ETERNUS
Disk storage systems

Server Connection Guide
(FCoE)

for Windows®

Driver Settings
for Emulex Converged Network Adapter Cards

FUJITSU
Preface

This document briefly explains the operations that need to be performed by the user in order to connect an ETERNUS2000 model 100 or 200, ETERNUS4000 model 300, 400, 500, or 600, or ETERNUS8000 model 700, 800, 900, 1100, 1200, 2100, or 2200 Disk storage system to a server running Windows® and using Emulex Converged Network Adapter cards via an FCoE interface.

This document should be used in conjunction with other applicable user manuals such as those for the ETERNUS2000 model 100 or 200, ETERNUS4000 model 300, 400, 500, or 600, or ETERNUS8000 model 700, 800, 900, 1100, 1200, 2100, or 2200 Disk storage system, server, OS used, Converged Network Adapter cards, drivers, etc.

Note that this manual refers the following documents.

• Server Support Matrix
• ETERNUS Disk storage systems Server Connection Guide (Fibre Channel)
• ETERNUS Disk Storage System Settings
• ETERNUS Disk storage systems Server Connection Guide (FCoE) for Windows®

Also, note that in this document the ETERNUS2000 models 100 and 200, ETERNUS4000 models 300, 400, 500, and 600, and ETERNUS8000 models 700, 800, 900, 1100, 1200, 2100, and 2200 Disk storage systems are collectively referred to as ETERNUS Disk storage systems.

The Contents and Structure of this Manual

This document is composed of the following six chapters and an appendix.

• Chapter 1   Workflow
  This describes how to set up the server and Emulex Converged Network Adapter card driver when connecting the ETERNUS Disk storage systems to the server via Emulex Converged Network Adapter cards.

• Chapter 2   Installing the Converged Network Adapter Card
  This describes how to install a Converged Network Adapter card.

• Chapter 3   Installing the Drivers
  This describes how to install the Converged Network Adapter card drivers.

• Chapter 4   Checking the Driver Version
  This describes how to check the driver version.

• Chapter 5   Setting Up the Driver Parameters
  This describes how to set up the driver parameters.
Safe Use of this Product

Using this manual

This manual contains important information to ensure the safe use of this product. Be sure to thoroughly read and understand its contents before using the product. After reading, store this manual in a safe place for future reference.

FUJITSU has made every effort to ensure the safety of the users and other personnel, and to prevent property damage. When using this product, carefully follow the instructions described in this manual.

Acknowledgments

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- Emulex is a trademark of Emulex Corp.
- The company names, product names and service names mentioned in this document are registered trademarks or trademarks of their respective companies.

Naming Conventions

Product names

- "Windows Server® 2008 R2" represents the following products.
  - Microsoft® Windows® Web Server 2008 R2
  - Microsoft® Windows Server® 2008 R2 Standard
  - Microsoft® Windows Server® 2008 R2 Enterprise
  - Microsoft® Windows Server® 2008 R2 Datacenter
  - Microsoft® Windows® HPC Server 2008 R2
- "Windows Server® 2008" represents the following products.
  - Microsoft® Windows Server® 2008 Standard
  - Microsoft® Windows Server® 2008 Enterprise
  - Microsoft® Windows Server® 2008 Datacenter
  - Microsoft® Windows® HPC Server 2008
• "Windows Server® 2003" represents the following products.
  - Microsoft® Windows Server® 2003, Enterprise Edition
  - Microsoft® Windows Server® 2003, Standard x64 Edition
  - Microsoft® Windows Server® 2003, Enterprise x64 Edition
  - Microsoft® Windows Server® 2003 R2, Standard Edition
  - Microsoft® Windows Server® 2003 R2, Enterprise Edition
  - Microsoft® Windows Server® 2003 R2, Standard x64 Edition
  - Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition
  - Microsoft® Windows® Storage Server 2003 R2, Standard Edition
  - Microsoft® Windows® Storage Server 2003 R2, Enterprise Edition
  - Microsoft® Windows® Storage Server 2003 R2, Standard x64 Edition
  - Microsoft® Windows® Storage Server 2003 R2, Enterprise x64 Edition

■ Other names

• "Channel Adapter" (CA) refers to the Fibre Channel interface module used in the ETERNUS Disk storage systems to connect to the server.
• "Converged Network Adapter card" refers to the FCoE interface module normally used in the server.
• Italics are used to show variables such as values and characters that appear in command parameters and output examples.
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Chapter 1  Workflow

This chapter describes how to install and set up Emulex Converged Network Adapter cards.

Workflow

1 Install the Converged Network Adapter Card
   Install the Converged Network Adapter card and its driver, and set up the Converged Network Adapter card.

   Refer
   - “Chapter 2 Installing the Converged Network Adapter Card” (page 9)
   - “Chapter 3 Installing the Drivers” (page 12)
   - “Chapter 4 Checking the Driver Version” (page 13)
   - “Appendix A WWN Instance Management Table for the Server (Blank)” (page 18)
   - Check the driver version.
     • “Server Support Matrix”

2 Set the Converged Network Adapter Card Driver Parameters
   Set the QueueDepth and other parameters.

   Refer
   - “Chapter 5 Setting Up the Driver Parameters” (page 14)
Install the ETERNUS Disk Storage System Driver

If it is required, install the ETERNUS Disk storage system driver.

Refer

- "Chapter 6 Installing the ETERNUS Disk Storage System Driver" (page 17)
- Check the driver-related notes.
  • "ETERNUS Disk storage systems Server Connection Guide (FCoE) for Windows®"

After completing all the required procedures in this manual, follow the procedures in "ETERNUS Disk storage systems Server Connection Guide (FCoE) for Windows®".
Chapter 2 Installing the Converged Network Adapter Card

Install the Converged Network Adapter card to the server, and acquire the physical address and World Wide Name (WWN) for the Converged Network Adapter card. The physical address and WWN of a Converged Network Adapter card are required information in the following cases: when an error has occurred in the system, when using the ETERNUS Disk storage systems (security function, host affinity function, etc.) to restrict server access, or when connecting the ETERNUS Disk storage systems and the server using a Fibre Channel switch and a CEE/FCoE switch.

Acquire the physical address and WWN when installing the Converged Network Adapter card, because they cannot be determined from BIOS and OS. Physical address and WWN must be assigned to "WWN instance management table for the server".

(1) Install the Converged Network Adapter card
(2) Turn on the server
(3) Acquire the physical address and WWN for the Converged Network Adapter card
(4) Add a record for the server in the WWN instance management table for the server

When installing two or more Converged Network Adapter cards to the server, first turn off the server, then repeat Steps (1) through (4) above for each Converged Network Adapter card to be installed.

The procedure is as follows.

Procedure

1. Install the Converged Network Adapter card to the server.
   For the installation method, slot positions and notes regarding the Converged Network Adapter card, refer to the Converged Network Adapter card documentation or the User Guide of the server.

2. Turn on the server, and press the [Alt] + [E] or [Ctrl] + [E] keys while the following message is displayed.

   !!! Emulex OneConnect FCoE BIOS !!!, Version 4.01a0
   Copyright (c) 1997-2010 Emulex. All rights reserved.
   Press <Alt E> or <Ctrl E> to enter Emulex BIOS configuration utility. Press <s> to skip Emulex BIOS

   Emulex OneConnect FCoE BIOS Utility starts.
3 Select the Converged Network Adapter card from which information is to be obtained with the [↑] and [↓] keys. Press the [Enter] key.

4 Check the [Mem Base] and [Port Name] values. The value of [Mem Base] is the physical address and the value of [Port Name] is WWN.

<table>
<thead>
<tr>
<th>Physical address</th>
<th>Mem Base:</th>
<th>Firmware Version:</th>
<th>BIOS:</th>
<th>Port Name:</th>
<th>Node Name:</th>
<th>Vlan ID:</th>
<th>DCBX mode:</th>
<th>Converged Network Adapter card WWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emulex OneConnect FCoE BIOS Utility, XB4.01a0</td>
<td>F94C0000</td>
<td>2.702.200.17</td>
<td>Disabled!</td>
<td>10000000C99CDD9B</td>
<td>20000000C99CDD9B</td>
<td>1002</td>
<td>CEE mode</td>
<td></td>
</tr>
</tbody>
</table>

5 Record the physical address and WWN in the "WWN instance management table for the server". This table is provided in "Appendix A WWN Instance Management Table for the Server (Blank)" (page 18).

The following shows an example of this.

<table>
<thead>
<tr>
<th>Physical slot name</th>
<th>Converged Network Adapter card WWN</th>
<th>Instance name</th>
<th>Physical address</th>
<th>Cable tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot0</td>
<td>10 00 00 00 C9 9C DD 9B</td>
<td></td>
<td>F94C0000</td>
<td></td>
</tr>
</tbody>
</table>

Details of contents

The details of contents for the WWN instance management table for the server are as follows:

- **Host name**: Record the host name.
- **IP address**: Record the IP address of the server.
- **Physical slot name**: Record the slot position of installed Converged Network Adapter card. For the installation location, refer to the User Guide for each server.
- **Converged Network Adapter card WWN**: Record the value of [Port Name] checked in Step 4.
- **Instance name**: Not necessary to record.
- **Physical address**: Record the value of [Mem Base] checked in Step 4.
- **Cable tag**: Record a tag name which indicates the connection path (relationship between the connected device and the port).
Press the [ESC] key.

Exit Emulex OneConnect FCoE BIOS Utility.
When installing two or more Converged Network Adapter cards to the server, first turn off the server, then repeat Step 1 through Step 6 shown here for each Converged Network Adapter card to be installed.

**Caution**

If two or more Converged Network Adapter cards have already been installed in the server at the time of purchase, the one-to-one relationship between the WWNs and Converged Network Adapter cards may not be easy to determine. The correct WWPNs need to be registered and set up on the ETERNUS Disk storage system for a server to recognize the ETERNUS Disk storage system logical disks. If logical volumes are not recognized by a server, the WWPN may be registered to an incorrect CM/CA Port. The WWN field on the WWN Registration may be useful in identifying which Converged Network Adapter card is connected to which CM/CA Port. For most (but not all) configurations, the WWN field lists the WWNs of accessible Converged Network Adapter cards.

Refer to "ETERNUS Disk storage systems Server Connection Guide (Fibre Channel) ETERNUS Disk Storage System Settings" for details about ETERNUS Disk storage system settings.

End of procedure
Chapter 3   Installing the Drivers

Refer to the Converged Network Adapter card documentation for details on how to obtain and install the Converged Network Adapter card driver.
Chapter 4  Checking the Driver Version

Use the Device Manager to check the version of the Converged Network Adapter card driver.

**Procedure**

1. In the Device Manager go to [Storage controllers], and display the [Properties] of the Converged Network Adapter card.
2. Select the [Driver] tab, and display the [Driver Details].
3. Select the driver file (elxcna.sys), and check its [File version].

**Caution**  
If a different driver version is displayed from that shown in "Server Support Matrix", reinstall the driver.

End of procedure
Chapter 5  Setting Up the Driver Parameters

Various Converged Network Adapter card driver parameters now need to be set.

5.1  Setting Up the Driver Parameters

5.1.1  For OCE10102 Converged Network Adapter Cards

Procedure

1  Install OneCommand Manager.
   For installation, refer to the Converged Network Adapter card documentation.

2  Start OneCommand Manager.

3  Select the target port and click the [Driver Parameters] tab.

When the same parameter values are to be set for all the ports (common setting), select the target server instead of the target port and click the [Driver Parameters] tab.
4. Check the parameter values in the [Adapter Parameter] list. Compare with the parameter values in the following table, and correct the current value if necessary. Select the parameter whose value is to be corrected from the [Adapter Parameter] list and modify the value in the [Modify Adapter Parameter] area.

<table>
<thead>
<tr>
<th>Converged Network Adapter card</th>
<th>Value</th>
<th>QueueTarget</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCe10102</td>
<td>ETERNUS2000</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- Calculated value (*1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETERNUS4000, ETERNUS8000</td>
<td>254</td>
</tr>
</tbody>
</table>

*1: Use the following formula to calculate the proper setting value:
Value = 40 / (No. of Server-side Fibre Channel ports connected to each ETERNUS Disk storage system-side CA port) (Round the result down)
Use the value of "8" if the actual result is lower.

**Caution**
Do not modify any parameters other than those described here.

The following describes each parameter:
- "QueueDepth" parameter
  Set the command queue depth.
- "QueueTarget" parameter
  Set to specify the command queue depth to either the LUN or to the target.

5. After the values have been modified, click the [Apply] button. Values that have been modified but not yet applied are displayed in red in the [Adapter Parameter] column. Click the [Apply] button.

6. If there are multiple ports, repeat Step 2 through Step 5 to change the settings for all ports.
7 After all the ports have been set, select [Exit] from the [File] menu to quit OneCommand Manager.

End of procedure
Chapter 6  Installing the ETERNUS Disk Storage System Driver

Install the driver for ETERNUS Disk storage systems to the server if necessary.

- Refer to "Driver Notes" section in "ETERNUS Disk storage systems Server Connection Guide (FCoE) for Windows®" for notes on each driver. This section applies when using path redundancy control (path fail-over) for a multipath connected ETERNUS Disk storage system or when connecting the ETERNUS Disk storage system to the server via single-path.

- For details on how to install, uninstall, set up and operate the ETERNUS Disk storage systems' driver, refer to the documentation provided with the software.
Appendix A WWN Instance Management Table for the Server (Blank)

This table is used in "Chapter 2 Installing the Converged Network Adapter Card" (page 9), and should be used as necessary.

<table>
<thead>
<tr>
<th>WWN instance management table for the server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host name</td>
</tr>
<tr>
<td>Physical slot name</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
ETERNUS Disk storage systems
Server Connection Guide (FCoE) for Windows®
Driver Settings for Emulex Converged Network Adapter Cards

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