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.
Product models

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

Supported CNA, HBA, and mezzanine product models

Table 1 lists the CNA supported on ProLiant servers running Linux, Windows, VMware, or Citrix operating systems.

Table 1 Supported CNA

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<tbody>
<tr>
<td>HP StorageWorks CN1000Q Dual Port Converged Network Adapter (product number BS668A)</td>
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Legend: • = supported; — = not supported

NOTE:
CNAs are not supported on Integrity servers.

Table 2 lists the HBAs and mezzanine cards supported on servers running Linux, Windows, VMware, or Citrix operating systems.

Table 2 Supported HBAs and mezzanine cards

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<td>8-Gb HBAs and mezzanine cards</td>
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<td>HP PCIe 2-port 8-Gb Fibre Channel HBA (AH401A)</td>
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<td>4-Gb HBAs and mezzanine cards</td>
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1 **Legend:** • = supported; — = not supported
2 The QMH2562 is supported with most G6 and later ProLiant blade servers with the exception of BL465G6 and BL495G6.
3 No IA64 support.
4 IA64 support only.

**Devices supported**

QLogic CNAs and HBAs are supported on HP servers that:

- For server support information, see the SPOCK website at [http://www.hp.com/products1/serverconnectivity/support_matrices.html](http://www.hp.com/products1/serverconnectivity/support_matrices.html). You must sign up for an HP Passport to enable access.
For CN1000Q support information, see your server QuickSpecs at [www.hp.com/go/quickspecs](http://www.hp.com/go/quickspecs).

**NOTE:**
The HP QLogic CNA (CN1000Q) is not currently supported on Citrix operating systems.

For storage array support, see the SPOCK website at [http://www.hp.com/storage/spock](http://www.hp.com/storage/spock). You must sign up for an HP Passport to enable access.

### Operating systems

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


### Linux support

This section describes CNA and HBA support for Linux.

### Prerequisites

Before you perform CNA or HBA updates, you must:

- 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.hp.com/storage/spock](http://www.hp.com/storage/spock). You must sign up for an HP Passport to enable access.
- See the HP server PCI slot specifications to determine if your server is compatible with the CNA or HBA.
- If you are installing the Linux operating system for the first time, load the operating system before you download and install the supported Linux CNA or HBA driver from the HP website [www.hp.com/go/support](http://www.hp.com/go/support). 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

**NOTE:**
The fibreutils utility is not supported on systems configured with CNAs.

For information on installing CNAs, see the *HP StorageWorks QLogic Converged Network Adapter Installation Guide*:

2. Click *See support and troubleshooting information*.
3. Using the HP model number as your guide, enter the CNA model number in the for product box.
4. Select *Manuals*.

**IMPORTANT:**
If you have both CNAs and Fibre Channel HBAs installed in your system, you must load and use the CNA drivers.

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Windows support

This section describes CNA and HBA support for Windows.

**Windows on ProLiant servers**

CNAs and HBAs are supported on ProLiant servers with Enterprise, Standard, Storage Server, and Datacenter versions of the following:

- HBAs on Windows 2003:
  - Windows Server 2003 x86 – SP1, R2, SP2 (32-bit) (STORport and SCSIport)
  - Windows Server 2003 x64 – SP1, R2, SP2 (64-bit) (STORport only)
- CNAs/HBAs on Windows 2008:
  - Windows Server 2008 W32 – SP2
  - Windows Server 2008 x64 – SP2, R2

**Windows on Integrity servers**

Fibre Channel HBAs are supported on Integrity servers with Enterprise, Standard, Storage Server, and Datacenter versions of the following:

- Windows Server 2003, IA64 — SP1, SP2
- Windows Server 2008, IA64 — SP2, R2

**NOTE:**
CNAs are not supported on Integrity servers.
VMware support

HP supports the use of Windows and Linux as a guest operating system on VMware ESX versions 2.5.x, 3.x, and 4.x. 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 www.vmware.com. Windows and Linux Fibre Channel HBA drivers are not used on the virtual operating system.

To ensure that your HBA/CNA is supported by HP and VMware, see the VMware Compatibility Guide at: http://www.vmware.com/resources/compatibility/search.php.

Boot from SAN on VMware


NOTE:
Boot from SAN is currently not supported for QLogic CNAs with ESXi.

Installing the driver

You are not required to install the QLogic driver for HBAs because it is shipped in-box with the ESX server.

NOTE:
VMware ESX is not supported on the IA64 architecture.

Citrix support

Citrix Version 5.0 provides initial support for 8-Gb HBAs. Citrix Version 5.5 and later provides support for 8-Gb mezzanine cards.

NOTE:
QLogic CNAs are not currently supported on Citrix.

Important notes

This section describes restrictions and notes for QLogic adapters.

Linux important notes

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


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 the Novell website http://support.novell.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/configured from the XP storage array.

• If LUN 0 is not present, SANsurfer displays the XP array as offline.

SANsurfer benign messages

After removing the SANsurfer RPM, the following message appears at the completion of the uninstall:

Installation complete.

This message can be ignored, as SANsurfer is uninstalled.

Dynamic target addition not supported

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 fibreutils). This functionality is not supported with the QLogic failover driver. If you add a new Fibre Channel target to a host server, you must reboot that host server.

SANsurfer limitations

• As a safety mechanism, the SANsurfer application does not retain any updates when the user abruptly quits using the Close/Exit button. You must click Save to retain changes or edits made to the configuration.

• Under certain conditions, some LUNs might not appear under the target in the left pane. Should this occur, refer to the LUNs displayed in the right pane. The OS detects all of the LUNs. The anomaly is the lack of LUNs being displayed under the target. This behavior is benign and can be ignored.

• After updating the HBA firmware or multiboot image, a system reboot is required.
For 81Q and 82Q only

HP StorageWorks 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:
  - You cannot disable an HBA port using Windows Device Manager when the SANsurfer agent is running. If you need to disable the port, stop the SANsurfer agent in the services window or uninstall SANsurfer first.
  - The EVA firmware version displayed in SANsurfer may 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 the HP 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.

- When running Windows Server 2003 x64 using HP Secure Path the entries for Event ID 50, 26, or 57 may be logged to the event log. To correct this problem, follow the instructions in the resolution section for Microsoft hotfix 912593, available on the following website:
  http://support.microsoft.com/kb/912593

- On a Windows server, you can use SCSIport and STORport miniport drivers 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.

Minimum requirements for 9.1.6.15 and later STORport drivers

Driver upgrades with an HP Smart Component require Windows Server 2003 SP2 or later with the Microsoft update KB932755. However, HP recommends update KB950448. Apply the Microsoft STORport update (KB932755) before installing or upgrading the STORport driver. For boot installations, the Windows Server 2003 SP2 install image is required, followed by the KB update.

STORport miniport driver installation notes

When upgrading to the STORport miniport driver from a previous versions, consider the following:

- The STORport miniport driver is supported only on Windows 2003 and later.
- Before installing the Windows Server 2003 STORport miniport driver, you must install the latest Microsoft QFE to update the storport.sys driver.
- On any given server, SCSIport and STORport miniport drivers from different vendors can be mixed in an HBA population.
- All HBAs from a single vendor must operate exclusively with either all SCSIport miniport drivers or all STORport miniport drivers.
• If you are running Secure Path for Windows, you must upgrade to Secure Path 4.0c SP2 or later for Windows. STORport drivers are not supported with earlier versions of Secure Path. You must install the latest STORport QFE before installing the Multipath software.

STORport miniport driver installation restriction for Windows Server 2008 IA64

If you are running Windows Server 2008 for Itanium-based systems on an rx2660, rx3600, rx6600, rx7640, rx8640 or Superdome sx2000 with an AH400A or AH401A 8-GB Fibre Channel HBA, you must complete the following steps:

• If you are using the AH400A/AH401A as a data controller, verify the Engineering Date Code (EDC) on your controller before performing an installation on an Integrity server running Windows. The EDC is on the part-number label located on the back side of the controller. If the EDC version is earlier than A-4832, run the ASPM/MSI-X Vector Update Utility, and then install Microsoft QFE 957018. If the EDC version is A-4832 or later, you only need to install Microsoft QFE 957018.
  
  • To run the ASPM/MSI-X Vector Update Utility:
    2. Install the controller and boot to the EFI shell.
    3. Run the set_msi_vect.nsh tool at the EFI shell. When prompted, select Option #1 (Load preload table with 32 MSI-x vectors + ASPM fix).

  • To install Microsoft QFE 957018:
    1. After the flash is complete, boot the operating system, and then install the update described in Microsoft Knowledge Base article 957018.

  
  NOTE:
  For more information, see to the Microsoft Knowledge Base article 957018, available at http://support.microsoft.com/kb/957018. This update is also available on your HP Smart Update media in the OS Updates section on QFEs for WS2008 tab.

• If you are using the AH400A/AH401A as a boot controller:
  1. Run the ASPM/MSI-X Vector Update Utility before installing the operating system to change the supported MSI-X vectors to 2 when installing to, and booting from, the AH400A/AH401A.
  2. Install Microsoft QFE 957018.

  • To run the ASPM/MSI-X Vector Update Utility:
    2. Install the controller and boot to the EFI shell.
    3. Run the set_msi_vect.nsh tool at the EFI shell. When prompted, select Option #2 (Load preload table with 2 MSI-x vectors + ASPM fix).

  • To install Microsoft QFE 957018:
    1. After the flash is complete, boot the operating system, and then install the update described in Microsoft Knowledge Base article 957018.
2. After installing the QFE, you can set the number of supported MSI-X vectors back to 32 by running the update utility at the EFI shell and selecting Option #1 (Load preload table with 32 MSI-x vectors + ASPM fix).

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 you are using in-box drivers with Red Hat 5.0 or SLES 10.0.

Windows Server 2003 restriction for Integrity servers

The 9.1.8.17 STORport driver is not supported on Integrity servers running Windows Server 2003.

2-Gb HBA/mezzanine card restriction

QLogic 2-Gb HBAs and mezzanine cards are not supported with Windows Server 2008 R2.

HP Smart Component notes

The following HP Smart Component messages can appear during driver installation:

- When using the HP Smart Component to install drivers, if you observe the following message during reboot, ignore it and complete the reboot procedure. No known issue has been observed in connection with the display of this message:
The application failed to initialize because the windows station is shutting down.

- When using the HP Smart Component to install drivers, if you observe windows displaying the following information during reboot, click Finish, do not reply to Microsoft, and then complete the reboot procedure. No known issue has been observed in connection with the display of these messages.
  
  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 your device.

**SCSIport miniport driver notes**

On Windows Server 2003 systems, clients may be disconnected, generating Event ID 11 and Event ID 15 in the application log. This problem can occur under high-stress conditions due to a SCSIport miniport driver error. It can also cause network timeouts if the remote computers are accessing data on drives that use the SCSIport driver on the Windows Server 2003 system. If this occurs, install the latest Microsoft QFE, available on the following website:


**Boot from SAN notes**

Boot from SAN on c-Class blade servers using QLogic mezzanine cards is not supported on the MSA1000/1500 running firmware 5.20.

**Windows 2008 multipath notes**

On a server running any variant of Windows 2008, a STOP message (blue screen) can occur during discovery of multiple paths on QLogic HBAs using an in-box driver. To avoid a STOP error, you must update the driver before adding additional paths to storage and enabling multipathing functionality. Use the following procedure:

1. Install the Microsoft Windows 2008 operating software.
2. Update the QLogic driver to Version 91717 or later.
3. Reboot the system.
4. Install the MPIO software.
5. Reboot the system.
6. Configure the new paths.

**NOTE:**

After you install Windows 2008, you must update the servers with the latest supported HP 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 Windows Server 2008 and with 8-Gb HBAs and mezzanine cards.

Miscellaneous notes

- On ProLiant PCI-Gen2-capable servers, there is a negotiation issue between PCI Gen2-capable HP QLogic 8-Gb mezzanine and 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, you must 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.

VMware important notes

- VMware is not supported on the IA64 architecture.

Citrix important notes

- Citrix is not supported on the IA64 architecture.
- Citrix does not support MSA1000 or MSA1500.

Effective date

January 2011