HP StorageWorks Emulex Adapters
Release Notes

Abstract
This document contains supplemental information for the Emulex Fibre Channel host bus adapters (HBAs) and converged network adapters (CNAs) for ProLiant and Integrity servers.
Product models

This section lists the HBAs and CNAs that are supported on ProLiant and Integrity servers.

Supported CNA, HBA, and mezzanine product models

Table 1 describes the CNA, 8-Gb and 4-Gb HBAs, and mezzanine cards supported on servers running Linux, Windows, VMware, and Citrix operating systems.

Table 1 Supported CNA, 8-Gb and 4-Gb HBAs and mezzanine cards

<table>
<thead>
<tr>
<th>Model</th>
<th>Windows Server 2003/2008</th>
<th>Linux</th>
<th>VMware</th>
<th>Citrix</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CNA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP StorageWorks CN1000E Dual Port Converged Network Adapter¹</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>—</td>
</tr>
<tr>
<td><strong>8-Gb HBAs and mezzanine cards</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP StorageWorks LPe1205—HP 8-Gb FC Mezzanine Card HBA (456972–B21)²</td>
<td>•</td>
<td>•³</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP StorageWorks 81E 8-Gb PCI-X HBA (AJ762A)</td>
<td>•</td>
<td>•³</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP StorageWorks 82E 8-Gb PCI-X Dual Channel HBA (AJ763A)</td>
<td>•</td>
<td>•³</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP PCIe 1-port 8-Gb Fibre Channel HBA (AH402A)</td>
<td>•⁴</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP PCIe 2-port 8-Gb Fibre Channel HBA (AH403A)</td>
<td>•⁴</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>4-Gb HBAs and mezzanine cards</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP StorageWorks LPe1105—HP 4-Gb FC HBA for HP c-Class BladeSystem (403621- B21)</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP StorageWorks FC2142SR 4-Gb PCIe FC HBA (A8002A)⁵</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP StorageWorks FC2242SR 4-Gb PCIe dual port FC HBA (A8003A)</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP StorageWorks FC2143 4-Gb PCI-X FC HBA (AD167A)</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>HP StorageWorks FC2243 4-Gb PCI-X dual port FC HBA (AD168A)</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

Legend: • = supported; — = not supported

¹The CN1000E CNA is not supported on IA64 servers.
²The LPe1205 is supported with most G6 and later ProLiant blade servers with the exception of BL465G6 and BL495G6
³No IA64 support
⁴IA64 support only
⁵The FC2142 HBA is also supported on XW8400 and XW9300 workstations running Windows XP Professional (32-bit)
Table 2 describes the 2-Gb HBAs and mezzanine cards supported on servers running Linux, Windows, VMware, and Citrix operating systems.

**NOTE:**
The HBAs and mezzanine cards listed in Table 2 are supported; however, they are no longer available for purchase.

### Table 2 Supported 2-Gb HBAs and mezzanine cards

<table>
<thead>
<tr>
<th>Model</th>
<th>Windows Server 2003/2008</th>
<th>Linux</th>
<th>VMware</th>
<th>Citrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP StorageWorks 1050EX 2-Gb PCIe FC HBA (A7560A)</td>
<td>•</td>
<td>—</td>
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<td>—</td>
</tr>
<tr>
<td>HP StorageWorks A7388A 2-Gb PCI-X FC HBA (A7388A)</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP StorageWorks A7387A 2-Gb PCI-X dual port FC HBA (A7387A)</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP StorageWorks FCA2404DC 2-Gb PCI-X dual port FC HBA (323264-B21)</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP StorageWorks FCA2404 2-Gb PCI-X FC HBA (305573-B21)</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP Emulex-based BL20p 2-Gb PCI-X FC mezzanine card (394757-B21)</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP Emulex-based BL25/30/35/45p PCI-X FC mezzanine card (394588-B21)</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP StorageWorks AB467A 2-Gb 1-port FC HBA</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HP StorageWorks AB466A 2-Gb 2-port FC HBA</td>
<td>•</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Legend:** • = supported; — = not supported

1Supported on Windows Server 2003 only
2Supported on Windows Server IA64 only

**NOTE:**
For the latest information about storage array support, see the HP SPOCK website at http://www.hp.com/storage/spock. You must sign up for an HP Passport to enable access.

### Devices supported

The CN1000E CNA for Linux, VMware, and Windows and the Emulex HBAs for Linux, Windows, VMware, and Citrix are supported on HP servers that:


See the CN1000E QuickSpecs for information about the supported servers for the CN1000E.

**NOTE:**
The CN1000E CNA is not currently supported on Citrix operating systems.

For the latest information about storage array support, see the HP SPOCK website at 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.

For the latest information about supported HBAs, CNAs, and mezzanine cards listed by operating systems, see the HP SPOCK website at: http://h20272.www2.hp.com/Pages/spock2Html.aspx?htmlFile=hw_hbas.html&lang=en&cc=US&

You must sign up for an HP Passport to enable access. From the web page, click **HBA Software Support Matrix**, and then select your operating system.

**Linux support**

This section describes CNA and HBA support for Linux, including prerequisites and installation instructions.

**Prerequisites**

Before you perform CNA or HBA updates, you must do the following:

- 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.

  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 Linux CNA/HBA driver from the HP website: http://welcome.hp.com/country/us/en/support.html

**NOTE:**

Starting with RHEL 5 U3, 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.

Starting with RHEL 5.5, CNAs are supported by Red Hat in-box drivers. However, SLES 10 and SLES11 do not support CNAs with in-box drivers. CNA multipath failover is handled by Device Mapper.
CNA installation instructions for Linux

**NOTE:**
Do not install fibreutils on systems using CNAs.

For information on installing CNAs, see the *HP StorageWorks 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*.

HBA installation instructions for Linux

This section describes additional Linux installations required for HBAs.

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

Installing Linux using the in-box driver

Instructions on how to install Linux while using the in-box driver are available on the HP website:

[http://www.hp.com](http://www.hp.com)

From the website, search for **device mapper + boot + san**.

If you require multiple-path redundancy, you must install the HP-supplied Device Mapper Multipath Kit after you install the operating system. You can download the kit from the HP website:


You must also install the HP Fibre Channel Enablement Kit (*hp-fc-enablement*) after installing the operating system.

Installing the HP Fibre Channel Enablement Kit

The HP Fibre Channel Enablement Kit provides additional libraries and configuration utilities to enable HP StorageWorks Fibre Channel storage arrays to work with Linux. The kit is not required to use the *lpfc* and *qla2xxx* kernel modules; however, it provides configuration scripts that ensure that your configuration is set properly to work with HP StorageWorks Fibre Channel arrays. The Fibre Channel Enablement Kit also sets the correct *lpfc* and *qla2xxx* kernel module settings that are used with Device Mapper multipathing.

**NOTE:**
If you are using any HP management applications, you will need the HBAAPI libraries that are included in the *hp-fc-enablement* kit.
To install the HP Fibre Channel Enablement Kit:

1. Download the `hp-fc-enablement-yyyy-mm-dd.tar.gz` file for your operating system and copy it to the target server.

2. Untar the enablement kit by executing the command to create the directory, `hp-fc-enablement-yyyy-mm-dd`:
   
   ```
   # tar zxvf hp-fc-enablement-yyyy-mm-dd.tar.gz
   ```

3. Browse to the directory `hp-fc-enablement-yyyy-mm-dd`.

4. Do one of the following to execute the `install.sh` script:
   - If you are not using Device Mapper multipathing, enter the following command:
     ```
     # ./install.sh -s
     ```
   - If you are using Device Mapper multipathing, enter the following command:
     ```
     # ./install.sh -m
     ```

5. To verify the installation, enter the following commands:
   ```
   # rpm -q hp-fc-enablement
   # rpm -q fibreutils
   ```

Uninstalling the HP Fibre Channel Enablement Kit

To uninstall the Fibre Channel Enablement Kit, untar the kit as instructed in Step 1 through Step 3 ("Installing the HP Fibre Channel Enablement Kit" on page 6), and then execute the `install.sh` script with the `-u` option:

```
# ./install.sh -u
```

To manually uninstall the enablement kit, enter the following commands:

```
# rpm -e hp-fc-enablement
# rpm -e fibreutils
```

Installing the Linux device driver using the HP kit (earlier than RHEL 5 U3)

HP does not support building the `lpfc` driver from source code. The driver versions for kernel-based distributions are as follows:

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

To install the device driver:

1. Download the driver kit for your distribution. The driver kit file will be in the form of `hp-lpfc-yyyy-mm-dd.tar.gz`.

2. Copy the driver kit to the target system.

3. Uncompress and untar the driver kit by entering the following command:
   ```
   # tar zxvf hp-lpfc-yyyy-mm-dd.tar.gz
   ```

4. Change the directory to `hp-lpfc-yyyy-mm-dd`.
5. Do one of the following:
   • Enter the following command to install the Linux device driver:
     # ./INSTALL
     The command syntax varies depending on your configuration. Use the \(-h\) option of the
     command to list all supported options. If a driver kit is already installed, you can enter the
     command without any options, and then the script uses the current configuration.
   • Enter the following command to install the Linux device driver for SLES 10 SP1 only:
     #./INSTALL -p
     • Include the \(-m\) option to force the installation to failover mode.
     #./INSTALL -mp
   • Use the \(-s\) option to force the installation to single-path mode.
     #./INSTALL \(-s\)
     The INSTALL script installs the appropriate driver for your configuration and the appro-
     priate fibreutils. When the script is finished, either reload the Emulex driver modules
     (lpfc, lpfcdfc, and lpfcmpl) or reboot your server.

Loading the driver
   To load the driver, enter the following commands:
   # modprobe lpfc
   # modprobe lpfcdfc

   **NOTE:**
   The command \texttt{modprobe lpfcdfc} is for RHEL 4 Ux and SLES 9 SPx.

   # modprobe lpfcmpl

   **NOTE:**
   The command \texttt{modprobe lpfcmpl} is for a MultiPulse configuration only.

Rebooting the server
   To reboot the server, enter the following command:
   # reboot
   If your boot device is a SAN attached device, you must reboot your server.

Verifying the driver version
   To verify the driver version, use the RPM command with the \(-q\) option.
   # rpm \(-q\) hp-lpfc
   # rpm \(-q\) hp-multipulse
For MultiPulse configuration only:

# rpm -q fibreutils

**Unloading the driver**

To unload the driver, enter the following commands:

# modprobe –r lpfcmpl

**NOTE:**

The command `modprobe –r lpfcmpl` is for MultiPulse configuration only.

**NOTE:**

The command `modprobe –r lpfcdfc` is for RHEL 4 Ux and SLES 9 SPx.

# modprobe –r lpfcdfc
# modprobe –r lpfc

**Installing HBAware on Linux**

To install HBAware on a Linux system:

1. Download the file `HP_ElxApps-<Kernel Version>-<HBAware Version>-<Driver Version>.zip` to the target system.
   
   **Example:** `HP_ElxApps-26-3.2a16-8.1.10.11.zip`

   **NOTE:**
   
   For information about HBAware and driver versions, see “Linux support” on page 5. Use kernel Version 26 for 2.6 kernels and kernel Version 24 for 2.4 kernels.

2. Unzip the file on the target system.
   
   **Example:** `# unzip HP_ElxApps-26-3.2a16-8.1.10.11.zip`

3. Make the file executable under Linux.
   
   **Example:** `# chmod +x HP_ElxApps-26-3.2a16-8.1.10.11.bin`

4. Install the application.
   
   **Example:** `#./HP_ElxApps-26-3.2a16-8.1.10.11.bin`
5. Launch the application.
   
   **Example:** # HBAAnyware or # /usr/sbin/hbanyware/hbanyware

**NOTE:**

For more information, see the HBAAnyware online help.

HBAAnyware 3.4a16 has a known presentation issue with the 8.0.16.40 driver and the AJ762A and AJ763A HBAs. The link speed is not displayed. This will be corrected in a future release.

Determining the CNA/HBA driver and firmware versions in Linux

You can use OneCommand Manager or HBAAnyware to view a list of CNAs/HBAs driver and firmware information.

Windows support

This section describes CNA/HBA support for Windows.

Windows on ProLiant servers

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

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

Windows XP Professional (32-bit)

**Table 3 Supported configuration for Windows XP Professional (32-bit)**

<table>
<thead>
<tr>
<th>Windows driver, workstation, switch, storage array, and utility requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HBA</td>
<td>HP StorageWorks FC2142SR (product number A8002A)</td>
</tr>
<tr>
<td>HBA firmware/BIOS</td>
<td>2.72a2 /1.71a0 (distributed in Universal Boot Image 5.02a1)</td>
</tr>
<tr>
<td>Windows driver</td>
<td>SCSIport miniport 5.30a2</td>
</tr>
<tr>
<td>Workstations</td>
<td>XW8400, XW9300</td>
</tr>
<tr>
<td>FC switch</td>
<td>Cisco 8-port MDS 9124</td>
</tr>
<tr>
<td>Storage array</td>
<td>EVA4000</td>
</tr>
</tbody>
</table>
### VMware support

HP supports the use of Linux and Windows as a guest on VMware ESX Versions 4.x and 3.x. When running VMware, Fibre Channel HBAs and CNAs are supported by in-box drivers supplied with VMware ESX. Linux Fibre Channel HBA drivers are not supported on the Virtual OS (VOS).

**NOTE:**
You are not required to install the Emulex driver because it is shipped with the ESX server.

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


### Citrix operating system

HP supports the Citrix hypervisor. For more information, see the HP Virtualization with Citrix website:
http://www.hp.com/go/citrix

### Important notes and workarounds

This section describes important notes and workarounds for issues for Emulex CNA/HBA adapters running Linux and Windows.

### General notes

**Ethernet Jumbo Packet**

The CN1000E maximum supported Ethernet Jumbo Packet frame size is 8192 bytes.

**Optical cable length**

The CN1000E maximum supported optical cable length is 40 meters.

**Boot from SAN**

DL16x and DL18x Servers require extra time to boot from SAN.
When the CN1000E adapter is used as the boot device in a DL16x or DL18x server, the server may pause for approximately 90 seconds when it is expected to start booting from the hard disk. After this delay, the boot process resumes as expected.

**Update DL/SL100-series BIOS before installing CN1000e**

Before installing an HP CN1000e into a DL/SL100-series server, you must upgrade the server BIOS to 2010.02.04 or later. The BIOS is available for download from the HP Download Drivers and Software website [http://www.hp.com/support/downloads](http://www.hp.com/support/downloads).

**Compatibility/interoperability**


**FC2142SR and FC2242SR HBAs on ProLiant systems**

HP ProLiant DL380 (G4) servers must have System ROMPaq firmware 4.05 P51-08/16/2005 or later to be compatible with the FC2142SR and FC2242SR. Failure to use this ROMPaq version can cause the HBAs to hang during the power-on self-test (POST). For more information, see the HP website: [http://h20000.www2.hp.com/bizsupport/TechSupport/SoftwareDescription.jsp?lang=en&cc=us&switem=MTX-8105b6fca840318b793e23f5&jumpid=reg_R1002_USEN](http://h20000.www2.hp.com/bizsupport/TechSupport/SoftwareDescription.jsp?lang=en&cc=us&switem=MTX-8105b6fca840318b793e23f5&jumpid=reg_R1002_USEN)

**CNA/HBA Linux notes**

This section describes restrictions that apply to Linux and this release of the CNAs/HBAs:

- **Firmware download in SLES 10 SP3 can cause the system to hang.**
  
  When downloading firmware to the CN1000E adapters in SLES 10 SP3 using the OneCommand Manager or hbacmd, the download may complete but cause the system to become unresponsive or hang. Though the firmware download is successful, a hard reboot of the server may be required to enable the new firmware.

- **HP and Novell are evaluating a report that Reiserfs filesystems display unexpected behavior under heavy load.** Other filesystems such as xfs and ext3 are not affected by this behavior. HP recommends that you use either the xfs or ext3 filesystem. This is a high priority issue that is in the process of being resolved. When a resolution is found, a maintenance update will be available on the Novell website [http://support.novell.com/](http://support.novell.com/).

- **HP recommends that you use the ext3 filesystem in high availability (HA) environments.** For information on how to use other Linux filesystems in an HA environment, see *SLES 11 Administration Guide*, available at the Novell website [http://www.novell.com/documentation/sles11](http://www.novell.com/documentation/sles11), and the *Red Hat Deployment Guide*, available at the Red Hat website [http://www.redhat.com](http://www.redhat.com).
  
  For information on the differences between ext2 and ext3, see the operating system documentation.

- **SLES 10 SP2 has an issue displaying 8-Gb HBA speed.** You can correct the problem using kernel Version 2.6.16.60-0.25.

- **BFS is not supported on the A8002A with RHEL 4 U3 and U4, IA64, or SLES 10 IA64.**

- **Beginning with SLES 11, HP no longer supports MSA1000, MSA1500, EVA3000, EVA5000, XP128, or XP1024.**
  
  Beginning with RHEL 5.3 and SLES 10 SP3, HP no longer supports MSA1000, MSA1500, EVA3000, or EVA5000.
Beginning with RHEL 6.0, HP no longer supports the XP128 or XP1024.

- For Modular Smart Arrays and Enterprise Virtual Array, active/passive storage arrays are supported in single-path mode only.
- For the MSA2000 family of disk arrays only:
  - The minimum required firmware is J200P24-01.
  - Creating virtual disks (vdisks) online or offline without volumes during the virtual disk creation process is not supported. You must create at least one volume during the virtual disk creation.
  - MultiPulse is not supported. See the HP Device Mapper documentation for multipathing support.
  - BFS is not currently supported.
- The Emulex MultiPulse 2.2.22, 2.2.38, 2.2.39, and 2.2.44 drivers support active/active storage arrays only.
- If using MultiPulse 2.1.x, you can have a maximum of four physical paths to a LUN. More than four paths can cause a failure.
- If using MultiPulse 2.2.x, you can have a maximum of eight physical paths to a LUN. More than eight paths can cause a failure.
- MultiPulse can coexist with multipathing products such as the Emulex failover driver and Secure Path. However, MultiPulse works only with Emulex-based HBAs; it will not configure multiple paths for other HBAs in the system.
- 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.
  - HP recommends that you 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: http://www.kernel.org/pub/linux/utils/kernel/hotplug/udev.html
- When using MultiPulse with SUSE Linux systems in BFS configurations, HP recommends that you use the udev utility to ensure that your system boots successfully. For more information about this procedure, see the HP StorageWorks Fibre Channel Host Bus Adapters Software Guide for Linux, available at the HP website: http://www.hp.com/go/SDGManuels
- If you are installing the Linux operating system for the first time, load the operating system before you download and install the supported Linux HBA driver from the HP website: http://welcome.hp.com/country/us/en/support.html
- XP LUNs presented to Linux hosts must start with LUN 0.
- HP recommends that you implement zoning by HBA, as described in the HP StorageWorks SAN Design Reference Guide, available on the website: http://www.hp.com/go/SDGManuels
- A maximum of 10 targets are supported in a BFS zone.
- On an sx2000 system with the default logging level, a call trace may appear in the /var/log/messages file during failover events.
- When running the scsi_info command on older XP arrays such as XP1024/128, you may see output similar to that shown in the following example. Ignore the error, and note that the XP array’s WWN is not all zeros.
  The XP array returns inquiry data that differs slightly from that returned by EVA or MSA arrays.
  [root@coco /] # scsi_info /dev/sdal SCSI_ID="4,0,8,0":VENDOR="HP":MODEL="OPEN-E":FW_REV="5005":WWN="0000000000000000":LUN="5235303020303030-3130353930203030"
• RHEL 5 U3 and SLES 10 SP3 do not support active/passive arrays.
• Installing PSP 7.91/92 causes fibreutils to downgrade. Reinstall fibreutils rpm from the downloaded kit.

   **Example:**
   ```
   #rpm -fvh fibreutils.<version>.linux.<arch>.rpm
   ```

• When an EVA4400 with embedded switch is configured in a heterogeneous SAN, HP recommends that you use a text editor to edit the HBA configuration file `etc/modprobe.conf`.

   ```
   options lpfcmpl mpl_hbeat_tmo_busy=0
   ```

   Save the file, and then run the `make_initrd` script.
   ```
   # /opt/hp/hp-lpfc/make_initrd
   ```

Reboot your server with the correct `initrd`.

• EVA4400 with embedded switch is not currently supported with SLES 9 SP4.

• 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. The ability to present the new target to a Fibre Channel HBA, and then prompt the operating system to do an online scan (such as using the `hp_rescan` utility that comes with fibreutils) is not supported with the Emulex failover driver (MultiPulse). If you add a new Fibre Channel target to a host server, you must reboot that server.

• Emulex HBA driver 7.4.0.39 is required to support QLogic switch firmware 8.0.2.2.0.

**CNA/HBA with Windows notes**

This section describes information about using Windows and CNAs/HBAs.

**Required hotfix for Windows Server 2008 using DSM**

Systems running Windows Server 2008/Windows Server 2008 Service Pack 2 require KB hotfix 976748 to be installed before installing Microsoft Device Specific Module (MSDSM) as a multipath solution. For more information, see the Microsoft Support website [http://support.microsoft.com/?id=976748](http://support.microsoft.com/?id=976748).

**Windows driver fails to log back in**

Windows driver fails to log back into the Cisco Nexus 5000 switch after switch reboot.
On Windows 2003 and Windows 2008, the link is not reestablished when a Cisco Nexus 5000 switch is rebooted. The workaround is to use the Nexus Shutdown and No Shutdown CLI commands to bring the port back online.

**STORport miniport driver installation restrictions**

If you are upgrading to the STORport miniport driver, consider the following:

- The STORport miniport driver is supported on Windows 2003 SP1 and later.
- Microsoft hotfix KB932755 must be installed before installing Multipath software.
- If you are running Secure Path for Windows, you must upgrade to Secure Path 4.0c SP2 or later for Windows. STORport is not supported with earlier versions of Secure Path.

**Minimum requirements for 2.x STORport Driver**

Driver installation with HP Smart Component requires a minimum of Windows Server 2003 SP2 or SP1 with update KB932755. Apply the Microsoft STORport update (KB932755) before installing or upgrading to this version of the STORport driver. For boot installations, Windows Server 2003 SP2 install image is required, followed by the KB update.

**HBAnyware**

Consider the following restrictions for HBAnyware:

- You must manually uninstall any previous versions of HBAnyware before installing the drivers.
- Before disabling or uninstalled an HBA using Device Manager, you must close HBAnyware.
- In the presence of a failed path, HBAnyware can remove LUNs from the tree display. The display is corrected when the failed path is restored.
- The installation of HBAnyware on IA64 is included in the driver smart component. There is no separate IA64 smart component for HBAnyware.
- To install HBAnyware for Windows XP:
  1. Download [hbanyware_30a16_winxp.zip](ftp://ftp.hp.com/pub/softlib/software8/COL6923/co-48775-1/hbanyware_30a16_winxp.zip) from the HP website:


  2. Unzip the zip file and run setupapps.exe.

- When upgrading the x86 (W32) or x64 HBA STORport driver to 2.01a4, any existing HBAnyware installed on the server will uninstall during the driver installation. You must reinstall the latest version of HBAnyware to use the utility.
- HBAnyware Version 4.1a35 for Integrity is limited to CLI only. There is no HBAnyware GUI version.

**WS2003 restriction for Integrity servers**

The 2.20.006 STORport driver is not supported on Integrity servers running WS2003.

**2-Gb HBA mezzanine card restriction**

Emulex 2-Gb HBAs and mezzanine cards are not supported with WS2008 R2.
Smart Component notes

The following Smart Component issues may be observed during driver installation:

• When using the Smart Component to install drivers, if the following message appears during reboot, ignore it and continue with the reboot procedure. No known issues have been observed in connection with the display of this message.

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

• Downgrading to Version 2.0 or later STORport driver does not work when initiated via the Smart Component. To downgrade an HP-branded Emulex HBA:
  1. Run the Smart Component, containing the desired driver, to extract the contents to a folder.
  2. Run the STORport driver installer from the extracted folder using the default values. For example:

     storportminiportcorekit_2-01a4

This will uninstall the current driver before downgrading to the specified driver version.

• When using the Smart Component to install drivers, the following message may appear during reboot.

  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.

  If the above message appears, click Finish. Do not reply to Microsoft and continue with the reboot procedure. No known issues have been observed in connection with the display of this message.

Secure Path 4.0c SP1 notes

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

• Secure Path is not supported on WS2008 or 8-Gb HBAs and 8-Gb mezzanine cards.
• The server boots from a SAN.
• All HBAs are accessing their LUNs in a single-path configuration.
• The HBA is directly attached in a single path to its own MSA controller. If the blue-screen error occurs, reboot the server and inspect the driver revisions to verify that the upgrade is complete on all HBAs. Upgrading to Secure Path 4.0c SP2 corrects this problem.

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 remote computers are accessing data on drives that use the SCSIport driver on the Windows Server 2003 system.

To correct this problem, install the latest Microsoft hotfix from the website:

http://support.microsoft.com/default.aspx?scid=kb;en-us;895573
Windows BFS notes

- In a direct connect environment, BFS fails to boot after adding a second path to an EVA4000/6000/8000 running firmware 6.110.
- BFS on c-Class blade servers fail to boot on an Active/Passive MSA1000/1500 running firmware 5.20.
- In BFS configurations where there are more than two Emulex HBAs in the same zone as the boot HBA, a crash-dump may not be generated due to a time-out condition when the boot HBA interacts with the non-boot HBAs. A workaround is to reconfigure the zoning such that the boot instance (for each path) is in its own zone separate from the other non-boot HBAs. In some cases, this may also result in faster boot-up times.
- When installing to storage attached to the 403621-B21 LPe1105 mezzanine card in a VC environment through a Brocade switch, both the target LUN and the WWN for the boot controller will not be visible in the zone, in the switch administrative tool. The workaround is to take note of the mezzanine card’s WWN when installing it into the system, or get it from the VC manager or EFI utility. Then manually enter the WWN into the desired zone on the switch when configuring the zone. Scan for targets and continue with normal installation steps to boot from the mezzanine card.
- EFI boot path configuration will not detect multiple controller ports connected to one HBA through McDATA fabric.
- In a BFS configuration, the installed HBAs may display different names when viewed through the device manager. This is a cosmetic condition, not a functional issue.
- The Emulex 81E and 82E HBAs (AJ762A and AJ763A) running the Universal Boot Image 5.03a0, does not support BFS on the DL160 G5 ProLiant server.
- When the Load Driver option is selected during the operating system build of a Windows 2008 server in a BFS configuration, a multiple entry of the Emulex driver is displayed. If multiple types of HBAs are displayed, select the first entry before proceeding.

Miscellaneous Windows notes

- TFTP-type monitors cannot be used to install an operating system on Itanium servers. Instead, you must use a VGA-type monitor.
- A direct connect environment is not supported with the EVA4400 or EVA4000/6000/8000 storage arrays (there is no FC switch between the HBA and the storage array).

VMware notes

- VMware is not supported on the IA64 architecture.

Citrix notes

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

Effective date

May 2010