Emulex Drivers for VMware ESXi 5.0

User Manual

P007001-03A Rev. A

Emulex Connects™
Servers, Storage and People

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Supported Driver Versions

Driver Version	Comments
FC/FCoE Drivers	
8.2.2.105.36	This is the initial release of this driver and it ships inbox.
Ethernet Drivers	
4.0.355.1	This is the initial release of this driver and it ships inbox.
iSCSI Drivers	
4.0.317.1	This is the initial release of this driver and it ships inbox.

Installation 1
Driver Information 1
Supported Features 1
New Features in this Release 2
Prerequisites 2
Compatibility 2
Known Issues 2
Installing the FC/FCoE Driver 2
Introduction 2
Installing the FC/FCoE Driver and Management Software 2
Uninstalling the FC/FCoE Driver 2
Installing or Uninstalling the OCM for VMware vCenter Software Plug-in 2
Installing the NIC Driver 3
Introduction 3
Installing the NIC Driver and Management Software 3
Virtualization Features 3
Enabling the NetQueue Feature 3
How an ESXi Server Creates and Names Interfaces 3
Configuring VLANs 4
Configuring Network Heap Size in ESXi Server 4
Interrogating the NIC Driver 4
Installing the iSCSI Driver 5
Introduction 5
Installing the iSCSI Driver and Management Software 5
Updating the Drivers with VMware Offline Bundle Media 5
Configuration 6
Introduction to FC/FCoE Configuration 6
Temporary FC/FCoE Configuration Methods Using Native ESXi Tools 6
Permanent FC/FCoE Configuration Methods Using Native ESXi Tools 6
Dynamically Adding LUNs and Targets 7
Emulex FC/FCoE Driver Configuration Parameters 8
Creating a Fibre Channel Remote Boot Disk 10
Managing the ESXi Server Through the CIM Interface 10
Working with VPorts (Virtual Ports) 10
Creating, Deleting and Displaying VPorts 10
NIC Network Driver Performance Tuning 10
Using vmxnet Emulation, Enabling Jumbo Frames, and TSO 10
Configuring a Virtual Switch to Use Jumbo Frames 11
Setting the MTU Size in the vSwitch 11
Setting the MTU Size for a Linux Guest Operating System 11
Setting the MTU Size for a Windows Guest Operating System 11
Pinning VMs and Interrupts to CPUs 12
Troubleshooting 13
Introduction 13
FC/FCoE Troubleshooting 13
General Situations 13
lpfc Log Messages 14

Introduction 14
Message Log Example 15
ELS Events 15
Link Discovery Events 17
Mailbox Events 23
Initialization Events 30
Node Table Events 41
Miscellaneous and FCoE Events 41
Link Events 41
Port Setup Events 42
IOCTL Events 46
VPort Events 46
ELS Events 49
New Events 67
General Error Messages 69
NIC Troubleshooting 70
NIC Event/Error Logging 70
Retrieving ESXi Server NIC Error Log Codes 70
ESXi Server NIC Event Log Entries 71
NIC Adapter Firmware Error 72
CIM Provider Troubleshooting 73
Appendix A: DHCP Recommendations 74

Installation

Driver Information

Supported Features

- Supports all Emulex® adapters
- Supports dynamic parameter setting using OneCommand™ Manager for VMware vCenter (OCM for VMware vCenter) software plug-in from Emulex. This GUI configuration utility enables driver configuration including:
  - Support for the Common Information Model (CIM) interface through OCM for VMware vCenter
  - Out-of-band (TCP/IP) remote storage area network (SAN) management capability
  - Diagnostics (loopback and diagnostic dump)
  - LUN (logical unit number) masking
  - Virtual port support

  Refer to the OneCommand Manager for VMware vCenter User Manual for a complete list of supported features.
- Supports the following protocols:
  - Network interface card (NIC)
  - Fibre Channel (FC)/Fibre Channel over Ethernet (FCoE)
  - Fibre Channel initiator mode
  - Internet Small Computer System Interface (iSCSI)-Fibre Channel Protocol (FCP)
  - FCP-2
- Storage Network Industry Association - Conformance Testing Program (SNIA-CTP) compliant Storage Management Initiative Specification (SMI-S) Version 1.1 Provider
- Supports the following topologies:
  - FC-AL (Fibre Channel Arbitrated Loop)
  - Point-to-point
  - Fabric with auto-topology negotiation
- Supports FC in-band management
- Supports 1, 2, 4, 8, and 10-Gb/s capable adapters with auto-rate negotiation (1 Gb/s is not supported on 8 Gb/s adapters)
- Tested with up to sixteen adapter ports
- Supports Common HBA API
- Batch firmware download capability
- Supports Reinstating Recovery Qualifiers (RRQ) for Extended Link Service (ELS)
- Supports Peripheral Component Interconnect Express (PCI) hot-plug (vendor-specific)
- Supports VPD (Vital Product Data)
- Supports NPIV (N_Port ID Virtualization)
- Adapter personality change support
- Supports iSCSI hardware offload

New Features in this Release

- This is the initial release of this driver for ESXi 5.0.

Prerequisites

- There are no prerequisites at this time.

Compatibility

- For a list of adapters that are compatible with this driver, see the driver Downloads page on the Emulex website. For compatible firmware versions, see the Downloads page for the specific adapter.

Known Issues

- See the product release notes for the latest information.

Installing the FC/FCoE Driver

Introduction

Before using this product, you need a working knowledge of FC/FCoE, TOE (TCP Offload Engine) technology, and the fundamentals of network storage devices.

Installing the FC/FCoE Driver and Management Software

The Emulex driver is available inbox with the initial release of ESXi 5.0. Refer to the operating system guide for installation instructions.

Note: Before installing the driver and management software, verify that the firmware version is correct. If it is, proceed with the installation. If it is not, you must update the firmware and OCM for VMware vCenter software plug-in. To do this, the OneCommand Manager Core Kit must be installed and the CIM Provider feature must be enabled. Once you update the firmware and OCM for VMware vCenter software plug-in, reboot your system before proceeding with the installation. For more information on enabling the CIM Provider, see the OneCommand Manager Application User Manual.

Uninstalling the FC/FCoE Driver

See the VMware operating system documentation for instructions.

Installing or Uninstalling the OCM for VMware vCenter Software Plug-in

See the OneCommand Manager for VMware vCenter User Manual for instructions.

Installing the NIC Driver

Introduction

Before using this product, you need a working knowledge of NIC, TOE (TCP Offload Engine) technology, and the fundamentals of network storage devices.

Installing the NIC Driver and Management Software

The Emulex driver is available inbox with the initial release of ESXi 5.0. Refer to the operating system guide for installation instructions.

Note: Before installing the OCM for VMware vCenter software plug-in, you must install the NIC driver from the VMware software website.

Note: Before installing the driver and management software, verify that the firmware version is correct. If it is, proceed with the installation. If it is not, you must update the firmware and OCM for VMware vCenter software plug-in. To do this, the OneCommand Manager Core Kit must be installed and the CIM Provider feature must be enabled. Once you update the firmware and OCM for VMware vCenter software plug-in, reboot your system before proceeding with the installation. For more information on enabling the CIM Provider, see the OneCommand Manager Application User Manual.

Virtualization Features

For the best performance, you must install VMware Tools in each guest operating system. For information on installing VMware Tools in a Linux or Windows guest operating system, refer to the VMware ESXi Server 5.0 documentation.

Enabling the NetQueue Feature

To use the multiple interface feature in ESXi Server, you must enable the NetQueue feature in ESXi Server. The NetQueue feature is enabled by default.

- To check if NetQueue is enabled, run the following command from the ESXi Server console:

  ```
  # esxcfg-advcfg -j netNetqueueEnabled
  ```

  If it prints 'netNetqueueEnabled = FALSE', the feature is disabled.
- To enable NetQueue, run the following command:

  ```
  # esxcfg-advcfg -k TRUE netNetqueueEnabled
  ```

Reboot the ESXi Server for the change to take effect.

How an ESXi Server Creates and Names Interfaces

The NIC driver supports a maximum of four Universal Converged Network Adapters (UCNAs) per system. For dual-channel UCNAs running in standard operating mode, the driver creates two interfaces (one for each physical port). The first and second interfaces are respectively named vmnic0 and vmnic1 (assuming there are no other network interfaces in your configuration). The same applies to virtual NIC (vNIC)-capable UCNAs when vNIC mode is disabled in the adapter BIOS (for those boards that support vNIC).

When vNIC mode is enabled in the adapter BIOS and the UCNA is in NIC only mode, the driver creates eight interfaces (four for each physical port). When vNIC mode is enabled in the adapter BIOS and the UCNA is in FCoE or iSCSI mode, the driver creates only six NIC interfaces. The other two interfaces are reserved for the FCoE and iSCSI. The interfaces are labeled vmnic0 through vmnic7 (assuming there are no other network interfaces in the configuration). All eight vNICs are fully functional and support the same feature set as a standard NIC. The vNICs can also be linked to a virtual switch in the same way:

```
# esxcfg-nics -l //list recognized nics
# esxcfg-vswitch -l //list available vswitches
# esxcfg-vswitch -a vSwitch0 //create vSwitch0
# esxcfg-vswitch -A VMNet0 vSwitch0 //create virtual machine network, VMNet0 and
add it to vSwitch0
# esxcfg-vswitch -L vmnic0 vSwitch0 //link vmnic0 to vSwitch0
```

The only difference is that in vNIC mode each of the four vNICs tied to a physical port share the port's 10GbE bandwidth.

Configuring VLANs

The OneCommand Manager application supports virtual local area network (VLAN) filtering in the hardware. To configure VLANs on a OneConnect™ interface, create the vSwitch with the required VLAN ID and use this interface as an adapter to this vSwitch. A native VLAN can also be configured in the guest operating system in VGT (Virtual Guest Tagging) mode. (For example, using vconfig in the Linux guest operating system.)

Configuring Network Heap Size in ESXi Server

The amount of memory allocated by default for a network heap depends on the amount of memory configured in the system. The ESXi Server network stack allocates a minimum of 64MB to the network heap to handle network data. More memory is allocated to the network heap if the system is configured with more memory. If the network load requires more than 64MB of memory, the OneConnect driver cannot allocate it. When this happens, the driver logs messages in the file /proc/vmware/log indicating that the alloc_skb() call failed. This impacts network performance considerably.

- To read the current size of the network heap, run:

  ```
  # esxcfg-advcfg -j netPktHeapMaxSize
  netPktHeapMaxSize = 0
  #
  ```

- If the default value of 64MB is in effect, this command shows the size as 0. If any other value is in effect, the command prints that value.
- For example, to set the heap size to 128MB, run the command:

  ```
  # esxcfg-advcfg -k 128 netPktHeapMaxSize
  # esxcfg-advcfg -j netPktHeapMaxSize
  netPktHeapMaxSize = 128
  #
  ```

Reboot for this new value to take effect.

Interrogating the NIC Driver

To get information on the installed NIC driver, enter:

```
esxcli software vib list | grep be2net
```

This is a sample output:

```
esxcli software vib list | grep be2net
net-be2net   4.0.227.1-1OEM.369055  Emulex  CommunitySupported  2011-05-31
```

Installing the iSCSI Driver

Introduction

Before using this product, you need a working knowledge of iSCSI, TOE technology, and the fundamentals of network storage devices.

Installing the iSCSI Driver and Management Software

The Emulex driver is available inbox with the initial release of ESXi 5.0. Refer to the operating system guide for installation instructions.

Note: Before installing the OCM for VMware vCenter software plug-in, you must install the iSCSI driver from the VMware software website.

Note: Before installing the driver and management software, verify that the firmware version is correct. If it is, proceed with the installation. If it is not, you must update the firmware and OCM for VMware vCenter software plug-in. To do this, the OneCommand Manager Core Kit must be installed and the CIM Provider feature must be enabled. Once you update the firmware and OCM for VMware vCenter software plug-in, reboot your system before proceeding with the installation. For more information on enabling the CIM Provider, see the OneCommand Manager Application User Manual.

Updating the Drivers with VMware Offline Bundle Media

Note: VMware recommends using the offline bundle to upgrade software on VMware platforms. For more information about the ESXi Patch Management activities, refer to the VMware website.

To update a driver with the offline bundle media:

1. Run the following command:

   ```
   esxcli software vib install -d <absolute_path_to_bundle>/<driver_name>-offline-bundle.zip
   ```

   where <driver_name> represents the FC/FCoE, NIC or iSCSI driver.

   For example, to update the FC/FCoE driver the command is:

   ```
   esxcli software vib install -d <absolute_path_to_bundle>/Emulex-FCoE-FC-lpfc820-offline-bundle.zip
   ```

2. Reboot the VMware ESXi Server to activate the new drivers.

Configuration

Introduction to FC/FCoE Configuration

This document describes how to configure driver parameters using native ESXi tools. For a more comprehensive description of ESXi tools, refer to VMware's public website. If you have further questions, contact a VMware technical support representative.

Temporary FC/FCoE Configuration Methods Using Native ESXi Tools

There are four ways to configure the driver parameters:

- Permanent (global)
- Permanent (per adapter)
- Temporary (global)
- Temporary (per adapter)

Permanent FC/FCoE Configuration Methods Using Native ESXi Tools

Permanent configuration requires that the new values be saved in the ESXi environment. These changes are considered permanent because they stay in effect across system reboots.

To make changes that impact all adapters in the system (global changes), follow these steps. See "FC/FCoE Driver Configuration Parameters" on page 8 for parameter names and values. Parameter values are in both hexadecimal and decimal.

Note: The following steps must be executed from the Troubleshooting Administrative Shell environment because ESXi 5.0 does not provide a COS environment. If your configuration does not provide access to this shell, refer to VMware's vSphere™ or VMware's vCenter™ server manual for enabling driver logging. Alternatively, refer to Emulex's CIM provider documentation for driver logging.

1. From the Console Operating System (COS) terminal window type:

   `esxcfg-module -s "param=value param2=value..." <driver_name>`

   The <*driver_name*> is obtained from the `vmkload_mod -l` call. Look for the "lpfc" prefix.

2. Reboot the server. Type:

   `reboot`

Note: VMware does not officially support unloading the driver via vmkload_mod -u. If you must unload the driver, contact VMware technical support.

Note: NPIV port creation and deletion are performed by the VMware vSphere client or Virtual Center service. Refer to the VMware documentation for more information.

Example of Permanent Global Configuration

The following example sets lun_queue_depth (the maximum number of commands that can be sent to a single LUN) to 20 (default is 30) for all Emulex adapters in your system.

1. Locate the parameter lpfc_lun_queue_depth in Table 1 on page 8.

2. Set the permanent value. Type:

   ```
   esxcfg-module -s "lpfc_lun_queue_depth=20" lpfc820
   ```

3. Reboot the server. Type:

   ```
   reboot
   ```

   The new setting is used when the driver reloads.

   To verify the setting type:

   ```
   esxcfg-module -g lpfc820
   ```

Example of Permanent Per-Adapter Configuration

The following example sets lun_queue_depth to 20 for adapter #1.

1. Set the adapter-specific value. Type:

   ```
   esxcfg-module -s "lpfc1_lun_queue_depth=20" lpfc820
   ```

2. Reboot the server. Type:

   ```
   reboot
   ```

   The new setting is used when the driver reloads.

   To verify the setting type:

   ```
   esxcfg-module -g lpfc820
   ```

The following example sets lun_queue_depth to 20 for adapter #1 and lun_queue_depth to 10 for adapter #2.

1. Set the adapter-specific value. Type:

   ```
   esxcfg-module -s "lpfc1_lun_queue_depth=20 lpfc2_lun_queue_depth=10" lpfc820
   ```

   Note: Type the command all on one line without a carriage return.

2. Reboot the server. Type:

   ```
   reboot
   ```

   The new settings are used when the driver reloads.

   To verify the settings type:

   ```
   esxcfg-module -g lpfc820
   ```

Dynamically Adding LUNs and Targets

For instructions on dynamically adding LUNs and targets, refer to the “Using Rescan” section of the VMware SAN Config documentation.

Emulex FC/FCoE Driver Configuration Parameters

All adapter-specific parameters have an lpfc*X*_ prefix (where *X* is the driver instance number). For example, setting lpfc0_lun_queue_depth=20 makes 20 the default maximum number of commands that can be sent to a single logical unit (disk) for lpfc instance 0.

Dynamic parameters do not require a system reboot for changes to take effect.

Table 1: FC/FCoE Driver Configuration Parameters

Variable	Default	Min	Max	Dynamic	Comments
lpfc_hba_queue_depth	8192	32	8192	No	The maximum number of FCP commands that can be queued to an Emulex adapter. The value cannot exceed what the adapter supports.
lpfc_ack0	0	0=Off	1=On	No	Uses ACK0 for class 2.
lpfc_discovery_threads	32	1	64	No	The maximum number of PLOGI commands that can be outstanding for a discovery.
lpfc_fcp_class	3	2	3	No	FC class for FCP data transmission.
lpfc_fdmi_on	0	0	2	Yes	False (0) is disabled. (1) or (2) is enabled, depending on type of support needed.
lpfc_link_speed	0	0=auto select 1=1 Gb/s 2=2 Gb/s 4=4 Gb/s 8=8 Gb/s		No	Sets link speed. **Note:** Not supported for FCoE.
lpfc_log_verbose	0x0	0x0	0x7fffffff	Yes	Extra activity logging (bit mask).
lpfc_lun_queue_depth	30	1	128	Yes	Default max commands sent to a single logical unit (disk).
lpfc_max_scsicmpl_time	0	0	60000	Yes	Limits SCSI command completion time (in mS) to control I/O queue depth. The default (0) means the SCSI layer maintains control.
lpfc_scan_down	1	0=Off	1=On	No	Selects a method for scanning ALPA to assign a SCSI ID.

Table 1: FC/FCoE Driver Configuration Parameters (Continued)

Variable	Default	Min	Max	Dynamic	Comments
lpfc_tgt_queue_depth	8192	10	8192	No	The default maximum number of commands sent to a single target. By default, there is no effective limit at the target level.
lpfc_topology	0	0x0=loop then P2P 0x1=internal loopback 0x2=P2P only 0x4=loop only 0x6=P2P then loop		No	FC link topology. (Defaults to loop. If that fails, the driver attempts to link in point-to-point mode). **Note:** Not supported for FCoE.
lpfc_use_adisc	0	0=Off	1=On	Yes	Sends ADISC instead of Port Login (PLOGI) for device discovery or Registered State Change Notification (RSCN).
lpfc_devloss_tmo	10	1	255	Yes	Number of seconds a remote port can drop from the SAN before that port is removed from the driver.
lpfc_use_msi	2	0 = use INTX (min) 1 = use MSI 2 = use MSI-X (max)		No	Selects which interrupt mode to use. By default, the driver uses INTX. VMware guidance is to use MSI-X, but MSI is available.
lpfc_fcp_wq_count	8	1	31	No	Configures the number of fast-path work queues used by the host and port.
lpfc_fcp_eq_count	8	1	31	No	Configures the number of fast-path event queues used by the host and port.
lpfc_sg_seg_count	64	64	256	No	Configures the maximum number of scatter-gather elements the driver accepts in a single SCSI command.
lpfc_iocb_cnt	1	1	5	No	IOCBs allocated for ELS, CT, ABTS in 1024 increments.

Creating a Fibre Channel Remote Boot Disk

For instructions on creating a Fibre Channel remote boot disk, refer to the VMware SAN configuration documentation, “Chapter 6, Using Boot from SAN with ESX Server Systems.”

Managing the ESXi Server Through the CIM Interface

VMware on the Visor-based ESXi platforms uses the CIM interface as the only standard management mechanism for device management. OCM for VMware vCenter plug-in software uses the standard CIM interfaces to manage the adapters in the ESXi COS and Visor environments and supports CIM-based device and adapter management. OCM for VMware vCenter plug-in software also supports existing adapter management functionality based on its proprietary management stack and the standard HBAAPI interface. To manage LightPulse® and UCNA adapters (including updating firmware) on an ESXi host using OCM for VMware vCenter, you must install the out-of-box Emulex CIM Provider on the host.

For more information on installing the OneCommand Manager Core Kit and enabling the CIM Provider, see the OneCommand Manager Application User Manual.

Working with VPorts (Virtual Ports)

Creating, Deleting and Displaying VPorts

The Emulex driver for VMware supports NPIV by default. The only management API for creating and deleting a VPort and creating an NPIV-enabled virtual machine comes from ESXi. VPorts in the driver discover the fabric just like physical ports do, and are subject to the same SAN delays. As the number of VPorts increases, the amount of time it takes to complete remote port discovery increases. This is because the VPorts are created sequentially and each VPort executes discovery synchronously. If your NPIV-enabled virtual machines power-on automatically, powering on could take longer than usual. This is normal for NPIV virtual machines.

Note: Ensure you are using the latest recommended firmware for VPort functionality. Check the Emulex website for the latest firmware.

Note: Loop devices and NPIV are not supported on the same port at the same time. If you are running a loop topology and you create a VPort, the VPort’s link state is *offline*. VMware ESXi supports only fabric mode.

Note: You can create VPorts only on 4 Gb/s, 8 Gb/s, and OneConnect adapters. You cannot create VPorts on 1 Gb/s or 2 Gb/s adapters.

NIC Network Driver Performance Tuning

Network driver performance tuning improves performance of the network and the TCP Offload driver. The UCNA is an x8, Generation 2 ("Gen 2", or Gen2) PCI-Express (PCIe) device and requires substantial system-memory bandwidth to support 10 Gb/s data streams.

Using vmxnet Emulation, Enabling Jumbo Frames, and TSO

The UCNA supports jumbo frames and TSO, both of which are necessary to achieve optimal performance with the UCNA. Also, the use of the vmxnet NIC emulator can provide a significant performance boost. These features are not enabled by default in ESXi Server. To enable these features:

1. Log into the console operating system.

2. For each guest operating system, there is a .vmx file in the path:

   `/vmfs/volumes/*/<VM-NAME>/VM-NAME>.vmx`

   where <*VM-NAME*> is the name of the virtual machine (VM).
3. For each VM, edit this file and add the following line for the OneConnect driver interface:

   `ethernet0.features="15"`
4. To enable vmxnet emulation, add the following line for the OneConnect driver interface:

   `ethernet0.virtualDev="vmxnet"`
5. Restart the VMs.

Steps 1 through 5 assume that eth0 is the interface added to the VM from the OneConnect Network.

Note: The use of vmx NIC emulation requires VMware Tools to be installed in the guest operating systems. For information on installing VMware Tools in a Linux or Windows guest operating system, refer to the VMware ESXi Server documentation.

Configuring a Virtual Switch to Use Jumbo Frames

To use jumbo frames, you must increase the MTU (Maximum Transmission Unit) size in the vSwitch and also in the guest operating system. For the best performance, set the MTU to the maximum supported by the OneConnect driver, which is 9000 bytes. This requires the MTU to be changed in the virtual switch as well as the guest operating systems.

Note: You can configure TCP Segmentation Offload (TSO) and jumbo frames using the vSphere client.

Setting the MTU Size in the vSwitch

To change the MTU to 9000, run the following command for each switch in the console operating system:

```
esxcfg-vswitch vSwitch<N> -m 9000
```

where <*N*> is the number of the switch.

Setting the MTU Size for a Linux Guest Operating System

To set the MTU of the OneConnect driver interface in each Linux Guest operating system to 9000, run the following command:

```
ifconfig eth<N> mtu 9000
```

where <*N*> is the number of the Ethernet interface on which you are working.

Setting the MTU Size for a Windows Guest Operating System

To set the MTU in each Windows guest operating system:

1. Go to the **Start** menu and select **Control Panel** > **System**.
2. Select the **Hardware** tab and open **Device Manager**.
3. Expand the **Network Adapters** heading.
4. Right click on the **NIC**, and select **Properties**.
5. Select the **Advanced** tab and set the MTU value.

Pinning VMs and Interrupts to CPUs

The OneConnect driver supports MSI-X interrupts. The driver requests separate MSI-X interrupt request (IRQ) vectors for each of the interfaces. Pinning VMs and the IRQ vector to a CPU core helps provide the best performance from the OneConnect UCNA. With a multi-core CPU, pinning a VM (and the MSI-X vector of the OneConnect driver interface configured in that VM) to two cores sharing an L2 cache provides the best performance. For example, in a quad core Xeon, CPU0 and CPU1 share a 4MB L2 cache. If you have configured vmnic16 in VM1, for the best performance pin VM1 to CPU0 and the IRQ corresponding to vmnic16 to CPU1.

To pin a VM to a CPU in the VI Client:

1. Power off the VM.
2. Click **Edit Settings** in the **Resources** tab for that VM.
3. Select **Advanced CPU**.
4. In the **Scheduling Affinity** frame, select the CPU to pin it to.
5. Power on the VM.

To pin an IRQ vector to a CPU, run the following command in the console operating system:

```
echo "move <IRQ-NO> <CPU-ID>" > /proc/vmware/intr-tracker
```

You can find the IRQ-NO corresponding to a vmnic by running:

```
cat /proc/vmware/interrupts
```

To see all IRQ Vectors and the CPU to which they are pinned, run:

```
cat /proc/vmware/intr-tracker
```

Troubleshooting

Introduction

There are several circumstances in which your system may operate in an unexpected manner. The Troubleshooting section explains many of these circumstances and offers one or more workarounds for each situation.

FC/FCoE Troubleshooting

General Situations

Table 2. General Driver Situations

Situation	Resolution
Port link fails to come up.	If an FC link fails to come up, verify that an 8 Gb/s adapter is not attempting to connect to a 1 Gb/s device. Only 2, 4 and 8 Gb/s devices are supported on 8 Gb/s adapters. For LP21000 adapters, ensure the adapter is not in maintenance mode and that it is not running the manufacturing firmware. For the OneConnect OCe10100 family of adapters, ensure that the fabric port is enabled.
The Emulex driver is not loaded and all paths are down.	Use the lspci command to determine if the Emulex ports are being properly identified. If not, determine if the driver iso was correctly installed. You must have the correct driver for the installed adapter because the device PCI IDs are installed with the driver package. Examine the /var/log/vmkernel file for lpfc820 log messages indicating an error. In this case contact Emulex technical support.
lpfc driver fails to recognize an adapter and logs "*unknown IOCB*" messages in the system log during driver load. The adapter is running outdated firmware.	Upgrade the adapter firmware to the minimum supported revision (or newer) listed in the installation guide.
System panics when booted with a failed adapter installed.	Remove the failed adapter and reboot.

lpfc Log Messages

Introduction

Log messages have traditionally been organized into logical groups based on code functionality in the FC driver. With the introduction of OneConnect UCNAs by Emulex, that grouping is modified to account for new behaviors. The traditional grouping is maintained, but new messages no longer group together nicely.

The messages provided in this section are unmaskable error conditions. They are automatically added to the system console log.

You can examine the /var/log/vmkernel file to see any of these messages. If you have concerns, the best policy is to execute a vm-support dump and push it to the VMware/Emulex support staff.

Log messages are organized into logical groups based on code functionality within the FC driver. Each group consists of a block of 100 log message numbers. Most groups require a single block of 100 message numbers, however some groups (INIT, FCP) require two blocks.

Table 3, the Message Log table, shows the groups and defines the associated number ranges.

Table 3: Message Log Table

LOG Message Verbose Mask Definition	Verbose Bit	Verbose Description
LOG_ELS	0x1	ELS events
LOG_DISCOVERY	0x2	Link discovery events
LOG_MBOX	0x4	Mailbox events
LOG_INIT	0x8	Initialization events
LOG_LINK_EVENT	0x10	Link events
LOG_FCP	0x40	FCP traffic history
LOG_NODE	0x80	Node table events
LOG_TEMP	0x100	Temperature sensor events
LOG_MISC	0x400	Miscellaneous and FCoE events
LOG_SLI	0x800	SLI events
LOG_FCP_ERRORLOG_	0x1000	Selective FCP events
LOG_LIBDFC	0x2000	IOCTL events
LOG_VPORT	0x4000	NPIV events
LOF_EVENT	0x10000	IOCTL event
LOG_DAEMON	0x20000	IOCTL Daemon events
LOG_FIP	0x40000	FIP FCF events
LOG_PROC	0x80000	Procfs events
LOG_ALL_MSG	0xffffffff	Log all messages

Message Log Example

The following is an example of a LOG message:

```
Jul 2 04:23:34 daffy kernel: lpfc 0000:03:06.0: 0:1305 Link Down
Event x2f2 received Data: x2f2 x20 x110
```

In the above LOG message:

- lpfc 0000:03:06.0: identifies the identifies the PCI location of the particular lpfc hw port.
- 0: identifies Emulex HBA0.
- 1305 identifies the LOG message number.

Note: If the word 'Data:' is present in a LOG message, any information to the right of 'Data:' is intended for Emulex technical support/engineering use only.

Note: Unless otherwise noted in the ACTION: report these errors to Emulex technical support. Emulex requests that when reporting occurrences of these error messages, you provide a tarball of all vmkernel files in /var/log.

ELS Events

elx_mes0100: FLOGI failure Status:<status>/<extended_status> TMO:<timeout>

DESCRIPTION: An ELS FLOGI command that was sent to the fabric failed.
DATA: (1) ulpStatus, (2) ulpWord[4], (3) ulpTimeout
ACTION: This error could indicate a fabric configuration error or internal driver issue. If problems persist, report these errors to Emulex technical support.

elx_mes0111: Dropping received ELS cmd

DESCRIPTION: The driver dropped an ELS Response ring entry. This error could indicate a software driver or firmware problem.
DATA: (1) ulpStatus, (2) ulpWord[4], (3) ulpTimeout
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0113: An FLOGI ELS command <elsCmd> was received from DID <did> in Loop Mode

DESCRIPTION: While in loop mode an unknown or unsupported ELS command was received.
DATA: None
ACTION: Check the device DID.

elx_mes0115: Unknown ELS command <elsCmd> received from N_Port <did>

DESCRIPTION: Received an unsupported ELS command from a remote N_Port.
DATA: None
ACTION: Check remote N_Port for a potential problem.

elx_mes0122 FDISC Failed (x%x). Fabric Detected Bad WWN

DESCRIPTION: Driver's FDISC failed. The switch reported a bad WWN in a FLOGI request. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0124 Retry illegal cmd x%x retry:x%x delay:x%x

DESCRIPTION: A port rejected an ELS command as illegal.The driver is retrying. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0125: FDISC Failed (x%x). Fabric out of resources

DESCRIPTION: The fabric rejected an FDISC because the switch can not support any more Virtual ports.
DATA: None
ACTION: Reconfigure the switch to support more NPIV logins. If problems persist, contact Emulex technical support.

elx_mes0126: FDISC failed (ulpStatus/ulpWord[4])\n

DESCRIPTION: The ELS FDISC command has failed.
DATA: None
ACTION: Check the port and switch configuration.

elx_mes0127: ELS timeout

DESCRIPTION: An ELS IOCB command was posted to a ring and did not complete within ULP timeout seconds.
DATA: (1) elscmd, (2) remote_id, (3) ulpcommand, (4) ulpIoTag
ACTION: If no ELS command is going through the adapter, reboot the system; If problems persist, contact Emulex technical support.

elx_mes0133: PLOGI: no memory for reg_login

DESCRIPTION: Memory allocation error.
DATA: (1) nlp_DID, (2) nlp_state, (3) nlp_flag, (4) nlp_rpi
ACTION: Memory allocation error. Check system resources. Unload unused modules.

elx_mes0134: PLOGI: cannot issue reg_login

DESCRIPTION: The ELS PLOGI mailbox command has failed.
DATA: (1) nlp_DID, (2) nlp_state, (3) nlp_flag, (4) nlp_rpi
ACTION: Check the port and switch configuration.

elx_mes0135: cannot format reg_login

DESCRIPTION: Could not allocate an RPI or DMA buffer for the mailbox command.
DATA: (1) nlp_DID, (2) nlp_state, (3) nlp_flag, (4) nlp_rpi
ACTION: None required.

elx_mes0136: PLOGI completes to N_Port <DID> completion

DESCRIPTION: A PLOGI has completed for which there is no NDLP.
DATA: (1) ulpStatus, (2) ulpWord[4]
ACTION: None required.

elx_mes0137: No retry ELS command <ELS_CMD> to remote

DESCRIPTION:
DATA: (1) ulpStatus, (2) ulpWord[4]
ACTION: None required.

elx_mes0138: ELS rsp: Cannot issue reg_login for <DID>

DESCRIPTION: REG_LOGIN mailbox command failed.
DATA: (1) nlp_DID, (2) nlp_state, (3) nlp_flag, (4) nlp_rpi
ACTION: None required.

elx_mes0140: PLOGI Reject: invalid nname

DESCRIPTION: An invalid node WWN was provided.
DATA: None
ACTION: None required.

elx_mes0141: PLOGI Reject: invalid pname

DESCRIPTION: An invalid port WWN was provided.
DATA: None
ACTION: None required.

elx_mes0142: PLOGI RSP: Invalid WWN

DESCRIPTION: The remote port set a PLOGI to a port with an invalid WWN.
DATA: None
ACTION: None required.

elx_mes0144: Not a valid WCQE code: <Completion Code>

DESCRIPTION: The completion queue handler detected an invalid type.
DATA: None
ACTION: None required.

elx_mes0147: Failed to allocate memory for RSCN event

DESCRIPTION: Memory could not be allocated to send the RSCN event to the management application.
DATA: None
ACTION: None required.

elx_mes0148: Failed to allocate memory for LOGO event

DESCRIPTION: Memory could not be allocated to send the LOGO event to the FC transport.
DATA: None
ACTION: None required.

elx_mes0150 SLI4 Adapter Hardware Error Data: x%x x%x

DESCRIPTION: Driver detected a hardware error in an SLI-4 capable port. This is a software driver error.
DATA: (1) error 1 (2) error 2
ACTION: If problems persist, report these errors to Emulex technical support.

Link Discovery Events

elx_mes0200: CONFIG_LINK bad hba state <hba_state>

DESCRIPTION: A CONFIG_LINK mbox command completed and the driver was not in the correct state. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0203: Devloss timeout on WWPN <address> N_Port <nlp_DID>

DESCRIPTION: A remote N_Port that was discovered by the driver disappeared for more than lpfc_devloss_tmo seconds.
DATA: (1) nlp_flag, (2) nlp_state, (3) nlp_rpi
ACTION: If the device generating this message is not a target to which the adapter is connected, this error does not affect the data integrity of the I/O between the adapter and the attached storage and can be ignored.

elx_mes0206: Device discovery completion error

DESCRIPTION: An incorrectable error was encountered during device (re)discovery after a link up. Fibre Channel devices are not accessible.
DATA: None
ACTION: Reboot the system. If problems persist, report errors to Emulex technical support. Run with verbose mode on for more details.

elx_mes0207: Device <DID> (<WWN>) sent invalid service parameters. Ignoring device

DESCRIPTION: Invalid service parameters were received from DID. Ignoring this remote port.
DATA: DID, WWN
ACTION: Verify the remote port's configuration. If problems persist, report errors to Emulex technical support. Run with verbose mode on for more details.

elx_mes0222: Initial FLOG/FDISKI timeout

DESCRIPTION: The driver sent the initial FLOGI or FDISK to the fabric and never received a response.
DATA: None
ACTION: Check fabric configuration. The driver recovers and continues with device discovery.

elx_mes0223: Timeout while waiting for NameServer login

DESCRIPTION: The login request to the NameServer was not acknowledged within R_A_TOV.
DATA: None
ACTION: Check the fabric configuration. The driver recovers and continues with device discovery.

elx_mes0224: NameServer Query timeout

DESCRIPTION: Node authentication timeout, node discovery timeout. A NameServer query to the fabric or discovery of reported remote N_Ports is not acknowledged within R_A_TOV.
DATA: (1) fc_ns_retry, (2) fc_max_ns_retry
ACTION: Check the fabric configuration. The driver recovers and continues with device discovery.

elx_mes0227: Node Authentication timeout

DESCRIPTION: The driver has lost track of what N_Ports are being authenticated.
DATA: None
ACTION: None required. The driver should recover from this event.

elx_mes0228: CLEAR LA timeout

DESCRIPTION: The driver issued a CLEAR_LA that never completed.
DATA: None
ACTION: None required. The driver should recover from this event.

elx_mes0230: Unexpected timeout, hba linkstate <link_state>

DESCRIPTION: Discovery has timed out and the adapter state is not ready.
DATA: None
ACTION: None required.

elx_mes0231: RSCN timeout

DESCRIPTION: The driver has lost track of what N_Ports have RSCNs pending.
DATA: (1) fc_ns_retry, (2) lpfc_max_ns_retry
ACTION: None required. The driver should recover from this event.

elx_mes0233: Nodelist not empty

DESCRIPTION: Driver unloaded or a hotplug detected a node was still in use.
DATA: None
ACTION: None required.

elx_mes0237:Pending Link Event during Discovery: State x%x

DESCRIPTION: The driver logged a link event while executing SAN discovery. The link event is pending.
DATA: None
ACTION: None required.

elx_mes0241:NameServer Rsp Error

DESCRIPTION: The driver sent the NameServer a request, but the response returned an error.
DATA: None
ACTION: None. The driver will retry the command. Should the discovery continue to fail, contact Emulex technical support.

elx_mes0246: RegLogin failed

DESCRIPTION: The firmware returned a failure for the specified RegLogin.
DATA: (1) Did, (2) mbxStatus, (3) hbaState
ACTION: This message indicates that the firmware could not do a RegLogin for the specified Did. There may be a limitation on how many nodes an adapter can see.

elx_mes0249: Cannot issue Register Fabric login: Err <err>

DESCRIPTION: Could not issue the fabric RegLogin; the error value is unique for each possible failure.
DATA: None
ACTION: None required.

elx_mes0251: NameServer login: no memory

DESCRIPTION: Could not allocate memory for the NDLP structure.
DATA: None
ACTION: None required.

elx_mes0252: Cannot issue NameServer login

DESCRIPTION: Could not issue an ELS PLOGI to the nameserver DID.
DATA: None
ACTION: Check the port connection and switch configuration.

elx_mes0253: Register VPI: Can’t send mbox

DESCRIPTION: Could not issue the REG_LOGIN command for this VPort.
DATA: None
ACTION: None required.

elx_mes0254: Register VPI: no memory" goto mbox_err_exit

DESCRIPTION: Could not allocate memory for the REG_LOGIN mailbox command.
DATA: None
ACTION: None required.

elx_mes0255: Issue FDISC: no IOCB

DESCRIPTION: All of the pre-allocated IOCBs are in use.
DATA: None
ACTION: None required.

elx_mes0256: Issue FDISC: Cannot send IOCB

DESCRIPTION: Unable to send the fabric IOCB.
DATA: None
ACTION: Check the switch configuration.

elx_mes0257: GID_FT Query error: <ulpStatus> <fc_ns_retry>

DESCRIPTION: The GID_FT CT request for the nameserver has failed.
DATA: None
ACTION: Check the switch configuration.

elx_mes0258: Register Fabric login error: <mbxStatus>

DESCRIPTION: The REG_LOGIN for the fabric has failed.
DATA: None
ACTION: Check the port and switch configuration.

elx_mes0259: No NPIVFabric support

DESCRIPTION: The switch to which the port is connected does not support NPIV.
DATA: None
ACTION: Check the switch configuration.

elx_mes0260: Register NameServer error: <mbxStatus>

DESCRIPTION: The REG_LOGIN mailbox command has failed for the nameserver.
DATA: None
ACTION: Check the switch configuration.

elx_mes0261: Cannot Register NameServer login

DESCRIPTION: Either a memory allocation issue or an invalid parameter was sent to the REG_LOGIN.
DATA: None
ACTION: At least one message (0142 0121 0133 0134 0135) should precede this message.

elx_mes0262: No NPIV Fabric support

DESCRIPTION: The switch to which the port is connected does not support NPIV.
DATA: None
ACTION: Check the switch configuration.

elx_mes0263: Discovery Mailbox error: state: <port_state> : <sparam_mbox> <cfglink_mbox>

DESCRIPTION: Either the driver could not allocate resources or it could not send sparam_mbox or cfglink_mbox.
DATA: (1) address of sparam_mbox command, (2) address of cfglink_mbox command.
ACTION: Unload and reload the driver.

elx_mes0264: No NPIV Fabric support

DESCRIPTION: The switch to which the port is connected does not support NPIV.
DATA: None
ACTION: Check the switch configuration.

elx_mes0266: Issue NameServer Req <cmdcode> err <rc> Data: <fc_flag> <fc_rscn_id_cnt>

DESCRIPTION: The driver was not able to send the nameserver CT command.
DATA: (1) VPorts fc_flag, (2) VPorts fc_rscn_id_cnt
ACTION: Check the switch and port configurations.

elx_mes0267: NameServer GFF Rsp "<did> Error (<ulpStatus> <un.ulpWord[4]>) Data: <fc_flag> <fc_rscn_id_cnt>

DESCRIPTION: The nameServer GFF CT request failed.
DATA: (1) VPorts fc_flag, (2) VPorts fc_rscn_id_cnt
ACTION: Check the switch and port configurations.

elx_mes0268: NS cmd <cmdcode> Error (<ulpStatus> <un.ulpWord[4]>)

DESCRIPTION: The nameServer CT request failed.
DATA: None.
ACTION: Check the switch and port configurations.

elx_mes0271: Illegal State Transition: node <nlp_DID> event <evt>, state <nlp_state> Data:<nlp_rpi> <nlp_flag>

DESCRIPTION: The current node state does not have a handler for this event.
DATA: (1) nlp_rpi, (2) nlp_flag
ACTION: Verify that all targets are still visible to the SCSI mid-layer.

elx_mes0272: Illegal State Transition: node <nlp_DID> event <evt>, state <nlp_state> Data: <nlp_rpi> <nlp_flag>

DESCRIPTION: The driver is completing a PLOGI but do not have the rcv_plogi flag set.
DATA: (1) nlp_rpi, (2) nlp_flag
ACTION: Verify that all targets are still visible to the SCSI mid-layer.

elx_mes0273: Unexpected discovery timeout,vport State <port_state>

DESCRIPTION: The discovery process has timed out.
DATA: None
ACTION: Ensure all targets are visible.

elx_mes0282: did:x%x ndlp:x%pusgmap:x%x refcnt:%d, ndlp->nlp_DID, (void *)ndlp, lpfc_init.c-ndlp->nlp_usg_map,

DESCRIPTION: Driver cleanup has found a node that is still on the node list during driver unload or PCI hotplug removal.
DATA: None.
ACTION: None required.

elx_mes0283: Failed to allocate mbox cmd memory

DESCRIPTION: Mailbox allocation error.
DATA: None
ACTION: None required.

elx_mes0285: Allocated DMA memory size <alloclen> is less than the requested DMA memorysize <reqlen>

DESCRIPTION: Memory allocation was truncated.
DATA: None
ACTION: None required.

elx_mes0286: lpfc_nlp_state_cleanup failed to allocate statistical data buffer <nlp_DID>

DESCRIPTION: Memory allocation failed for node's statistical data.
DATA: None
ACTION: None required.

elx_mes0287: lpfc_alloc_bucket failed to allocate statistical data buffer <nlp_DID>

DESCRIPTION: Memory allocation failed for node's statistical data.
DATA: None
ACTION: None required.

elx_mes0288: Unknown FCoE event type <event_type> event tag <event_tag>

DESCRIPTION: The firmware has detected an unknown FCoE event.
DATA: None
ACTION: Check the FCoE switch configuration and the adapter's DCBX mode.

elx_mes0289: Issue Register VFI failed: Err <rc>

DESCRIPTION: The driver could not register the Virtual Fabric Index for the FCFI.
DATA: None
ACTION: Check the switch and port configurations.

elx_mes0290: The SLI4 DCBX asynchronous event is not handled yet

DESCRIPTION: The SLI-4 DCBX asynchronous event is not handled yet.
DATA: None
ACTION: None required.

elx_mes0291: Allocated DMA memory size <alloc_len> is less than the requested DMA memorysize <req_len>

DESCRIPTION: The asynchronous DCBX events are not handled in the driver.
DATA: None
ACTION: Check the switch configuration.

elx_mes0293: PM resume failed to start workerthread: error=<error>

DESCRIPTION: The PCI resume (hotplug) could not start the worker thread for the driver.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0294: PM resume Failed to enable interrupt

DESCRIPTION: The PCI resume (hotplug) could not get an interrupt vector.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0297:invalid device group <pci_dev_grp>

DESCRIPTION: While unloading the driver, the driver detect a PCI device that it should not have claimed.
DATA: None
ACTION: None required.

elx_mes0299: Invalid SLI revision <sli_rev>

DESCRIPTION: While processing a host attention or unrecoverable error, the driver detected an invalid SLI revision.
DATA: None
ACTION: None required.

Mailbox Events

elx_mes0300: LATT: Cannot issue READ_LA: Data: <rc>

DESCRIPTION: The link attention handler could not issue a READ_LA mailbox command.
DATA: None
ACTION: None required.

elx_mes0303: Ring <ringno> handler: portRspPut <portRspPut> is bigger then rsp ring <portRspMax>

DESCRIPTION: The port rsp ring put index is larger than the size of the rsp ring. This error could indicate a software driver, firmware or hardware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0304: Stray mailbox interrupt, mbxCommand <mbxcommand> mbxStatus <mbxstatus>

DESCRIPTION: Received a mailbox completion interrupt. There are no outstanding mailbox commands. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report the errors to Emulex technical support.

elx_mes0306: CONFIG_LINK mbxStatus error <mbxStatus> HBA state <hba_state>

DESCRIPTION: The driver issued a CONFIG_LINK mbox command to the adapter and the command failed. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0310: Mailbox command <mbxcommand> timeout

DESCRIPTION: A mailbox command was posted to the adapter and did not complete within 30 seconds. This error could indicate a software driver or firmware problem.
DATA: (1) hba_state, (2) sli_flag, (3) mbox_active
ACTION: If no I/O is going through the adapter, reboot the system. If problems persist, report the errors to Emulex technical support.

elx_mes0311 Mailbox command x%x cannot issue Data: x%x x%x

DESCRIPTION: The driver detected an HBA error and can't issue the mailbox. This is a software driver error.
DATA: (1) sli flags (2) hba flags
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0312: Ring <ringno> handler: portRspPut <rspPutInx> is bigger then rsp ring <numRiocb>

DESCRIPTION: The IOCB command rings put pointer is ahead of the get pointer.
DATA: None
ACTION: None required.

elx_mes0315: Ring <ringno> issue: portCmdGet <local_getidx> is bigger then cmd ring <max_cmd_idx>

DESCRIPTION: The port cmd ring get index is greater than the size of cmd ring. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0317: iotag <ulp_IoTag> is out of range: max iotag <max_iotag> wd0 <wd0>

DESCRIPTION: The IoTag in the completed IOCB is out of range. This error could indicate a software driver, firmware or hardware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0319: READ_SPARAM mbxStatus error <mbxStatus> hba state <hba_state>

DESCRIPTION: The driver issued a READ_SPARAM mbox command to the adapter that failed. This error could indicate a firmware or hardware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0320: CLEAR_LA mbxStatus error <mbxStatus> hba state <hba_state>

DESCRIPTION: The driver issued a CLEAR_LA mbox command to the adapter that failed. This error could indicate a firmware or hardware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0323: Unknown Mailbox command <mbxCommand> Cmpl

DESCRIPTION: A unknown mailbox command completed. This error could indicate a software driver, firmware or hardware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0324: Config port initialization error, mbxCmd <mbxCommand> READ_NVPARM, mbxStatus <mbxStatus>

DESCRIPTION: A read nvparams mailbox command failed during port configuration. This error could indicate a software driver, firmware or hardware problem.
DATA: None
ACTION: Report these errors to Emulex technical support.

elx_mes0330: IOCB wake NOT set

DESCRIPTION: The completion handler associated with the IOCB was never called. This error could indicate a software driver, firmware or hardware problem.
DATA:(1) timeout, (2) timeleft/jiffies
ACTION: If problems persist, report the error to Emulex technical support.

elx_mes0332 IOCB wait issue failed, Data x%x

DESCRIPTION: Driver issued IO failed to complete in polling mode. This is a software driver error.
DATA: (1) error value.
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0334: Unknown IOCB command

DESCRIPTION: Received an unknown IOCB command completion. This error could indicate a software driver or firmware problem.
DATA: (1) type, (2) ulpCommand, (3) ulpStatus, (4) ulpIoTag, (5) ulpContext
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0335: Unknown IOCB command

DESCRIPTION: Received an unknown IOCB command completion. This error could indicate a software driver or firmware problem.
DATA: (1) ulpCommand, (2) ulpStatus, (3) ulpIoTag, (4) ulpContext
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0338 IOCB wait timeout error - no wake response Data x%x x%x

DESCRIPTION: Driver issued IO did not get a wake signal in polling mode. This is a software driver error.
DATA: (1) wait time (2) wake value
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0340: Adapter temperature is OK now

DESCRIPTION: Adapter temperature has reverted to normal range.
DATA: Temperature in Celsius
ACTION: No action needed, informational.

elx_mes0341: Ring <ringno> Cannot find buffer for an unsolicited iocb tag <un.ulpWord[3]>

DESCRIPTION: There are no more pre-allocated buffers available to handle unsolicited buffers.
DATA: None
ACTION: Ensure this port is not being managed by multiple ports.

elx_mes0342: Ring <ringno> Cannot find buffer for an unsolicited iocb tag <unsli3.sli3Words>

DESCRIPTION: This is a multiple IOCB unsolicited command and sufficient buffer space cannot be allocated for it.
DATA: None
ACTION: None required.

elx_mes0343: Ring <ringno> Cannot find buffer for an unsolicited iocb tag <un.ulpWord[3]>

DESCRIPTION: There are no more pre-allocated buffers available to handle unsolicited buffers.
DATA: None
ACTION: None required.

elx_mes0344: Ring <ringno> Cannot find buffer for an unsolicited iocb tag <unsli3.sli3Words[7]>

DESCRIPTION: There are no more pre-allocated buffers available to handle unsolicited buffers.
DATA: None
ACTION: None required.

elx_mes0345: Resetting board due to mailbox timeout

DESCRIPTION: A mailbox command failed to complete. The driver is resetting the port.
DATA: None
ACTION: If the mailbox command fails again, set the lpfc_log_verbose to LOG_MBOX and retry.

elx_mes0346: Ring <ring number> handler: unexpected ASYNC_STATUS evt_code <evtcode> W0 <hex w0> W1 <hex w1> W2 <hex W2> W3 <hex W3> W4 <hex W4> W5 <hex Z5> W6 <hex W6> W7 <hex W7> W8 <hex W8> W9 <hex W9> W10 <hex W10> W11<hex W11>

DESCRIPTION: The adapter received an asynchronous event that was not a temperature event.
DATA: None
ACTION: None required.

elx_mes0347: Adapter is very hot, please take corrective action

DESCRIPTION: Adapter temperature is above normal range
DATA: Temperature in Celsius
ACTION: Shutdown and remove the adapter. Contact customer support.

elx_mes0348: NameServer login: node freed

DESCRIPTION: The enable mode failed to free up the nameserver login.
DATA: None
ACTION: None required.

elx_mes0349: rc should be MBX_SUCCESS

DESCRIPTION: The next mailbox command on the mailbox queue has failed.
DATA: None
ACTION: None required.

elx_mes0350: rc should have been MBX_BUSY

DESCRIPTION: Attempting to unregister a default RPI from an interrupt context. The mailbox state is not busy.
DATA: None
ACTION: None required.

elx_mes0352: Config MSI mailbox command failed, mbxCmd <u.mb.mbxCommand>, mbxStatus <u.mb.mbxStatus>

DESCRIPTION: The mailbox command sent to the firmware to configure the adapter to use MSI-X has failed.
DATA: None
ACTION: Ensure the hardware platform supports MSI-X.

elx_mes0359: Not a valid slow-path completion " event: majorcode=x%x, minorcode=x%x\n", bf_get(lpfc_eqe_major_code, eqe), bf_get(lpfc_eqe_minor_code, eqe));

DESCRIPTION: SLI-4: The EQE is not valid.
DATA: None
ACTION: None required.

elx_mes0360: Unsupported EQ count. <entry_count>

DESCRIPTION: Cannot create an event queue of this size.
DATA: None
ACTION: None required.

elx_mes0361: Unsupported CQ count. <entry_count>

DESCRIPTION: Cannot create a completion queue of this size.
DATA: None
ACTION: None required.

elx_mes0362: Unsupported MQ count. <entry_count>

DESCRIPTION: Cannot create MQ count of this size.
DATA: None
ACTION: None required.

elx_mes0364: Invalid param:

DESCRIPTION: SLI-4: The post SGL function was passed an invalid XRI.
DATA: None
ACTION: None required.

elx_mes0365: Slow-path CQ identifier <cqid> does not exist

DESCRIPTION: The Completion Queue ID passed in the Event Queue entry does not reference a valid completion queue.
DATA: None
ACTION: None required.

elx_mes0366: Not a valid fast-path completion event: majorcode=<major code hex>, minor-code=<minor code hex>

DESCRIPTION: The major or minor code in the Event Queue field is not valid.
DATA: None
ACTION: None required.

elx_mes0367: Fast-path completion queue does not exist

DESCRIPTION: The fast path completion queue referenced by the CQID does not exist.
DATA: None
ACTION: None required.

elx_mes0368: Miss-matched fast-path completion queue identifier: eqcqid=<cqid>, fcpcqid=<queue_id>

DESCRIPTION: The CQID in the event queue entry does not match the fcp_cqid that was passed into the routine.
DATA: None
ACTION: None required.

elx_mes0369: No entry from fast-path completion queue fcpcqid=<queue_id)

DESCRIPTION: There were no completions in the completion queue referenced by fcpcqid.
DATA: None
ACTION: None required.

elx_mes0370: Invalid completion queue type <type>

DESCRIPTION: The event queue entry is not for a mailbox or a work queue entry.
DATA: None
ACTION: None required.

elx_mes0371: No entry from the CQ: identifier <queue_id>, type <type>

DESCRIPTION: There was no completion queue event for this event queue entry.
DATA: None
ACTION: None required.

elx_mes0372: iotag <iotag> is out of range: max iotag (<sli.last_iotag>)

DESCRIPTION: The IOCB lookup cannot be performed because the iocb_tag is out of range.
DATA: None
ACTION: None required.

elx_mes0376: READ_REV Error. SLI Level <sli_rev> FCoE enabled <hba_flag & HBA_FCOE_SUPPORT>

DESCRIPTION: This SLI-4 only adapter setup function was called for a non-SLI-4 device.
DATA: None
ACTION: None required.

elx_mes0377: Error <rc> parsing vpd. Using defaults.

DESCRIPTION: Could not parse the VPD data, so the driver is using the default values.
DATA: None
ACTION: None required.

elx_mes0381: Error <rc> during queue setup.

DESCRIPTION: Could not set up all the queues that driver requires to exchange IOs with the adapter.
DATA: None
ACTION: Reload the driver.

elx_mes0382: READ_SPARAM command failed status <issue status>, mbxStatus <mailbox status>

DESCRIPTION: The READ_SPARAM mailbox command has failed during initialization. The adapter has been set to error state.
DATA: None
ACTION: Perform a dump with hbacmd and then try reloading the driver.

elx_mes0384: There is pending active mailbox cmd

DESCRIPTION: The mailbox commands have overlapped. This command should have been added to the mailbox queue.
DATA: None
ACTION: None required.

elx_mes0385: rc should have been MBX_BUSY

DESCRIPTION: The completion handler for REG_LOGIN detected the IMMED_UNREG flag and attempted to issue the unreg_login command from an interrupt level. The mailbox status should still be busy.
DATA: None
ACTION: None required.

elx_mes0387: Failed to allocate an iocbq

DESCRIPTION: Failed to get an IOCBQ from the list of available IOCBQs.
DATA: None
ACTION: None required.

elx_mes0388: Not a valid WCQE code: <hex cqe_code>

DESCRIPTION: The event code is invalid. This event is dropped.
DATA: None
ACTION: Ensure the adapter’s firmware is current.

elx_mes0391: Error during rpi post operation

DESCRIPTION: The driver was trying to post pages to the firmware to be used to keep target login information and encountered a failure.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0393: Error <rc> during rpi post operation

DESCRIPTION: The driver was trying to post pages to the firmware to keep target login information and encountered a failure.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0394: Failed to allocate CQ_EVENT entry

DESCRIPTION: The asynchronous event handler was not able to allocate an event queue entry to which to transfer the asynchronous event. This could be a V-LINK clear from the switch or a fatal error from the firmware.
DATA: None
ACTION: Perform a dump from the OneCommand Manager application.

elx_mes0395: The mboxq allocation failed

DESCRIPTION: The asynchronous link event handler could not allocate a mailbox command to issue the READ_LA (read link attention) mailbox command.
DATA: None
ACTION: None required.

elx_mes0396: The lpfc_dmabuf allocation failed

DESCRIPTION: The asynchronous link event handler could not allocate a DMA buffer for the mailbox command to issue the READ_LA (read link attention) mailbox command.
DATA: None
ACTION: None required.

elx_mes0397: The mbuf allocation failed

DESCRIPTION: The asynchronous link event handler could not allocate DMA-able memory for the READ_LA mailbox command.
DATA: None
ACTION: None required.

elx_mes0398: Invalid link fault code: < hex link_fault>

DESCRIPTION: The attempt to read the link attention register has returned an unknown value.
DATA: None
ACTION: None required.

elx_mes0399: Invalid link attention type: <hex link_type>

DESCRIPTION: The READ_LA mailbox command has returned an invalid link type.
DATA: None
ACTION: None required.

Initialization Events

elx_mes0400: Phys Attribute Count Exceeded, Max %d, Actual %d

DESCRIPTION: Too many driver configuration parameters have been set. The limit is given as Max.
DATA: (1) Maximum number (2) Actual number
ACTION: Reduce the number of actual parameters.

elx_mes0402: Cannot find virtual addr for buffer tag on ring <ringno>

DESCRIPTION: A DMA buffer is not available for this unsolicited command.
DATA: (1) tag, (2) next, (3) prev, (4) postbufq_cnt
ACTION: None required.

elx_mes0403: lpfc_nodev_tmo attribute cannot be set to <val>, allowed range is [<LPFC_MIN_DEVLOSS_TMO>, <LPFC_MAX_DEVLOSS_TMO>]

DESCRIPTION: Attempt to set the nodev timeout value is outside the range of the devloss timeout range.
DATA: None
ACTION: Set the nodev timeout between the minimum and maximum devloss timeout range.

elx_mes0404: Config Param %s set to x%x

DESCRIPTION: Driver is setting a persistent VPort parameter to a new value. This message is notification only.
DATA: (1) New value
ACTION: None required.

elx_mes0405: Config Param %s set to x%x

DESCRIPTION: Driver is setting a persistent VPort parameter to a new value. This message is notification only.
DATA: (1) New value
ACTION: None required.

elx_mes0406: Adapter maximum temperature exceeded (<temperature>), taking this port offline

DESCRIPTION: The driver has received an error for the adapter indicating that the maximum allowable temperature has been exceeded.
DATA: (1) work_hs, (2) work_status[0], (3) work_status[1]
ACTION: Ensure the server fans are not blocked. Shut down the server if the airflow is restricted.

elx_mes0410: Cannot find virtual addr for mapped buf on ring <ringno>

DESCRIPTION: The driver cannot find the specified buffer in its mapping table. Thus it cannot find the virtual address needed to access the data. This error could indicate a software driver or firmware problem.
DATA: (1) phys, (2) next, (3) prev, (4) postbufq_cnt
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0423: Vport Attribute Instance Error. Defaulting lpfc_#attr to %d, error value %d, allowed range is [min, max]

DESCRIPTION: A Vport attribute was set out of range. The driver reset the parameter to its default.
DATA: None
ACTION: Set the module parameter between the minimum and maximum values.

elx_mes0424: Vport Attribute Count Exceeded, Max %d, Actual %d

DESCRIPTION: The total number of Vport attributes set exceeded the max allowed.
DATA: None
ACTION: Reduce the number set attributes below max.

elx_mes0425: lpfc_"#attr" attribute cannot be set to %d, allowed range is [min, max]

DESCRIPTION: Driver attribute lpfc_#attr was defined with an out-of-range value.
DATA: None
ACTION: Set the parameter between the minimum and maximum value.

elx_mes0427: Cannot re-enable interrupt after slot reset.

DESCRIPTION: The driver was not able to enable the interrupt after an adapter reset.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0430: PM resume Failed to enable interrupt

DESCRIPTION: The driver's power management resume function could not enable the interrupt.
DATA: None
ACTION: Perform another PM suspend and resume or adapter reset.

elx_mes0431: Failed to enable interrupt.

DESCRIPTION: The driver failed to start the interrupt.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0433: Wakeup on signal: rc=<rc>

DESCRIPTION: A signal other than the LPFC_DATA_READY was received on the worker thread.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0434: PM resume failed to start worker thread: error=<error>.

DESCRIPTION: The driver's power management resume function could not start the worker thread.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0435: Adapter failed to get Option ROM version status <rc>.

DESCRIPTION: The driver could not read the adapter's option ROM.
DATA: None
ACTION: Reset the adapter. Ensure the adapter's firmware is current.

elx_mes0436: Adapter failed to init, timeout, status reg <status>

DESCRIPTION: The adapter failed during powerup diagnostics after it was reset. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0437: Adapter failed to init, chipset, status reg <status>

DESCRIPTION: The adapter failed during powerup diagnostics after it was reset. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0438: Adapter failed to init, chipset, status reg <status>

DESCRIPTION: The adapter failed during powerup diagnostics after it was reset. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0439: Adapter failed to init, mbxCmd <mbxCommand> READ_REV, mbxStatus <mbxStatus>

DESCRIPTION: Adapter initialization failed when issuing a READ_REV mailbox command. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0440: Adapter failed to init, READ_REV has missing revision information

DESCRIPTION: A firmware revision initialization error was detected.This error could indicate a hardware or firmware problem.
DATA: None
ACTION: Update the firmware. If problems persist, report errors to Emulex technical support.

elx_mes0442: Adapter failed to init, mbxCmd <mbxCommand> CONFIG_PORT, mbxStatus <mbxStatus>

DESCRIPTION: Adapter initialization failed when issuing a CONFIG_PORT mailbox command. This error could indicate a hardware or firmware problem.
DATA: (1) hbainit
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0443: Adapter failed to set maximum DMA length mbxStatus <u.mb.mbxStatus>.

DESCRIPTION: Cannot set the maximum DMA length to reflect cfg_pci_max_read.
DATA: None
ACTION: Set module parameter lpfc_pci_max_read to 512, 1024, 2048, or 4096.

elx_mes0445: Firmware initialization failed.

DESCRIPTION: The driver was unable to initialize the hardware. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0446: Adapter failed to init, mbxCmd <mbxCommand> CFG_RING, mbxStatus <mbxStatus>, ring <num>

DESCRIPTION: Adapter initialization failed when issuing a CFG_RING mailbox command. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0448: Adapter failed to init, mbxCmd <mbxCommand> READ_SPARM, mbxStatus <mbxStatus>

DESCRIPTION: Adapter initialization failed when issuing a READ_SPARM mailbox command. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0449: Phys attribute Instance Error. Defaulting to lpfc_#attr to %d. Allowed range is [min, max]

DESCRIPTION: A physical device attribute has an out-of-range value. The driver is correcting it.
DATA: (1) value written, (2) minimum value, (3) maximum value
ACTION: Write the default value.

elx_mes0450: lpfc_%attr attribute cannot be set to%d, allowed range is [%min, %max]

DESCRIPTION: Sysfs attribute value written exceeds attribute range
DATA: (1) attribute name, (2) value written, (3) minimum value, (3) maximum value
ACTION: Write a value within the supported range.

elx_mes0453: Adapter failed to init, mbxCmd <mbxCommand> READ_CONFIG, mbxStatus<mbxStatus>

DESCRIPTION: Adapter initialization failed when issuing a READ_CONFIG mailbox command. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0454: Adapter failed to init, mbxCmd <mbxCommand> INIT_LINK, mbxStatus <mbxStatus>

DESCRIPTION: Adapter initialization failed when issuing an INIT_LINK mailbox command. This error could indicate a hardware or firmware problem.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0456: Adapter failed to issue ASYNCEVT_ENABLE mbox status <rc>.

DESCRIPTION: The mailbox command to enable an asynchronous event notification failed.
DATA: None
ACTION: Ensure the adapter firmware is current. Reload the driver.

elx_mes0457: Adapter Hardware Error

DESCRIPTION: The driver received an interrupt indicating a possible hardware or firmware problem.
Data: (1) status, (2) status1, (3) status2
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes0472: Unknown PCI error state: x%x

DESCRIPTION: The PCI bus has detected an error.
DATA: (1) state value
ACTION: Driver resets the adapter and attempts recovery. If problem persists, contact Emulex technical support.

elx_mes0474: Unable to allocate memory for issuing "MBOX_CONFIG_MSI command”

DESCRIPTION: Mailbox memory pool allocation error.
DATA: None
ACTION: None required.

elx_mes0475: Not configured for supporting MSI-X cfg_use_msi: <cfg_use_msi>.

DESCRIPTION: The lpfc_use_msi module parameter should have been set to 2.
DATA: None
ACTION: Set module parameter lpfc_use_msi=2.

elx_mes0476: HBA not supporting SLI-3 or later SLI Revision: <sli_rev>.

DESCRIPTION: The adapter does not support SLI-3 or SLI-4.
DATA: None
ACTION: This adapter does not support msi. Set lpfc_use_msi=0.

elx_mes0479: Deferred Adapter Hardware Error

DESCRIPTION: An adapter hardware error was sent to the driver.
DATA: (1) work_hs, (2) work_status[0], (3) work_status[1]
ACTION: Perform a dump using hbacmd.

elx_mes0482 Illegal interrupt mode

DESCRIPTION: Driver could not set MSI-X, MSI or INTX interrupt modes.
DATA:
ACTION: This could be a server issue. Reboot. If problems persist, report these errors to Emulex technical support.

elx_mes0483: Invalid link-attention link speed: x%x", bf_get(lpfc_acqe_link_speed, acqe_link).

DESCRIPTION: The link speed reported in the link attention interrupt is invalid.
DATA: None
ACTION: Check the switch configuration.

elx_mes0492 Unable to allocate memory for issuing SLI_CONFIG_SPECIAL mailbox command

DESCRIPTION: A memory allocation fault occurred when issuing a mailbox.
DATA: None
ACTION: This could be a transient error. If problems persist, report these errors to Emulex technical support.

elx_mes0493: SLI_CONFIG_SPECIAL mailbox failed with status <rc>.

DESCRIPTION: Mailbox command failed.
DATA: None
ACTION: Ensure the adapter’s firmware is current. Unload and reload the driver.

elx_mes0494: Unable to allocate memory for issuing "SLI_FUNCTION_RESET mailbox command"

DESCRIPTION: Mailbox memory pool allocation error. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0495: SLI_FUNCTION_RESET mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>.

DESCRIPTION: Mailbox command failed. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0496: Failed allocate slow-path EQ

DESCRIPTION: The event queue for the slow path was not allocated.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0497: Failed allocate fast-path EQ

DESCRIPTION: The event queue for the fast path was not allocated.
DATA: None
ACTION: Unload and reload the driver.

elx_mes0499: Failed allocate fast-path FCP CQ (<fcp_cqidx>).

DESCRIPTION: The completion queue event for the fast path could not be allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0500: Failed allocate slow-path mailbox CQ

DESCRIPTION: Failed to allocate slow-path mailbox CQ. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0501: Failed allocate slow-path ELS CQ

DESCRIPTION: Failed to allocate slow-path ELS CQ. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0503: Failed allocate fast-path FCP

DESCRIPTION: Failed to allocate fast-path FCP. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0504: Failed allocate slow-path ELS WQ

DESCRIPTION: Failed to allocate slow-path ELS WQ. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0505: Failed allocate slow-path MQ

DESCRIPTION: Failed to allocate slow-path MQ. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0506: Failed allocate receive HRQ

DESCRIPTION: Failed to allocate receive HRQ. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0507: Failed allocate receive DRQ

DESCRIPTION: Failed to allocate receive DRQ. The driver failed to load.The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0520: Slow-path EQ not allocated

DESCRIPTION: The slow-path EQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0521: Failed setup of slow-path EQ rc = 0x%x

DESCRIPTION: The slow-path EQ setup failed with a status rc. The driver failed to load.
DATA: (1) status code
ACTION: Contact Emulex technical support.

elx_mes0522: Fast-path EQ <fcp_eqidx> not allocated

DESCRIPTION: The fast-path EQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0523: Failed setup of fast-path EQ <fcp_eqidx>, rc = <rc>

DESCRIPTION: The fast-path EQ setup failed. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0526: Fast-path FCP CQ <fcp_cqidx> not allocated

DESCRIPTION: The fast-path FCP is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0527: Failed setup of fast-path FCP CQ <fcp_cqidx>, rc = <rc>

DESCRIPTION: The fast-path FCP CQ setup failed. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0528: Mailbox CQ not allocated

DESCRIPTION: The mailbox CQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0529 Failed setup of slow-path mailbox CQ: rc = 0x%x

DESCRIPTION: Driver failed to set up the Completion Queue. A failure code is reported. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0530: ELS CQ not allocated

DESCRIPTION: The ELS CQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0531: 0531 Failed setup of slow-path ELS CQ: rc = 0x%x

DESCRIPTION: The ELS CQ is allocated, but failed initial setup. The driver failed to load.
DATA: (1) status
ACTION: Contact Emulex technical support.

elx_mes0534: Fast-path FCP WQ <fcp_eqidx> not allocated

DESCRIPTION: The fast-path FCP WQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0535: Failed setup of fast-path FCP WQ <fcp_wqidx>, rc = <rc>

DESCRIPTION: The fast-path FCP WQ setup failed. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0536: Slow-path ELS WQ not allocated

DESCRIPTION: The slow-path ELS WQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0537 Failed setup of slow-path ELS WQ: rc = 0x%x

DESCRIPTION: The driver failed to setup the Work Queue. A failure code is reported. This is a software driver error.
DATA: (1) (2) (3)
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes0538: Slow-path MQ not allocated

DESCRIPTION: The slow-path MQ is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0539: Failed setup of slow-path MQ: rc = 0x%x

DESCRIPTION: The slow-path MQ is allocated, but failed initial setup. The driver failed to load.
DATA: (1) status
ACTION: Contact Emulex technical support.

elx_mes0540: Receive Queue not allocated

DESCRIPTION: The Receive Queue is not allocated. The driver failed to load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0541: Failed setup of Receive Queue: rc = 0x%x

DESCRIPTION: The Receive Queue is allocated, but failed setup. The driver failed to load.
DATA: (1) status
ACTION: Contact Emulex technical support.

elx_mes0542: lpfc_create_static_vport failed to allocate mailbox memory

DESCRIPTION: Failed to allocate mailbox memory for VPort creation. Static VPorts do not load.
DATA: None
ACTION: Contact Emulex technical support.

elx_mes0543: lpfc_create_static_vport failed to allocate vport_info

DESCRIPTION: Failed to allocate VPort_info. Static VPorts do not load.
DATA: None
ACTION: Contact Emulex technical support

elx_mes0545: lpfc_create_static_vport bad information header 0x%x 0x%x, le32_to_cpu(vport_info->signature), le32_to_cpu(vport_info->rev) & VPORT_INFO_REV_MASK);

DESCRIPTION: Invalid information header; the signature or revision is invalid.
DATA: None
ACTION: Static VPorts does not load. Contact Emulex technical support.

elx_mes0582: Error <rc> during sgl post operation

DESCRIPTION: The SGL post operation failed.
DATA: None
ACTION: None required.

elx_mes0602: Failed to allocate CQ_EVENT entry

DESCRIPTION: Failed to allocate a CQ_EVENT entry.
DATA: None
ACTION: None required.

elx_mes0603: Invalid work queue CQE subtype <subtype>

DESCRIPTION: Invalid work queue CQE.
DATA: None
ACTION: None required.

FCP Traffic History

elx_mes0700: Bus Reset on target <i> failed

DESCRIPTION: The bus reset for the specified target failed.
DATA: None
ACTION: None required.

elx_mes0706: 0706 IOCB Abort failed - outstanding %d failed %d

DESCRIPTION: The driver did not recover all I/O following a reset task management command.
DATA: (1) outstanding IO count (2) number of unrecovered IO
ACTION: None required. ESXi tries to recover. If problems persist, contact Emulex technical support.

elx_mes0713: SCSI layer issued Device Reset (%d, %d) reset status x%x flush status x%x

DESCRIPTION: A device reset has completed on (tgt, lun). Status values are displayed.
DATA: (1) tgt (2) lun (3) task mgmt status (4) flush status
ACTION: None required.

elx_mes0714: SCSI layer issued bus reset

DESCRIPTION: The SCSI layer is requesting the driver to abort all I/Os to all targets on this adapter.
DATA: (1) ret
ACTION: Check the state of the targets in question.

elx_mes0718: Unable to dma_map single request_buffer: x%x

DESCRIPTION: The driver could not map a single virtual address to a dma address.
DATA: (1) dma mapping error
ACTION: None required. The driver fails the I/O back to ESXi.

elx_mes0721: Device Reset rport failure: rdata <rdata>

DESCRIPTION: The Rport reset has failed.
DATA: None
ACTION: None required.

elx_mes0724: I/O flush failure for context <cntx> on <tgt:lun> cnt x%x

DESCRIPTION: The I/O flush to the {LUN, TARGET or HOST} has failed.
DATA: (1) cnt of unrecovered IO
ACTION: None required. The reset is retried.

elx_mes0727: TMF <cmd> to TGT <TGT#> LUN <LUN#> failed (<ulpStatus>, <ulpWord[4]>)

DESCRIPTION: The task management command failed.
DATA: None
ACTION: None required. The TMF command is retried.

elx_mes0748: Abort handler timed out waiting for abort to complete:ret <status> ID <target id> LUN <lun id> snum <serial number>

DESCRIPTION: The abort handler timed out waiting for abort to complete.
DATA: None
ACTION: None required.

elx_mes0798 Device Reset rport failure: rdata x%p

DESCRIPTION: The driver failed a device reset - no rdata buffer. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

Node Table Events

elx_mes0915: Register VPI failed: <mbxStatus>

DESCRIPTION: Could not register the VPI.
DATA: None
ACTION: None required.

Miscellaneous and FCoE Events

elx_mes1201 Failed to allocate dfc_host

DESCRIPTION: The driver failed to allocate a dfc host and bind it to the management stack. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1209 C_CT Request error Data: x%x x%x

DESCRIPTION: IOCTL CT response error - the driver is failing the IOCTL request. This is a software driver error.
DATA: (1) response buffer flag (2) Data Size
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1262: Failed to allocate dfc_host

DESCRIPTION: Could not allocate memory to the dfc_host_struct.
DATA: None
ACTION: None required.

Link Events

elx_mes1300 Link Down Event in loop back mode

DESCRIPTION: The driver received a link down event while in loopback mode - unexpected event. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1302 Invalid speed for this board: Reset link speed to auto: x%x

DESCRIPTION: The driver detected an invalid link speed. Resetting the link to auto mode.This is a software driver error.
DATA: (1) Invalid speed detected
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1303: Link Up Event <eventTag> received Data: x%x x%x x%x x%x x%x x%x %d

DESCRIPTION: A link up event was received. It is also possible for multiple link events to be received together.
DATA:(1) fc_eventTag, (2) granted_AL_PA, (3) UlnkSpeed, (4) alpa_map[0]
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

elx_mes1305: Link Down Event <eventTag> received Data: x%x x%x x%x

DESCRIPTION: A link down event was received.
DATA: (1) fc_eventTag, (2) hba_state, (3) fc_flag
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

elx_mes1306: Link Up Event in loop back mode<eventTag> received Data: x%x x%x x%x x%x

DESCRIPTION: Link up notification; configured for loopback.
DATA: (1) fc_eventTag, (2) granted_AL_PA, (3) UlnkSpeed, (4) alpa_map[0]
ACTION: None required.

elx_mes1308: Menlo Maint Mode Link up Event x%x rcvd Data: x%x x%x x%x

DESCRIPTION: Link up notification is in Menlo maintenance mode.
DATA: (1) fc_eventTag, (2) port_state, (3) VPort fc_flag
ACTION: None required.

elx_mes1309: Link Down Event x%x received Data x%x x%x x%x

DESCRIPTION: The port generated a link down event to the host.
DATA: (1) fc_eventTag (2)port_state (3) VPort fc_flag
ACTION: None required.

elx_mes1310: Link Up Event npiv not supported in loop topology

DESCRIPTION: Loop topologies are not supported when NPIV is enabled.
DATA: None
ACTION: Put link into fabric mode.

Port Setup Events

elx_mes1400: Failed to initialize sgl list.

DESCRIPTION: Failed to initialize SGL list during initialization.
DATA: None
ACTION: Reboot the server. If the issue persists, contact Emulex technical support.

elx_mes1401: Failed to enable pci device.

DESCRIPTION: Failed to enable PCI device during initialization.
DATA: None
ACTION: Reboot the server. If the issue persists, contact Emulex technical support.

elx_mes1402: Failed to set up pci memory space.

DESCRIPTION: PCI initialization failed.
DATA: None
ACTION: Reboot the server. If the issue persists, contact Emulex technical support.

elx_mes1403: Failed to set up driver resource

DESCRIPTION: Driver resource initialization failed.
DATA: None
ACTION: None required.

elx_mes1404: Failed to set up driver resource

DESCRIPTION: Driver resource initialization failed.
DATA: None
ACTION: None required.

elx_mes1405: Failed to initialize iocb list

DESCRIPTION: IOCB initialization failed.
DATA: None
ACTION: None required.

elx_mes1406: Failed to set up driver resource

DESCRIPTION: Initialization failed to set up a driver resource.
DATA: None
ACTION: None required.

elx_mes1407: Failed to create scsi host

DESCRIPTION: Initialization failed to create a SCSI host.
DATA: None
ACTION: None required.

elx_mes1408: Failure HBA POST Status: sta_reg=<status reg>, perr=<port error>, sfi=<sfi reg>, nip=<nip reg>, ipc=<ipc reg>, xrom=<xrom>, dl=<dl reg>, pstatus=<port status>

DESCRIPTION: The adapter's power on self test has failed.
DATA: None
ACTION: Make sure the adapter firmware is up to date. Contact the Emulex technical support if the issue persists after a system reboot.

elx_mes1409: Failed to enable pci device.

DESCRIPTION: Failed to enable a PCI device during initialization.
DATA: None
ACTION: None required.

elx_mes1410: Failed to set up pci memory space

DESCRIPTION: Initialization failed to set up PCI memory space.
DATA: None
ACTION: None required.

elx_mes1411: Failed to set up driver resource

DESCRIPTION: Initialization failed to set up a driver resource.
DATA: None
ACTION: None required.

elx_mes1412: Failed to set up driver resource

DESCRIPTION: Initialization failed to set up a driver resource.
DATA: None
ACTION: None required.

elx_mes1413: Failed to initialize iocb list

DESCRIPTION: Initialization failed to initialize the IOCB list.
DATA: None
ACTION: None required.

elx_mes1414: Failed to set up driver resource

DESCRIPTION: Initialization failed to set up a driver resource.
DATA: None
ACTION: None required.

elx_mes1415: Failed to create scsi host

DESCRIPTION: Initialization failed to create a SCSI host.
DATA: None
ACTION: None required.

elx_mes1416: Failed to allocate sysfs attr

DESCRIPTION: Initialization failed to allocate a sysfs attribute.
DATA: None
ACTION: None required.

elx_mes1418: Invalid HBA PCI-device group: <dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1419: Invalid HBA PCI-device group: <dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1420: Invalid HBA PCI-device group: <dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1421: Failed to set up hba

DESCRIPTION: Initialization failed to set up the adapter.
DATA: None
ACTION: None required.

elx_mes1422: HBA Unrecoverable error: uerr_lo_reg=<ue lo>, uerr_hi_reg=<ue hi>, online0_reg=<Online0>, online1_reg=<Online1>

DESCRIPTION: The adapter has notified the driver that it has encountered an unrecoverable error.
DATA: None
ACTION: Perform a dump from the OneCommand Manager application, then unload and reload the driver.

elx_mes1423: HBA Unrecoverable error: uerr_lo_reg=<ue lo>, uerr_hi_reg=<ue hi>, online0_reg=<Online0>, online1_reg=<Online1>

DESCRIPTION: The adapter has notified the driver that it has encountered an unrecoverable error.
DATA: None
ACTION: Perform a dump from the OneCommand Manager application, then unload and reload the driver.

elx_mes1424: Invalid PCI device group: <pci_dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1425: Invalid PCI device group: <pci_dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1426: Invalid PCI device group: <pci_dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1427: Invalid PCI device group: <pci_dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1428: Invalid PCI device group: <pci_dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1429: Invalid PCI device group: <pci_dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1430: Failed to initialize sgl list

DESCRIPTION: Failed to initialize SGL list.
DATA: None
ACTION: None required.

elx_mes1431: Invalid HBA PCI-device group: <dev_grp>

DESCRIPTION: An invalid adapter PCI-device group was detected.
DATA: None
ACTION: None required.

elx_mes1432: Failed to initialize rpi headers

DESCRIPTION: RPI headers required by the firmware failed to initialize.
DATA: None
ACTION: None required.

elx_mes1476: Failed to allocate sysfs attr

DESCRIPTION: Failed to allocate sysfs attribute.
DATA: None
ACTION: None required.

elx_mes1477: Failed to set up hba

DESCRIPTION: Failed to set up adapter.
DATA: None
ACTION: None required.

IOCTL Events

None.

VPort Events

elx_mes1800 Could not issue unreg_vpi

DESCRIPTION: The driver's attempt to unregister VPI failed. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1801 Create vport work array FAILED: cannot do scsi_host_get

DESCRIPTION: The driver failed to create a working list of VPorts. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1802 HBQ <index>: local_hbqGetIdx <index> is > than hbqp->entry_count <count>

DESCRIPTION: An error occurred when processing queue related to an adapter in a particular slot. This is a software driver error.
DATA: (1) hbqno, (2) local_hbqGetIdx, (3) entry_count
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1803 Bad hbq tag. Data: <tag> <count>

DESCRIPTION: An error occurred when processing queue related tags for an adapter in a particular slot. This is a software driver error.
DATA: (1) tag, (2) buffer_count
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1804: Invalid asynchronous event code: <evt code>

DESCRIPTION: The asynchronous event code that the firmware passed to the driver is invalid.
DATA: None
ACTION: None required.

elx_mes1805 Adapter failed to init.Data: <command> <status> <queue num>

DESCRIPTION: An error occurred when processing queue related tags for an adapter in a particular slot. This is a software driver error.
DATA: (1) mbxCommand, (2) mbxStatus, (3) hbaqno
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1806 Mbox <command> failed: No vport

DESCRIPTION: A mailbox command could not be communicated because there was no VPort associated with the mailbox command. This is a software driver error.
DATA: (1) mbxCommand
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1807 IOCB <value> failed: No vport

DESCRIPTION: An IOCB command could not be communicated because there was no VPort associated with the mailbox command. This is a software driver error.
DATA: (1) ulpCommand
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1808 Create VPORT failed: NPIV is not enabled: SLImode <mode>

DESCRIPTION: The driver failed to create a port because the adapter was in wrong mode or was not capable of NPIV.
DATA: (1) sli_rev
ACTION: Load the driver with npiv enabled on an adapter that supports SLI-3.

elx_mes1809 Create VPORT failed: Max VPORTs (<vpi>) exceeded.

DESCRIPTION: The driver failed to create a port because the maximum number of ports supported by the driver is exceeded.
DATA: (1) max_vpi
ACTION: None required. The driver can not create any more VPorts.

elx_mes1810 Create VPORT failed: Cannot get instance number.

DESCRIPTION: The driver failed to allocate resources for an adapter and could not assign an instance number. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1811 Create VPORT failed: vpi x<vpi>

DESCRIPTION: The driver failed to create a port and had to eliminate all its resources. This is a software driver error.
DATA: (1) vpi
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1812 vport_delete failed: Cannot delete physical host

DESCRIPTION: An attempt to delete a port failed because it was to delete a physical port and not a virtual port. Only VPorts on physical ports can be deleted on an NPIV system. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1813 Create VPORT failed. Cannot get sparam.

DESCRIPTION: The port could not be created because it could not be initialized possibly due to unavailable resources. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1814: Mbox <u.mb.mbxCommand> failed, no vport

DESCRIPTION: The VPort field of this mailbox command was not completed.
DATA: None
ACTION: None required.

elx_mes1815 Could not issue unreg_did (default rpis)

DESCRIPTION: Attempt to unregister RPI failed. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1818 VPort failed init, mbxCmd <mailbox command> READ_SPARM mbxStatus

<mailbox status>, rc = <status>
DESCRIPTION: A pending mailbox command issued to initialize port failed. This is a software driver error.
DATA: (1) mbxCommand, (2) mbxStatus, (3) rc
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1820 Unable to select SLI-3. Not supported by adapter.

DESCRIPTION: The adapter is not capable of operating in a given mode. This is an informational message. SLI-3 mode is only available on some adapters
DATA: None
ACTION: Do not attempt to force an adapter to run in SLI-3 mode if that adapter does not support SLI-3 mode. Adapters that do not support SLI-3 are configured to run in SLI-2 mode. Nevertheless, it is recommended to use the auto setting (0).

elx_mes1821 Create VPORT failed. Invalid WWN format

DESCRIPTION: The port could not be created due to an invalid WWNN or WWPN format.
DATA: None
ACTION: Provide a valid WWN when creating VPorts.

elx_mes1822 Invalid <name>: <xx: xx: xx: xx: xx: xx: xx: xx>

DESCRIPTION: An invalid WWN was used when creating a VPort.
DATA: (1) type_name, (2) wwn[1], (3) wwn[3], (3) wwn[5], (4) wwn[7]
ACTION: When creating a VPort you must furnish a valid WWN.

elx_mes1823 Create VPORT failed. Duplicate WWN on HBA

DESCRIPTION: The port could not be created because it would duplicate an existing WWNN adapter address. The resources for the port had to be discarded.
DATA: None
ACTION: Provide a WWN that is unique.

elx_mes1825 Vport Created

DESCRIPTION: A port was created in the system. This message is displayed at this level to ensure it is always appears at all log levels.
DATA: None
ACTION: None required.

elx_mes1826 Vport Disabled

DESCRIPTION: The port had to be disabled in the system.
DATA: None
ACTION: None required.

elx_mes1827 Vport Enabled

DESCRIPTION: The port had to be enabled after possible recovery from some errors.
DATA: None
ACTION: None required.

elx_mes1828 Vport Deleted

DESCRIPTION: A VPort was deleted.
DATA: None
ACTION: None required.

elx_mes1830 Signal aborted mbxCmd <command>

DESCRIPTION: A pending mailbox command was aborted because the thread received a signal.
DATA: None
ACTION: The command is retried.

elx_mes1831 Create VPORT Interrupted.

DESCRIPTION: The port creation process was unexpectedly interrupted at a critical time while creating a VPort and the operation was unsuccessful.
DATA: None
ACTION: Retry the command.

elx_mes1832: No pending MBOX command to handle

DESCRIPTION: No pending MBOX command to handle.
DATA: None
ACTION: None required.

ELS Events

elx_mes1835: Vport discovery quiesce failed: state <port_state> fc_flags <fc_flag> wait msecs <jiffies_to_msecs(jiffies - start_time)>

DESCRIPTION: Could not pause discovery on this VPort.
DATA: None
ACTION: None required.

elx_mes1836: Could not issue unreg_login(all_rpis) status <rc>

DESCRIPTION: The unreg_login cannot be issued.
DATA: None
ACTION: None required.

elx_mes1837: vport_delete failed: Cannot delete static vport

DESCRIPTION: Static VPorts cannot be deleted.
DATA: None
ACTION: None required.

elx_mes1838: Failed to INIT_VPI on vpi <vpi> status <rc>

DESCRIPTION: Failed to INIT_VPI.
DATA: None
ACTION: None required.

elx_mes1839 Create VPORT failed. vname allocation failed.

DESCRIPTION: The driver failed to allocate a buffer for the Virtual Machine name. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1840 Delete VPORT cannot proceed at this time due to SCSI layer busy.

DESCRIPTION: The driver is attempting to delete a vport, but one or more rports are still in an error state in the SCSI layer. The driver attempts to work around this problem.
DATA: None
ACTION: None required. If problems persist, report these errors to Emulex technical support.

elx_mes1920 Exec format error, Dropping Link state event

DESCRIPTION: No dfchba instance was available for a Link State event - dropping. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1923 Exec format error, Dropping rscn event

DESCRIPTION: No dfchba instance was available for a RSCN event - dropping. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1926 Exec format error

DESCRIPTION: No dfchba instance was available for an IOCTL loopback test - dropping. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1927 Exec format error, Dropping temp event

DESCRIPTION: No dfchba instance was available for a temperature event - dropping.This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1928 Exec format error, Dropping dump event

DESCRIPTION: No dfchba instance was available for a dump event - dropping. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1929 Exec format error

DESCRIPTION: No dfchba instance was available for an IOCTL loopback xri read - dropping. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1934 ENOMEM DMA coherent resource unavailable

DESCRIPTION: The driver failed to allocate a DMA buffer for an IOCTL request. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1935 Loopback test did receive any data

DESCRIPTION: The driver ran a loopback test, but did not receive a response. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1936 ENOMEM Kernel resource unavailable

DESCRIPTION: The driver failed to allocate a DMA buffer during a loopback test. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1944 ENOMEM kernel memory resource unavailable

DESCRIPTION: The driver failed to allocate a kernel buffer for a timed out IO request. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1949 ENOEXEC NULL parameter passed to function

DESCRIPTION: The driver attempted to post a receive buffer, but no receive buffers were available. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1950 ENOMEM IOCB resource not available

DESCRIPTION: The driver could not allocate IOCBs needed to post loopback receive buffers. This is a software driver error.
DATA: (1) (2) (3)
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1951 ENOMEM MBUF resource not available

DESCRIPTION: The driver failed to get memory buffers needed for a loopback test. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1952 ENOMEM DMA resource not available

DESCRIPTION: The driver failed to get DMA buffers needed for a loopback test.This is a software driver error.
DATA: (1) (2) (3)
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes1957 EPERM Illegal BDE count [%d]

DESCRIPTION: The driver received too many receive buffers for a loopback operation. This is a software driver error.
DATA: (1) receive buffer count
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2000: Failed to allocate mbox for READ_FCF cmd

DESCRIPTION: Failed to allocate mbox for the READ_FCF command.
DATA: None
ACTION: None required.

elx_mes2001: Unable to allocate memory for issuing SLI_CONFIG_SPECIAL mailbox command

DESCRIPTION: Unable to allocate memory for issuing the SLI_CONFIG_SPECIAL mailbox command.
DATA: None
ACTION: None required.

elx_mes2002: Error Could not grow rpi count

DESCRIPTION: An error occurred because the RPI count could not be increased.
DATA: None
ACTION: None required.

elx_mes2007: Only Limited Edition cmd Format supported <iocb.ulpCommand>

DESCRIPTION: SLI-4 only supports the Limited Edition command format.
DATA: None
ACTION: None required.

elx_mes2008: Error <rc> posting all rpi headers

DESCRIPTION: The RPI headers could not be posted to the firmware.
DATA: None
ACTION: None required.

elx_mes2009: Failed to allocate mbox for ADD_FCF cmd

DESCRIPTION: Failed to allocate mailbox for ADD_FCF command.
DATA: None
ACTION: None required.

elx_mes2010: Resume RPI Mailbox failed status <status>, mbxStatus <mbx status>.

DESCRIPTION:
DATA: None
ACTION: None required.

elx_mes2011: Unable to allocate memory for issuing SLI_CONFIG_SPECIAL mailbox command

PTION: Unable to allocate memory for issuing SLI_CONFIG_SPECIAL mailbox command.
DATA: None
ACTION: None required.

elx_mes2012: Mailbox failed , mbxCmd <mbx_cmd> READ_CONFIG, mbxStatus <mbx status>.

DESCRIPTION: The READ_CONFIG mailbox command failed.
DATA: None
ACTION: None required.

elx_mes2013: Could not manually add FCF record 0, status <rc>

DESCRIPTION: Could not add FCF record to the FCF list.
DATA: None
ACTION: None required.

elx_mes2014: Invalid command <iocb.ulpCommand>

DESCRIPTION: The IOCB command is invalid.
DATA: None
ACTION: None required.

elx_mes2015: Invalid CT %x command <iocb.ulpCommand>

DESCRIPTION: Invalid Command-Type in the IOCB is not supported.
DATA: None
ACTION: None required.

elx_mes2017: REG_FCFI mbxStatus error <mbx status> HBA state <port_state>

DESCRIPTION: The REG_FCFI mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2018: REG_VFI mbxStatus error <mbx status> HBA state <port_state>

DESCRIPTION: The REG_VFI mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2022: INIT VPI Mailbox failed status <status>, mbxStatus <mbxStatus>

DESCRIPTION: The INIT VPI mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2401: Failed to allocate memory for ELS XRI management array of size <els_xri_cnt>

DESCRIPTION: Initialization failed to allocate memory for the ELS XRI management array.
DATA: None
ACTION: None required.

elx_mes2500: EQ_CREATE mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to create the event queue has failed.
DATA: None
ACTION: None required.

elx_mes2501: CQ_CREATE mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to create the completion queue has failed.
DATA: None
ACTION: None required.

elx_mes2502: MQ_CREATE mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to create the mailbox queue has failed.
DATA: None
ACTION: None required.

elx_mes2503: WQ_CREATE mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to create the work queue has failed.
DATA: None
ACTION: None required.

elx_mes2504: RQ_CREATE mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to create the receive queue has failed.
DATA: None
ACTION: None required.

elx_mes2505: EQ_DESTROY mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to delete the event queue has failed.
DATA: None
ACTION: None required.

elx_mes2506: CQ_DESTROY mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to delete the completion queue has failed.
DATA: None
ACTION: None required.

elx_mes2507: MQ_DESTROY mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to delete the mailbox queue has failed.
DATA: None
ACTION: None required.

elx_mes2508: WQ_DESTROY mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to delete the work queue has failed.
DATA: None
ACTION: None required.

elx_mes2509: RQ_DESTROY mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to delete the receive queue has failed.
DATA: None
ACTION: None required.

elx_mes2510: RQ_DESTROY mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to delete the receive queue has failed.
DATA: None
ACTION: None required.

elx_mes2511: POST_SGL mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to post the SGL pages to the firmware has failed.
DATA: None
ACTION: None required.

elx_mes2513: POST_SGL_BLOCK mailbox command failed status <shdr_status> add_status <shdr_add_status> mbx status <rc>

DESCRIPTION: The mailbox command sent to post the SGL pages to the firmware has failed.
DATA: None
ACTION: None required.

elx_mes2514: POST_RPI_HDR mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx status <rc>

DESCRIPTION: The mailbox command sent to post the RPUI header pages to the firmware has failed.
DATA: None
ACTION: None required.

elx_mes2515: ADD_FCF_RECORD mailbox failed with status <rc>

DESCRIPTION: The mailbox command to add the FCF record has failed.
DATA: None
ACTION: None required.

elx_mes2519: Unable to allocate memory for issuing NOP mailbox command

DESCRIPTION: Memory allocation for this mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2521: READ_FCF_RECORD mailbox failed with status <shdr_status> add_status <shdr_add_status>, mbx

DESCRIPTION: The READ_FCF_RECORD mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2522 Synchronous READ_FCF_RECORD mailbox failed with status x%x add_status x%x

DESCRIPTION: Driver failed to read the active FCF Record on an FCoE link - FCF may not be available. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2523: Allocated DMA memory size (<alloc_len>) is less than the requested DMA memory size (<req_len>)

DESCRIPTION: The ADD_FCF_RECORD mailbox command failed to retrieve the length required from the firmware.
DATA: None
ACTION: None required.

elx_mes2524: Failed to get the non-embedded SGE virtual address

DESCRIPTION: The READ_FCF_RECORD mailbox command could not retrieve the Scatter Gather Entry that was requested.
DATA: None
ACTION: None required.

elx_mes2527: Failed to allocate non-embedded SGE array

DESCRIPTION: Failed to allocate the non-embedded SGE array.
DATA: None
ACTION: None required.

elx_mes2528: Mailbox command <vpi> cannot issue

DESCRIPTION: The mailbox command could not be issued because the mailbox interrupt is disabled.
DATA: (1) mbxCommand, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2529: Mailbox command <vpi> cannot issue

DESCRIPTION: The SLI layer in the driver is inactive.
DATA: (1) mbxCommand, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2530: Mailbox command <vpi> cannot issue

DESCRIPTION: The SLI layer in the driver is inactive.
DATA: (1) mb.mbxCommand, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2531: Mailbox command <cpi> cannot issue

DESCRIPTION:
DATA: (1) mb.mbxCommand, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2532: Mailbox command <vpi> (<mbxCommand>) cannot issue

DESCRIPTION: The mailbox bootstrap code detected that the SLI layer is active.
DATA: (1) sli4_mbox_opcode, (2) sli_flag, (3) MBX_POLL
ACTION: None required.

elx_mes2533: Mailbox command <vpi> (<mbxCommand>) cannot issue

DESCRIPTION: The mailbox bootstrap code detected that the SLI layer is active.
DATA: (1) sli4_mbox_opcode, (2) sli_flag, (3) MBX_NOWAIT
ACTION: None required.

elx_mes2535: Unsupported RQ count (<entry_count>)

DESCRIPTION: The receive queue ring can only be 512, 1024, 2048, or 4096.
DATA: None
ACTION: None required.

elx_mes2536: Unsupported RQ count. (<entry_count>)

DESCRIPTION: The receive queue ring can only be 512, 1024, 2048, or 4096.
DATA: None
ACTION: None required.

elx_mes2537: Receive Frame Truncated!

DESCRIPTION: The receive unsolicited handler detected a truncated frame.
DATA: None
ACTION: None required.

elx_mes2541: Mailbox command <vpi> (<mbxCommand>) cannot issue

DESCRIPTION: The mailbox command does not have all of the fields set correctly.
DATA: (1) sli4_mbx_opcode, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2543: Mailbox command <vpi> (<mbxCommand>) cannot issue

DESCRIPTION: The mailbox command does not have all of the fields set correctly.
DATA: (1) sli4_mbx_opcode, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2544: Mailbox command <vpi> (<mbxCommand>) cannot issue

DESCRIPTION: The adapter cannot be accessed on the PCI bus.
DATA: (1) sli4_mbx_opcode, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2546: New FCF found index <index> tag <event_tag>

DESCRIPTION: A new FCF has been found.
DATA: None
ACTION: None required.

elx_mes2547: Read FCF record failed

DESCRIPTION: Could not read the FCF record from the firmware.
DATA: None
ACTION: None required.

elx_mes2548: FCF Table full count <count> tag <event_tag>

DESCRIPTION: The FCF table is full.
DATA: None
ACTION: None required.

elx_mes2549: FCF disconnected from network index <index> tag <event_tag>

DESCRIPTION: The FCF has disconnected from the network.
DATA: None
ACTION: None required.

elx_mes2550: UNREG_FCFI mbxStatus error <u.mb.mbxStatus> HBA state <port_state>

DESCRIPTION: The unregistered FCFI has failed.
DATA: None
ACTION: None required.

elx_mes2551: UNREG_FCFI mbox allocation failed HBA state <port_state>

DESCRIPTION: The allocation for the UNREG_FCFI mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2552: UNREG_FCFI issue mbox failed rc <rc> HBA state <port_state>

DESCRIPTION: The unregister FCFI mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2553: lpfc_unregister_unused_fcf failed to read FCF record HBA state.

DESCRIPTION:
DATA: None
ACTION: None required.

elx_mes2554: Could not allocate memory for fcf record

DESCRIPTION: Could not allocate memory for fcf record.
DATA: None
ACTION: None required.

elx_mes2555: UNREG_VFI mbxStatus error <u.mb.mbxStatus> HBA state <port_state>

DESCRIPTION: The unregister VFI mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2556: UNREG_VFI mbox allocation failed HBA state <port_state>

DESCRIPTION: Could not allocate memory for the UNREG_VFI mailbox command.
DATA: None
ACTION: None required.

elx_mes2557 UNREG_VFI issue mbox failed rc <rc> HBA state <port_state>

DESCRIPTION: Could not issue the UNREG_VFI mailbox command.
DATA: None
ACTION: None required.

elx_mes2558: ADD_FCF_RECORD mailbox failed with status<shdr_status> add_status <shdr_add_status>

DESCRIPTION: The ADD_FCF_RECORD mailbox command has failed.
DATA: None
ACTION: None required.

elx_mes2560: Failed to allocate mbox cmd memory

DESCRIPTION: Failed to allocate mailbox command memory.
DATA: None
ACTION: None required.

elx_mes2561: Allocated DMA memory size (<alloclen>) is less than the requested DMA memory size (<reqlen>)

DESCRIPTION: Could not get the memory required for the number of XRIs that are attempting to be posted.
DATA: None
ACTION: None required.

elx_mes2562: No room left for SCSI XRI allocation: max_xri=<sli4_hba.max_cfg_param.max_xri>, els_xri=<els_xri_cnt>

DESCRIPTION: The number of allocated XRIs has reached the max_xri value.
DATA: None
ACTION: None required.

elx_mes2563: Failed to allocate memory for SCSI XRI management array of size <sli4_hba.scsi_xri_max>

DESCRIPTION: Initialization could not allocate memory to hold the XRIs.
DATA: None
ACTION: None required.

elx_mes2564: POST_SGL_BLOCK mailbox command failed status <shdr_status> add_status <shdr_add_status> mbx status <rc>

DESCRIPTION: The list of XRI SGEs failed to register with the firmware.
DATA: None
ACTION: None required.

elx_mes2566: Failed to allocate connection table entry

DESCRIPTION: Failed to allocate connection table entry.
DATA: None
ACTION: None required.

elx_mes2567: Config region 23 has bad signature

DESCRIPTION: Configuration region 23 has an invalid signature.
DATA: None
ACTION: None required.

elx_mes2568: Config region 23 has bad version

DESCRIPTION: Configuration region 23 has an invalid version.
DATA: None
ACTION: None required.

elx_mes2570: Failed to read FCoE parameters

DESCRIPTION: Failed to read the FCoE parameters.
DATA: None
ACTION: None required.

elx_mes2572: Failed allocate memory for fast-path per-EQ handle array

DESCRIPTION: Failed to allocate memory for the fast-path per-EQ handle array.
DATA: None
ACTION: None required.

elx_mes2573: Failed allocate memory for msi-x interrupt vector entries

DESCRIPTION: Failed to allocate memory for MSI-X interrupt vector entries.
DATA: None
ACTION: None required.

elx_mes2574: Not enough EQs (<sli4_hba.max_cfg_param.max_eq>) from the pci function for supporting FCP EQs (<cfg_fcp_eq_count>)

DESCRIPTION: Failed to create the minimum fast-path event queues.
DATA: None
ACTION: None required.

elx_mes2576: Failed allocate memory for fast-path EQ record array

DESCRIPTION: Failed to allocate memory for the fast-path EQ record array.
DATA: None
ACTION: None required.

elx_mes2577: Failed allocate memory for fast-path CQ record array

DESCRIPTION: Failed to allocate memory for the fast-path CQ record array.
DATA: None
ACTION: None required.

elx_mes2578: Failed allocate memory for fast-path WQ record array

DESCRIPTION: Failed to allocate memory for the fast-path WQ record array.
DATA: None
ACTION: None required.

elx_mes2581: Not enough WQs (<sli4_hba.max_cfg_param.max_wq>) from the pci function for supporting FCP WQs (<cfg_fcp_wq_count>)

DESCRIPTION: The driver was not configured with the minimum number of fast-path work queues.
DATA: None
ACTION: None required.

elx_mes2597: Mailbox command <vpi> (<mbxCommand>) cannot issue

DESCRIPTION: A synchronous mailbox command failed after blocking asynchronous mailbox commands.
DATA: (1) sli4_mbx_opcode, (2) sli_flag, (3) flag
ACTION: None required.

elx_mes2598: Adapter Link is disabled.

DESCRIPTION: The adapter link is disabled.
DATA: None
ACTION: None required.

elx_mes2599: Adapter failed to issue DOWN_LINK mbox command rc <rc>

DESCRIPTION: The adapter failed to issue a DOWN_LINK mailbox command.
DATA: None
ACTION: None required.

elx_mes2600: lpfc_sli_read_serdes_param failed to allocate mailbox memory

DESCRIPTION: Failed to allocate mailbox memory.
DATA: None
ACTION: None required.

elx_mes2605: lpfc_dump_static_vport: memory allocation failed

DESCRIPTION: Memory allocation failed.
DATA: None
ACTION: None required.

elx_mes2606: No NPIV Fabric support

DESCRIPTION: No NPIV fabric support.
DATA: None
ACTION: None required.

elx_mes2607: Failed to allocate init_vpi mailbox

DESCRIPTION: Failed to allocate init_vpi mailbox.
DATA: None
ACTION: None required.

elx_mes2608: Failed to issue init_vpi mailbox

DESCRIPTION: Failed to issue init_vpi mailbox.
DATA: None
ACTION: None required.

elx_mes2609: Init VPI mailbox failed <u.mb.mbxStatus>

DESCRIPTION: Initialization of VPI mailbox has failed.
DATA: None
ACTION: None required.

elx_mes2610: HBA FCF index goes beyond driver's resource dimension

DESCRIPTION: While updating the round robin FCF bmask, the FCF index goes beyond the driver's internal resource dimension.
DATA: None
ACTION: None required.

elx_mes2619: Config region 23 has bad signature

DESCRIPTION: Configuration region 23 has an invalid signature.
DATA: None
ACTION: None required.

elx_mes2620: Config region 23 has bad version

DESCRIPTION: Configuration region 23 has an invalid version.
DATA: None
ACTION: None required.

elx_mes2621: Failed to allocate mbox for query firmware config cmd

DESCRIPTION: The driver failed to allocate mailbox memory.
DATA: None
ACTION: None required.

elx_mes2622: Query Firmware Config failed mbx status <rc>, status <shdr_status> add_status <shdr_add_status>

DESCRIPTION: The driver could not read the firmware configuration.
DATA: None
ACTION: None required.

elx_mes2623: FCoE Function not supported by firmware. Function mode = <function_mode>

DESCRIPTION: FCoE is not supported by this firmware.
DATA: None
ACTION: Use the OneCommand Manager application to update to the latest firmware.

elx_mes2705 Failed to enable interrupt

DESCRIPTION: The driver attempted to enable an interrupt mode. This is a fatal error and the driver unloads.This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2707: Ring <Ring#> handler: Failed to allocate iocb Rctl <fh_rctl> Type <fh_type> received

DESCRIPTION: The driver could not allocate an IOCB with which to associate this received frame.
DATA: None
ACTION: None required.

elx_mes2710 PCI channel disable preparing for reset

DESCRIPTION: The driver is resetting the PCI slot for this port (starting preparations). This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2711 PCI channel permanent disable for failure

DESCRIPTION: The driver has detected a fatal port error and is disabling the PCI channel. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2718: Clear Virtual Link Received for VPI <index> tag <event_tag>

DESCRIPTION: A clear virtual link was received from the fabric for this VPI.
DATA: None
ACTION: None required.

elx_mes2719: Invalid response length: tgt <TGT_ID> lun <LUN> cmnd <CMD> rsplen <RSPLEN>

DESCRIPTION: The response length for this FCP command is not supported.
DATA: None
ACTION: None required.

elx_mes2723 PCI channel I/O abort preparing for recovery

DESCRIPTION: The driver is preparing a port PCI channel for reset/recovery after an IO error. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2726: READ_FCF_RECORD Indicates empty FCF table

DESCRIPTION: The driver requested that the firmware provide a list of FCF entries with which to connect and the firmware responded that the FCF table is empty.
DATA: None
ACTION: None required.

elx_mes2729 Unable to dma_map_single request_buffer: x%x

DESCRIPTION: The driver was unable to map SCSI command scatter-gather buffer. This is a software driver error.
DATA: (1) dma mapping error.
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2731: Cannot find fabric controller node

DESCRIPTION: The driver was unable to find the fabric controller node in its database.
DATA: None
ACTION: None required.

elx_mes2732: Failed to issue INIT_VPI mailbox command

DESCRIPTION: The driver attempted to send a INIT_VPI mailbox command to initialize a VPort, but failed to send the mailbox command due to state of the adapter.
DATA: None
ACTION: None required.

elx_mes2745 Failed to allocate mbox for requesting FCF rediscover

DESCRIPTION: The driver attempted to rediscover the FCF table, but failed to allocate the memory needed. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2746: Failed FCF rediscover mailbox command failure

DESCRIPTION: The adapter returned a failure on the FCF rediscover mailbox command.
DATA: None
ACTION: None required.

elx_mes2747: Failed to issue read FCF record mailbox command

DESCRIPTION: The driver attempted to send a read FCF record mailbox command to start fast FCF failover FCF scan, but failed to send the mailbox command due to the state of the adapter.
DATA: None
ACTION: None required.

elx_mes2748 Failed to prepare for unregistering HBA's FCF record: rc=%d

DESCRIPTION: The driver encountered an initialization error when preparing to rescan the FCF tables and needed to unregister an old FCF record. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2749 Failed to prepare for unregistering HBA's FCF record: rc=%d

DESCRIPTION: The driver encountered an initialization error when preparing to unregister an FCF and needed to prepare the command. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2751: Adapter failed to restart, status reg <status>,FW Data: A8 <0xA8> AC <0xAC>

DESCRIPTION: The adapter has failed to restart.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2752: KILL_BOARD command failed retval <retval>

DESCRIPTION: The KILL BOARD mailbox command failed to complete.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2753: PLOGI failure DID:<DID> Status:<Status>/<Extended Status>

DESCRIPTION: A PLOGI to <DID> was failed either by the driver, firmware, or target. The <status> and <extended status> indicates why the PLOGI failed.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2754: PRLI failure DID:<DID> Status:<Status>/<Extended Status>

DESCRIPTION: A PRLI to <DID> was failed either by the driver, firmware, or target. The <status> and <extended status> indicates why the PRLI failed.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2755: ADISC failure DID:<DID> Status:<Status>/<Extended Status>

DESCRIPTION: An ADISC to <DID> was failed either by the driver, firmware, or target. The <status> and <extended status> indicates why the ADISC failed.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2756: LOGO failure DID:<DID> Status:<Status>/<Extended Status>

DESCRIPTION: A LOGO to <DID> was failed either by the driver, firmware, or target. The <status> and <extended status> indicates why the LOGO failed.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2757: Protocol failure detected during processing of FCP I/O op: tgt <tgt ID> lun <LUN> cmnd <CMD> rspInfo3 <rspInfo3>

DESCRIPTION: The FCP response from a target indicated that the response length is valid, but rspInfo3 indicates that there is no failure. This is a FCP specification violation by the target.
DATA: None
ACTION: If problems persist, report errors to Emulex technical support.

elx_mes2758: Failed to allocate mempool for read FCF record mbox command

DESCRIPTION: The driver failed to allocate memory from the mempool for issuing a FCF read mailbox command during the round robin FCF bmask update.
DATA: None
ACTION: None required.

elx_mes2759: Failed to allocate memory for round robin FCF failover bmask

DESCRIPTION: The driver failed to allocate memory for the round robin FCF failover bmask.
DATA: None
ACTION: Check that the system has enough kernel memory. If not, resolve the memory problem. You may need to reload the driver after the you resolve the memory problem.

elx_mes2762: HBA reported FCF index go beyond driver bmask dimension

DESCRIPTION: The adapter reports an FCF record index that goes beyond the driver's internal resource dimension for the bmask.
DATA: None
ACTION: Inform Emulex technical support about this message.

elx_mes2763: Failed to allocate mempool for read FCF record mbox command

DESCRIPTION: The driver failed to allocate memory from the mempool for issuing an FCF read mailbox command during the round robin FCF failover.
DATA: None
ACTION: None required.

elx_mes2765 Mailbox command READ_FCF_RECORD failed to retrieve a FCF record

DESCRIPTION: The driver failed to find an FCF record when the FCF table scan completed. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2772: Failed to issue FCF rediscovery mailbox command due to dead FCF

DESCRIPTION: The driver attempted to send an FCF rediscovery mailbox command to start fast FCF failover due to a dead FCF asynchronous event, but failed to send due to state of the adapter.
DATA: None
ACTION: None required.

elx_mes2774: Failed to issue FCF rediscovery mailbox command due to CVL

DESCRIPTION: The driver attempted to send an FCF rediscovery mailbox command to start fast FCF failover due to a Clear Virtual Link asynchronous event, but failed to send due to state of the adapter.
DATA: None
ACTION: None required.

New Events

elx_mes2796: Mailbox memory allocation failed

DESCRIPTION: The driver failed to get memory resources to release an RPI. The driver's heap is exhausted.
DATA: None.
ACTION: A server reboot is required to fix the exhaustion. Contact Emulex technical support if the problem persists.

elx_mes2798: Unreg_vpi failed vpi 0x%x, mb status = 0x%x

DESCRIPTION: The driver attempted to unregister a virtual port index and failed. The failure status is printed. This condition is not catastrophic, but is unexpected.
DATA: None.
ACTION: If problems persist, contact Emulex technical support.

elx_mes2813: Mgmt IO is Blocked %x - mbox cmd %x still active.

DESCRIPTION: The HBA's management interface is marked as blocked in preparation for an online or offline state transition. All user space access to the HBA via libdfc interface will be blocked. This is a notification of a run-state change only.
DATA: None.
ACTION: None required.

elx_mes2822: IOCB failed %s iotag 0x%x xri 0x%x

DESCRIPTION: The driver is attempting to drain an internal queue and failed. The failure reason and some state variables are written to the console.
DATA: None
ACTION: None required. This should be a transient condition. If not, contact Emulex technical support.

elx_mes2823: txq empty and txq_cnt is %d

DESCRIPTION: The driver has detected a discrepancy between the elements queued to the txq and the counter tracking the number or items. There is nothing for the driver to do except correct the counter - the txq is empty.
DATA: None
ACTION: None required.

elx_mes2824: Cannot re-enable interrupt after slot reset.

DESCRIPTION: The driver failed to re-enable interrupts following a PCI slot reset command.
DATA: None
ACTION: A system reboot may be required to fully recover. Contact Emulex technical support if problems persist.

elx_mes2825: Unknown PCI error state: x%x\n", state

DESCRIPTION: The driver writes this message to the console when the PCI subsystem has detected an error on an Emulex port and called the driver. The driver reacts by resetting the port in an attempt to recover.
DATA: None
ACTION: None required. Contact Emulex technical support if problems persist.

elx_mes2826: PCI channel disable preparing for reset

DESCRIPTION: The driver writes this message to the console when it is preparing the port for a reset operation. This message is notification of a corrective measure.
DATA: None
ACTION: None required. Contact Emulex technical support if problems persist.

elx_mes2827: PCI channel permanent disable for failure

DESCRIPTION: The driver writes this message to the console when a recovery mechanism has failed and the driver wants to mark the port with a permanent failure.
DATA: None
ACTION: A system reboot may correct the failure. If not, contact Emulex technical support.

elx_mes2828: PCI channel I/O abort preparing for recovery

DESCRIPTION: The driver writes this message to the console when it is preparing the port for a recovery operation. This is a notification message of the recovery action.
DATA: None
ACTION: None required.

elx_mes2831: FLOGI response with cleared Fabric bit fcf_index 0x%x Switch Name %02x%02x%02x%02x%02x%02x%02x%02x Fabric Name %02x%02x%02x%02x%02x%02x%02x%02x

DESCRIPTION: When the driver completed a FLOGI, the common service parameters did not indicate an FPort or NPort remote node. The driver treats this as an error.
DATA: None
ACTION: Validate the external cable connection and FPort/Nport configuration. Contact Emulex technical support if problems persist.

elx_mes2858: FLOGI failure Status:x%x/x%x TMO:x%x

DESCRIPTION: The driver issued a FLOGI, but never received completion within the timeout period. The driver marks the FLOGI as failed and stops discovery.
DATA: None
ACTION: Check the fabric to ensure it is operating correctly. Contact Emulex technical support if problems persist.

elx_mes2862: FCF (x%x) matches property of in-use FCF (x%x)

DESCRIPTION: The driver has found an FCF record that matches the properties of the current FCF record, except for the VLAN id and Index. The driver will attempt to use this FCF.
DATA: None
ACTION: None required. The driver is in its FCF discovery phase and is trying to recover a match to its in-use FCF.

elx_mes2863 New FCF (x%x) matches property of in-use FCF (x%x)

DESCRIPTION: The driver has found a new FCF record that matches the properties of the current FCF record, but the record instance numbers don't match. The driver is in its FCF discovery phase and is trying to recover a match to its in-use FCF.
DATA: None
ACTION: None required.

elx_mes2877 FCP XRI exchange busy wait time: %d seconds

DESCRIPTION: An FCP exchange cannot be released - no port completion. The driver is waiting. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2878 2878 ELS XRI exchange busy wait time: %d seconds

DESCRIPTION: An ELS exchange cannot be released - no port completion. The driver is waiting. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2881 RRQ failure DID:%06X Status:x%x/x%x

DESCRIPTION: The driver RRQ request failed - driver write target DID and status values. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2882 RRQ completes to NPort x%x with no ndlp. Data: x%x x%x x%x

DESCRIPTION: The driver completes a RRQ, but there is no node association. This is a software driver error.
DATA: (1) Status (2) Reason (3) IoTag
ACTION: If problems persist, report these errors to Emulex technical support.

elx_mes2884 Vport array allocation failed

DESCRIPTION: The driver could not create a buffer list of the vports. This is a software driver error.
DATA: None
ACTION: If problems persist, report these errors to Emulex technical support.

General Error Messages

elx_mes2925 Failed to issue CT ABTS RSP x%x on " "xri x%x

DESCRIPTION: The driver attempted and failed to issue a response to an unsolicited ABTS from the SAN.
DATA: None
ACTION: None. If problems persist, report these errors to Emulex technical support.

NIC Troubleshooting

The following section includes NIC troubleshooting information. Be sure to check the readme.txt file located on CD1 for other troubleshooting issues.

The following table provides ESXi Server NIC troubleshooting information for the OneConnect UCNA.

Table 4: ESXi Server NIC

Problem	Answer/Solution

1. When there is a great deal of network traffic in some VMs, a few VMs appear to have lost network connectivity.
2. A lot of "alloc_skb() failed" messages appear in the log file: /proc/vmware/log
	This could be due to low configured value for netPktHeapMaxSize. Try increasing it to a higher value. To read the current value, run:
	`# esxcfg-advcfg -j netPktHeapMaxSize`
	(A value of 0 indicates default - 64MB) To increase the size to (for example, 128 MB), run:
	`# esxcfg-advcfg -k 128 netPktHeapMaxSize`
	(netPktHeapMaxSize can also be configured through VI Client using **Configuration** > **Advanced Settings** > **VMKernel.**) After configuring the size, reboot the system.

Unable to ping from one VM to another VM.	OneConnect driver creates two vmnic interfaces - one for each port. If these interfaces are configured as uplinks in two separate vSwitches, the VMs in each of these switches are in separate networks with no network path between them. Thus, pinging between the VMs in the two groups fails. If you want all these VMs in the same network, configure them as teaming uplinks to one vSwitch option. Each of the vmnics, vmnic1 to vmnic16, must be configured in a separate vSwitch. In this configuration, there is no network path between the vSwitches and pinging between these VMs does not work.
When inserting or removing a 1Gb SFP-RJ45 module on a OneConnect adapter without RJ45 copper cables attached, the operating system indicates link up or down status. When inserting or removing copper cables attached to a switch to the module, link up or down events are not reported to the operating system.	There is no solution to this issue as the link status is not reported due to a PHY limitation on the card.
Flow control setting is not stored per port after rebooting the system.	With flow control, there is no persistence across reboot. It always starts with both RX and TX on. For persistence, run a config command from an RC file at reboot.

NIC Event/Error Logging

Retrieving ESXi Server NIC Error Log Codes

For ESXi Server systems, the NIC OneConnect (be2net) driver generates error codes to the /var/log/vmkernel log file. The vmkernel log file is an ASCII text file and can be viewed and searched with a text editor such as vi. The vmkernel log file is automatically rotated as it gets larger, and the rotated log files are named vmkernel.x, where x is an integer.

To search the log file for error messages, at the command prompt, type:

```
#cd /var/log
#less vmkernel
```

For example, you might see the following message:

```
Sep 9 19:48:04 esx-server vmkernel: WARNING: Found a BE2 card in
Gen 1 x8 PCI-e slot. Should be in Gen 2, x8 slot for best
performance.
```

ESXi Server NIC Event Log Entries

The following is a list of ESXi Server network event log error messages. It includes the severity of the error, the message displayed, and the message description. When reporting a problem with the OneConnect UCNA to Emulex, check the message log (/proc/vmware/log) and report any of these entries that may be present.

Note: In the following table, <D>, <DD>, or <DDD> in the 'Message Displayed' column refers to decimal values that appear in the actual error messages

Table 5: ESXi Server NIC Event Log Entries

Severity	Message Displayed	Description
Error	BladeEngine POST failed	Power ON Self Test of the OneConnect UCNA failed. This indicates either a hardware or a firmware problem. Try rebooting the system after a reset.
Error	`BladeEngine 2 initialization failed`	Either the initialization of the OneConnect UCNA or the allocation of some resource for initializing the driver failed. In most cases, this message is accompanied by another more specific error message. Try rebooting the system after a power cycling. If the problem persists, this could indicate a hardware problem or corrupted firmware.
Warning	`Using INTx interrupts. Net-Queues feature are disabled`	The driver could not allocate MSIx vector for interrupt. The driver may continue to work, but the performance may be impacted.
Warning	`WARNING: Found a BE2 card in Gen <D> x<D> PCI-e slot. Should be in Gen 2, x8 slot for best performance`	OneConnect is a x8, Gen2 PCI-e device. For best performance, OneConnect should be installed in a Gen2 PCI-e slot 8 or 16 channels wide. The driver prints this warning if it finds the device in a slower or narrower PCI-e slot. The device continues to work with lesser performance.
Warning	`Command to get pause frame settings failed`	The firmware command to get PAUSE settings failed.
Warning	`Command to set pause frame settings failed`	The firmware command to change PAUSE settings failed.
Warning	`Command to apply MAC address filter failed`	Driver could not set the MAC address filter on the hardware. The device continues to work. There may be an impact on the performance.

Table 5: ESXi Server NIC Event Log Entries (Continued)

Severity	Message Displayed	Description
Warning	`Command to delete MAC address filter failed`	The firmware command to delete a MAC address filter failed. The device should continue to work.
Warning	`Unable to get Firmware Version`	The command to get firmware revision number failed. The version number is not shown. The device must continue to work.
Warning	`Did not receive completions for all TX requests`	While unloading the driver, some outstanding transmit requests are found. This is an indication that the hardware is not functioning properly.
Warning	`Failed to register char device`	Could not create the char device used for certain management functions. The driver must still work. You may not be able to use HBACMD to interact with the device.
Warning	`alloc_skb failed. Try increas-ing netPktHeapMaxSize`	Could not allocate skb structure to send a frame received from the network to the OS. Transient failure can be ignored. Persistent message points to insufficient memory allocated for network heap. For example, to increase the heap size to 128MB, run: `# esxcfg-advcfg -k 128 netPk-tHeapMaxSize`
Warning	`Invalid MTU requested. Must be between 64 and 8174 bytes.`	Invalid MTU size in MTU configuration ioctl. The MTU is not changed.
Warning	`Invalid vlan priority labeled. Must be 0 - 7`	Request to set VLAN priority tag was made with invalid value.
Warning	`Failed to allocate memory for pass through command`	Memory allocation for pass through command failed. The driver should continue to function. The configuration utility that issued the pass through ioctl fails.
Warning	Pass through command failed. opcode <DDD>, status 0x<XXX>	The pass through firmware command with indicated opcode failed. The driver should continue to function. The configuration utility that issued the pass through ioctl fails.
Warning	Command to modify EQ delay failed	Firmware command to change the EQ delay failed. The driver continues to function. The adaptive interrupt coalescing does not function correctly.

NIC Adapter Firmware Error

The following POST message appears if you have loaded firmware on the OneConnect adapter that the controller does not support:

```
POST Error : Firmware halted. This firmware does not support this
controller.
```

CIM Provider Troubleshooting

The following error message may appear if the CIM hosts are not properly added to the OneCommand Manager:

```
Unknown or invalid host specified
```

There could be instances when even with all the drivers, CIM Provider, and the CIM Client on a Windows machine are properly installed, the CIM hosts might still not get added to OneCommand Manager. Listed below are the most common reasons for this.

- The machine with the specified IP is not reachable. Try pinging the machine.
- The specified protocol (HTTP/HTTPS) is not supported by the CIMOM. Most often the CIMOM will be configured to use HTTPS. So if you are trying to connect with HTTP, you might get an error. Try using HTTPS instead.
- The namespace specified is wrong. Make sure the namespace for the emulex MN provider is ‘root/emulex’.
- The username or the password specified is wrong. Verify that the username given is correct, and try retyping the password.
- The CIMOM is not running on the ESXi host. Try restarting the CIMOM. You can check whether the CIMOM (sfcb) is running by typing the below commands.

  ```
  #/etc/init.d/sfcbd-watchdog status
  ```

  or

  ```
  #ps | grep sfcb
  ```

Also, if the CIMOM is listening to a different port than 5988 or 5989, the connection might not take place. You can configure the sfcb CIMOM settings by editing /etc/sfcb/sfcb.cfg.

If you still experience problems when adding the host, execute the following commands on the ESXi host and send the output to the Emulex technical support team.

```
vm-support dump
esxcfg-module -l
esxcfg-scsidevs -a
esxcli software vib list | grep be2
esxcli software vib list | grep lpfc
esxcli software vib list | grep emu
esxcfg-nics -l
lspci
```

Send the “/var/log/syslog.log” file for all of the above operations.

APPENDIX A DHCP Recommendations

If you use a DHCP (Dynamic Host Configuration Protocol) server to obtain an IP address for the OneConnect UCNA, Emulex recommends that you set up a reservation. A reservation assigns a specific IP address based on the MAC address of the OneConnect UCNA. If you do not reserve an IP address through DHCP, then you must set the lease length for the OneConnect UCNA IP address to unlimited to prevent the IP-address lease from expiring.