systems.

Table 1: Supported CNAs and mezzanine cards

Model
Gen4 CNAs
HPE StoreFabric CN1300R 10/25Gb Dual Port Converged Network Adapter (Q0F09A)
HPE StoreFabric CN1200R 10GBASE-T Converged Network Adapter (Q0F26A)
HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter (867334-B21)
HPE Synergy 4820C
HPE Synergy 6820C
Gen3 CNAs
HPE StoreFabric CN1100R Dual Port Converged Network Adapter (QW990A)
HPE StoreFabric CN1100R-T 10GBASE-T Dual Port Converged Network Adapter (N3U52A)
HPE Synergy 3820C
HPE Synergy 2820C
HPE FlexFabric 20Gb 2-port 630FLB Adapter (700065-B21)
HPE FlexFabric 20Gb 2-port 630M Adapter (700076-B21)
HPE FlexFabric 10Gb 2-port 536FLB Adapter (766490-B21)
HPE FlexFabric 10Gb 2-port 536FLR-T Adapter (764302-B21)
HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter (700751-B21)
HPE FlexFabric 10Gb 2-port 534M Adapter (700748-B21)
HPE FlexFabric 10Gb 2-port 533FLR-T Adapter (700759-B21)

NOTE: CNAs are not supported on Integrity servers.

Table 2: Supported HBAs and mezzanine cards

Model	
Gen7 HBAs and mezzanine cards	
HPE SN1610Q 32Gb Single Port Fibre Channel HBA (R2E08A)	
HPE SN1610Q 32Gb Dual Port Fibre Channel HBA (R2E09A)	
Gen6 HBAs and mezzanine cards	
HPE SN1600Q32Gb Single Port Fibre Channel HBA (P9M75A)	
HPE SN1600Q32Gb Dual Port Fibre Channel HBA (P9M76A)	
HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter (777456-B21)	
HPE SN1100Q 16Gb Single Port Fibre Channel HBA (P9D93A)	
HPE SN1100Q 16Gb Dual Port Fibre Channel HBA (P9D94A)	
Gen5 HBAs and mezzanine cards	
HPE SN1000Q 16Gb Single Port Fibre Channel HBA (QW971A)	
HPE SN1000Q 16Gb Dual Port Fibre Channel HBA (QW972A)	
HPE QMH267216Gb FC HBA for BladeSystem c-Class (710608-B21)	
HPE Synergy 3830C 16Gb Fibre Channel Host Bus Adapter (777452-B21)	
Gen4 HBAs and mezzanine cards	
HPE StoreFabric 84Q 4p 8Gb FC HBA	
HPE QMH2572 8Gb FC HBA for c-Class BladeSystem (product number 651281-B21)	
HPE StorageWorks QMH2562 8-Gb FC mezzanine card HBA (product number 451871-B21)	
HPE StorageWorks 81Q 8-Gb PCI-e HBA (product number AK344A)	
HPE StorageWorks 82Q 8-Gb PCI-e Dual Channel HBA (product number AJ764A)	
HPE PCI-e 1-port 8-Gb Fibre Channel HBA (AH400A)	
HPE PCI-e 2-port 8-Gb Fibre Channel HBA (AH401A)	

Devices supported

QLogic CNAs and HBAs are supported on Hewlett Packard Enterprise servers that:

- Support the Linux, Windows, VMware, or Citrix operating systems listed on the Hewlett Packard Enterprise website: <https://www.hpe.com/us/en/servers/server-operating-systems.html>
- For server support information, see the SPOCK website at <http://www.hpe.com/storage/spock>. It is essential to sign up for an HPE Passport to enable access.
- Support B-series, C-series, M-series/McDATA, 8-Gb Simple SAN Connection, and HPE Networking switch products. For the latest information, see the SPOCK website at <http://www.hpe.com/storage/spock> and the *HPE SAN Design Reference Guide* at https://support.hpe.com/hpsc/doc/public/display?docLocale=en_US&docId=emr_na-c00403562&withFrame.

For storage array support, see the SPOCK website at <http://www.hpe.com/storage/spock>. It is essential to sign up for an HPE Passport to enable access.

Operating systems

This section describes how to obtain the latest information about supported operating systems and software.

For the latest information about supported CNA, HBA, and mezzanine cards listed by operating systems, see the HPE SPOCK website at <http://www.hpe.com/storage/spock>. It is essential to sign up for HPE Passport to enable access. From the web page, click **HBAs, CNAs, Flex Fabric Adapters, & Server LOMs Support Matrix: Linux, Citrix, VMware, Windows**, and then select the operating system.

Linux support

This section describes CNA and HBA support for Linux.

Prerequisites

Before performing CNA or HBA updates:

- Ensure that the system is running one of the operating system versions listed in HBA Software Support Matrices, available at the SPOCK website <http://www.hpe.com/storage/spock>. It is essential to sign up for an HP Passport to enable access. From the web page, click **HBAs, CNAs, Flex Fabric Adapters, & Server LOMs Support Matrix: Linux, Citrix, VMware, Windows**, and then select the operating system.
- See the Hewlett Packard Enterprise server PCI slot specifications to determine if the server is compatible with the CNA or HBA.
- If installing the Linux operating system for the first time, load the operating system before downloading and installing the supported Linux CNA or HBA driver from the Hewlett Packard Enterprise website at <http://www.hpe.com/support/hpesc>. For additional information, see the `readme.txt` file packaged with the kit.

NOTE: Starting with RHEL 5.3, SLES 10 SP3, and SLES 11, Fibre Channel HBAs and mezzanine cards are supported by Red Hat and Novell in-box drivers (included in the OS distribution), and multipath failover is handled by Device Mapper.

In-box drivers are not currently supported for QLogic CNAs. CNA multipath failover is handled by Device Mapper.

CNA installation instructions for Linux

For information on installing CNAs, see the *HPE FCoE Configuration for Cavium-based Adapter's User Guide* at https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-a00003375en_us.

Unresponsive script message

If using the Linux QConvergeConsole GUI to update firmware and see the message `Warning: Unresponsive Script`, select **Don't ask me again**, and then click **Continue**. This is a common Firefox condition that indicates that a predetermined amount of time has been reached.

Firmware RPMs

Current and legacy Linux firmware is available at <http://www.hpe.com/support/> in the **Drivers & Software** section for your CNA or FC HBA. Review the Installation Instructions to install the firmware.

NOTE: Any driver and enablement kit prerequisites, current firmware, drivers, and other applicable software are available through Service Pack for ProLiant at <http://www.hpe.com/servers/spp>.

The latest Linux firmware RPMs for SLES10 SP4, SLES11 SP2, and RHEL 6.3/6.2 are available at in the Drivers & Software section.

To install an RPM in an SLES10 or SLES11 configuration:

Procedure

1. Save the original firmware files in `/lib/firmware`:

```
# cd /
# cp /lib/firmware/ql2400_fw.bin /lib/firmware/ql2400_fw.bin.orig
# cp /lib/firmware/ql2500_fw.bin /lib/firmware/ql2500_fw.bin.orig
```

2. Use the following command to extract the firmware:

```
# rpm -Uvh --force qllogic-firmware-x.yy.zz.noarch.rpm
```

3. Rebuild the ramdisk, and then reboot.

An example of an installation follows:

- Save the original firmware files in `/lib/firmware`:

```
# cd /
# cp /lib/firmware/ql2400_fw.bin /lib/firmware/ql2400_fw.bin.orig
# cp /lib/firmware/ql2500_fw.bin /lib/firmware/ql2500_fw.bin.orig
```

- Use the following commands to extract the firmware:

```
# rpm -Uvh --force ql2400-firmware-x.yy.zz.noarch.rpm
$ rpm -Uvh --force ql2500-firmware-x.yy.zz.noarch.rpm
```

- Rebuild the ramdisk, and then reboot.

- `# mkinitrd -i initrd.img -k kernelimage`

NOTE: A SLES11 SP2 scheduler issue is observed in BFS configurations during heavy IO load. In BFS configuration, Hewlett Packard Enterprise recommends to change the default scheduler Completely Fair Queuing (CFQ) to the other scheduler options such as noop or deadline. To change the scheduler, edit the boot loader configuration file.

```
/boot/grub/menu.lst
```

Add `elevator=deadline` or `elevator=noop` to the kernel entry and reboot the system. Check the elevator settings with the command

```
cat/sys/block/sdb/queue/scheduler.
```

```
/boot/grub/menu.lst
```

Example:

```
### Don't change this comment - YaST2 identifier:
Original name: linux###
title SUSE Linux Enterprise Server 11 SP2 -3.0.76-0.11
root (hd0,0)
kernel/vmlinuz-3.0.76.11-default root=/dev/disk/by-id/scsi-
360002ac0000000000000000200006036-part2 splash=silent crashkernel=256M-:128M
showopts vga=0x314 elevator=deadline
initrd/initrd-3.0.76-0.11-default
/boot/grub/menu.lst
```

Example:

```
### Don't change this comment - YaST2 identifier:
Original name: linux###
title SUSE Linux Enterprise Server 11 SP3 -3.0.76-0.11
root (hd0,0)
kernel/vmlinuz-3.0.76.11-default root=/dev/disk/by-id/scsi-
360002ac0000000000000000200006036-part3 resume=/dev/disk/by-id/scsi-
360002ac0000000000000000200006036-part2 splash=silent crashkernel=256M-:128M
showopts vga=0x314 elevator=deadline
initrd/initrd-3.0.76-0.11-default
```

Windows support

This section describes CNA and HBA support for Windows.

Boot from SAN on Windows

For information about configuring the adapter to Boot from SAN on Windows, see *HPE Boot from SAN Configuration Guide* at <http://www.hpe.com/support/>.

VMware support

Hewlett Packard Enterprise supports the use of Windows and Linux as a guest operating system on VMware ESX versions 4.x and higher. When running VMware, HBAs are supported by the in-box drivers supplied with ESX, and CNAs are supported with certified drivers available from the VMware website at www.vmware.com. The certified VMware drivers are included in the VMware Custom Images available for Hewlett Packard Enterprise and are supplied as installable components on Service Pack for ProLiant. Windows and Linux Fibre Channel HBA drivers are not used on the virtual operating system.

To ensure that the HBA/CNA is supported by Hewlett Packard Enterprise and VMware, see VMware Compatibility Guide at <http://www.vmware.com/resources/compatibility/search.php>

Boot from SAN on VMware

For information about configuring the adapter to Boot from SAN on VMware, see HPE Boot from SAN Configuration Guide at <http://www.hpe.com/support/>

NOTE: Boot from SAN is supported on ESXi with QLogic CNAs using the latest HPE ESXi customized images.

Installing the driver

You need not to install the QLogic driver for HBAs because it is shipped in-box with the ESX server. The certified VMware drivers are included in the VMware Custom Images available for Hewlett Packard Enterprise and are supplied as installable components on Service Pack for ProLiant

NOTE:

VMware ESX is not supported on the IA64 architecture.

Management software

Use the QLogic QConvergeConsole application to manage CNAs and HBAs. QConvergeConsole supersedes QLogicSANsurfer software. However, SANsurfer can still be used to manage older HBAs.

For more information about software support, see the SPOCK website at <http://www.hpe.com/storage/spock>. It is essential to sign up for an HP Passport to enable access. From the web page, click **HBAs, CNAs, Flex Fabric Adapters, & Server LOMs Support Matrix: Linux, Citrix, VMware, Windows**, and then select the operating system.

NOTE: If QCC GUI version fails to connect and displays an error message like "FC Get Host Info failed, see if agent is installed/running", you might be running an unsupported browser. For more information about supported browser versions, see the QLogic QCC read me or QLogic QCC Release Notes.

Important notes

This section describes restrictions and notes for QLogic adapters.

General notes

The notes in this section apply to all operating systems.

Legacy BIOS Mode and Gen7 series Fibre Channel HBAs

The Gen7 Fibre Channel host bus adapters do not support boot from SAN attached storage in legacy BIOS mode.

Legacy BIOS Mode and Gen4 FCoE CNAs

The Gen4 FCoE Converged network adapters do not support from SAN attached storage in legacy BIOS mode

SN1600Q RH72 BFS installation

The qla2xxx driver in the base RH72 installation CD does not support the SN1600Q (32Gb FC HBA). A driver update disk(DUD) must be loaded during the installation.

HPE QLogic 8Gb and 16GB HBA Support for HPE ProLiant DL580 Gen8 Server

HPE Qlogic 8Gb and 16Gb HBAs are supported on the HPE ProLiant DL580 Gen8 server with UEFI Boot, Legacy Boot, and Secure Boot.

NOTE: Secure Boot is supported only on Microsoft Windows Server 2012 R2 x64, Microsoft Windows Server 2012 R2 Hyper-V x64, and SLES11 SP3, SLES11 SP4, SLES12 and higher, and RHEL7.

Adapter version requirement:

The QLogic 8Gb and 16Gb HBAs require the following minimum version components:

81/82q 8Gb HBA

- **BIOS:** 3.13/uEFI 6.28
- **MultiBoot Image:** 3.60.04

SN1000Q 16Gb HBA

- **BIOS:** 3.21/uEFI 6.25
- **FC FW:** 6.07.02
- **Flash Image:** 3.90.02

Linux important notes

This section describes restrictions and notes for QLogic adapters installed on servers running Linux.

Filesystem recommendation

Hewlett Packard Enterprise recommends use of `ext3` and `ext4` filesystem in HA environments. For information on how to use other Linux file systems in an HA environment, see SLES 11 Administration Guide, available at <http://www.suse.com>, and the Red Hat Deployment Guide, available at the Red Hat website <http://www.redhat.com>.

For information on the differences between `ext2` and `ext3`, see the operating system documentation.

SLES11 ReiserFS issue

ReiserFS file systems can exhibit unexpected behavior under heavy loads. For up-to-date recommendations, see <http://www.suse.com/>.

Presenting LUNs to a Linux host

When presenting XP LUNs to a Linux host:

- The LUNs must start with a LUN 0.
- The LUNs must be presented across all paths that are connected or configured from the XP storage array.
- If LUN 0 is not present, SANsurfer displays the XP array as offline.

Dynamic target addition not supported for XP arrays

Dynamic target addition is defined as adding a new Fibre Channel target (such as adding a new storage array) to a SAN, presenting that new target to a Fibre Channel host bus adapter, and then prompting the operating system to do an online scan (such as using the `hp_rescan` utility that comes with `fibretails`). This functionality is not supported with XP arrays. If a new Fibre Channel XP target is added to a host server, it is necessary to reboot that host server.

For 81Q and 82Q only

HPE Simple SAN Connection Manager (SSCM) is supported on the Windows based management server and connects to the `qlremote` agent on the Linux server.

Windows important notes

This section describes restrictions and notes for QLogic adapters installed on servers running Windows.

ProLiant servers running Windows notes

HBA restrictions for ProLiant servers running Windows are as follows:

- SANsurfer restrictions:
 - HBA port cannot be disabled using Windows Device Manager when the SANsurfer agent is running. To disable the HBA port, stop the SANsurfer agent in the services window or uninstall SANsurfer first.
 - The EVA firmware version displayed in SANsurfer might be incorrect. When an EVA is configured in Windows host mode, the standard Inquiry data returns a constant EVA firmware version number. Obtain the correct EVA firmware version using HPE P6000 Command View or HPE Command View EVA.
 - The HBA VPD data displayed in SANsurfer can be incorrect in an IA64 EFI or IA64 Windows environment. If this occurs, update a QLogic multiboot package with SANsurfer in a Windows IA64 operating system. Repeat this step a second time.
- On a Windows server, SCSIport and STORport miniport drivers can be used for HBAs from different vendors. However, on that server, all HBAs from a single vendor must operate exclusively with either all SCSIport miniport drivers or all STORport miniport drivers.

Booting from a SAN installation with QMH2462 on Microsoft Windows 2008 SP2

Booting from a SAN installation of Microsoft Windows 2008 SP2 using the QLogic QMH2462 Mezzanine Card may not succeed if attempting to perform the O/S deployment by using driver files obtained from the QLogic driver Smart Component. A blue screen might be observed along with a message stating "The system has halted."

To boot from a SAN installation of Microsoft Windows 2008 SP2 with the QLogic QMH2462, perform the initial O/S installation using the Windows in-box driver (included with the O/S), and then update to the latest Hewlett Packard Enterprise supported driver after rebooting.

STORport miniport driver installation

If running a Secure Path for Windows, upgrade to Secure Path 4.0c SP2 or later for Windows before upgrading to the STORport miniport driver from an earlier version. STORport drivers are not supported with earlier versions of Secure Path. The latest STORport QFE must be installed before installing the Multipath software.

Diagnostics to determine HBA/transceiver status for QLogic 8-Gb HBAs

To determine the status of transceivers that are installed in 8-Gb HBAs, view the SANsurfer FC HBA Manager, **Diagnostics page > Transceiver Details**. The Transceiver Details page contains two nested pages:

- **General**—Shows an overview of the status data and inventory data from the optical transceiver device.
- **Details**—Shows detailed digital diagnostic data from the optical transceiver device (per SFF-8472 Specification for Diagnostic Monitoring Interface for Optical Xcvrs, Revision 9.3 August 1, 2002).

The following identifying information appears above the nested pages:

- **Hostname**—The name or IP address of the host connected to the adapter.
- **HBA Model**—Specifies the model number for the adapter (any ISP2422/2432 based adapter).
- **HBA Port**—Indicates the adapter port number.
- **Node Name**—Indicates the worldwide adapter node name.

NOTE: The read/write buffer test must be run without the loopback connector on a device (disk or tape) that supports the SCSI read buffer and SCSI write buffer commands.

The Transceiver Details page is available only for 4-Gb or greater adapter devices. The transceiver details function is not available if using in-box drivers with Red Hat 5.0 or SLES 10.0.

HPE Smart Component notes

The following HPE Smart Component messages might appear during driver installation:

- When using the Smart Component to install drivers, the following message might appear:

```
The application failed to initialize because the windows station is shutting down.
```

It is safe to ignore this message and continue with the reboot procedure.

- When using the Smart Component to install drivers, windows might display the following message:

```
There was a problem installing this hardware. This device is not working properly because Windows cannot load the drivers required for this device. (Code 31) Uninstall and then reinstall the device.
```

Click **Finish**

You need not reply to Microsoft. Continue with the reboot procedure.

Microsoft Windows 2008 multipath notes

On a server running any variant of Microsoft Windows 2008, a STOP message (blue screen) might occur during discovery of multiple paths on QLogic HBAs using an in-box driver. To avoid a STOP error, it is necessary to update the driver before adding additional paths to storage and enabling multipathing functionality.

Use the following procedure:

Procedure

1. Install the Microsoft Windows 2008 operating software.
2. Update the QLogic driver to Version 9.1.7.17 or later.
3. Reboot the system.
4. Install the MPIO software.
5. Reboot the system.
6. Configure the new paths.

NOTE:

After installing Microsoft Windows 2008, the servers must be updated with the latest supported Hewlett Packard Enterprise drivers by running either the current version of HPSUM or Proliant Support Pack.

Secure Path 4.0c SP1 notes

With Secure Path 4.0c SP1, during a rolling driver upgrade, a STOP (blue-screen) error may occur under any of the following conditions:

- The server boots from a SAN.
- All HBAs access their LUNs in a single-path configuration.
- The HBA is directly connected in a single path to its own MSA controller.

If the STOP error occurs, reboot the server and view the driver version to verify that the upgrade is complete on all HBAs. Upgrading to Secure Path 4.0c SP2 corrects this problem.

NOTE:

Secure Path is not supported on Microsoft Windows Server 2008 and with 8-Gb HBAs and mezzanine cards.

Miscellaneous notes

- On HPE ProLant PCI-Gen2-capable servers, there is a negotiation issue between PCI Gen2-capable HPE QLogic 8-Gb mezzanine card, 8-Gb stand-up HBAs, and the server if the ROM-Based Setup Utility (RBSU) `PCI Express Generation 2.0 Support` value is set to **AUTO**. This setting prevents these products from running at PCI-Gen2 speeds automatically, resulting in the servers running at Gen1 functionality. To enable Gen2 functionality, set the `PCI Express Generation 2.0 Support` to **GEN2** value setting in the RBSU. This setting forces the server to run in PCI-Gen2 mode.
- A c-Class Virtual Connect environment requires vc-fc module firmware version 1.32 to enable crash dumps to be written to the boot from SAN LUN.
- An issue with Brocade Access Gateway mode and Brocade switch firmware 6.2.0d prevents the writing of crash dumps to disk.

Important notes and workarounds

This section describes restrictions, notes, and issue workarounds for QLogic CNA/HBA adapters.

HPE Fibre Channel Enablement Kit and QConvergeConsole (QCC) Application interoperability for Fibre Channel Adapters

The HPE Fibre Channel Enablement Kit and QConvergeConsole (QCC) both install API libraries and can be used individually. For those configurations using both kits, Hewlett Packard Enterprise recommends to install the Enablement Kit before installing QCC. When uninstalling, Hewlett Packard Enterprise recommends to remove QCC before removing the Enablement Kit.

Running FCoE on CNAs

When a CNA is configured for FCoE, you must enable the network boot on all NIC ports in order to detect LUNs. Use the server RBSU Embedded NICs menu to enable the network boot. In a blade environment, if FCoE is configured with Virtual Connect (VC), VC enables network boot in the RBSU automatically.

C-series Converged Network Switch requirement

When using a C-series Converged Network Switch (HPE Nexus 5000) with the Virtual Connect FlexFabric 10-Gb/24-port module, NPIV must be enabled on the C-series switch.

ReiserFS limitation

ReiserFS file systems can exhibit unexpected behavior under heavy loads. Hewlett Packard Enterprise recommends to use either the xfs or ext3 file system. For up-to-date recommendations, see the Novell website: <http://www.suse.com/support>

High availability recommendation

Hewlett Packard Enterprise recommends to use the ext3 file system in high availability (HA) environments. For information on how to use other Linux file systems in an HA environment, see SLES 11 administration guide at <http://www.suse.com> and the *Red Hat Deployment Guide*, available at the Red Hat website <http://www.redhat.com/>.

For information on the differences between ext2 and ext3, see the operating system documentation.

LUN discovery

Because the order in which a switch reports Fibre Channel ports to a name server can vary, the order in which LUNs are discovered can vary between system boots. Hewlett Packard Enterprise recommends to use the udev utility to ensure that the name of a device does not change between system boots. For more information, see the udev website: <https://www.kernel.org/doc/html/latest/media/dvb-drivers/udev.html>

XP LUNs

XP LUNs presented to Linux hosts must start with LUN 0.

Dynamic LUN addition and removal

Dynamic LUN addition and removal are supported. However, the ability to dynamically add a new LUN (or a LUN that has been previously removed) using the LUN number of a previously removed LUN is not supported. Dynamic target addition, which is defined as adding a new Fibre Channel target (such as adding a new storage array) to a SAN, is also not supported. If adding a new Fibre Channel target to a host server, rebooting that server is necessary.

Configuring Virtual Fibre Channel in Windows 2012 and 2016 Hyper-V

When configuring Virtual Fibre Channel in Microsoft Windows 2012 and 2016 Hyper-V, all ports on the Converged Network Adapter must have NPIV enabled.

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