HP StorageWorks Emulex Adapters Release Notes

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Legal and notice information

Description

These release notes contain driver, firmware, and other supplemental information for the Emulex Fibre Channel host bus adapters (HBAs) for ProLiant and Integrity servers. It also contains similar information for converged network adapters (CNAs). See "Product models" on page 3 for the supported HBAs and CNAs.

What's new?

The following is new in this edition:

- Updated to support CN1000E CNA.
- The consolidation of Linux and Windows release notes into a single document.
- VMware 4.0 K/L U1 support.

Product models

This section lists the supported HBAs 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. Table 2 describes the 2-Gb HBAs and mezzanine cards supported on servers running Linux, Windows, VMware and Citrix.

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

Models	Windows Server 2003	Windows Server 2008	Linux	VM-ware	Citrix
CNA					
HP StorageWorks CN1000E Dual Port Converged Network Adapter[2]	•	•	•	—	—
8-Gb HBAs and mezzanine cards					
HP StorageWorks LPe1205–HP 8Gb FC Mezzanine Card HBA (456972–B21)[3]	•	•	•[4]	•	•
HP StorageWorks 81E 8-Gb PCI EXpress HBA (AJ762A)	•	•	•[4]	•	•
HP StorageWorks 82E 8-Gb PCI EXpress Dual Channel HBA (AJ763A)	•	•	•[4]	•	•
HP PCIe 1-port 8Gb Fibre Channel HBA (AH402A)	•[5]	•[5]	—	—	—
HP PCIe 2-port 8Gb Fibre Channel HBA (AH403A)	•[5]	•[5]	—	—	—
4-Gb HBAs and mezzanine cards					

Models	Windows Server 2003	Windows Server 2008	Linux	VM-ware	Citrix
HP StorageWorks LPe1105–HP 4-Gb FC HBA for HP c-Class BladeSystem (403621- B21)	•	•	•	•	•
HP StorageWorks FC2142SR 4-Gb PCI-e FC HBA (A8002A)[6]	•	•	•	•	•
HP StorageWorks FC2242SR 4-Gb PCI-e dual port FC HBA (A8003A)	•	•	•	•	•
HP StorageWorks FC2143 4-Gb PCI-X FC HBA (AD167A)	•	•	•	•	•
HP StorageWorks FC2243 4-Gb PCI-X dual port FC HBA (AD168A)	•	•	•	•	•

[1]**Legend:** • = supported; — = not supported

[2]The CN1000E CNA is not supported on IA64 servers.

[3]The LPe1205 is supported with most G6 and later ProLiant blade servers with the exception of BL465G6 and BL495G6

[4]No IA64 support

[5]IA64 support only

[6]FC2142 is also supported on XW8400 and XW9300 workstations running Windows XP Professional (32 bit)

Table 2 Supported 2-Gb HBAs and mezzanine cards[1]

Models	Windows Server 2003	Windows Server 2008	Linux	VMware	Citrix
HP StorageWorks 1050EX 2-Gb PCI-e FC HBA (A7560A)	•	—	—	—	—
HP StorageWorks A7388A 2-Gb PCI-X FC HBA (A7388A)	•	•	—	—	—
HP StorageWorks A7387A 2-Gb PCI-X dual port FC HBA (A7387A)	•	•	—	—	—
HP StorageWorks FCA2408 2-Gb PCI-X FC HBA (343073-B21)	•	—	—	—	—
HP StorageWorks FCA2404DC 2-Gb PCI-X dual port FC HBA (323264-B21)	•	—	—	—	—
HP StorageWorks FCA2404 2-Gb PCI-X FC HBA (305573-B21)	•	—	—	—	—
HP StorageWorks FCA2355 2-Gb PCI dual port FC HBA (308540-B21)	•	—	—	—	—
HP StorageWorks FCA2101 2-Gb PCI FC HBA (245299-B21)	•	—	—	—	—
HP EmuleX-based BL20p 2-Gb PCI-X FC mezzanine card (394757-B21)	•	—	—	—	—
HP EmuleX-based BL25/30/35/45p PCI-X FC mezzanine card (394588-B21)	•[2]	—	—	—	—
HP StorageWorks A7298A 2Gb PCI-X Fibre Channel Host Bus Adapter	•[2]	—	—	—	—
HP StorageWorks AB232A 2 Gbps PCI-X FC HBA Windows	•[2]	—	—	—	—
HP StorageWorks AB467A 2 Gb 1port FCHBA W2003	•[2]	—	—	—	—

Models	Windows Server 2003	Windows Server 2008	Linux	VMware	Citrix
HP StorageWorks AB466A 2 Gb 2port FCHBA W2003	•[2]	—	—	—	—

[1]**Legend:** • = supported; — = not supported

[2]IA64 support only

NOTE:

For storage array support, see the 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 and Windows and the Emulex HBAs for Linux, Windows, VMware, and Citrix are supported on HP servers that:

- See the CN1000E QuickSpecs for specific detail on the supported servers for the CN1000E.
- Support the Linux, Windows, VMware, and Citrix operating systems listed on the HP website http://h18004.www1.hp.com/products/servers/software/index.html.
- Support the servers listed on the HP website http://h71028.www7.hp.com/enterprise/us/en/servers/ws-servers-2008-r2.html.
- Support B-series, C-series, M-series, and 8-Gb Simple SAN Connection switch products. For the latest information, see the HP support website http://welcome.hp.com/country/us/en/support.html and the *HP StorageWorks SAN design reference guide* at http://www.hp.com/go/sdgmanuals.

NOTE:

The CN1000E CNA is not currently supported on VMware or Citrix operating systems.

For storage array support, see the 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 software versions supported with the CNA and HBAs by operating systems and servers.

Linux support

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

Prerequisites

Before you perform CNA or HBA updates, you must:

- Ensure that the system is running one of the operating system versions listed in Linux on ProLiant servers, page 7 and in Linux on Integrity servers, page 12.
- 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 and then download and install the supported 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.

CNAs are not currently supported with in-box drivers. CNA multipath failover is handled by Device Mapper.

Linux on ProLiant servers

The following tables list the software support for Linux on ProLiant servers.

Table 3 Software support for RHEL 5 U4 version 2.6.18-164 of x86 and x64 Linux

CNA/HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware	OneCommand Manager
CN1000E (AW520A)	8.2.0.63.1p (FC) 2.101.374.0 (NIC)	2.701.374.8	2.701.374.8	N/A	N/A	5.0.19.1
LPe12000 (AJ762A)	8.2.0.48.2p	1.11a5	2.02a2	5.03a9	4.1a36	N/A
LPe12002 (AJ763A)	8.2.0.48.2p	1.11a5	2.02a2	5.03a9	4.1a36	N/A
FC2143 (AD167A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
FC2243 (AD168A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
FC2142SR (A8002A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
FC2242SR (A8003A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
LPe1105-HP (403621-B21)	8.2.0.48.2p	2.72a2	3.03a9	6.03a7	4.1a36	N/A
LPe1205-HP (456972-B21)	8.2.0.48.2p	1.11a5	3.03a9	6.03a7	4.1a36	N/A

Table 4 Software support for SLES 10 SP3 version 2.6.16-60-0.54.5 of x86 and x64 Linux

CNA/HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware	OneCommand Manager
CN1000E (AW520A)	8.2.0.63.1p (FC) 2.101.374.0 (NIC)	2.701.374.8	2.701.374.8	N/A	N/A	5.0.19.1
LPe12000 (AJ762A)	8.2.0.48.2p	1.11a5	2.02a2	5.03a9	4.1a36	N/A
LPe12002 (AJ763A)	8.2.0.48.2p	1.11a5	2.02a2	5.03a9	4.1a36	N/A
FC2143 (AD167A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
FC2243 (AD168A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A

CNA/HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware	OneCommand Manager
FC2142SR (A8002A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
FC2242SR (A8003A)	8.2.0.48.2p	2.72a2	2.02a2	5.03a9	4.1a36	N/A
LPe1105-HP (403621-B21)	8.2.0.48.2p	2.72a2	3.03a9	6.03a7	4.1a36	N/A
LPe1205-HP (456972-B21)	8.2.0.48.2p	1.11a5	3.03a9	6.03a7	4.1a36	N/A

Table 5 Software support for SLES 11 version 2.6.27.19–5 of x86 and x64 Linux

CNA/HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware	OneCommand Manager
CN1000E (AW520A)	8.2.8.32.1p (FC) 2.101.374.0 (NIC)	2.701.374.8	2.701.374.8	N/A	N/A	5.0.19.1
LPe12000 (AJ762A)	8.2.8.14	1.11a5	2.02a2	5.03a9	4.1a33	N/A
LPe12002 (AJ763A)	8.2.8.14	1.11a5	2.02a2	5.03a9	4.1a33	N/A
FC2143 (AD167A)	8.2.8.14	2.72a2	2.02a2	5.03a9	4.1a33	N/A
FC2243 (AD168A)	8.2.8.14	2.72a2	2.02a2	5.03a9	4.1a33	N/A
FC2142SR (A8002A)	8.2.8.14	2.72a2	2.02a2	5.03a9	4.1a33	N/A
FC2242SR (A8003A)	8.2.8.14	2.72a2	2.02a2	5.03a0	4.1a33	N/A
LPe1105-HP (403621-B21)	8.2.8.14	2.72a2	3.03a9	6.03a7	4.1a33	N/A
LPe1205-HP (456972–B21)	8.2.8.14	1.11a5	3.03a9	6.03a7	4.1a33	N/A

Table 6 Software support for RHEL 5 U3 version 2.6.18.128 of x86 and x64 Linux

HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware
LPe12000 (AJ762A)	8.2.0.33.3p	1.11a5	2.02a2	5.03a9	4.0a31
LPe12002 (AJ763A)	8.2.0.33.3p	1.11a5	2.02a2	5.03a9	4.0a31
FC2143 (AD167A)	8.2.0.33.3p	2.72a2	2.02a2	5.03a9	4.0a31
FC2243 (AD168A)	8.2.0.33.3p	2.72a2	2.02a2	5.03a9	4.0a31
FC2142SR (A8002A)	8.2.0.33.3p	2.72a2	2.02a2	5.03a9	4.0a31
FC2242SR (A8003A)	8.2.0.33.3p	2.72a2	2.02a2	5.03a9	4.0a31
LPe1105-HP (403621-B21)	8.2.0.33.3p	2.72a2	3.03a9	6.03a7	4.0a31
LPe1205-HP (456972-B21)	8.2.0.33.3p	1.11a5	3.03a9	6.03a7	4.0a31

Table 7 Software support for RHEL 5 U2 version 2.6.18-92 and SLES 10 SP2 version 2.6.16.60-0.21 of x86 and x64 Linux

HBA	Driver	Firm-ware	BIOS	Universal boot image	MultiPulse	HBAnyware
LPe12000 (AJ762A)	8.2.0.22_p4	1.11a5	2.02a2	5.03a9	2.2.44	3.4a16
LPe12002 (AJ763A)	8.2.0.22_p4	1.11a5	2.02a2	5.03a9	2.2.44	3.4a16
FC2143 (AD167A)	8.2.0.22_p4	2.72a2	2.02a2	5.03a9	2.2.44	3.4a16
FC2243 (AD168A)	8.2.0.22_p4	2.72a2	2.02a2	5.03a9	2.2.44	3.4a16
FC2142SR (A8002A)	8.2.0.22_p4	2.72a2	2.02a2	5.03a9	2.2.44	3.4a16
FC2242SR (A8003A)	8.2.0.22_p4	2.72a2	2.02a2	5.03a9	2.2.44	3.4a16
LPe1105 (403621-B21)	8.2.0.22_p4	2.72a2	3.03a9	6.03a7	2.2.44	3.4a16
LPe1205-HP (456972–B21)[1]	8.2.0.22_p4	1.11a5	3.03a9	6.03a7	2.2.44	3.4a16
BL20p (394757-B21)	8.2.0.22_p4	1.91a5	1.71a0	n/a	2.2.44	3.4a16
BL25/30/35/45p (394588-B21)	8.2.0.22_p4	1.91a5	1.71a0	n/a	2.2.44	3.4a16

[1]RHEL 5 U2 and SLES 10 SP2 support only

Table 8 Software support for RHEL 4 U7 and U8 versions 2.6 and SLES 9 SP4 versions 2.6 of x86 and x64 Linux

HBA	Driver	Firm-ware	BIOS	Universal boot image	MultiPulse	HBAnyware
LPe12000 (AJ762A)	8.0.16.40_p3	1.00a9	2.01a2	5.03a0	2.2.44	3.4a16
LPe12002 (AJ763A)	8.0.16.40_p3	1.00a9	2.01a2	5.03a0	2.2.44	3.4a16
FC2143 (AD167A)	8.0.16.40_p3	2.72a2	2.01a2	5.03a0	2.2.44	3.4a16
FC2243 (AD168A)	8.0.16.40_p3	2.72a2	2.01a2	5.03a0	2.2.44	3.4a16
FC2142SR (A8002A)	8.0.16.40_p3	2.72a2	2.01a2	5.03a0	2.2.44	3.4a16
FC2242SR (A8003A)	8.0.16.40_p3	2.72a2	2.01a2	5.03a0	2.2.44	3.4a16
LPe1105-HP (403621-B21)	8.0.16.40_p3	2.72a2	3.00a4	6.00a5	2.2.44	3.4a16
BL20p (394757-B21)	8.0.16.40_p3	1.91a5	1.71a0	n/a	2.2.44	3.4a16
BL25/30/35/45p (394588-B21)	8.0.16.40_p3	1.91a5	1.71a0	n/a	2.2.44	3.4a16

Table 9 Software support for RHEL 3 U7 an U8 2.4 kernel versions of x86 and x64 of Linux

HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware
FC2143 (AD167A)	7.3.6	2.70a5	1.71a0	5.02a1	2.1a24
FC2243 (AD168A)	7.3.6	2.70a5	1.71a0	5.02a1	2.1a24
FC2142SR (A8002A)	7.3.6	2.70a5	1.71a0	5.02a1	2.1a24
FC2242SR (A8003A)	7.3.6	2.70a5	1.71a0	5.02a1	2.1a24
LPe1105-HP (403621-B21)	7.3.6	2.70a5	3.00a4	6.00a5	2.1a24
BL20p (394757-B21)	7.3.6	1.91a5	1.71a0	n/a	2.1a24
BL25/30/35/45p (394588-B21)	7.3.6	1.91a5	1.71a0	n/a	2.1a24

Linux on Integrity servers

The following tables list software support for Linux on Integrity servers.

Table 10 Software support for SLES 11 version 2.6 of Itanium Linux

HBA	Driver	Firmware	EFI	Universal boot image	HBAnyware
FC2143 (AD167A)	8.2.8.14	2.72a2	4.00a6	5.03a9	4.1.a33
FC2243 (AD168A)	8.2.8.14	2.72a2	4.00a6	5.03a9	4.1.a33
FC2142SR (A8002A)	8.2.8.14	2.72a2	4.00a6	5.03a9	4.1.a33
FC2242SR (A8003A)	8.2.8.14	2.72a2	4.00a6	5.03a9	4.1.a33

Table 11 Software support for SLES 10 SP3 and RHEL 5 U4 version 2.6 of Itanium Linux

HBA	Driver	Firmware	EFI	Universal boot image	HBAnyware
FC2143 (AD167A)	8.2.0.48.2p	2.72a2	4.00a6	5.03a9	4.1.a36
FC2243 (AD168A)	8.2.0.48.2p	2.72a2	4.00a6	5.03a9	4.1.a36
FC2142SR (A8002A)	8.2.0.48.2p	2.72a2	4.00a6	5.03a9	4.1.a36
FC2242SR (A8003A)	8.2.0.48.2p	2.72a2	4.00a6	5.03a9	4.1.a36

Table 12 Software support for RHEL 5 U3 version 2.6 of Itanium Linux

HBA	Driver	Firmware	EFI	Universal boot image	HBAnyware
FC2143 (AD167A)	8.2.0.33.3p	2.72a2	4.00a6	5.03a9	4.0a31
FC2243 (AD168A)	8.2.0.33.3p	2.72a2	4.00a6	5.03a9	4.0a31
FC2142SR (A8002A)	8.2.0.33.3p	2.72a2	4.00a6	5.03a9	4.0a31
FC2242SR (A8003A)	8.2.0.33.3p	2.72a2	4.00a6	5.03a9	4.0a31

Table 13 Software support for SLES 10 SP2 version 2.6 and RHEL 5 U2, version 2.6 of Itanium Linux

HBA	Driver	Firmware	EFI	Universal boot image	MultiPulse	HBAnyware
FC2143 (AD167A)	8.2.0.22_p4	2.72a2	4.00a6	5.03a9	2.2.44	3.4a16
FC2243 (AD168A)	8.2.0.22_p4	2.72a2	4.00a6	5.03a9	2.2.44	3.4a16
FC2142SR (A8002A)	8.2.0.22_p4	2.72a2	4.00a6	5.03a9	2.2.44	3.4a16
FC2242SR (A8003A)	8.2.0.22_p4	2.72a2	4.00a6	5.03a9	2.2.44	3.4a16

Table 14 Software support for RHEL 4 U7 and U8 version 2.6 and SLES 9 and SP4 version 2.6 of Itanium Linux

HBA	Driver	Firmware	EFI	Universal boot image	MultiPulse	HBAnyware
FC2143 (AD167A)	8.0.16.40_p3	2.72a2	3.11a5	5.02a1	2.2.44	3.4a16
FC2243 (AD168A)	8.0.16.40_p3	2.72a2	3.11a5	5.02a1	2.2.44	3.4a16
FC2142SR (A8002A)	8.0.16.40_p3	2.72a2	3.11a5	5.02a1	2.2.44	3.4a16
FC2242SR (A8003A)	8.0.16.40_p3	2.72a2	3.11a5	5.02a1	2.2.44	3.4a16

CNA installation instructions for Linux

NOTE:

Do not install the `fibreutils` RPM on systems using CNAs.

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

1. Go to http://www.hp.com/go/support.
2. Select the **See support and troubleshooting information** button.
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.

NOTE:

If you have both CNAs and Fibre Channel HBAs installed in your system, then you should load and use the CNA drivers.

Installing the Linux device driver using the Red Hat in-box driver

For instructions on how to install Linux while using the in-box driver, see the HP website http://www.hp.com, and then search for *device mapper + boot + san*.

If you require multiple-path redundancy, after installing the operating system, you must install the HP-supplied Device Mapper Multipath Kit. Go to the HP website http://www.hp.com/go/devicemapper.

You must also install the new HP Fibre Channel Enablement Kit (`hp-fc-enablement`), after installing the operating system (see "Installing the HP Fibre Channel Enablement Kit" on page 14).

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, but it provides configuration scripts to ensure that HP StorageWorks Fibre Channel arrays. The Fibre Channel Enablement kit also sets the correct `lpfc` and `qla2xxx` kernel module values 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` RPM.

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
     ```

   The `hp-fc-enablement` and `fibreutils` RPMs are installed.
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 mentioned in steps 1 through 3 ("Installing the HP Fibre Channel Enablement Kit" on page 14), and then execute the `install.sh` script with the `–u` option:

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

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

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

Installing the Linux device driver using the HP kit (prior to 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

1. Download the appropriate driver kit for your distribution where 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; 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 RPM for your configuration, and the appropriate fibreutils RPM. When the script is finished, you will 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 `modprobe lpfcdfc` is for RHEL 4 Ux and SLES 9 SPX.

```
# modprobe lpfcmpl
```

NOTE:

The command `modprobe lpfcmpl` is for 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 RPM driver version

To verify what RPM driver version is installed, 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.

```
# modprobe –r lpfcdfc
```

NOTE:

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

```
# modprobe –r lpfc
```

Installing HBAnyware on Linux

To install HBAnyware on a Linux system:

1. Download the file `HP_ElxApps-<Kernel Version>-<HBAnyware Version>-<Driver Version>.zip` to the target system.

   Example: `HP_ElxApps-26-3.2a16-8.1.10.11.zip`

NOTE:

See Linux operating systems, page 5 for HBAnyware and driver version information. 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: `# HBAnyware` or `# /usr/sbin/hbanyware/hbanyware`

NOTE:

See the HBAnyware online help for more information.

HBAnyware 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

To view driver and firmware information:

1. Use OneCommand Manager or HBAnyware to view a list of SCSI CNAs/HBAs.

Windows support

This section describes CNA/HBA support for Windows.

Windows on ProLiant servers

The following 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 x86 – 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

Table 15 Software support for Windows on ProLiant

CNA	Driver	Firmware	BIOS	Universal boot image	OneCommand Manager
CN1000E (AW520A)	2.30.018 (FC)[1] 2.101.374.30 (NIC)	2.701.374.8	2.701.374.8	N/A	5.0.19.2
8-Gb HBA	**Driver**[4]	**Firmware**	**BIOS**	**Universal boot image**[5]	**HBAnyware**
81E (AJ762A)	2.20.006	1.11a5	2.02a2	5.03a9	4.1a35
82E (AJ763A)	2.20.006	1.11a5	2.02a2	5.03a9	4.1a35
456972-B21 (c-Class mezzanine card)[2]	2.20.006	1.11a5	3.03a9	6.03a7	4.1a35
4-Gb HBA	**SCSIport/Storport drivers**[3, 4]	**Firmware**	**BIOS**	**Universal boot image**[5]	**HBAnyware SCSI-port/Storport**
FC2142SR (A8002A)	5.30a2/2.20.006	2.80a4	2.02a2	5.03a9	3.0a16/4.1a35
FC2242SR (A8003A)	5.30a2/2.20.006	2.80a4	2.02a2	5.03a9	3.0a16/4.1a35
FC2143 (AD167A)	5.30a2/2.20.006	2.80a4	2.02a2	5.03a9	3.0a16/4.1a35
FC2243 (AD168A)	5.30a2/2.20.006	2.80a4	2.01a2	5.03a9	3.0a16/4.1a35
403621-B21 (c-Class mezzanine)	5.30a2/2.20.006	2.80a4	3.03a9	6.03a7	3.0a16/4.1a35
2-Gb HBA	**SCSIport/Storport Drivers**[3, 4]	**Firmware**	**BIOS**	**Universal boot image**[5]	**HBAnyware SCSI-port/Storport**
LP1050 (A7388A)	5.30a2/2.10x1	1.91a5	2.01a2	5.03a0	3.0a16/4.1a32
LP1050DC (A7387A)	5.30a2/2.10x1	1.91a5	2.01a2	5.03a0	3.0a16/4.1a32
FCA2404DC (323264-B21)	5.30a2/2.01a4	1.91a5	2.01a2	5.03a0	3.0a16/3.4a9
FCA2408 (343073-B21)	5.30a2/2.01a4	1.91a5	2.01a2	5.03a0	3.0a16/3.4a9
FCA2101 (245299-B21)	5.30a2/2.01a4	3.93a0	1.71a0	n/a	3.0a16/3.4a9
FCA2355 (308540-B21)	5.30a2/2.01a4	3.93a0	1.71a0	n/a	3.0a16/3.4a9
394588-B21 BL25/30/35/45p FC mezzanine	5.30a2/2.00a12	1.91a5	1.71a0	5.02a1	3.0a16/3.4a9

394757-B21 Emulex-based BL20p FC mezzanine	5.30a2/2.00a12	1.91a5	1.71a0	5.02a1	3.0a16/3.4a9

[1]For FCoE: Version 2.x Storport driver installation with HP Smart Component requires a minimum Windows Server 2003 SP2 with KB943545. Apply the Microsoft Storport update (KB943545) before installing or upgrading to this version of the Storport driver. For boot installations, the Windows Server 2003 SP2 install image is required, followed by the KB update.

[2]Only supported with G6 and newer ProLiant blade servers – except BL465G6 and BL495G6 servers).

[3]SCSIport Driver ONLY supported on WS2003 x86

[4]Version 2.x Storport driver installation with HP Smart Component requires a minimum Windows Server 2003 SP2 or SP1 with KB932755. Apply the Microsoft Storport update (KB932755) before installing or upgrading to this version of the Storport driver. For boot installations, the Windows Server 2003 SP2 install image is required, followed by the KB update.

[5]Universal boot images contain BIOS and EFI drivers.

Windows on Integrity servers

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

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

Table 16 Software support for Windows on Integrity servers

8-Gb HBAs	**Storport drivers**[3, 4]	**Firmware**	**EFI**	**Universal boot image**[1]	**HBAnyware**[2]
AH402A	2.20.a6	1.11a5	4.00a6	5.03a9	4.1a35
AH403A	2.20.a6	1.11a5	4.00a6	5.03a9	4.1a35
456972-B21 (c-Class mezzanine card)	2.20.006	1.11a5	4.00a6	6.03a7	4.1a35
4-Gb HBAs	**Storport drivers**[3, 4]	**Firmware**	**EFI**	**Universal boot image**[1]	**HBAnyware** [2]
FC2142SR (A8002A)	2.20.006	2.80a4	4.00a6	5.03a9	4.1a35
FC2242SR (A8003A)	2.20.006	2.80a4	4.00a6	5.03a9	4.1a35
FC2143 (AD167A)	2.20.006	2.80a4	4.00a6	5.03a9	4.1a35
FC2243 (AD168A)	2.20.006	2.80a4	4.00a6	5.03a9	4.1a35
403621-B21 (c-Class mezzanine)	2.20.006	2.80a4	4.00a6	6.00a7	4.1a35
2-Gb HBAs	**SCSIport/Storport drivers**[3, 4]	**Firmware**	**EFI**	**Universal boot image**[1]	**HBAnywareSCSI-port/Storport**
LP9802 (AB232A)	5.30a2/2.01a4	1.91a5	4.00a1	5.03a0	3.0a16/3.4a9
LP1050DC (AB466A)	5.30a2/2.20.006[5]	1.91a5	4.00a5	5.03a6	3.0a16/4.0a32
LP1050 (AB467A)	5.30a2/2.20.006[5]	1.91a5	4.00a5	5.03a6	3.0a16/4.0a32

LP982 (A7298A)	5.30a2/2.01a4	1.91a5	4.00a1	n/a	3.0a16/3.4a9

[1]Universal boot images contain BIOS and EFI drivers.

[2] HBAnyware 4.1a35 for Integrity servers running on WS2008 R2 is limited to a command line interface only, as no HBAnyware GUI version exists.

[3]Version 2.x.driver installation with HP Smart Component requires a minimum Windows Server 2003 SP1 or SP2 with Microsoft Storport update KB932755. Apply this update 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.

[4]The SCSIport driver is only supported on WS2003 x86.

[5]Storport driver 2.20.006 is not supported with 2-Gb HBAs on WS2008 R2.

Table 17 Universal boot images

Version	BIOS	EFI
5.0.3a9	2.02a2	4.00a6
5.03a6	2.02a2	4.00a5
5.03a0	2.01a2	4.00a1
5.02a1	1.71a0	3.11a5
6.00a5	3.00a4	4.00a1
6.03a7	3.03a9	4.00a6

Windows XP Professional (32-bit)

Table 18 Supported configuration for Windows XP Professional (32-bit)

Windows driver, workstation, switch, storage array, and utility requirements	
HBA	HP StorageWorks FC2142SR (product number A8002A)
HBA firmware/BIOS	2.72a2 /1.71a0 (distributed in Universal Boot Image 5.02a1)
Windows driver	SCSIPORT miniport 5.30a2
Workstations	XW8400, XW9300
FC switch	Cisco 8-port MDS 9124
Storage array	EVA4000
HBAnyware	3.0a16_winxp
Restrictions	Single path only. Boot from SAN is not supported.

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 are supported by in-box drivers supplied with VMware ESX. Linux FC HBA drivers are not supported on the Virtual OS (VOS).

NOTE:

You do not need to install the Emulex driver because it is shipped with the ESX server.

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

Table 19 Software support for 4.0 version 2.6 of x86 ESX server

HBA	Driver	Firmware	BIOS	Universal boot image
LPe12000 (AJ762A)	8.2.0.30.49	1.11a5	2.02a2	5.03a9
LPe12002 (AJ763A)	8.2.0.30.49	1.11a5	2.02a2	5.03a9
FC2242SR (A8003A)	8.2.0.30.49	2.72a2	2.02a2	5.03a9
FC2142SR (A8002A)	8.2.0.30.49	2.72a2	2.02a2	5.03a9
FC2243 (AD168A)	8.2.0.30.49	2.72a2	2.02a2	5.03a9
FC2143 (AD167A)	8.2.0.30.49	2.72a2	2.02a2	5.03a9
LPe1105-HP (403621-B21)	8.2.0.30.49	2.72a2	3.03a7	6.00a7
LPe1205-HP (456972-B21)	8.2.0.30.49	1.11a5	3.03a9	6.03a7

Table 20 Software support for 4.0 U1 of x64 ESX server

HBA	Driver	Firmware	BIOS	Universal boot image
LPe12000 (AJ762A)	8.2.0.30.52	1.11a5	2.02a2	5.03a9
LPe12002 (AJ763A)	8.2.0.30.52	1.11a5	2.02a2	5.03a9
FC2242SR (A8003A)	8.2.0.30.52	2.72a2	2.02a2	5.03a9
FC2142SR (A8002A)	8.2.0.30.52	2.72a2	2.02a2	5.03a9
FC2243 (AD168A)	8.2.0.30.52	2.72a2	2.02a2	5.03a9
FC2143 (AD167A)	8.2.0.30.52	2.72a2	2.02a2	5.03a9
LPe1105-HP (403621-B21)	8.2.0.30.52	2.72a2	3.03a7	6.00a7
LPe1205-HP (456972-B21)	8.2.0.30.52	1.11a5	3.03a9	6.03a7

Table 21 Software support for 3.5 U4 version 2.4 of x86 ESX server

HBA	Driver[1]	Firmware	BIOS	Universal boot image
LPe12000 (AJ762A)	7.4.0.39	1.11a5	2.02a2	5.03a9
LPe12002 (AJ763A)	7.4.0.39	1.11a5	2.02a2	5.03a9
FC2242SR (A8003A)	7.4.0.39	2.72a2	2.02a2	5.03a9
FC2142SR (A8002A)	7.4.0.39	2.72a2	2.02a2	5.03a9
FC2243 (AD168A)	7.4.0.39	2.72a2	2.02a2	5.03a9
FC2143 (AD167A)	7.4.0.39	2.72a2	2.02a2	5.03a9
LPe1105-HP (403621-B21)	7.4.0.39	2.72a2	3.03a9	6.00a7
LPe1205-HP (456972-B21)	7.4.0.39	1.11a5	3.03a9	6.03a7

[1]The Emulex driver is shipped with the ESX server. The driver does not require installation.

NOTE:

ESX Server 3.5 U2 added support for AJ762A and AJ763A.

Boot from SAN on VMware

To perform a boot from SAN on VMware, see *HP StorageWorks Fibre Channel host bus adapters software guide for Linux*, available at http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=SupportManual&lang=en&cc=us&docIndexId=64179&taskId=101&prodTypeId=12169&prodSeriesId=3662826.

Citrix operating system

The following table lists minimum software support for Citrix V5.5.0 (15119).

HP supports the Citrix hypervisor. See the website: http://www.hp.com/go/citrix.

Table 22 Software support for Citrix version 5.5.0 (15119)

HBA	Driver	Firmware	BIOS	Universal boot image	HBAnyware
LPe12000 (AJ762A)	Inbox	1.11a5	2.02a2	5.03a9	Inbox–CLI
LPe12002 (AJ763A)	Inbox	1.11a5	2.02a2	5.03a9	Inbox–CLI
FC2143 (AD167A)	Inbox	2.72a2	2.02a2	5.03a9	Inbox–CLI
FC2243 (AD168A)	Inbox	2.72a2	2.02a2	5.03a9	Inbox–CLI
FC2142SR (A8002A)	Inbox	2.72a2	2.02a2	5.03a9	Inbox–CLI
FC2242SR (A8003A)	Inbox	2.72a2	2.02a2	5.03a9	Inbox–CLI
LPe1105-HP (403621-B21)	Inbox	2.72a2	3.03a9	6.03a7	Inbox–CLI
LPe1205-HP (456972-B21)	Inbox	1.11a5	3.03a9	6.03a7	Inbox–CLI

Restrictions and issues

This section describes restrictions and issues for Emulex CNA/HBA adapters running Linux and Windows.

General restrictions and issues

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 Requires 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 will resume in a normal manner.

Compatibility/Interoperability

HP recommends that you implement zoning by CNAs/HBAs, as described in the *HP StorageWorks SAN Design Reference Guide*, available at: http://www.hp.com/go/sdgmanuals.

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 detailed information, see the HP website:

http://h18006.www1.hp.com/products/storageworks/4gbpciehba/index.html

CNA/HBA Linux restrictions and issues

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

- There is currently no RHEL 5 DUP available to enable boot from SAN for the CN1000E, when available this DUP will be posted on Red Hat's site.
- Firmware download in SLES10SP3 may cause system hang.

  When downloading firmware to the CN1000E adapters in SLES10SP3 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. Once a resolution is found, a maintenance update will be available on the website: http://support.novell.com/.
- HP recommends use of the `ext3` filesystem in HA environments. For information on how to use other Linux filesystems in an HA environment, see section 1.2.1 in the *Novell Storage Administration Guide*, available at the website http://www.novell.com/documentation/sles11, and section 2.1 in the *Red Hat Deployment Guide*, available at the website http://www.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5.4/html/Deployment_Guide/ch-ext3.html#s1-filesystem-ext3. 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.
- Boot from SAN 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 the following arrays: MSA1000, MSA1500, EVA3000, EVA5000, XP128, and XP1024. Beginning with RHEL 5.3 and SLES 10 SP3, HP no longer supports the following arrays: MSA1000, MSA1500, EVA3000, and EVA5000. Beginning with RHEL 6.0, HP no longer supports the XP128 and 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.
  - Boot from SAN is not currently supported.
- The Emulex MultiPulse 2.2.22, 2.2.38, 2.2.39 and 2.2.44 drivers supports 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 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 detailed information, available on the websitehttp://www.kernel.org/pub/linux/utils/kernel/hotplug/udev.html.

- When using MultiPulse with SUSE Linux systems in boot from SAN configurations, HP recommends that you use the udev utility to ensure that your system boots successfully. For detailed information about this procedure, see *Using the udev utility with SUSE Linux systems*in the *HP StorageWorks Booting Itanium Linux systems from a storage area network application notes*, available at the HP website:

  http://h18006.www1.hp.com/storage/saninfrastructure.html.
- If you are installing the Linux operating system for the first time, load the operating system and then 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://h18006.www1.hp.com/products/storageworks/san/documentation.html.
- A maximum of 10 targets are supported in a boot from SAN zone.
- On a 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"
  [root@coco /]# scsi_info /dev/sdam
  SCSI_ID="4,0,8,1":VENDOR="HP":MODEL="OPEN-
  E":FW_REV="5005":WWN="0000000000000000":LUN="5235303020303030-3130353930203030"
  [root@coco /]# scsi_info /dev/sdan
  SCSI_ID="4,0,9,0":VENDOR="HP":MODEL="OPEN- 3":FW_REV="2114":WWN="03000000002018e9":LUN="5234353120303030-3330313033203030"
  [root@coco /]# scsi_info /dev/sdao SCSI_ID="4,0,9,1":VENDOR="HP":MODEL="OPEN-
  3":FW_REV="2114":WWN="0b00000000600000":LUN="5234353120303030-3330313033203030"
  ```
- RHEL 5 U3 and SLES 10 SP3 do not support active/passive arrays.
- Installing PSP 7.91/92 causes fibreutils to downgrade. Re-install 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 host bus adapter, 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 needed to support QLogic switch firmware 8.0.2.2.0.

CNA/HBA Windows restrictions and issues

This section describes restrictions and issues for Windows and CNAs/HBAs.

Windows crashdump fails

Windows `crashdump` fails on MSA2000–series arrays, when booted from CN1000E adapter.

On Windows 2003 and Windows 2008, when the operating system is booted from an MSA2000 storage array using the CN1000E adapter, the `crashdump` may fail on certain server models. The server may start the `crashdump` and display a blue stop screen but hang after displaying "initializing disk for dump."

Windows driver fails to log back in

Windows driver fails to log back into 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 work-around is to use the Nexus `Shutdown` and `No Shutdown` CLI commands to bring the port back on-line.

STORport miniport driver installation restrictions

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

- The STORport miniport driver is supported only on Windows 2003 SP1 and later.
- The STORport QFE must be installed before installing Multipath software.
- 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.
- 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 uninstalling an HBA using Device Manager, you must close HBAnyware.
- In the presence of a failed path, HBAnyware may 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 from the HP-website:

     ftp://ftp.hp.com/pub/softlib/software8/COL6923/co-48775-1/hbanyware_30a16_winxp.zip
  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 (Command Line Interface) 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 issues

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 issue has 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 greater 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 desired 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.
```

Should the above message appear, click **Finish**. Do not reply to Microsoft and continue with the reboot procedure. No known issue has been observed in connection with the display of this message.

Secure Path 4.0c SP1 issues

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 8Gb HBAs and 8Gb 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 check 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 issues

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 QFE from the website:

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

Windows boot from SAN issues

- In a direct connect environment, Boot From SAN fails to boot after adding a second path to an EVA4000/6000/8000 running firmware 6.110.
- Boot from SAN on c-Class blade servers fail to boot on an Active/Passive MSA1000/1500 running firmware 5.20.
- In Boot from SAN 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 work-around 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 work-around 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 thru 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 Boot from SAN 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 Boot from SAN Configuration, a multiple entry of the Emulex driver will be displayed. If multiple types of HBAs are displayed, select the first entry, then proceed.

Miscellaneous Windows issues

- 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, EVA4000/6000/8000 storage array (i.e., there is no FC switch between the HBA and the storage array).

VMware restrictions and issues

- VMware is not supported on the IA64 architecture.

Citrix restrictions and issues

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

Languages

American English

Effective date

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