EMC²

RELEASE NOTES

EMC Fibre Channel PCI HBA/Driver Package For Windows NT 4.0 SP5/6A

(HBA Driver 4-1.27a3)

Release Notes

P/N 085090572-02

February 19, 2001

These release notes include information not currently available in the product manuals. Please read them completely before installing the software.

Enhancements

This release of the EMC Fibre Channel PCI HBA/Driver Package for Windows NT® 4.0

- Adds CLARiiON Driver Extensions (CDE)
- Upgrades supported Navisphere storage management software to 5.1.0

Topics

Major topics in these release notes are

- Product Description 2
- Environment 3
- Notes and Warnings 5
- Documentation 7
- Documentation Updates 8
- Software Distribution 10
- CDE Installed Files 11

Product Description

This HBA/Driver package provides an Emulex PCI Host Bus Adapter (HBA) and driver for connecting Windows NT® 4.0 hosts to the following EMC Fibre Channel disk-array storage systems:

- FC4500 Series
- FC4700 Series
- FC5200/5300 Series
- FC5600/5700 and FC5603/5703 Series
- C3400/3500 Series

You can use an FC4500 storage system in either an Arbitrated Loop or Fabric (Storage Groups) environment. The environment is determined by the revision of Core Software on the FC4500 storage system.

Model **HBAGL-NT** (optical) and Model **HBACP-NT** (copper) of this HBA/Driver Package contain the following components

Component	Optical HBA/Driver Package (HBAGL-NT)	Copper HBA/Driver Package (HBACP-NT)
Storage System Supported	FC4500, FC4700	FC5200/5300, FC5600/5700, FC5603/5703, C3400/3500
HBA	One Emulex LP8000 HBA (P/N 118031355)	One Emulex LP8000 HBA (P/N 118031355)
GBIC	One Optical GBIC Module (P/N 118029720)	One Copper GBIC Module (P/N 118029719)
HBA/Driver Software	HBA/Driver Package for NT (HBA Driver 4-1.27a3, see Notes)	HBA/Driver Package for NT (HBA Driver 4-1.27a3, see Notes)

Notes:

- Optical cables for use with the optical model and the copper cables for use with the copper model are available in various lengths as a separate hardware model.
- The HBA/Driver Package media contains:
  - **HBA Driver v4-1.27a3** - the device driver used with the HBA.

- **CDE** - CLARiiON Driver Extensions, which provide limited failover features for EMC FC -series disk-array storage systems, and is required unless ATF will be installed. ATF is required when the server has two HBAs connected to the same storage system. For more information about CDE, refer to the *EMC Navisphere CDE Driver Extensions Software Administrator's Guide*, P/N 069001072.
- **HBA Utilities for NT 4.0** - used for HBA firmware upgrades.

Environment

This section outline the hardware and software supported with this release of the HBA/Driver Package.

Hardware

This HBA/Driver Package supports use of the HBA on high performance Intel Based Servers. A multi-processing Pentium Pro based server, or higher, with a minimum of 512 MB RAM is recommended.

Operating-System Software

This HBA/Driver Package supports Windows NT 4.0 Server SP5/6A, or Windows NT 4.0 Server Enterprise Edition SP5/6A.

Storage-System Software

Storage-system software is Core Software for non-FC4700 storage systems and Base Software for FC4700 storage systems.

Core Software consists of firmware and PROM code. EMC used the following Core Software to qualify this HBA/Driver Package with non-FC4700 storage systems:

Storage System	Firmware	PROM Code
FC4500 Series (Arbitrated Loop environments)	5.32.06	2.09
FC4500 Series (Fabric environments)	6.32.06	2.09
FC5200/5300 Series	5.24.01	2.08
FC5600/5700 Series	5.11.11	3.23
FC5603/5703 Series	5.11.61	3.23
C3400/3500 Series	9.46.30	1.73

EMC used the following storage-system Base Software to qualify the HBA/Driver Package with FC4700 storage systems:

Storage System	Base Software
FC4700	8.41.08

Navisphere Management Software

This HBA/Driver Package is compatible with the following Navisphere management software:

For non-FC4700 storage systems

- Navisphere Host Agent 4.3.0 or higher for Windows NT
- Navisphere Manager 4.3.0 or higher

For FC4700 storage systems

- Navisphere Host Agent 5.0.0 or higher for Windows NT
- Navisphere Manager 5.0.0 or higher

EMC recommends that you use Navisphere Agent 5.1.0 and Navisphere Manager 5.1.0.

High Availability Software

The software packages listed above are compatible with Navisphere Application Transparent Failover (ATF) v2.0.4 or higher for Windows NT.

You can use Microsoft Cluster Software (MSCS) for host failover in a clustered environment. Support is for 2-node clusters only, and requires either Windows NT4 Server or Windows NT4 Server Enterprise Edition.

Notes and Warnings

This section contains information that will help with the installation, use, and management of the storage system.

Non-AFT Environment Notes

In a non-ATF environment you may need to adjust the Queue Depth setting so the total number of I/O requests (simultaneous threads) on the I/O subsystem is less than 256 per Storage Processor (SP).

This adjustment only applies to those applications that put a very large number of simultaneous threads on the I/O subsystem. This is due to continuous retries on a Queue Full condition, which is a standard Windows NT behavior. We strongly recommend ATF in these environments. If ATF is not installed operations should be restricted by adjusting this variable.

During installation of the Fibre Channel driver the following device parameters are automatically configured in the Windows NT registry for you:

In the directory
\\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\elxsli2
ShowUnknowns=1
BrokenRscn=1
UseReportLuns=1
RetryTimer=2000
WaitReadyTimeVal=45
MaximumQueueDepth=32
EnableHotPlug=0
MultipleScsiClaims=1

In the directory
\\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\disk
TimeOutValue=60

Parameters set under the **elxsli2** key are global, and, as such, they apply as the default for each installed adapter. In the registry, the values of these parameters are of type REG_WORD and are hexadecimal. Description of these parameters follow.

ShowUnknowns

If 0, only LUNs with a Peripheral Qualifier of 0 will be reported in the Inquiry buffer. If 1, then LUNs with a Peripheral Qualifier of 0 or 1 will be reported in the Inquiry buffer.

Default value: 1

BrokenRscn

If 0, the RSCN payload is used to determine whether devices have been added or removed from the system. If 1, the RSCN payload is ignored and the Name Server is queried for the new information.

Default value: 1

UseReportLuns

If 1, the driver will use the SCSI Report LUNs command to determine the presence of LUNs on SCSI devices. If 0, the driver will poll up to the number of LUNs configured with the MaximumLun configuration option.

Default value: 1

RetryTimer

Time to wait between retries in milliseconds.

Default value: 2000

WaitReadyTimeVal

The time in seconds the driver will wait for a device to become available before commands to the device are returned with SCSI selection time-out errors. If the value is -1, then the timer value used is 2 * R_A_TOV. If the timer value is 0, then the driver will wait forever for the target to become available.

Default value: 45

MaximumQueueDepth

The maximum number of SCSI commands that may be issued to a single LUN before one of the commands must complete.

Default value: 32

EnableHotPlug

If 1, supports hot plugging devices. If 0, disables hot plugging devices.

Default value: 0

MultipleScsiClaims

If 1, report each SCSI device for every port by which it is connected. If 0, report the SCSI device only on the first port by which it is connected.

Default value: 1

CDE Notes

CDE uses some commands and support software also used by ATF. As a result, many messages, filenames, and device names use the name *atf* instead of *cde*. These occurrences of the name atf are accurate and not errors in the software or documentation.

Documentation

The following table lists the documentation for this release of the HBA/Driver Package.

Part Number	Publication
014003033	Fibre Channel PCI HBA and Driver for Windows NT Installation Guide
069001072	CDE Driver Extensions Software Administrator's Guide

An electronic copy of these release notes is available for registered partners on the web site http://emc.clariion.com/login.asp.

Documentation Updates

This section describes changes to the printed manuals.

Fibre Channel PCI HBA and Driver for Windows NT Installation Guide (P/N 014003033)

Add the following procedure for replacing a Fibre Channel PCI HBA in an Windows NT server connected to storage systems with the Access Logix™ option.

Replacing an HBA Connected to Storage Systems with Access Logix

If you can manage the server whose HBA you need to replace from another server, use procedure 1. If you cannot manage it from another server, use procedure 2 on page 9.

Procedure 1 Use this procedure to replace an HBA if you can manage the storage system from another host.

1. Stop all I/O to each storage system connected to the HBA you are replacing.
2. Using Navisphere Manager, disconnect any Storage Groups connected to the server through the HBA.
3. Shut down Windows NT on the server whose HBA you are replacing.
4. Power down the server.
5. Remove the HBA you want to replace and install the new HBA.
6. Power up the server.
7. After the HBA is registered with the Host Agent running on the server, reconnect any Storage Groups that you disconnected in step 1.

   The HBA is registered with the Host Agent if the **Connectivity Status** dialog box in Manager shows `Yes` in the **Registered** column for the HBA.
8. In the switch zones that include the HBA, change the World Wide Port Name (WWPN) of the old HBA to the WWPN of the new HBA.

9. Remove the connection path to old HBA from each storage system's persistent memory using the **navicli port -removeHBA** CLI command.

   See the CLI reference for information on this command.

10. Reboot the server.

Procedure 2 Use this procedure to replace an HBA if you ***cannot*** manage the server from another host.

1. Shut down Windows NT on the server whose HBA you are replacing.
2. Power down the server.
3. Remove the HBA you want to replace and install the new HBA.
4. Power up the server.
5. Stop all I/O to each storage system connected to the new HBA.
6. After the HBA is registered with the Host Agent running on the server, use Navisphere Manager to disconnect any Storage Groups connected to the old HBA.

   The HBA is registered with the Host Agent if the **Connectivity Status** dialog box in Manager shows `Yes` in the **Registered** column for the HBA.

7. In the switch zones that include the HBA, change the World Wide Port Name (WWPN) of the old HBA to the WWPN of the new HBA.
8. Reconnect to the server the Storage Groups you removed in step 7.
9. Remove the connection path to old HBA from each storage system's persistent memory using the **navicli port -removeHBA** CLI command.

   See the CLI reference for information on this command.

10. Reboot the server.
11. Run the **atf_restore** utility.

    The **atf_restore** utility is provided with both CDE and ATF.

12. Restart I/O to each storage system connected to the new HBA.

Software Distribution

This section lists the software media and files for this product release.

Media

The following table lists the media for this product release.

Part Number	Publication
068090503	HBA/Driver Package (HBA Driver 4-1.27a3) for Windows NT CD-ROM

Files

HBA Driver and Utility Files

The following HBA driver and utility files are delivered with this product release:

Files
emulex.sli
oemsetup.inf
readme.txt
\i386\elxcfg.exe
\i386\elxcfg
\i386\elxsli2.sys

CDE Installation Files

The following files are used during the installation of CDE:

Files	Description
_sys1.cab	Contains ATF files
_user1.cab	
lang.dat	Used by setup
_isdel.exe	
_setup.dll	

Files	Description
Data.tag	Used by setup
data1.cab	
inst32i.ex	
layout.bin	
os.dat	
setup.bmp	
Setup.exe	
Setup.ini	
setup.ins	
setup.lid	

CDE Installed Files

The following CDE files are installed with this product release:

Typical Install Directory	Files	Description
\Program Files\EMC\ATF	**atf_console.exe**	CDE utility to view event log in real time
	atf_control.exe	CDE utility to show whether CDE or ATF is installed
	aft_restore.exe	CDE restore utility
	atf_trespass.exe	CDE utility to trespass LUNs
	DelsL1.isu	Used by Install Shield
%SystemRoot%\system32\drivers%	**clatf.sys**	CDE driver

Installation Instructions

For installation instructions, refer to the *Fibre Channel PCI HBA and Driver for Windows NT Installation Guide* (P/N 014003033).

Copyright © EMC Corporation 2000, 2001. All rights reserved
Revision 02, February 2001

This document and the related software product are the exclusive property of EMC Corporation and may be used only by users properly licensed to use the software product and only according to the terms of that license. Use of the software product constitutes acceptance of those license terms.

Trademark Information

EMC^2, EMC, CLARiiON, and Navisphere are registered trademarks of EMC Corporation.
Other trademarks are the property of their respective owners.