OneCommand™ Manager Command Line Interface Version 10.2

User Manual

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Note: References to OCe11100 series products also apply to OCe11100R series products.

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1. Introduction

Overview

The OneCommand™ Manager Command Line Interface (CLI) utility is a comprehensive management utility for Emulex host bus adapters (HBAs), universal converged network adapters (UCNAs, also called OneConnect adapters), and converged fabric adapters (CFAs). The CLI provides support for commonly used commands without requiring installation of the OneCommand Manager graphical user interface (GUI). The OneCommand Manager CLI console application name is HbaCmd. A single operation is performed by entering "hbacmd", followed by a CLI client command and its possible parameters, at the command line.

Compatibility

The OneCommand Manager application can be installed on multiple operating systems: Windows, Linux, Solaris, and VMware ESXi.

For VMware ESXi hosts, you can manage adapters using the OneCommand Manager application on Windows, but you must install and use the appropriate Emulex CIM Provider on those VMware hosts.

Note: For VMware ESXi hosts, when advanced adapter management capabilities are required (for example, iSCSI Management and port disable), use the OneCommand Manager for VMware vCenter software plug-in. For more details, see the *OneCommand Manager for VMware vCenter User Manual*.

For supported versions of operating systems, platforms, and adapters, see the Emulex website.

Abbreviations

ARI	Alternative Routing-ID Interpretation
ARP	address resolution protocol
ASIC	application-specific integrated circuit
BIOS	basic input-output system
CEE	Converged Enhanced Ethernet
CFA	converged fabric adapter
CHAP	Challenge Handshake Authentication Protocol
CIM	Common Interface Model
CIMOM	Common Information Model Object Manager
CIN	Cisco, Intel, Nuova (data center bridging exchange)
CLI	command line interface
DAC	direct-attach copper

D_ID	destination ID
DCB	data center bridging
DCBX	data center bridging exchange
DH	Diffie-Hellman
DHCHAP	Diffie-Hellman Challenge Handshake Authentication Protocol
ETO	Extended TimeOut
FAT	file allocation table
FC	Fibre Channel
FCoE	Fibre Channel over Ethernet
FEC	forward error correction
FIP	FCoE Initialization Protocol
GUI	graphical user interface
HBA	host bus adapter
hex	hexadecimal
iBFT	iSCSI boot firmware table
ICMP	Internet Control Message Protocol
IP	Internet Protocol
iSCSI	internet Small Computer System Interface
iSNS	internet Storage Name Server
LACP	Link Aggregation Control Protocol
LLDP	link layer discovery protocol
LPFC	LightPulse Fibre Channel
LPVID	logical port VLAN ID
LUN	logical unit number
MAC	media access control
MILI	Management Interface Library
MSI	message signaled interrupts
MTU	maximum transmission unit
NFS	network file system
NIC	network interface card (or controller)
NPAR	NIC partition
NPVID	N_Port_ID virtualization
NVP	normal velocity of propagation
PFC	priority-based flow control
PGID	priority group ID
PGBW	priority group bandwidth
PHY	physical layer

POST	power-on self-test
PXE	Pre-boot Execution Environment
RHEL	Red Hat Enterprise Linux
RM	remote management
RPM	resource package manager
SAN	storage area network
SCSI	Small Computer System Interface
SFCB	Small Footprint CIM Broker
SFP	small form factor pluggable
SLES	SUSE Linux Enterprise Server
SR-IOV	single root I/O virtualization
SSH	Secure Shell
TCP	Transmission Control Protocol
TDR	time-domain reflectometer
UCNA	universal converged network adapter
UEFI	Unified Extensible Firmware Interface
UFP	Universal Fabric Port
UMC	Universal Multichannel
VEPA	Virtual Ethernet Port Aggregator
VPD	vital product data
VPort	virtual port
WWN	world wide name
WWNN	world wide node name
WWPN	world wide port name
VM	virtual machine
XML	extensible markup language

OneCommand Manager Secure Management

Overview

OneCommand Manager Secure Management gives system administrators the ability to further enhance the active management security of their networks. Using Secure Management, administrators can define each user's privileges for managing both local and remote adapters. When running in Secure Management mode, users must log in with their user name and password to run the OneCommand Manager application. When users are authenticated, they can only perform the functions allowed by the OneCommand Manager user group to which they belong. If your systems are running in an LDAP or Active Directory domain, the OneCommand Manager application will authenticate the user with those defined in that domain. For Linux and Solaris systems this is done using PAM.

Note: OneCommand Manager Secure Management is supported on Linux, Solaris, and Windows, but is not supported on VMware hosts.

Administrators set up user accounts such that a user belongs to one of the OneCommand Manager application user groups. The user groups define the management capabilities for the user. The following table defines the OneCommand Manager application user groups and each group's management capabilities.

Table 1-1 Secure Management User Privileges

Group Name	OneCommand Manager Capability
ocmadmin	Allows full active management of local and remote adapters.
ocmlocaladmin	Permits full active management of local adapters only
ocmuser	Permits read-only access of local and remote adapters
ocmlocaluser	Permits read-only access of local adapters.

On Linux or Solaris systems, the unix “getent group” utility can be run on the target host system’s command shell to verify the correct configuration of the groups. The groups, and users within the groups, will appear in the output of this command.

Note: Although a user may belong to the administrator group or be the root user, they will not have full privileges to run the OneCommand Manager application unless they are also a member of the ocmadmin group. Otherwise, when secure management is enabled, a root user or administrator can only manage local adapters (similar to the ocmlocaladmin user).

Remote management operations between two machines is allowed or denied depending on the OneCommand Manager secure management status of the machines, and the domains to which the machines belong. The following tables list the behavior (assuming appropriate user credentials are used).

Table 1-2 Active Commands: machines on same domain

	Remote Server (Secure)	Remote Server (Not Secure)
Client (Secure)	Allowed	Denied *
Client (Not Secure)	Denied	Allowed

Table 1-3 Active Commands: machines on different domain

	Remote Server (Secure)	Remote Server (Not Secure)
Client (Secure)	Denied**	Denied *
Client (Not Secure)	Denied	Allowed

Table 1-4 Passive Commands: machines on any domain

	Remote Server (Secure)	Remote Server (Not Secure)
Client (Secure)	Allowed	Allowed
Client (Not Secure)	Allowed	Allowed

* To inform you of an unsecured server that you may want to secure.

** Allowed if the username and password are the same on both domains.

OneCommand Manager Secure Management Configuration Requirements

For systems to run in the OneCommand Manager secure management environment, they need to be configured to provide the following two capabilities:

- Authentication - On Linux and Solaris, this is done through the PAM interface and must be configured as follows:
  - On Solaris, place the correct setting in the "auth" section of the `/etc/pam.d/other` file, or its earlier equivalent, `/etc/pam.conf`.

    Note: For Solaris systems, you must use 'useradd -G groupname' for authentication to work. You cannot use a lowercase 'g'.

  - On Linux, it is the `/etc/pam.d/passwd` file "auth" section, or the equivalent.
- User Group Membership – From the host machine, OneCommand Manager Secure Management must be able to access the OneCommand Manager group to which the user belongs. For Linux and Solaris systems, it uses the 'getgrnam' and 'getgrid' C-library API calls. The equivalent to the API calls can be obtained

by typing "getent group" from the shell command line. If the four OneCommand Manager group names are listed with their member users, the machine is ready to use OneCommand Manager secure management.

Secure Management Installation

The enabling or disabling of the Secure Management feature is specified at OneCommand Manager installation time. This can be done either interactively or by using dedicated install switches on Windows, Linux, and Solaris. On Linux and Solaris, if the OneCommand Manager groups described above are not configured on the machine at the time of the OneCommand Manager installation, installation will fail when the secure management feature is selected.

Notes

- Only a user with Administrator/Root privileges is allowed to either enable or disable the secure management feature on a local host machine.
- Management mode cannot be used if Secure Management is enabled (see the management mode section, step 5 on page 25 for more information).

Linux and Solaris

Interactive Installation

Enterprise OneCommand Manager installations performed in interactive mode will ask if OneCommand Manager Secure Management mode should be enabled. If the answer is yes, the other management mode questions will be skipped. If the answer is no to the OneCommand Manager Secure Management mode question, then the management mode installation questions will follow.

Unattended Installation with Install Script Switch Option Support

Enterprise OneCommand Manager installations performed in unattended mode provide a switch option to enable OneCommand Manager Secure Management. If the OneCommand Manager Secure Management switch is not used with the installation, Secure Management will be disabled.

Windows

During OneCommand Manager installations performed in interactive mode, you will be presented with a management mode window where you can select Secure Management as the management mode.

Using OneCommand Manager with Secure Management Enabled

To run the OneCommand Manager CLI application when Secure Management is enabled, you must include your user name and password each time you type a command. For example:

Secure Management disabled:

```
hbacmd <command>
```

Secure Management enabled:

```
hbacmd <m=sec> <userid><password><command>
```

User names and passwords are used to authenticate the commands. Once the credentials are authenticated, the OneCommand Manager will determine which one of the four user groups you belong to and will allow command usage as appropriate.

2. Installing and Uninstalling the CLI

This chapter details prerequisites and procedures for installing and uninstalling the OneCommand Manager CLI in the following operating systems: Linux, Solaris, VMware ESXi, and Windows. It also describes the Secure Management capability and the procedure for starting and stopping daemon processes.

Linux

Citrix

Citrix is based on CentOS Linux, however, for the OneCommand Manager CLI, Citrix is more comparable to VMware – a hypervisor-style server for managing virtual machines. The Citrix XenServer 6.2 operating system contains the OneCommand Manager CLI application, and no additional installation is required. Citrix XenServer 5.6 SP2 and Citrix XenServer 6.0 and 6.1 operating systems will require OCM CLI installation.

Note: Updated versions of OneCommand Manager CLI for Citrix XenServer are available as part of the Device Update Driver kit for Citrix XenServer 5.6 SP2 and Citrix XenServer 6.0. For the latest kit, see the Emulex website.

Installing in Linux Without an Existing OneCommand CLI Kit

Note: Prior to installation, OneCommand groups must be configured on the LDAP network or the local host machine for Secure Management operation. See "OneCommand Manager Secure Management Configuration Requirements" on page 15 for configuration instructions.

Linux OneCommand Manager Requirements

For new systems, install the specific Linux driver rpm files before installing the OneCommand Manager CLI.

Libnl Library

On RHEL 5.5 and later and RHEL 6 and later, the OneCommand Core rpm file requires the "Libnl" library. This library is not installed by default, but can be obtained from the operating system distribution media.

- For i386 RHEL 5.5, RHEL 5.6, and RHEL 6, use the 32bit libnl library.
- For x86_64 RHEL 5.5, RHEL 5.6, and RHEL 6, use the 64bit libnl library.
- For PPC RHEL 5.5, RHEL 5.6, and RHEL 6, use the 64bit libnl library.

libhbaapi Library

The inbox libhbaapi library is required on RHEL 5, RHEL 6, and SLES 11.

- For i386 RHEL 5 and RHEL 6, use the 32bit libhbaapi RPM.
- For x86_64 RHEL 5 and RHEL 6, use the 64bit libhbaapi RPM.
- For PPC RHEL 5 use the 32bit libhbaapi RPM.
- For PPC RHEL 6 use the 64bit libhbaapi RPM.

For existing systems, before installing the OneCommand Manager CLI, download the appropriate Linux driver from the Emulex website, and install it. If specified, also download and install the appropriate library file. For example,

- On OneConnect FCoE adapters:
  - For RHEL 5 and SLES 10 operating systems, use Linux driver version 8.2.0.33.3p, or later.
  - For RHEL 6 (and later versions) and SLES 11 SP1 (and later versions) operating systems, use Linux driver version 8.3.5. Also, the RHEL 6 Enterprise kit requires the installation of the libstdc++-5.so library. This library is available through the compat-libstdc++-33-3.2.3-68.<arch>.rpm or later. The PPC64 and x86_64 builds require the 64-bit version installed, which is installed in /usr/lib64. The i386 build requires the 32-bit version installed which is installed in /usr/lib.
- On OneConnect NIC adapters (including iSCSI-NIC and FCoE-NIC adapters), use the NIC driver.

To install the OneCommand Manager CLI in Linux without an existing OneCommand CLI:

1. Copy the applications kit tar file to a directory on the installation machine.
2. Change to the directory where you copied the tar file.
3. Untar the file:

   ```
   tar zxvf elxocmcore-<supported_os>-<app_ver>-<rel>.tgz
   ```
4. Change to the core kit directory created in step 3.

   ```
   cd elxocmcore-<supported_os>-<app_ver>-<rel>
   ```
5. Run the install.sh script.

   ```
   ./install.sh
   ```

   Note: install.sh can also be run in non-interactive (quiet) mode. Enter the following command to view the syntax:

   ```
   ./install.sh --help
   ```

   The core kit consists of three or four rpm files for each supported architecture and each supported version of Linux. For example:

   - elxocmlibhbaapi-*.rpm (on 64-bit platforms that support 32-bit applications, there are two of these files)
   - elxocmcore-*.rpm
   - elxocmcorelibs-*.rpm

6. When prompted, choose whether or not to enable Secure Management for OneCommand:

```
Do you want to enable Secure Management feature for OneCommand? (s/u)
Enter 's' to select secure management. (LDAP/NIS OCM group configuration required)
Enter 'u' to run without secure management (default).
Enter the letter 's' or 'u'.
```

Installing in Linux With an Existing OneCommand CLI Kit

Before installing the OneCommand Manager CLI, download the appropriate driver from the Emulex website and install the driver. For example:

- On OneConnect FCoE adapters:
  - For RHEL 5.5and later and SLES10 SP3 and later operating systems, use Linux driver version 8.2.0.x.
  - For RHEL6 and later and SL11 SP1 and later operating systems, use Linux driver version 8.3.5.x.
- On OneConnect iSCSI adapters, use the iSCSI driver.
- On OneConnect NIC adapters (including iSCSI-NIC and FCoE-NIC adapters), use the Ethernet driver.

Note: The OneCommand Manager core kit cannot be installed if a previous version of the HBAnyware utility is installed.

You have two options when installing the OneCommand Manager CLI on a Linux system with an existing OneCommand CLI kit:

- Updating an existing installation – preserve existing settings
- Performing a clean install – overwrite existing settings

Updating (Preserving Existing Settings)

To update the OneCommand Manager CLI and preserve settings, you must install the current core kit as detailed in "Installing in Linux Without an Existing OneCommand CLI Kit" on page 18. The ".rpm" file handles the configuration file update. The install script executes an rpm update (rpm -U *.rpm) to update the installed version of the core kit to the current version.

Note: There is no update path from an HBAnyware 4.x or 3.x core kit to a OneCommand Manager 5.1 or later core kit. You must un-install previous versions of the HBAnyware utility before installing a OneCommand Manager core kit. For information on uninstalling older versions of HBAnyware, see "Uninstalling Older HBAnyware Kits in Linux" on page 21.

Performing a Clean Install (Removing Existing Settings)

1. Uninstall the existing OneCommand Manager CLI using the uninstall script included in the tar file or in /usr/sbin/ocmanager/scripts directory. Your configuration files are backed up by rpm with an ".rpmsave" extension.

   Note: If an HBAnyware CLI or enterprise kit is installed, follow the procedure for "Uninstalling Older HBAnyware Kits in Linux" on page 21.

2. Install the specific rpm file for your driver for Linux version. For information on installing the rpm file, see "Installing in Linux Without an Existing OneCommand CLI Kit" on page 18.

Uninstalling in Linux

To uninstall the OneCommand Manager CLI in Linux:

1. Log on as "root".
2. Do one of the following:
   - Run the uninstall_ocmanager.sh script located in /usr/sbin/hbanyware/scripts.
   - Run the uninstall.sh script located in the installation tar file.

Uninstalling Older HBAnyware Kits in Linux

Uninstalling an Older HBAnyware Core Kit

1. Run the following command to remove the core kit.

   ```
   rpm -e elxlinuxcorekit
   ```

Uninstalling an Older HBAnyware Enterprise Kit

1. Do one of the following:
   - Run the uninstall script located in /usr/sbin/hbanyware/scripts to remove the enterprise kit.
   - Run the uninstall script located in the tar file to remove the enterprise kit.

   If the HBAnyware Security Configurator is installed, you must uninstall it before uninstalling the HBAnyware configuration utility. You must use the uninstall script that shipped with the version of OneCommand Security Configurator you want to remove and proceed to step 2. If the Security Configurator is not installed, proceed to step 3.
2. If the HBAnyware Security Configurator is installed, follow these steps:
   a. Log on as "root".
   b. Change to the directory containing the tar file.
   c. Extract the tar file using the tar -xvf command.
   d. Change to the newly created directory.

e. Run the uninstall script with the ssc parameter specified. Type

```
./uninstall ssc
```

3. Uninstall the HBAnyware utility and the Application Helper module:
   a. Log on as "root".
   b. Change to the directory containing the tar file.
   c. Extract the tar file using the tar -xvf command.
   d. Change to the newly created directory.
   e. Uninstall any previously installed versions. Type

```
./uninstall
```

Solaris

Installing in Solaris

Note: Prior to installation, OneCommand groups must be configured on the LDAP network or the local host machine for Secure Management operation. See "OneCommand Manager Secure Management Configuration Requirements" on page 15 for configuration instructions.

Before installing the OneCommand Manager CLI, install the appropriate driver:

- The Solaris FC/FCoE inbox driver version emlxs 2.80.8.0 or later or the out-of-box driver version elxfc 2.85.xx.xx must be installed for FC/FCoE management.
- The NIC inbox driver version oce 4.4.173.9.3S or later or the out-of-box driver version elxnic 4.1.xx.xx must be installed for UCNA or CFA management.

  Note: If Emulex adapters are installed on the system, the NIC driver must be installed and reporting all NIC ports. Otherwise, the OneCommand Manager application cannot manage Emulex network adapters.

To install the OneCommand Manager CLI in Solaris:

1. Copy the OneCommand Manager core kit to a temporary directory on the system.
2. Untar the core kit by typing

```
tar xvf elxocmcore-solaris-<kit version>.tar
```

3. Change to the newly created elxocmcore-solaris-<kit version> directory:

```
cd ./elxocmcore-solaris-<kit version>/
```

4. Run the install script and follow the instructions.

```
./install
```

   Note: The install script can also be run in non-interactive (quiet) mode. Enter the following command to view the syntax:

```
./install --help
```

If any of the following are already present on the system, the install script attempts to remove them first:

- HBAnyware utility
- OneCommand Manager core kit
- OneCommand Manager application enterprise kit
- Solaris driver utilities

5. When prompted, choose whether or not to enable Secure Management for OneCommand:

```
Do you want to enable Secure Management feature for OneCommand? (s/u)
Enter 's' to select secure management. (LDAP/NIS OCM group configuration required)
Enter 'u' to run without secure management (default).
Enter the letter 's' or 'u'.
```

Uninstalling in Solaris

To uninstall the OneCommand Manager CLI in Solaris:

1. Log on as "root".
2. Do one of the following:
   - Run /opt/ELXocm/scripts/uninstall.
   - Run the uninstall script located in the installation tar file.
   - Enter the command pkgrm ELXocmcore.

   Note: The uninstall script can also be run in non-interactive (quiet) mode. Enter the following command to view the syntax:

```
./uninstall --help
```

VMware ESXi

For installing and uninstalling the Emulex CIM Provider in VMware systems, only VMware ESXi hosts are supported and you must install and use the appropriate Emulex CIM Provider.

See the following section "Installing the CIM Provider for VMware ESXi Hosts".

Installing the CIM Provider for VMware ESXi Hosts

For VMware ESXi hosts, you can manage adapters using the OneCommand Manager application on Windows, but you must install and use the appropriate Emulex CIM Provider.

VMware ESXi is packaged with an inbox Emulex CIM Provider. The inbox Emulex CIM Provider enables you to manage Emulex FC adapters, but not Emulex network adapters. To manage Emulex network adapters, you must install the out-of-box Emulex CIM Provider.

The Emulex CIM Provider is available as an offline bundle in ESXi platforms. VMware recommends using the offline bundle to update software on VMware platforms. For more information about the ESXi Patch Management activities, see the VMware website.

To install the Emulex CIM Provider in a VMware ESXi hypervisor environment, use the esxli command line utility and perform the following steps:

1. Copy the CIM provider zip file to /var/log/vmware.
2. Log on to the VMware hypervisor host, and execute the following command all on one line:

```
esxcli software vib install -d
vmware-esx-provider-emulex-cim-provider-50.3.6.11.1-01.zip
--maintenance-mode
```

3. Reboot the system.

Windows

Installing in Windows

There are two ways to install the OneCommand Manager CLI in Windows:

- Attended installation – you are present during the installation. You will be prompted for more information for the installation to continue.
- Unattended installation – you do not need to be present during the installation. Installation will complete on its own. Installation progress may be displayed as an option.

Attended Installation

To install the OneCommand Manager CLI, run the installation.exe file for a core Windows driver kit that does not include the OneCommand Manager GUI, and follow the installer directions.

Use the following syntax for the installation executable file:

```
elxocmcore-windows-<arch>-<kit version>.exe
```

- <arch> is either “x64” or “x86”.
- <kit version> represents the complete kit version.

For example, at the command prompt, type

```
elxocmcore-windows-x64-5.0.2.14-1.exe
```

Unattended Installation

To install the OneCommand Manager CLI in Windows unattended, use the following procedure:

1. From the Emulex website, download the x64 or x86 OneCommand Manager Core Kit installation file to your system.

2. Use the following syntax for the installation executable file:

   ```
   elxocmcore-windows-<arch>-<kit version>.exe <option>
   ```

3. Activate the kit with switch /q or /q2.
   - The /q switch displays progress reports.
   - The /q2 switch does not display progress reports.
4. You can enable Secure Management Mode by adding the sec=1 argument or disable it by sec=0. If the sec argument is not entered, Secure Management is disabled by default. See "OneCommand Manager Secure Management" on page 14 for more information.

   To enable Secure Management, at the command prompt type

   ```
   elxocm-windows-x64-5.01.00.10-4.exe sec=1 /q2
   ```

   To disable Secure Management, at the command prompt type

   ```
   elxocm-windows-x64-5.01.00.10-4.exe sec=0 /q2
   ```

5. You can select a Management Mode by adding the mmode argument and the ability to change that Management Mode by adding the change argument with selected values as in the example below.

   Note: If you enabled Secure Management in Step 4, you cannot enter an mmode value. Doing so will result in a 'conflicting parameters' error.

   For example, at the command prompt type

   ```
   elxocm-windows-x64-5.01.00.10-4.exe mmode=3 achange=1 /q2
   ```

   The following are the possible mmode values:

   1 – Local Only Management Mode

   2 – Local Plus Management Mode

   3 – Full Management Mode

   4 – Local Plus Management Mode and Read Only

   5 – Full Management Mode and Read Only

   6 – Management host

   The following are the possible achange values:

   0 – Do not allow Management Mode to change

   1 – Allow Management Mode to change

   You can also set the following optional parameters:

   - MHost – This optional switch allows a non-management-host user to select a Management Host with which to register. If this switch is not specified, the default value of 0 will be used and the capability will be disabled. If the switch is specified, the value can be a host name or an IP address which will be validated by the installer. An error message appears if /mmode is set as Local Only or Management Host.

- excl – This optional switch allows the non-management-host user to select whether the OneCommand Manager application will process requests exclusively from the Management Host specified by the MHost switch. This option is only accepted if accompanied by a valid MHost value; otherwise an error message appears. If this switch is not specified, the default value of 0 will be used. If the switch is specified, the valid values are:

  0 – Remotely managed by other hosts.

  1 – Remotely managed by Management Host ONLY.
- Mtcp – This optional switch allows you to enable or disable remote management and to specify the TCP/IP port number over which management will occur. If this switch is not specified, the default TCP/IP port number 23333 will be used.

  If the management host option is selected, you must either select the default port number or enter a valid TCP/IP port number on the command line. A value of 0 will not be accepted.

  If one of the non-management host options is selected, you can enter the TCP/IP port number on the command line.

Uninstalling in Windows

There are two ways to uninstall the OneCommand Manager CLI in Windows:

- Through the control panel
- Through the command line

Uninstalling through the Control Panel

To uninstall the OneCommand Manager CLI in Windows through the control panel:

1. In Windows 2008 and Windows 2008 R2, select **Start > Control Panel > Programs > Uninstall a Program.**
2. If present, select **Emulex Common SAN Management** [version], and click **Remove** or **Uninstall**. Click **Yes**.

   The Emulex Common SAN Management components are removed from the system.
3. Select **Emulex OCManager CLI** [version] and click **Remove** or **Uninstall**.

Uninstalling through the Command Line

To uninstall the OneCommand Manager CLI in Windows through the command line:

1. Change to the appropriate uninstall directory:

   ```
   cd <Install Location>\Emulex\Util\Uninstall
   ```
2. Type

   ```
   uninstall_OCManager_Core.bat
   ```

Starting and Stopping Daemon Processes

Linux and Solaris

On Linux and Solaris machines, you can stop and start the OneCommand Manager daemon processes using the "stop_ocmanager" and "start_ocmanager" scripts respectively. These are found in the following OneCommand Manager installation directories:

- Linux – /usr/sbin/ocmanager
- Solaris – /opt/ELXocm

There are two basic daemon processes, included with OneCommand Manager CLI, that are affected by these scripts. They are:

- elxhbamgrd – Remote management daemon which services requests from OneCommand Manager clients running on remote host machines.
- mili2d – MILI daemon that routes major portions of the local OneCommand Manager client network adapter management requests.

The daemon processes start at system boot time.

3. Updating to the OneCommand Manager Application Enterprise Kit

Note: The full-featured OneCommand Manager application enterprise kit is not supported on Citrix XenServer 5.6 SP2, Citrix XenServer 6.0, or VMware ESXi server.

This chapter details procedures for updating the OneCommand Manager CLI to the OneCommand Manager application enterprise kit in Linux, Solaris, and Windows operating systems. An update can be performed only if the version of the OneCommand Manager application enterprise kit is the same or later than the OneCommand Manager CLI version.

Note: You cannot update a OneCommand Manager CLI with a previous version of the OneCommand Manager application enterprise kit.

Linux

To update from the OneCommand Manager CLI to the full-featured OneCommand Manager application enterprise kit in Linux, run the install.sh script of the OneCommand Manager application enterprise kit.

The install script executes an rpm update (rpm -U *.rpm) to update the installed core kit to an enterprise kit.

Solaris

To update from the OneCommand Manager CLI to the full-featured OneCommand Manager application enterprise kit in Solaris:

1. Download the OneCommand Manager application enterprise kit to a temporary directory on your system.
2. Untar the OneCommand Manager application enterprise kit tar file:

   ```
   tar xvf elxocm-solaris-<kit version>.tar
   ```

3. Change to the newly created elxocm-<kit version> directory:

   ```
   cd ./elxocm-solaris-<kit version>/
   ```

4. Run the install script and follow the instructions:

   ```
   ./install
   ```

   Note: The install script can also be run in non-interactive (quiet) mode. Enter the following command to view the syntax:

   ```
   ./install --help
   ```

Windows

To update from the OneCommand Manager CLI to the full-featured OneCommand Manager application enterprise kit in Windows:

1. From the desktop, run the "elxocm-windows--<kit version>.exe" file that contains the full application kit.

   Running this executable file removes the OneCommand Manager CLI and installs a full-featured version of the OneCommand Manager application that includes the CLI and the GUI.

4. CLI Client Command Usage

Overview

The CLI Client component of the OneCommand Manager application provides access to the capabilities of the Remote Management library or the CIM interface from a console command prompt to get the management information. The CLI Client is intended for use in scripted operations from within shell scripts or batch files. The CLI Client is a console application named HbaCmd. A single operation is performed by entering "hbacmd", followed by a CLI client command and its possible parameters, at the command line. For example:

```
hbacmd <command> [parameters]
```

Note: To run the HbaCmd application when Secure Management is enabled, you must include your user name and password each time you type a command. For example:

- Secure Management disabled:

  ```
  hbacmd <command>
  ```

- Secure Management enabled:

  ```
  hbacmd <m=sec> <userid><password><command>
  ```

  User names and passwords are used to authenticate the commands. Once the credentials are authenticated, the OCM will determine which one of the four user groups you belong to and will allow command usage as appropriate. See "OneCommand Manager Secure Management" on page 14 for more information.

When the specified operation is completed, the command prompt is displayed. For a majority of commands, the first parameter following the command is the WWPN or MAC address of the port that the command is to act upon.

CLI in Read-Only Mode May Cause Error Message

Note: The CLI does not allow the execution of certain commands when it is configured for read-only mode. The following error message is returned if such a command is attempted:

```
Error: Read-only management mode is currently set on this host.
The requested command is not permitted in this mode.
```

HbaCmd Syntax Usage

The following syntax rules and usage apply to the HbaCmd application:

- Parameters denoted within angle brackets < > are required.
- Parameters denoted within square brackets [ ] are optional.
- For Linux and Solaris, (which are case-sensitive), program names must be in lowercase letters, therefore, the command line must begin with "hbacmd" (rather than "HbaCmd"). Windows is not case-sensitive, so the program name is not required to be in all lowercase letters.
- In order to run the command on a remote host, an IP address or host name must be specified using the "h" option with the following syntax:

  ```
  hbacmd [h=IP_Address[:port] | Hostname[:port]] <command> [parameters]
  ```

  - If the "h" option is omitted, the command is run on the local host.
  - If the "h" option is specified, the command is sent to the specified remote host (assuming it is specified correctly, the remote host is up, and the remote host is running the OneCommand Manager remote management agent.
  - The ":port" option is optional. If omitted, the OneCommand Manager remote management protocol uses the default TCP port. If specified, it uses the user-specified TCP port.
  - Examples:

    Using the IP address:

    ```
    hbacmd h=138.239.91.121 ListHBAs
    ```

    Using the host name:

    ```
    hbacmd h=cp-hp5670 ListHBAs
    ```

  - The "h" option is available for all commands except for the AddHost (page 116), RemoveHost (page 121), and the Version (page 125) commands.
- For FC ports, the WWPN of the adapter must be specified. Where the WWPN is specified, each pair of numbers within the WWPN is separated by colons (:) or spaces ( ). When using space separators, the entire WWPN must be enclosed in quotes (" "). For example, the following command displays the port attributes for the adapter with the specified WWPN:

  ```
  hbacmd PortAttributes 10:00:00:00:c9:20:20:20
  ```

- For iSCSI and NIC ports, the MAC address must be specified. Where a MAC address is specified, each pair of numbers within the MAC address is separated by a dash (-). For example, the following command sets the target properties for the NIC port with the specified MAC address with an extended timeout value of "1":

  ```
  hbacmd SetTargetProperties 00-11-22-33-44-55 iscsiTarget 1
  ```

- For NIC ports, only the permanent MAC address is supported for the port address parameter on an HbaCmd command line.

  Normally, for a NIC port, the port's permanent MAC address and current MAC address parameters are equal. However, it is possible to set a user-specified (current) MAC Address that is different from the permanent MAC address.

Also, for some implementations, it is possible to have multiple NIC ports with the same current MAC addresses, but with unique permanent MAC addresses. Therefore, to ensure that the OneCommand Manager can access the correct port, only the permanent MAC address is supported. Note that both the permanent MAC address and the current MAC address are displayed by using the ListHBAs command. See "ListHBAs" on page 121.

Secure Management CLI Interface

Supported By

Linux, Solaris, and Windows

Note: Users with "root" or "Administrator" privileges on the local machine will retain full OCM CLI configuration capability without the use of credentials (local machine only).

Device Management Using the Secure Management Interface

To run the HbaCmd CLI client application when the Secure Management feature is enabled, each invocation must include a user name and password. The user name and password options are added to the existing HbaCmd command in a similar fashion as is currently done for CIM commands, except the <m=CIM> option is replaced by the <m=sec> option (to distinguish it from a CIM command). For example:

Without Secure Management (or if running as "root" or "Administrator"):

```
hbacmd  <cmd>
```

With Secure Management (as non-Root or non-Administrator User):

```
hbacmd  <m=sec> <u=userid> <p=password> <cmd>
```

Syntax Rules for the Secure Management Interface

For the secure management interface, all of the syntax rules in "HbaCmd Syntax Usage" on page 31 apply.

Usage Example

In Windows, to download firmware on an adapter managed on a remote host at IP address 192.168.1.122 using the secure management interface, run the following command:

```
hbacmd h=192.168.1.122 m=sec u=jsmith p=password download
00-12-34-56-78-9A oc11-4.6.96.2.ufi
```

CIM Interface

Note: In Linux and Solaris, you cannot use HbaCmd as a CIM client.

Device Management Using the CIM Interface

VMware on the hypervisor-based ESXi platforms use the CIM as the only standard management mechanism for device management.

For VMware ESXi hosts, you can manage adapters using the OneCommand Manager application on Windows, but you must install and use the appropriate Emulex CIM Provider. For installation, see "Installing the CIM Provider for VMware ESXi Hosts" on page 23.

Note: For VMware ESXi hosts, when advanced adapter management capabilities are required, such as iSCSI management, use the OneCommand Manager for VMware vCenter software plug-in. For more details, see the *OneCommand Manager for VMware vCenter User Manual*.

Syntax Rules for the CIM Interface

For the CIM interface, all the syntax rules in section "HbaCmd Syntax Usage" on page 31 apply, except that the "h" option is required. Additionally, the "m=cim" parameter is required in the command line for getting the data from the ESXi host. For example:

```
hbacmd 192.168.1.110 m=cim u=root p=password n=root/emulex listhbas
```

Syntax Options and Setting CIM Credentials

For issuing CIM-based commands, two main syntax options are available.

Option A

```
hbacmd <h=IP_Address[:port]> m=cim [u=userid] [p=password]
[n=root/emulex] <command> <WWPN>
```

Option B

```
hbacmd <h=IP_Address[:port]> <m=cim> <command>
```

Before using the option B syntax, you must set the CIM credentials by doing one of the following:

- Set the default CIM credentials using the SetCimCred command (see page 122). This command sets only the CIM credentials. Once you have set them, subsequent HbaCmd commands do not require you specify the CIM credentials on the command line.

  For example:

  ```
  hbacmd SetCimCred <username> <password> <namespace>
  <portnum>
  ```

- Add the host IP address with CIM credentials using the AddHost command. For example:

```
hbacmd <m=cim> [u=userid] [p=password] [n=namespace]
AddHost <IP_Address>
```

Default CIM Credentials

If you specify the command with the CIM method "m=cim" without specifying the CIM credentials (userid, password, or namespace), the default value for the missing CIM credential is obtained in the following order:

1. The information entered using the addhost command is looked up.
2. If no values exist, the information entered using the setcimcred command is used.
3. If no values exist, the following defaults are used:

```
username=root
password=root
namespace=root/emulex
portnum=5988
```

Example of Using the CIM Interface to Display Adapters

In Windows, to display a list of adapters managed for a specified host using the CIM interface, run the following command:

```
C:\Program Files\Emulex\Util\OCManager>hbacmd h=10.192.113.128
m=cim u=root p=root n=root/emulex listhbas
```

The output displayed is similar to the following example:

```
Manageable HBA List

Port WWN: 10:00:00:00:c9:6b:62:2b
Node WWN: 20:00:00:00:c9:6b:62:2b
Fabric Name: 00:00:00:00:00:00:00:00
Flags: 00000000
Host Name: eng.ma.emulex.com
Mfg: Emulex Corporation
Serial No.: BG73539764
Port Number: n/a

Mode: Initiator
Discovery: cim
Port WWN: 10:00:00:00:c9:6b:62:59
Node WWN: 20:00:00:00:c9:6b:62:59
Fabric Name: 00:00:00:00:00:00:00:00
Flags: 00000000
Host Name: eng.ma.emulex.com
```

```
Mfg: Emulex Corporation
Serial No.: BG73539764
Port Number: n/a
Mode: Initiator
Discovery: cim

C:\Program Files\Emulex\Util\OCManager>hbacmd h=10.192.113.128
m=cim u=root p=root n=root/emulex portattributes
10:00:00:00:c9:6b:62:2b

Port Attributes for 10:00:00:00:c9:6b:62:2b
Node WWN: 20 00 00 00 c9 6b 62 2b
Port WWN: 10 00 00 00 c9 6b 62 2b
Port Symname:
Port FCID: 0000
Port Type: Fabric
Port State: Unknown
Port Service Type: 12
vNIC Name:
vNIC Outer VLAN ID:
vNIC Min. Bandwidth:
vNIC Max. Bandwidth:
Port Supported FC4: 00 00 01 20 00 00 00 01
   00 00 00 00 00 00 00 00
   00 00 00 00 00 00 00 00
   00 00 00 00 00 00 00 00
Port Active FC4: 00 00 01 00 00 00 00 01
   00 00 00 00 00 00 00 00
   00 00 00 00 00 00 00 00
   00 00 00 00 00 00 00 00
Max Frame Size: 2048
OS Device Name:
Num Discovered Ports: 0
Fabric Name: 00 00 00 00 00 00 00 00
```

For a list of HbaCmd commands supported through the CIM interface, see "CLI Client Commands Supported in CIM Interface" on page 36.

CLI Client Commands Supported in CIM Interface

For a list of HbaCmd commands supported through the CIM interface see Table 5-1, CLI Client Command Reference, on page 40.

Commands Supported in Target-Mode Ports

The following HbaCmd commands are supported for managing target-mode ports:

- CreateVPort
- DeleteDumpFiles
- DeleteVPort
- Download
- DriverConfig
- ExportSanInfo
- GetDriverParams
- GetDriverParamsGlobal
- GetDumpDirectory
- GetDumpFile
- GetRetentionCount
- GetVPD
- GetXcvrData
- HbaAttributes
- ListHbas
- ListVPorts
- PortAttributes
- PortStatistics
- Reset
- SaveConfig
- ServerAttributes
- SetDriverParam
- SetDriverParamDefaults
- SetPortEnabled
- SetRetentionCount

Unsupported Commands per Operating System

For a list of all the supported commands, see Table 5-1, CLI Client Command Reference, on page 40.

Linux

RHEL, SLES, and Oracle

RHEL, SLES, and Oracle do not support the following CLI commands:

- BindingCapabilities
- BindingSupport
- GetCimCred
- GetLunUnMaskByHBA
- GetLunUnMaskByTarget
- ListVMs
- PersistentBinding
- RemoveAllPersistentBinding
- RemovePersistentBinding
- SetBindingSupport
- SetCimCred
- SetDumpDirectory
- SetLunMask
- SetPersistentBinding

Citrix

Citrix (acting as a hypervisor-style server for OneCommand Manager CLI) does not support the following CLI commands:

- AuthConfigList
- BindingCapabilities
- BindingSupport
- CreateVPort
- DeleteVPort
- GetAuthConfig
- GetAuthStatus
- GetCimCred
- GetElxSecInfo
- GetLunList
- GetLunUnMaskByHBA
- GetLunUnMaskByTarget
- InitiateAuth

- PersistentBinding
- RemoveAllPersistentBinding
- RemovePersistentBinding
- RescanLuns
- SetAuthConfig
- SetBindingSupport
- SetCimCred
- SetPersistentBinding
- SetLunMask
- SetPassword

Solaris

Solaris does not support the following CLI commands:

- CnaClearEventLog
- CnaGetEventLog
- DriverConfig
- GetCimCred
- GetElxSecInfo
- ListVMs
- SetCimCred
- SetDumpDirectory

VMWare ESXi

VMWare ESXi does not support the following CLI commands:

- AuthConfigList
- BindingCapabilities
- BindingSupport
- CreateVPort
- DeleteAuthConfig
- DeleteVPort
- GetAuthConfig
- GetAuthStatus
- GetCimCred
- GetElxSecInfo
- GetLunList
- GetLunUnMaskByHBA
- GetLunUnMaskByTarget
- ImportSCSI
- InitiateAuth

- ListVFunctions
- ListVMs
- ListVPorts
- PersistentBinding
- RemoveAllPersistentBinding
- RemovePersistentBinding
- RescanLuns
- SetAuthConfig
- SetBindingSupport
- SetCimCred
- SetLunMask
- SetPersistentBinding
- SetPassword
- VportTargets

Windows

Windows does not support the following CLI commands:

- SetDumpDirectory
- ListVMs

5. CLI Client Command Descriptions

A check mark (✓) designates a supported command for a particular operating system and CIM interface. N/A indicates "not applicable".

Table 5-1 CLI Client Command Reference

Command	Linux	Solaris	VMware ESXi	Windows	CIM Interface Support[a]	Page
AddARPTableEntry	✓	✓	✓	✓		90
AddHost	✓	✓		✓	✓	116
AddiSNSServer	✓	✓	✓	✓		91
AddRouteTableEntry	✓	✓	✓	✓		91
AddTarget	✓	✓	✓	✓		92
AddTargetPortal	✓	✓	✓	✓		93
AllNodeInfo	✓	✓	✓	✓	✓	126
AuthConfigList	✓	✓		✓		54
BindingCapabilities		✓		✓		126
BindingSupport		✓		✓		127
ChangePersonality	✓	✓	✓	✓	✓	130
ChangeWWN	✓	✓	✓	✓	✓	165
ClediSNSServer	✓	✓	✓	✓		94
CMGetParams	✓	✓	✓	✓	✓	60
CMMode	✓	✓	✓	✓	✓	63
CMSetBW	✓	✓	✓	✓	✓	63
CnaClearEventLog	✓		✓	✓		117
CnaGetEventLog	✓		✓	✓		117
CreateVPort	✓	✓		✓		162
DPortTest	✓		✓	✓	✓	71
DelARPTableEntry	✓	✓	✓	✓		95
DeleteAuthConfig	✓	✓		✓		54
DelRouteTableEntry	✓	✓	✓	✓		95
DeleteDumpFiles	✓	✓	✓	✓	✓	84
DeleteiSNSServer	✓	✓	✓	✓		95
DeleteVPort	✓	✓		✓		162
DiscoveriSNSServer	✓	✓	✓	✓		96
Download	✓	✓	✓	✓	✓	118

Table 5-1 CLI Client Command Reference (Continued)

Command	Linux	Solaris	VMware ESXi	Windows	CIM Interface Support[a]	Page
DriverConfig	✓		✓	✓		81
Dump	✓	✓	✓	✓	✓	84
EchoTest	✓	✓	✓	✓	✓	74
EnableBootCode	✓	✓	✓	✓	✓	58
ExportSANInfo	✓	✓		✓		118
ExportiSCSI				✓		96
FecEnable	✓	✓	✓	✓	✓	119
GetBeacon	✓	✓	✓	✓	✓	74
GetAdapterPortConfig	✓	✓	✓	✓	✓	133
GetAuthConfig	✓	✓		✓		55
GetAuthStatus	✓	✓		✓		55
GetBootParams	✓	✓	✓	✓		59
GetCimCred				✓		119
GetDCBParams	✓	✓	✓	✓	✓	66
GetDriverParams	✓	✓	✓	✓	✓	81
GetDriverParamsGlobal	✓	✓	✓	✓	✓	81
GetDumpDirectory	✓	✓	✓	✓	✓	85
GetDumpFile	✓	✓	✓	✓	✓	85
GetDumpFileNames	✓	✓	✓	✓	✓	86
GetExpressLaneLUNList	✓		✓	✓	✓	114
GetElxSecInfo	✓			✓		119
GetFCFInfo	✓	✓	✓	✓	✓	88
GetFIPParams	✓	✓	✓	✓	✓	88
GetInitiatorProperties	✓	✓	✓	✓		96
GetiSCSILuns	✓	✓	✓	✓		97
GetiSCSIPortStats	✓	✓	✓	✓		97
GetLunList	✓	✓	✓	✓	✓	112
GetLunUnMaskByHBA		✓		✓		113
GetLunUnMaskByTarget		✓		✓		113
GetNetwork Configuration	✓	✓	✓	✓		98
GetPGInfo	✓	✓	✓	✓	✓	67

Table 5-1 CLI Client Command Reference (Continued)

Command	Linux	Solaris	VMware ESXi	Windows	CIM Interface Support[a]	Page
GetQosInfo	✓	✓	✓	✓	✓	120
GetRetentionCount	✓	✓	✓	✓	✓	86
GetSessionInfo	✓	✓	✓	✓		98
GetVPD	✓	✓	✓	✓	✓	120
GetWWNCap	✓	✓	✓	✓	✓	166
GetXcvrData	✓	✓	✓	✓	✓	75
HbaAttributes	✓	✓	✓	✓	✓	50
Help	✓	✓	✓	✓	N/A	45
ImportiSCSI				✓		99
InitiateAuth	✓	✓		✓		56
InstallAdapterLicense	✓	✓	✓	✓	✓	48
iSCSIPing	✓	✓	✓	✓		100
ListHBAs	✓	✓	✓	✓	✓	121
ListProfiles	✓	✓	✓	✓	✓	136
ListSessions	✓	✓	✓	✓		100
ListVFunctions	✓	✓	✓	✓	✓	163
ListVMs	✓					163
ListVPorts	✓	✓		✓		164
VPortTargets	✓	✓		✓		164
LoadList	✓	✓	✓	✓	✓	75
LoopBackTest	✓	✓	✓	✓	✓	76
LoopMap	✓	✓		✓		77
PciData	✓	✓	✓	✓	✓	77
PersistentBinding		✓		✓		127
PortAttributes	✓	✓	✓	✓	✓	50
PortStatistics	✓	✓	✓	✓	✓	51
PostTest	✓	✓	✓	✓	✓	78
ReadWWN	✓	✓	✓	✓	✓	166
RemoveAllPersistent Binding		✓		✓		127
RemovePersistent Binding		✓		✓		128
RemoveHost	✓	✓		✓	✓	121

Table 5-1 CLI Client Command Reference (Continued)

Command	Linux	Solaris	VMware ESXi	Windows	CIM Interface Support[a]	Page
RemoveTarget	✓	✓	✓	✓		100
RemoveTargetPortal	✓	✓	✓	✓		101
RescanLuns	✓	✓		✓		113
Reset	✓	✓	✓	✓	✓	122
RestoreWWN	✓	✓	✓	✓	✓	167
SaveConfig	✓	✓	✓	✓		82
ServerAttributes	✓	✓	✓	✓	✓	51
SetAdapterPortConfig	✓	✓	✓	✓	✓	137
SetAuthConfig	✓	✓		✓		56
SetBeacon	✓	✓	✓	✓	✓	78
SetBindingSupport		✓		✓		128
SetBootParam	✓	✓	✓	✓		59
SetBootTargetSession	✓	✓	✓	✓		101
SetCableNVP	✓	✓	✓	✓		79
SetCnaPGBW	✓	✓	✓	✓	✓	67
SetCimCred				✓		122
SetDCBParam	✓	✓	✓	✓	✓	68
SetDCBPriority	✓	✓	✓	✓	✓	70
SetDriverParam	✓	✓	✓	✓	✓	82
SetDriverParamDefaults	✓	✓	✓	✓		83
SetDumpDirectory			✓		✓	87
SetExpressLaneLUNState	✓		✓	✓	✓	115
SetFIPParam	✓	✓	✓	✓	✓	89
SetInitiatorProperties	✓	✓	✓	✓		102
SetiSCSIBoot	✓	✓	✓	✓		103
SetLunMask		✓		✓		114
SetNetwork Configuration	✓	✓	✓	✓		103
SetPassword	✓	✓		✓		57
SetPersistentBinding		✓		✓		129
SetPfcThrottle	✓	✓	✓	✓	✓	123
SetPhyPortSpeed	✓	✓	✓	✓	✓	51

Table 5-1 CLI Client Command Reference (Continued)

Command	Linux	Solaris	VMware ESXi	Windows	CIM Interface Support[a]	Page
SetPortEnabled	✓	✓	✓	✓	✓	53
SetRetentionCount	✓	✓	✓	✓	✓	87
SetTargetLogin Properties	✓	✓	✓	✓		105
SetTargetProperties	✓	✓	✓	✓		106
SetTPLoginProperties	✓	✓	✓	✓		106
ShowAdapterLicense-Features	✓	✓	✓	✓	✓	49
ShowARPTable	✓	✓	✓	✓		107
ShowiSNSServer	✓	✓	✓	✓		108
ShowLicenseAdapterID	✓	✓	✓	✓	✓	49
ShowPersonalities	✓	✓	✓	✓	✓	132
ShowRouteTable	✓	✓	✓	✓		108
ShowTarget	✓	✓	✓	✓		109
ShowTargetPortal	✓	✓	✓	✓		109
SRIOVEnable	✓	✓	✓	✓	✓	123
TargetLogin	✓	✓	✓	✓		110
TargetLogout	✓	✓	✓	✓		111
TargetMapping	✓	✓	✓	✓	✓	124
TDRTest	✓	✓	✓	✓		79
UmcEnable	✓	✓	✓	✓	✓	158
UmcGetParams	✓	✓	✓	✓	✓	158
UmcSetBw	✓	✓	✓	✓	✓	160
UmcSetLPVID	✓	✓	✓	✓	✓	161
UpdateiSNSServer	✓	✓	✓	✓		112
VEPAEnable	✓	✓	✓	✓	✓	124
Version	✓	✓	✓	✓	✓	125
VPortTargets	✓	✓		✓		164
Wakeup	✓	✓	✓	✓		80

a. iSCSI management is not supported using the CIM interface.

Help

The Help command displays command information for the HbaCmd application. Without using its optional parameters, the Help command lists all the commands in their respective groups. Using the optional parameter, GroupName, it lists the commands in a group. Using the optional parameter, CmdName, it shows the details for a specific command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
Help [GroupName] [CmdName]
```

Parameters

`GroupName`	This optional parameter lists the commands in a particular group.
`CmdName`	This optional parameter shows the details for a particular CLI command.

Example 1

This help command example lists all the commands in their respective groups:

```
hbacmd help
```

The example output:

```
Usage: hbacmd version
   or  hbacmd { h=IPv4 Address{:port} | Hostname{:port} } <Command>
   or  hbacmd { h={[}IPv6 Address{]:port} <Command>
       Note: When specifying IPv6 address with port option, it must be
             enclosed in []. Example: [fe80::6445:80e9:9878:a527]:9876

Use the following syntax for issuing CIM based commands (IPv4 only):
  A> hbacmd <h=IPv4 {:port}> <m=CIM> [u=userid][p=password][n=namespace] <cmd>
  B> hbacmd <h=IPv4 {:port}> <m=CIM> <cmd>
  Before specifying syntax B, the user should do one of the following:
  1. Add the host IP with CIM credentials using the AddHost command.
     e.g. hbacmd <m=CIM> [u=userid] [p=password] [n=namespace] AddHost <ip>
  2. Set the default CIM credentials using the SetCimCred command.
     e.g. hbacmd SetCimCred <u=userid> <p=password> <n=namespace> <o=port>


Use the following syntax to specify Secure Management credentials:
  hbacmd [h=IP Address[:port]] <m=sec> <u=username> <p=password> <Command>

Command Summary
  Help Commands
    Help <Group>
      Group: {AdapterLicense, Attributes, Authentication, Boot, CM, DCB,
```

```
            Diagnostics, DriverParams, Dump, FCoE, iSCSI, LUNMasking,
            Miscellaneous, PersistentBinding, Personality, Profile,
            VPort, UMC, WWN}

Adapter License Management Commands
  ShowLicenseAdapterID, InstallAdapterLicense, ShowAdapterLicenseFeatures

Attributes Commands
  HbaAttributes, PortAttributes, PortStatistics, ServerAttributes,
  SetPhyPortSpeed SetPortEnabled

Authentication Commands
  AuthConfigList, DeleteAuthConfig, GetAuthConfig, GetAuthStatus,
  InitiateAuth, SetAuthConfig, SetPassword

Boot Commands
  EnableBootCode, GetBootParams, SetBootParam

CM - Channel Management Commands
  CMGetParams, CMMode, CMSetLPVID, CMSetBW

DCB Commands
  GetDCBParams, SetDCBParam, GetPGInfo, SetDCBPriority, SetCnaPGBW

Diagnostic Commands
  DPortTest, EchoTest, GetBeacon, GetXcvrData, LoadList, LoopBackTest,
  LoopMap, PciData, PostTest, SetBeacon, SetCableNVP, TDRTest, Wakeup

Driver Parameter Commands
  DriverConfig, GetDriverParams, GetDriverParamsGlobal, SaveConfig,
  SetDriverParam, SetDriverParamDefaults

Dump Commands
  DeleteDumpFiles, Dump, GetDumpDirectory, SetDumpDirectory,
  GetRetentionCount, SetRetentionCount, GetDumpFileNames, GetDumpFile

FCoE Commands
  GetFIPParams, SetFIPParam, GetFCFInfo

iSCSI Commands
  AddARPTableEntry, AddRouteTableEntry, AddTarget, AddTargetPortal,
  ClearSNSServer, DelARPTableEntry, DelRouteTableEntry, DiscoveriSNSServer,
  ExportiSCSI, GetInitiatorProperties, GetiSCSILuns, GetiSCSIPortStats,
  GetNetworkConfiguration, GetSessionInfo, ImportiSCSI, iSCSIPing,
  ListSessions, RemoveTarget, RemoveTargetPortal, SetBootTargetSession,
  SetInitiatorProperties, SetiSCSIBoot, SetNetworkConfiguration,
  SetTargetLoginProperties, SetTargetProperties, SetTPLoginProperties,
  ShowARPTable, ShowiSNSServer,ShowRouteTable, ShowTarget, ShowTargetPortal,
```

```
    TargetLogin, TargetLogout, UpdateiSNSServer

  LUN Masking Commands
    GetLunList, GetLunUnmaskByHba, GetLunUnmaskByTarget, RescanLuns,
    SetLunMask

  ExpressLane Commands
    GetExpressLaneLunList, SetExpressLaneLunState

  Miscellaneous Commands
    AddHost, CnaGetEventLog, CnaClearEventLog, Download, ExportSANInfo,
    FecEnable, GetCimCred, GetElxSecInfo, GetQoSInfo, GetVPD, ListHBAs,
    ListVFuncs, RemoveHost, Reset, SetCimCred, SetPfcThrottle, SRIOVEnable,
    TargetMapping, VEPAEnable

  Persistent Binding Commands
    AllNodeInfo, BindingCapabilities, BindingSupport, PersistentBinding,
    RemoveAllPersistentBinding, RemovePersistentBinding, SetBindingSupport,
    SetPersistentBinding

  Profile Management Commands
    ListProfiles, GetAdapterPortConfig, SetAdapterPortConfig

  Personality Management Commands
    ShowPersonalities, ChangePersonality

  UMC - Universal MultiChannel Commands (see Channel Management Commands)
    UmcGetParams, UmcEnable, UmcSetLPVID, UmcSetBW

  VPort Commands
    CreateVPort, DeleteVPort, ListVPorts, VPortTargets, ListVMs

  WWN Management Commands
    ChangeWWN, GetWWNCap, ReadWWN, RestoreWWN
```

Example 2

This help command example shows the details for the SetDCBParam command:

```
hbacmd help setdcbparam
```

The example output:

```
SetDCBParam <WWPN|MAC> <Param> <Value>
  WWPN : World Wide Port Name of FCoE function on port
  MAC  : MAC Address of function on port
  Param: Parameter Name
  Value: Parameter Value

  Note:
  1. To see the valid parameter names, run the GetDCBParams command.
```

```
2. For protocol priorites (fcoepriority, iscsipriority, rocepriority), the
   valid range is 0 to 7. Only one priority can be specified for each
   invocation of this this command and must be for a protocol running on the
   port. If more than one protocol priority can be set, they should be unique
   values.
3. For the following parameters, valid values are 0 (for disable) and
   1 (for enable):
   DcbxState, DcbxMode, TxState, RxState, TxPortDesc, TxSysDesc, TxSysName,
   TxSysCap, PfcEnable
4. For PfcPriority, separate each priority by a comma (e.g. 3,4,6).
5. Specifying "defaults" for the Param argument sets all DCB parameters
   (including Priority Groups) to their default values.
   Ex: SetDCBParams <WWPN|MAC> defaults
```

Adapter License Management Commands

Notes

- These commands are only supported on ESXi systems if the CIM provider is used on a remote system.
- Adapter License Management commands are supported on OneConnect adapters only. They are not available on LPe16202, OCe11101-EM/EX, OCe11102-EM/EX, or OCe14000 adapters. The following error message will be returned:

  ```
  There are no license features for this adapter
  ```

In these commands, the WWPN or MAC address argument specifies the adapter the command is acting upon. The HbaCmd application uses the WWPN or MAC address to identify the adapter, but this does not mean that the command works successfully on the specified port.

InstallAdapterLicense

This command installs the license keys from a license file to enable specific features on the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
InstallAdapterLicense <WWPN|MAC> <LicenseFile>
```

Parameters

`WWPN`	The WWPN of an FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.
`License File`	The path to the license key file containing the license keys obtained from the Emulex License website.

Examples

For non-VMware ESXi hosts:

```
hbacmd InstallAdapterLicense 00-12-34-56-78-9A K:\lf1324.lic
```

For VMware ESXi hosts:

```
hbacmd h=<IP_Address> m=cim u=root p=<password> n=<namespace>
InstallAdapterLicense 00-12-34-56-78-9A K:\lf1324.lic
```

ShowAdapterLicenseFeatures

This command displays the list of licensed and licensable features, as well as, features that are already licensed. The output is a list of features with an indication of whether or not the feature has been licensed.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowAdapterLicenseFeatures <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

Examples

For non-VMware ESXi hosts:

```
hbacmd ShowAdapterLicenseFeatures  00-12-34-56-78-9A
```

For VMware ESXi hosts:

```
hbacmd h=<IP_Address> m=cim u=root p=<password> n=<namespace>
ShowAdapterLicenseFeatures  00-12-34-56-78-9A
```

ShowAdapterLicenseID

This command returns the adapter ID used for enabling licensed features. The adapter ID and the entitlement code are used to obtain license keys which enable various features on the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowLicenseAdapterID <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

Examples

For non-VMware ESXi hosts:

```
hbacmd ShowLicenseAdapterID 00-12-34-56-78-9A
```

For VMware ESXi hosts:

```
hbacmd h=<IP_Address> m=cim u=root p=<password> n=<namespace>
ShowLicenseAdapterID 00-12-34-56-78-9A
```

Attributes Commands

HbaAttributes

This command shows a list of all adapter attributes for all ports on the adapter. The type of information listed may vary according to the adapter model.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
HbaAttributes <WWPN>
```

Parameters

`h` The IP address of the host.

`WWPN` The WWPN of an FC or FCoE port.

PortAttributes

This command shows a list of port attributes for the adapter. The type of information listed may vary according to the adapter model and may include IPv4 and IPv6 addresses.

Note: If VEPA is supported on your adapter, the VEPA state is displayed as enabled or disabled.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
PortAttributes <WWPN|MAC>
```

Parameters

h	The IP address of the host.
WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.

PortStatistics

This command shows all port statistics for the adapter. The type of information listed may vary according to the adapter model.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
PortStatistics <WWPN>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.

ServerAttributes

This command shows a list of server attributes for the adapter. The type of information listed may vary according to the adapter model.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ServerAttributes <WWPN|MAC>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.

SetPhyPortSpeed

This command sets the port speed on OneConnect OCe11100-series, OCe14000-series and LPe16202 adapters only.

OneConnect OCe11100-Series and OCe14000-Series Adapters

OneConnect OCe11100-series, OCe14000-series have the capability to configure their physical port speeds. Depending on the port module or transceiver installed in the physical port, the speed settings can be forced to a specific value, for instance 1 Gb, or

to a range of values for auto-negotiation with the switch, for example 10Gb/1Gb/100Mb. There are three values that can be configured - port speed mode, speed value(s), and the DAC cable length.

The configurable port speeds are based upon the port module type and the mode defined by port speed Mode parameter. For the “Default” port speed Mode, the speed setting is not required.

Note: 10GB CX4, 10GB XFP and SGMII port module types do not support port speed settings.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetPhyPortSpeed <WWPN|MAC> <Mode> [Speed [Length]]
```

Parameters

`WWPN` The WWPN of an FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

`Mode` The Mode number:

0 = Default
1 = Auto-negotiate; requires the Speed parameter
2 = Force; requires the Speed and Length parameters

Note: When the adapter's port speed setting and the switch's port speed setting conflict, the link will not be brought up.

`Speed` The speed string of the PHY port. Some valid string values include “100Mb”, “1Gb”, and “10Gb”. The PortAttributes command lists all the valid speeds in Auto-negotiate and Force modes.

Auto-negotiated Speeds

A comma-separated list of available auto-negotiated speeds is displayed by the PortAttributes command for OneConnect OCe11100-series and OCe14000-series adapters. For combinations of speeds, each speed is separated by a slash, for example, 10Gb/1Gb/100Mb. If the port does not support auto-negotiated speeds this property will be displayed as "Not Supported".

Forced Speeds

A comma-separated list of available forced speeds is displayed by the PortAttributes command for OneConnect OCe11100-series and OCe14000-series adapters. There are no combinations of speeds for forced speeds. If the port does not support forced speeds this property will be displayed as "Not Supported".

Note: When the Mode parameter is 1 or 2, the Speed parameter is required. When the Mode parameter is 0, the Speed parameter is ignored.

`Length` The length of the direct attach copper (DAC) cable in meters. Valid values are 0–10. A length value of 0 indicates an optical cable. A Length value is required when using a 10Gb SFP and QSFP transceiver interface type.

When the Mode parameter is 0, Speed and Length parameters are ignored, and when the Mode parameter is 1, the Length parameter is ignored

Note: For an embedded mezzanine adapter linked to an embedded switch on the internal port, the Length value is ignored.

Examples

The following example configures the PHY port to a forced speed of 1 Gb/sec with a cable length of ten meters:

```
hbacmd setphyportspeed 00-00-c9-ad-ad-ac 2 1Gb 10
```

The following example tries to configure the PHY port to a forced speed of 100 Mb/sec:

```
hbacmd setphyportspeed 00-00-c9-a9-41-88 2 100Mb
```

If the command is successful the following is displayed:

```
Successfully changed speed settings on port.
```

This command results in an error because you must include a value for the Length parameter when the Mode parameter is 2:

```
ERROR: <431>: Cable length required for force mode and interface
type
```

SetPortEnabled

This command enables or disables a port.

Notes

- Ensure that all I/Os on the port are stopped before disabling the port.
- Only OneConnect adapters do not require a reset when the adapter port is enabled or disabled. For FC adapters, when the SetPortEnabled command disables an FC port, the adapter must be reset to activate the new setting.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetPortEnabled <WWPN|MAC> <PortEnable>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.
`PortEnabled`	The port-enabled state: 0 = Disabled 1 = Enabled

Authentication Commands

These commands are used to configure a DHCHAP connection between an FC port and a switch port.

Note: Authentication commands are supported on FC adapter ports only. These commands are not available on OneConnect or LPe16000 family adapters.

AuthConfigList

This command returns the list of WWPNs that have an authentication connection configuration with the specified adapter.

Supported By

Linux, Solaris, and Windows

Syntax

```
AuthConfigList <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC port.

DeleteAuthConfig

This command deletes the authentication configuration on the adapter.

Supported By

Linux, Solaris, and Windows

Syntax

```
DeleteAuthConfig <WWPN1> <WWPN2> <PasswordType> <Password>
```

Parameters

WWPN1	The WWPN of an FC port.
WWPN2	Use "ff:ff:ff:ff:ff:ff:ff:ff" for a switch or use the WWPN for a target.
PasswordType	1 = ASCII 2 = Hex (binary) 3 = Password not yet defined
Password	The current password value.

GetAuthConfig

This command retrieves the authentication configuration for the adapter.

Supported By

Linux, Solaris, and Windows

Syntax

```
hbacmd GetAuthConfig <WWPN1> <WWPN2>
```

Parameters

WWPN1	The WWPN of an FC port.
WWPN2	Use "ff:ff:ff:ff:ff:ff:ff:ff" for a switch or use the WWPN for a target.

GetAuthStatus

This command returns the current status for the authentication connection specified by WWPN 1 and WWPN2 (adapter and the switch). It includes the current authentication state (connected or failed). Currently authenticated connections specify the hash algorithm and DH group used in the DHCHAP associated with this connection. Failed status includes the failure reason.

Supported By

Linux, Solaris, and Windows

Syntax

```
GetAuthStatus <WWPN1> <WWPN2>
```

Parameters

WWPN1	The WWPN of an FC port.
WWPN2	Use "ff:ff:ff:ff:ff:ff:ff:ff" for a switch or use the WWPN for a target.

InitiateAuth

This command initiates the authentication configuration on the adapter.

Supported By

Linux, Solaris, and Windows

Syntax

```
InitiateAuth <WWPN1> <WWPN2>
```

Parameters

`WWPN1`	The WWPN of an FC port.
`WWPN2`	Use "ff:ff:ff:ff:ff:ff:ff:ff" for a switch or use the WWPN for a target.

SetAuthConfig

This command sets the authentication configuration for the adapter.

Supported By

Linux, Solaris, and Windows

Syntax

```
SetAuthConfig <WWPN1> <WWPN2> <PasswordType> <Password> <Param> <Value>
```

Note: Where multiple parameters and values are used, separate them using commas.

Parameters

`WWPN1`	The WWPN of an FC port.
`WWPN2`	Use "ff:ff:ff:ff:ff:ff:ff:ff" for a switch or use the WWPN for a target.
`PasswordType`	1 = ASCII 2 = Hex (binary) 3 = Password not yet defined
`Password`	The current password value.
`Param`	The parameter names: • Mode • Timeout • Bi-directional • Hash-priority • DH-priority • Re-authentication • Re-authentication-interval

`Value`	The value is based on the type of <Param>: • Mode: disabled, enabled, or passive • Timeout: time in seconds • Bi-directional = disabled or enabled • Hash-priority: md5 or sha1 (md5 = first md5, then sha1; sha1 = first sha1, then md5) • DH-priority: 1, 2, 3, 4, 5; any combination up to 5 digits • Re-authentication: disabled or enabled • Re-authentication-interval: 0, 10– 3600

SetPassword

This command sets the password on the adapter for an authenticated connection to the switch.

Supported By

Linux, Solaris, and Windows

Syntax

```
SetPassword <WWPN1> <WWPN2> <Flag> <Cpt> <Cpw> <Npt> <Npw>
```

Parameters

`WWPN1`	The WWPN of an FC port.
`WWPN2`	Must be "ff:ff:ff:ff:ff:ff:ff:ff" for a switch or the actual WWPN for a target.
`Flag`	1 = Local (password used by the adapter when the adapter authenticates to the switch) 2 = Remote (password used by the adapter when the switch authenticates to the adapter)
`Cpt`	Current password type. 1 = ASCII 2 = Hex (binary) 3 = Password not yet defined
`Cpw`	Current password value.
`Npt`	New password type. 1 = ASCII 2 = Hex (binary)
`Npw`	New password value.

Boot Commands

EnableBootCode

This command is used to perform either of the following:

- Enable or disable network boot for NIC ports. If network boot is being enabled, it is necessary to select the specific network boot type. The supported network boot types are PXE and iBFT. Note that iBFT is not supported on all NIC adapter types.
- Enable/disable the boot code for an FC adapter port. If the boot code is disabled on the FC adapter, the adapter does not boot from the SAN, regardless of the value for the EnableBootFromSan boot parameter. If the boot code is enabled on the FC adapter, the adapter boots from the SAN if the EnableBootFromSan parameter is also enabled.

Note: To enable or disable boot on an iSCSI target, see the "SetiSCSIBoot" command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
EnableBootCode <WWPN|NIC MAC> <Flag> <NetworkBootMethod>
```

Parameters

`WWPN`	The WWPN of an FC port.
`NIC MAC`	The MAC address of a NIC port.
`Flag`	D = Disable the boot code. E = Enable the boot code.
`NetworkBootMethod`	Network boot method to be used by the NIC ("PXE" or "iBFT". The network boot types supported on the specific NIC may be found in the Available Network Boot Methods string displayed by the HbaAttributes command. This parameter is not required for FC or FCoE ports, and is only specified when enabling network boot.

Examples

The following example enables iBFT for a NIC:

```
C:\Program Files\Emulex\Util\OCManager>HBACMD  EnableNetworkBoot
00-00-c9-11-22-33 e iBFT
```

The following example disables network boot:

```
C:\Program Files\Emulex\Util\OCManager>HBACMD  EnableNetworkBoot
00-00-c9-11-22-33 d
```

GetBootParams

This command shows the FC boot parameters. If any arguments are missing or invalid, a suitable error is reported. If all arguments are correct, the data is displayed in tabular form.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetBootParams <WWPN> <Type>
```

Parameters

`WWPN`	The WWPN of an FC port.
`Type`	X86, OpenBoot, or UEFI.

SetBootParam

This command changes the FC boot parameters. You can change adapter parameters and boot device parameters for x86, OpenBoot, and UEFI boot.

- When changing adapter parameters, omit the BootDev keyword and value; otherwise, an error is reported.
- When changing boot device parameters for OpenBoot, omit the BootDev keyword and value; otherwise, an error is reported.
- For boot device parameters for x86 or UEFI, you must provide the BootDev keyword and value.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetBootParam <WWPN> <Type> <Param> <Value1> [BootDev <Value2>]
```

Parameters

`WWPN`	The WWPN of an FC port.
`Type`	Possible values are x86, OpenBoot, or UEFI.
`Param`	The parameter name.
`Value1`	The parameter value.
`BootDev`	The boot device.
`Value2`	The boot device entry number: 0–7.

Channel Management Commands

These commands enable and disable channel management and set channel properties for UCNAs. Channel management is not supported on LPe16202 adapters.

Each port on each adapter's physical port can be partitioned into a maximum of four isolated channels providing a converged conduit for network and storage traffic. Each channel has its own unique MAC address. Depending on the type of channel management in effect, each channel provides various traffic management and provisioning capabilities, such as enabling and disabling, minimum and maximum bandwidth, and VLAN ID (in UMC for untagged packets, also called the LPVID).

OCM allows the enabling and disabling of channel management and in the case of UMC/SIMode, the setting of each channel's properties. For the vNIC1 and UFP channel management types, OCM will display the channel properties, but not allow modification; except for vNIC1 where the LPVID (inner VLAN ID) can be modified.

Additionally, the OCe14000 series adapters support NPar. Use the GetAdapterPortConfig and SetAdapterPortConfig command to manage NPar for these adapters. See "GetAdapterPortConfig" on page 133 and "SetAdapterPortConfig" on page 137.

Notes

- For IBM adapters, UMC mode is referred to as "SIMode".
- SR-IOV is not supported with channel management.
- There are OCM CLI commands for UMC management that are still available for backward compatibility with existing UMC scripts. They cannot be used to manage other channel management types. See "UMC Commands" on page 157 for information on UMC management.

CMGetParams

This command shows the current channel management configuration for an adapter's physical port.

Multichannel

When using multichannel, this command displays the adapter's active (booted) multichannel state, the configured state, the configured channel management mode (N/A if configured state is disabled), and the available channel management modes. This is followed by a table showing the specified port's channel properties. The Type column shows the protocol that is running on the channel. The output is different depending upon the multichannel type.

Supported By

Linux, Solaris, VMware, and Windows

Syntax

```
hbacmd CMGetParams <MAC | WWPN>
```

Parameters

MAC MAC address of any NIC or iSCSI function on an adapter port.

WWPN WWPN of an FCoE function on an adapter port.

Example

Multichannel Disabled

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     None
Configured mode: None
Available modes: UMC
```

Multichannel Enabled - UMC, NIC Only

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     UMC
Configured mode: UMC
Available modes: UMC

Func# Type  MAC Address       LPVID Min BW Max BW
----- ----- ----------------- ----- ------ ------
0     NIC   00-00-c9-12-34-56  2      25     50
1     NIC   00-00-c9-12-34-57  3      25      50
2     NIC   00-00-c9-12-34-58  4      25     50
3     NIC   00-00-c9-12-34-59  5      50     75
```

Multichannel Enabled - UMC, with Storage

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     UMC
Configured mode: UMC
Available modes: UMC

Func# Type  MAC Address       LPVID Min BW Max BW
----- ----- ----------------- ----- ------ ------
0     NIC   00-00-c9-12-34-56  2      25     50
1     FCoE  n/a                n/a    40     100
2     NIC   00-00-c9-12-34-58  4      25     50
3     NIC   00-00-c9-12-34-59  5      10     20
```

Multichannel Disabled - IBM

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     None
```

```
Configured mode: None
Available modes: vNIC1, SIMode, UFP
```

Multichannel Enabled - IBM UFP

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     UFP
Configured mode: UFP
Available modes: vNIC1, SIMode, UFP

                                Outer
Func# Type  MAC Address         VLAN  Min BW Max BW
----- ----- ----------------- ----- ------ ------
0     NIC   00-00-c9-12-34-56  2      25     50
1     NIC   00-00-c9-12-34-57  3      25     50
2     NIC   00-00-c9-12-34-58  4      25     50
3     NIC   00-00-c9-12-34-59  5      25     75
```

Dell NPar Disabled

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     None
Configured mode: None
Available modes: NPAR
```

Dell NPar Enabled - 4 Functions/Port

Note: Even though function 1 has a minimum bandwidth of 0, some traffic flows through.

```
>hbacmd CMGetParams 00-00-c9-12-34-56
Active Mode:     NPAR
Configured mode: NPAR
Available modes: NPAR


Func# Type  MAC Address         Min BW Max BW
----- ----- ----------------- ------ ------
0     NIC   00-00-c9-12-34-56   25     50
1     NIC   00-00-c9-12-34-57   0      50
2     NIC   00-00-c9-12-34-58   25     50
3     NIC   00-00-c9-12-34-59   50     75
```

CMMode

This command enables or disables channel management mode on OCe10100- and OCe11100-series adapters. For UMC configurations, the UMCEnable command can still be used to enable UMC only.

This command also sets the channel management type at the adapter level. A system reboot is required for the change take effect.

Note: For OCe14000 series adapters, you must set the mctype parameter in the SetAdapterPortConfig command to enable multichannel; including NPar. See the SetAdapterPortConfig command for more information.

If you use the CMMode command on an OCe14000 series adapter, an error message is displayed indicating the command is not supported by the firmware or hardware.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
hbacmd CMMode <WWPN | MAC Address> <None | Type>
```

Parameters

`WWPN`	WWPN of an FCoE function on the physical port.
`MAC`	MAC address of any NIC function on the physical adapter port.
`None`	Specify “None” to disable channel management or a channel.
`Type`	Management type (see CMGetParams) to enable channel management.

Example

```
>hbacmd CMMode 00-00-c9-bb-cc-aa None
```

This example disables channel management on an adapter containing a NIC function with a MAC address of 00-00-c9-bb-cc-aa.

CMSetBW

This command sets the minimum and maximum bandwidths for each channel on the physical port. For UMC/SIMode configurations, this command can also be used to disable a channel's logical link by setting both the min and max bandwidths to 0. To bring the logical link back up (enable), specify a non-zero value for the minimum and maximum bandwidth.

If you are using NPar, setting the minimum bandwidth to zero does not bring the logical link down on the NPar function or prevent the NPar function from receiving or transmitting a small amount of network traffic.

The number of channels, the number of channels that need to be specified, and the number of bandwidth combinations that need to be specified depend upon the adapter model. See “CMGetParams” on page 60 to determine how many bandwidths need to be specified for a port by looking at the number of functions indicated in the “Func #” column of the output.

The total of the minimum bandwidths for the enabled channels or partitions (NPar) must add up to 100. An exception to this rule is for UMC and SIMODE configurations when both the minimum and maximum bandwidth for all channels are 0; effectively bringing down the logical link on all channels. The maximum bandwidth must be greater than or equal to the minimum bandwidth for that channel or partition (NPar) up to a maximum value of 100.

Notes

- If too many or too few minimum and maximum bandwidth combinations are provided, an error is generated.
- This command fails with an error message if the configured multichannel mode is vNIC1, UFP or None.
- For UMC, the UMCSetBW command can still be used instead of CMSetBW.
- A reboot is not required to change the channel bandwidths when channel management is enabled or when currently running NPar on the adapter.
- If a channel's protocol is configured to "None", the minium and maximum bandwidth must be 0.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
hbacmd CMSetBW <MAC | WWPN> <Min0,Max0> [Min1,Max1]  ...  [MinN,MaxN]
```

Parameters

`WWPN`	WWPN of an FCoE function on the physical adapter port.
`MAC`	MAC address of any NIC or iSCSI function on the physical adapter port.
`Min0, Max0`	Minimum and maximum bandwidths for channel 0.
`Min1, Max1`	Minimum and maximum bandwidths for channel 1.
`MinN, MaxN`	Minimum and maximum bandwidths for channel N.

Examples-Multichannel

Down Logical Link on 3rd Channel of a 4-Channel/Port Adapter

```
>hbacmd CMSetBW 00-00-c9-12-34-56 25,50 50,100 0,0 25,50

>hbacmd CMGetParams 00-00-c9-12-34-56
Active mode:     UMC
```

```
Configured mode: UMC
Available modes: UMC

Func# Type      MAC Address       LPVID Min BW Max BW
----- -----     ----------------- ----- ------ ------
0     NIC       00-00-c9-12-34-56  2      25     50
2     iSCSI     00-00-c9-12-34-57  n/a    50     100
4     NIC       00-00-c9-12-34-58  3      0      0
6     NIC       00-00-c9-12-34-59  4      25     50
```

CMSetLPVID

This command sets the LPVID values for the UMC and SIMode NIC channels. Use the CMGetParams command to determine the number of LPVIDs required. See "CMGetParams" on page 60 for more information. A reboot is not required for these changes take effect when UMC is enabled

Note: When the current multichannel mode is not UMC or SIMode, the CMSetLPVID command fails.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
CMSetLPVID <WWPN|MAC> <LPVID0> <LPVID1> ... [LPVIDn]
```

Parameters

`WWPN`	WWPN of an FCoE function on the physical adapter port.
`MAC`	MAC address of any NIC or iSCSI function on the physical adapter port.
`LPVID0`	LPVID for channel 0.
`LPVID1`	LPVID for channel 1.
`LPVIDn`	LPVID for channel n.

Considerations for Using CMSetLPVID

- LPVID values are in the range of 2-4094.
- Every NIC channel on a physical port must have a unique LPVID.
- For FCoE and iSCSI channels, '0' must be entered because LPVIDs can only be specified for NIC channels.
- LPVIDs specified for channels with protocols set to "None" are ignored.
- This command is not supported on 1 Gb ports.

- If channel management is disabled when this command is executed, an error message is displayed.

Examples

4 NIC Channels

```
>>hbacmd CMSetLPVID 00-00-c9-12-34-56 1001 1002 1003 1004
```

8 Channels, Storage on 2nd channel

```
>hbacmd CMSetLPVID 00-00-c9-55-43-21 1001 0 1002 1003 1004 1005 1006
1007
```

DCB Commands

This command shows the DCB and LLDP parameters for iSCSI, FCoE, and NIC adapter ports.

Notes

- DCB commands are for DCB management of OneConnect adapters only.
- These commands are not available on OCe11101-EM/EX or OCe11102-EM/EX adapters. The following error message will be returned:

```
ERROR: <222>: DCB not available
```

GetDCBParams

This command shows the active and configured DCB and LLDP settings on a port of a OneConnect adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetDCBParams <WWPN|MAC>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.

Example

```
hbacmd h=10.192.203.154 GetDCBParams 00-00-c9-93-2f-d8
```

GetPGInfo

This command shows the ETS priority group bandwidth percentages for the port of a OneConnect adapter. Additionally, this command displays the number of priority groups supported by an adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetPGInfo <WWPN|MAC>
```

Parameters

WWPN	The WWPN address of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.

Example

```
hbacmd h=10.192.203.154 getpginfo 00-00-c9-93-2f-d8
```

SetCnaPGBW

This command sets the ETS priority group bandwidth percentages on a port of a OneConnect adapter according to the following rules:

- Bandwidths (BW0–BW7) for priority groups 0–7 (PG0–PG7) must total 100 (for 100%).
- Bandwidth can be assigned to a priority group that has priorities.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetCnaPGBW <WWPN|MAC> <BW0-BW7>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.
BW0-BW7	The bandwidths allocated for the priority groups 0–7.

Example

This command sets the bandwidth of PG0 to 50%, PG1 to 50%, and PG2–PG7 to 0%.

```
hbacmd SetCnaPGBW 10:00:00:00:c9:3c:f7:88 50 50 0 0 0 0 0 0
```

SetDCBParam

This command configures the DCB and LLDP settings on a OneConnect adapter port. Use the GetDCBParams command to obtain valid parameter names for use in this command.

Notes:

- You cannot set DCBX mode. If you attempt to specify a "dcbxmode" parameter, an error message is displayed.
- RoCE is only available on the OCe140000-series of adapters.
- RoCE is only available on Windows operating systems.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetDCBParam <WWPN|MAC> <Param> <Value>
```

Parameters

`WWPN`	The WWPN of an FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.
`Param`	The parameter name. See the following "DCB Settings for <Param> and <Value>" and "LLDP Settings for <Param> and <Value>" sections.
`Value`	The parameter value. See the following "DCB Settings for <Param> and <Value>" and "LLDP Settings for <Param> and <Value>" sections.

DCB Settings for <Param> and <Value>

<Param>	Description and <Value>
`DCBXState`	The DCBX protocol state. 0 = Disabled 1 = Enabled
`PFCEnable`	Flow control in both directions (transmit and receive). 0 = Disabled 1 = Enabled
`FCoEPriority`	This parameter is applicable for ports running FCoE only. A single priority must be specified. The range of valid values is 0-7. **Note:** Only one priority can be specified for each invocation of this command and must be for a protocol running on the port. If more than one protocol priority can be set, they should be unique values.
`iSCSIPriority`	This parameter is applicable for ports running iSCSI only. A single priority must be specified. The range of valid values is 0-7. **Note:** Only one priority can be specified for each invocation of this command and must be for a protocol running on the port. If more than one protocol priority can be set, they should be unique values.

`RoCEPriority` This parameter is applicable for ports running RoCE only. A single priority must be specified. The range of valid values is 0-7.

Note: Only one priority can be specified for each invocation of this command and must be for a protocol running on the port. If more than one protocol priority can be set, they should be unique values.

`PFCPriority` A list of comma-separated values where multiple PFC priorities are supported. The comma-separated list can contain up to seven values ranging from 0-7.

`defaults` Use to set the DCB parameters (including priority groups) to their default values. For example:

```
hbacmd SetDCBParam <WWPN|MAC> defaults
```

LLDP Settings for <Param> and <Value>

<Param>	Description and <Value>
`TxState`	Transmit State: DCBX uses LLDP to exchange parameters between two link peers. For the DCBX protocol to operate correctly, both LLDP Rx and Tx must be enabled. If either Rx or Tx is disabled, DCBX is disabled. 0 = Disabled 1 = Enabled
`RxState`	Receive State: DCBX uses LLDP to exchange parameters between two link peers. For the DCBX protocol to operate correctly, both LLDP Rx and Tx must be enabled. If either Rx or Tx is disabled, DCBX is disabled. 0 = Disabled 1 = Enabled
`TxPortDesc`	Transmit Port Description: provides a description of the port in an alpha-numeric format. 0 = Disabled 1 = Enabled
`TxSysDesc`	Transmit System Description: provides a description of the network entity in an alpha-numeric format. 0 = Disabled 1 = Enabled
`TxSysName`	Transmit System Name: provides the system's assigned name in an alpha-numeric format. 0 = Disabled 1 = Enabled
`TxSysCap`	Transmit System Capabilities: 0 = Disabled 1 = Enabled

Example

```
hbacmd h=10.190.103.165 m=cim u=root p=Host001 n=root/emulex
SetDCBParam 00-00-c9-3c-f7-88 fcoepriority 3
```

SetDCBPriority

This command sets the PFC priorities and the ETS priority groups priorities. The values must be set according to the following rules:

- The priorities range from 0 to 7.
- A priority (0-7) must exist in only one priority group.
- All priorities must appear once in any of the eight (PG0-PG7) priority groups or if available, PG15.

  Note: For an OCe14000 adapter, you can use the PG15 priority group for RoCE priority only.

- To specify no priorities for a priority group use '-'.
- Any assigned PFC priority must be assigned as the single priority in a priority group (for example, no other priorities allowed in a group assigned the PFC priority).
- Any PG assigned one or more priorities should also be assigned a non-zero bandwidth value (see SetCnaPGBW).

The following rules are specific to FCoE and iSCSI adapters:

- A maximum of two PFC priorities can be assigned.
- If FCoE is running on the port, one of the PFC priorities must match the FCoE priority.
- If iSCSI is running on the port, one of the PFC priorities must match the iSCSI priority.

The following rules are specific to NIC-only adapters:

- Only one PFC priority can be assigned.

The following rules are specific to RoCE adapters:

- The RoCE priority should be assigned to the PFC priority and as the only priority to one of the following Priority Groups: PG0-PG7 or PG15.
- All non-RoCE priorities should be assigned together to only one priority group other than the RoCE priority group.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Note: RoCE is only available on Windows operating systems.

Syntax

```
SetDcbPriority <WWPN|MAC> <PFC> <PG0> <PG1> <PG2> <PG3> <PG4> <PG5>
<PG6> <PG7> [PG15]
```

Parameters

WWPN	The WWPN of an FCoE function on a port.
MAC	The MAC address of a function on a port.
PFC	The PFC priority that is a comma-separated list of up to eight values, ranging from 0–7.
PG0-PG7	Priority group membership that is a comma-separated list of priorities ranging from 0–7. Each set of priorities for a group must be separated by a space. All priorities (0–7) must be assigned to some PGID.
PG15	PG15 group membership (required on RoCE ports only)

Example

```
hbacmd h=10.192.203.151 m=cim SetDCBPriority 10:00:00:00:c9:3c:f7:88 3
0,1,2,4,5,6,7 3 0 0 0 0 0 0
```

Diagnostic Commands

DPortTest

Notes:

- This command is only supported for LPe16000 Fibre Channel adapters connected to D_Port-enabled Brocade switches.
- D_Port should not be enabled on the switch port.

D_Port, also called ClearLink, is a set of diagnostic tests that allows you to detect physical cabling issues that result in increased error rates and intermittent behavior.

The DPortTest command runs a series of tests including local electrical loopback, loopback to the remote optics, loopback from the remote port to the local optics, and a full-device loopback test with data integrity checks. It also provides an estimate of cable length, from the switch to the adapter, to validate that a proper buffering scheme is in place.

The various tests allow some fault isolation, so you can distinguish faults that are the result of marginal cables, optics modules, as well as, connectors or optics seating. If the adapter, firmware, SFP, or switch do not support D_Port testing, an error is generated.

Notes:

- D_Port tests run with the physical connection in an offline diagnostic state, so normal I/O cannot be sent through the physical port while the test is in progress. While the port is in D_Port mode, the link will appear down on that port; similar to an unplugged cable.
- The DPortTest command only runs in on-demand mode with the host initiating the tests with the switch.

- When using D_Port in a boot from SAN configuration, the configuration must have redundant paths to the boot LUN and only one of the redundant adapter ports should be set to D_Port.

Supported By

Linux, VMware ESXi, and Windows

Syntax

```
DPortTest <WWPN>
```

Parameters

WWPN	The WWPN of the FC function on the adapter.

Considerations When Using D_Port

- Because it is not possible to detect if a Brocade switch can support D_Port functionality, a test failure occurs if the DPortTest command is run with a switch that does not support D_Port testing.
- Typing <CTL-C> while the D_Port tests are running terminates the tests and the completed results are displayed.
- If the Overall Test Result is "FAILED", you must either re-run the tests successfully, or reset the adapter port to bring up the link.
- If a test phase fails, the D_Port diagnostics are automatically stopped. As a result, test phases that would have occurred after the failure are not displayed.
- When there is more than one error in a single test phase, multiple lines are displayed showing each error.

Examples

Successful Test

```
>hbacmd DPortTest 10:00:00:00:c9:d1:a2:d0

Running D_Port Tests. Please wait. Polling for results.............................

D_Port Test Status:     Passed
Buffers Required:       1
Frame Size:             2112
Round Trip Latency:     1898 nanoseconds
Estimated Cable Length: 172  meters

================================================================================
Test Phase                Result    Latency   Local Errors   Remote Errors
================================================================================
Electrical Loopback       Passed    122
Optical Loopback          Passed    1898
Reverse Optical Loopback  Skipped   0
Link Traffic              Passed    0
```

Test Failures

```
>hbacmd DPortTest 10:00:00:00:c9:d1:a2:d0

Running D_Port Tests. Please wait. Polling for results.............................

D_Port Test Status:     Failed
Buffers Required:       0
Frame Size:             0
Round Trip Latency:     0    nanoseconds
Estimated Cable Length: 0    meters

================================================================================
Test Phase                Result    Latency   Local Errors   Remote Errors
================================================================================
Electrical Loopback       Failed    n/a

>hbacmd DPortTest 10:00:00:00:c9:d1:a2:d0

Running D_Port Tests. Please wait. Polling for results.............................

D_Port Test Status:     Failed
Buffers Required:       0
Frame Size:             0
Round Trip Latency:     0    nanoseconds
Estimated Cable Length: 0    meters

================================================================================
Test Phase                Result    Latency   Local Errors   Remote Errors
================================================================================
Electrical Loopback       Passed    0
Optical Loopback          Failed    n/a

>hbacmd DPortTest 10:00:00:00:c9:d1:a2:d0

Running D_Port Tests. Please wait. Polling for results.............................

D_Port Test Status:     Failed
Buffers Required:       1
Frame Size:             2112
Round Trip Latency:     1898 nanoseconds
Estimated Cable Length: 172  meters

================================================================================
Test Phase                Result    Latency   Local Errors   Remote Errors
================================================================================
Electrical Loopback       Passed    127
Optical Loopback          Passed    1898
Reverse Optical Loopback  Skipped   0
Link Traffic              Failed    n/a
```

EchoTest

This command runs the echo test on FC adapters.

Notes

- This command is only supported on FC and FCoE ports.
- The EchoTest command fails if the target WWPN does not support the ECHO ELS command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
EchoTest <WWPN Source> <WWPN Destination> <Count> <StopOnError>
<Pattern>
```

Parameters

`WWPN Source`	The WWPN of the originating adapter.
`WWPN Destination`	The WWPN of the destination (echoing) adapter.
`Count`	The number of times to run the test. Use "0" to run the test indefinitely.
`StopOnError`	Checks if the test must be halted on error: 0 = No halt 1 = Halt on error
`Pattern`	Hexadecimal data pattern to transmit (up to 8 characters).

GetBeacon

This command shows the current beacon state (either "on" or "off").

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetBeacon <WWPN|MAC>
```

Parameters

`WWPN`	The WWPN of the adapter.
`MAC`	The MAC address of the NIC or iSCSI port.

GetXcvrData

This command shows transceiver data for a port on an adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetXcvrData <WWPN|MAC> [Type]
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

`Type` The type of SFP data to display:

- 1 = Formatted data
- 2 = Raw data

Example

```
C:\Program Files\emulex\Util\OCManager>hbacmd h=10.192.203.154 m=cim
u=root p=Swamiji001 n=root/emulex GetXcvrData 00-00-c9-93-2f-d6
```

LoadList

Note: This command is not supported for OneConnect and LPe16202-series adapters.

This command shows the flash memory load list data for the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
LoadList <WWPN>
```

Parameters

`WWPN` The WWPN of the adapter.

LoopBackTest

This command runs one of the loopback tests available on the adapter port specified by the WWPN or MAC address.

Notes:

- PHY diagnostics are not supported on mezzanine cards and blade network daughter cards because they do not contain PHYs.
- The external loopback test is not supported for OCe11102-xT adapters.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
LoopBackTest <WWPN|MAC> <Type> <Count> <StopOnError> [Pattern]
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

`Type` The type of loopback test to run:

- 0 = PCI loopback test; not supported for OneConnect or LPe16202 adapters
- 1 = Internal loopback test; not supported for OneConnect or LPe16202 adapters
- 2 = External loopback test (requires loopback plug)
- 3 = DMA loopback test; only supported for OneConnect and LPe16202 adapters (this test is not supported via the CIM interface)
- 4 = PHY loopback test; only supported for OneConnect adapters
- 5 = MAC loopback test; only supported for OneConnect adapters

`Count` Number of times to run the test. Possible values are 1–99,9999. To run the test infinitely, use 0.

`StopOnError` Checks if the test must be halted on error.
0 = No halt
1 = Halt

`Pattern` An optional parameter that specifies 1–8 hexadecimal bytes to use for loopback data (for example: 1a2b3c4d).

Example

```
hbacmd h=10.192.193.154 m=cim u=root p=Swamiji001 n=root/emulex
LoopBackTest 00-00-c9-93-2f-9f 4 120 0
```

LoopMap

Note: Supported for FC ports only.

This command shows the arbitrated loop map data.

Supported By

Linux, Solaris, and Windows

Syntax

```
LoopMap <WWPN>
```

Parameters

`WWPN` The WWPN of the FC port.

PciData

This command shows the PCI configuration data (if available).

The PCI registers displayed are specific to the function referenced in the OneCommand Manager CLI. For example, if you specify the WWPN for the FCoE function, the PCI registers for that FCoE function return. If you specify the MAC address for the NIC function on that same physical port, the PCI registers for that NIC function return.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
PciData <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

Example

```
C:\Program Files\emulex\Util\OCManager>hbacmd h=10.192.203.154
m=cim u=root p=Swamiji001 n=root/emulex PciData 00-00-c9-93-2f-d6
```

The example output:

```
Vendor ID:        0x19A2        Device ID:          0x0700
Command:          0x0406        Status:             0x0010
Revision ID:      0x02          Prog If:            0x00
Subclass:         0x00          Base Class:         0x02
Cache Line Size:  0x10          Latency Timer:      0x00
Header Type:      0x80          Built In Self Test: 0x00
```

```
Base Address 0:   0x00000000    Base Address 1:     0xDF478000
Base Address 2:   0xDF480004    Base Address 3:     0x00000000
Base Address 4:   0xDF4A0004    Base Address 5:     0x00000000
CIS:              0x00000000    SubVendor ID:       0x10DF
SubSystem ID:     0xE622        ROM Base Address:   0x00000000
Interrupt Line:   0x00          Interrupt Pin:      0x01
Minimum Grant:    0x00          Maximum Latency:    0x00
Capabilities Ptr: 0x40
```

PostTest

Note: Not supported for OneConnect and LPe15000 or LPe16000 series adapters.

This command runs the POST on the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
PostTest <WWPN>
```

Parameters

`WWPN`	The WWPN of the FC port.

SetBeacon

This command turns the beacon on or off.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetBeacon <WWPN> <BeaconState>
```

Parameters

`WWPN`	The WWPN of an FC port.
`MAC`	The MAC address of a NIC or iSCSI port.
`BeaconState`	Indicates the state of the beacon to be set to: 0 = Off 1 = On

SetCableNVP

Note: This command supports only OCe11100-series adapters and LPe16202 adapters.

This command sets the NVP, required for the TDRTest command, for the cable that connects to the physical port associated with the WWPN or MAC.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetCableNVP <WWPN|MAC> <NVP>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.
`NVP`	A percentage value between 1 and 100. Consult your cable documentation to obtain the proper NVP value.

TDRTest

Note: This command only supports OneConnect adapters that use coax copper cables such as the 10GBaseT adapter (OCe11102-xT).

The TDR test attempts to determine if any cable faults are compromising the integrity of the link. The test requires that the cable be free of disturbances—'down' and quiet. It is best if the cable is not terminated; however, if it is terminated then the link partner must not be active during the test.

For each twisted pair cable (labeled A, B, C, or D):

- If a fault cannot be detected, the test output displays “OK” and an estimated cable length (in meters), if possible. If the length cannot be determined, the estimated length is displayed as “invalid”.
- If one of two faults (a short or an open connection) is detected, the test output displays the fault type (“Shorted” or “Open”) and the distance to the fault (in meters).

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
TDRTest <MAC_Address>
```

Parameters

`MAC_Address`	The MAC address of the NIC or iSCSI port.

Example

```
hbacmd TDRTest <MAC>
```

The example output:

```
Pair A: OK. Cable Length Estimation: 50m.
Pair B: OK. Cable Length Estimation: invalid.
Pair C: Open. Distance to Fault: 38m.
Pair D: Shorted. Distance to Fault: 36m.
```

Wakeup

Note: Not supported for OneConnect and LPe16200-series adapters.

This command shows the firmware's wakeup parameters for the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
Wakeup <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC port.

Driver Parameter Commands

Notes

- Supported for FC and FCoE ports only.
- Driver parameters that are set to temporary or global values (using the "T" and "G" flags, respectively) must be read using the GetDriverParams command to view the current value of the parameter. The GetDriverParamsGlobal command returns only permanently set driver parameter values.

  Additionally, if temporary and global values have been set for one or more driver parameters, the "SaveConfig" command must be run with the "N" flag (using the "N" flag is analogous to the GetDriverParams command) to force the driver parameter values for the specified adapter to be saved. Inaccurate values may be saved if the "G" flag is used for this command.
- The DriverConfig and SetDriverParamDefaults commands are not supported for Solaris.
- The list of available driver parameters that can be configured are different depending upon the operating system and protocol (FC or FCoE).

DriverConfig

This command sets all driver parameters to the values in the .dpv file type. The .dpv file's driver type must match the driver type of the host platform adapter.

Supported By

Linux, VMware ESXi, and Windows

Syntax

```
DriverConfig <WWPN> <FileName> <Flag>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`FileName`	The name of the .dpv file, which is stored in the Emulex Repository directory.
`Flag`	G = Make change global (all adapters on this host). N = Make change non-global (adapter-specific).

GetDriverParams

This command shows the name and values of each parameter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetDriverParams <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.

GetDriverParamsGlobal

This command shows the name and the global value of each driver parameter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetDriverParamsGlobal <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.

SaveConfig

This command saves the specified adapter's driver parameters to a file. The resulting file contains a list of driver parameter definitions in ASCII file format with definitions delimited by a comma. Each definition has the following syntax:

```
<parameter-name>=<parameter-value>
```

The command saves either the values of the global set, or those specific to the adapter in the Emulex Repository directory.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SaveConfig <WWPN> <FileName> <Flag>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`FileName`	Name of the file that contains the driver parameters list.
`Flag`	G = Save the global parameter set. N = Save the local (adapter-specific) parameter set.

SetDriverParam

This command changes a driver parameter and designates the scope of the change.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetDriverParam <WWPN> <Flag1> <Flag2> <Param> <Value> <enable-dtm>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Flag1`	L = Make change local for this adapter only. G = Make change global (all adapters on this host).
`Flag2`	P = Make change permanent (persists across reboot). T = Make change temporary.
`Param`	Name of the parameter to modify.
`Value`	New parameter value, decimal or hexadecimal (0xNNN).
`enable-dtm`	P = Make change permanent (persist across reboot).

Note: Dynamic target mode is only supported on Light Pulse FC HBA COMSTAR ports.

Example

To enable dynamic target mode:

```
hbacmd SetDriverParam 10:00:00:00:c9:ff:ff:ff L P enable-dtm 1
```

To disable dynamic target mode, set the flag to 0.

SetDriverParamDefaults

This command changes all values to the default for the adapter(s).

Supported By

Linux, VMware ESXi, and Windows

Syntax

```
SetDriverParamDefaults <WWPN> <Flag1> <Flag2>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Flag1`	L = Make change local for this adapter only. G = Make change global (applies to all adapters on this host).
`Flag2`	P = Make change permanent (the change persists across reboot). T = Make change temporary.

Dump Commands

The diagnostic dump feature enables you to create a "dump" file for a selected adapter. Dump files contain information such as firmware version, driver version, and operating system information. This information is useful when troubleshooting an adapter, but is unavailable in read-only mode.

Caution: Disruption of service can occur if a diagnostic dump is run during I/O activity.

The dump files created are text files (".txt" extension) and binary files. The extension for binary files depends on the adapter type:

- OneConnect and LPe16202 adapters (Enhanced FAT Dump) – ".edf" extension
- OneConnect adapters (Core Dump) – ".core" extension
- LPe16000-series adapters (except LPe160202) – ".bin" extension
- LPe12000 and LPe11000-series adapters – ".dmp" extension

DeleteDumpFiles

This command deletes all diagnostic dump files for the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
DeleteDumpFiles <WWPN|MAC>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.

Dump

This command creates a diagnostic dump file in the HbaCmd dump file directory.

Note: In some cases, a core dump can be performed on an inoperative OneConnect adapter. To view inoperable adapters on the local host, use the "ListHBAs down" command. See "ListHBAs" on page 121.

Note: For OneConnect adapters, if the "core" optional parameter is not specified, an Enhanced FAT Dump is performed by default.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
Dump <WWPN|MAC> [core [Options]]
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`MAC`	The MAC address of a NIC or iSCSI port.
`core`	Perform a core dump on a OneConnect adapter (local host only).
`Options`	For available core dump options, contact Emulex technical support.

GetDumpDirectory

This command shows the dump file directory for the adapters in the host.

Notes

- The dump directory can be set on VMware ESXi hosts only.
- The dump directory applies to all adapters in the server. There is not a separate dump directory for each adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetDumpDirectory <WWPN|MAC>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of the NIC or iSCSI port.

GetDumpFile

This command gets the dump file. For dump file retrieval over FC/FCoE, the WWPN of a remote FC/FCoE port is required to access the remote host. This command gets the user-specified dump file to the local client's dump directory. The dump directory (local and remote) is named Dump. The dump files are copied from the Dump directory of the remote host to the Dump directory of the local host. Therefore, specifying a local port identifier for this command returns the following error, since the source and destination directory is the same.

```
ERROR: HBACMD_GetDumpFile: RM_GetDumpFile call failed (2)
ERROR: <2>: Not Supported
```

Dump directory:

- For Windows – C:\Program Files\Emulex\Util\Dump
- For Linux – /var/opt/emulex/ocmanager/Dump
- For Solaris – /opt/ELXocm/Dump
- For VMware ESXi – The dump directory set using the SetDumpDirectory command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetDumpFile <WWPN|MAC> <filename>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.
filename	The name of the dump file to be copied from the remote host.

Example

```
hbacmd h=10.192.193.154 m=cim u=root p=Swamiji001 n=root/emulex
GetDumpFile  BG-HBANYWARE-15_10000000c97d1314_20100120-032820421.dmp
```

GetDumpFileNames

This command gets the names of the files in the remote host's dump directory.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetDumpFileNames <WWPN|MAC>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.

Example

```
hbacmd h=10.192.193.154 m=cim u=root p=Swamiji001 n=root/emulex
GetDumpFileNames
```

GetRetentionCount

This command shows the maximum number of diagnostic dump files to keep.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetRetentionCount <WWPN|MAC>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.

SetDumpDirectory

This command sets the dump directory for the VMware ESXi hosts only.

Supported By

VMware ESXi

To use the SetDumpDirectory command, you must have a directory (which must be a "Storage" partition) mapped under /vmfs/volumes where the files will be dumped. This directory points to the internal hard disk or an external storage area and can also be mapped using the vSphere Client utility from VMware.

The application checks for the dump directory and creates the dump files in that location.

Notes

- The dump directory applies to all adapters in the server. There is no separate dump directory for each adapter.
- In a remote environment, you can use the SetDumpDirectory command from a host running any operating system (including Linux, Solaris, and Windows), but only to a remote host that is running VMware ESXi.

Syntax

```
hbacmd h=<IP_Address> m=cim [u=<username>] [p=<password>]
[n=<namespace>] SetDumpDirectory <DumpDirectoryName>
```

Parameters

`DumpDirectoryName`	The directory under /vmfs/volumes that you created to store the dump files.
`h`	The IP address of the host.

Example

This example shows the dump directory set to /vmfs/volumes/ocm-datastore:

```
hbacmd h=10.192.203.173 m=cim u=root p=Swamiji001 n=root/emulex
SetDumpDirectory 10:00:00:00:c9:61:f2:64 ocm-datastore
```

SetRetentionCount

This command specifies the maximum number of diagnostic dump files for the adapter. When the count reaches the limit, the next dump operation deletes the oldest file.

Note: The retention count applies to all adapters in the server.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetRetentionCount <WWPN|MAC> <Value>
```

Parameters

WWPN	The WWPN of an FC or FCoE port.
MAC	The MAC address of a NIC or iSCSI port.
Value	The number of dump files to retain.

Example

```
hbacmd h=10.192.193.154 m=cim u=root p=Swamiji001 n=root/emulex
SetRetentionCount 00-00-c9-93-2f-9f 6
```

FCoE Commands

Note: These commands are supported only on OneConnect and LPe16202 FCoE ports.

GetFCFInfo

This command shows the FCF information of the adapter in FCoE mode.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetFCFInfo <WWPN>
```

Parameters

WWPN	The WWPN of an FCoE port.

Example

```
hbacmd GetFCFInfo 10:00:00:00:c9:3c:f7:88
```

GetFIPParams

This command gets the FIP parameters of the adapter in FCoE mode.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetFIPParams <WWPN>
```

Parameters

`WWPN` The WWPN of an FCoE port.

Example

```
hbacmd GetFIPParams 10:00:00:00:c9:5b:3a:6d
```

SetFIPParam

This command sets the FIP parameters of the adapter in FCoE mode.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetFIPParam <WWPN> <Param> <Value>
```

Parameters

`WWPN` The WWPN of an FCoE port.

`Param` The FIP parameter name:

- pfabric
- pswitch
- vlanid
- fcmap
- cinvlanid

`Value` The value based on the FIP parameter name:

- pfabric: 8-byte fabric name (format XX:XX:XX:XX:XX:XX:XX:XX)
- pswitch: 8-byte switch name (format XX:XX:XX:XX:XX:XX:XX:XX)
- vlanid: 2-byte VLAN ID [0-4095] or “any” for any VLANID
- fcmap: 3-byte FC_map, 0x0EFCxx
- cinvlanid: 2-byte VLAN_ID [0-4095]

Example

```
hbacmd SetFIPParam 10:00:00:00:c9:5b:3a:6d fcmap 0x0efc99
```

iSCSI Commands

The commands in this section support the iSCSI interface in the OCM CLI.

Note: iSCSI commands are supported only on OneConnect iSCSI ports.

Note: Only OCe14000-series adapters support IPv6 addresses.

The MAC address <MAC_Address> of the iSCSI port must be passed to each command as the first argument.

Some commands require values to be set in a format similar to: "option_name=value". Type the full option name or the abbreviated option name (shown in Table 5-2, Option Names) and enter the value. The abbreviations are not case sensitive.

Table 5-2 Option Names

Option Name	Abbreviation	Example
Auth	au	`au=1`
DataDigest	dd	`dd=1`
DHCP	dh	`dh=1`
HeaderDigest	hd	`hd=1`
ImmediateData	id	`id=1`
Initiator_Alias	ia	`ia="initiator_alias"`
Initiator_Name	in	`in="initiator_name"`
Priority	pr	`pr=1`
VLAN_ENABLED	ve	`ve=1`
VLAN_ID	vi	`vi=1`

AddARPTableEntry

This command adds an ARP table entry.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
AddARPTableEntry <MAC_Address> <Dest_MAC_Address> <Dest_IP_Address>
```

Parameters

MAC_Address	The MAC address of the iSCSI port.
Dest_MAC_Address	The destination MAC address to add to the ARP table.
Dest_IP_Address	The destination IP address to add to the ARP table.

AddiSNSServer

This command adds a new iSNS server to the existing set of iSNS servers. It accepts either an IPv4 or IPv6 server addresses.

Note: For OCe11000-series and OCe11100-series adapters, only one iSNS server can be configured. For OCe14000-series adapters, up to four iSNS servers can be configured.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
AddiSNSServer <MAC_Address> <Server_IP> <Port>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
Server_IP	IP address of the iSNS server to configure.
Port	Port number of the iSNS server to configure (value: 1024–65535).

AddRouteTableEntry

This command adds a new route table entry to the route table of the specified port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
AddRouteTableEntry <MAC_Address> <Dest_IP_Address> <Subnet_Mask>
<Gateway>
```

Parameters

MAC_Address	MAC address of an iSCSI port.
Dest_IP_Address	Destination IP address to add to the route table.
Subnet_Mask	Subnet Mask to add to the route table.
Gateway	Gateway to add to the route table.

AddTarget

This command adds a target to the list of targets seen by the initiator and logs into the target once it has been successfully created. This command requires that you specify a valid IPv4 or IPv6 target IP <Target_IP>, port number <Port>, and iSCSI name <iscsi_target_name>. If you do not specify the remaining options, these options are set to their default values.

When you set the authentication method <Auth> to a value other than 0, you must set additional parameters. Each string should be enclosed in quotations to avoid mishandling by the Windows, Linux, Solaris, or VMware shell's parser.

- If you set the authentication method to "One-Way CHAP" (<Auth>=1), you must also specify the "Target CHAP Name" and "Target Secret". For example:

```
hbacmd AddTarget 00-11-22-33-44-55 192.168.1.1 8000
iscsitarget Auth=1 "TgtCHAPName" "TargetSecret1"
```

- If you set the authentication method to "Mutual CHAP" (<Auth>=2), you must specify all four values. For example:

```
hbacmd AddTarget 00-11-22-33-44-55 192.168.1.1 8000
iscsitarget Auth=1 "TgtCHAPName" "TargtSecret1"
"InitCHAPName" "InitialSecret1"
```

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
AddTarget <MAC_Address> <Target_IP> <Port> <iscsi_target_name>
[ImmediateData=<0|1>] [HeaderDigest=<0|1>] [DataDigest=<0|1>]
[Boot=<0|1>] [Login=<0|1>] [Auth=<0|1|2> "TgtCHAPName" "TgtSecret"
"InitCHAPName" "InitSecret"]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`Target_IP`	IP address of the target portal. You can specify an IPv4 or IPv6 IP address.
`Port`	Port number of the target portal (value: 102–65535).
`iscsi_target_name`	Target's iSCSI name enclosed in quotes (string length: 11–255).
`ImmediateData`	0 = No 1 = Yes (default)
`HeaderDigest`	0 = None (default) 1 = CRC32C
`DataDigest`	0 = None (default) 1 = CRC32C

`Boot`	This optional parameter specifies whether the added target is a boot device: 0 = Added target is not a boot device 1 = Added target is a boot device
`Login`	This optional parameter specifies whether to log in to the target after it has been added: 0 = Do not log in to the target 1 = Specify log in to the target If the Login parameter is omitted, the default is 1.
`Auth`	0 = None (default) 1 = One-Way CHAP 2 = Mutual CHAP
`TgtCHAPNam`	Target CHAP name enclosed in quotes (string length: 1–256).
`TgtSecret`	Target Secret enclosed in quotes (string length: 12–16).
`InitCHAPName`	Initiator CHAP name enclosed in quotes (string length: 1–256).
`InitSecret`	Initiator Secret enclosed in quotes (string length: 12–16).

AddTargetPortal

This command adds a new SendTarget Portal for the initiator and runs a target discovery once the SendTarget Portal is created. This command requires that you specify a valid IPv4 or IPv6 portal IP address <Target_IP> and a valid port number <Port>. If you do not specify the remaining options, these options are set to their default values.

When you set the authentication method <Auth> to a value other than 0, you must set additional parameters. Each string should be enclosed in quotations to avoid mishandling by the Windows, Linux, Solaris, or VMware shell's parser.

- If you set the authentication method to "One-Way CHAP" (<Auth>=1), you must also specify the "Target CHAP Name" and "Target Secret." For example:

```
hbacmd AddTargetPortal 00-11-22-33-44-55 10.0.0.1 8000 Auth=1
"TgtCHAPName" "TargetSecret1"
```

- If you set the authentication method to "Mutual CHAP" (<Auth>=2), you must specify all four values. For example:

```
hbacmd AddTargetPortal 00-11-22-33-44-55 10.0.0.1 8000 Auth=2
"TgtChapName" "TargetSecret1" "InitCHAPName" "InitialSecret1"
```

You must specify either the TSIH value or the ISID qualifier. If you specify the ISID qualifier, you must also specify the Target's ID address.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
AddTargetPortal <MAC_Address> <Target_IP> <Port> [ImmediateData=<0|1>]
[HeaderDigest=<0|1>] [DataDigest=<0|1>] [Auth=<0|1|2> "TgtCHAPName"
"TgtSecret" "InitCHAPName" "InitSecret"]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`Target_IP`	IP address of the target portal. You can specify an IPv4 or IPv6 IP address.
`Port`	Port number of the target portal (value: 1024-65535).
`ImmediateData`	0 = No 1 = Yes (default)
`HeaderDigest`	0 = None (default) 1 = CRC32C
`DataDigest`	0 = None (default) 1 = CRC32C
`Auth`	0 = None (default) 1 = One-Way CHAP 2 = Mutual CHAP
`TgtCHAPNam`	Target CHAP name enclosed in quotes (string length: 1-256).
`TgtSecret`	Target Secret enclosed in quotes (string length: 12-16).
`InitCHAPName`	Initiator CHAP name enclosed in quotes (string length: 1-256).
`InitSecret`	Initiator Secret enclosed in quotes (string length: 12-16).

CleariSNSServer

This command clears the configured iSNS server and disables iSNS target discovery. If no iSNS server is currently configured or if two or more iSNS servers are defined, any attempt to use this command returns an error.

Note: This command works only if one iSNS server is defined.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
CleariSNSServer <MAC_Address>
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.

DelARPTableEntry

This command removes an ARP table entry.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
DelARPTableEntry <MAC_Address> <Dest_MAC_Address> <Dest_IP_Address>
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`Dest_MAC_Address`	The destination MAC address to remove from the ARP table.
`Dest_IP_Address`	The destination IP address to remove from the ARP table.

DeleteiSNSServer

This command is used to delete an iSNS server from the current iSNS server list.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
DeleteiSNSServer <MAC_Address> <IP_Address>
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`IP_Address`	The IPv4 or IPv6 IP address of the iSNS server.

DelRouteTableEntry

This command removes a route table entry from the specified port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
DelRouteTableEntry <MAC_Address> <Dest_IP_Address> <Subnet_Mask>
<Gateway>
```

Parameters

`MAC_Address`	MAC address of an iSCSI port.
`Dest_IP_Address`	Destination IP address to delete from the route table.
`Subnet_Mask`	Subnet Mask to delete from the route table.
`Gateway`	Gateway to delete from the route table.

DiscoveriSNSServer

This command discovers an iSNS server address through DHCP. If the DHCP server returns an iSNS server address, it replaces the configured iSNS server and can be viewed using the ShowiSNSServer command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
DiscoveriSNSServer <MAC_Address>
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.

ExportiSCSI

This command outputs iSCSI target information in XML format. The output can be redirected to a specified file, and the file can be used for the ImportiSCSI command.

Supported By

Windows Only

Syntax

```
ExportiSCSI
```

Example

In this example, the command exports all the iSCSI targets of all the adapters on the host. The output is re-directed to the file "targets.xml".

```
hbacmd ExportiSCSI > targets.xml
```

GetInitiatorProperties

This command shows all the initiator login options for the specified port.

These properties are set as the target portal's login properties to be used when discovering the targets on the target portal. The discovered targets inherit these properties.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetInitiatorProperties <MAC_Address>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

GetiSCSILuns

This command shows all the LUNs and their information for a specified target. The command gathers the information from the iSCSI target indicated by the <iscsi_target_name> parameter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetiSCSILuns <MAC_Address> <iscsi_target_name>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

`iscsi_target_name` Target's iSCSI name enclosed in quotes (string length: 11-255)

GetiSCSIPortStats

This command shows all the port statistics for a specified port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetiSCSIPortStats <MAC_Address>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

GetNetworkConfiguration

This command lists a port's TCP/IP information for IPv4 and IPv6 protocols.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetNetworkConfiguration <MAC_Address>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

Example

```
TCP/IP Configuration for 00-00-c9-ad-ad-b1:

VLAN Enabled:          No
VLAN ID:               0
Priority:              0

IPv4 Configuration:
DHCP Enabled:          Yes
IP Address:            10.192.81.204
Subnet Mask:           255.255.248.0
Gateway:               10.192.87.254

IPv6 Configuration:
Automatic Assignment:  No
Link Local Address:    fe80::a1d3:f062:f44a:7577
IP Address 1:          fd01::16
IP Address 2:          fd02::16
Gateway:               fd00::1
```

GetSessionInfo

This command lists all session information for a specified session.

You must specify the <iscsi_target_name> and either the <TSIH> of the session or the session's ISID Qualifier <ISID_Qual> and the target's IPv4 or IPv6 IP address <Target_IP>. These parameters tell the command to gather the information from the specified target and session. You can find the TSIH and ISID qualifier by running the ListSessions command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetSessionInfo <MAC_Address> <iscsi_target_name> <TSIH | <ISID_Qual
Target_IP>>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
iscsi_target_name	Target's iSCSI name enclosed in quotes (string length: 11–255).
TSIH	TSIH value of the session (value: 1–65535).
ISID_Qual	ISID qualifier of the session (value: 0–65535).
Target_IP	The Target's IP address. You can specify an IPv4 or IPv6 IP address.

ImportiSCSI

This command imports iSCSI targets from an XML file to the iSCSI ports on the host. The XML file is created by the ExportiSCSI command.

Supported By

Windows Only

Syntax

```
ImportiSCSI <Import_File> [clean]
```

Parameters

Import_File	The name of XML file containing import information that was generated by the ExportiSCSI command (see "ExportiSCSI" on page 96).
clean	Erases entire iSCSI configuration on all iSCSI ports before importing targets. **Note:** This command fails if the system is booted from an iSCSI target.

Example

In this example, the command imports the iSCSI targets found in the targets.xml file to the iSCSI ports found on the host, and erases the iSCSI configuration (including targets) of all iSCSI ports on these host before importing the targets.

```
hbacmd ImportiSCSI targets.xml clean
```

The example output:

```
All existing targets have been removed.
Added target iqn.2006-01.com.openfiler:target121-000.on.port.00-00-c9-be-1a-24
Added target iqn.2006-01.com.openfiler:target121-001.on.port.00-00-c9-be-1a-24
```

```
Added target iqn.2006-01.com.openfiler:target122-000.on.port.00-00-c9-2f-45-1b
Added target iqn.2006-01.com.openfiler:target122-001.on.port.00-00-c9-2f-45-1b
```

iSCSIPing

This command issues ICMP echo requests to a target.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
iSCSIPing <MAC_Address> <IP_Address>
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`IP_Address`	IP address of target to send ICMP echo request. You can specify an IPv4 or IPv6 IP address.

ListSessions

This command lists all the sessions on a specified target. The command gathers the information from the iSCSI target indicated by the <iscsi_target_name> parameter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ListSessions <MAC_Address> <iscsi_target_name>
```

Parameters

`MAC_Address`	The MAC address of the an iSCSI port.
`iscsi_target_name`	Target's iSCSI name enclosed in quotes. The string length is 11–255.

RemoveTarget

This command removes the target with the specified iSCSI target name <iscsi_target_name>.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
RemoveTarget <MAC_Address> <iscsi_target_name>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
iscsi_target_name	Target's iSCSI name enclosed in quotes. The string length is 11–255.

RemoveTargetPortal

This command removes the SendTarget Portal containing the IPv4 or IPv6 target IP <Target_IP> and the port <Port> from the list of portals for the specified initiator.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
RemoveTargetPortal <MAC_Address> <Target_IP> <Port>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
Target_IP	The target's IP address. You can specify an IPv4 or IPv6 target IP address.
Port	The port number of the target portal. The possible values are 1024–65535.

SetBootTargetSession

This command enables and disables a iSCSI target's session as a boot session. If a session is enabled as a boot session and the system reboots, it attempts to boot from that target.

Depending on whether the target is logged in, there are two different ways to specify the session. If the target is logged in, use the <TSIH> parameter. If the target is not logged in, use the <ISID_Qual Target_IP> parameter. You can specify an IPv4 or IPv6 target IP address.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetBootTargetSession <MAC Address> <Target> <TSIH | <ISID_Qual
Target_IP>> <0|1>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
Target	Specifies the iSCSI name of the desired iSCSI target.

TSIH	TSIH value of the session. The possible values are 1–65535.
ISID_Qual	ISID qualifier of the session. The possible values are 0–65535. You can specify an IPv4 or IPv6 Target IP address that the target is using depending on the adapter type. See the note above.
Target_IP	
0|1	Specifies the state of the BootProperty for the target: 0 = Disabled 1 = Enabled

SetInitiatorProperties

This command sets the initiator properties for the specified port. It allows you to specify an initiator name <Initiator_Name> and an initiator alias <Initiator_Alias>. If you opt not to specify these fields, a default iSCSI name is assigned.

Except for the <Initiator_Name> and <Initiator_Alias> properties, these properties are set as the target portal's login properties to be used when discovering the targets on the target portal. The targets inherit the target portal's properties when they are discovered. The discovered target's login properties can be changed using the SetTargetProperties command.

When you set the authentication method <Auth> to a value other than 0, you must set additional parameters. Each string should be enclosed in quotations to avoid mishandling by the Windows, Linux, Solaris, or VMware shell's parser. Additionally, these properties are used for iSNS target discovery to set the discovered target's login properties.

- If you set the authentication method to "One-Way CHAP" (<Auth>=1), you must also specify the "Target CHAP Name" and "Target Secret." For example:

```
hbacmd SetInitiatorProperties 00-11-22-33-44-55 Auth=1
"TgtChapName" "TargetSecret1"
```

- If you set the authentication method to "Mutual CHAP" (<Auth>=2), you must specify all four values. For example:

```
hbacmd SetInitiatorProperties 00-11-22-33-44-55 Auth=2
"TgtChapName" "TargetSecret1" "InitCHAPName" "InitialSecret1"
```

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetInitiatorProperties <MAC_Address> [Initiator_Name="initiator_name"]
[Initiator_Alias="initiator_alias"] [ImmediateData=<0|1>]
[HeaderDigest=<0|1>] [DataDigest=<0|1>] [Auth=<0|1|2> "TgtCHAPName"
"TgtSecret" "InitCHAPName" "InitSecret"]
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
Initiator_Name	Initiator iSCSI name enclosed in quotes (string length: 1–224).
Initiator_Alias	Initiator iSCSI alias enclosed in quotes (string length: 0–32).
ImmediateData	0 = No 1 = Yes (default)
HeaderDigest	0 = None (default) 1 = CRC32C
DataDigest	0 = None (default) 1 = CRC32C
Auth	0 = None (default) 1 = One-Way CHAP 2 = Mutual CHAP
TgtCHAPNam	Target CHAP name enclosed in quotes (string length: 1–256).
TgtSecret	Target Secret enclosed in quotes (string length: 12–16).
InitCHAPName	Initiator CHAP name enclosed in quotes (string length: 1–256).
InitSecret	Initiator Secret enclosed in quotes (string length: 12–16).

SetiSCSIBoot

This command defines whether a specific iSCSI function's Boot ROM is active.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetiSCSIBoot <MAC_Address> <0|1>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
0|1	Specifies the iSCSI boot ROM state: 0 = Disabled 1 = Enabled

SetNetworkConfiguration

This command sets the TCP/IP configuration on a specified port. The required fields for this command depend upon the values set for <DHCP> and <VLAN_ENABLED>.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetNetworkConfiguration <MAC address> VLAN_Enabled=<0|1>[VLAN_ID=<0-4094>
Priority=<0-7>]DHCP=<0|1> [<IPv4_Address> <Subnet> [IPv4_Gateway]] [AA=<0|1>
[<LL=IPv6_Address> [RA1=IPv6_Address RA2=IPv6_Address] [GW6=IPv6_Address]]]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`VLAN_ENABLED`	0 = Disabled 1 = Enabled
`VLAN_ID`	VLAN ID of the interface. The possible values are 0–4095. **Note:** This value is specified only when VLAN is enabled.
`Priority`	VLAN priority of the interface. The possible values are 0–7. **Note:** This value is specified only when VLAN is enabled.
`DHCP`	Dynamic Host Configuration Protocol for automatic IPv4 address assignment 0 = Disabled 1 = Enabled **Note:** If the DHCP parameter is disabled, you must specify its parameters. For example, IPv4_Address, Subnet, and IPv4_Gateway.
`IPv4_Address`	IPv4 address of initiator port. For example: 10.192.1.1. **Note:** IPv4_Address is required when DHCP is disabled.
`Subnet`	Subnet mask of initiator port. For example: 255.255.255.0. **Note:** Subnet is required when DHCP is disabled.
`IPv4_Gateway`	IPv4 gateway of initiator port. For example: 10.192.1.1. **Note:** IPv4_Gateway is optional when DHCP is disabled.
`AA`	Automatic IPv6 address assignment 0 = Disabled 1 = Enabled **Note:** If the AA (automatic assignment) parameter is disabled, you must specify its parameters. For example, LL, RA1, RA2 and GW6.
`LL`	Link local IPv6 address **Note:** LL is required when AA is disabled, and ignored when AA is enabled.
`RA1`	Routable IPv6 address 1 **Note:** RA1 is ignored if AA is enabled.
`RA2`	Routable IPv6 address 2 **Note:** RA2 is ignored if AA is enabled.
`GW6`	IPv6 gateway address **Note:** GW6 is ignored if AA is enabled.

Notes

- VLAN_ID and Priority are required only if VLAN_ENABLED is enabled; otherwise, these values should be omitted.
- IPv4_Address and Subnet are required only if DHCP is disabled; otherwise these values should be omitted.
- At a minimum, the DHCP or AA parameter must be specified and, if required, their associated parameters as well. If either the DHCP or AA parameter is not specified an error results.

SetTargetLoginProperties

This command sets the login and authentication properties associated with a specific target. This command requires that you specify a valid iSCSI target name <iscsi_target_name>. If you do not specify some of the remaining properties, these options are set to their default values. However, if no properties are changed, an error is generated. You must change at least one property for this command to return successfully.

When you set the authentication method <Auth> to a value other than 0, you must set additional parameters. Each string should be enclosed in quotations to avoid mishandling by the Windows, Linux, Solaris, or VMware shell's parser.

- If you set the authentication method to "One-Way CHAP" (<Auth>=1), you must also specify the "Target CHAP Name" and "Target Secret." For example:

```
hbacmd SetTargetLoginProperties 00-11-22-33-44-55 iscsitarget
Auth=1 "TgtCHAPName" "TargetSecret1"
```

- If you set the authentication method to "Mutual CHAP" (<Auth>=2), you must specify all four values. For example:

```
hbacmd SetTargetLoginProperties 00-11-22-33-44-55 iscsitarget
Auth=2 "TgtChapName" "TargetSecret1" "InitCHAPName"
"InitialSecret1"
```

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetTargetLoginProperties <MAC_Address> <iscsi_target_name>
[ImmediateData=<0|1>] [HeaderDigest=<0|1>] [DataDigest=<0|1>]
[Auth=<0|1|2> "TgtCHAPName" "TgtSecret" "InitCHAPName" "InitSecret"]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`iscsi_target_name`	Target's iSCSI name enclosed in quotes (string length: 11–255).
`ImmediateData`	0 = No 1 = Yes (default)
`HeaderDigest`	0 = None (default) 1 = CRC32C

DataDigest	0 = None (default) 1 = CRC32C
Auth	0 = None (default) 1 = One-Way CHAP 2 = Mutual CHAP
TgtCHAPNam	Target CHAP name enclosed in quotes (string length: 1–256).
TgtSecret	Target Secret enclosed in quotes (string length: 12–16).
InitCHAPName	Initiator CHAP name enclosed in quotes (string length: 1–256).
InitSecret	Initiator Secret enclosed in quotes (string length: 12–16).

SetTargetProperties

This command sets the ETO value of a target.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetTargetProperties <MAC_Address> <iscsi_target_name> <ETO>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
iscsi_target_name	Target's iSCSI name enclosed in quotes (string length: 11–255).
ETO	The extended timeout option for the target: • For Windows, valid values are 0–3600 • For Linux, Solaris, and VMware ESXi, valid values are 0–30

SetTPLoginProperties

This command sets a target portal's login properties. This command requires that you specify a valid IPv4 or IPv6 Target IP <Target_IP> and Port <Port>. However, if you specify no options other than the Target IP and Port, no changes are made. You must change at least one of the optional parameters for this command to make any changes to the target portal's login properties.

These properties are used when discovering the targets on the target portal. The targets inherit the target portal's properties when they are discovered. Targets already discovered do not inherit the updated properties, only newly discovered targets inherit the properties.

When you set the authentication method <Auth> to a value other than 0, you must set additional parameters. Each string should be enclosed in quotations to avoid mishandling by the Windows, Linux, Solaris, or VMware shell's parser.

- If you set the authentication method to "One-Way CHAP" (<Auth>=1), you must also specify the "Target CHAP Name" and "Target Secret." For example:

```
hbacmd SetTPLoginProperties 00-11-22-33-44-55 10.192.1.1 5050
Auth=1 "TgtChapName" "TargetSecret1"
```

- If you set the authentication method to "Mutual CHAP" (<Auth>=2), you must specify all four values. For example:

```
hbacmd SetTPLoginProperties 00-11-22-33-44-55 10.192.1.1 5050
Auth=2 "TgtChapName" "TargetSecret1" "InitCHAPName"
"InitialSecret1"
```

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetTPLoginProperties <MAC_Address> <Target_IP> <Port>
[ImmediateData=<0|1>] [HeaderDigest=<0|1>] [DataDigest=<0|1>]
[Auth=<0|1|2> TgtCHAPName TgtSecret InitCHAPName InitSecret]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`Target_IP`	The IP address of the target portal. You can specify an IPv4 or IPv6 Target IP address.
`Port`	The port number of the target portal (value: 1024–65535).
`ImmediateData`	0 = No 1 = Yes (default)
`HeaderDigest`	0 = None (default) 1 = CRC32C
`DataDigest`	0 = None (default) 1 = CRC32C
`Auth`	0 = None (default) 1 = One-Way CHAP 2 = Mutual CHAP
`TgtCHAPNam`	The Target CHAP name enclosed in quotes (string length: 1–256).
`TgtSecret`	The Target Secret enclosed in quotes (string length: 12–16).
`InitCHAPName`	The Initiator CHAP name enclosed in quotes (string length: 1–256).
`InitSecret`	The Initiator Secret enclosed in quotes (string length: 12–16).

ShowARPTable

This command shows the current ARP table for the specified port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowARPTable <MAC_Address>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

ShowiSNSServer

This command shows the currently configured Internet Storage Name Server. It shows up to four iSNS servers if you are using the OCe14000 family of adapters and includes IPv6 addresses, as well as, IPv4 addresses. This command also indicates whether or not iSNS discovery is enabled.

Note: The iSNS server discovery mechanism using DHCP discovers only IPv4 addresses.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowiSNSServer <MAC_Address>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

ShowRouteTable

This command shows the route table for a specific port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowRouteTable <MAC_Address>
```

Parameters

`MAC_Address` The MAC address of an iSCSI port.

Example

```
hbacmd h=10.192.203.240 ShowRouteTable 00-00-c9-a0-ce-77
```

ShowTarget

This command shows the properties for a specified target. If you do not specify the iSCSI target name <iscsi_target_name>, all targets and their associated properties return. If you specify <refreshtargets> in place of the <iscsi_target_name>, all targets are refreshed before returning the information. If you do not provide a <iscsi_target_name> or <refreshtargets> value, only the targets from the last refresh are displayed.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowTarget <MAC_Address> [<iscsi_target_name> | refreshtargets]
```

Note: Only one command option can be specified with this command. That is, you can only specify either <iscsi_target_name> or <refreshtargets>.

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`iscsi_target_name`	The target's iSCSI name enclosed in quotes (string length: 11–255).
`refreshtargets`	Refresh all targets before displaying the information.

ShowTargetPortal

This command shows the properties for a specified SendTarget Portal. If the <Target_IP> and <Port> are not specified, all SendTarget Portals and their associated properties return.

Supported By

Linux, Solaris, and Windows

Syntax

```
ShowTargetPortal <MAC_Address> [<Target_IP> <Port>]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`Target_IP`	IP address of the target portal. You can specify an IPv4 or IPv6 Target IP address.
`Port`	Port number of the target portal.

TargetLogin

This command logs in to a target. The iSCSI target name <iscsi_target_name> is the only mandatory option. The <target_portal> and <port> information are optional and if they are not provided a default target portal is used. If you do not specify the remaining options, these options are set to their default values.

When you set the authentication method <Auth> to a value other than 0, you must set additional parameters. Each string should be enclosed in quotations to avoid mishandling by the Windows, Linux, Solaris, or VMware shell's parser.

- If you set the authentication method to "One-Way CHAP" (<Auth>=1), you must also specify the "Target CHAP Name" and "Target Secret." For example:

```
hbacmd TargetLogin 00-11-22-33-44-55 iscsitarget Auth=1
"TgtChapName" "TargetSecret1"
```

- If you set the authentication method to "Mutual CHAP" (<Auth>=2), you must specify all four values. For example:

```
hbacmd TargetLogin 00-11-22-33-44-55 iscsitarget Auth=2
"TgtChapName" "TargetSecret1" "InitCHAPName" "InitialSecret1"
```

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
TargetLogin <MAC address> <Target Name> [<Target IP> <Port>]
[HeaderDigest=<0|1>][ImmediateData=<0|1>][DataDigest=<0|1>][Auth=<0|1|
2> ["TgtCHAPName"] ["TgtSecret"] ["InitCHAPName"] ["InitSecret"]]
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`target_name`	The target's iSCSI name enclosed in quotes (string length: 11–255 characters).
`Target IP`	Target IP Address. You can specify an IPv4 or IPv6 Target IP address.
`Port`	The port number of the target portal. The possible values are 1024–65535.
`HeaderDigest`	0 = None (default) 1 = Uses CRC32C checksum
`ImmediateData`	0 = No 1 = Yes (default) for appending solicited data to a command.
`DataDigest`	0 = None (default) 1 = CRC32C checksum
`Auth`	0 = None (default) 1 = One-Way CHAP 2 = Mutual CHAP

TgtCHAPName	The Target CHAP name enclosed in quotes (string length: 1–255 characters). **Note:** The Target CHAP name is required it you set Auth to 1 or 2.
TgtSecret	The Target Secret enclosed in quotes (string length: 12–16 characters). **Note:** The Target CHAP name is required it you set Auth to 1 or 2.
InitCHAPName	The Initiator CHAP name enclosed in quotes (string length: 1–255 characters). **Note:** The Target CHAP name is required it you set Auth to 2.
InitSecret	The Initiator Secret enclosed in quotes (string length: 12–16 characters). **Note:** The Target CHAP name is required it you set Auth to 2.

TargetLogout

This command logs out of a target.

You must specify the iSCSI target name <iscsi_target_name> and either the TSIH <TSIH> of the session, or the session's ISID Qualifier <ISID_Qual> and the target's IP address <Target_IP>.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
TargetLogout <MAC_Address> <iscsi_target_name> <TSIH | <ISID_Qual
Target_IP>>
```

Parameters

MAC_Address	The MAC address of an iSCSI port.
iscsi_target_name	The target's iSCSI name enclosed in quotes (string length: 11–255).
TSIH	The TSIH value of the session. The possible values are 1–65535.
ISID_Qual	The ISID qualifier of the session. The possible values are 0–65535.
Target_IP	The target's IP address.

UpdateiSNSServer

This command updates a configured iSNS server and accepts IPv4 or IPv6 iSNS server addresses. This command requires the server IP <Server_IP> and port number <Port> of the iSNS server to be available to respond to the iSNS requests. If a single iSNS server is configured, this command replaces the single iSNS server IP address with a new IP address. If no iSNS server is configured, this command adds a new iSNS server.

Note: If two or more iSNS servers are already configured, any attempt to use this command results in an error.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
UpdateiSNSServer <MAC_Address> <Server_IP> <Port>
```

Parameters

`MAC_Address`	The MAC address of an iSCSI port.
`Server_IP`	IP address of the iSNS server to configure. You can specify an IPv4 or IPv6 server IP address.
`Port`	Port number of the iSNS server to configure (value: 1024–65535).

LUN Masking Commands

Notes

- Supported for FC/FCoE ports only.
- Linux does not support the GetLunUnMaskByHBA, GetLunUnMaskByTarget, and SetLunMask commands.
- Solaris and VMware ESXi do not support the GetLunUnMaskbyHBA, GetLunUnMaskbyTarget, RescanLuns, and SetLunMask commands.

GetLunList

This command queries for the presence of any masked LUNs.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetLunList <HBA WWPN> <Target WWPN> <Option>
```

Parameters

`HBA WWPN`	The WWPN of an FC or FCoE port on the adapter.
`Target WWPN`	The WWPN of the target.
`Option`	0 = Get information from the driver 1 = Get information from the configuration

GetLunUnMaskByHBA

This command queries for the presence of any unmasked LUNs by adapter.

Supported By

Solaris and Windows

Syntax

```
GetLunUnMaskByHBA <HBA WWPN> <Option>
```

Parameters

`HBA WWPN`	The WWPN of an FC or FCoE port.
`Option`	0 = Get information from the driver 1 = Get information from the configuration

GetLunUnMaskByTarget

This command queries for any unmasked LUNs by target.

Supported By

Solaris and Windows

Syntax

```
GetLunUnMaskByTarget <HBA WWPN> <Target WWPN> <Option>
```

Parameters

`HBA WWPN`	The WWPN of an FC or FCoE port on the adapter.
`Target WWPN`	The WWPN of the target.
`Option`	0 = Get information from the driver 1 = Get information from the configuration

RescanLuns

This command rescans LUNs to find any new LUNs.

Supported By

Linux, Solaris, and Windows

Syntax

```
RescanLuns <HBA WWPN> <Target WWPN>
```

Parameters

`HBA WWPN`	The WWPN of an FC or FCoE port on the adapter.
`Target WWPN`	The WWPN of the target.

SetLunMask

This command masks the specified LUNs.

Supported By

Solaris and Windows

Syntax

```
SetLunMask <HBA WWPN> <Target WWPN> <Option> <Lun> <LunCount> <MaskOp>
```

Parameters

`HBA WWPN`	The WWPN of an FC or FCoE port on the adapter.
`Target WWPN`	The WWPN of the target.
`Option`	0 = Get information from the driver 1 = Get information from the configuration (make persistent) 2 = Send information to both
`Lun`	The starting LUN number.
`LunCount`	The number of LUNs.
`MaskOp`	A = Mask LUN B = Clear unmask target level C = Clear unmask HBA level D = Unmask LUN E = Unmask target level F = Unmask HBA level

LUN ExpressLane Commands

Note: ExpressLane is only supported on LPe16000-series FC adapters.

GetExpressLaneLunList

This command displays LUNs on a target and their respective ExpressLane status.

Supported By

Linux, VMware ESXi, and Windows

Notes:

- For Linux and VMware operating systems, only ExpressLane-enabled LUNs are shown by this command. LUNS without ExpressLane-enabled support are not shown.
- ExpressLane LUNs are supported on 16 GB FC ports only.

Syntax

```
GetExpressLaneLunList <WWPN> [vport=<vPort WWPN>] <Target WWPN>
<Option>
```

Parameters

`WWPN`	The WWPN of the FC function connected to the target or physical WWPN if virtual ports are selected.
`vPort WWPN`	The WWPN of an optional vPort allowing you to get the ExpressLane LUNs of a vPort.
`Target WWPN`	The WWPN of the target LUNs.
`Option`	0=Get information from driver 1=Get information from configuration

Example

```
>hbacmd h=10.192.87.198 GetExpressLaneLunList 10:00:00:00:00:87:01:98
20:22:d4:ae:52:6e:6f:08 0


Number of LUNs: 4

      FCP_LUN        OS_LUN    ExpressLane
------------------  ------    -------------
0000 0000 0000 0000  0           No
0001 0000 0000 0000  1           Yes
0002 0000 0000 0000  2           No
0003 0000 0000 0000  3           Yes
```

SetExpressLaneLunState

This command enables or disables ExpressLane on a particular LUN.

Note: ExpressLane cannot be enabled for Masked LUNs.

Supported By

Linux, VMware ESXi, and Windows

Syntax

```
SetExpressLaneLunState <WWPN> [vport=<vPort WWPN>] <Target WWPN> <Lun>
<State> <Option>
```

Parameters

`WWPN`	The WWPN of the FC/FCoE function connected to the target or physical WWPN if virtual ports are selected.
`vPORT WWPN`	The WWPN of an optional vPort allowing you to set the state of a vPort LUN.
`Target WWPN`	The WWPN of the target LUNs.
`LUN`	The LUN number on which to set the ExpressLane status. **Note:** Obtain the LUN number from the output of the GetExpressLaneLunList command under the "OS LUN" column.
`State`	0=Disable ExpressLane, 1=Enable ExpressLane
`Option`	0=Set ExpressLane LUN state in driver temporary - until reboot 1=Set ExpressLane LUN state in the configuration to persist across reboots 2=Set ExpressLane LUN state in both driver and in the configuration to persist across reboots

Example

```
>hbacmd h=10.192.87.198 SetExpressLaneLUNState 10:00:00:00:00:87:01:98
20:22:d4:ae:52:6e:6f:08 2 1 2
```

Miscellaneous Commands

AddHost

This command adds a host to the hosts file for TCP/IP management in the OneCommand Manager GUI. The adapters for these hosts are also presented by the ListHBAs command.

Supported By

Linux, Solaris, and Windows

Syntax

To add non-VMware ESXi hosts:

```
hbacmd AddHost <host_address>
```

Note: The "h=" option (for specifying an optional IP address or host name) after "hbacmd" is not available for the AddHost command.

To add VMware ESXi hosts to Windows OCM:

```
hbacmd m=cim [u=<username>] [p=<password>] [n=<namespace>] AddHost
<IP_Address>
```

If the username, password, and namespace are not specified, see "Default CIM Credentials" on page 34.

Parameters

`host_address` The IP address (using the IPv4 or IPv6 format) or the host name.

`IP_Address` The IP address of the host.

CnaClearEventLog

Note: Supported for OneConnect and LPe16202 adapters only.

This command clears the event log specified by the WWPN or MAC address.

Supported By

Linux, VMware ESXi, and Windows

Syntax

```
CnaClearEventLog <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

CnaGetEventLog

Note: Supported for OneConnect adapters only.

This command shows the adapter event log specified by the WWPN or MAC address.

Supported By

Linux, VMware ESXi, and Windows

Syntax

```
CnaGetEventLog <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

Download

Loads the firmware image to the port specified by the WWPN or MAC address.

Notes

- For 16-Gb HBA firmware downloads, the OneCommand Manager application only accepts ".grp" files.
- For OneConnect and 16-Gb HBAs, while the WWPN or MAC address is used to identify the adapter, the updated firmware applies to all ports on that adapter. It is not necessary to download the firmware on all the adapter ports of a OneConnect adapter or a 16-Gb HBA.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
Download <WWPN|MAC> <FileName>
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

`FileName` The name and location of the firmware image (any file accessible to the CLI client).

ExportSANInfo

For reporting purposes, this command captures the SAN information in ".xml" for XML-formatted files and ".csv" for CSV-formatted files. Since this command can output a large amount of information, it is recommended that you re-direct the output to a file.

Note: Due to the amount of information that must be obtained and reported, this command can take a long time on large SAN configurations.

Supported By

Linux, Solaris, and Windows

Syntax

```
ExportSANInfo [format]
```

Note: The "h=" option (for specifying an optional IP address or host name) after "hbacmd" is not available for the ExportSANInfo command.

Parameters

`format` An optional parameter that specifies the format of the adapter information:

- csv
- xml

Note: Leaving the format blank shows the data in xml format (default).

FecEnable

This command enables or disables FEC on LPe16000-series FC adapters.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

FecEnable WWPN <0|1>

Parameters

`WWPN` The WWPN of the FC port.

`0` Disables FEC on the port

`1` Enables FEC on the port

GetCimCred

This command shows the default credentials set for the CIM client.

Note: The password is encrypted.

Supported By

Windows

Syntax

`GetCimCred`

Parameters

None.

GetElxSecInfo

This command shows the version of the ElxSec system.

Supported By

Windows and Linux

Syntax

```
GetElxSecInfo
```

Parameters

None

GetQoSInfo

This command shows the QoS information for a specified NIC port if multichannel support is enabled.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetQoSInfo <MAC_Address>
```

Parameters

`MAC` The MAC address of a NIC port.

Example

```
hbacmd GetQoSInfo 00-00-c9-93-20f-d6
```

GetVPD

This command shows the port's VPD.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetVPD <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

`MAC` The MAC address of a NIC or iSCSI port.

ListHBAs

This command shows a list of the manageable Emulex adapters found by local and remote out-of-band (TCP/IP) discovery. For a NIC-only or iSCSI adapter, the MAC address is displayed rather than the port WWN. The node WWN and fabric WWN are not displayed. The type of information listed may vary according to the adapter model.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ListHBAs [local] [m=model] [pt=type] [down]
```

Parameters

`local`	Only displays local adapters.
`m=model`	Model filter. Append * to the end of the model name for a wildcard match. For example: `LP9*`
`pt=type`	The port type filter. Valid types are NIC, iSCSI, FC, and FCoE.
`down`	Displays only the NIC functions of inoperative OneConnect and LPe16202 adapters on the local system.

RemoveHost

This command removes a host from the hosts file use for TCP/IP management in the OneCommand Manager application GUI. The <host_address> can be an IP address, using the IPv4 or IPv6 format, or a host name.

Supported By

Linux, Solaris, and Windows

Syntax

For the RM interface:

```
hbacmd RemoveHost host_address
```

For VMware ESXi using the CIM interface:

```
hbacmd m=cim RemoveHost <IP_Address>
```

Note: The “h=” option (for specifying an optional IP address or host name) after “hbacmd” is not available for the RemoveHost command.

Parameters

`host_address`	The host to remove.
`IP_Address`	The IP address of the host to remove.

Reset

This command resets the adapter. An adapter reset can require several seconds to complete, especially for remote devices. When the reset is completed, the system command prompt is displayed.

Notes

- Supported for FC and FCoE ports only.
- For OneConnect and LPe16202 FCoE ports, this command only resets the driver to update changed driver parameters that require a driver reset. It does not cause a hardware reset of the adapter port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
Reset <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.

SetCimCred

This command sets the default CIM credentials. You must specify all four credentials: username, password, namespace, and port number. Default credentials are used if any credential is not in the hbacmd command argument. Once the default credentials for a host are set, any other command can be issued by specifying "m=cim".

Supported By

Windows

Syntax

```
SetCimCred <username> <password> <namespace> <portnum>
```

Note: Use this command to set only the CIM credentials. Once this is done, subsequent hbacmd commands do not require you to specify the CIM credentials in the command line.

Parameters

`username` Login User ID of the VMware ESXi.

`password` The login password of the VMware ESXi.

`namespace` The namespace where the Emulex provider is registered in the SFCB CIMOM of VMware ESXi, specifically "root/emulex".

`portnum` The port number of the SFCB CIMOM listening to, that is, 5988 (HTTP) or 5989 (HTTPS).

SetPfcThrottle

This command returns the PFC throttle state as enabled or disabled.

Note: The PFC throttle state is returned when using the PortAttributes command for OneConnect OCe10102 adapters. However, for OneConnect adapters with older firmware that does not support PfcThrottle and for non-OneConnect adapters, the PFC throttle state is not returned when using the PortAttributes command.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SetPfcThrottle <WWPN> <0|1>
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

`0|1` The PFC throttle state:
0 = Disabled
1 = Enabled

SRIOVEnable

This command enables or disables SR-IOV on a specified NIC port (that is, physical function).

Notes:

- This command is not available on OCe11101-EM/EX or OCe11102-EM/EX adapters. The following error will be returned:

  ```
  ERROR: <251>: Hardware or firmware does not support command.
  ```

- SR-IOV is not supported with RoCE configurations.
- SR-IOV is not supported with UMC commands or channel management commands.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
SRIOVEnable <MAC> <0|1>
```

Parameters

`MAC`	The MAC address of a NIC port.
`0|1`	0 = Disables SR-IOV 1 = Enables SR-IOV

Example

The following command enables SR-IOV on NIC physical function with MAC address 00-00-c9-12-34-56:

```
hbacmd SRIOVEnable 00-00-c9-12-34-56 1
```

TargetMapping

This command shows a list of mapped targets and the LUNs for the port.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
TargetMapping <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC or FoE adapter.

VEPAEnable

This command enables or disables VEPA Management. VEPA Management is only supported for OCe1400x NIC ports. For all other board types and port types, this feature is undefined, and this command returns a “Hardware Does Not Support” error.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
VEPAEnable <MAC> <0|1>
```

Parameters

`MAC` The MAC Address of any NIC on the physical port.

`0|1` The VEPA state:

0 = Disabled

1 = Enabled

Version

This command shows the current version of the OneCommand Manager CLI Client.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

For the RM interface:

```
hbacmd Version
```

Note: The "h=" option (for specifying an optional IP address or host name) after "hbacmd" is not available for the Version command.

For VMware ESXi using the CIM interface:

```
hbacmd h=<IP address> m=cim Version
```

Parameters

None

Persistent Binding Commands

Notes

- These commands are supported for FC/FCoE ports only.
- The following persistent binding commands are not supported on Linux or VMware ESXi:
  - BindingCapabilities
  - BindingSupport
  - PersistentBinding
  - RemoveAllPersistentBinding
  - RemovePersistentBinding
  - SetPersistentBinding
  - SetBindingSupport

In a remote environment, you can perform persistent bindings operations from a host running any operating system (including Linux or VMware ESXi), but only to a remote host that is running Windows or Solaris.

For a binding to take effect immediately (that is, SetPersistentBinding parameter: Scope = I or B), the <SCSIBus> and <SCSITarget> parameters must match the SCSI bus and SCSI target to which the FC target is already automapped. If automapping is disabled, the binding takes effect immediately if the FC target is not already persistently bound, and the specified <SCSIBus> and <SCSITarget> parameters are available to be persistently bound. Also, the <BindType> parameter must match the currently active bind type. Otherwise, you are notified that you must reboot the system to cause the persistent binding to become active.

AllNodeInfo

This command shows target node information for each target accessible by the adapter.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
AllNodeInfo <WWPN>
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

BindingCapabilities

This command shows the binding capabilities of the adapter. If a binding is configured, it is maintained across reboots.

Supported By

Solaris and Windows

Syntax

```
BindingCapabilities <WWPN>
```

Parameters

`WWPN` The WWPN of an FC or FCoE port.

BindingSupport

This command shows the binding support for the adapter.

Supported By

Solaris and Windows

Syntax

```
BindingSupport <WWPN> <Source>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Source`	C = Configuration support L = Live support

PersistentBinding

This command specifies which set of persistent binding information (configuration or live state) is requested.

Supported By

Solaris and Windows

Syntax

```
PersistentBinding <WWPN> <Source>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Source`	C = Configuration support L = Live support

RemoveAllPersistentBinding

This command removes all persisting bindings for the adapter.

Supported By

Solaris and Windows

Syntax

```
RemoveAllPersistentBinding <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.

RemovePersistentBinding

This command removes persistent binding between an FC target and a SCSI bus and target. The binding to be removed can be to a target WWPN, target WWNN, or target D_ID.

Supported By

Solaris and Windows

Syntax

```
RemovePersistentBinding <WWPN> <BindType> <ID> <SCSIBus> <SCSITarget>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`BindType`	P = Remove binding by WWPN N = Remove binding by WWNN D = Remove binding by D_ID
`ID`	The type of ID based on <BindType>: • Target WWPN if <BindType> = P • Target WWNN if <BindType> = N • Target D_ID if <BindType> = D
`SCSIBus`	The bus number of the SCSI device.
`SCSITarget`	The target number of the SCSI device.

SetBindingSupport

This command enables and sets the binding support(s) for the adapter.

Supported By

Solaris and Windows

Syntax

```
SetBindingSupport <WWPN> <BindFlag>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.

`BindFlag` The type of binding support for the adapter:

D = Binding by D_ID (not available for Windows driver)

P = Binding by WWPN

N = Binding by WWNN (not available for Windows driver)

A = Binding by automap (not available for Windows driver)

DA = Binding by D_ID and automap

PA = Binding by WWPN and automap

NA = Binding by WWNN and automap

SetPersistentBinding

This command sets a persistent binding between an FC target and a SCSI bus target. The binding can be to a target WWPN, target WWNN, or target D_ID.

Supported By

Solaris and Windows

Syntax

```
SetPersistentBinding <WWPN> <Scope> <BindType> <TargetId> <SCSIBus>
<SCSITarget>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Scope`	P = Permanent binding (survives reboot) I = Immediate binding B = Binding is both permanent and immediate
`BindType`	P = Enable binding by WWPN N = Enable binding by WWNN D = Enable binding by D_ID
`TargetId`	If BindType = P, Target WWPN If BindType = N, Target WWNN If BindType = D, Target D_ID
`SCSIBus`	The bus number of the SCSI device.
`SCSITarget`	The target number of the SCSI device.

Personality Change Commands

The OneCommand Manager application enables you to change the personality or protocol running on OneConnect adapters. When you change the personality of the adapter and reboot the host, the adapter starts running the new personality. The personalities that the OneConnect adapters currently run are NIC-only, NIC + FCoE, NIC + iSCSI, and NIC + RoCE for OCe14000-series adapters. In some cases, the adapters are pre-configured to support multiple personalities. In other cases, you must install a license key before the adapter can support multiple personalities. See "Adapter License Management Commands" on page 48 for more information.

Notes

- The four different personality profiles may not always be available on an adapter. For example, a NIC + FCoE adapter can change to a NIC-only or a NIC + iSCSI adapter, but an iSCSI adapter may not be able to change to a NIC + FCoE adapter.
- Choose the RoCE-2 profile for SMB Direct on Windows Server 2012 and Windows Server 2012 R2.

  Note: Check the Implementer's Lab on the Emulex website for any updated information on additional use cases for the RoCE-2 profile.

- For the RoCE-1 profile, check the Implementer's Lab on the Emulex website for any updated information on use cases for the RoCE-1 profile.
- It is possible to install one (or more) driver kits for the current personality profile, then change the personality profile and no longer have the drivers necessary to run the adapter. If you change personality profiles, you must install the appropriate drivers. The appropriate drivers are available on the Emulex website.
- These commands are not available on LPe16202 adapters.

ChangePersonality

This command changes the personality on the adapter. It is the only way to change the personality of an OCe10000-series and an OCe11000-series adapter. For an OCe14000-series adapter, ChangePersonality is an efficient way to set all ports on the adapter to run the same protocols.

However, the OCe14000-series adapter is capable of running different protocols on different ports. If you wish to set different protocols on different ports, use the SetAdapterPortConfig command. See "SetAdapterPortConfig" on page 137 for more information.

After a successful personality change, a reboot is required.

Note: RoCE is only available on OCe14000-series adapters running on a Windows operating system.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ChangePersonality <WWPN|MAC> <type> [Profile_ID]
```

Parameters

`WWPN`	The WWPN of an FCoE port.
`MAC`	The MAC address of a NIC, NIC/RoCE, or iSCSI port.
`type`	The personality type to which the adapter is being changed. The available values are shown when using the "ShowPersonalities" command. See "ShowPersonalities" on page 132.
`Profile_ID`	Optionally specifies the profile ID number to used to identify the personality. This number can be obtained from the "ListProfiles"command on page 136 by looking at the "Active Profile ID" field. **Notes:** • Profile_ID is required when specifying a NIC or NIC+RoCE personality. For all other personalities, Profile_ID should not be specified. • Selecting a profile that cannot be used with the specified personality results in an error.

Example

For non-ESXi hosts changing to FCoE personality:

```
hbacmd ChangePersonality 00-12-34-56-78-9A fcoe
```

For ESXi hosts changing to FCoE personality:

```
hbacmd changepersonality 00-00-c9-12-34-56 fcoe
```

Changing to NIC + RoCE personality with Profile ID 21:

```
hbacmd ChangePersonality 00-00-c9-12-34-56 nic+roce 21
hbacmd ShowPersonalities 00-00-c9-12-34-56

Adapter Personalities:
NIC
NIC+RoCE (configured)
iSCSI
FCoE (active)
```

ShowPersonalities

This command displays the list of single personalities available on an adapter. The personality type is displayed as either NIC, NIC + RoCE, iSCSI, or FCoE.

Notes

- If the active configurations are not single personality, the active personality indicators are not displayed.
- The available personalities are adapter dependent.
- RoCE is only available on Windows operating systems.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ShowPersonalities <WWPN|MAC>
```

Parameters

`WWPN` The WWPN of an FCoE port.

`MAC` The MAC address of a NIC, NIC + RoCE or iSCSI port.

Example

For non-ESXi hosts:

```
hbacmd ShowPersonalities 00-12-34-56-78-9A
```

For ESXi hosts:

```
hbacmd h=<IP_Address> m=cim u=root p=<password> n=<namespace>
ShowPersonalities 00-12-34-56-78-9A
```

For adapters that include RoCE:

```
>hbacmd showpersonalities 00-00-c9-12-34-56

Adapter Personalities:
NIC
NIC+RoCE
iSCSI
FCoE (active) (configured)
```

Profile Management Commands

GetAdapterPortConfig

This command displays the active and reboot adapter port configurations of an OCe14000-series adapter. This includes the total number of ports, the maximum number of FCoE and iSCSI functions that can be defined, and whether mixed mode and concurrent mode storage are supported by the adapter. Additionally, it shows if RoCE is supported on the adapter and if a reboot is currently required to activate the new configuration.

The number of functions displayed per port depends upon the current configuration of the adapter, such as mixed or concurrent storage mode, multichannel, or NPar.

Notes

- In the information displayed for the reboot configuration, each of the ports displays the pN parameter name in parenthesis. The pN parameter is used in the SetAdapterPortConfig command to change the port's protocol assignments. This is helpful when the physical port numbering on the adapter does not start at 0.
- Depending upon the presence of ARI on a host, this command may show more partitions per port than are actually running on the host.
- For multichannel and Dell NPar configurations, this command only displays the port protocol assignments. For the entire multichannel configuration use the "CMGetParams" command on page 60.
- RoCE is only available on Windows operating systems.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetAdapterPortConfig <MAC|WWPN>
```

Parameters

`MAC`	MAC address of any iSCSI, or NIC, NIC + RoCE function on the adapter.
`WWPN`	WWPN of any FCoE function on the adapter.

Examples

Mixed Mode-4PortAdapter

```
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
```

```
Concurrent Mode I/O Allowed : No
ROCE Functions Allowed      : Yes
RebootRequired              : No

Active Configuration
  Profile ID  : 37
  MCType      : None
  Port Assignments:
    Port 0: NIC,iSCSI
    Port 1: NIC,iSCSI
    Port 2: NIC,FCoE
    Port 3: NIC,FCoE

Reboot Configuration
  Profile ID  : 37
  MCType      : None
  Port Assignments:
    Port 0 (p0): NIC,iSCSI
    Port 1 (p1): NIC,iSCSI
    Port 2 (p2): NIC,FCoE
    Port 3 (P3): NIC,FCoE

    Note:(pN) labels are the port parameter names to use in the
         SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

Concurrent Mode - 2 port adapter, port number starting at 1

```
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 2
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 37
  MCType      : None
  Port Assignments:
    Port 1: NIC,iSCSI,FCoE
    Port 2: NIC,iSCSI,FCoE
```

```
Reboot Configuration
  Profile ID  : 23
  MCType      : None
  Port Assignments:
    Port 1 (p0): NIC,FCoE,None
    Port 2 (p1): NIC,FCoE,None

    Note: (pN) labels are the port parameter names to use in the
          SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

Concurrent Mode - UMC

```
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : No

Active Configuration
  Profile ID  : 37
  MC Type     : UMC
  Port Assignments:
    Port 0: NIC,iSCSI,FCoE,NIC
    Port 1: NIC,iSCSI,FCoE,NIC
    Port 2: NIC,FCoE,NIC,NIC
    Port 3: NIC,iSCSI,NIC,NIC

Reboot Configuration
  Profile ID  : 37
  MC Type     : UMC
  Port Assignments:
    Port 0 (p0): NIC,iSCSI,FCoE,NIC
    Port 1 (p1): NIC,iSCSI,FCoE,NIC
    Port 2 (p2): NIC,FCoE,NIC,NIC
    Port 3 (p3): NIC,iSCSI,NIC,NIC

    Note:(pN) labels are the port parameter names to use in the
         SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

NIC+RoCE

```
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : No

Active Configuration
  Profile ID  : 21
  MC Type     : None
  Port Assignments:
    Port 0: NIC+RoCE,None,None
    Port 1: NIC,None,None
    Port 2: NIC+RoCE,None,None
    Port 3: NIC,None,None

Reboot Configuration
  Profile ID  : 21
  MC Type     : None
  Port Assignments:
    Port 0 (p0): NIC+RoCE,None,None
    Port 1 (p1): NIC,None,None
    Port 2 (p2): NIC+RoCE,None,None
    Port 3 (p3): NIC,None,None

    Note:(pN) labels are the port parameter names to use in the
         SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

ListProfiles

This command shows a list of the available profile IDs and their descriptions for an adapter including the currently active and configured profile IDs. This information helps to determine the appropriate profile ID to specify to the ChangePersonality and SetAdapterPortConfig commands required for RoCE and NIC-only configurations. The specific profiles listed may vary according to the adapter model.

Note: RoCE is only available on Windows operating systems.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ListProfiles <MAC|WWPN>
```

Parameters

MAC	MAC address of any NIC, NIC+RoCE or iSCSI function on the adapter.
WWPN	WWPN of any FC/FCoE function on the adapter

Example

Note: Different adapter models will have a different set of profiles.

```
>hbacmd ListProfiles 00-00-c9-12-34-56

Active Profile ID:      23
Configured Profile ID:  23

Available Profiles
ID    Description
--    ---------------------------------

16    NIC
17    ISCSI initiator, no DIF
19    FCOE initiator + Target, with DIF
20    RoCE-1
21    RoCE-2
23    FCOE initiator + Target, no DIF
24    NIC - ETS Disabled
36    Mixed Storage, 25% ISCSI initiator only, 75% FCOE, no DIF
37    Mixed Storage, 50% ISCSI initiator only, 50% FCOE, no DIF
38    Mixed Storage, 75% ISCSI initiator only, 25% FCOE, no DIF
```

SetAdapterPortConfig

This command configures the function protocol assignments for all ports on an OCe14000-series adapter. It can also be used to restore the adapter to its factory default profile and settings.

The number of ports and function protocol assignments specified in this command depends upon the available ports, storage mode (mixed or concurrent), and multichannel and NPar state.

To support up to sixteen functions on an adapter, ARI must be available on the system with the following conditions: the system hardware, such as the motherboard and BIOS, must support ARI, ARI must be enabled in the system BIOS, the operating system must support ARI, such as the Windows Server 2012 and later, and any management tools that you use must support ARI, such as OneCommand Manager

10.2 and later. If these conditions are not met, although you may configure all sixteen functions, only eight functions will be present and discovered by the OneCommand Manager application after a reboot.

Notes:

- RoCE is only available on Windows operating systems.
- SR-IOV is not supported with RoCE configurations.
- SR-IOV must be disabled on the adapter BIOS when NPar is used. See the "SRIOVEnable" command for information on disabling SR-IOV on the adapter BIOS.
- For a Linux or VMware operating system, SR-IOV must be enabled on the system BIOS when NParEP is used. See the documentation that accompanied your Dell server for more information.
- NParEP support is available only on Dell 13G or newer systems.
- Only OCe14000-series adapters support ARI.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
hbacmd SetAdapterPortConfig <MAC|WWPN> defaults
```

or

```
hbacmd SetAdapterPortConfig <MAC | WWPN> p0=fcnCfg [p1=fcnCfg]
[p2=fcnCfg] [p3=fcnCfg] [pid=ProfileID] [mctype=Type]
[NParEpMode=State]
```

Parameters

`MAC`	MAC address of any iSCSI, NIC or NIC+RoCE function on the adapter.
`WWPN`	WWPN of any FCoE function on the adapter
`defaults`	Sets the adapter port configuration back its factory default configuration. No additional parameters should be specified with the "default" parameter.
p0=fcnCfg	1st port's function(s)
p1=fcnCfg	2nd port's function(s) (required for 2 and 4 port adapters)
p2=fcnCfg	3rd port's function(s) (required for 4 port adapters)
p3=fcnCfg	4th port's function(s) (required for 4 port adapters)

`fcnCfg` :: f0[,f1[,...fM]] where:

- f0 — 1st function protocol on port (must be NIC or NIC+RoCE).
- f1 — 2nd function protocol on port (optional).
- fm — Mth function protocol on port (optional). The number of functions per port, the value of "M", are model and multichannel type specific.

`ProfileID` This parameter is required when specifying a NIC only or NIC+RoCE personality. Otherwise this parameter must be omitted.

`Type` Optional multichannel type specification. This parameter is required to enable multichannel. Specify "None" to disable multichannel. If you do not specify an mctype, no change to the configured multichannel type is made. For a list of supported mctypes, use the "CMGetParams" command on page 60 and review the "Available Modes" field.

`NParEpMode` NParEP Mode state (DELL Only). This parameter can only be specified when mctype=NPar.

0=Disabled, 1=Enabled)

Note: The protocols specified by the f0-fm parameters are the names displayed by the ShowProperties command.

The following rules apply when using this command with non-NPar multichannel enabled:

- There must be no spaces before or after the "=" and commas (,) in the port specification. For instance, "p0 = nic, iscsi" would cause an error.
- The only choice for f0 is NIC or NIC+RoCE. Choices for f1 through fm are "None", iSCSI, FCoE or NIC. NIC for f1 through fm can only be specified for multichannel configurations. Except for NPar, iSCSI and FCoE are limited to f1 and f2.
- This command will fail under the following conditions:
  - Two storage protocols on a port are specified and concurrent storage mode is not available.
  - Three storage protocols on a port are specified.
  - Two of the same storage protocols on a port are specified.
- NIC+RoCE can only be specified as the f0 parameter with no other "f" parameters specified and cannot be specified with multichannel configurations. If NIC+RoCE is specified for any of the port functions, all other port function specifications must be NIC or NIC+RoCE only. For example, a single NIC or NIC+RoCE function per port is all that is allowed. Also, NIC+RoCE can only be specified when mctype=none.

- The number of functions (f) specified depends upon the adapter model and configuration type, for example, non-multichannel, multichannel, RoCE, and NPar. If an incorrect number of functions are specified, an error is generated.
- The pid=ProfileID option is required for NIC+RoCE configurations. If it specified and the profile does not work with the specified port functions, an error is generated.
- f0 must always be specified. However if the rest of the functions on a port can be set to "None", they do not need to be specified. For example, p0=NIC,iSCSI p1=NIC,None could be specified as p0=NIC,iSCSI p1=NIC.
- Storage protocols can be configured on f1 and/or f2, however, you must be aware of whether you are configuring in "concurrent mode" or "mixed mode."
  - If you are configuring storage protocols in "concurrent mode," f1 and f2 cannot be assigned the same storage protocol.
  - If you are configuring storage protocols in "mixed mode," only f1 or f2 can be assigned a storage protocol, but not both.
- If mctype is specified, it must be an available multichannel type or set to "None" to disable multichannel. If not specified, the currently configured multichannel type (including "None") remains unchanged. See "CMGetParams" command on page 60 for available multichannel types.
- If the functions being set to "None" are the last function(s) on a port, they do not need to be specified. For example, p0=nic,iscsi,none can be shortened to p0=nic,iscsi.
- NParEP Mode can only be specified when the mctype= parameter is set to NPar or when the currently configured multichannel type is NPar.
- When disabling NPar, that is mctype=none, NParEP Mode is automatically disabled.
- A reboot is required to activate the new port configuration.

Examples

Mixed Mode

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56 p0=nic,iscsi
p1=nic,fcoe p2=nic,fcoe p3=nic

>hbacmd GetAdapterPortConfig 00-00-c9-12-34-56
Number of Ports              : 4
Maximum FCoE Functions       : 4
Maximum iSCSI Functions      : 4
Mixed Mode I/O Allowed       : Yes
Concurrent Mode I/O Allowed  : No
ROCE Functions Allowed       : Yes
RebootRequired               : Yes

Active Configuration
```

```
 Profile ID : 37
 MCType     : None
 Port Assignments:
   Port 0: NIC,iSCSI
   Port 1: NIC,FCoE
   Port 2: NIC,iSCSI
   Port 3: NIC,FCOE

Reboot Configuration
  Profile ID : 37
  MCType     : None
  Port Assignments:
    Port 0 (P0): NIC,iSCSI
    Port 1 (P1): NIC,FCoE
    Port 2 (P2): NIC,FCoE
    Port 3 (P3): NIC,None
    Note:  (pN)labels are the port parameter names to use in the
           SetAdapterPortConfig command (e.g. p0=NIC,FCoE 1=NIC,iSCSI).
```

Concurrent Mode - 2 ports

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56 p0=nic,iscsi,fcoe
p1=nic,fcoe

>hbacmd GetAdapterPortConfig 00-00-c9-12-34-56
Number of Ports             : 2
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes


Active Configuration
  Profile ID  : 33
  MCType      : None
  Port Assignments:
    Port 1: NIC,iSCSI,FCoE
    Port 1: NIC,iSCSI,FCoE

Reboot Configuration
  Profile ID  : 33
```

```
  MCType      : None
  Port Assignments:
    Port 1 (p0): NIC,iSCSI,FCoE
    Port 2 (p1): NIC,FCoE,None
    Note:  (pN)labels are the port parameter names to use in the
           SetAdapterPortConfig command (e.g. p0=NIC,FCoE 1=NIC,iSCSI).
```

RoCE

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56 p0=nic+roce p1=nic
p2=nic p3=nic+roce pid=21
>hbacmd GetAdapterPortConfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent I/O Mode Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 37
  MCType      : None
  Port Assignments:
    Port 0: NIC,iSCSI,FCoE
    Port 1: NIC,FCoE,None
    Port 2: NIC,iSCSI,None
    Port 3: NIC,None,None

Reboot Configuration
  Profile ID  : 21
  MCType      : None
  Port Assignments:
    Port 0 (p0): NIC+RoCE,None,None
    Port 1 (p1): NIC,None,None
    Port 2 (p2): NIC,None,None
    Port 3 (p3): NIC+RoCE,None,None
    Note:  (pN)labels are the port parameter names to use in the
           SetAdapterPortConfig command (e.g. p0=NIC,FCoE 1=NIC,iSCSI).
```

Multichannel Configurations

Note: ARI must be available to support sixteen functions on an adapter. OCe14000-series adapters automatically support ARI. However, the system's motherboard must support ARI, it must be enabled in the system BIOS, and the operating system must support ARI. If these conditions are not met, although you may configure all sixteen functions, only eight functions will be present and discovered by the OneCommand Manager application after a reboot.

Enabling and Disabling Multichannel

Use the "mctype" parameter in the SetAdapterPortConfig command to enable or disable multichannel on an adapter. This parameter is required to enable multichannel. For a list of supported mctypes, use the "CMGetParams" command on page 60 and review the "Available Modes" field.

Disable multichannel on an adapter by setting the "mctype" to "None." When enabling multichannel, the additional function protocols must be specified for the extra channels that are not available when multichannel is disabled.

Note: The CMMode command used to enable or disable multichannel for OCe10100 and OCe11100-series adapters cannot be used on OCe14000-series adapters. Using this command on OCe14000-series adapters generates an error message.

Examples

Enable Multichannel for UMC

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56 p0=nic,iscsi,nic,nic
p1=nic,fcoe,nic,nic p2=nic,fcoe,nic,nic p3=nic,iscsi,nic,nic
mctype=umc
```

Disable Multichannel

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56 p0=nic,iscsi p1=
nic,fcoe p2=nic,fcoe p3=nic,iscsi mctype=none
```

Showing Multichannel Configuration

The CMGetParams command shows the current multichannel configuration for an adapter's physical port. See "CMGetParams" on page 60 for more information.

Setting Channel Protocols using SetAdapterPortConfig

Use the SetAdapterPortConfig command to configure the protocols running on the channels or functions.

The following rules apply when using SetAdapterPortConfig with non-NPar multichannel enabled:

- The first function must always be "NIC"; other functions can be "None."
- If NIC+RoCE is specified on any port, all other ports must be either NIC or NIC+RoCE only.
- Storage functions cannot be specified on adapters running NIC+RoCE.

- RoCE cannot be specified for any multichannel configurations.
- This command fails under the following conditions:
  - Two storage protocols are specified for f1 and f2 and concurrent storage mode is not available.
  - Three storage protocols are specified on a port.
  - The f2 and f3 storage protocols are the same.
- For mixed mode, f2 through fm must be NIC or “None”.
- For concurrent mode, f3 must be NIC or “None”.
- The optional “mctype=” parameter can specify the multichannel type or be set to "None" to disable multichannel. If the “mctype=” parameter is not specified, the currently configured multichannel type is not changed.

Note: You must reboot your system after executing this command to run the new protocols assigned to the channels.

Examples

Mixed Mode - UMC 4 Port, 4 Channels/Port

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56 p0=nic,iscsi,nic,nic
p1=nic,fcoe,nic,nic p2=nic,fcoe,nic,nic p3=nic,iscsi,nic,nic
mctype=umc

Successfully changed port configuration. A reboot is required to
complete changes.

>hbacmd GetAdapterPortConfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : No
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 37
  MC Type     : UMC
  Port Assignments:
    Port 0: NIC,NIC,NIC,NIC
    Port 1: NIC,NIC,NIC,NIC
    Port 2: NIC,NIC,NIC,NIC
    Port 3: NIC,NIC,NIC,NIC

Reboot Configuration
```

```
  Profile ID  : 37
  MC Type     : UMC
  Port Assignments:
    Port 0 (p0): NIC,iSCSI,NIC,NIC
    Port 1 (p1): NIC,FCoE,NIC,NIC
    Port 2 (p2): NIC,FCoE,NIC,NIC
    Port 3 (p3): NIC,iSCSI,NIC,NIC

    Note:(pN) labels are the port parameter names to use in the
         SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

Enable UMC on 2 Port - 8 Channels/Port

```
>hbacmd SetAdapterPortConfig 00-00-c9-12-34-56
p0=nic,iscsi,fcoe,nic,nic,nic,nic,nic p
1= nic,fcoe,iscsi,nic,nic,nic,nic,nic mctype=UMC

Successfully changed port configuration. A reboot is required to
complete changes.

>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 37
  MC Type     : None
  Profile ID  : 37
  Port Assignments:
    Port 0: NIC,iSCSI,FCoE
    Port 1: NIC,FCoE,iSCSI

Reboot Configuration
  Profile ID  : 37
  MC Type     : UMC
  Port Assignments:
    Port 0 (p0): NIC,iSCSI,FCoE,NIC,NIC,NIC,NIC,NIC
    Port 1 (p1): NIC,FCoE,iSCSI,NIC,NIC,NIC,NIC,NIC
```

```
Note:(pN) labels are the port parameter names to use in the
     SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

Setting Multichannel Bandwidths

See “CMSetBW” on page 63 for more information.

Dell NPar Configurations

Note: ARI must be available to support sixteen functions on an adapter. OCe14000-series adapters automatically support ARI. However, the system’s motherboard must support ARI, it must be enabled in the system BIOS, and the operating system must support ARI. If these conditions are not met, although you will be required to configure all sixteen functions, only eight functions will be present and discovered by the OneCommand Manager application after a reboot.

Enabling and Disabling NPar

To enable NPar, set the "mctype" parameter in the SetAdapterPortConfig command to “NPar”. When enabling NPar, the additional function protocols must be specified for the extra channels or they will be set to “None”; meaning that there is no protocol running on the function. Disable NPar by setting “mctype” to “None”.

Notes:

- The existing CMMode command, used to enable or disable multichannel for OCe11100-series adapters, cannot be used to enable or disable NPar. Using the CMMMode command to enable or disable NPar displays an error message indicating that the command is not supported by the firmware or hardware.
- When NPar is disabled, NParEP Mode is automatically disabled as well. It is not necessary to specify the nparepmode= parameter on the command line when disabling NPar (mctype=none), and an error is generated if you attempt to do so.
- After enabling NPar with the SetAdapterPortConfig command, default bandwidths will be automatically assigned to each partition with an assigned protocol. See “Default NPar Bandwidths” on page 153 for more information.

Showing NPar Configuration

Both the GetAdatperPortConfig command and the CMGetParams command show different aspects of the NPar configuration.

Showing NPar Configuration Using GetAdapterPortConfig

The GetAdatperPortConfig command displays all of the adapter's ports and the functions running on each port. It also shows the state of NParEP Mode. See “GetAdapterPortConfig” on page 133 for more information.

Examples Using GetAdatperPortConfig

NPar disabled - 2 Ports, NParEP Mode Disabled

```
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : No

Active Configuration
  Profile ID  : 16
  MC Type     : None
  Port Assignments:
    Port 1: NIC
    Port 2: NIC

Reboot Configuration
  Profile ID  : 16
  MC Type     : None
  Port Assignments:
    Port 1 (p0): NIC
    Port 2 (p1): NIC

    Note:(pN) labels are the port parameter names to use in the
         SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

NPar enabled - 2 Ports, NParEP Mode Enabled on Reboot

```
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 37
  MC Type     : NPAR
```

```
  Port Assignments:
    Port 1: NIC,iSCSI,FCoE,NIC
    Port 2: NIC,iSCSI,FCoE,NIC

Reboot Configuration
  Profile ID  : 37
  MC Type     : NPAR
  NParEP Mode : Enabled
  Port Assignments:
    Port 1 (p0): NIC,iSCSI,NIC,NIC,NIC,NIC,NIC,NIC
    Port 2 (p1): NIC,iSCSI,FCoE,NIC,NIC,NONE,NONE,NONE

    Note:(pN) labels are the port parameter names to use in the
         SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

Showing NPar Configuration Using CMGetParams

The CMGetParams command shows the current NPar configuration for an adapter's physical port. When NPar is enabled, "CMGetParams" shows the function information such as the protocol and bandwidths. See "CMGetParams" on page 60 for more information.

When you are using NPar, this command displays the adapter's active (booted) mode as NPar or None, the configured mode as NPar or None, and the available management modes, which is NPar only. This is followed by a table showing the specified port's functions and function properties. When NPar is active, the Type column shows the protocol that is running on each function.

Examples Using CMGetParams

NPar Disabled

```
>hbacmd cmgetparams 00-00-c9-12-34-56
Active Mode:     None
Configured mode: None
Available modes: NPAR
```

NPar Enabled — 4 Partition/Port

```
>hbacmd cmgetparams 00-00-c9-12-34-56
Active Mode:     NPAR
Configured mode: NPAR
Available modes: NPAR

Func# Type  MAC Address       Min BW Max BW
----- ----- ----------------- ------ ------
0     NIC   00-00-c9-12-34-56   20     75
4     iSCSI 00-00-c9-12-34-57   60     100
8     FCoE  00-00-c9-12-34-58   40     100
12    NONE  00-00-c9-12-34-59   0      0
```

NPar Enabled — 8 Partitions/Port

```
>hbacmd cmgetparams 00-00-c9-12-34-56
Active Mode:     NPAR
Configured mode: NPAR
Available modes: NPAR

Func# Type  MAC Address       Min BW Max BW
----- ----- ----------------- ------ ------
0     NIC   00-00-c9-12-34-56   10     50
2     iSCSI 00-00-c9-12-34-57   20     100
4     NIC   00-00-c9-12-34-58   10     50
6     FCoE  00-00-c9-12-34-59   30     100
8     NIC   00-00-c9-12-34-5A   10     50
10    NIC   00-00-c9-12-34-5B   10     50
12    NIC   00-00-c9-12-34-5C   10     50
14    NIC   00-00-c9-12-34-5C   0      50
```

NParEP Mode

When using NPar adapters, you can change the total number of partitions displayed and configured on the adapter to 8 when the NParEP Mode property is disabled or to 16 when the NParEP Mode property is enabled. Use the "nparepmode" parameter in the SetAdapterPortConfig command to enable or disable this property.

Notes:

- When NPar is disabled, NParEP Mode is automatically disabled too. It is not necessary to specify the "nparepmode" parameter on the command line when disabling NPar by setting the "mctype" parameter to "None".
- After enabling or disabling NParEP Mode with the SetAdapterPortConfig command, default bandwidths will be automatically assigned to each partition with an assigned protocol. See "Default NPar Bandwidths" on page 153 for more information.

Parameters

`MAC`	MAC address of any iSCSI, NIC or NIC+RoCE partition on the adapter.
`WWPN`	WWPN of any FCoE partition on the adapter
nparepmode	1 = enable the NParEP Mode to display and configure 16 functions.
	0 = disable the NParEP Mode to display and configure 8 functions only.

Setting NPar Function Protocols

When NPar is enabled, the protocols for additional functions on each port can be specified depending upon the board model, the number of ports available on the adapter, and the NParEP Mode setting, otherwise they will be set to "None"; meaning there is no protocol running on the function. The SetAdapterPortConfig command configures the protocols running on each function.

After enabling NPar mode with the SetAdapterPortConfig command, default bandwidths will be automatically assigned to each partition with an assigned protocol. See "Default NPar Bandwidths" on page 153 for more information.

The following rules apply when using the SetAdapterPortConfig command with multichannel enabled to configure NPar:

- First function on a port is always NIC. NIC+RoCE is not available when NPar is enabled.
- Storage can be configured on the 2nd, 3rd or 4th partitions only. A total of 2 different storage protocols can be configured on a port.
- Any partition other than the first partition can be configured as "None"; that is for no protocol.
- A reboot is required after executing this command to run the new protocols assigned to the functions.

Examples

4 Ports - NParEP Mode-Disabled, 2 Functions/Port

```
>hbacmd setadapterportconfig 00-00-c9-12-34-56 p0=nic,iscsi
p1=nic,fcoe p2=nic,fcoe p3=nic,iscsi mctype=npar nparepmode=0

Successfully changed port configuration. A reboot is required to
complete changes.

>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 16
  MC Type     : NPAR
  Port Assignments:
    Port 1: NIC,NIC
    Port 2: NIC,NIC
```

```
    Port 3: NIC,NIC
    Port 4: NIC,NIC

Reboot Configuration
  Profile ID  : 37
  MC Type     : NPAR
  NParEP Mode : Disabled
  Port Assignments:
    Port 1 (p0): NIC,iSCSI
    Port 2 (p1): NIC,FCoE
    Port 3 (p2): NIC,FCoE
    Port 4 (p3): NIC,iSCSI

    Note: (pN) labels are the port parameter names to use in the
          SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

2 Ports - NParEP Mode-Disabled, 4 Functions/Port

```
>hbacmd setadapterportconfig 00-00-c9-12-34-56 p0=nic,iscsi,nic,fcoe
p1=nic,fcoe,iscsi,nic mctype=npar nparepmode=0

Successfully changed port configuration. A reboot is required to
complete changes.

>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 2
Maximum FCoE Functions      : 2
Maximum iSCSI Functions     : 2
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : No
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 16
  MC Type     : None
  Port Assignments:
    Port 1: NIC
    Port 2: NIC

Reboot Configuration
  Profile ID  : 33
  MC Type     : NPAR
```

```
  NParEP Mode : Disabled
  Port Assignments:
    Port 1 (p0): NIC,iSCSI,NIC,FCoE
    Port 2 (p1): NIC,FCoE,iSCSI,NIC

    Note: (pN) labels are the port parameter names to use in the
          SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

4 Ports - NParEPMode-Enabled, 4 Functions/Port

```
>hbacmd setadapterportconfig 00-00-c9-12-34-56 p0=nic,iscsi,fcoe,nic
p1=nic,iscsi,none,nic p2=nic,iscsi,nic,fcoe p3=nic,nic,iscsi,none
mctype=npar nparepmode=1

Successfully changed port configuration. A reboot is required to
complete changes.
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 33
  MC Type     : NPAR
  Port Assignments:
    Port 1: NIC,NIC,NIC,NIC
    Port 2: NIC,NIC,NIC,NIC
    Port 3: NIC,iSCSI,NIC,FCoE
    Port 4: NIC,iSCSI,FCoE,None

Reboot Configuration
  Profile ID  : 33
  MC Type     : NPAR
  NParEP Mode : Enabled
  Port Assignments:
    Port 1 (p0): NIC,iSCSI,FCoE,NIC
    Port 2 (p1): NIC,iSCSI,None,NIC
    Port 3 (p2): NIC,iSCSI,NIC,FCoE
    Port 4 (p3): NIC,NIC,iSCSI,None
```

```
Note: (pN) labels are the port parameter names to use in the
      SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

Setting NPar Bandwidths

After enabling NPar with the SetAdapterPortConfig command, default bandwidths are set for each partition that is enabled. Use the CMSetBW command to configure new bandwidths if the default bandwidths are not acceptable. See "CMSetBW" on page 63 for more information.

Note: A partition is referred to as a channel in the CMSetBW help.

The number of bandwidth combinations that need to be specified depend upon the adapter model. See "CMGetParams" on page 60 to determine how many bandwidths need to be specified for a port by looking at the number of functions indicated in the "Func #" column.

Note: If too many or too few minimum and maximum bandwidth combinations are provided, an error is generated.

The total of the minimum bandwidths for the enabled functions, such as partitions assigned protocols, must add up to 100. While you are allowed to set the minimum bandwidths on some enabled functions to 0, you are not allowed to set them all to 0. The maximum bandwidth of a partition must be greater than or equal to the minimum bandwidth for that partition up to a maximum of 100. The minimum and maximum bandwidths on disabled functions, those configured for "None", must be 0.

Notes:

- A reboot is not required for bandwidth changes take effect when channel management is enabled or when currently running NPar on the adapter.
- Unlike UMC or SIMode, setting the minimum and maximum bandwidths to zero will not bring the logical link down on the NPar function nor prevent receiving or transmitting packets on that function as a small amount of network traffic trickles through.

Default NPar Bandwidths

After enabling or disabling NParEP Mode or NPar, the default bandwidths that are automatically assigned to each partition with an assigned protocol have minimum and maximum bandwidths. The default minimum bandwidths are set by dividing 100 by the number of partitions with assigned protocols to run on them. This may cause an uneven distribution when 100 divides evenly by the number of partitions; meaning some partitions minimum bandwidths may be one greater than others. The maximum bandwidth defaults to 100 for all partitions with assigned protocols.

Note: If default bandwidths are not desirable, use the CMSetBW command to configure the minimum and maximum bandwidths. See "CMSetBW" on page 63 for more information.

Examples

4 Partitions/Port

```
>hbacmd CMSetBW 00-00-c9-12-34-56 15,50 30,100 40,100 15,50

>hbacmd CMGetParams 00-00-c9-12-34-56
Active mode:     NPAR
Configured mode: NPAR
Available modes: NPAR

Func# Type  MAC Address       Min BW Max BW
----- ----- ----------------- ------ ------
0     NIC   00-00-c9-12-34-56   15     50
1     iSCSI 00-00-c9-12-34-57   30     100
2     FCoE  00-00-c9-12-34-58   40     100
3     NIC   00-00-c9-12-34-59   15     50
```

4 Partitions/Port - 3rd, 4th Partition Protocol=None

```
>hbacmd CMSetBW 00-00-c9-12-34-56 50,100 60,100 0,0 0,0

>hbacmd CMGetParams 00-00-c9-12-34-56
Active mode:     NPAR
Configured mode: NPAR
Available modes: NPAR

Func# Type  MAC Address       Min BW Max BW
----- ----- ----------------- ------ ------
0     NIC   00-00-c9-12-34-56   40     100
1     iSCSI 00-00-c9-12-34-57   60     100
2     None  00-00-c9-12-34-58   0      0
3     None  00-00-c9-12-34-59   0      0
```

8 Partitions/Port - 2 Port Card, NParEP Mode Enabled, Last Channel MinBandwith=0

```
>hbacmd cmsetbw 00-00-c9-12-34-56 10,100, 30,100 10,100, 10,100,
10,100, 10,100, 10,100, 10,100

>hbacmd cmgetparams 00-00-c9-12-34-56
Active mode:     NPAR
Configured mode: NPAR
Available modes: NPAR

Func# Type  MAC Address       Min BW Max BW
```

```
----- ----- ----------------- ------ ------
0     NIC   00-00-c9-12-34-56   10     100
1     iSCSI 00-00-c9-12-34-57   40     100
2     NIC   00-00-c9-12-34-58   10     100
3     NIC   00-00-c9-12-34-59   10     100
4     NIC   00-00-c9-12-34-5a   10     100
5     NIC   00-00-c9-12-34-5b   10     100
6     NIC   00-00-c9-12-34-5c   10     100
7     NIC   00-00-c9-12-34-5d   0      100
```

Configuring Ports When Disabling NPar

When NPar is being disabled, each of the ports can be configured to run with a single NIC or NIC+RoCE function. Use SetAdapterPortConfig command to configure these ports. See "SetAdapterPortConfig" on page 137 for more information.

The syntax when disabling NPar is the following:

```
SetAdapterPortConfig <MAC> <p0=NIC|NIC+RoCE> <p1=NIC|NIC+RoCE>
[p2=NIC|NIC+RoCE] [p3=NIC|NIC+RoCE] [pid=20|21]
```

where:

```
  MAC          : MAC address of one of the NIC functions on the adapter
  p0=NIC|NIC+RoCE : Protocol to run on 1st port (NIC or NIC+RoCE)
  p1=NIC|NIC+RoCE : Protocol to run on 2nd port (NIC or NIC+RoCE)
  p2=NIC|NIC+RoCE : Protocol to run on 3rd port, if available (NIC or
NIC+RoCE)
  p3=NIC|NIC+RoCE : Protocol to run on 2nd port, if available (NIC or
NIC+RoCE)
  pid=20|21    : Required when setting any port to NIC+ROCE
(NIC+RoCE-1=20, NIC+RoCE-2=21)
```

Note: When specifying any of the ports to run NIC+RoCE for example, p1=RoCE, the RoCE Profile ID must be specified. It can be either 20 or 21 depending upon the preferred protocol.

Examples

Disable NPar - 4 Ports, All NIC

```
>hbacmd setadapterportconfig 00-00-c9-12-34-56 p0=nic p1=nic p2=nic
p3=nic mctype=none


Successfully changed port configuration. A reboot is required to
complete changes.
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 4
Maximum FCoE Functions      : 4
Maximum iSCSI Functions     : 4
Mixed Mode I/O Allowed      : Yes
```

```
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
  Profile ID  : 33
  MC Type     : NPAR
  Port Assignments:
    Port 1: NIC,iSCSI,FCoE,NIC
    Port 2: NIC,iSCSI,None,NIC
    Port 3: NIC,iSCSI,NIC,FCoE
    Port 4: NIC,iSCSI,FCoE

Reboot Configuration
  Profile ID  : 16
  MC Type     : None
  Port Assignments:
    Port 1 (p0): NIC
    Port 2 (p1): NIC
    Port 3 (p2): NIC
    Port 4 (p3): NIC

    Note: (pN) labels are the port parameter names to use in the
          SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

2 Ports - Switching from all NIC to NIC+RoCE on First Port. Run Profile 21: RoCE-2

```
>hbacmd setadapterportconfig 00-00-c9-12-34-56 p0=nic+roce p1=nic
pid=21 mctype=none

Successfully changed port configuration. A reboot is required to
complete changes.
>hbacmd getadapterportconfig 00-00-c9-12-34-56
Number of Ports             : 2
Maximum FCoE Functions      : 2
Maximum iSCSI Functions     : 2
Mixed Mode I/O Allowed      : Yes
Concurrent Mode I/O Allowed : Yes
ROCE Functions Allowed      : Yes
RebootRequired              : Yes

Active Configuration
```

```
  Profile ID  : 16
  MC Type     : None
  Port Assignments:
    Port 1: NIC
    Port 2: NIC

Reboot Configuration
  Profile ID  : 21
  MC Type     : None
  Port Assignments:
    Port 1 (p0): NIC+RoCE
    Port 2 (p1): NIC

    Note: (pN) labels are the port parameter names to use in the
          SetAdapterPortConfig command (e.g. p0=NIC,FCoE p1=NIC,iSCSI).
```

UMC Commands

The adapter's physical ports provide a converged conduit for network and storage traffic. Each channel has its own unique MAC address. Each channel provides traffic management capabilities such as enabling and disabling, minium and maximum bandwidth, and VLAN ID (for untagged packets). For additional information on UMC, refer to the *Emulex Universal Multichannel Reference Guide*.

The CLI's UMC commands allow viewing of the UMC configuration, enabling and disabling of the UMC at the adapter level, and the modification of some of the channel properties. The UMC commands cannot be used to manage other channel management types; see "Channel Management Commands" on page 60 for more information.

UMC commands are available only on OneConnect adapters.

Notes

- SR-IOV is not supported with UMC.
- The UMC command "UmcSetChanLink" is no longer available. Its functionality can be performed by the "UmcSetBw" command by setting the min and max bandwidths to 0.
- Properties for all channels on a port can be viewed and modified with the UMC commands even when UMC is disabled. This allows enabling and configuration of UMC (on all channels), and rebooting and running UMC without further configuration.
- For IBM adapters, UMC mode may be referred to as "SIMODE".
- The UMC commands are not available on OCe11101-EM/EX or OCe11102-EM/EX adapters. When attempting to use UMC commands with these adapters, the following error is returned:

  ```
  ERROR: <251>: Hardware or firmware does not support command.
  ```

UmcEnable

This command enables or disables UMC on OCe10100- and OCe11100-series adapters at the adapter level. A system reboot is required to make the change take effect.

Notes

- The UmcEnable command will enable UMC channel management only, but it will disable any channel management type in effect when it is used.
- The CMMode command can also be used to enable UMC or other channel management modes.
- If you are using an OCe14000-series adapter, you must set the mctype parameter in the SetAdapterPortConfig command to enable UMC. See the SetAdapterPortConfig command for more information.

  If you try using the UmcEnable command on an OCe14000 series adapter, an error message is displayed indicating the command is not supported by the firmware or hardware.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
hbacmd UmcEnable <WWPN | MAC Address> <0 | 1>
```

Parameters

`WWPN`	WWPN of the FCoE function on the physical port.
`MAC Address`	MAC address of any NIC function on the adapter port.
`0`	Disables UMC
`1`	Enables UMC

Example

```
>hbacmd UmcEnable 00-00-c9-bb-cc-aa 1
```

UmcGetParams

Note: This command has been replaced by the CMGetParams command and is provided for backward compatibility for OCe11100-series adapters only.

This command shows the current UMC configuration for an adapter's physical port. The command's output is the current UMC state for the adapter followed by a table showing the port's channels and their UMC properties. The Type property also shows the protocol that is running on the channel. This is controlled by the ChangePersonality and SetAdapterPortConfig commands; not the UMC commands. See "ChangePersonality" on page 130 and "SetAdapterPortConfig" on page 137 for more information.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
UmcGetParams <WWPN | MAC Address>
```

Parameters

`WWPN`	WWPN of an FCoE function on the physical port.
`MAC Address`	MAC address of any NIC function on the adapter port.

Example

All NIC

```
>hbacmd UmcGetParams 00-00-c9-bb-cc-aa

Active UMC State:       Enabled
Configured UMC State:   Enabled


Func# Type  MAC Address          LPVID  Min BW  Max BW
----- ----  -----------------    -----  ------  ------
0     NIC   00-00-c9-bb-cc-aa      2       25      50
1     NIC   00-00-c9-bb-cc-ab      3       0       0
2     NIC   00-00-c9-bb-cc-ac      4       25      50
3     NIC   00-00-c9-bb-cc-ad      5       50      75
```

NIC Plus Storage

```
>hbacmd UmcGetParams 00-00-c9-bb-cc-aa

Active UMC State:       Enabled
Configured UMC State:   Enabled

Func# Type  MAC Address          LPVID  Min BW  Max BW
----- ----  -----------------    -----  ------  ------
0     NIC   00-00-c9-bb-cc-aa     1001    20      50
1     FCoE  00-00-c9-bb-cc-ab     n/a     50      100
2     NIC   00-00-c9-bb-cc-ac     1002    20      50
3     NIC   00-00-c9-bb-cc-ad     1003    10      75
```

UmcSetBW

Note: This command has been replaced by the CMSetBW command and is provided for backward compatibility for OCe11100-series adapters only.

This command sets the minimum and maximum bandwidths for each channel (up to four) on the physical port. This command can also be used to disable the link on a channel by setting the minimum and maximum bandwidths of that channel to 0.

The total of the minimum bandwidths must add up to 100. An exception to this rule is for UMC/SIMODE configurations when both the minimum and maximum bandwidth for all channels are 0; effectively bringing the logical link down on all channels. The maximum bandwidth must have a value greater than or equal to the minimum bandwidth and have a maximum value of 100.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
UmcSetBW <WWPN | MAC Address> <Min0,Max0> <Min1,Max1> <Min2,Max2>
[Min3,Max3]
```

Parameters

`MAC Address`	MAC address of any NIC function on the adapter port.
`WWPN`	WWPN of the FCoE function on the physical port.
`Min0,Max0`	Minimum and maximum bandwidths for channel 0.
`Min1,Max1`	Minimum and maximum bandwidths for channel 1.
`Min2,Max2`	Minimum and maximum bandwidths for channel 2.
`Min3,Max3`	Minimum and maximum bandwidths for channel 3.

Example

```
>hbacmd UmcSetBW 00-00-c9-bb-cc-aa 25,50 0,50 50,75 25,100
```

Considerations

- This command is not supported on 1 Gb ports.
- If UMC is disabled when this command is executed, a warning message will be displayed indicating that UMC is currently disabled and must be enabled for these changes to take effect.

UmcSetLPVID

Note: This command has been replaced by the CMSetLPVID command and is provided for backward compatibility for OCe11100-series adapters only.

This command sets the LPVID values for the UMC and SIMode NIC channels. Use the UmcGetParams command to determine the number of LPVIDs required. See "UmcGetParams" on page 158 for more information.

A reboot is not required for these changes take effect when UMC is enabled

Note: When the current multichannel mode is not UMC or SIMode, the UmcSetLPVID command fails.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
UmcSetLPVID <WWPN|MAC> <LPVID0> <LPVID1> ... [LPVIDn]
```

Parameters

`WWPN`	WWPN of an FCoE function on the physical adapter port.
`MAC`	MAC address of any NIC or iSCSI function on the physical adapter port.
`LPVID0`	LPVID for channel 0.
`LPVID1`	LPVID for channel 1.
`LPVIDn`	LPVID for channel n.

Considerations for Using UmvSetLPVID

- LPVID values are in the range of 2-4094.
- Every NIC channel on a physical port must have a unique LPVID.
- For FCoE and iSCSI channels, '0' must be entered because LPVIDs can only be specified for NIC channels.
- LPVIDs specified for channels with protocols set to "None" are ignored.
- This command is not supported on 1 Gb ports.
- If channel management is disabled when this command is executed, an error message is displayed.

Examples

All NIC Channels

```
>hbacmd UmcSetLPVID 00-00-c9-12-34-56 1001 1002 1003 1004
```

Storage on 2nd channel

```
>hbacmd UmcSetLPVID 00-00-c9-12-34-56 1001 0 1002 1003
```

VPort Commands

Note: Supported by FC and FCoE adapter ports only.

This command creates a virtual port with an automatically-generated WWPN or a user-specified virtual WWPN on the specified physical port. If you specify "auto", the virtual WWPN is generated automatically. Otherwise, you must specify the virtual WWPN for this parameter. If creation is successful, the WWPN is displayed as part of the output from the command. The [vname] optional parameter can be specified for the virtual port's name.

Note: In Linux, VPorts do not persist across system reboots.

CreateVPort

Supported By

Linux, Solaris, and Windows

Syntax

```
CreateVPort <physical WWPN> auto [vname]
```

-or-

```
CreateVPort <physical WWPN> <virtual WWPN> <virtual WWNN> [vname]
```

Parameters

`physical WWPN`	The WWPN of an FC or FCoE port.
`auto`	The virtual WWPN is automatically generated for the virtual port.
`vname`	The virtual port's name (optional).
`virtual WWPN`	The virtual WWPN to create.
`virtual WWNN`	The virtual WWNN to create.

DeleteVPort

This command deletes the virtual port specified by a physical and virtual WWPN.

Supported By

Linux, Solaris, and Windows

Syntax

```
DeleteVPort <physical WWPN> <virtual WWPN>
```

Parameters

`physical WWPN`	The WWPN of an FC or FCoE port.
`virtual WWPN`	The WWPN of the virtual port.

ListVFunctions

This command lists the virtual functions on a specified NIC port (that is, physical function).

Supported By

Linux, Solaris, VMware ESX, and Windows

Syntax

```
ListVFunctions <MAC>
```

Parameters

MAC	The MAC address of a NIC port.

Example

```
hbacmd ListVFunctions 00-00-c9-12-34-56
```

The example output:

```
Virtual Functions for 00-00-c9-12-34-56:

MAC Address    : 00-00-c9-12-34-ab
VLADID         : 10
Transmit Rate  : 100 Mbit/sec.

MAC Address    : 00-00-c9-12-34-cd
VLADID         : 10
Transmit Rate  : 100 Mbit/sec.

MAC Address    : 00-00-c9-12-34-ef
VLADID         : 10
Transmit Rate  : 1 bbit/sec.

MAC Address    : 00-00-c9-13-34-01
VLADID         : 20
Transmit Rate  : 1 Gbit/sec.
```

ListVMs

This command lists all virtual machines and their information for all manageable ports.

If you specify the host with the "h=<host>" option or provide the physical WWPN, only the virtual machines for that host are returned. If you specify the physical port and the virtual port, only the virtual machine for the specified virtual port are returned.

Note: If you are running this command on any server that has virtual ports, you will not see the virtual machine name.

Supported By

Linux

Syntax

```
ListVMs <physical WWPN> <virtual WWPN>
```

Parameters

`physical WWPN` The WWPN of an FC or FCoE port.

`virtual WWPN` The WWPN of the virtual port.

ListVPorts

This command lists virtual ports on the specified physical port. Leaving the physical WWPN parameter blank lists all virtual ports on all manageable hosts that support virtual ports.

Supported By

Linux, Solaris, and Windows

Syntax

```
ListVPorts <physical WWPN>
```

Parameters

`physical WWPN` The WWPN of an FC or FCoE port.

VPortTargets

This command lists targets visible to the specified virtual port.

Supported By

Linux, Solaris, and Windows

Syntax

```
VPortTargets <physical WWPN> <virtual WWPN>
```

Parameters

`physical WWPN` The WWPN of an FC or FCoE port.

`virtual WWPN` The WWPN of the virtual port.

WWN Management Commands

Notes

- Supported for FC/FCoE adapter ports only.
- WWN management validates WWNs carefully to avoid WWPN duplication; WWNN duplication is acceptable however. Therefore, you may see error and warning messages if a name duplication is detected. It is strongly recommended that the activation requirement be fulfilled after each WWN change or restore. When running with "pending changes", some diagnostic and maintenance features are not allowed.

ChangeWWN

This command changes the volatile state of WWNs. If the volatile change is requested on an adapter that does not support volatile WWNs, it returns a "not supported" error.

Notes

- When a volatile change is supported, a reboot is required to activate the new setting. Volatile names are active until system power-down or adapter power-cycle.
- For VMware ESXi:
  - After changing the WWN of an adapter, update your zoning settings before you reboot your ESXi server. If the zoning is not updated before your reboot, the subsequent boot may take a long time.
  - After changing the WWN of an adapter, you must reboot the ESXi system before trying to access the adapter on that system. For information on rebooting the ESXi system, refer to the VMware documentation.
- For ESXi: If you are using the CIM interface to access adapters, after changing the WWN of an adapter, you must restart the CIMOM (that is, SFCB) on the ESXi system before trying to access the adapter on that system. For information on restarting the CIMOM, refer to the VMware documentation.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ChangeWWN <WWPN> <New WWPN> <New WWNN> <Type>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`New WWPN`	The WWPN of the FC or FCoE port.
`New WWNN`	The WWNN of an FC or FCoE port.
`Type`	0 = Volatile 1 = Non-Volatile

GetWWNCap

This command shows if volatile change is supported for the WWPN.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
GetWWNCap <WWPN>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.

ReadWWN

This command reads different types of WWNs.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
ReadWWN <WWPN> <Type>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Type`	0 = Volatile 1 = Non-Volatile 2 = Factory Default 3 = Current 4 = Configured

RestoreWWN

This command changes the WWNs to the factory default or non-volatile values. The change is non-volatile.

Notes

- A reboot is required to activate the new setting.
- For VMware ESXi: After changing the WWN of an adapter, you must reboot the ESXi system before trying to access the adapter on that system. For information on rebooting the ESXi system, see the VMware documentation.
- For ESXi: If you are using the CIM interface to access adapters, after changing the WWN of an adapter, you must restart the CIMOM (that is, SFCB) on the ESXi system before trying to access the adapter on that system. For information on restarting the CIMOM, see the VMware documentation.

Supported By

Linux, Solaris, VMware ESXi, and Windows

Syntax

```
RestoreWWN <WWPN> <Type>
```

Parameters

`WWPN`	The WWPN of an FC or FCoE port.
`Type`	0 = Restore Default WWNs 1 = Restore NVRAM WWNs

Appendix A. OneCommand Manager Error Messages

Table A-1 contains a list of some of the error messages that may be encountered during an OCM session.

Table A-1 OneCommand Manager Error Messages

Error Message	Command(s)	Description
`Error: Read-only management mode is currently set on this host. The requested command is not permitted in this mode.`	Active management commands that change a property on an adapter or host.	This message is returned when certain commands are attempted when the CLI is configured for read-only mode. See "CLI in Read-Only Mode May Cause Error Message" on page 30.
`Error: Read-only management mode is currently set on this host. The requested command is not permitted in this mode.`	various	The CLI does not allow the execution of certain commands when it is configured for read-only mode. See "CLI in Read-Only Mode May Cause Error Message" on page 30.
`Not supported.`	ChangeWWN	If a volatile change is requested on an adapter that does not support volatile WWNs, it returns a "not supported" error. See "ChangeWWN" on page 165.
`There are no license features for this adapter`	ShowLicenseAdapterID InstallAdapterLicense ShowAdapterLicenseFeatures	Adapter License Management commands are not available on OCe11101-EM/EX or OCe11102-EM/EX adapters. See "Adapter License Management Commands" on page 48.
`ERROR: HBACMD_GetDumpFile: RM_GetDumpFile call failed (2)` `ERROR: <2>: Not Supported`	GetDumpFile	Dump files are copied from the Dump directory of the remote host to the Dump directory of the local host. Specifying a local port identifier for this command returns an error, since the source and destination directory are the same. See "GetDumpFile" on page 85.
`ERROR: <180>: Authentication: User unknown`	All	The specified username is not valid or could not be authenticated by the system. See "OneCommand Manager Secure Management" on page 14 for more information.

Table A-1 OneCommand Manager Error Messages (Continued)

Error Message	Command(s)	Description
`ERROR: <181>: Authentication: Insufficient credentials`	All	The specified username and password are valid and the user is a member of an OneCommand Manager group, however the OneCommand Manager group does not have sufficient privileges to execute the specified command. See "OneCommand Manager Secure Management" on page 14 for more information.
`ERROR: <183>: Secure Mgmt: user not a member of OCM group`	All	The specified username and password could be authenticated, but the user is not a member of an OneCommand Manager group. See "OneCommand Manager Secure Management" on page 14 for more information.
`ERROR: <206>: Authentication Failed`	All	This indicates either a valid username, but invalid password, or a general user authentication error. See "OneCommand Manager Secure Management" on page 14 for more information.
`ERROR: <222>: DCB not available`	GetDCBParams SetDCBParam GetPGInfo SetDCBPriority SetCnaPGBW	These commands are not available on OCe11101-EM/EX or OCe11102-EM/EX adapters. See "DCB Commands" on page 66.
`ERROR: <251>: Hardware or firmware does not support command.`	SRIOVEnable UmcEnable UmcGetParams UmcSetBW UmcSetLPVID SetPhyPortSpeed	These commands are not available on OCe11101-EM/EX or OCe11102-EM/EX adapters. See "SRIOVEnable" on page 123, and "UMC Commands" on page 157.
`Error: <431> Cable length required for force mode and interface type`	SetPhyPortSpeed	This error is displayed when a length value is not included when the mode is set to 2. Example: hbacmd setphyportspeed 00-00-c9-a9-41-88 2 100Mb See "Examples" on page 53.