User's Guide

QLogic Control Suite CLI

3400/8400/41000/45000 Series Adapters and
Adapters Based on 57*xx*/57*xxx* Controllers

Document Revision History	
Revision A, March 27, 2015	
Revision B, August 27, 2015	
Revision C, March 7, 2016	
Revision D, April 15, 2016	
Revision E, April 19, 2016	
Revision F, September 22, 2016	
Revision G, March 7, 2017	
Revision H, June 23, 2017	
Revision J, November 17, 2017	
Changes	**Sections Affected**
Changed company name from QLogic to Cavium where appropriate.	Throughout the guide
Added references to 41000 Series Adapters everywhere that 45000 Series Adapters are specified.	Throughout the guide
Updated the entire technical support information to reflect current Cavium support.	"Technical Support" on page xv
Updated the agent installation information to indicate that the SuperInstaller is for Windows and the RPM is for Linux.	"Agent Installation on Windows and Linux" on page 14
Updated the description of the `-o show` keyword. In the note, spelled out acronyms iBFT and UNDI.	"Boot Configuration" on page 33
For the MBA configuration, updated the `Boot-Protocol` and `LinkSpeed` parameters and values in Table B-1.	"Multi-Boot Agent Configuration XML File" on page 152
Added `<SubnetMask>0.0.0.0</SubnetMask>` to the XML file example for iSCSI.	"iSCSI Example Configuration File for Adapters Based on 57*xx*/57*xxx* Controllers" on page 154
Updated the example XML file information for iSCSI: ■ Removed references to 3400 Series Adapters in the section title. ■ In Table B-3, removed references to 3400 Series Adapters from the table description, title, and footnote.	"iSCSI Example Configuration File for 8400/41000/45000 Series Adapters" on page 157

Updated the first example XML file information for FCoE: ■ In the section title, added 8400 Series Adapters and changed adapter model references from "57*xx*/57*xxx*" to "57712/578*xx*". ■ Added a note stating that, "The 57xx (5706/5708/5709/5716) and 57710/57711 adapters do not support FCoE." ■ In Table B-4, added 8400 Series Adapters and changed adapter model references to 57712/578*xx* in the table description and title. Removed the Disable option for the `FCoEHBABootMode` parameter, and added a footnote for that parameter.	"FCoE Example Configuration File for 8400 Series Adapters and Adapters Based on 57712/578*xx* Controllers" on page 160
Updated the second example XML file information for FCoE: ■ Removed references to 3400 Series Adapters in the section title. ■ Updated file example's `<FCoEGeneral>` section. ■ In Table B-5, removed references to 3400 Series Adapters from the table description, title, and footnote. Updated the `FabricLoginRetryCount` **Value Range** and replaced the redundant `FabricLoginRetryCount` parameter with new `TargetLoginRetryCount` parameter and **Value Range**.	"FCoE Example Configuration File for 41000/45000 Series Adapters" on page 163
Updated the XML file information for SR-IOV: ■ Added 41000 Series and 45000 Series Adapters to the applicable adapters for single function mode. ■ In Table B-6, for the `NumOfVF` parameter, added a **Value Range** description for the 41000 Series Adapters and updated the description of the 45000 Series Adapters. For the `Function` parameter, updated the **Value Range** description.	"SR-IOV Configuration XML Files" on page 172
For DCBX configuration, added "Example 2: Read-only Port-level Settings for 41000/45000 Series" on page 176	"DCBX Configuration XML File" on page 174

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Preface

This guide describes how to install, start, and use QLogic® Control Suite™ CLI, a primary CLI for configuring Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers. QLogic Control Suite CLI can also be used to list and view information about the legacy network adapters (adapters not based on the 578*xx*/41000/45000 Series Controllers).

> **NOTE**
>
> Throughout this guide, the QLogic Control Suite CLI management tool is also referred to as *QCS CLI*.

> **NOTE**
>
> Cavium now supports QConvergeConsole® GUI as the *only* GUI management tool across all adapters. QLogic Control Suite GUI is no longer supported for the 3400/8400 Series Adapters and adapters based on 57*xx*/57*xxx* controllers, and has been replaced by the QConvergeConsole GUI management tool. QConvergeConsole GUI provides single-pane-of-glass GUI management for all Cavium adapters.
>
> In Windows environments, when you run the QCS CLI and Management Agents Installer, it will uninstall QLogic Control Suite (QCS) GUI (if installed on system) and any related components from your system. To obtain the new GUI, download QConvergeConsole GUI for your adapter from the QLogic Downloads Web page:
>
> http://driverdownloads.qlogic.com

Intended Audience

This guide is designed for users who are managing Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers using QLogic Control Suite CLI.

What Is in This Guide

This preface specifies the intended audience, lists related documents, explains typographic conventions used in this guide, refers you to the QLogic license agreements, and provides technical support and contact information.

The remainder of the guide is organized into the following chapters and appendices:

■   Chapter 1 Introduction describes the components, architecture, and structure of QLogic Control Suite CLI.

■   Chapter 2 Installing and Launching lists the QLogic Control Suite CLI requirements, package contents, and supported OS and adapters. It provides QCS CLI and management agent installation instructions, as well as how to launch the CLI and add a host.

■   Chapter 3 QCS CLI Commands provides details about commands in QLogic Control Suite CLI, including a description, syntax, keywords, and examples for each command.

■   Chapter 4 QCS CLI Usage covers using interactive mode and provides task-oriented information using QLogic Control Suite CLI.

■   Appendix A Security Considerations provides security information for QLogic Control Suite CLI.

■   Appendix B Configuration File Examples provides samples of the team, boot, NIC partition, account, role management, SR-IOV, and DCBX configuration files used with QLogic Control Suite CLI.

■   Appendix C Third-party Licenses details license information for third-party software used in QLogic Control Suite CLI.

■   Appendix D Exit Codes lists the exit codes that indicate the level of success for each command.

Included also are a glossary of terms used and an index to help you quickly find the information you need.

Related Materials

For additional information, refer to the following documents that are available on the Downloads and Documentation page of the QLogic Web site:

http://driverdownloads.qlogic.com

■   QLogic Control Suite CLI Read Me and Release Notes documents contain information about installation, OS support, and known issues.

■ *Installation Guide—QConvergeConsole GUI* (part number SN0051105-00) contains detailed information on how to install and use the QConvergeConsole GUI management tool.

For information about downloading documentation from the QLogic Web site, see "Downloading Updates" on page xv.

Documentation Conventions

This guide uses the following documentation conventions:

■   **NOTE**   provides additional information.

■ Text in blue font indicates a hyperlink (jump) to a figure, table, or section in this guide, and links to Web sites are shown in underlined blue. For example:

  ❑ Table 9-2 lists problems related to the user interface and remote agent.

  ❑ See "Installation Checklist" on page 6.

  ❑ For more information, visit www.qlogic.com.

■ Text in **bold** font indicates user interface elements such as a menu items, buttons, check boxes, or column headings. For example:

  ❑ Click the **Start** button, point to **Programs**, point to **Accessories**, and then click **Command Prompt**.

  ❑ Under **Notification Options**, select the **Warning Alarms** check box.

■ Text in `Courier` font indicates a file name, directory path, or command line text. For example:

  ❑ To return to the root directory from anywhere in the file structure: Type **`cd /root`** and press ENTER.

  ❑ Issue the following command: **`sh ./install.bin`**

■ Key names and key strokes are indicated with UPPERCASE:

  ❑ Press CTRL+P.

  ❑ Press the UP ARROW key.

■ Text in *italics* indicates terms, emphasis, variables, or document titles. For example:

  ❑ For a complete listing of license agreements, refer to the *QLogic Software End User License Agreement*.

  ❑ What are *shortcut keys*?

  ❑ To enter the date, type *mm/dd/yyyy* (where *mm* is the month, *dd* is the day, and *yyyy* is the year).

- Topic titles between quotation marks identify related topics within this guide.
- CLI command syntax conventions include the following:
  - ❑ Plain text indicates items that you must type as shown. For example:
    - **`cfg iSCSIBoot CDUMP=Enable`**
  - ❑ < > (angle brackets) indicate a variable whose value you must specify. For example:
    - `<serial_number>`

    > **NOTE**
    >
    > For CLI commands only, variable names are always indicated using angle brackets instead of *italics*.

  - ❑ [ ] (square brackets) indicate an optional parameter. For example:
    - `[<file_name>]` means specify a file name, or omit it to select the default file name.
  - ❑ | (vertical bar) indicates mutually exclusive options; select one option only. For example:
    - `on|off`
    - `1|2|3|4`
  - ❑ ... (ellipsis) indicates that the preceding item may be repeated. For example:
    - `x...` means *one* or more instances of `x`.
    - `[x...]` means *zero* or more instances of `x`.
  - ❑ ( ) (parentheses) and { } (braces) are used to avoid logical ambiguity. For example:
    - `a|b c` is ambiguous
    - `{(a|b) c}` means `a` or `b`, followed by `c`
    - `{a|(b c)}` means either `a`, or `b c`

License Agreements

Refer to the *QLogic Software End User License Agreement* for a complete listing of all license agreements affecting this product.

Technical Support

Customers should contact their authorized maintenance provider for technical support of their Cavium products. QLogic-direct customers may contact Technical Support; others will be redirected to their authorized maintenance provider. Visit the QLogic support Web site listed in Contact Information for the latest firmware and software updates.

Downloading Updates

The QLogic Web site provides periodic updates to product firmware, software, and documentation.

To download firmware, software, and documentation:

1. Go to the Downloads and Documentation page:

   http://driverdownloads.qlogic.com

2. Type the QLogic model name in the search box.

3. In the search results list, locate and select the firmware, software, or documentation for your product.

4. View the product details Web page to ensure that you have the correct firmware, software, or documentation. For additional information, click **Read Me** and **Release Notes** under **Support Files**.

5. Click **Download Now**.

6. Save the file to your computer.

7. If you have downloaded firmware, software, drivers, or boot code, follow the installation instructions in the *Read Me* file.

Instead of typing a model name in the search box, you can perform a guided search as follows:

1. Click the product type tab: **Adapters**, **Switches**, or **Routers**.

2. Click the corresponding button to search by model or operating system.

3. Click an item in each selection column to define the search, and then click **Go**.

4. Locate the firmware, software, or document you need, and then click the item's name or icon to download or open the item.

Training

Global Training maintains a Web site that offers online and instructor-led training for all QLogic products. In addition, sales and technical professionals may obtain Associate and Specialist-level certifications to qualify for additional benefits.

www.qlogictraining.com

Contact Information

Technical Support for products under warranty is available during local standard working hours excluding Cavium Observed Holidays. For Support phone numbers, see the Contact Support link:

support.qlogic.com

Support Headquarters	Cavium, Inc.
	12900 Whitewater Drive, Suite 140
	Minnetonka, MN 55343 USA
QLogic Web Site	www.qlogic.com
Technical Support Web Site	support.qlogic.com
Technical Support E-mail	globalsupport@cavium.com
Technical Training E-mail	training@qlogic.com

Knowledge Database

The QLogic knowledge database is an extensive collection of QLogic product information that you can search for specific solutions. QLogic is constantly adding to the collection of information in the database to provide answers to your most urgent questions. Access the database from the QLogic Support Center:

support.qlogic.com

1 **Introduction**

The QLogic Control Suite (QCS CLI) utility is a console application that you can run from a Windows command prompt or Linux terminal console. Use QLogic Control Suite CLI to manage Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers on both local and remote computer systems.

This chapter provides the following information to introduce QLogic Control Suite CLI:

- QCS CLI Components
- "QCS CLI Architecture" on page 2
- "QCS CLI Structure" on page 5
- "Linux Feature Limitations" on page 8

QCS CLI Components

The Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers comprise distinct components that are manageable elements. The manageable elements are organized in an object-oriented hierarchical manner in QLogic Control Suite CLI. Each object has an associated description for the following:

- Properties or data that the object exposes
- Whether or not the properties or data are configurable
- Whether or not actions can be performed on the object
- What relationships exist between objects

QCS CLI Architecture

Illustrations in this section show the architecture of QLogic Control Suite CLI for Windows and Linux.

Windows System Architecture

Figure 1-1 on page 3 shows the relationship between the Ethernet controller and driver. A host may have multiple chips, each chip may have multiple physical ports, and each physical port may have multiple functions. Each function may contain Network Driver Interface Specification (NDIS) driver only, virtual bus driver (VBD) and NDIS, iSCSI, or Fibre Channel over Ethernet (FCoE).

Linux Systems Architecture

Figure 1-2 on page 4 shows the relationship between the Ethernet controller and driver. A host may have multiple chips, each chip may have multiple physical ports, and each physical port may have multiple functions. Each function may contain a Layer 2 device only, Layer 2 device, iSCSI, or FCoE.
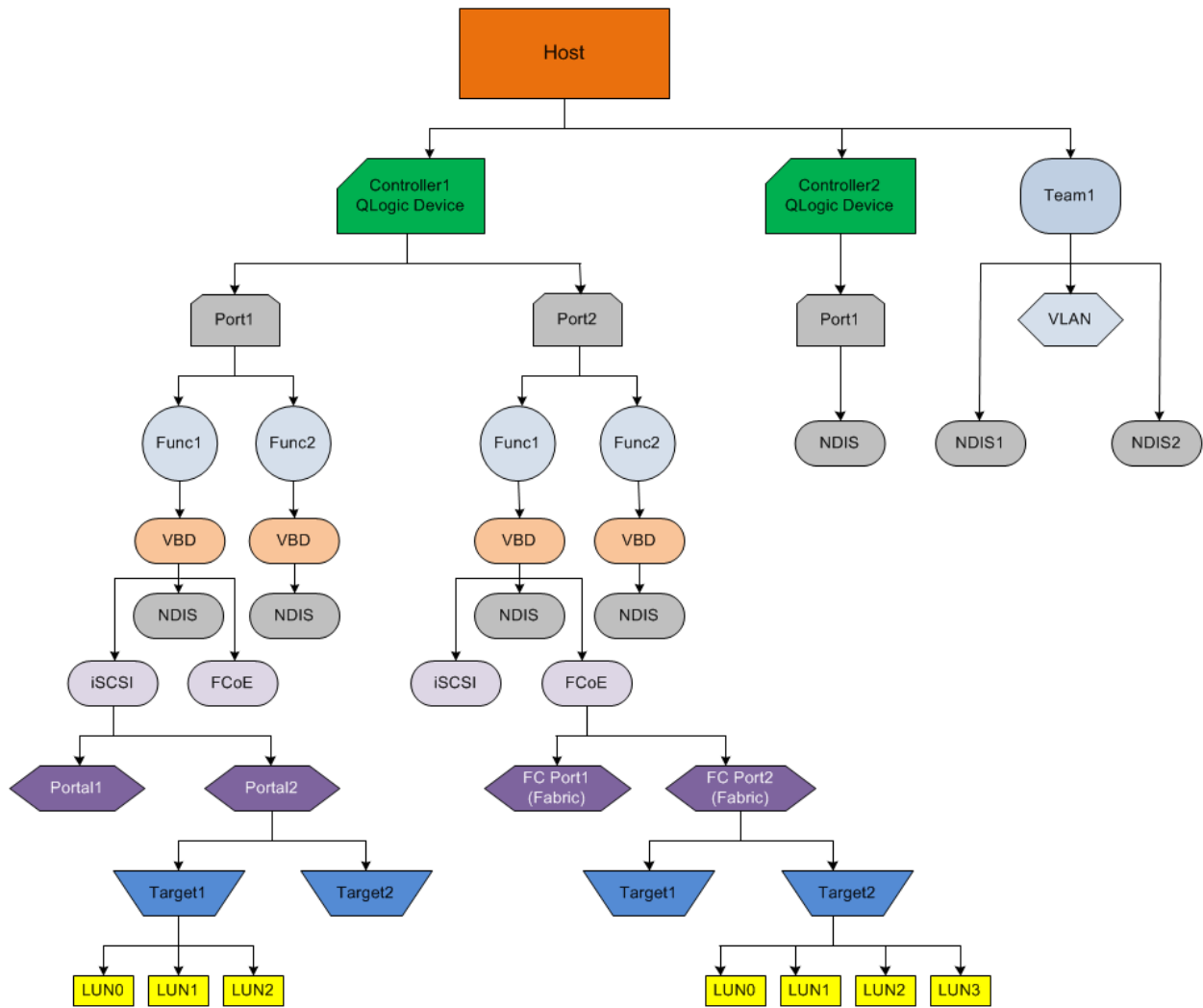
Figure 1-1. QLogic Control Suite CLI Windows Architecture
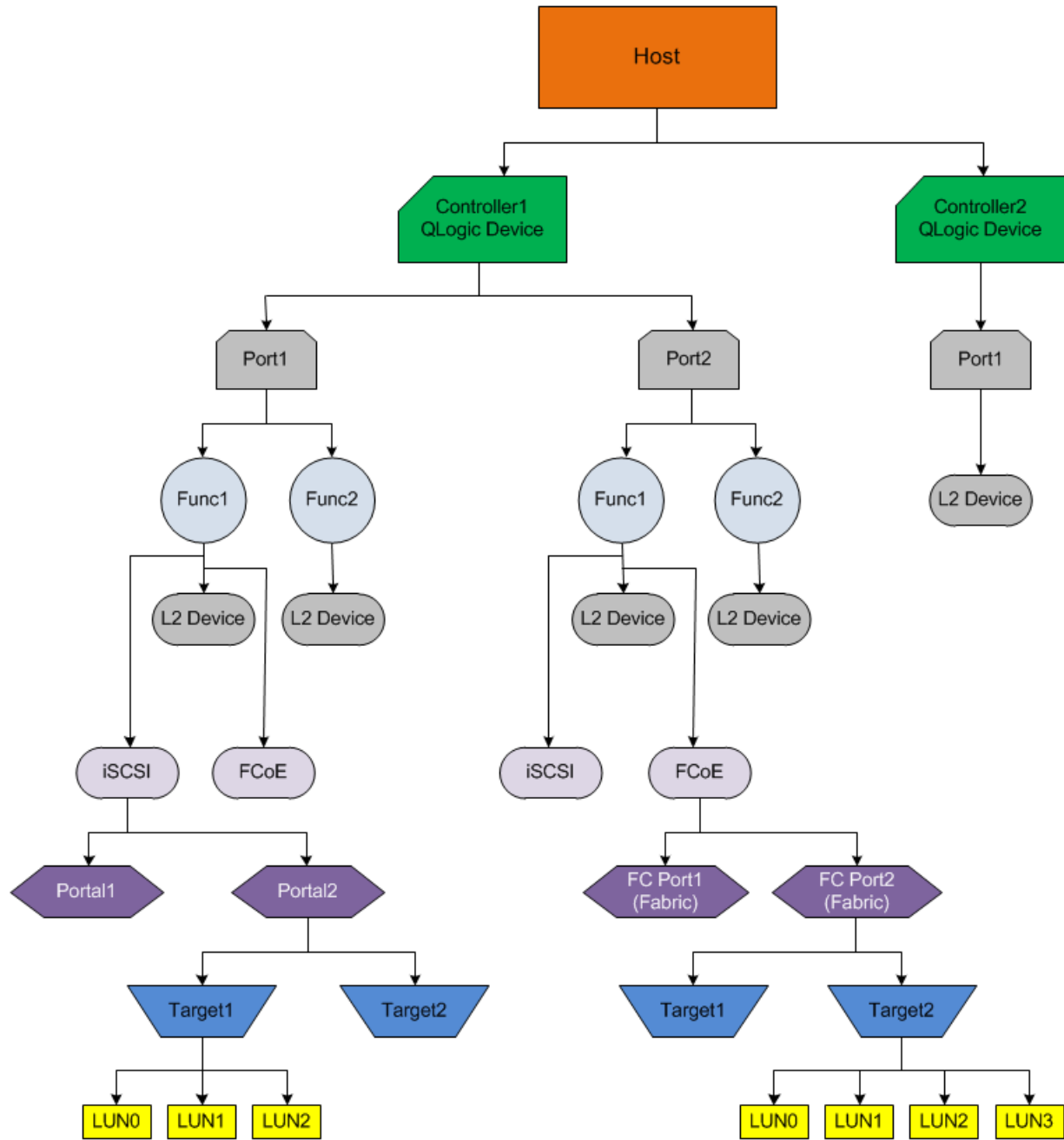
Figure 1-2. QLogic Control Suite CLI Linux Architecture

QCS CLI Structure

Information about the structure of QLogic Control Suite CLI includes the following:

- QCS CLI Modes
- QCS CLI Elements (Targets)
- QCS CLI Hierarchy
- Command Categories
- Client Layout Design

QCS CLI Modes

The QLogic Control Suite CLI application uses the console and can be run in either of two modes: interactive or noninteractive.

- In the **interactive** mode, users make connections to local and remote hosts, and manage them by entering commands in the QCS CLI window. The output is displayed as either information or an error message. The interactive mode is not menu based. You must enter a correct command to list specific types of targets before you can manage those targets.

- In the **noninteractive mode (also called CLI mode)**, QCS CLI can take a command as an input argument and run the command to produce the appropriate effect and output, and then return a meaningful exit code. This mode is ideal for scripting CLI commands.

QCS CLI Elements (Targets)

Each manageable element is known as a *target*. (Target, in this context, does not refer to the FCoE or iSCSI target, which is usually referred to as a storage system or LUN.) When you issue a command to list a specific target or manageable element, all the targets matching the criteria defined in the query are listed and the first element is selected by default. When you issue a command to list a specific type of target, the focus shifts from the target that you selected before the query was run to the first target in the current output.

Example 1:

Suppose the currently selected target is a host. If you issue the command to list FCoE devices, all matching FCoE devices are listed and the first FCoE device in the list is automatically selected for management, as shown in Figure 1-3. If you instead want to manage the NDIS device that was originally selected, you must first list all of the NDIS devices, and then select the appropriate instance to manage it, as shown in Figure 1-4.

> **NOTE**
>
> This example does not apply if you issue a command to list the information regarding the currently selected target.

Figure 1-3. FCoE Device Selected

Figure 1-4. Focus Changed to NDIS Device

Example 2:

Suppose QCS CLI has connections to two hosts, where each host has two adapters. When you issue the command to list the adapters, all adapters are listed, grouped by host. The output shows four entries: instance 0 through 3. To select one of the adapters, issue the `select <instance_number>` command.

QCS CLI Hierarchy

QCS CLI always displays the prompt with the current focus in a hierarchical manner starting with the host. When you enter a command, output is shown, the prompt changes to the first target, starting with the host and ending with current target following a hierarchical structure. To visualize the hierarchical structure of the Converged Network Adapter, see "Windows System Architecture" on page 2.

The QCS CLI interactive mode has no backward or forward levels. You must explicitly define the target that you want to manage. If the new target is different than the currently selected target, you must first list the specific target type, and then select the appropriate target.

Command Categories

All QCS CLI commands can be broadly divided in four categories:

- Commands to display information of the target
- Commands to modify the configuration of the target
- Commands to display the statistical counters for the target
- Commands to perform a diagnostic test on the target

After you make configuration changes using QCS CLI, you must refresh the host to display the most up-to-date information. For a host refresh, issue a command to list the hosts, select the appropriate host, and then issue the `refresh` command. You can then change the focus back to the target that you were managing.

Client Layout Design

Start the QCS CLI client Windows executable (`QCSCLI.exe`) in the command window and add a host. Figure 1-5 shows an example.
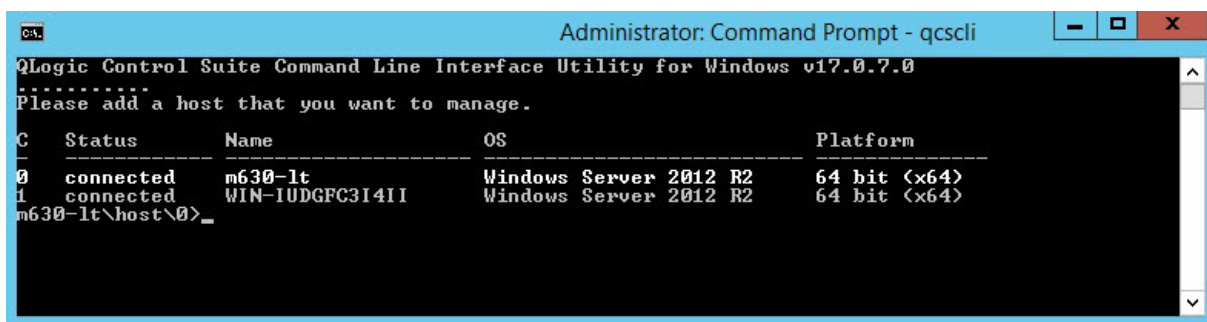
Figure 1-5. QLogic Control Suite CLI Window

The CLI application starts in a command line window. The QCS CLI window is similar to and is managed in the same way you manipulate any Windows command line window. You can resize, minimize, and close the window using the mouse. When you close the QCS CLI window, the connection to the managed host is lost.

Linux Feature Limitations

Using QLogic Control Suite CLI on a Linux system has the following limitations on the available features:

- Data center bridging netlink interface (DCBNL) is supported for inbox drivers for Red Hat® Enterprise Linux® (RHEL®) 6.2 and SUSE® Linux Enterprise Server (SLES®) 11 SP2 and later.

- iSCSI over RDMA (iSER) is supported for targets on Linux. QCS CLI can detect, add, and remove iSER by supporting iSCSI targets through the RDMA driver (qedr), which helps to detect iSCSI targets through a NIC interface.

- RHEL 5 and SLES 10 do not support data center bridging exchange (DCBX) due to lack of kernel support.

- iSCSI initiator statistics are not available because they are not available in the user space.

- Red Hat does not support the iSCSI DataDigest login option.

- The iSCSI multipath input/output (MPIO) login option is not available because MPIO for Linux iSCSI operates differently than Windows. Linux requires that two iSCSI sessions be established first to the same target LUN, and then the multipaths must be started so the SCSI layer treats the device mapper disk as one disk. Because these requirements have nothing to do with the actual iSCSI login procedure, MPIO is not available during login.

- SLES 10 does not support the iSCSI offload features due to lack of kernel support.

- The iSCSI iSNS server enumeration, refresh, and deletion options are not available. These are Windows features and Linux does not provide equivalent options.

- Configuration options are not available if the device interface is down.

- The iSCSI ping test, network test, on-chip CPU test, and cable analysis are not currently supported on Linux.

- The multifunction mode does not currently support the loopback phy or loopback MAC test.

- FCoE configuration is not available.

2 Installing and Launching

Install the QLogic Control Suite CLI management application using the QCS CLI installer package. The installer package for Windows OS is based on the Microsoft® MSI installation technology. The managed host can be either Windows® or Linux®.

> **NOTE**
>
> Cavium now supports QConvergeConsole GUI as the *only* GUI management tool across all adapters. QLogic Control Suite GUI is no longer supported for the 3400/8400 Series Adapters and adapters based on 57*xx*/57*xxx* controllers, and has been replaced by the QConvergeConsole GUI management tool. QConvergeConsole GUI provides single-pane-of-glass GUI management for all Cavium adapters.
>
> In Windows environments, when you run the QCS CLI and Management Agents Installer, it will uninstall QLogic Control Suite (QCS) GUI (if installed on system) and any related components from your system. To obtain the new GUI, download QConvergeConsole GUI for your adapter from the QLogic Downloads Web page:
>
> http://driverdownloads.qlogic.com

This chapter provides the following major sections with information about QCS CLI installation and configuration:

- "Before You Begin" on page 10
- "Downloading QLogic Control Suite CLI" on page 13
- "Downloading and Installing QCS CLI and Management Agents" on page 13
- "Installing Agents Using the QConvergeConsole GUI Built-in Agent Installer" on page 16
- "Launching QLogic Control Suite" on page 16
- "Adding a Host" on page 17

Before You Begin

Before you begin installing QCS CLI and related applications, understand the requirements, package contents, and supported operating systems and adapters as described in this section.

- QCS CLI Requirements
- Supported OS
- Supported Adapters

QCS CLI Requirements

The section lists the hardware, software, and server required for installing and running QLogic Control Suite CLI. QCS CLI requires the following:

- Appropriate device driver for the NIC installed on the system that is to be managed by QCS CLI.

- For the FCoE and iSCSI interface, the appropriate FCoE and iSCSI device driver to correctly discover the protocol.

- For managing iSCSI on Linux hosts, Open-iSCSI and SCSI generic (sg) utilities installed on the Linux host.

- For managing FCoE on Linux hosts, Open-FCoE installed on the Linux host.

- The appropriate QLMAPI module.

Hardware Requirements

The minimum hardware requirement for hosts include:

- One or more Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers.

- Single or multiprocessor system: Pentium III with 450MHz or greater to install the QCS CLI client software component:

  - ❑ Windows 7
  - ❑ Windows 8
  - ❑ Windows 8.1
  - ❑ Windows Server® 2008
  - ❑ Windows Server 2008 R2
  - ❑ Windows Server 2012
  - ❑ Windows Server 2012 R2
  - ❑ Windows Server 2016

  - ❑ RHEL 5
  - ❑ RHEL 6
  - ❑ RHEL 6.7 (supports PPC64BE)
  - ❑ RHEL 7

❑ RHEL 7.2 (supports PPC64BE)
❑ RHEL 7.3
❑ SLES 10
❑ SLES 11
❑ SLES 11.4 (supports PPC64BE)
❑ SLES 12
❑ SLES 12 SP 2
❑ Ubuntu 14.04
❑ Ubuntu 14.10
❑ Ubuntu 16.04
❑ Citrix® 7 (QL41164 Adapter only)
❑ IBM® PowerKVM™ 3.1

■ 128MB of physical RAM to run QLogic Control Suite CLI; 256MB recommended. Running with less memory may severely affect the performance.

■ Video card capable of handling 256K colors and screen resolution of 800×600 pixel required; 16K colors and 1024×768 pixels is recommended.

■ About 200MB of disk space

Software Requirements

QLogic Control Suite CLI requires no specific software components. All required software components are included in the QCS CLI installer package and are installed as part of the installation.

Server Agent Requirements

Multiple operating system support allows control of heterogeneous environments. The QConvergeConsole GUI server agent works with the following OSs:

■ CentOS®
■ Citrix XenServer®
■ Microsoft Windows Server 2008, 2012, 2012 R2
■ Novell® SLES
■ Oracle® Linux—Unbreakable Enterprise Kernel (UEK)
■ Red Hat Linux Advanced Server and Enterprise Server
■ Ubuntu® Server

NOTE

For details on OS versions, see the QConvergeConsole *Read Me*, which you can download from QLogic:

driverdownloads.qlogic.com

Supported OS

This section defines the supported OS versions for QLogic Control Suite CLI.

Table 2-1 lists the supported OS versions for hosts managed by the QCS CLI client software component.

Table 2-1. Supported OS for QCS CLI Client Software

Operating System	Type	Hardware Platform
Windows 7 x64	64-bit	Intel 64, AMD 64
Windows 8 and 8.1 x64	64-bit	Intel 64, AMD 64
Windows Server 2008	32-bit, 64-bit	Intel x86, Intel 64, AMD 64
Windows Server 2008 R2	64-bit	Intel 64, AMD 64
Windows Server 2012	64-bit	Intel 64, AMD 64
Windows Server 2012 R2	64-bit	Intel 64, AMD 64
Windows Server 2016 (includes Nano Server)	64-bit	Intel 64, AMD 64
RHEL 5	32-bit, 64-bit	Intel x86, Intel 64, AMD 64
RHEL 6	32-bit, 64-bit	Intel x86, Intel 64, AMD 64
RHEL 6.7	64-bit	PPC64LE, PPC64BE
RHEL 7	32-bit, 64-bit	Intel x86, Intel 64, AMD 64
RHEL 7.2	64-bit	PPC64LE, PPC64BE
SLES 10	32-bit, 64-bit	Intel x86, Intel 64, AMD 64
SLES 11	32-bit, 64-bit	Intel x86, Intel 64, AMD 64
SLES 11.4	64-bit	PPC64BE
SLES 12	32-bit, 64-bit	Intel x86, Intel 64, AMD 64, PPC64LE
Ubuntu 14.04	64-bit	PPC64LE only
Ubuntu 14.10	64-bit	PPC64LE only
Ubuntu 16.04	64-bit	PPC64LE only
Citrix 7 (Dundee 34*xx*/84*xx* adapters only)	64-bit	PPC64
PowerKVM 3.1	64-bit	PPC64LE, PPC64BE

Supported Adapters

QLogic Control Suite CLI supports Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers.

Downloading QLogic Control Suite CLI

To download QLogic Control Suite, follow the procedure in "Downloading Updates" on page xv.

Downloading and Installing QCS CLI and Management Agents

To manage the Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers on a local or remote host, qlnxremote (the management agent used by the host adapters) must already be installed on the host.

To connect to a remote host, the management agent used by any of the host adapters must be installed and running on the host. The qlnxremote management agent is not automatically installed by the QCS CLI and Agents installer and must be downloaded and installed separately.

This section provides procedures for either downloading and installing QCS CLI and the management agents together, or just the agents alone:

■ QCS CLI and Agent Installation on Windows and Linux

■ Agent Installation on Windows and Linux

■ Agent Installation on Ubuntu

QCS CLI and Agent Installation on Windows and Linux

To download and install the management agents and installer on Windows and Linux (all supported versions):

1. Go to the QLogic Downloads and Documentation page:

   http://driverdownloads.qlogic.com

2.   Download either the Windows or Linux QCS CLI.

The following table lists the files contained in each installer for QLogic Control Suite CLI.

Windows QCS CLI Installer Files (in `Windows_QCS_xx.x.xx.zip`)	Linux QCS CLI Installer Files (in `Linux_QCS_x.x.xx.zip`)
`QCS_Readme.txt`	`QCS_ReadmeLnx.txt` [a]
`QCSCLI_Readme.txt`	`QCSCLI_ReadmeLnx.txt` [a]
`QCS_Release.txt`	`QCS_ReleaseLnx.txt` [a]
`QCSCLI_Release.txt`	`QCSCLI_ReleaseLnx.txt` [a]
`QCS-xx.x.xx-0.i386.exe`	`QCS-xx.x.xx-0.i386.rpm`
`QCS-xx.x.xx-0.x86_64.exe`	`QCS-xx.x.xx-0.x86_64.rpm`

[a] The Linux RPM bundles the Read Me and Release Notes files.

3.   Download the appropriate agent for the host OS that the adapter is installed on, either the **Windows QCS CLI and Agents Installer** or the **Linux RPM Package**. The Linux Red Hat Package Manager (RPM) package contains QLogic Control Suite CLI and QLogic QConvergeConsole remote procedure call (RPC) agents that are common to Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers.

4.   Install the QCS CLI and agent by running the appropriate Windows installer or Linux package. For more detailed information, refer to the *Read Me* and *Release Notes*.

Agent Installation on Windows and Linux

You can also install just the netqlremote, qlremote, iqlremote, and QLNXRemote agents from the QLogic Web site. For `qlremote_fca`, see "Installing Agents Using the QConvergeConsole GUI Built-in Agent Installer" on page 16 for download and installation instructions.

To install agents on Windows and Linux (all supported versions):

1.   Go to the QLogic Downloads page:

driverdownloads.qlogic.com

2. For each adapter on the host server, download the following:

❑ SuperInstaller (Windows only):

   a. Search for the appropriate installer string, either **Windows SuperInstaller**.

   b. Review the SuperInstaller description and check compatibility requirements.

   c. Ensure that the SuperInstaller description supports each adapter in the host server or servers.

❑ RPM package (Linux only)

❑ *Read Me*

❑ *Release Notes*

3. Install the agents by running the Windows SuperInstaller or Linux RPM Package. Refer to the *Read Me* and *Release Notes* for detailed information on running the SuperInstaller.

> **NOTE**
>
> Although QLogic Control Suite CLI does not run on a Windows Nano Server shell, you can install the QLNXRemote agent on a Nano Server system and manage it remotely through QCS CLI using the `addhost` (Add Host) and `removehost` (Remove Host) commands. For QCS CLI to connect to the remote QLNXRemote Nano agent, you must disable the firewall on the Nano system. For instructions on installing the QLNXRemote agent on a Nano Server, refer to the *QConvergeConsole Windows Agent Installers Readme*. (This Readme is located inside the QCS CLI for Windows download available on www.qlogic.com).

Agent Installation on Ubuntu

To install agents (QLRemote and QLNXRemote only) on Ubuntu:

1. To install alien, issue the following command:

   ```
   apt-get install alien
   ```

2. To install rpcbind, issue the following command:

   ```
   apt-get install rpcbind
   ```

3. Issue the `alien` command as follows:

   ```
   alien -i -scripts -k ./<installer name.rpm>
   ```

4. To install libtc18.4 (for qlnxremote agents only), issue the following command:

   `apt-get install libtc18.4`

5. To disable the firewall, issue the following command:

   `ufw disable`

> **NOTE**
>
> For more detailed Firewall configuration, go to:
> https://help.ubuntu.com/community/UFW

Installing Agents Using the QConvergeConsole GUI Built-in Agent Installer

To access the agent installer within QConvergeConsole GUI:

1. Point to the gear icon ⚙, point to **Help**, and then click **Download Agent Installers**.

2. Follow the window prompts.

   For detailed installation instructions, refer to the QConvergeConsole GUI help system. (Point to the gear icon ⚙, point to **Help**, and then click **Browse Contents**. In the QConvergeConsole Help window, click the **Search** tab, and then search for "agent installer".)

Launching QLogic Control Suite

To launch QLogic Control Suite CLI:

- On a Windows client, launch QCS CLI by double-clicking the `QCSCLI.exe` file installed in the `C:\Program Files\Cavium\QCS` folder.

- On a Linux client, launch QCS CLI by executing the `QCSCLI` file installed in the `/opt/QLogic_Corporation/QCS` folder.

To close QLogic Control Suite CLI:

- In the QCS CLI command window, type `q` at the prompt.

- In the QCS CLI command window, click the ⊠ button in the upper-right corner.

Adding a Host

QLogic Control Suite CLI allows you to add one or more local or remote hosts for the management.

Adding a Local Host Using QCS CLI

When you open QCS CLI, it automatically connects to a local host. The local host is displayed at the top of the QCS CLI window, and the local host is automatically selected as the current object.

Adding a Remote Host Using QCS CLI

To add a remote host:

1. Open the QLogic Control Suite client.

   The connection to the local host is automatically made and selected as the current object.

2. Issue the following command:

   ```
   addhost <localhost> | [ <remote host name | remote host IP>
   -p <password> ] [-protocol <rpc | local>] [-persist]
   ```

   Where the `-protocol` keyword indicates one of the following options:

   ❑ `rpc`: Uses the remote procedure call protocol to connect to QLogic Control Suite.

   ❑ `local`: Uses the local protocol to connect to QLogic Control Suite on the local system. The `local` option does not require an agent.

3. On the remote host, enter the agent password with administrative privilege. You can also use a user account with domain administrator privilege. A password is required to execute write operations such as configuration changes.

4. (Optional) Include the `-persist` keyword to have QCS CLI remember the entry for this host. If you select this option, you are not required to add the IP address or host name of the remote host.

3 QCS CLI Commands

This chapter provides the details about the QLogic Control Suite CLI commands, including:

- General Syntax and Keywords
- "Command List" on page 20
- "Commands by Item View" on page 23
- "Command Details" on page 26
- "Legacy Commands" on page 124

General Syntax and Keywords

QLogic Control Suite CLI portable operating system interface (POSIX)-compliant command syntax and keywords are as follows:

Syntax   **QCSCLI [-t <target type>]**

        [-f <target ID format>]

        [-i <target ID>]

        [-r <IP address>]

        [-p <password>]

        [-protocol <rpc | local>]

        [-persist] <command string>

> **NOTE**
>
> For an explanation of how brackets, bars, parentheses, and braces are used in QCS CLI command syntax, see the *CLI command syntax conventions* bullet under Documentation Conventions.

Keywords   **-t**

Specifies the target type. This keyword must be followed by the `<target type>`, which is either the VBD (Windows only), NDIS (Linux only), iSCSI, iSCSI portal, iSCSI target, team, VNIC, FCoE, FCoE target, physical adapter, physical port, host, system, or Layer 2 NIC (displays as a part of an interactive command for a Linux host) target type.

-f

Specifies the format of the `<target ID>` used in the `-i` option. The `<target ID format>` can be MAC, BDF, or NAME. Use MAC or BDF to select a device of a `<target type>`. Use NAME to select either a team or a virtual adapter.

-i

Specifies the target identified by the `<target ID>`. The `<target ID>` can be the Ethernet MAC address (using the NDIS device's MAC address for Ethernet and using the iSCSI device's MAC address for iSCSI hardware offload and using the teaming MAC address for VDB), the PCI bus-device-function (BDF) number, iSCSI target name or the name of a team or virtual adapter or host name.

-r

Specifies an IP address of a host to be accessed. If the `-r` option is not specified, QCS CLI tries to read a persistent host file and connects to all hosts in that file. When the `-r` option is specified, only the specified host is connected and `<command string>` applies only to the specified host.

-p

Specifies the agent password; required to make any configuration changes.

-protocol

Specifies one of the following protocol types:

> *rpc*
>
> Uses the remote procedure call protocol to connect to QLogic Control Suite.
>
> *local*
>
> Uses the local protocol to connect to QLogic Control Suite on the local system. The `local` option does not require an agent.

-persist

Indicates that the host information is saved to the persistent hosts file when QCS CLI exits.

Notes   The `<command string>` includes the command, its options, parameters, and values for the command. You must specify the `<command string>` within double quotes, but if the `<command string>` contains only one command without any option or command argument, the use of double quotes is optional.

If any name or parameter contains special character such as `^`, `&`, and so on, you must specify the special character within double quotes; for example, `"^"`.

Command List

Table 3-1 lists alphabetically the QCS CLI commands, briefly describes each, and provides a link to more details.

Table 3-1. QCS CLI Commands

Command	Description	See Section
add	Adds team configuration from a file (Windows only)	Add (Team Configuration)
adddiscoveryportal	Adds a discovery portal to the host	Add Discovery Portal
addhost	Adds a remote host for management	Add Host
addisnsserver	Adds the IP address or DNS name of an iSNS server to the list of iSNS servers	Add iSNS Server
addtarget	Manually configures a target and optionally persists that target	Add Target
bootcfg	Configures MBA, FCoE, or iSCSI boot	Boot Configuration
cablediag	Runs cable diagnostic tests on the selected physical port device	Cable Diagnostics
cfg	Configures parameters of the selected device	Configure Advanced Settings
		Configure Advanced FCoE Settings
		Configure Advanced Port Settings
		Configure iSCSI Boot
		Configure iSCSI Initiator
		Configure iSCSI Management
		Configure iSCSI Management (on a Linux Host)
		Configure iSCSI Secret
		Configure Licenses
		Configure Multifunction
		Configure Resource
		Configure SR-IOV
		Configure System TOE
createmultinpivport	Creates multiple NPIV ports	Create Multiple NPIV Ports

Table 3-1. QCS CLI Commands (Continued)

Command	Description	See Section
createnpivport	Creates an NPIV port	Create NPIV Port
diag	Configures and conducts a diagnostic test	Diagnostics
discoverhost	Searches for and adds remote hosts from a range of IP addresses	Discover Host
fallback	Falls back to primary adapters from standby	Fallback
help	Lists available commands	Help
info	Displays adapter information of the selected NIC	Information (Adapter) Information (Team)
list	Lists target items in different views	List (Targets)
listdiscoveryportals	Lists persisted target portals	List Discovery Portals
listisnsservers	Lists iSNS server addresses that are persisted by the iSCSI initiator service	List iSNS Servers
log	Logs all input and output into a file	Log
login	Logs in to an iSCSI target	Login
logout	Logs out of an iSCSI target	Logout
networkdiag	Runs network diagnostic test on the selected NDIS device	Network Diagnostics
pingtest	Runs the iSCSI ping test	Ping Test
q	Exits the program	Quit
refresh	Scans the selected system for hardware and configuration changes	Refresh
refreshall	Scans all systems for hardware and configuration changes	Refresh All
refreshdiscoveryportal	Performs a SendTargets operation to the target portal	Refresh Discovery Portal
refreshisnsserver	Refreshes the list of targets discovered from the specified iSNS server	Refresh iSNS Server
remove	Removes a team	Remove (Team)

Table 3-1. QCS CLI Commands (Continued)

Command	Description	See Section
removeallhosts	Removes all hosts from the host management list	Remove All Hosts
removediscoveryportal	Removes a discovery portal from the host	Remove Discovery Portal
removehost	Removes the specified host from the host management list	Remove Host
removeisnsserver	Removes the IP address or DNS name of the iSNS server from the persisted list of iSNS servers	Remove iSNS Server
removemultinpivport	Removes multiple NPIV ports	Remove Multiple NPIV Ports
removenpivport	Removes the specified NPIV port	Remove NPIV Port
removepersistenttarget	Removes a target from the list of persistent targets	Remove Persistent Target
removetarget	Removes a target from the list of persisted targets	Remove Target
resetsessionstats	Displays session statistics for all or the selected session	Reset Session Statistics
resetstats	Resets the statistics	Reset Statistics
restore	Restores a team configuration from a file	Restore (Team)
save	Saves a team configuration to a file	Save (Team)
select	Selects an adapter or list of available adapters	Select (Target)
sessions	Lists iSCSI sessions on the selected iSCSI adapter.	Sessions
sessionstats	Displays session statistics for all or the selected session	Session Statistics
showsel	Shows the selected target item	Show Selected (Target)
stats	Displays statistic information for the selected NIC	Statistics

Table 3-1. QCS CLI Commands (Continued)

Command	Description	See Section
`unassigned`	Displays adapters that are not yet part of a team	Unassigned (Adapters)
`version`	Displays the version of this program	Version

Commands by Item View

Table 3-2 lists the applicable commands for each QCS CLI item view, and provides a link to more details.

Table 3-2. Applicable QCS CLI Commands by Item View

Item View	Applicable Commands	See Section
All	`addhost`	Add Host
	`discoverhost`	Discover Host
	`help`	Help
	`list`	List (Targets)
	`log`	Log
	`q`	Quit
	`removeallhosts`	Remove All Hosts
	`removehost`	Remove Host
	`select`	Select (Target)
	`showsel`	Show Selected (Target)
	`version`	Version
FCoE	`cfg`	Configure Advanced FCoE Settings
	`createmultinpivport`	Create Multiple NPIV Ports
	`createnpivport`	Create NPIV Port
	`info`	Information (Adapter)
	`removemultinpivport`	Remove Multiple NPIV Ports
	`removenpivport`	Remove NPIV Port
	`resetstats`	Reset Statistics
	`stats`	Statistics
FCoE Target	`info`	Information (Adapter)
Fibre Channel Port	`info`	Information (Adapter)

Table 3-2. Applicable QCS CLI Commands by Item View (Continued)

Item View	Applicable Commands	See Section
Host	`adddiscoveryportal`	Add Discovery Portal
	`addisnsserver`	Add iSNS Server
	`addtarget`	Add Target
	`cfg`	Configure Advanced Settings
	`info`	Information (Adapter)
	`listdiscoveryportals`	List Discovery Portals
	`listisnsservers`	List iSNS Servers
	`login`	Login
	`logout`	Logout
	`refresh`	Refresh
	`refreshall`	Refresh All
	`refreshdiscoveryportal`	Refresh Discovery Portal
	`refreshisnsserver`	Refresh iSNS Server
	`removediscoveryportal`	Remove Discovery Portal
	`removeisnsserver`	Remove iSNS Server
	`removepersistenttarget`	Remove Persistent Target
	`removetarget`	Remove Target
iSCSI	`cfg`	Configure Advanced Settings
	`info`	Information (Adapter)
	`login`	Login
	`logout`	Logout
	`pingtest`	Ping Test
	`resetsessionstats`	Reset Session Statistics
	`resetstats`	Reset Statistics
	`sessions`	Sessions
	`sessionstats`	Session Statistics
	`stats`	Statistics
iSCSI Portal	`info`	Information (Adapter)
	`resetsessionstats`	Reset Session Statistics
	`sessionstats`	Session Statistics

Table 3-2. Applicable QCS CLI Commands by Item View (Continued)

Item View	Applicable Commands	See Section

iSCSI Target	`info`
	`login`
	`logout`
	`removepersistenttarget`
	`resetsessionstats`
	`sessionstats`
		Information (Adapter)
		Login
		Logout
		Remove Persistent Target
		Reset Session Statistics
		Session Statistics

L2NIC Target (Linux only)	`cfg`
	`info`
	`resetstats`
	`stats`
		Configure Advanced Settings
		Information (Adapter)
		Reset Statistics
		Statistics

LUN	`info`	Information (Adapter)

NDIS (Windows only)	`cfg`
	`info`
	`networkdiag`
	`resetstats`
	`stats`
		Configure Advanced Settings
		Information (Adapter)
		Network Diagnostics
		Reset Statistics
		Statistics

Physical Adapter	`cfg Advanced` `info`	Configure Advanced Settings Information (Adapter)

Physical Port	`bootcfg`
	`cablediag`
	`cfg Advanced`
	`diag`
	`info`
	`resetstats`
	`stats`
		Boot Configuration
		Cable Diagnostics
		Configure Advanced Settings
		Diagnostics
		Information (Adapter)
		Reset Statistics
		Session Statistics

Table 3-2. Applicable QCS CLI Commands by Item View (Continued)

Item View	Applicable Commands	See Section
Team (Windows only)	add	Add (Team Configuration)
	fallback	Fallback
	info	Information (Team)
	remove	Remove (Team)
	resetstats	Reset Statistics
	restore	Restore (Team)
	save	Save (Team)
	stats	Statistics
	unassigned	Unassigned (Adapters)
VBD	cfg	Configure Advanced Settings
	info	Information (Adapter)
	resetstats	Reset Statistics
	stats	Statistics
VNIC	info	Information (Adapter)
	networkdiag	Network Diagnostics
	resetstats	Reset Statistics
	stats	Statistics

NOTE

If a command returns the INVALID error, it means that command is not valid for the current item view. Issue only the commands applicable to the view level that you are in, as shown in Table 3-2.

Command Details

This section provides details about each QCS CLI command listed in Table 3-1 on page 20 and Table 3-2 on page 23, including the command description, syntax, keywords, and examples.

Add (Team Configuration)

Adds team configuration from a file. Existing team configuration is preserved and the new team or teams are added to the system from the configuration file.

This command applies only to Windows OS and is only available if the active selection is a team or in the team view. This command is not supported on Windows Server 2012 R2.

Syntax **add**

    [-h <host>]
    <file name>

Keywords **-h**

Specifies the host to which the teams will be added, if no team is currently selected.

Examples The following example shows the `add` command:

```
qcscli -t TEAM "add c:\team_bdf.txt"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
.............
Please wait while executing Teaming operation...
Add Team succeeded.
```

Add Discovery Portal

Adds a static target portal to the list of target portals to which the iSCSI initiator service transmits SendTarget requests. The `adddiscoveryportal` command is available in the context of a host and is available only for Linux hosts.

Syntax **adddiscoveryportal**
> {-m <iSCSI HBA MAC Address>}
> {-i <TargetPortalAddress>}
> {-if <iface file name>}
> [-n <TargetPortalSocket>]
> [-mu <CHAP authentication>]
> [-u <CHAP name>]
> [-p <CHAP secret>]
> [-iu <Initiator CHAP name>]
> [-ip <Initiator CHAP secret>]
> [-ir <iSER target type]

Keywords **-m**

Specifies the iSCSI Host Bus Adapter MAC address.

-i

Specifies the address of the target portal.

-if

(Linux only) Specifies the name of the interface (iface) file.

-n

Specifies a port on a host to be accessed. If you do not specify a the `-n` option, the default 3260 port number is used.

-mu

Specifies that mutual CHAP authentication type is used.

-u

Specifies the CHAP name.

-p

Specifies the CHAP secret.

-iu

Specifies the initiator CHAP name.

-ip

Specifies the initiator CHAP secret.

-ir

Specifies the iSCSI Extensions for RDMA (iSER) target type.

Notes   If the CHAP name and CHAP secret are both specified, CHAP authentication is used for login.

Examples   The following example shows the `adddiscoveryportal` command:

```
./QCSscli "adddiscoveryportal -m 000E1E502683 -i 193.169.101.17"
C    Status       DevType Name
-    ------------ ------- -------------------------------------------------
0    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-4734b7e04-df70000002051ffa
1    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-5844b7e04-a2b0000002852021
2    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-9db4b7e04-b3a0000005c5231b
3    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-0bc4b7e04-b020000007452692
4    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-7c94b7e04-1596c0a617d52d65
5    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-80c4b7e04-f9e6c0a618952e77
6    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-9364b7e04-5716c0a619652f4f
7    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-94d4b7e04-d706c0a619952f4f
8    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-a96898704-71aa7986a8f533a8
9    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-3a14b7e04-b5e000e7ac253579
10   disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930
11   disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-c474b7e04-229a2d3cfa354fef
```

Add Host

Adds a host to the managed host list by its name or IP address.

Syntax   **addhost**

< [< localhost | <local host name> | <local host IP>] | [-p <password>
    <host name | IP address>] >
[-protocol <rpc | local>
[-persist]

Keywords   **-p**

Specifies the agent password; required to make any configuration changes.

-protocol

Specifies one of the following protocol types:

rpc

Uses the remote procedure call protocol to connect to QLogic Control Suite.

local

Uses the local protocol to connect to QLogic Control Suite on the local
system. The `local` option does not require an agent.

-persist

Indicates that the host information will be saved to the persistent hosts file when
you close QLogic Control Suite with the `-q` command. All the hosts in the saved
file will be automatically connected when QCS CLI starts. To break the operation
of connecting to the persistent remote hosts, press the CTRL+BREAK keys.

Notes   The variable `host name` is the name of a host to be connected. The variable
`IP address` is the IP address of a host to be connected.

`[-capath <certificate authority path>]` specifies a directory holding
multiple certification authority (CA) certificates to verify the peer using WS-Man
over HTTPS. (Linux only)

Examples   The following example shows the `addhost` command:

```
qcscli "addhost 172.28.62.78 -p abc@USA -protocol rpc -persist"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
...
...............
C   Status       Name                 OS                        Platform
-   ------------ -------------------- ------------------------- -------------
1   connected    DL380G7-3809         Windows Server 2012       64 bit (x64)
```

Add iSNS Server

Adds the IP address or DNS name of an iSNS server to the list of iSNS servers. This command is available in the context of a host.

Syntax   **addisnsserver**
  {-i <iSNS Server Address>}

Keywords   **-i**
Identifies the iSNS server by its address.

Examples   The following example shows the `addisnsserver` command:

./QCScli "addisnsserver -i 192.168.20.41"

(Command output was not available at the time of publication.)

Add Target

Manually configures a target and optionally persists that target. This command is only available in the context of a host.

Syntax **addtarget**
> {-t <TargetName>}
> {-i <TargetPortalAddress>}
> {-n <TargetPortalSocket>}
> [-f <ifaceName>]

Keywords **-t**

Adds the specified target to the list of static targets.

-i

Specifies the IP address of the target portal.

-n

Specifies the socket number of the target portal.

-f

Specifies the iSCSI interface (iface) file name to which the static target will be added. This option applies only to Linux hosts.

Examples The following example shows the `addtarget` command:

```
./QCScli "addtarget -t
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930 -i
192.168.100.10 -n 3260"


C    Status       DevType Name
-    ------------ ------- --------------------------------------------------
0    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930
```

Boot Configuration

Displays the current iSCSI, FCoE, or Multi-Boot Agent (MBA) boot configuration or one of its subcategory boot configurations, or saves the current iSCSI, FCoE, or MBA boot configuration to an XML file, or restores the iSCSI FCoE, or MBA boot configuration from an XML file. For a boot configuration file example, see "iSCSI Boot Configuration XML File" on page 154.

The `bootcfg` command is only available in the context of a physical port.

Syntax   **bootcfg**
    [-t {iSCSI | fcoe | mba}]
    [-o show {General | Initiator | Target | MPIO}]
    [-o {save <filename.xml> | restore <filename.xml>}]

Keywords   **-t**

Specifies the boot configuration type as either iSCSI, FCoE, or MBA.

-o show

Shows boot configuration for either general, initiator, target, or MPIO. (MPIO is supported only for adapters based on 57*xx*/57*xxx* controllers.) The general parameter is only applicable to the MBA boot configuration type; it is not applicable to iSCSI or FCoE boot configuration types.

-o save | restore

Specifies the name of the XML file to either save the boot configuration to or restore it from. On Linux, you must specify the full path to the file.

Notes   For 3400/8400/41000/45000 Series Adapters, the boot protocol is either `None`, `UNDI` (Universal Network Device Interface), or `iBFT` (SCSI Boot Firmware Table). Only the last saved boot protocol is shown, saved, or restored.

Examples   The following examples show the `bootcfg` command:

```
qcscli -t phyports -f BDF -i 0b:00.00 "bootcfg -t MBA -o show"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.12.0
..

MBA: General Configuration Parameters
-----------------------------------
Option ROM           Enabled
Boot Protocol        iSCSI Boot
Boot Strap Type      Auto
Hide Setup Prompt    Disabled
Setup Key Stroke     Ctrl-S
```

```
Banner Message Timeout     5     seconds
Link Speed                 10G
Pre-boot Wake on LAN       Disabled
VLAN mode                  Disabled
VLAN ID(1..4094)           1
Boot Retry Count           0
```

qcscli -t phyports -f BDF -i 0b:00.00 "bootcfg -t iSCSI -o show Initiator"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.12.0
..

iSCSI: Initiator Configuration Parameters
-----------------------------------
IP Address                 172.17.69.40
Subnet Mask                255.255.0.0
Default GateWay            172.17.69.101
Primary DNS
Secondary DNS
iSCSI Name                 iqn.2011-12.com:qlogic.com
CHAP ID
CHAP Secret
```

qcscli -t phyports -f BDF -i 0b:00.00 "bootcfg -t FCoE -o show Target"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.12.0
..

FCoE: Target Configuration Parameters
-----------------------------------
Connect                    Disabled
Port WWN                   0000000000000000
Boot Lun                   0
Connect                    Disabled
Port WWN                   0000000000000000
Boot Lun                   0
Connect                    Disabled
Port WWN                   0000000000000000
Boot Lun                   0
```

```
Connect                 Disabled
Port WWN                0000000000000000
Boot Lun                0
Connect                 Disabled
Port WWN                0000000000000000
Boot Lun                0
Connect                 Disabled
Port WWN                0000000000000000
Boot Lun                0
Connect                 Disabled
Port WWN                0000000000000000
Boot Lun                0
Connect                 Disabled
Port WWN                0000000000000000
Boot Lun                0
```

Linux examples:

 # ./QCScli -t PHYPORTS -f bdf -i 0b:00.0 "bootcfg -t mba -o show general"

```
QLogic Control Suite Command Line Interface Utility for Linux
v30.0.10.0
semaphore_create: semaphore exists, getting semaphore!

MBA: General Configuration Parameters
-----------------------------------
Option ROM              Enabled
Boot Protocol           PXE
Boot Strap Type         Auto
Hide Setup Prompt       Disabled
Setup Key Stroke        Ctrl-S
Banner Message Timeout  5    seconds
Link Speed              AutoNeg
Pre-boot Wake on LAN    Enabled
VLAN mode               Disabled
VLAN ID(1..4094)        1
Boot Retry Count        0
```

```
# ./QCScli "bootcfg -t mba -o save /tmp/file.xml"
QLogic Control Suite Command Line Interface Utility for Linux
v30.0.10.0
```

The MBA boot configuration settings are saved in the specified XML file; no message is returned to indicate success or failure of the command.

Cable Diagnostics

Runs cable diagnostic tests on the selected Cavium Network Adapter physical port device.

Syntax　　**cablediag**

Keywords　None

Notes　　To stop running a test, press the CTRL+BREAK keys.

Examples　The following example shows the `cablediag` command:

```
qcscli -t phyports -f BDF -i 03:00.00 "cablediag"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.12.0
..
..........
Cable Length        Status
-----------------------------------------------
2.260000            Good
1.850000            Good
3.090000            Good
2.680000            Good

Link: 1000 Mbps Full Duplex
Cable analysis test completed successfully.
```

Configure Advanced Settings

Gets and sets advanced parameters for a device.

Syntax   **cfg Advanced**
     [[default] | [parameter] | [parameter=value]]

Keywords   **default**

Sets all advanced parameters to their default values for an NDIS device.

parameter

Displays the current setting and all valid settings of the specified parameter.

parameter=value

Sets the specified value to the specified `parameter`, which must be one of those parameters that are displayed by the `cfg Advanced` command. The `value` must be one of the valid settings of the parameters that are displayed by the `cfg Advanced` parameter command.

Both the parameter and value are case insensitive and must be specified within the double quotes if spaces or special characters are used.

Do not use spaces around the `=` (equal sign) in `parameter=value`.

Notes   Issuing the `cfg Advanced` command without options displays all advanced parameters and their current settings.

Examples   The following examples show the `cfg Advanced` command:

```
qcscli -t NDIS -f MAC -i 001018AD45E0 "cfg Advanced"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
...............
Advanced
--------------
Encapsulated Task Offload:          Enabled (Default)
Flow Control:                       Rx & Tx Enabled (Default)
Interrupt Moderation:               Enabled (Default)
Jumbo Packet:                       1514 (Default)
Large Send Offload V2 (IPv4):       Enabled (Default)
Large Send Offload V2 (IPv6):       Enabled (Default)
Locally Administered Address:       Not Present (Default)
Maximum Number of RSS Queues:       4 (Default)
NUMA Node ID:                       0
Priority & VLAN:                    Priority & VLAN enabled (Default)
Quality of Service:                 Enabled (Default)
```

```
Receive Buffers (0=Auto):               0 (Default)
Receive Side Scaling:                   Enabled (Default)
Recv Segment Coalescing (IPv4):         Enabled (Default)
Recv Segment Coalescing (IPv6):         Enabled (Default)
RSS Profile:                            NUMAScalingStatic (Default)
Speed & Duplex:                         10 Gbps Full Duplex (Default)
SR-IOV:                                 Enabled
Starting RSS CPU:                       0 (Default)
TCP/UDP Checksum Offload (IPv4):        Rx & Tx Enabled (Default)
TCP/UDP Checksum Offload (IPv6):        Rx & Tx Enabled (Default)
Transmit Buffers (0=Auto):              0 (Default)
Virtual Machine Queues:                 Enabled (Default)
VLAN ID:                                0 (Default)
```

qcscli -t FCoE -f MAC -i 000e1e5027b3 "cfg Advanced"
```
Advanced
----------------
Fabric disconnect timeout (LDTIMEOUT):              30
Target removal timeout (PDTIMEOUT):                 30
```

qcscli -t FCoE -f MAC -i 000e1e5027b3 "cfg Advanced LDTIMEOUT"
```
Fabric disconnect timeout (LDTIMEOUT)
-------------------------------------------------
Current setting:            30
Valid setting:              5 to 300 seconds
```

qcscli -t FCoE -f MAC -i 000e1e5027b3 "cfg Advanced LDTIMEOUT=25"
```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
You must restart your computer for the new settings to take effect.
```

Configure Advanced FCoE Settings

Configures FCoE settings. This command is only available if the actively selected device is an FCoE device.

Syntax **cfg Advanced**
[[key] | [key=value]]

Keywords **key**

Specifies an FCoE device setting. The key is case insensitive and must be specified within double quotes if it contains any spaces or special characters.

key=value

Specifies an FCoE device key and value. The key and value are case insensitive and must be specified within double quotes if they contain any spaces or special characters. Do not include spaces around the = (equal sign).

Examples The following examples show the `cfg Advanced` command:

```
qcscli -t FCoE -f MAC -i 000e1e5027b3 "cfg Advanced"
Advanced
----------------
Fabric disconnect timeout (LDTIMEOUT): 30
Target removal timeout (PDTIMEOUT): 30


qcscli -t FCoE -f MAC -i 000e1e5027b3 "cfg Advanced LDTIMEOUT"
Fabric disconnect timeout (LDTIMEOUT)
-------------------------------------------------
Current setting: 30
Valid setting: 5 to 300 seconds


qcscli -t FCoE -f MAC -i 000e1e5027b3 "cfg Advanced LDTIMEOUT=25"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10.0
You must restart your computer for the new settings to take effect.
```

Configure Advanced Port Settings

Configures FastLinQ® Smart Auto Negotiation (SmartAN™) settings at the port level. This command is only available if the actively selected device is a physical port device. This feature is available for a selected family of adapters.

SmartAN sets the port link speed to use Smart Auto Negotiation. SmartAN is a default feature in the 41000 Series Adapters that provides the ability to automatically set up a link between a 25G adapter and 10G switch over DAC media without user intervention or manual setup.

Syntax   **cfg Advanced**
　　　　　　[[key] | [key=value]]

Keywords   **key**

Specifies a physical port device setting. The key is case insensitive and must be specified within double quotes if it contains any spaces or special characters.

key=value

Specifies a physical port device key and value. The key and value are case insensitive and must be specified within double quotes if they contain any spaces or special characters. Do not include spaces around the = (equal sign).

Examples   The following example shows the `cfg Advanced` command for port settings:

```
172.28.13.128\devcon\64\port>cfg advanced

Advanced
--------------
FEC An Mode:                          10G_Firecode
NVM Speed:                            AutoNeg (Default)
Smart An Mode:                        0 (Default)
```

Configure iSCSI Boot

Gets and sets iSCSI boot keys for the device. This command is only available if the actively selected device is an NDIS device and the system is on an iSCSI boot using the selected NDIS device.

Syntax   **cfg iSCSIBoot**
    [[key] | [key=value]]

Keywords   **key**

Displays the current setting and all valid settings of the specified key. The `key` is case insensitive and must be specified within double quotes if it contains spaces or special characters.

key=value

Sets the specified value to the specified key. No space is allowed around the = (equals sign) in the `key=value`. Both `key` and `value` are case insensitive and must be specified within double quotes if they contain spaces or special characters. Do not use spaces around the `=` (equal sign) in `key=value`.

CDUMP

Sets the "iSCSI Crash Dump" to a `<value>` of either `Enable` or `Disable`.

Notes   Issuing the `cfg iSCSIBoot` command without options displays all iSCSI boot keys and their current settings.

Examples   The following example shows the `cfg iSCSIBoot` command:

qcscli "cfg iSCSIBoot CDUMP=Enable"

(Command output was not available at the time of publication.)

Configure iSCSI Initiator

Displays the name of the system iSCSI initiator. This command is currently valid only for Windows OS.

Syntax   **cfg iSCSIInitiator**
      [value]

Keywords   **value**

Sets the name of iSCSI Initiator of the system.

Examples   The following example shows the `cfg iSCSIInitiator` command:

```
qcscli "cfg iSCSIInitiator"
iSCSI Initiator Name
---------------------
iSCSI Initiator Name     :  qlogic
```

Configure iSCSI Management

Gets and sets iSCSI management keys for the device if the actively selected device is an iSCSI device and belongs to the Cavium Network Adapter family of devices.

Syntax   **cfg iSCSIMgmt**
      [[key] | [key=value]]

Keywords   Both the key and value are case insensitive and must be specified within double quotes if they contain any spaces or special characters. Do not use spaces around the = (equal sign) in `key=value`.

cfg iSCSIMgmt key

Displays the current setting and all valid settings of the specified key.

cfg iSCSIMgmt key=value

Sets the specified value to the specified key.

IPV4DHCP

Enables DHCP for IPv4. The `<value>` can only be `Enable`. To disable DHCP, use `IPV4ADDR` to set a static IPv4 address; DHCP will be automatically disabled.

IPV4ADDR

Sets the static IPv4 address to the specified `<value>`. Setting the static IPv4 address automatically disables the DHCP of IPv4.

IPV4MASK

Sets the IPv4 subnet mask to the specified `<value>`.

IPV4GATEWAY

Sets the default IPv4 gateway address to the specified `<value>`.

IPV6DHCP

Enables DHCP for IPv6. The `<value>` can only be `Enable`. To disable DHCP, use `IPV6ADDR` to set the static IPv6 address; DHCP will be automatically disabled.

IPV6PRA

Sets the "Process Router Advertisement" to a `<value>` of either `Enable` or `Disable`. The value is set to `Enable` and the key is not configurable when DHCP is enabled.

IPV6ADDR

Sets the static IPv6 address to the specified `<value>`. Setting the static IPv6 address automatically disables the DHCP of IPv4.

IPV6PL

Sets the IPv6 address subnet prefix length to the specified `<value>`.

IPV6DG

Sets the IPv6 default gateway address to the specified `<value>`.

VLANID

Sets the VLAN ID for the iSCSI. The `<value>` is the range of 0–4094.

MTU

Sets the MTU for the iSCSI. The `<value>` is in the range of 1500–9600.

Linux Support for iface

The following keys apply to Linux hosts with support for iface files:

IPV4ADDR

Displays only iface files for IPv4 static configuration.

IPV4DHCP

Displays only iface files for IPv4 dynamic configuration.

IPV6ADDR

Displays only iface files for IPv6 static configuration.

IPV6DHCP

Displays only iface files for IPv6 dynamic configuration.

IPV4INAME

Sets the initiator name for IPv4 static configuration in an iface file.

IPV4VLANID

Sets the VLAN ID for IPv4 static configuration in an iface file. The `<value>` is the range of 0–4094.

IPV4IFNUM

Sets the iface number for IPv4 static configuration in an iface file. The `<value>` is a integer started from 0.

IPV6INAME

Sets the initiator name for IPv6 static configuration in an iface file.

IPV6VLANID

Sets the VLAN ID for IPv6 static configuration in an iface file. The `<value>` is the range of 0–4094.

IPV6IFNUM

Sets the iface number for IPv6 static configuration in an iface file. The `<value>` is a integer started from 0.

DHCP4INAME

Sets the initiator name for IPv4 dynamic configuration in an iface file.

DHCP4VLANID

Sets the VLAN ID for IPv4 dynamic configuration in an iface file. The `<value>` is the range of 0–4094.

DHCP4IFNUM

Sets the iface number for IPv4 dynamic configuration in an iface file. The `<value>` is a integer started from 0.

DHCP6INAME

Sets the initiator name for IPv6 dynamic configuration in an iface file.

DHCP6VLANID

Sets the VLAN ID for IPv6 dynamic configuration in an iface file. The `<value>` is the range of 0–4094.

DHCP6IFNUM

Sets the iface number for IPv6 dynamic configuration in the iface file. The `<value>` is a integer started from 0.

Notes   Issuing the `cfg iSCSIMgmt` command without options displays all iSCSI management keys and their current settings.

When the system is booted up through an iSCSI Host Bus Adapter:

■   With an IPv4 address, the IPv4-related keywords are non-configurable, and not available in this command.

■   With an IPv6 address, the IPv6-related keywords are non-configurable, and not available in this command.

Examples   The following examples show the `cfg iSCSIMgmt` command:

```
qcscli -t iscsi -f MAC -i 000e1e5027b1 "cfg iSCSIMgmt"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
iSCSI Management
----------------
```

```
Vlan ID (VLANID):                               0
Jumbo Mtu (MTU):                             1500
IPv4 Configurations:
IPv4 DHCP (IPV4DHCP):                      Enable
IPv6 Configurations:
IPv6 DHCP (IPV6DHCP):                      Disable
IPv6 Process Router Advertisements (IPV6PRA): Enable
IPv6 Address (IPV6ADDR):
Subnet Prefix Length (IPV6PL):                  0

  IPv6 Default Gateway (IPV6DG):
```

qcscli -t iscsi -f MAC -i 000e1e5027b1 "cfg iSCSIMgmt MTU=9000"

```
QLogic Control Suite Command Line Interface Utility for Windows v30.0.80.0
iSCSI Management
----------------
Vlan ID (VLANID):                               0
Jumbo Mtu (MTU):                             9000
IPv4 Configurations:
IPv4 DHCP (IPV4DHCP):                      Enable
IPv6 Configurations:
IPv6 DHCP (IPV6DHCP):                      Disable
IPv6 Process Router Advertisements (IPV6PRA): Enable
IPv6 Address (IPV6ADDR):
Subnet Prefix Length (IPV6PL):                  0

  IPv6 Default Gateway (IPV6DG):
```

Configure iSCSI Management (on a Linux Host)

This variant of the `cfg iSCSIMgmt` command (see Configure iSCSI Management) is used to manage and edit iface files on a Linux host.

Both key and value (except `<Initiator name>`) are case insensitive and must be specified within the double quotes if they contain any spaces or special characters.

Syntax   **cfg iSCSIMgmt**
  {{-a | -e | -d} <iface file name>}
  [[-dhcp4 | -dhcp6] | [{-ipv4 | -ipv6} <IP address>]]
  [-m <Subnet mask>]
  [-p <Subnet Prefix Length>]
  [-i <Initiator name>]
  [-v <VLAN ID>]
  [-n <iface NUM>]]
  [-mtu < iface MTU>]

Keywords   **-a <iface file name>**
Adds a new iface file.

-e <iface file name>
Edits an existing iface file.

-d <iface file name>
Deletes an existing iface file.

The `add` and `edit` commands have the following options:

-dhcp4
Enables DHCP for IPv4 configuration.

-dhcp6
Enables DHCP for IPv6 configuration.

-ipv4
Sets or modifies the IPv4 address.

-ipv6
Sets or modifies the IPv6 address.

-m
Sets or modifies the subnet mask for IPv4 configuration.

-p

Sets or modifies the subnet prefix length for IPv6 configuration.

-i

Sets or modifies the initiator name.

-v

Sets or modifies the VLAN ID in an iface file. The `<VLAN ID>` is the range of 0–4094.

-n

Sets or modifies the iface number in an iface file. The `<iface number>` is a integer started from 0.

-mtu

Sets or modifies the MTU for the iface file; the range is 1500–9600.

Examples   The following examples show the `cfg iSCSIMgmt` command:

qcscli "cfg iSCSIMgmt -a new_dhcp_ipv4 -dhcp"
qcscli "cfg iSCSIMgmt -d bnx2i.00:10:18:a7:1b:11_2001::3742"
qcscli "cfg iSCSIMgmt -e dhcpv6 -v 10 -n 55"

(Command output was not available at the time of publication.)

Configure iSCSI Secret

Sets the CHAP secret of the system iSCSI initiator.

Syntax   **cfg iSCSISecret**
        <value>

Keywords **value**
Specifies the CHAP secret.

Examples The following example shows the `cfg iSCSISecret` command:

qcscli "cfg iSCSISecret *xxxxxxxxxx***"**

(Command output was not available at the time of publication.)

Configure Licenses

Displays all license parameters and their current settings. This command is only available if the actively selected device is a virtual block device (VBD) and belongs to the Cavium Network Adapter family of devices.

Syntax   **cfg Licenses**

Keywords   None

Examples   The following example shows the `cfg Licenses` command:

```
qcscli -r 172.28.62.78 -u winuser1\Administrator  -p abc@USA -t VBD -f mac -I
00101896DC9C "cfg Licenses"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
...........
Licenses
--------
TCP Offload Engine(TOE):                    Maximum Connections
iSCSI Offload Engine:                       Maximum Connections
FCoE Offload Engine:                        Maximum Connections
```

Configure Multifunction

Configures a physical adapter with NIC partition settings.

Syntax   **cfg Multi-Function**
["Multi-Function mode" | -s <filename> | -c <filename> | -p port# [-f function#]
key]

Keywords   **-s**

Saves the current configuration to the specified XML file.

-c

Configures the NIC settings from the specified XML file.

See Appendix B Configuration File Examples for an example of the multifunction
(NPAR) and single function (SF) mode XML files, which you can edit and use the
files to change the configuration of an adapter. Changes to maximum bandwidth
and relative bandwidth weight (of an adapter in NPAR mode) can be applied while
traffic is running (you need not reboot). All other changes require a system reboot.

-p

Specifies the port number.

-f

Specifies the function number. The default function number is the first function of
the specified port. For example, the `cfg multi-function -p 0 -f 2`
`\"FCoE\"` command displays port0 function2 FCoE configuration.

key

Specifies the key type used in the XML file, see the example page 53. All keys are
case insensitive. Valid keys include:

Multi-Function mode

Specifies the multifunction mode key; the `-p` and `-f` options are not
required.

FlowControl

Specifies the flow control key.

Ethernet/Ndis

Specifies the Ethernet or NDIS key.

iSCSI

Specifies the iSCSI key.

FCoE

Specifies the FCoE key.

MaxBandwidth

Specifies the maximum bandwidth key.

RelativeBandwidth

Specifies the relative bandwidth key.

AFEX VIF Profile

Specifies the AFEX VIF profile key.

AFEX VIF Profile List

Specifies the AFEX VIF profile list key; the `-f` option is not required

Notes   To display the current configuration, issue the `cfg multi-function` command without options.

Examples   The following examples show the `cfg multi-function` command.

To view the adapter's current multifunction mode, issue the following command:

```
qcscli -r 172.28.63.183 -u winuser1\Administrator -p abc@USA -t phyadapters -f
BDF -i 42:00 "cfg multi-function"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
Adapter is in Single-Function mode.
```

To write multifunction settings from a saved XML file back to the adapter, issue the following command:

```
qcscli -r  172.28.63.183 -u winuser1\Administrator  -p abc@USA -t phyadapters
-f BDF -i 42:00 "cfg multi-function -c MF.xml"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
You have to reboot the system for the settings to take effect.
```

To save the adapter's current multifunction settings to an editable XML file, issue the following command:

```
qcscli -r  172.28.63.183 -u winuser1\Administrator  -p abc@USA -t phyadapters
-f BDF -i 42:00 "cfg multi-function -s MF1.xml"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
Please wait while configurations are being saved...
```

To view a quad-port 10GbE 57840 adapter in NPAR mode, issue the following command, which shows a switch-independent NIC partitioning (NPAR) or Multi-Function configuration XML file:

```
qcscli -r  172.28.63.183 -u winuser1\Administrator  -p abc@USA -t phyadapters
-f BDF -i 42:00 "cfg multi-function"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
Multi-Function Info
-----------------------------------
Multi-Function mode              Multi-Function
Port 0
  Flow Control                   Rx & Tx Enabled
  Function                       0
  Ethernet/Ndis                  Enable
  iSCSI                          Disable
  FCoE                           Enable
  Relative Bandwidth Weight (%)  0
  Maximum Bandwidth (%)          10
  Function                       4
  Ethernet/Ndis                  Enable
  iSCSI                          Enable
  FCoE                           Disable
  Relative Bandwidth Weight (%)  0
  Maximum Bandwidth (%)          20
Port 1
  Flow Control                   Tx Enabled
  Function                       1
  Ethernet/Ndis                  Enable
  iSCSI                          Enable
  FCoE                           Disable
  Relative Bandwidth Weight (%)  0
  Maximum Bandwidth (%)          30
  Function                       5
  Ethernet/Ndis                  Enable
  iSCSI                          Disable
  FCoE                           Enable
  Relative Bandwidth Weight (%)  0
  Maximum Bandwidth (%)          40
Port 2
  Flow Control                   Rx Enabled
  Function                       2
```

```
Ethernet/Ndis                    Enable
iSCSI                            Disable
FCoE                             Enable
Relative Bandwidth Weight (%)    0
Maximum Bandwidth (%)            40
Function                         6
Ethernet/Ndis                    Enable
iSCSI                            Enable
FCoE                             Disable
Relative Bandwidth Weight (%)    0
Maximum Bandwidth (%)            10
Port 3
Flow Control                     Auto
Function                         3
Ethernet/Ndis                    Enable
iSCSI                            Enable
FCoE                             Disable
Relative Bandwidth Weight (%)    0
Maximum Bandwidth (%)            10
Function                         7
Ethernet/Ndis                    Enable
iSCSI                            Disable
FCoE                             Enable
Relative Bandwidth Weight (%)    0
Maximum Bandwidth (%)            20
```

To configure RoCE and iWARP on 41000 and 45000 Series Adapters, issue the following command. For an example of the XML file, see "RoCE and iWARP Configuration (Windows and Linux)" on page 170:

qcscli -r 172.28.63.183 -u winuser1\Administrator -p abc@USA -t phyadapters -f BDF -i 42:00 "cfg multi-function"

```
Multi-Function Info
-----------------------------------
Multi-Function mode              Multi-Function

EP Mode                          Enabled

Port 0
  Flow Control                     Auto
  Function                         0
```

```
Ethernet/Ndis                       Enable
RoCE                                Disable
iWARP                               Disable
Relative Bandwidth Weight (%)       0
Maximum Bandwidth (%)               100
Function                            2
Ethernet/Ndis                       Disable
RoCE                                Disable
iWARP                               Disable
FCoE                                Enable
Relative Bandwidth Weight (%)       0
Maximum Bandwidth (%)               100
Function                            4
Ethernet/Ndis                       Enable
RoCE                                Disable
iWARP                               Disable
iSCSI                               Disable
Relative Bandwidth Weight (%)       0
Maximum Bandwidth (%)               100
Function                            6
Ethernet/Ndis                       Enable
RoCE                                Disable
iWARP                               Disable
Relative Bandwidth Weight (%)       0
Maximum Bandwidth (%)               100
Function                            8
Ethernet/Ndis                       Enable
RoCE                                Disable
iWARP                               Disable
Relative Bandwidth Weight (%)       0
Maximum Bandwidth (%)               100
Function                            10
Ethernet/Ndis                       Enable
RoCE                                Disable
iWARP                               Disable
Relative Bandwidth Weight (%)       0
Maximum Bandwidth (%)               100
Function                            14
Ethernet/Ndis                       Enable
```

```
    RoCE                                  Disable
    iWARP                                 Disable
    Relative Bandwidth Weight (%)         0
    Maximum Bandwidth (%)                 100
Port 1
    Flow Control                          Auto
    Function                              1
    Ethernet/Ndis                         Enable
    RoCE                                  Enable
    iWARP                                 Disable
    Relative Bandwidth Weight (%)         0
    Maximum Bandwidth (%)                 100
    Function                              3
    Ethernet/Ndis                         Disable
    RoCE                                  Disable
    iWARP                                 Disable
    FCoE                                  Enable
    Relative Bandwidth Weight (%)         0
    Maximum Bandwidth (%)                 100
    Function                              5
    Ethernet/Ndis                         Enable
    RoCE                                  Enable
    iWARP                                 Disable
    iSCSI                                 Disable
    Relative Bandwidth Weight (%)         0
    Maximum Bandwidth (%)                 100
    Function                              7
    Ethernet/Ndis                         Enable
    RoCE                                  Enable
    iWARP                                 Disable
    Relative Bandwidth Weight (%)         0
    Maximum Bandwidth (%)                 100
    Function                              9
    Ethernet/Ndis                         Enable
    RoCE                                  Disable
    iWARP                                 Disable
    Relative Bandwidth Weight (%)         0
    Maximum Bandwidth (%)                 100
    Function                              13
```

```
Ethernet/Ndis                     Enable
RoCE                              Disable
iWARP                             Disable
Relative Bandwidth Weight (%)     0
Maximum Bandwidth (%)             100
Function                          15
Ethernet/Ndis                     Enable
RoCE                              Disable
iWARP                             Disable
Relative Bandwidth Weight (%)     0
Maximum Bandwidth (%)             100
```

Configure Resource

Gets and sets resource keys for the device, if the actively selected device is a VBD and belongs to the Cavium Network Adapter family of devices. This command is currently valid only for Windows OS.

Syntax   **cfg Resource**

[[key] | [key=value]]

Keywords   Both the key and value are case insensitive and must be specified within the double quotes if they contain any spaces or special characters. Do not use spaces around the `=` (equal sign) in `key=value`.

CONFIGURABLE

Displays all the configurable resource reservation parameters with their current setting and valid settings. It does not require any `<rsc_value>`.

CONFIG

Sets the "Offload Configuration" to either "First Come First Served" or "Reserved Resources". It requires the `<value>` of either `FCFS` or `RSVD`.

NDIS

Sets the "Pre-Allocated Resources for NDIS" for the NDIS Ethernet instance on the physical function to enabled or disabled. It requires a `<value>` of either `Enable` or `Disable`.

TOE

Sets the "Pre-Allocated Resources for TOE" to enabled or disabled. It requires a `<value>` of either `Enable` or `Disable`.

iSCSI

Sets the "Pre-Allocated Resources for iSCSI" for the iSCSI-Offload instance on the physical function to enabled or disabled. It requires a `<value>` of either `Enable` or `Disable`.

FCOE

Sets the "Pre-Allocated Resources for FCOE" for the FCoE-Offload instance on the physical function to enabled or disabled. It requires a `<value>` of either `Enable` or `Disable`.

TOECONN

Sets the "TOE Connections" to the number allowed in the range displayed in the `cfg Resource CONFIGURABLE` command. It requires a numeric `<value>`.

iSCSICONN

Sets the "iSCSI Connections" to the number allowed in the range displayed in the `cfg Resource CONFIGURABLE` command. It requires a numeric `<value>`.

iSCSIPT

Sets the "iSCSI Pending Task per Connection" to valid numbers specified in the `cfg Resource CONFIGURABLE` command. It requires a numeric `<value>`.

TOEPROTOCOL

Sets the "TOE Protocol Type" to the valid settings specified in the `cfg Resource CONFIGURABLE` command. It requires a `<value>` of either `IPv4` or `IPv6`.

iSCSIPROTOCOL

Sets the "iSCSI Protocol Type" to the valid settings specified in the `cfg Resource CONFIGURABLE` command. It requires a `<value>` of either `IPv4` or `IPv6`.

MEMCONSUMPTION

Sets the "iSCSI Memory Consumption" to the valid settings specified in the `cfg Resource CONFIGURABLE` command. This keyword applies only to 5771*x* and 578*xx* adapters. It requires the `<value>` to be a percentage from 25 percent to 100 percent, with increments of 25 percent.

TOERSS

Sets the "TOE RSS" to either `Enable` or `Disable`. This keyword applies only to 5771*x* and 578*xx* adapters. It requires a `<value>` that can be either `Enable` or `Disable`.

Notes Issuing the `cfg Resource` command without options displays all resource reservation keys and their current settings.

Examples The following examples show the `cfg Resource` command.

To view the currently enabled protocols (TOE, NDIS L2 Ethernet, iSCSI offload and FCoE offload) of a port (in Single Function mode) and other port settings, issue the following command. Note that TOE is not supported on the 3400/8400/41000/45000 Series Adapters. In addition, NPAR FCoE and iSCSI offload is controlled by the NPAR XML file settings (see "NIC Partition Configuration XML Files" on page 165).

```
qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
.........................................................
Resource Reservations
```

```
---------------------
Pre-Allocated Resources:              NDIS
                                      iSCSI Offload Engine
                                      FCoE

Max TOE Connections:                  0
Max iSCSI Offload Engine Conn:        64
Pending Tasks Per Connection:         512
Memory Consumption(%):                100
TOE RSS:                              Disabled
```

To view the currently enabled protocols in Single Function mode port settings, issue the following command, which is similar to the Configure Multifunction command.

qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource Configurable"

```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
.............
Resource Reservations
---------------------
Pre-Allocated Resources (NDIS, TOE, ISCSI, FCOE)
---------------------------------------------------
Current setting:
NDIS:                                 Enable
TOE:                                  Disable
ISCSI:                                Enable
FCoE:                                 Enable
Valid setting:                        Disable or Enable

TOE Connections (TOECONN)
---------------------------------------------------
Current setting:                      0
Valid settings:                       Parameter is Read Only

TOE RSS (TOERSS)
---------------------------------------------------
Current setting:                      Disable
Valid settings:                       Parameter is Read Only

iSCSI Connections (ISCSICONN)
---------------------------------------------------
Current setting:                      64
```

```
Valid settings:                         from 1 to 128

Pending Tasks Per Connection (ISCSIPT)
------------------------------------------------------
Current setting:                        512
Valid settings:                         Parameter is Read Only

Memory Consumption(%) (MEMCONSUMPTION)
------------------------------------------------------
Current setting:                        100
Valid settings:                         25, 50, 75, or 100
```

The following command is similar to the Configure Multifunction command.

qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource"

```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
.........................................................
Resource Reservations
---------------------
Pre-Allocated Resources:                NDIS
                                        TCP Offload Engine(TOE)
                                        iSCSI Offload Engine
                                        FCoE

Max TOE Connections:                    8192
Max iSCSI Offload Engine Conn:          64
Pending Tasks Per Connection:           512
Memory Consumption(%):                  75
TOE RSS:                                Disabled
```

To enable FCoE offload on the selected (through it's MAC address) Single Function mode port, issue the following command:

qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource \"fcoe\"=\"enable\""

To enable iSCSI offload on the selected (through it's MAC address) Single Function mode port, issue the following command:

qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource \"iscsi\"=\"enable\""

To enable TOE on the selected (through it's MAC address) Single Function mode port, issue the following command:

qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource \"toe\"=\"enable\""

Note that TOE is not supported on the 3400/8400/41000/45000 Series Adapters.

To enable TOE RSS on the selected (through it's MAC address) Single Function mode port, issue the following command:

```
qcscli -t VBD -f MAC -i 001018AD45E0 "cfg Resource \"toerss\"=\"enable\""
```

Note that TOE is not supported on the 3400/8400/41000/45000 Series Adapters, and TOE must be enabled before enabling TOE RSS.

Configure SR-IOV

Configures and displays physical adapter single root input/output virtualization (SR-IOV) settings. The parameters shown in the Keywords section are used in the SR-IOV configuration XML file (see "SR-IOV Configuration XML Files" on page 172).

Syntax

cfg SRIOV
> -s <filename>
> -c <filename>

Keywords

-s

Saves the current configuration to an XML file.

-c

Configures the SR-IOV settings from the specified XML file.

Valid keys include the following:

> *FlowControl*
>
> *Ethernet/Ndis*
>
> *iSCSI*
>
> *FCoE*
>
> *MaxBandwidth*
>
> *RelativeBandwidth*
>
> *AFEX VIF Profile*
>
> *AFEX VIF Profile List, -f option not required*

Notes

Issue the `cfg SRIOV` command without keywords to display the current configuration.

All keys and operands are case insensitive. `Multi-Function mode`, `-p`, and `-f` options are not required.

Examples

The following example shows the `cfg SRIOV` command:

```
qcscli -t phyadapters -f BDF -i 04:00 "cfg SRIOV"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
..............
SRIOV Configurations
------------------------------------
```

```
SRIOV                           Enabled

Port 0
SRIOV VFs per PF                32

Port 1
SRIOV VFs per PF                32

Port 2
SRIOV VFs per PF                0
SRIOV Max Chains per VF         16

Port 3
SRIOV VFs per PF                0
```

Configure System TOE

Enables or disables TCP offload engine (TOE) in Chimney for the system. For the Windows 7 kernel and later, you can also set TOE to automatic. This command is only available to the system target and is valid only for Windows OS.

Syntax   **cfg Systoe**
     [value]

Keywords   **value**

Enables or disables TOE in Chimney for the system. For Windows 7, quotes are optional; also sets TOE to automatic.

Notes   To display the current TOE Chimney state, issue the `cfg Systoe` command without options.

Examples   The following example shows the `cfg Systoe` command:

```
qcscli "cfg Systoe"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
..........................
System TOE Settings
---------------------
Chimney Offload State    : Enabled
```

Create Multiple NPIV Ports

Creates multiple NPIV ports at the same time. This command is available in the context of an FCoE Host Bus Adapter.

Syntax **createmultinpivport**
>   {{-s <x:xx>}
>   {-e <x:xx>}
>   {-n <num>}}

Keywords **-s**

Specifies the starting name range, where only three digits(1–3) are allowed to change; for example: `2x:xx:00:10:18:aa::bb::cc`. The other digits are from the current WWPN or WWNN.

-e

Specifies the ending name range, where only three digits(1–3) are allowed to change; for example: `2x:xx:00:10:18:aa::bb::cc`. The other digits are from the current WWPN or WWNN.

-n

Specifies the quantity of NPIV ports to be created.

Examples The following example shows the `createmultinpivport` command:

```
qcscli -t FCoE -f MAC -i 000e1e5027b3 "createmultinpivport -s 1:11
-e 9:99 -n 9"
:Creating NPIV ports
------------------
21:11:00:0e:1e:50:27:b3          : Succeed
21:12:00:0e:1e:50:27:b3          : Succeed
21:13:00:0e:1e:50:27:b3          : Succeed
21:14:00:0e:1e:50:27:b3          : Succeed
21:15:00:0e:1e:50:27:b3          : Succeed
21:16:00:0e:1e:50:27:b3          : Succeed
21:17:00:0e:1e:50:27:b3          : Succeed
21:18:00:0e:1e:50:27:b3          : Succeed
21:19:00:0e:1e:50:27:b3          : Succeed
Result: 9 NPIV port(s) created.
```

Create NPIV Port

Creates an NPIV port. This command is available when an FCoE Host Bus Adapter is selected.

Syntax
createnpivport
{{-s <x:xx>} | {-p <WWPN>}}

Keywords
-s

Specifies the save mode, where only three digits(1–3) are allowed to change; for example: `2x:xx:00:10:18:aa::bb::cc`. Other digits are from the current WWPN or WWNN.

-p

(Windows only) Specifies an expert mode in which a complete WWPN value can be passed. For example: `21:34:00:10:18:aa::bb::cc`.

Examples
The following example shows the `createnpivport` command:

```
qcscli -t FCoE -f MAC -i 000e1e5027b3 "createmultinpivport -s 1:11
-e 9:99 -n 9"
:Creating NPIV ports
-------------------
21:11:00:0e:1e:50:27:b3          : Succeed
21:12:00:0e:1e:50:27:b3          : Succeed
21:13:00:0e:1e:50:27:b3          : Succeed
21:14:00:0e:1e:50:27:b3          : Succeed
21:15:00:0e:1e:50:27:b3          : Succeed
21:16:00:0e:1e:50:27:b3          : Succeed
21:17:00:0e:1e:50:27:b3          : Succeed
21:18:00:0e:1e:50:27:b3          : Succeed
21:19:00:0e:1e:50:27:b3          : Succeed
Result: 9 NPIV port(s) created.
```

Diagnostics

Configures the parameters of a diagnostic test and runs the test. If no options are specified, displays all the tests available for the currently selected target. This command is available on Cavium 3400/8400/41000/45000 Series Adapters and adapters based on 57*xx*/57*xxx* controllers physical port devices.

Syntax   **diag**
{[-c REG] [-c MII] [-c EEP] [-c MEM] [-c CPU] [-c INT] [-c MACLB] [-c PHYLB]
[-c LED] | [-c ALL]}
[-l <cnt>]
[-v <LEDIntv>]

Keywords   **-c**

Specifies the individual test type to run, including:

REG

Runs the Control Register test.

MII

Runs the MII Register test.

EEP

Runs the EEPROM test.

MEM

Runs the Internal Memory test.

CPU

Runs the On-Chip CPU test.

INT

Runs the Interrupt test.

MACLB

Runs the MAC Loopback test.

PHYLB

Runs the PHY Loopback test.

LED

Runs the LED test with the `LEDIntv` value.

ALL

Runs all of the preceding tests.

-l

Specifies the iteration. If not specified, the test uses the default iteration of 1.

-v

Specifies the LED interval. If not specified, the test uses the default LED interval of 5.

Notes　　　To stop a running test, press the CTRL+BREAK keys.

Examples　　The following examples show the `diag` command:

```
qcscli -t phyports -f BDF -i 04:00.00 "diag -c all -l 10 -v 5"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
.........................................................
...................................................................
Test                Pass/Fail    Result
---------------------------------------------------------
Control Registers   10  /0       Pass
EEPROM              10  /0       Pass
Internal Memory     10  /0       Pass
On Chip CPU         10  /0       Pass
Interrupt           10  /0       Pass
Loopback MAC        10  /0       Pass
Loopback PHY        10  /0       Pass
LED                 10  /0       Pass


qcscli -t phyports -f BDF -i 04:00.00 "diag -c CPU -c LED -v 5"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
.............................................................
..............................
Test                Pass/Fail    Result
---------------------------------------------------------
On Chip CPU         1   /0       Pass
LED                 1   /0       Pass
```

Discover Host

Discovers hosts from the specified IP range and adds them to the managed host list.

Syntax   **discoverhost**
>   -s <start IP address>
>   -e <end IP address>
>   -p <password>
>   [-protocol <rpc | local>]
>   [-persist]

Keywords   **-s**

Specifies the starting IP address of the searching range.

-e

Specifies the ending IP address of the searching range.

-p

Specifies the password.

-protocol

Specifies one of the following connection protocols:

>   *rpc*
>
>   Uses a remote procedure call protocol to connect to QLogic Control Suite.
>
>   *local*
>
>   Uses the local protocol to connect to QLogic Control Suite on the local system. The `local` option does not require an agent.

-persist

Specifies that the host information is saved to the persistent hosts in the saved file when you close QCS CLI by issuing the `q` command. All host files are automatically connected when you restart QCS CLI.

Notes   To stop discovering hosts, press the CTRL+BREAK keys.

Examples   The following example shows the `discoverhost` command:

```
QCScli.exe "discoverhost -s 175.28.63.12 -e 175.28.63.13 -u Administrator -p
Qlogic01"
QLogic Control Suite Command Line Interface Utility for Windows v30.0.14.0
..........................................
```

Please add a host that you want to manage.

```
C    Status       Name                 OS                        Platform
-    -----------  -------------------  ------------------------  -------------
0    connected    DL380G7-3809         Windows Server 2012       64 bit (x64)
1    connected    720-4883-10022       N/A                       64 bit (x64)
DL380G7-3809\host\0>
```

Fallback

Falls back to primary adapters from standby. This command is only applicable for SLF-AFD team type and in the `teamview` view listing.

This command is valid only for Windows OS, but is not supported on Windows Server 2012 R2.

Syntax   **fallback**

Keywords   None.

Examples   The following example shows the `fallback` command:

```
qcscli -t TEAM "fallback"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0

..........................................
```

(Command output was not available at the time of publication.)

Help

Lists available commands.

Syntax   **help**

Keywords None

Examples The following example shows the `help` command.

qcscli help
```
Following is the list of available commands.
For detailed information of each command, please type 'command ?'
All commands are case insensitive.

q            : quit the program
log          : log all command input and output to a file
version      : display version of this program
list         : list target items in different views
select       : select a target item from the list of available targets
showsel      : show the selected target item
help         : list of available commands
addhost      : add a host to managed host list
removehost   : remove a host from managed host list
removeallhosts: remove all hosts from managed host list
discoverhost: discover hosts from a range of IP address and add them to host
list
info         : display host information
help         : display help for host context
refresh      : refresh the specified system for hardware/configuration changes
refreshall   : refresh all systems for hardware/configuration changes
cfg          : configure the host
adddiscoveryportal: add discovery portal to the host
removediscoveryportal: remove discovery portal from the host
refreshdiscoveryportal: refresh discovery portal on the host
listdiscoveryportals: list discovery portal on the host
addisnsserver: add iSNS server address to the host
removeisnsserver: remove iSNS server address from the host
refreshisnsserver: refresh iSNS server address on the host
listisnsservers: list iSNS server address on the host
addtarget    : add static target to the host system
removetarget: remove static target from host system
removepersistenttarget: remove persistency for the target
```

```
login       : establishes a login session to the target
logout      : close the indicated login session
```

Information (Adapter)

Displays adapter information for the selected NIC. This command is available if the actively selected device is an NDIS device.

Syntax   **info**

      [all | vitalsigns | driver | eee | hardware | resource | os | initiator | dcbx | nicpartition | system | hwinventory | swinventory | switch | vf]

      [-a]

Keywords   Available information display options include:

all

Displays information for all categories.

vitalsigns

Displays vital signs information.

driver

Displays driver information.

eee

Displays EEE information.

hardware

Displays hardware information.

resource

Displays resource information.

os

Displays host OS information.

initiator

Displays iSCSI initiator information.

dcbx

Display DCBX information.

nicpartition

Displays NIC partition information.

-a

Displays more DCBX advanced information for a physical port device; this option applies only if the `all` or `dcbx` value is specified.

Examples   The following examples show the `info` command:

```
QCScli.exe "info hardware"
QLogic Control Suite Command Line Interface Utility for Windows
v30.0.14.0

...

Host Information
-----------
Host Name:          R720-E3E4
OS Version Info:    Windows Server 2012 R2
Platform:           64 bit (x64)
Connection Details:
    Protocol        Local
    IP              localhost
QLASP Driver:       Installed

iSCSI Initiator
-----------
Name:

Portal List
    Portal 192.168.86.235
    Portal fe80::210:18ff:fee3:a5c1


qcscli -t VBD "info"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.0.0
..
Driver Information
-----------
Driver Version:         : 7.12.1.0
Driver Date:            : 11/5/2014
Driver Name:            : evbda.sys
Driver Status:          : Loaded

Vital Signs
-----------
Link Speed(in Mbps)     : 10000
Ndis MAC Address        : 00101896DC9C
iSCSI MAC Address       : 00101896DC9D
FCoE MAC Address        : 00101896DC9D
```

```
FCoE Node WWN              : 10:00:00:10:18:96:dc:9d
FCoE Port WWN              : 20:00:00:10:18:96:dc:9d

SRIOV Switch Information
-----------
Number of HW Available VFs : 0
  Number of Available VFs : 0
    Max VF Chains Per VFs : 0
       VF Chains Pool Size : 0
      Switch Friendly Name :

SRIOV VF Information
-----------
No hardware is available for SRIOV.
```

qcscli -t NDIS "info"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.0.0
..
Vital Signs
-----------
NDIS MAC Address           : 00101896DC9C
Permanent MAC Address      : 00101896DC9C
IPV4 Address               : 152.30.4.173
IPV6 Address               : 3001:3001:3001:3001:e129:df2b:a5b3:2fb6
Offload Capabilities       : TOE,LSO,CO,RSS
MTU                        : 1500
Flow Control               : Rx Enabled

Driver Information
-----------
Driver Version:            : 7.12.1.0
Driver Date:               : 11/5/2014
Driver Name:               : bxnd60a.sys
Driver Status:             : Loaded
```

qcscli -t iSCSI "info"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.0.0
..
Vital Signs
```

```
-----------
iSCSI MAC Address:          : 00101896DC9D

*** IPv4 Configuration  152.30.4.197 ***
IPv4 DHCP                 : Enable
IPv4 Address              : 152.30.4.197
IPv4 Subnet Mask          : 255.255.0.0
IPv4 Default Gateway      :

*** IPv6 Configuration  fe80::210:18ff:fe96:dc9d ***
IPv6 DHCP                 : Disable
IPv6 Address              : fe80::210:18ff:fe96:dc9d
IPv6 Scope Id             : 2
IPv6 Flow Info            : 0
IPv6 Default Gateway      :

Driver Information
-----------
Driver Name:              : bxois.sys
Driver Status:            : Loaded
Driver Version:           : 7.12.0.0
Driver Date:              : 11/11/2014

Driver Parameters
-----------
Initial R2T               : yes
Immediate Data            : yes
Data Sequence in Order    : yes
Data PDU in Order         : yes
Max Outstanding R2T       : 1
First Data Burst Length   : 65536
Max Data Burst Length     : 262144
Error Recovery Level      : 0
Default Time to Wait      : 2
Default Time to Retain    : 20
Max Connections           : 1
     Portal 152.30.4.197
     Portal fe80::210:18ff:fe96:dc9d
```

```
qcscli -t devcon -f BDF -i 05:00 "info"
QLogic Control Suite Command Line Interface Utility for Windows
v30.0.54.0
................
Resource
------------
Bus Type                      PCI-E (8x)
Slot Number                   5

Hardware
------------
ASIC Version                  xxxxxxxxxx
Bootcode Version              8.18.2.0
PXE Boot Version              PCI30 MBA 2.0.5;EFIx64 2.1.0.1

Vendor Product Description    :
MN                            : 1028
Product Number                : QLE3442-CU
Product Name                  : QLogic QLE3442 Adapter
Serial Number                 : AFE1645F13737
V0                            : FFv8.14.11
V1                            : DSV1028vPDF.VER2.1
V2                            : NPY2
V3                            : PMTD
V4                            : NMVQLogic
V5                            : DTINIC
V6                            : DCM1001FFFFFF1202FFFFFF1403...
Temperature in Celsius        : 31
```

Information (Team)

Displays adapter information for the team selected in the `teamview` view.

Syntax   **info**

    [all | members | livelink | general]

Keywords **all**

Displays all the information for the selected team.

members

Displays member devices for the selected team.

livelink

Displays LiveLink™ information for the selected team.

general

Displays general information for the selected team.

Examples The following example shows the `info` command for viewing team information.

```
qcscli -t TEAM "info"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
..............
Team Information
-----------
Team Name               : Team 1
Team Type               : Smart Load Balancing(TM) and Failover
Team Offload Capabilities : LSO, CO, RSS
Team MTU                : 1500
Driver Name             : QLasp.sys
Driver Version          : 2.0.2
Driver Date             : 12/3/2014
```

List (Targets)

Lists the target items in different views. This command is available in all views.

Syntax   **list**
      [-f MAC | BDF]
      [-b]
      [-r]
      [-h <host>]
      [<view>]

Keywords   **-f**

Identifies the device. If the `-f` option is not specified, the default behavior is to identify devices using the MAC address.Values include:

MAC

Identifies devices using the MAC address. The MAC option is not appropriate for host, physical adapter, and physical port devices because a single MAC address does not apply to them.

BDF

Identifies devices using the bus, device, or function (BDF) numbers, which are in hexadecimal format.

-b

Lists team names for the selected device. This option is useful only in the `teamview` and is valid only for Windows OS. If specified, the view lists only the team names for the selected device. If not specified, the default behavior is to list teams and the (physical and virtual) members that constitute the team.

-h

Lists targets corresponding to the specified host in the view. This option is useful in most of the commands.

-r

Forces the host to reconnect. This option valid only when the `-h` option is used. This option is useful when you want to reconnect to a host that has recovered from a reboot or link-down.

view

Specifies the view. Available views are defined as follows:

devcon

Lists devices by connection.

teamview

Lists teams and the devices that participate in a team.

ndis

Lists NDIS devices.

vbd

Lists VBD devices.

iscsi

Lists iSCSI devices.

fcoe

Lists FCoE devices.

iscsitargets

Lists iSCSI targets.

fcoetargets

Lists FCoE targets.

phyadapters

Lists physical adapters on the system.

phyports

Lists physical ports on the system.

hosts

Lists the connected hosts.

luns

Lists the LUNs.

vnic

Lists virtual adapters in the system.

iscsiportal

Lists iSCSI portal devices.

fcport

Lists Fibre Channel port devices.

Notes   To stop the list target operation, press the CTRL+BREAK keys.

Examples The following example shows the `list` command:

```
qcscli "list -f MAC devcon"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.0.0
..
C   ID           DevType Name
-   ------------ ------- -----------------------------------------------------
    DL380G7-3809 Host    DL380G7-3809
0   0b:00        Adapter Adapter1 : BCM57810 B0
1   0b:00.00     Port    -Port0
2   00101896DC9C VBD     --[0063] QLogic BCM57810 10 Gigabit Ethernet #63
3   00101896DC9C NDIS    ---[0020] QLogic BCM57810 10 Gigabit Ethernet (NDIS
VBD Client) #63
4   00101896DC9D FCoE    ---[0004] QLogic BCM57810 10 Gigabit Ethernet FCoE
Adapter #63
5   00101896DC9D iSCSI   ---[0003] QLogic BCM57810 10 GigE iSCSI Adapter #63
6                iSCSI.P ----Portal 152.30.4.197
7                iSCSI.P ----Portal fe80::210:18ff:fe96:dc9d
8   0b:00.01     Port    -Port1
9   00101896DC9E VBD     --[0064] QLogic BCM57810 10 Gigabit Ethernet #64
10  00101896DC9E NDIS    ---[0021] QLogic BCM57810 10 Gigabit Ethernet (NDIS
VBD Client) #64
11  00101896DC9F FCoE    ---[0006] QLogic BCM57810 10 Gigabit Ethernet FCoE
Adapter #64
12  00101896DC9F iSCSI   ---[0005] QLogic BCM57810 10 GigE iSCSI Adapter #64
13               iSCSI.P ----Portal 152.30.4.199
14               iSCSI.P ----Portal fe80::210:18ff:fe96:dc9f
15  03:00        Adapter Adapter2 : BCM5709 C0
16  03:00.00     Port    -Port0
17  78E7D1931690 VBD     --[0051] QLogic BCM5709C Gigabit Ethernet #51
18  78E7D1931690 NDIS    ---[0010] QLogic BCM5709C Gigabit Ethernet (NDIS VBD
Client) #51
19  03:00.01     Port    -Port1
20  78E7D1931692 VBD     --[0052] QLogic BCM5709C Gigabit Ethernet #52
21               NDIS    ---[0013] QLogic BCM5709C Gigabit Ethernet (NDIS VBD
Client) #52
22  04:00        Adapter Adapter3 : BCM5709 C0
23  04:00.00     Port    -Port0
24  78E7D1931694 VBD     --[0053] QLogic BCM5709C Gigabit Ethernet #53
25               NDIS    ---[0012] QLogic BCM5709C Gigabit Ethernet (NDIS VBD
Client) #53
26  04:00.01     Port    -Port1
```

```
27  78E7D1931696 VBD    --[0054] QLogic BCM5709C Gigabit Ethernet #54
28  78E7D1931696 NDIS   ---[0011] QLogic BCM5709C Gigabit Ethernet (NDIS VBD
Client) #54
```

List Discovery Portals

Displays the list of persisted target portals that the iSCSI initiator service will use for discovery for the specified host. This command is available in the context of a host.

Syntax   **listdiscoveryportals**

        {-h <host>}

Keywords   **-h**

Specifies the host.

Examples   The following example shows the `listdiscoveryportals` command:

```
qcscli "listdiscoveryportals -h 172.28.40.40"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10.0.
C   MAC          Address                        Port
-   ------------ ------------------------------ ------
0   000E1E5027B3 172.16.249.230                 3260
```

List iSNS Servers

Lists iSNS servers. This command is available in the context of a host.

Syntax   **listisnsservers**

Keywords None

Examples The following example shows the `listisnsservers` command:

```
qcscli "list -f MAC fcoetargets/fcoe/luns"
C    MAC          Dev Type Name
-    -----------  -------  ------------------------
                  Host     WIN-8D9UAMDVMLJ
0    000E1E5027B3 FCoE.T   50:06:01:69:3C:E0:65:61
1    000E1E5027B3 FCoE.T   50:06:01:61:3C:E0:65:61
```

Log

Saves input and output to a log file. This command is available in all views.

Syntax   **log**
   [<file>]

Keywords   **file**

Specifies the name of the log file in which to save all input and output. If a file name is not specified, the current log file is closed.

Notes   In non-interactive mode, this command creates a log file but does not capture information.

Examples   The following example shows the `log` command issued to turn on log capturing to the `ndis.txt` file:

```
qcscli "log ndis.txt"
C   Status       Name                 OS                         Platform
-   ------------ -------------------- -------------------------- -------------
0   connected    DL380G7-3809         Windows Server 2012        64 bit (x64)
```

To turn off log capturing, issue the following command:

```
qcscli "log"
```

Login

Logs in to a host. This command is available in the context of a host, iSCSI device, or iSCSI target.

Syntax   **login**
{-m <iSCSI HBA MAC Address>}
{-t <TargetName>}
[-h <hostname>]
[-i <TargetPortalAddress>]
[-n <TargetPortalSocket>]
[-u <CHAP name>]
[-p <CHAP secret>]
[-if <iface file name>]
[-iu <Initiator CHAP name>]
[-ip <Initiator CHAP secret>]
[-b]
[-e]
[-d]
[-o]
[-mu <CHAP authentication>]
[-ir <iSER target type]

Keywords   **-m**

Specifies the MAC address of an iSCSI Host Bus Adapter.

-t

Specifies the target name.

-h

Specifies the host name. Required when this command is used in iSCSI target context, because a target might connect to a Host Bus Adapter on different host.

-i

(Optional) Specifies the target IP address. If you specify the $-i$ option (target portal IP address), you must also specify the $-n$ option (target port number).

-n

Specifies that the login operation is performed using the Host Bus Adapter identified by the $-m$ parameter, the target identified by the $-t$ parameter, and the target portal address.

-u

Specifies the CHAP name. If the `-u` option (CHAP name) and `-u` option (CHAP secret) are both specified, CHAP authentication is used for login.

-p

Specifies the CHAP secret. If the `-u` option (CHAP name) and `-u` option (CHAP secret) are both specified, CHAP authentication is used for login.

-if

Specifies the iface file name for a Linux host.

-iu

Specifies the initiator CHAP name for a Linux host.

-ip

Specifies the initiator CHAP secret for a Linux host.

-b

Specifies whether the connection should persist across reboot sessions.

-e

Specifies that the header digest is used for login.

-d

Specifies use data digest for login.

-o

Enables MPIO.

-mu

Specifies the mutual CHAP authentication type.

-ir

Specifies the iSCSI Extensions for RDMA (iSER) target type.

Examples   The following example shows the `login` command:

```
qcscli "login -m 000e1e5027b1 -t iqn.1986-03.com.hp:storage.p2000g3.1206144efa
-h 172.28.40.40 -i 172.16.249.230"
```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
.
```
qcscli -t iscsi -f MAC -i 000e1e5027b1 "list iscsitargets"
```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
C   Status   DevType Name

```
-    ------------ ------- ----------------------------------------------
0    connected    iSCSI.T iqn.1986-03.com.hp:storage.p2000g3.1206144efa
```

Logout

Logs out of the specified session. This command is available in the context of a host, iSCSI device, or iSCSI target.

Syntax   **logout**
>   {-s <SessionID>}
>   [-h <host>]

Keywords   **-s**

Specifies the session ID to log out of.

-h

Required only required when the command is used on an iSCSI target, because a target might connect to a Host Bus Adapter on different host.

Examples   The following example shows the `logout` command:

```
qcscli "logout -s FFFFE00005FF8010-FFFFE0001CBB6540 -h 172.28.40.40"
```
```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
```
.
```
qcscli -t iscsi -f MAC -i 000e1e5027b1 "list iscsitargets"
```
```
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
C    Status        DevType Name
-    ------------  ------- --------------------------------------------------
0    disconnected  iSCSI.T iqn.1986-03.com.hp:storage.p2000g3.1206144efa
```

Network Diagnostics

Runs a network diagnostic test on the selected device. This command is available on all NDIS device selections.

Syntax   **networkdiag**
　　　[-p <ipaddr>]

Keywords   **-p**
Specifies the IP address used for the test. If this option is not specified, the test uses the IP address found in the gateway IP addresses list.

Notes   To stop the test, press the CTRL+BREAK keys.

Examples   The following example shows the `networkdiag` command:

`qcscli -t NDIS -f MAC -i 00101896DC9C "networkdiag -p 151.32.2.63"`

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.0.0
..
.....
Link: 10 Gbps Full Duplex
Network test completed successfully.
```

Ping Test

Runs an iSCSI ping test. This command is currently valid only for Windows OS.

Syntax **pingtest**
    <ipaddr>

Keywords None

Examples The following example shows the `pingtest` command:

qcscli -t iscsi -f MAC -i 000e1e5027b3 "pingtest 172.16.249.230"

QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10.0

Test completed with no error.

Quit

Exits the program.

Syntax   **q**

Keywords   None

Refresh

Scans the system for hardware and configuration changes. This command is only available in the host view.

Syntax   **refresh**

Keywords   None

Examples   The following example shows the refresh command:

```
qcscli refresh
Refresh host started
Refresh host finished
```

Refresh All

Scans all systems for hardware and configuration changes. This command is only available in the host view.

Syntax   **refreshall**

Keywords   None

Notes   To stop the refresh operation, press the CTRL+BREAK keys.

Examples   The following examples show the `refreshall` command:

```
qcscli refreshall
Refresh host WIN-OQ5P8PAQ7IP started
Refresh host WIN-OQ5P8PAQ7IP finished


# ./QCScli refreshall
QLogic Control Suite Command Line Interface Utility for Linux
v30.0.10.0
semaphore_create: semaphore exists, getting semaphore!
...
Refresh host rh67-721-nabaria-d started
Refresh host rh67-721-nabaria-d finished
```

Refresh Discovery Portal

Performs a SendTargets operation to the target portal and adds the discovered targets to the list of targets maintained by the service. This command is available in the context of a host.

Syntax   **refreshdiscoveryportal**
       {-m <iSCSI HBA MAC Address>}
       {-i <TargetPortalAddress>}
       [-n <TargetPortalSocket>]

Keywords **-m**

Specifies the iSCSI Host Bus Adapter MAC address.

-i

Specifies the target portal address.

-n

Specifies the target portal socket. If a value is not specified, the default 3260 port number is used.

Examples   The following example shows the `refreshdiscoveryportal` command:

```
qcscli "refreshdiscoveryportal -m 000E1E502683 -i 193.169.101.17"
C    Status       DevType Name
-    -----------  ------- -------------------------------------------------
0    connected    iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930
1    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-4734b7e04-df70000002051ffa
2    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-5844b7e04-a2b0000002852021
3    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-9db4b7e04-b3a0000005c5231b
4    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-0bc4b7e04-b020000007452692
5    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-7c94b7e04-1596c0a617d52d65
6    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-80c4b7e04-f9e6c0a618952e77
7    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-9364b7e04-5716c0a619652f4f
```

Refresh iSNS Server

Refreshes the list of targets discovered from the specified iSNS server. This command is available in the context of a host.

Syntax   **refreshisnsserver**
          {-i <iSNS Server Address>}

Keywords   **-i**
          Specifies the address of the iSNS server.

Examples   The following example shows the `refreshisnsserver` command:

qcscli "**refreshisnsserver -i 192.168.30.51**"

(Command output was not available at the time of publication.)

Remove (Team)

Removes the specified team or all teams. This command is only available if the active selection is a team or in the `teamview` view.

This command is valid only for Windows OS, but is not supported on Windows Server 2012 R2.

Syntax   **remove**
    {-c all | <team name>}

Keywords   **-c**
Specifies the team or teams to remove:

> *all*
> Specifies that all teams in the system are removed.

> *team name*
> Specifies that the team with this name is removed.

Examples   The following examples show the `remove` command:

qcscli -t TEAM "remove -c all"
```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
.....................................................
Please wait while executing Teaming operation...
Remove Team succeeded.
```

qcscli -t TEAM "remove ""Team 2"""
```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
...................
Please wait while executing Teaming operation...
Remove Team succeeded.
```

Remove All Hosts

Removes all remote hosts from the host management list.

This command is valid only for Windows OS, but is not supported on Windows Server 2012 R2.

Syntax   **removeallhosts**

Keywords   None

Examples   The following example shows the `removeallhosts` command:

qcscli "removeallhosts"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0

............
```

Remove Discovery Portal

Removes a portal from the list of portals to which the iSCSI initiator service sends SendTargets request to discover targets. This command is available in the context of a host.

Syntax   **removediscoveryportal**
      {-m <iSCSI HBA MAC Address>}
      {-i <TargetPortalAddress>}
      [-n <TargetPortalSocket>]

Keywords   **-m**

Specifies the MAC address of the iSCSI Host Bus Adapter.

-i

Specifies the target portal address.

-n

Specifies the target portal socket. If a value is not specified, the default port number of 3260 is used.

Examples   The following example shows the `removediscoveryportal` command:

```
qcscli "removediscoveryportal -m 000E1E502683 -i 193.169.101.17"
C    Status        DevType Name
-    -----------   ------- ------------------------------------------------
0    connected     iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930
```

Remove Host

Removes (disconnects) the specified host.

Syntax **removehost**
      <host name | IP address>

Keywords **host name**
Specifies the name of the host to be disconnected.

IP address
Specifies the IP address of the host to be disconnected.

Examples The following examples show the `removehost` command:

`qcscli "removehost 172.28.63.183"`

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.0.0
```

....

`qcscli "removehost 720-4911-10022"`

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.0.0
```

....

Remove iSNS Server

Removes the specified iSNS server. This command is available when a host is selected.

Syntax   **removeisnsserver**
 {-i <iSNS Server Address>}

Keywords   **-i**
Identifies the iSNS server to be removed.

Examples   The following example shows the `removeisnsserver` command:

`qcscli "removeisnsserver -i 192.168.55.02"`

(Command output was not available at the time of publication.)

Remove Multiple NPIV Ports

Removes multiple NPIV ports at the same time. This command is available in the context of an FCoE Host Bus Adapter.

Syntax   **removemultinpivport**

{{-s <x:xx>} {-e <x:xx>}}

Keywords   **-s**

Specifies the starting name range, where only three digits (1–3) are allowed to change; for example: $2x:xx:00:10:18:aa::bb::cc$. The other digits are from the current WWPN or WWNN.

-e

Specifies the ending name range, where only three digits (1–3) are allowed to change; for example: $2x:xx:00:10:18:aa::bb::cc$. The other digits are from the current WWPN or WWNN.

Examples   The following example shows the `removemultinpivport` command:

```
qcscli -t FCoE -f MAC -i 000e1e5027b3 "removemultinpivport  -s 1:11
-e 1:19"
Removing NPIV ports
-------------------
21:11:00:0e:1e:50:27:b3         : Succeed
21:12:00:0e:1e:50:27:b3         : Succeed
21:13:00:0e:1e:50:27:b3         : Succeed
21:14:00:0e:1e:50:27:b3         : Succeed
21:15:00:0e:1e:50:27:b3         : Succeed
21:16:00:0e:1e:50:27:b3         : Succeed
21:17:00:0e:1e:50:27:b3         : Succeed
21:18:00:0e:1e:50:27:b3         : Succeed
21:19:00:0e:1e:50:27:b3         : Succeed
Result: 9 NPIV port(s) removed.
```

Remove NPIV Port

Removes the NPIV port from the adapter. This command is available when an FCoE Host Bus Adapter is selected.

Syntax **removenpivport**
　　{-p <WWPN>}

Keywords **-p**
Specifies the port by WWPN.

Examples The following example shows the `removenpivport` command:

```
qcscli -t FCoE -f MAC -i 000e1e5027b3 "removenpivport  -p
21:11:00:0e:1e:50:27:b3
```

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10.0

.
```

Remove Persistent Target

Removes a target from the list of persistent targets. This command is available in the context of a host or in the context of an iSCSI target.

Syntax   **removepersistenttarget**
      {-t <TargetName>}
      [-h <host>]

Keywords   **-t**

Required when using this command on a host. Do not specify this keyword when using this command on an iSCSI target.

-h

Required when using this command on an iSCSI target, because a target might connect to the Host Bus Adapter on a different host.

Examples   The following examples show the `removepersistenttarget` command:

```
qcscli "removepersistenttarget  -t
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930 -h
173.29.42.254"
C    Status       DevType       Name
-    -----------  -------  -------------------------------------------------
0    disconnected iSCSI.T
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930
```

Remove Target

Removes the specified static target. This command is available in the context of a host.

Syntax   **removetarget**
      {-t <TargetName>}

Keywords   **-t**
Identifies the static target.

Examples   The following example shows the `removetarget` command:

```
qcscli "removetarget -t
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930"
No devices to list.
```

Reset Session Statistics

Resets statistical information for either all sessions or for a specified session. This command is only available if the active selection is an iSCSI device.

Syntax **resetsessionstats**

    [<sessionid>]

Keywords **sessionid**

Identifies a single session for which to reset statistics.

Examples The following example shows the `resetsessionstats` command:

```
qcscli resetsessionstats
Session Statistics
-----------------------------
Session Name            :
iqn.2001-05.com.equallogic:0-8a0906-07f4b7e04-8496c0a767e54930
Session Id              : FFFFE000095EC010-FFFFE0003634C7C0
Bytes sent              : 0
Bytes received          : 119964
PDU sent                : 104
PDU received            : 104
Digest errors           : 0
Connection Timeout errors: 0
Format errors           : 0
```

Reset Statistics

Resets the statistics for the selected device. This command is available everywhere that the `stats` command (see Statistics) is applicable.

Syntax   **resetstats**

Keywords   None

Examples   The following example shows the `resetstats` command:

```
qcscli -t NDIS -f MAC -i 001018AD45E0 "resetstats"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
............
```

Restore (Team)

Restores team configuration from the specified file and deletes existing team configurations. This command is only available if the active selection is a team or in the `teamview` view.

This command is valid only for Windows OS, but is not supported on Windows Server 2012 R2.

Syntax **restore**

[-h <host>] <file>

Keywords **-h**

Specifies the host. Required if no team is selected and QCS CLI needs to know to which host the teams will be restored.

Examples The following example shows the `restore` command:

qcscli -t TEAM "restore c:\team_bdf.txt"

QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0

....

Please wait while executing Teaming operation...

Restore Team succeeded.

Save (Team)

Saves teaming configuration to a specified file and format. This command is only available if the active selection is a team or in the `teamview` view.

This command is valid only for Windows OS, but is not supported on Windows Server 2012 R2.

Syntax   **save**
    {-f MAC | BDF} <file>

Keywords   **-f MAC**

Saves the team configuration to the specified `<file>` in MAC format.

-f BDF

Saves the team configuration to the specified `<file>` in bus-device-function (BDF) hexadecimal format.

Examples   The following examples show the `save` command:

```
qcscli -t TEAM "save -f BDF c:\team_bdf.txt"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
..........
Please wait while executing Teaming operation...
Save Team succeeded.


qcscli -t TEAM "save -f MAC c:\team_mac.bcg"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
........................
Please wait while executing Teaming operation...
Save Team succeeded.
```

Select (Target)

Selects a target from the current view or displays the selected target in the current view if `<index>` is not specified. This command is available in all views.

Syntax   **select**
     [<index>]

Keywords   None

Examples   The following example shows the `select` command:

```
qcscli "Select 2"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.0.0

.........................................

C   Status        Name                 OS                         Platform
-   -----------   ------------------   ------------------------   -------------
0   connected     DL380G7-3809         Windows Server 2012        64 bit (x64)
1   connected     720-4883-10022       N/A                        64 bit (x64)
2   connected     720-4911-10022       N/A                        64 bit (x64)
```

Session Statistics

Displays statistical information for either all sessions or for a specified session. This command is only available if the active selection is an iSCSI device.

Syntax   **sessionstats**
    [<session_id>]

Keywords   **sessionid**

Displays statistics for the session specified with this ID.

Examples   The following example shows the `sessionstats` command:

```
qcscli -t FCoE -f MAC -i 000e1e5027b1 "sessionstats <session_id>"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10.0
Session Statistics
-----------------------------
Session Name            :
iqn.1986-03.com.hp:storage.p2000g3.1206144efa_FFFFFA8
03E622240
Session Id              : FFFFFA806EFA6008-FFFFFA803E622240
Bytes sent              : 0
Bytes received          : 3398667
PDU sent                : 3031
PDU received            : 3101
Digest errors           : 0
Connection Timeout errors: 0
Format errors           : 0
```

Sessions

Lists iSCSI sessions on the selected iSCSI adapter. This command is only available if the actively selected device is an iSCSI device.

Syntax **sessions**

Keywords None

Examples The following example shows the `sessions` command:

```
qcscli -t iscsi -f MAC -i 000e1e5027b1 "sessions"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.10.0
iSCSI Session Id                 Session Name
----------------                 ------------------
FFFFFA806EFA6008-FFFFFA803E622240: iqn.1986-03.com.hp:storage.p2000g3.1206144efa
_FFFFFA803E622240
```

Show Selected (Target)

Displays the selected target item.

Syntax   **showsel**

Keywords   None

Examples   The following example shows the `showsel` command:

```
qcscli showsel

C   Status        Name                  OS                         Platform
-   -----------   -------------------   ------------------------   --------------
0   connected     WIN-OQ5P8PAQ7IP       Windows Server 2012 R2     64 bit (x64)
```

Statistics

Displays statistical information for the selected NDIS device. This command is available on all NDIS, iSCSI, and VBD device selections.

Syntax   For NDIS:

stats
     [all | general | IEEE | qlasp]

For iSCSI:

stats
     [all | login | instance | custom]

For VBD:

stats
     [all | custom | switch | vf]

Keywords   **all**
Displays all the statistical information for the selected iSCSI adapter.

general
Displays general statistics for the selected iSCSI adapter.

IEEE
Displays IEEE statistics for the selected iSCSI adapter.

qlasp
Displays QLASP statistics for the selected iSCSI adapter.

login
Displays login statistics for the selected iSCSI adapter.

instance
Displays instance statistics for the selected iSCSI adapter.

custom
Displays custom statistics for the selected iSCSI adapter.

switch
Displays SR-IOV switch statistics.

vf
Displays SR-IOV virtual function statistics.

Notes   If no keyword is specified, the `stats` command displays all of the statistical
information for the selected iSCSI adapter.

Examples   The following examples show the `stats` command:

qcscli -t NDIS -f MAC -i 001018AD45E0 "stats"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
....

General Statistics

Frames Tx. OK   : 2480622
Frames Rx. OK   : 72108500
Directed Frames Tx.   : 2150747
Multicast Frames Tx.   : 301584
Broadcast Frames Tx.   : 28291
Directed Frames Rx.   : 2119082
Multicast Frames Rx.   : 62955498
Broadcast Frames Rx.   : 7033925
Frames Rx. with CRC Error : 0

IEEE 802.3 Statistics

Frames Rx. with Alignment Error   : 0
Frames Tx. with one Collision   : 0
Frames Tx. with more than one Collision : 0
Frames Tx. after Deferral   : 0

qcscli -t VBD -f MAC -i 001018AD45E0 "stats"
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
....
Custom Statistics

Large Send Offload Transmit Requests   : 6
Frames Discard Due to Lack of On-chip Buffer Space : 0
Frames Discard Due to Lack of Host Rx Buffers   : 0
Total Offload TCP Connections   : 0
Total Offload iSCSI Connections   : 0

```
SRIOV Switch Statistics
----------------
        Num of Active VFs : 0

SRIOV VF Statistics
-----------
No hardware is available for SRIOV.
```

qcscli -t iSCSI -f MAC -i 001018AD45E1 "stats all"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
.................
Initiator Login Statistics
----------------------------

Login Accept Responses                        : 0
Login other failed Responses                  : 0
Login Redirect Responses                      : 0
Login Authentication Failed Responses         : 0
Login target authentication failure           : 0
Login target negotiation failure              : 0
Normal logout command PDU                     : 0
Other logout command PDU                      : 0
Local initiator login failures                : 0

Custom Statistics
----------------------------

Total Offload iSCSI Connections               : 0

Initiator Instance Statistics
----------------------------

Session digest errors                         : 0
Session connection timeout error              : 0
Session format error                          : 0
Sessions failed                               : 0
```

qcscli -t NDIS -f MAC -i 001018AD45E2 "stats QLASP"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0
....................................................
QLASP Statistics
-----------------
```

```
Tx. Packet                 2564477
Tx. Packet Discarded       0
Rx. Packet                 72748822
Rx. Packet Discarded       0
```

qcscli -t iscsi -f MAC -i 000e1e5027b1 "stats"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10
Initiator Login Statistics
----------------------------
Login Accept Responses                            : 0
Login other failed Responses                      : 0
Login Redirect Responses                          : 0
Login Authentication Failed Responses             : 0
Login target authentication failure               : 0
Login target negotiation failure                  : 0
Normal logout command PDU                         : 0
Other logout command PDU                          : 0
Local initiator login failures                    : 0
Custom Statistics
----------------------------
Total Offload iSCSI Connections                   : 0
Initiator Instance Statistics
----------------------------
Session digest errors                             : 0
Session connection timeout error                  : 0
Session format error                              : 0
Sessions failed                                   : 0
```

qcscli -t fcoe -f MAC -i 000e1e5027b1 "stats"

```
QLogic Control Suite Command Line Interface Utility for Windows
v17.0.10
Statistics
----------------------------------
Input requests                 0
Output requests                0
Control requests               0
Input megabytes                0
Output megabytes               0
FCoE transmitted frames        0
```

```
FCoE transmitted bytes             0
Transmitted FCP frames             0
FCoE received frames               0
FCoE received bytes                0
Received FCP frames                0
FIP VLAN negotiations performed    0
FIP fabric discoveries performed   0
FLOGIs performed                   0
FDISCs performed                   0
Packets received with wrong FC-CRC 0
Wrong FCoE version count           0
Wrong delimiter count              0
Missing frame count                0
Receive sequence timeout count     0
ULP_TOV expiration count           0
REC expiration count               0
ABTS count                         0
SRR count                          0
Reset LUN count                    0
Reset target count                 0
Session recovery count             0
FCoE dropped frames                0
Dropped sequences                  0
```

Unassigned (Adapters)

Lists adapters that are not yet part of a team. This command is only available in `teamview` view listing.

This command is valid only for Windows OS, but is not supported on Windows Server 2012 R2.

Syntax   **unassigned**
     [-h <host>]

Keywords   **-h**

Required if no team is selected and QCS CLI needs to know the host to which the unassigned NICs belong.

Examples   The following shows an example of the `unassigned` command:

```
qcscli -t TEAM "unassigned"
QLogic Control Suite Command Line Interface Utility for Windows v17.0.7.0
............
MAC            Unassigned Adapter Name
------------ -------------------------------
D4AE52897638 [0007] QLogic BCM57800 10 Gigabit Ethernet (NDIS VBD Client) #84
D4AE52897632 [0004] QLogic BCM57800 10 Gigabit Ethernet (NDIS VBD Client) #85
D4AE52897634 [0002] QLogic BCM57800 Gigabit Ethernet (NDIS VBD Client) #86
D4AE52897636 [0003] QLogic BCM57800 Gigabit Ethernet (NDIS VBD Client) #87
```

Version

Displays the version of QLogic Control Suite CLI installed.

Syntax   **version**

Keywords   None

Examples   The following shows an example of the `version` command:

qcscli version

QLogic Control Suite Command Line Interface Utility for Windows
v17.0.7.0

Legacy Commands

Legacy commands include commands used by Cavium QCS CLI v1.0.10 or earlier. These commands are deprecated, and only supported to provide backward compatibility. Cavium recommends that you use the POSIX-compliant commands described in "Command List" on page 20.

QCSCLI [-mac MAC | -bdf BDF] [Command]

Table 3-3 lists the available legacy commands.

Table 3-3. Legacy Commands

Command	Description
help	Lists available commands
q	Exits QCS CLI
dev	Selects an adapter or lists available adapters
bdf	Displays the PCI bus, device, or function number of each device
log	Logs all input and output to a file
version	Displays the version of QCS CLI
info	Displays adapter information for the selected NIC
stats	Displays statistical information for the selected NIC
cfg	Configures parameters for the selected device
diag	Configures and runs a diagnostic test

4 QCS CLI Usage

This chapter provides the following information about using QLogic Control Suite CLI to perform tasks:

- Using Interactive Mode
- Performing Management Tasks

Using Interactive Mode

To start QLogic Control Suite CLI in interactive mode, issue the `QCSCLI` command without additional parameters.

For example:

QCSCLI

To exit from QLogic Control Suite CLI interactive mode, issue the `q` command.

For example:

q

Performing Management Tasks

This section provides methods for performing some common management tasks using QCS CLI. The methods for performing the task in the CLI mode (noninteractive), interactive mode, or both, are included as appropriate.

- Listing Target Adapters of Different Views in CLI Mode
- Obtaining Context Help for each Command
- Switching Between Different Views of Target Adapters
- Selecting a Target for the Command to Operate On
- Selecting a Target in Interactive Mode
- Getting Information for a Selected Target
- Configuring Advanced Parameters for a Selected Target
- Displaying Licenses for a Selected Target

- ■ Configuring the iSCSI Parameter for a Selected Target
- ■ Configuring the Resource of a Selected Target
- ■ Configuring OOB Management for a Selected Target
- ■ Configuring Systoe for the System
- ■ Getting Statistics for a Selected Target
- ■ Resetting Statistics for a Selected Target
- ■ Running Diagnostic Tests for a Selected Target
- ■ Running a Cable Diagnostic Test for a Selected Target
- ■ Running a Network Diagnostic Test for a Selected Target
- ■ Creating a Team Configuration
- ■ Restoring a Team Configuration
- ■ Saving a Team Configuration
- ■ Removing One or More Teams
- ■ Displaying Unassigned Adapters
- ■ Switching Between Primary and Standby Adapters in a Team
- ■ Performing Other Common Tasks

Listing Target Adapters of Different Views in CLI Mode

CLI Mode

Issue the `QCSCLI list <view>` command to list all the target adapters of the `<view>`. For example:

`QCSCLI list NDIS` lists all NDIS adapters in the system.

`QCSCLI list devcon` lists all adapters by connection.

Obtaining Context Help for each Command

CLI Mode

Use the following syntax to obtain the help text for a specific operation. For example:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "info help"` displays all the help text for the information of the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg help"` displays help for the configuration of the selected NDIS adapter and their current settings.

Interactive Mode

In interactive mode, use the keywords `help` or `?` to show help for a specific command. For example:

`cfg Advanced help` displays help text for the advanced configuration for the selected device.

`info ?` displays help text for the information of the selected adapter

Switching Between Different Views of Target Adapters

CLI Mode

In the CLI mode, use the following syntax to list devices in different views:

`QCSCLI "list [-f MAC | BDF] [<view>]"`

For example:

`QCSCLI "list -f MAC NDIS"` lists all NDIS devices that are present in the system with the MAC address as identifiers.

`QCSCLI "list -f BDF NDIS"` lists all NDIS devices that are present in the system with bus-device-function (BDF) hexadecimal numbers as identifiers.

`QCSCLI "list -f MAC devcon"` lists all adapters by the connection identifying devices using their MAC address.

`QCSCLI "list -f BDF devcon"` lists all adapters by the connection identifying devices using their BDF address.

Interactive Mode

Issue the `list [-f MAC|BDF] [<view>]` command to switch between different views of target adapters. The default view of QCS CLI is `devtype` in interactive mode. All target adapters for the selected view are listed and the selected default adapter is highlighted. For example:

`list -f MAC NDIS` lists all NDIS devices that are present in the system with MAC address as identifiers.

`list -f BDF NDIS` lists all NDIS devices that are present in the system with BDF hexadecimal numbers as identifiers.

`list -f MAC devcon` lists all adapters by the connection identifying devices using their MAC address.

`list -f BDF devcon` lists all adapters by the connection identifying devices using their BDF hexadecimal address.

Selecting a Target for the Command to Operate On

CLI Mode

Use the `-t`, `-f`, and `-i` options to uniquely select the target for the following `<command string>` to operate on it. For example:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c info` displays the adapter information of the selected NDIS adapter whose current MAC address is 00:10:18:1a:1b:1c.

`QCSCLI -t VBD -f mac -i 0010181a1b1d info` displays the adapter information of the selected VBD adapter whose current MAC address is 00:10:18:1a:1b:1d.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e info` displays the adapter information of the selected iSCSI adapter whose current MAC address is 00:10:18:1a:1b:1e.

`QCSCLI -t TEAM -f name -i Team1 "info"` displays the team information of the selected (`Team1`) team.

`QCSCLI -t VNIC -f name -i VLAN1 "info"` displays the virtual adapter information which is identified by a VLAN name (`VLAN1`).

Interactive Mode

`select [<index>]` selects the target from the target adapters of the current view.

`showsel` displays the selected target adapter. Any command entered after this command applies to the selected target adapter.

`list NDIS` and `select 3` selects the third adapter from the list of all target adapters in the `NDIS` view.

`list devcon` and `select 5` selects the fifth adapter from the list of all target adapters of `devcon` view.

Selecting a Target in Interactive Mode

Interactive Mode

Issue the `select [<index>]` command to select the target from the `target0` adapters of the current view.

Issue the `showsel` command to display the selected target adapter. Any command entered after this command applies to the selected target adapter.

Examples:

`list NDIS` and `select 3` selects the third adapter from the list of all target adapters in the `NDIS` view.

`list devcon` and `select 5` selects the fifth adapter from the list of all target adapters in the `devcon` view.

Getting Information for a Selected Target

No information is available for NIC partition or virtual function targets on Linux systems. Issue the following command:

info {all | [vitalsigns | driver | nicpartition | switch | vf]}

CLI Mode

To get information about the selected target, issue the following command, which is available for NDIS, VBD and team:

```
QCSCLI -t <target type> -f <format> -i <target ID> info [ all |
vitalsigns | driver | hardware | resource | members | livelink |
general ]
```

Where the `resource` keyword applies only on Windows systems.

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "info"` displays all the information for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "info vitalsigns"` displays the vital signs information for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "info resource"` displays the resources information for the selected NDIS adapter.

`QCSCLI -t VBD -f mac -i 0010181a1b1d "info driver"` displays the driver information for the selected VBD adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "info hardware"` displays the hardware information for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "info all"` displays all the information for the selected NDIS adapter.

`QCSCLI -t TEAM -f name -i team1 "info all"` displays all the information for the selected team.

`QCSCLI -t TEAM -f name -i team1 "info members"` displays all the information for the selected team.

`QCSCLI -t TEAM -f name -i team1 "info livelink"` displays LiveLink settings for the selected team.

`QCSCLI -t TEAM -f name -i team1 "info general"` displays the general information for the selected team.

`QCSCLI -t TEAM -f name -i team1 "info"` displays all the information for the selected team.

`QCSCLI -t TEAM -f name -i "^"Team1 "info"` displays the team information for the selected (`^Team1`) team. If the team name contains a special character, it must be enclosed within double quotes.

`QCSCLI -t VNIC -f name -i "^"VLAN1 "info"` displays the virtual adapter information that is identified by a VLAN name (`^VLAN1`). If the VLAN name contains a special character, it must be enclosed within double quotes.

Interactive Mode

Use the `list <view>` and `select <idx>` commands to select the target device.

Use the `info [ all | vitalsigns | driver | hardware | resource ]` command to get information about the selected target.

Examples:

`info` or `info all` displays all the information for the selected target.

`info vitalsigns` displays vital signs information for the selected target.

`info resource` displays resource information for the selected target. (The 41000 Series Adapters do not support the `info resource` command.)

`info driver` displays driver information for the selected target.

`info hardware` displays hardware information for the selected target. (The 41000 Series Adapters do not support the `info resource` command.)

`info members` displays all the information for the selected team.

`info livelink` displays LiveLink settings for the selected team.

`info general` displays the general information for the selected team.

Configuring Advanced Parameters for a Selected Target

CLI Mode

Issue the following command to display and configure the advanced parameters for the selected target:

`QCSCLI -t <target type> -f <target format> -i <target ID> cfg Advanced [param | param=value]`

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg Advanced"` displays all advanced parameters of the selected NDIS adapter and their current settings.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg Advanced \"802.1p QOS\""` displays the current setting and all valid settings of the specified advanced parameter 802.1p QOS.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg Advanced \"802.1p QOS\"=\"Enable\""` sets the advanced parameter, 802.1p QOS, to `Enable`.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg advanced \"Flow Control\"=\"Rx "&" Tx enabled\""` sets the advanced parameter Flow Control to `Rx & Tx enabled`.

Interactive Mode

Use the `list <view>` and `select <idx>` commands to select the target device.

Use the `cfg Advanced [param | param=value]` command to display and configure the advanced parameter of the selected target.

Examples:

`cfg Advanced` displays all advanced parameters of the selected adapter and their current settings.

`cfg Advanced "802.1p QOS"` displays the current setting and all valid settings of the 802.1p QOS advanced parameter.

`cfg Advanced "802.1p QOS"="Disable"` sets the 802.1p QoS parameter to `Disable`.

Displaying Licenses for a Selected Target

CLI Mode

Issue the `QCSCLI -t <target type> -f <target format> -i <target ID> cfg licenses` command to display the licenses of the selected target.

Example:

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cfg Licenses"` displays all licenses of the selected VBD adapter and their current settings.

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select a target device. Then issue the `cfg Licenses` command to display the licenses of the selected target.

Example:

`cfg Licenses` displays all license parameters for the selected adapter and their current settings.

Configuring the iSCSI Parameter for a Selected Target

CLI Mode

Issue the following command to display and configure the iSCSI parameter for the selected target:

`QCSCLI -t <target type> -f <target format> -i <target ID> cfg iSCSIMgmt [key | key=value]`

Examples:

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "cfg iSCSIMgmt"` displays all iSCSI management keys for the selected iSCSI adapter and their current settings.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "cfg iSCSIMgmt \"IPV4DHCP\""` displays the current setting and all valid settings for the `IPV4DHCP` key.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "cfg iSCSIMgmt \"IPV4DHCP\"=\"Enable\""` sets the `IPV4DHCP` key to `Enable`.

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select the target device. Then issue the `cfg iSCSIMgmt [key | key=value]` command to display and configure the iSCSI parameter for the selected target.

Examples:

`cfg iSCSIMgmt` displays the current settings of all iSCSI management parameters for the selected adapter and their current settings.

`cfg iSCSIMgmt "IPV4DHCP"` displays the current setting and all valid settings of the `IPV4DHCP` key.

`cfg iSCSIMgmt "IPV4DHCP"="Enable"` enables the `IPV4DHCP` setting.

Configuring the Resource of a Selected Target

CLI Mode

Issue the following command to display and configure the resource parameter of the selected target:

`QCSCLI -t <target type> -f <target format> -i <target ID> cfg Resource [key | key=value]`

Examples:

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cfg Resource"` displays all resource reservation keys and their current settings.

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cfg Resource \"CONFIGURABLE\""` displays all configurable Resource Reservation keys with their current settings and valid settings.

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cfg Resource \"CONFIG\"=\"RSVD\""` sets the "Offload Configuration" to "Reserved Resources".

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cfg Resource \"TOECONN\"=\"50\""` sets the "TOE Connections" to 50. The command is valid only when the "Offload Configuration" is in "Reserved Resources".

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cfg Resource
\"iSCSI\"=\"Disable\""` sets the "Pre-Allocated Resources for iSCSI" to
Disable. All reserved resources for iSCSI is released. The command is valid only
when the "Offload Configuration" is in "Reserved Resources".

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select the target
device. Then issue the `cfg Resource [key|key=value]` command to
display and configure the resource parameter for the selected target.

Examples:

`cfg Resource` displays all resource reservation parameters for the selected
adapter and their current settings.

`cfg Resource "CONFIGURABLE"` displays all configurable resource
reservation parameters with their current settings and valid settings.

`cfg Resource "CONFIG"="FCFS"` sets the "Offload Configuration" to "First
Come First Served".

`cfg Resource "iSCSICONN"="20"` sets the "iSCSI Connections" to 20. The
command is valid only when the "Offload Configuration" is in "Reserved
Resources".

`cfg Resource "TOE"="Disable"` sets the "Pre-Allocated Resources for
TOE" to Disable. All reserved resources for TOE are released. The command is
valid only when the "Offload Configuration" is in "Reserved Resources".

Configuring OOB Management for a Selected Target

CLI Mode

Issue the following command to display and configure the iSCSI parameter of the
selected target:

`QCSCLI -t <target type> -f <target format> -i <target ID> cfg
iSCSIMgmt [key|key=value]`

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg OOBMgmt"` displays all
OOB Management parameters and their current settings or information

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg OOBMgmt
\"Heartbeat Transmit Interval\""` displays the Heartbeat Transmit
Interval current settings and its valid input.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cfg OOBMgmt
\"Heartbeat Transmit Interval\"=\"50\""` sets the Heartbeat Transmit
Interval to 50 seconds.

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select the target device.

Issue the `cfg OOBMgmt [key|key=value]` command to display and configure the OOB management parameter for the selected target.

Examples:

`cfg OOBMgmt` displays all OOB management parameters of the selected adapter and their current settings.

`cfg OOBMgmt "Heartbeat Transmit Interval"` displays the Heartbeat Transmit Interval current settings and its valid input.

`cfg OOBMgmt "Heartbeat Transmit Interval"="50"` sets the Heartbeat Transmit Interval to 50 seconds

Configuring Systoe for the System

CLI Mode

Issue the following command to display and configure the TCP offload engine (TOE) of the system Chimney:

`QCSCLI -t System "cfg Systoe [value]"`

Examples:

`QCSCLI -t system "cfg Systoe"` displays the current Chimney Offload State.

`QCSCLI -t system "cfg Systoe Enabled"` enables the current Chimney Offload State.

`QCSCLI -t system "cfg Systoe Disabled"` disables the current Chimney Offload State.

`QCSCLI -t system "cfg Systoe Automatic"` sets the current Chimney Offload State to automatic (Windows 7 kernel and later).

Interactive Mode

Issue the `list System` command; by default the system is selected because there is only one system.

Issue the `cfg Systoe [value]` command to display and configure the TCP Offload of the system Chimney.

Examples:

`cfg Systoe` displays current Chimney Offload State.

`cfg Systoe Enabled` enables current Chimney Offload State.

`cfg Systoe Disabled` disables current Chimney Offload State.

`cfg Systoe Automatic` sets the current Chimney Offload State to automatic (Windows 7 kernel and later).

Getting Statistics for a Selected Target

CLI Mode

Issue the following command:

`QCSCLI -t <target type> -f <target format> -i <target ID> "stats <options>"`

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "stats"` displays all statistics for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "stats general"` displays general statistics for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "stats IEEE"` displays IEEE statistics for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "stats QLASP"` displays QLASP statistics for the selected NDIS adapter.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "stats all"` displays all the statistics information for the selected NDIS adapter.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "stats login"` displays login statistics information for the selected iSCSI device.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "stats instance"` displays instance statistics information for the selected iSCSI device.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "stats custom"` displays custom statistics information for the selected iSCSI device.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "stats all"` displays all the statistics information for the selected iSCSI device.

`QCSCLI -t iSCSI -f mac -i 0010181a1b1e "stats"` displays all the statistics information for the selected iSCSI device.

`QCSCLI -t TEAM -f name -i asdf "stats"` displays all the statistics information for the `asdf` team.

`QCSCLI -t VNIC -f name -i asdf "stats"` displays all the statistics information for the virtual adapter whose VLAN name is `asdf`.

Interactive Mode

The target type and target identifiers need not be specified. The `stats` command is based on the active target selection.

Examples:

`stats` displays all statistics for the selected NDIS adapter.

`stats general` displays general statistics for the selected NDIS adapter.

`stats IEEE` displays IEEE statistics for the selected NDIS adapter.

`stats QLASP` displays QLASP statistics for the selected NDIS adapter.

`stats all` displays all the statistics information for the selected NDIS adapter.

`stats login` displays login statistics information for the selected iSCSI device.

`stats instance` displays instance statistics information for the selected iSCSI device.

`stats custom` displays custom statistics information for the selected iSCSI device.

`stats all` displays all the statistics information for the selected iSCSI device.

`stats` displays all the statistics information for the selected iSCSI device.

`stats` displays all the statistics information for the selected team.

`stats` displays all the statistics information for the selected virtual adapter.

Resetting Statistics for a Selected Target

CLI Mode

The `resetstats` command is not applicable in the CLI mode.

Interactive Mode

Issue the `resetstats` command to reset all statistical information for a selected or active NDIS, VNIC, or iSCSI team.

Running Diagnostic Tests for a Selected Target

CLI Mode

Issue the following command to run NIC diagnostics tests for the selected target. This command is available for NDIS and VBD adapters:

```
QCSCLI -t <target type> -f <target format> -i <target ID> diag {[-c
REG ] [-c MII ] [-c EEP] [-c MEM] [-c CPU] [-c INT] [-c MACLB ] [-c
PHYLB] [-c LED] | [-c ALL]} [-l <cnt> ] [ -v <LEDIntv> ]
```

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "diag"` displays all the diagnostics tests available for the currently selected target.

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "diag -c MII -c LED"` runs the MII and LED test for the selected NDIS adapter.

`QCSCLI -t VBD -f mac -i 0010181a1b1d "diag -c all -l 5 -v 8"` runs all the tests for 5 times with LED test interval 8 milliseconds for the selected VBD adapter.

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select the target device.

Issue the following command to run diagnostics tests for the selected target:

```
diag {[-c REG ] [-c MII ] [-c EEP] [-c MEM] [-c CPU] [-c INT] [-c
MACLB ] [-c PHYLB] [-c LED] | [-c ALL]} [-l <cnt> ] [ -v <LEDIntv> ]
```

Examples:

`diag` displays all the diagnostics tests available for the currently selected target.

`diag -c MII -c LED` runs the MII and LED test for the selected NDIS adapter.

`diag -c all -l 5 -v 8` runs all the tests for 5 times with LED test interval of 8 milliseconds for the selected VBD adapter.

Running a Cable Diagnostic Test for a Selected Target

CLI Mode

Issue the following command to run the cable diagnostics test for the selected target. This command is available for NDIS and VBD adapters:

```
QCSCLI -t <target type> -f <target format> -i <target ID> cablediag
```

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "cablediag"` runs the cable diagnostics test for the currently selected NDIS adapter.

`QCSCLI -t VBD -f mac -i 0010181a1b1d "cablediag"` runs the cable diagnostics test for the currently selected VBD adapter.

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select the target device. Then issue the `cablediag` command to run the cable diagnostics test for the selected target.

Example:

`cablediag` runs the cable diagnostics test for the currently selected NDIS adapter.

Running a Network Diagnostic Test for a Selected Target

CLI Mode

Issue the following command to run cable diagnostics test for the selected target. This command is available for NDIS and virtual adapters:

```
QCSCLI -t <target type> -f <target format> -i <target ID>
networkdiag [-p <IP address>]
```

Examples:

`QCSCLI -t NDIS -f mac -i 0010181a1b1c "networkdiag -p 192.168.1.5"` runs the network test for the currently selected NDIS adapter.

`QCSCLI -t VNIC -f mac -i 0010181a1b1c "networkdiag"` runs the network test for the currently selected virtual adapter. Because no IP address is specified, QCS CLI uses the gateway address for the test.

Interactive Mode

Issue the `list <view>` and `select <idx>` commands to select the target device. Then issue `networkdiag [-p <IP address>]` to run cable diagnostics test for the selected target.

Examples:

`networkdiag -p 192.168.1.5` runs the network test for the currently selected NDIS adapter.

`networkdiag` runs the network test for the currently selected virtual adapter.

Creating a Team Configuration

CLI Mode

Issue the following command to add a team using a configuration file:

```
QCSCLI -t TEAM "add <config file name>"
```

Examples:

`QCSCLI -t team "add o:\temp\asdf1.bcg"`
Because no host is specified, a host that has teaming is selected to add the team file. This command might fail if the team file is not for the selected host.

`QCScli -r host -u user -p pass -t team "add o:\temp\asdf1.bcg"` specifies the host to which to add a team.

Interactive Mode

Issue the `add <config file name>` command to add a team using a configuration file.

Example:

```
add o:\temp\asdf1.bcg
```

Restoring a Team Configuration

CLI Mode

Issue the following command to restore teams using a configuration file:

```
QCSCLI -t TEAM "restore <config file name>"
```

Examples:

```
QCSCLI -t team "restore o:\temp\asdf.bcg"
```
Because no host is specified, a host that has teaming is selected to restore the team file. This command might fail if the team file is not for the selected host.

```
QCScli -r host -u user -p pass -t team "restore
o:\temp\asdf1.bcg"
```
specifies a host to restore a team.

Interactive Mode

Issue the `restore <config file name>` to restore teams using a configuration file.

Example:

```
restore o:\temp\asdf.bcg
```

Saving a Team Configuration

CLI Mode

Issue the following command to save the current teaming configuration to a file:

```
QCSCLI -t TEAM "save {-f MAC|BDF} <file_path_name>"
```

Examples:

```
QCSCLI -t team "save -f MAC o:\temp\asdf.bcg"
```
saves the current teaming configuration to a file named `asdf.bcg` with adapters identified using the MAC address.

```
QCSCLI -t team "save -f BDF o:\temp\asdf.bcg"
```
saves the current teaming configuration to a file named `asdf.bcg` with adapters identified using the BDF hexadecimal numbers.

```
QCScli -r host -u user -p pass -t team "save
o:\temp\asdf1.bcg"
```
specifies a host to save a team

Interactive Mode

Issue the `save {-f MAC|BDF} <file_path_name>` to save the current teaming configuration to a file from within the `teamview` view listings.

Examples:

```
save -f MAC o:\temp\asdf.bcg
```
saves the current teaming configuration to a file named `asdf.bcg` with adapters identified using the MAC address.

`save -f BDF o:\temp\asdf.bcg` saves the current teaming configuration to a file named `asdf.bcg` with adapters identified using the BDF hexadecimal number.

Removing One or More Teams

CLI Mode

Issue the following command to remove one or more teams from the system:

`QCSCLI -t team -f name -i <team name> "remove"`

Examples:

`QCSCLI -t team -f name -i asdf "remove"` removes a team named `asdf` from the system.

`QCSCLI -t team "remove -c all"` removes all teams from the system.

`QCScli -r host -u user -p pass -t team "remove -c all"` specifies a host from which to remove team.

Interactive Mode

Issue the `remove {-c all | <team_name>|}` command to remove one or more teams from the system.

Examples:

`remove asdf` removes a team named `asdf` from the system.

`remove -c all` removes all teams from the system.

`remove` removes the active and selected team from the system.

Displaying Unassigned Adapters

CLI Mode

Issue the `QCSCLI -t TEAM unassigned` command to display a list of adapters that are not assigned to a team.

Interactive Mode

Issue the `unassigned` command in the `teamview` to display a list of adapters that are not assigned to a team.

Switching Between Primary and Standby Adapters in a Team

CLI Mode

Issue the `QCSCLI -t TEAM "fallback"` command in a Smart Load Balancing™ and Auto-Fallback Disable (SLB-AFD) team to switch adapters from standby to primary.

Interactive Mode

Issue the `fallback` command in an SLB-AFD team to switch adapters from standby to primary.

Refreshing a Host

CLI Mode

Issue the `QCScli -t hosts "refresh"` command to get the latest host status and statistics.

Interactive Mode

Issue the `refresh` command under a host node to get the latest host status and statistics.

Performing Other Common Tasks

- `help` displays a list of available commands.
- `version` displays the version of QCS CLI.
- `log <file>` turns on the log and log all the information to <file>.
- `log` turns off the log.
- `showsel` shows the currently selected target.

A Security Considerations

This appendix provides the following security information for QLogic Control Suite CLI:

- Management Connectivity Model
- "Managing Security" on page 143

Management Connectivity Model

Figure A-1 shows how QLogic Control Suite CLI communicates in typical deployments.
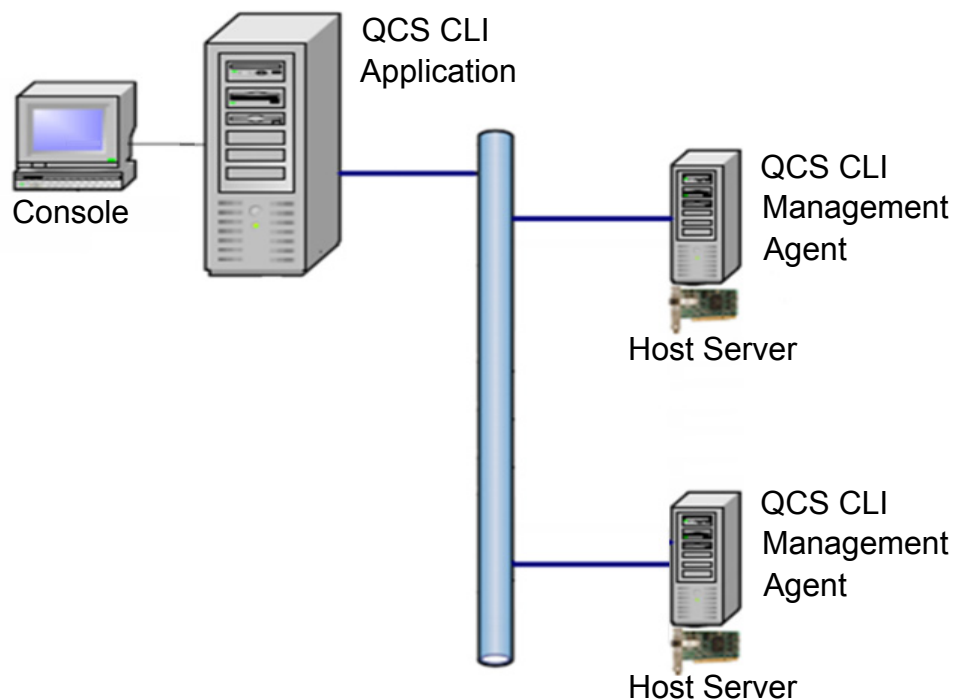
Figure A-1. QCS CLI Management Connectivity

Managing Security

QLogic Control Suite CLI security includes local connectivity, password and access control, Windows firewall configuration, and secure sockets layer (SSL) data encryption.

Connectivity Options

As shown in , you can connect to QLogic Control Suite CLI using:

- A localhost connection (on the Web application server)
- A remote connection (from another computer)

For information on how to connect to QCS CLI from the local host server or from a remote connection, see .

Password Protection for Access Control

You can password-protect a host server to prevent unauthorized changes to that host's installed adapters. When you do this, authorization is required to make changes to the following on the host or any of its adapters:

- Adapter parameters
- Flash BIOS
- Adapter driver
- Port configuration
- Password (updates to the password itself)

To set up password protection on a host, you must have administrator or root privileges on that host.

Windows Firewall Configuration

When Windows Firewall is enabled with default settings, connections between QLogic Control Suite and remote hosts are blocked. To use Windows Firewall but allow connections between QCS CLI and remote hosts, add the following programs to the exceptions list in the firewall settings on both client and server machines:

- For x64 running native x64 GUI and agents:

    ```
    C:\Program Files\QLogic Corporation\portmap\portmap.exe
    C:\Program Files\QLogic Corporation\QLRemote\qlnxremote.exe
    ```

- For x86 running native x86 GUI and agents:

    ```
    C:\Program Files\QLogic Corporation\portmap\portmap.exe
    C:\Program Files\QLogic Corporation\QLRemote\qlnxremote.exe
    ```

Next, configure the Windows Firewall as described in the following procedure.

To configure the firewall on a host or client using Server Manager:

1. Follow the appropriate instructions for your operating system:

   ❑ **Windows Server 2008:**

      a. Click **Start**, click **Administrative Tools**, and then click **Server Manager**.

      b. On the left side of the Server Manager window, expand the **Configuration** node, and then expand **Windows Firewall with Advanced Security**.

   ❑ **Windows Server 2012:** Do *one* of the following:

      ■ Click **Start**, click **Administrative Tools**, and then click **Windows Firewall with Advanced Security**.

      ■ Run the Server Manager application, click **Tools**, and then click **Windows Firewall with Advanced Security**.

2. Refer to the list of programs in "Windows Firewall Configuration" on page 143.

   For the first program in the list:

   a. Right-click **Inbound Rules**, and then click **New Rule**.

   b. In the New Inbound Rule wizard, select **Program**, and then click **Next**.

   c. Click **Browse** to specify the path to the `.exe` file, and then click **Next**.

   d. Select **Allow the connection**, and then click **Next**.

   e. Follow the instructions for your operating system:

      ■ **Windows Server 2008:** Select **Domain** and then click **Next**.

      ■ **Windows Server 2012:** Select **Domain** and **Public**. Then click **Next**.

   f. Enter a name and description for the rule, and then click **Finish**.

   g. Server Manager displays the new rule under **Inbound Rules**.

3. Repeat Step 2 for each program in the list, except in Step 2a, click **Outbound Rules** and **New Rules** to open the New Outbound Rule wizard.

4. If any agent was previously running, restart it.

Figure A-2 shows how the default Windows firewall settings prevent QCS CLI from connecting to remote hosts, and Figure A-3 shows how modifying the settings lets QCS CLI connect to remote hosts.
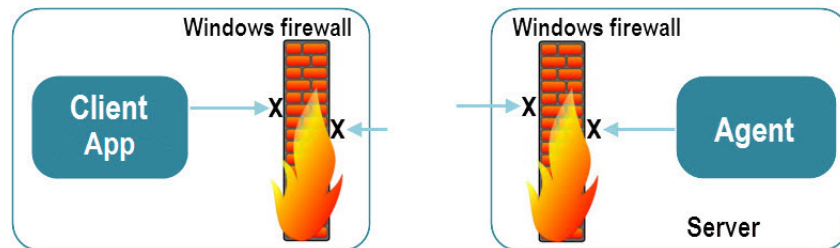
Figure A-2. Default Windows Firewall Settings: QCS CLI Blocked from Remote Hosts
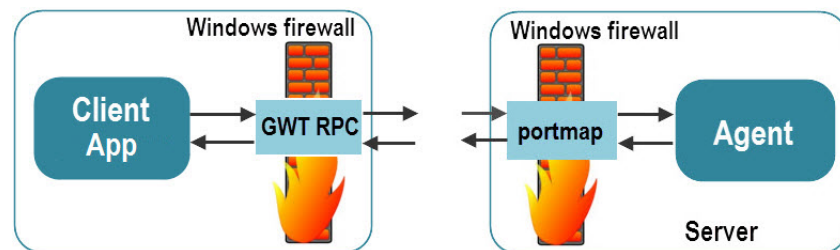
Figure A-3. Modified Firewall Settings: QCS CLI Able to Connect to Remote Hosts

Linux Firewall Configuration

If the Linux firewall (iptables[1] rules) is enabled with default settings, connections between QCS CLI and remote hosts are not allowed, To use Linux firewall but allow connections between QCS CLI and remote hosts, set up the rules for your Linux distribution as described in the following sections.

RHEL 7.*x* and SLES 12.x

To configure the firewall on RHEL 7:

1. Check the Fedora® FirewallD status (enabled or disabled):

   # **systemctl status firewalld**

2. If FirewallD is enabled:

   a. Identify the current active zone and related interface:

      # **firewall-cmd --get-active-zones**
      public interfaces: em1

---

[1] `iptables` is the userspace command line program used to configure the Linux 2.4.*x* and later packet filtering ruleset.

b. Set a permanent port range of 1–1024 for TCP and UDP protocols (to allow the qlnxremote management agent to communicate with the outside world):

```
# firewall-cmd --permanent --zone=public --add-port=1-1024/tcp
# firewall-cmd --permanent --zone=public --add-port=1-1024/udp
```

c. Allow QCS CLI servers to connect to client machines:

■   Identify the current active zone and related interface (displayed by the command in Step a for the server machine.

■   Set options permanently to allow port 8080 for HTTP and 8443 for HTTPS:

```
# firewall-cmd --permanent --zone=public --add-port=8080/tcp
# firewall-cmd --permanent --zone=public --add-port=8080/udp
# firewall-cmd --permanent --zone=public --add-port=8443/tcp
# firewall-cmd --permanent --zone=public --add-port=8443/udp
```

> **NOTE**
>
> The preceding commands reflect the default port numbers of 8080 for HTTP and 8443 for HTTPS. If different port numbers were specified during QCS CLI installation, replace the port numbers in the preceding commands with the port numbers specified during installation.

3. To reload the firewall settings to make the current permanent settings the new runtime settings, issue the following command:

```
# firewall-cmd --reload
```

> **NOTE**
>
> To ensure the rpcbind (universal addresses to RPC program number mapper) service is running, issue the following commands:
> ```
> # service rpcbind start
> # systemctl enable rpcbind.service
> ```

RHEL 5.*x* and 6.*x*

To configure the firewall on RHEL 5 and 6:

1. To check the firewall status (by default, the command shows chain and rules set for the host), issue the following command:

    ```
    # service iptables status
    ```

2. If iptables service is set or started:

    a. Set port range of 1–1024 for the TCP and UDP protocols (allow the qlnxremote management agent to communicate with the outside world):

```
# iptables -I INPUT 4 -p tcp -m state --state NEW -m tcp --dport 1:1024 -j ACCEPT
# iptables -I INPUT 5 -p udp -m state --state NEW -m udp --dport 1:1024 -j ACCEPT
```

    b. To set the options permanently to allow port 8080 for http and 8443 for https (allow QCS CLI servers to connect to clients), issue the following commands:

```
# iptables -I INPUT 6 -p tcp -m state --state NEW -m udp --dport 8080 -j ACCEPT
# iptables -I INPUT 7 -p udp -m state --state NEW -m udp --dport 8080 -j ACCEPT
# iptables -I INPUT 8 -p tcp -m state --state NEW -m udp --dport 8443 -j ACCEPT
# iptables -I INPUT 9 -p udp -m state --state NEW -m udp --dport 8443 -j ACCEPT
```

> **NOTE**
>
> The preceding commands reflect the default port numbers of 8080 for HTTP and 8443 for HTTPS. If different port numbers were specified during QCS CLI installation, replace the port numbers in the preceding commands with the port numbers specified during installation.

3. To save the firewall settings and make them the new runtime settings, issue the following command:

    ```
    # service iptables save
    ```

SUSE 11.*x* and SUSE 10.*x*

To configure the firewall on SUSE 10 and 11:

1. To check the firewall status (by default, the command shows chain and rules set for the host), issue the following command:

    ```
    # iptables -L
    ```

2. To add customized rules in iptables, provide the path for customized rules in `/etc/sysconfig/SuSEfirewall2`:

`FW_CUSTOMRULES="/etc/sysconfig/scripts/SuSEfirewall2-custom"`

#**`FW_CUSTOMRULES=""`**

3. In the `/etc/sysconfig/scripts/SuSEfirewall2-custom` directory, modify the `fw_custom_before_port_handling( )` function. To allow the qlnxremote management agent to communicate with the outside world, add the following rules:

```
# iptables -I INPUT 4 -p tcp -m state --state NEW -m tcp --dport 1:1024 -j ACCEPT
# iptables -I INPUT 5 -p udp -m state --state NEW -m udp --dport 1:1024 -j ACCEPT
```

4. In the `/etc/sysconfig/scripts/SuSEfirewall2-custom` directory, modify the `fw_custom_before_port_handling( )` function. To set port 8080 for http and 8443 for https allowing QCS CLIservers to connect to clients, add the following rules:

```
# iptables -I INPUT 6 -p tcp -m state --state NEW -m udp --dport 8080 -j ACCEPT
# iptables -I INPUT 7 -p udp -m state --state NEW -m udp --dport 8080 -j ACCEPT
# iptables -I INPUT 8 -p tcp -m state --state NEW -m udp --dport 8443 -j ACCEPT
# iptables -I INPUT 9 -p udp -m state --state NEW -m udp --dport 8443 -j ACCEPT
```

NOTE

- The preceding commands reflect the default port numbers of 8080 for HTTP and 8443 for HTTPS. If different port numbers were specified during QCS CLI installation, replace the port numbers in the preceding commands with the port numbers specified during installation.
- Providing the `FW_CUSTOMRULES` file path causes custom rules to persist across reboots.

5. To reload customized rules at runtime, issue the following command:

```
# /etc/init.d/SuSEfirewall2_setup reload
```

B Configuration File Examples

This appendix provides examples of the following configuration files used with QLogic Control Suite CLI to save and restore iSCSI, FCoE, and Multi-Boot Agent (MBA) boot configuration, DCBX settings, and SR-IOV and NPAR configuration:

- Understanding Team Configuration Files
- "Multi-Boot Agent Configuration XML File" on page 152
- "iSCSI Boot Configuration XML File" on page 154
- "FCoE Boot Configuration XML File" on page 160
- "NIC Partition Configuration XML Files" on page 165
- "SR-IOV Configuration XML Files" on page 172
- "DCBX Configuration XML File" on page 174

Understanding Team Configuration Files

This section provides the following information about team configuration files:

- Syntax Plain Text File
- Team Configuration File Requirements
- Team Configuration File Examples

Syntax Plain Text File

The syntax plain text file is defined as follows, where the team parameters can be specified either using `NO_LIVELINK_PARAMS` or using `LIVELINK_PARAMS`.

```
TEAM_CFG
[TEAM_CFG]
...
```

Without LiveLink Parameters

Each `TEAM_CFG` with `NO_LIVELINK_PARAMS` is defined as follows:

```
name: team_name
[type: team_type]
```

```
pnic: MAC_address
[pnic: MAC_address
...]
[snic: MAC_address]
[[ip: IP_address
smask: subnetmask]
|[vname: VLAN_name v
id: VLAN_ID
[ip: IP_address
smask: subnetmask]]
...]
```

With LiveLink Parameters

Each `TEAM_CFG` with `LIVELINK_PARAMS` is defined as follows:

```
name: livelinkteam_name
[type: livelink_team_type]
target_ip: ip1
[target_ip: ip2
target_ip: ip3
target_ip: ip4]
[retry: 3]
[freq: 2000]
[retry_freq: 2000]
[livelink_vid: 1234]
[pnic: MAC_address|PCIINFO
livelink_ip: ll_ip
livelink_ipv6: ll_ipv6
pnic: MAC_address|PCIINFO
livelink_ip: ll_ip
pnic:...]
[snic: MAC_address|PCIINFO
livelink_ip: ll_ip]
[[ip: IP_address
smask: subnetmask]
|[vname: VLAN_name
vid: VLAN_ID
[ip: IP_address
smask: subnetmask]]
...]
```

Team Configuration File Requirements

Requirements for the team configuration file include the following:

- A team configuration file must contain at least one team configuration. `QCSCLI.exe` recognizes `name` as the starting point of a team configuration section. All lines after `name` apply to the `team_name` until another `name` or end-of-file is encountered.

- Each team configuration must contain at least one physical network adapter. Otherwise the configuration of the team is ignored.

- If `type` is missing, the default is set to Smart Load Balancing (SLB). The four team types include: SLB = 0, GEC = 1, LACP = 2 and SLB-AFD = 4.

> **NOTE**
>
> In NPAR mode, the team configuration type GEC is not supported.

- If `ip` is set, `smask` must also be set or `ip` is ignored. If `ip` is not set, DHCP is used.

- The team IP can be set if no VLANs are configured. If any VLAN is configured, the team IP is ignored. Multiple VLAN configurations are allowed. Each VLAN configuration allows an optional static IP information. Each IP must be coupled with `smask`, otherwise it is ignored.

- There must at least one white space or tab between the tag (`name`, `pnic`, and so on) and the value pair (`team_name`, `MAC_address`, and so on) in each line.

- Keywords before semicolons are case sensitive.

Team Configuration File Examples

The following show examples of a team configuration XML file. For details about the command, see .

Example Without LiveLink Parameters

The following shows an example of the `TeamConfig.txt` configuration file with `NO_LIVELINK_PARAMS`:

```
name: BRCMTeam type: 1
pnic: 00101801794D
pnic: 00:0B.2 vname: VLAN2 vid: 2
vname: VLAN3 vid: 3
ip: 172.16.8.3
smask: 255.255.255.0
vname: VLAN4 vid: 4
```

```
                    ip: 172.16.8.4
                    smask: 255.255.255.0
                    vname: VLAN5 vid: 5
                    ip: 172.16.8.5
                    smask: 255.255.255.0
```

Example with LiveLink Parameters

The following shows an example of the `TeamConfig.txt` configuration file with `LIVELINK_PARAMS`:

```
name: LiveLinkTeam type: 0
target_ip: 172.16.8.66
target_ip: 172.16.8.77
target_ip: 172.16.8.88
target_ip: fc01::101
livelink_vid: 1234 pnic: 00101801794D
livelink_ip: 172.16.8.10
livelink_ipv6: fc01::218
pnic: 01:0D.0 livelink_ip: 172.16.8.11
snic: 02:03.00
livelink_ip: 172.16.8.20
vname: VLAN2
vid: 2 vname: VLAN3 vid: 3
ip: 172.16.8.3
smask: 255.255.255.0
vname: VLAN4 vid: 4
ip: 172.16.8.4
smask: 255.255.255.0
vname: VLAN5 vid: 5
ip: 172.16.8.5
smask: 255.255.255.0
```

Multi-Boot Agent Configuration XML File

The following shows an example of the Multi-Boot Agent (MBA) configuration XML file. For details about the command, see "Boot Configuration" on page 33.

```
<?xml version="1.0" encoding="UTF-8"?>
<MBAConfiguration>
  <QCScli>
      <Version>30.0.44.0</Version>
```

```
    </QCScli>
    <OptionROM>Enabled</OptionROM>
    <BootProtocol>None</BootProtocol>
    <BootStrapType>Auto</BootStrapType>
    <HideSetupPrompt>Disabled</HideSetupPrompt>
    <SetupKeyStroke>Ctrl-S</SetupKeyStroke>
    <BannerMessageTimeout>5</BannerMessageTimeout>
    <LinkSpeed>AutoNeg</LinkSpeed>
    <Pre-bootWakeonLAN>disable</Pre-bootWakeonLAN>
    <VLANmode>disable</VLANmode>
    <VLANID>1</VLANID>
    <BootRetryCount>0</BootRetryCount>
</MBAConfiguration>
```

Table B-1 lists the range of values for the MBA configuration parameters used in the MBA configuration XML file.

Table B-1. MBA Configuration Parameters

Parameter	Value Range
OptionROM	Enabled | Disabled
BootProtocol [a]	None | PXE | RPL | iSCSI Boot [b] | FCoE Boot (for adapters based on 57*xx*/57*xxx* controllers) None | UNDI (PXE) | iBFT [c] (for 3400/8400/41000/45000 Series Adapters)
BootStrapType	Auto | BBS | INT 18h | INT 19h
HideSetupPrompt	Enabled | Disabled
SetupKeyStroke	Ctrl-S | Ctrl-B
BannerMessageTimeout	0–14
LinkSpeed [d]	AutoNeg | 1 Gbps | 10 Gbps | 10M Half | 100M Half | 100M Full | 1000M Half | 1000M Full | 2.5G | 10G | 20G | 25G | 40G | 50G | 100G
Pre-bootWakeonLAN	Enabled | Disabled
VLANmode	Enabled | Disabled
VLANID	1–4094
BootRetryCount	0–7

a For 3400/8400/41000/45000 Series Adapters, only the last saved `BootProtocol` setting is used. If the `BootProtocol` is set to `iBFT`, set the iSCSI `Boot Mode` to `Non-Offload` and the iSCSI `BootProtocol` to `iSCSI` (see Table B-3 on page 159).

b The `iSCSI Boot` protocol applies to boot or iBFT.

c For software iSCSI boot, set the `BootProtocol` to `iBFT` and the iSCSI boot configuration `BootMode` to `Non-Offload` (see Table B-3 on page 159).
For hardware iSCSI boot, set the `BootProtocol` to `iSCSI Boot` and the iSCSI boot configuration `BootMode` to `Offload` (see Table B-3 on page 159).

d For PXE boot, ensure that the this setting is the same value on both ports.

iSCSI Boot Configuration XML File

The following sections show examples of iSCSI boot configuration XML files. For details about the command, see "Boot Configuration" on page 33.

iSCSI Example Configuration File for Adapters Based on 57*xx*/57*xxx* Controllers

```
<?xml version="1.0" encoding="UTF-8"?>
    <iSCSIBootConfiguration>
        <QCScli><Version>30.0.56.0</Version></QCScli>
        <iSCSIGeneral>
            <TCPIPviaDHCP>Disabled</TCPIPviaDHCP>
            <iSCSIPviaDHCP>Disabled</iSCSIPviaDHCP>
            <CHAPAuthentication>Disabled</CHAPAuthentication>
            <BoottoiSCSITarget>Enabled</BoottoiSCSITarget>
            <DHCPVendorID>QLGCISAN</DHCPVendorID>
            <LinkUpDelayTime>0</LinkUpDelayTime>
            <UseTCPTimestamp>Disabled</UseTCPTimestamp>
            <TargetasFirstHDD>Disabled</TargetasFirstHDD>
            <LUNBusyRetryCount>0</LUNBusyRetryCount>
            <IPVersion>IPv4</IPVersion>
            <SubnetMask>0.0.0.0</SubnetMask>
            <WindowsHBABootMode>Disabled</WindowsHBABootMode>
        </iSCSIGeneral>
        <IscsiInitiator>
            <IPAddress>192.168.100.24</IPAddress>
            <SubnetMask>255.255.2555.0</SubnetMask>
            <DefaultGateWay>192.168.100.1</DefaultGateWay>
            <PrimaryDNS>192.168.100.2</PrimaryDNS>
```

```
        <SecondaryDNS>192.168.100.3</SecondaryDNS>
        <iSCSIName>iqn</iSCSIName>
        <CHAPID>user</CHAPID>
        <CHAPSecret>password</CHAPSecret>
    </IscsiInitiator>
    <IscsiTarget>
        <Connect>Enabled</Connect>
        <IPAddress>192.168.100.10</IPAddress>
        <TCPPort>3260</TCPPort>
        <BootLun>1</BootLun>
        <iSCSIName>targetiqn</iSCSIName>
        <CHAPID>admin</CHAPID>
        <CHAPSecret>password1</CHAPSecret>
    </IscsiTarget>
    <IscsiSecTarget>
        <Connect>Disabled</Connect>
        <IPAddress></IPAddress>
        <TCPPort>0</TCPPort>
        <BootLun>0</BootLun>
        <iSCSIName></iSCSIName>
        <CHAPID></CHAPID>
        <CHAPSecret></CHAPSecret>
    </IscsiSecTarget>
    <IscsiMPIO>
        <EnableMPIO>Enabled</EnableMPIO>
        <SecondaryDevice ></SecondaryDevice>
        <UseIndependentTargetPortal>Disabled</UseIndependentTargetPortal>
        <UseIndependentTargetName>Disabled</UseIndependentTargetName>
    </IscsiMPIO>
</iSCSIBootConfiguration>
```

Table B-2 lists the range of values for the iSCSI boot configuration parameters for adapters based on 57*xx*/57*xxx* controllers used in the iSCSI boot configuration XML file.

Table B-2. iSCSI Boot Configuration Parameters for Adapters Based on 57xx/57xxx Controllers

Parameter	Value Range or Description
iSCSI General Parameters	
TCPIPviaDHCP	Enabled | Disabled
iSCSIviaDHCP	Enabled | Disabled
CHAPAuthentication	Enabled | Disabled
BoottoiSCSITarget	Enabled | Disabled | One Time Disabled
DHCPVendorID	Vendor ID string
LinkUpDelayTime	0-255
UseTCPTimestamp	Enabled | Disabled
TargetasFirstHDD	Enabled | Disabled
LUNBusyRetryCount	0-60
IPVersion	IPv4 | IPv6
WindowsHBABootMode	Enabled | Disabled
iSCSI Initiator Parameters	
IPAddress	IPv4 or IPv6 format IP address
SubnetMask	IPv4 or IPv6 format IP address
DefaultGateWay	IPv4 or IPv6 format IP address
PrimaryDNS	IPv4 or IPv6 format IP address
SecondaryDNS	IPv4 or IPv6 format IP address
iSCSIName	Initiator iSCSI qualified name (IQN)
CHAPID	CHAP ID
CHAPSecret	CHAP password

Table B-2. iSCSI Boot Configuration Parameters for Adapters Based on 57xx/57xxx Controllers (Continued)

Parameter	Value Range or Description
iSCSI Target and iSCSI Second Target Parameters	
Connect	Enabled | Disabled
IPAddress	IPv4 or IPv6 format IP address
TCPPort	TCP Port, default value = 3260
BootLun	0-65535
iSCSIName	Target IQN name
CHAPID	CHAP ID
CHAPSecret	CHAP password
EnableMPIO	Enabled | Disabled
iSCSI MPIO Parameters	
SecondaryDevice	Secondary device name
UseIndependentTargetPortal	Enabled | Disabled
UseIndependentTargetName	Enabled | Disabled

iSCSI Example Configuration File for 8400/41000/45000 Series Adapters

```
<?xml version="1.0" encoding="UTF-8"?>
    <iSCSIBootConfiguration>
    <QCScli><Version>30.0.56.0</Version></QCScli>
    <iSCSIGeneral>
        <BootProtocol>iSCSI</BootProtocol>
        <BootMode>Non-Offload</BootMode>
        <TCPIPviaDHCP>Disabled</TCPIPviaDHCP>
        <iSCSIPviaDHCP>Disabled</iSCSIPviaDHCP>
        <CHAPAuthentication>Disabled</CHAPAuthentication>
        <DHCPVendorID>QLGC ISAN</DHCPVendorID>
        <DHCPRequestTimeout>60</DHCPRequestTimeout>
        <TargetLoginTimeout>60</TargetLoginTimeout>
        <IPVersion>IPv4</IPVersion>
        <IPv4Fallback>Disabled</IPv4Fallback>
```

```xml
        <VLANID>0</VLANID>
        <AddressRedirect>Disabled</AddressRedirect>
    </iSCSIGeneral>
    <IscsiInitiator>
        <IPAddress>192.168.100.24</IPAddress>
        <SubnetMask>255.255.255.0</SubnetMask>
        <DefaultGateWay>192.168.100.1</DefaultGateWay>
        <PrimaryDNS>192.168.100.2</PrimaryDNS>
        <SecondaryDNS>192.168.100.3</SecondaryDNS>
        <iSCSIName>iqn</iSCSIName>
        <CHAPID>user</CHAPID>
        <CHAPSecret>password</CHAPSecret>
    </IscsiInitiator>
    <IscsiTarget>
        <Connect>Enabled</Connect>
        <IPAddress>192.168.100.10</IPAddress>
        <TCPPort>3260</TCPPort>
        <BootLun>1</BootLun>
        <iSCSIName>targetiqn</iSCSIName>
        <CHAPID>admin</CHAPID>
        <CHAPSecret>password1</CHAPSecret>
    </IscsiTarget>
    <IscsiSecTarget>
        <Connect>Disabled</Connect>
        <IPAddress></IPAddress>
        <TCPPort>0</TCPPort>
        <BootLun>0</BootLun>
        <iSCSIName></iSCSIName>
        <CHAPID></CHAPID>
        <CHAPSecret></CHAPSecret>
    </IscsiSecTarget>
</iSCSIBootConfiguration>
```

Table B-3 lists the range of values for the iSCSI boot configuration parameters for 8400/41000/45000 Series Adapters used in the iSCSI boot configuration XML file.

Table B-3. iSCSI Boot Configuration Parameters for 8400/41000/45000 Series Adapters

Parameter	Value Range or Description
iSCSI General Parameters	
BootProtocol [a]	None | iSCSI
BootMode	Offload | Non-Offload
TCPIPviaDHCP	Enabled | Disabled
iSCSIviaDHCP	Enabled | Disabled
CHAPAuthentication	Enabled | Disabled
DHCPVendorID	Vendor ID string
DHCPRequestTimeout	0-65535
TargetLoginTimeout	0-65535
IPVersion	IPv4 | IPv6
IPv4Fallback	Enabled | Disabled
VLANID	0-4094
Address Redirect	Enabled | Disabled
iSCSI Initiator Parameters	
IPAddress	IPv4 or IPv6 format IP address
SubnetMask	IPv4 or IPv6 format IP address
DefaultGateWay	IPv4 or IPv6 format IP address
PrimaryDNS	IPv4 or IPv6 format IP address
SecondaryDNS	IPv4 or IPv6 format IP address
iSCSIName	Initiator iSCSI qualified name (IQN)
CHAPID	CHAP ID
CHAPSecret	CHAP password

Table B-3. iSCSI Boot Configuration Parameters for 8400/41000/45000 Series Adapters (Continued)

Parameter	Value Range or Description
iSCSI Target and iSCSI Second Target Parameters	
Connect	Enabled | Disabled
IPAddress	IPv4 or IPv6 format IP address
TCPPort	TCP port; default value is 3260
BootLun	0-65535
iSCSIName	Target IQN name
CHAPID	CHAP ID
CHAPSecret	CHAP password

a For 8400/41000/45000 Series Adapters, only the last saved BootProtocol setting is used. If the BootProtocol is set to iSCSI *and* the BootMode is set to Non-Offload, set the MBA BootProtocol to iBFT. (see Table B-1 on page 153).

FCoE Boot Configuration XML File

The following sections show examples of FCoE boot configuration XML files. For details about the command, see "Boot Configuration" on page 33.

FCoE Example Configuration File for 8400 Series Adapters and Adapters Based on 57712/578*xx* Controllers

> **NOTE**
>
> The 57*xx* (5706/5708/5709/5716) and 57710/57711 adapters do not support FCoE.

```
<?xml version="1.0" encoding="UTF-8"?>
    <FCoEBootConfiguration>
    <QCScli><Version>30.0.56.0</Version></QCScli>
    <FCoEGeneral>
        <BoottoFCoETarget>Enabled</BoottoFCoETarget>
        <TargetasFirstHDD>Disabled</TargetasFirstHDD>
        <LinkUpDelayTime>0</LinkUpDelayTime>
        <LUNBusyRetryCount>0</LUNBusyRetryCount>
        <FabricDiscoveryTimeout>4</FabricDiscoveryTimeout>
```

```
        <FCoEHBABootMode>Enabled</FCoEHBABootMode>
</FCoEGeneral>
<FCoETarget>
    <Target>
        <Index>0</Index>
        <Connect>Enabled</Connect>
        <PortWWN>207000c0001e47fb</PortWWN>
        <BootLun>1</BootLun>
    </Target>
    <Target>
        <Index>1</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>2</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>3</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>4</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>5</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
```

```
<Target>
    <Index>6</Index>
    <Connect>Disabled</Connect>
    <PortWWN>0000000000000000</PortWWN>
    <BootLun>0</BootLun>
</Target>
<Target>
    <Index>7</Index>
    <Connect>Disabled</Connect>
    <PortWWN>0000000000000000</PortWWN>
    <BootLun>0</BootLun>
</Target>
    </FCoETarget>
</FCoEBootConfiguration>
```

Table B-4 lists the range of values for the FCoE boot configuration parameters for 8400 Series Adapters and adapters based on 57712/578*xx* controllers used in the FCoE boot configuration XML file.

Table B-4. FCoE Boot Configuration Parameters for 8400 Series Adapters and Adapters Based on 57712/578xx Controllers

Parameter	Value Range or Description
FCoE General Parameters	
BoottoFCoETarget	Enabled | Disabled | One Time Disabled
TargetasFirstHDD	Enabled | Disabled
LinkUpDelayTime	0-255
LUNBusyRetryCount	0-60
FabricDiscoveryTimeout	0-8
FCoEHBABootMode	Enabled [a]
FCoE Target (0–7) Parameters	
Connect	Enabled | Disabled
PortWWN	64-bit port WWN address
BootLun	0-65535

[a] You cannot disable the FCoEHBABootMode parameter; it is always enabled for an FCoE remote boot.

FCoE Example Configuration File for 41000/45000 Series Adapters

```xml
<?xml version="1.0" encoding="UTF-8"?>
    <FCoEBootConfiguration>
    <QCScli><Version>30.0.56.0</Version></QCScli>
    <FCoEGeneral>
        <BootProtocol>FCoE</BootProtocol>
        <FIPVLAN>0</FIPVLAN>
        <FabricLoginRetryCount>5</FabricLoginRetryCount>
        <TargetLoginRetryCount>5</TargetLoginRetryCount>
    </FCoEGeneral>
    <FCoETarget>
        <Target>
            <Index>0</Index>
            <Connect>Enabled</Connect>
            <PortWWN>207000c0001e47fb</PortWWN>
            <BootLun>1</BootLun>
        </Target>
        <Target>
            <Index>1</Index>
            <Connect>Disabled</Connect>
            <PortWWN>0000000000000000</PortWWN>
            <BootLun>0</BootLun>
        </Target>
        <Target>
            <Index>2</Index>
            <Connect>Disabled</Connect>
            <PortWWN>0000000000000000</PortWWN>
            <BootLun>0</BootLun>
        </Target>
        <Target>
            <Index>3</Index>
            <Connect>Disabled</Connect>
            <PortWWN>0000000000000000</PortWWN>
            <BootLun>0</BootLun>
        </Target>
        <Target>
            <Index>4</Index>
            <Connect>Disabled</Connect>
```

```
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>5</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>6</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
    <Target>
        <Index>7</Index>
        <Connect>Disabled</Connect>
        <PortWWN>0000000000000000</PortWWN>
        <BootLun>0</BootLun>
    </Target>
</FCoETarget>
</FCoEBootConfiguration>
```

Table B-5 lists the range of values for the FCoE boot configuration parameters for 41000/45000 Series Adapters used in the FCoE boot configuration XML file.

Table B-5. FCoE Boot Configuration Parameters for 41000/45000 Series Adapters

Parameter	Value Range or Description
FCoE General Parameters	
BootProtocol [a]	None | FCoE
FIPVLAN	0-4094
FabricLoginRetryCount	0-60
TargetLoginRetryCount	0-60

Table B-5. FCoE Boot Configuration Parameters for 41000/45000 Series Adapters (Continued)

Parameter	Value Range or Description
FCoE Target (0–7) Parameters	
Connect	Enabled | Disabled
PortWWN	64-bit port WWN address
BootLun	0-65535

[a] For 41000/45000 Series Adapters, only the last saved `BootProtocol` setting is used.

NIC Partition Configuration XML Files

The following show examples of NIC partition (NPAR) configuration XML files for Windows and Linux. For details about the command, see .

Windows NIC Partition

> **NOTE**
>
> To view and configure NPAR for the 57*xxx* family of adapters, ensure that the virtual bus device (VBD) instances (in the Windows Device Manager under **System devices**) corresponding to PCI functions `0` and `1` are enabled.

Example 1: Configuring a NIC Partition on Windows

```xml
<?xml version="1.0" encoding="UTF-8" ?>
   <MultiFunctionConfiguration>
     <Version>2</Version>
     <MultiFunctionMode>NIC Partition</MultiFunctionMode>
     <PortConfig>
       <Port>0</Port>
       <FlowControl>Auto</FlowControl>
       <FunctionConfig>
         <Function>0</Function>
         <EthernetNdis>Enable</EthernetNdis>
         <iSCSI>Enable</iSCSI>
         <FCoE>Disable</FCoE>
         <RelativeBandwidth>1</RelativeBandwidth>
```

```
        <MaxBandwidth>0</MaxBandwidth>
      </FunctionConfig>
      <FunctionConfig>
        <Function>2</Function>
        <EthernetNdis>Enable</EthernetNdis>
        <iSCSI>Disable</iSCSI>
        <FCoE>Disable</FCoE>
        <RelativeBandwidth>1</RelativeBandwidth>
        <MaxBandwidth>0</MaxBandwidth>
      </FunctionConfig>
      <FunctionConfig>
        <Function>4</Function>
        <EthernetNdis>Enable</EthernetNdis>
        <iSCSI>Disable</iSCSI>
        <FCoE>Disable</FCoE>
        <RelativeBandwidth>1</RelativeBandwidth>
        <MaxBandwidth>0</MaxBandwidth>
      </FunctionConfig>
      <FunctionConfig>
        <Function>6</Function>
        <EthernetNdis>Enable</EthernetNdis>
        <iSCSI>Disable</iSCSI>
        <FCoE>Disable</FCoE>
        <RelativeBandwidth>97</RelativeBandwidth>
        <MaxBandwidth>0</MaxBandwidth>
      </FunctionConfig>
    </PortConfig>
    <PortConfig>
      <Port>1</Port>
      <FlowControl>Auto</FlowControl>
      <FunctionConfig>
        <Function>1</Function>
        <EthernetNdis>Enable</EthernetNdis>
        <iSCSI>Disable</iSCSI>
        <FCoE>Disable</FCoE>
        <RelativeBandwidth>10</RelativeBandwidth>
        <MaxBandwidth>0</MaxBandwidth>
      </FunctionConfig>
      <FunctionConfig>
```

```
                    <Function>3</Function>
                    <EthernetNdis>Enable</EthernetNdis>
                    <iSCSI>Enable</iSCSI>
                    <FCoE>Disable</FCoE>
                    <RelativeBandwidth>20</RelativeBandwidth>
                    <MaxBandwidth>0</MaxBandwidth>
                </FunctionConfig>
                <FunctionConfig>
                    <Function>5</Function>
                    <EthernetNdis>Enable</EthernetNdis>
                    <iSCSI>Disable</iSCSI>
                    <FCoE>Disable</FCoE>
                    <RelativeBandwidth>30</RelativeBandwidth>
                    <MaxBandwidth>0</MaxBandwidth>
                </FunctionConfig>
                <FunctionConfig>
                    <Function>7</Function>
                    <EthernetNdis>Enable</EthernetNdis>
                    <iSCSI>Disable</iSCSI>
                    <FCoE>Disable</FCoE>
                    <RelativeBandwidth>40</RelativeBandwidth>
                    <MaxBandwidth>0</MaxBandwidth>
                </FunctionConfig>
            </PortConfig>
        </MultiFunctionConfiguration>
```

Example 2: Configuring a NIC Partition on Windows

```
<?xml version="1.0" encoding="UTF-8" ?>
    <MultiFunctionConfiguration>
        <Version>2</Version>
        <MultiFunctionMode>AFEX</MultiFunctionMode>
        <PortConfig>
            <Port>0</Port>
            <FlowControl>Auto</FlowControl>
            <FunctionConfig>
                <Function>0</Function>
                <EthernetNdis>Enable</EthernetNdis>
                <iSCSI>Enable</iSCSI>
                <FCoE>Disable</FCoE>
```

```
                <RelativeBandwidth>1</RelativeBandwidth>
                <MaxBandwidth>0</MaxBandwidth>
                <AFEXVIFProfile>file_name</AFEXVIFProfile>
            </FunctionConfig>
        ...
        </PortConfig>
        <PortConfig>
        ...
        </PortConfig>
    </MultiFunctionConfiguration>
```

Example 3: Disabling a NIC Partition on Windows

```
<?xml version="1.0" encoding="UTF-8" ?>
    <MultiFunctionConfiguration>
        <Version>2</Version>
        <MultiFunctionMode>SingleFunction</MultiFunctionMode>
    </MultiFunctionConfiguration>
```

Linux NIC Partition

Example 1: Configuring a NIC Partition on Linux

```
<?xml version="1.0" encoding="UTF-8" ?>
    <MultiFunctionConfiguration>
        <Version>2</Version>
        <NicPartition>Enabled</NicPartition>
        <PortConfig>
            <Port>0</Port>
            <FlowControl>Auto</FlowControl>
            <FunctionConfig>
                <Function>0</Function>
                <EthernetNdis>Enable</EthernetNdis>
                <iSCSI>Enable</iSCSI>
                <FCoE>Disable</FCoE>
                <RelativeBandwidth>1</RelativeBandwidth>
                <MaxBandwidth>0</MaxBandwidth>
            </FunctionConfig>
            <FunctionConfig>
                <Function>2</Function>
                <EthernetNdis>Enable</EthernetNdis>
                <iSCSI>Disable</iSCSI>
```

```
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>1</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
    </FunctionConfig>
    <FunctionConfig>
      <Function>4</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <iSCSI>Disable</iSCSI>
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>1</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
    </FunctionConfig>
    <FunctionConfig>
      <Function>6</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <iSCSI>Disable</iSCSI>
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>97</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
    </FunctionConfig>
  </PortConfig>
  <PortConfig>
    <Port>1</Port>
    <FlowControl>Auto</FlowControl>
    <FunctionConfig>
      <Function>1</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <iSCSI>Disable</iSCSI>
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>10</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
    </FunctionConfig>
    <FunctionConfig>
      <Function>3</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <iSCSI>Enable</iSCSI>
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>20</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
```

```
    </FunctionConfig>
    <FunctionConfig>
      <Function>5</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <iSCSI>Disable</iSCSI>
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>30</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
    </FunctionConfig>
    <FunctionConfig>
      <Function>7</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <iSCSI>Disable</iSCSI>
      <FCoE>Disable</FCoE>
      <RelativeBandwidth>40</RelativeBandwidth>
      <MaxBandwidth>0</MaxBandwidth>
    </FunctionConfig>
  </PortConfig>
</MultiFunctionConfiguration>
```

Example 2: Disabling a NIC Partition on Linux

```
<?xml version="1.0" encoding="UTF-8" ?>
  <MultiFunctionConfiguration>
    <Version>2</Version>
    <NicPartition>Disbled</NicPartition>
  </MultiFunctionConfiguration>
```

RoCE and iWARP Configuration (Windows and Linux)

```
<?xml version="1.0" encoding="UTF-8"?>
  <MultiFunctionConfiguration>
      <Version>8</Version>
      <MultiFunctionMode>Multi-Function</MultiFunctionMode>
      <EPMode>Disabled</EPMode>
  <PortConfig><Port>0</Port>
  <FlowControl>Auto</FlowControl>
  <FunctionConfig><Function>0</Function>
      <EthernetNdis>Enable</EthernetNdis>
      <RoCE>Disable</RoCE>
      <RelativeBandwidth>0</RelativeBandwidth>
```

```
          <MaxBandwidth>100</MaxBandwidth>
     </FunctionConfig><FunctionConfig>
     <Function>2</Function>
          <EthernetNdis>Enable</EthernetNdis>
          <RelativeBandwidth>0</RelativeBandwidth>
          <MaxBandwidth>100</MaxBandwidth>
     </FunctionConfig><FunctionConfig>
     <Function>4</Function>
          <EthernetNdis>Enable</EthernetNdis>
          <RelativeBandwidth>0</RelativeBandwidth>
          <MaxBandwidth>100</MaxBandwidth>
     </FunctionConfig>
.
.
.

     </PortConfig>
     <PortConfig><Port>1</Port>
     <FlowControl>Auto</FlowControl><FunctionConfig>
     <Function>1</Function>
          <EthernetNdis>Enable</EthernetNdis>
          <RoCE>Disable</RoCE>
          <RelativeBandwidth>0</RelativeBandwidth>
          <MaxBandwidth>100</MaxBandwidth>
     </FunctionConfig>
     <FunctionConfig>
     <Function>3</Function>
          <EthernetNdis>Enable</EthernetNdis>
          <RelativeBandwidth>0</RelativeBandwidth>
          <MaxBandwidth>100</MaxBandwidth>
     </FunctionConfig>
.
.
.

     <FunctionConfig><Function>15</Function>
          <EthernetNdis>Disable</EthernetNdis>
          <RelativeBandwidth>0</RelativeBandwidth>
          <MaxBandwidth>100</MaxBandwidth>
     </FunctionConfig>
```

```
</PortConfig>
</MultiFunctionConfiguration>
```

SR-IOV Configuration XML Files

The following sections show examples of SR-IOV configuration XML files in single function mode (for models BCM57712, BCM578*xx*, QLE344*x*, QLE844*x*, 41000 Series and 45000 Series) and in NPAR mode. For details about the command, see "Configure SR-IOV" on page 64.

Single Function Mode

```
<?xml version="1.0" encoding="UTF-8"?>
    <SriovConfigurations>
        <Mode>SF Mode</Mode>
        <SriovEnabled>Enabled</SriovEnabled>
        <PortCfg>
            <Port>0</Port>
            <NumOfVF>64</NumOfVF>
        </PortCfg>
        <PortCfg>
            <Port>1</Port>
            <NumOfVF>64</NumOfVF>
        </PortCfg>
    </SriovConfigurations>
```

NPAR Mode

For the following SR-IOV configuration example XML file in NPAR mode:

■ SR-IOV is not allowed on NPAR'd partitions (functions) that have FCoE-Offload or iSCSI-Offload enabled on them.

■ SR-IOV is not enumerated on the following:

❑ Port 0 Function 0 (with FCoE-Offload enabled)
❑ Port 0 Function 2 (with iSCSI-Offload enabled)
❑ Port 1 Function 5 (with FCoE-Offload enabled)
❑ Port 1 Function 7 (with iSCSI-Offload enabled)

```
<?xml version="1.0" encoding="UTF-8"?>
<SriovConfigurations>
  <Mode>MF Mode</Mode>
  <SriovEnabled>Disabled</SriovEnabled>
  <PortCfg>
```

```
      <Port>0</Port>
        <FunctionCfg>
          <Function>4</Function>
          <NumOfVF>0</NumOfVF>
          <MaxChains>8</MaxChains>
        </FunctionCfg>
        <FunctionCfg>
          <Function>6</Function>
          <NumOfVF>0</NumOfVF>
          <MaxChains>56</MaxChains>
        </FunctionCfg>
      </PortCfg>
      <PortCfg>
        <Port>1</Port>
          <FunctionCfg>
            <Function>1</Function>
            <NumOfVF>48</NumOfVF>
            <MaxChains>16</MaxChains>
          </FunctionCfg>
          <FunctionCfg>
            <Function>3</Function>
            <NumOfVF>0</NumOfVF>
            <MaxChains>16</MaxChains>
          </FunctionCfg>
      </PortCfg>
</SriovConfigurations>
```

Table B-6 lists the range of values for the SR-IOV configuration parameters used in the SR-IOV configuration XML file.

Table B-6. SR-IOV Configuration Parameters

Parameter	Value Range
Mode	MF Mode | SF Mode
SriovEnabled	Enabled | Disabled
Port	0–3 (Generally, these values are pre-enumerated)

Table B-6. SR-IOV Configuration Parameters (Continued)

Parameter	Value Range
Function	`0-7` (BCM57712, BCM578*xx*, single-port QL45*xxx*, QLE344*x*, and QLE844*x* adapters) `0-15` (dual- and quad-port QL45*xxx* adapters and single-, dual-, quad-port QL41*xxx* adapters) (Generally, these values are pre-enumerated.)
NumOfVF	`0-<max allowed>` `all` in groups of 8 `total sum per port`, where: ■ `64` (single- and dual-port BCM57712, BCM578*xx*, QLE344*x*, and QLE844*x* adapters) ■ `32` (quad-port BCM57840 adapters) ■ `120` (single-, dual-, and quad-port QL45*xxx* adapters) ■ `192` (up to 192 VFs assigned to any PF on any port in single-, dual-, or quad-port modes for QL41*xxx* adapters. Unlimited quantity of VFs per port)
MaxChains	`0-16` (the maximum quantity of RSS or TSS queues that could be allocated to an SR-IOV VF)

DCBX Configuration XML File

Example 1: Configurable Settings

The following shows an example of a DCBX configuration XML file.

```
<?xml version="1.0" encoding="UTF-8"?>
    <DcbxConfiguration>
        <OverwriteSettings>no</OverwriteSettings>
        <PfcEnable>Enable</PfcEnable>
        <EtsEnable>Enable</EtsEnable>
        <LocalMachineWilling>Yes</LocalMachineWilling>
```

```
            <ComSetting>
                 <NetPri>0</NetPri>
                 <FcoePri>3</FcoePri>
                 <IscsiPri>0</IscsiPri>
                 <NetPfcEnable>Disable</NetPfcEnable>
                 <FcoePfcEnable>Enable</FcoePfcEnable>
                 <IscsiPfcEnable>Disable</IscsiPfcEnable>
                 <NetPgid>1</NetPgid>
                 <FcoePgid>2</FcoePgid>
                 <IscsiPgid>1</IscsiPgid>
            </ComSetting>
            <PgidBW1>50</PgidBW1>
            <PgidBW2>50</PgidBW2>
            <PgidBW3>0</PgidBW3>
      </DcbxConfiguration>
```

Table B-7 lists the range of values for the DCBX configuration parameters used in
the DCBX configuration XML file.

Table B-7. DCBX Configuration Parameters

Parameter	Value Range
OverwriteSettings	Yes | No
PfcEnable	Enabled | Disabled
EtsEnable	Enabled | Disabled
LocalMachineWilling	Yes | No

ComSettings:
  NetPri
  FcoePri
  IscsiPri
 	
  NetPfcEnable
  FcoePfcEnable
  IscsiPfcEnable
  NetPgid
  FcoePgid
  IscsiPgid
	
	0
	0 (if not used) | 3
	0 (if not using lossless iSCSI-Offload-TLV over DCB) | 4
	Enabled | Disabled
	Enabled | Disabled
	Enabled | Disabled
	1
	1 (if not used) | 2
	1 (if not using Lossless iSCSI-Offload-TLV over DCB) | 3

Table B-7. DCBX Configuration Parameters (Continued)

Parameter	Value Range
PgidBW1	0–100 (sum total of all enhanced transmission selection [ETS] bandwidths must be equal to or less than 100; Cavium recommends setting this value to 0)
PgidBW2	0–100 (sum total of all ETS bandwidths must be equal to or less than 100; Cavium recommends setting this value to 0)
PgidBW3	0–100 (sum total of all ETS bandwidths must be equal to or less than 100; Cavium recommends setting this value to 0)

Example 2: Read-only Port-level Settings for 41000/45000 Series

```
WIN-LVUQM6PL466\devcon\1\port>info

Vital Signs
------------------------
Link State               N/A

Resource
------------------------
Bus Number               1
Device Number            0
Interrupt Request        0
Function Per Port         1
Memory Address           0xD95E
Physical Type            Optical

OS aware DCBX state -- QoS policy used
DCBX Enabled in NVRAM - DYNAMIC
QoS driver parameter is enabled
Network Adapter Name   : [0048] QLogic 2x1GE+2x10GE QL41264HMCU
CNA #48
QoS Enabled      : True
Current Qos Capabilities         :
MACsec Bypass Supported : Not Supported
CEE Supported    : Not Supported
IEEE Supported   : Not Supported
Traffic Classes (TCs)    : 0
```

```
ETS-Capable TCs : 0
PFC-Enabled TCs : 0
Hardware Qos Capabilities        :
MACsec Bypass Supported : Not Supported
CEE Supported   : Supported
IEEE Supported  : Supported
Traffic Classes (TCs)   : 4
ETS-Capable TCs : 4
PFC-Enabled TCs : 4
```

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- "License of libxml2" on page 179
- "License of libedit (Linux Only)" on page 180
- "License of libcurl" on page 181

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D **Exit Codes**

Table D-1 lists the exit codes that indicate the level of success for a command.

Table D-1. QLogic Control Suite CLI Exit Codes

Code Text	Code Number	Meaning
QCSCLI_OK	0	Upgrade firmware OK
QCSCLI_QUIT	1	Quit program
QCSCLI_PARAM_ERROR	2	Not correct parameters
QCSCLI_ADAPTER_NOT_FOUND	3	Adapter not found
QCSCLI_CANNOT_LOCK_ADAPTER	4	Cannot lock adapter
QCSCLI_GET_CLOSE_EVENT	5	Get close event
QCSCLI_INIT_FAILED	6	Initialization failed
QCSCLI_UNSUPPORTED_BMAPI_VER	7	QLMAPI is too old
QCSCLI_UNKNOWN_COMMAND	8	Unknown command
QCSCLI_MALLOC_ERROR	9	Memory allocation error
QCSCLI_BMAPI_ERROR	10	QLMAPI call returns error

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
QCSCLI_OS_NOT_SUPPORTED	11	OS is not supported
QCSCLI_NO_ADVANCED_PARAMS NIC	12	No advanced parameter for the NIC
QCSCLI_INVALID_ADVANCED_PARAM_DETECTED	13	Invalid advanced parameter detected
QCSCLI_INVALID_ADVANCED_PARAM_SPECIFIED	14	Invalid advanced parameter specified
QCSCLI_INVALID_ADVANCED_VALUE_SPECIFIED	15	Invalid advanced value specified
QCSCLI_FEATURE_NOT_SUPPORTED_FOR_NIC	16	Feature not supported for the NIC
QCSCLI_SET_ADVANCED_PARAM_ERROR	17	Failed to set the advanced parameter with new value
QCSCLI_SYSTEM_REBOOT	18	System reboot required
QCSCLI_UNSUPPORT_PLATFORM	19	System platform is not supported
QCSCLI_NOT_ENOUGH_PRIVILEGE	20	Current user does not have enough privilege
QCSCLI_READ_LICENSE_FILE_ERROR	21	Error in reading license file
QCSCLI_INVALID_LICENSE_KEY	22	Invalid license key
QCSCLI_INVALID_ISCSI_PARAM_SPECIFIED	23	Invalid iSCSI management parameter specified
QCSCLI_INVALID_ISCSI_VALUE_SPECIFIED	24	Invalid iSCSI management value specified
QCSCLI_INVALID_RSC_PARAM_SPECIFIED	25	Invalid resource parameter specified
QCSCLI_INVALID_RSC_VALUE_SPECIFIED	26	Invalid resource value specified
QCSCLI_FEATURE_NOT_SUPPORTED_IN_FCFS	27	Feature not supported in FCFS mode
QCSCLI_PARAM_IS_READ_ONLY	28	This parameter cannot be modified; administrator authority is required

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
QCSCLI_NULL_IP_ADDRESS	29	The current IP address is NULL
QCSCLI_CANNOT_UNLOCK_ADAPTER	30	Failed to unlock adapter
QCSCLI_INVALID_VALUE_SPECIFIED	31	Invalid value specified
QCSCLI_NIC_IS_PART_OF_GEC_LACP_TEAM	32	NIC is part of a GEC or LACP team
QCSCLI_REGISTRY_ACCESS_ERROR	33	Error in accessing registry
QCSCLI_NOT_AN_ISCSI_BOOT_DEVICE	34	This is not an iSCSI boot device
QCSCLI_INVALID_IP_ADDRESS	35	Invalid IP address
QCSCLI_DUPLICATE_IP_ADDRESS	36	Duplicate IP address
QCSCLI_TEAM_DRIVER_NOT_LOAD	37	NIC(%s) driver must be loaded to make it a member of a team
QCSCLI_NDIS6_DRIVER_REQUIRED	38	NDIS 6 driver is required for the NIC to join the team in Windows Vista and later
QCSCLI_TEAM_UNKNOW_NIC	39	Unknown NIC (%s)
QCSCLI_INVALID_SUBNET_MASK	40	Invalid subnet mask
QCSCLI_INVALID_CMD	41	Invalid command
QCSCLI_INVALID_FCOE_PARAM_SPECIFIED	42	Invalid FCoE management parameter specified
QCSCLI_INVALID_FCOE_VALUE_SPECIFIED	43	Invalid FCoE management value specified
QCSCLI_DEFAULT_FAILED	44	Failed to set the NDIS advanced settings as default values
QCSCLI_DATA_OBJECT_IS_NULL	45	Failed to get the data object

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
QCSCLI_CLIID_IS_NULL	46	CLI ID is NULL
QCSCLI_EXCEED_MAX_PWD_LENGTH	47	Exceed the maximum length of password
QCSCLI_GET_BREAK_EVENT	48	Get break event
QCSCLI_INVALID__FILE_NAME	49	Invalid iSCSI interface ( ) file name specified
QCSCLI_DUPLICATED__FILE_NAME	50	Duplicated file name specified
QCSCLI_INCOMPATIBLE_ISCSI_PARAM_SPECIFIED	51	Incompatible iSCSI management parameter specified
QCSCLI_ISCSI_PARAM_MISSING	52	iSCSI management parameter is missing
QCSCLI_NOT_YET_IMPL	1000	This functionality is not yet implemented
QCSCLI_UNWIND	1001	Unwind to the parent processor
QCSCLI_NOT_APPLICABLE	1002	Command not applicable
QCSCLI_NO_TARGET_SEL	1003	No active target selection
QCSCLI_INVALID_CONTEXT	1004	Not a valid context
QCSCLI_INVALID_FORMAT	1005	Invalid format selection
QCSCLI_INVALID_TARGET_ID	1006	Invalid target identifier
QCSCLI_FILE_DOES_NOT_EXIST	1007	File does not exist
QCSCLI_INVALID_TEAM_NAME	1008	Supplied team name is invalid
QCSCLI_TEAM_COMMIT_FAILED	1009	Failed to commit the team operation
QCSCLI_TEAM_REMOVE_FAILED	1010	Failed to remove the team

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
QCSCLI_CANNOT_OPEN_FILE	1011	Failed to open the file handle
QCSCLI_ERR_CANNOT_SET_IPADDR	1012	Failed to set IP address
QCSCLI_ERR_CANNOT_GET_NIC_PCI_INFO	1013	Failure retrieving NIC information
QCSCLI_ERR_RETRIEVE_IP_ADDR	1014	Error retrieving IP address information
QCSCLI_FAILED_GET_INFO	1015	Failed to get info from the data container
QCSCLI_WRONG_OPTION_FLAG	1016	General team configuration file parsing error
QCSCLI_EXCEEDMAXVLAN	1017	A maximum of 64 VLANs are allowed
QCSCLI_CANNOT_CREATE_LIVE_LINK	1018	LiveLink™ support applied only to the SLB team
QCSCLI_EXCEED_MAX_TARGET_IP	1019	LiveLink support allows up to 4 links
QCSCLI_TOO_MANY_PHY_NIC	1020	A maximum of 8 NICs are allowed in a team
QCSCLI_CANNOT_CREATE_FECGEC_8023AD	1021	Cannot create FEC-GEC or 802.3ad team with standby adapter
QCSCLI_LL_IP_TARGET_IP_TYPE_MISMATCH	1022	Invalid IPv6 address
QCSCLI_INVALID_RANGE	1023	Value is out of range
QCSCLI_INVALID_INTERVAL	1024	Invalid probe retry frequency
QCSCLI_DUPLICATE_OPTION	1025	The same option has been specified previously
QCSCLI_DUPLICATE_MAC_ADDRESS	1026	Duplicate adapter physical MAC address
QCSCLI_DUPLICATE_VLANID	1027	Duplicate VLAN name
QCSCLI_TEAM_ALREADY_EXISTS	1028	Team with the specified name already exists

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
QCSCLI_CANNOT_MATCH_MAC_ADDR	1030	Cannot find device using the specified MAC address
QCSCLI_NO_TEAM_TO_CONFIG	1031	No team to configure
QCSCLI_CANNOT_CREATE_TEAM	1032	Failure while creating team
QCSCLI_NO_LINK_FOR_IP_CFG	1033	No link is present in team to set IP address
QCSCLI_ONE_OR_MORE_CREATE_FAILED	1034	Creation of one or more teams failed
QCSCLI_TEAM_NO_MEMBER	1035	A team is required to have at least one valid member
QCSCLI_NO_BRCM_NIC_IN_TEAM	1036	Team requires at least one Cavium NIC
QCSCLI_ONLY_QLOGIC_NIC_FOR_VLAN	1037	Only Cavium-certified adapters are supported in VLAN
QCSCLI_CANNOT_SET_IPADDR	1038	Failed to assign IP address on the virtual adapter
QCSCLI_INVALID_CFG	1039	Invalid configuration
QCSCLI_SET_ADVANCE_PARAM_FAILED	1040	Failed to set advanced parameter
QCSCLI_INTERNAL_ERROR_INVALID_DATA	1041	Invalid or NULL data found
QCSCLI_INVALID_PARAMETER	1042	Invalid parameter; parameter is too few
QCSCLI_NIC_NOT_SUPPORTED	1043	The current NIC is not supported for this operation
QCSCLI_SET_ASF_FAILED	1044	Failed to set the ASF table
QCSCLI_SET_POWER_MGMT_FAILED	1045	Failed to set power management configuration
QCSCLI_INVALID_TARGET_CMD	1046	Command or target identifier is invalid
QCSCLI_NO_ISCSI_SESSIONS	1047	No iSCSI sessions exists on the system

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
QCSCLI_SET_MGMT_OBJ_FAILED	1048	Failed to set management object
QCSCLI_SHOW_USAGE	1049	If we want to show usage
QCSCLI_CANNOT_CONNECT_WM	1050	Cannot connect WMI
QCSCLI_EXCEEDMAXTAGGEDVLAN	1051	Only a maximum of 63 tagged VLANs are allowed
QCSCLI_NO_TEAM_AVALIABLE	1052	There is no team to save
QCSCLI_NOT_CONFIGURABLE	1053	Not configurable
QCSCLI_CANNOT_SUSPEND_RESUME_DRIVER	1054	Failed to suspend or resume the driver
QCSCLI_CANNOT_RESTART_DRIVER	1055	Failed to restart the driver
QCSCLI_GET_CONFIG_FAILED	1056	Failed to get configuration
QCSCLI_SET_CONFIG_FAILED	1057	Failed to save configuration
QCSCLI_ACTION_FAILED	1058	Current action failed
QCSCLI_FILE_TOO_BIG	1059	File is too big
QCSCLI_FILE_READ_ERR	1060	Error read file
QCSCLI_PORT_DIAG_FAILED	1061	Any port diagnostic test failed
QCSCLI_PORT_DIAG_UNSUPPORTED_TEST	1062	Unsupported port diagnostic test
QCSCLI_PORT_DIAG_BREAK	1063	User break port diagnostic test
QCSCLI_PORT_DIAG_TIMEOUT	1064	Port diagnostic test timeout
QCSCLI_NPAR_OUT_OF_SYNC	1065	NPAR is out of sync; need to reboot

Table D-1. QLogic Control Suite CLI Exit Codes (Continued)

Code Text	Code Number	Meaning
`QCSCLI_ISCSI_CFG_NEED_SESSION_LOGOUT`	1066	Cannot change iSCSI configuration with session
`QCSCLI_ISCSI_CFG_NEED_RELOGIN_SESSION`	1067	iSCSI configuration needs session to re-login to take effect
`QCSCLI_CLI_MODE_EXIT`	1068	CLI mode exit
`QCSCLI_DATA_NOT_SUPPORTED`	1069	Feature is not supported
`QCSCLI_DATA_INVALID`	1070	Data is invalid
`QCSCLI_ACTION_FAILED_BECAUSE_ACCESS_DENIED`	1071	Action failed because of access denied
`QCSCLI_CLI_MODE_HOST_SPECIFIED`	1074	Host is not specified to connect

Glossary

adapter

The board that interfaces between the host system and the target devices. Adapter is synonymous with *Host Bus Adapter*, *Host Channel Adapter*, *host adapter*, and *adapter board*.

adapter port

A port on the adapter board.

adapter port beacon

An LED on the adapter. Flashing it enables you to locate the adapter.

bandwidth

A measure of the volume of data that can be transmitted at a specific transmission rate. A 1Gbps or 2Gbps Fibre Channel port can transmit or receive at nominal rates of 1 or 2Gbps, depending on the device to which it is connected. This corresponds to actual bandwidth values of 106MB and 212MB, respectively.

boot code

The program that initializes a system or an adapter. Boot code is the first program to run when a system or a device within a system, such as an adapter, is powered on. FCode, BIOS, and extensible firmware interface (EFI) are all forms of boot code for specific hardware/operating system environments.

Boot code for QLogic Fibre Channel Adapters is required if the computer system is booting from a storage device (disk drive) attached to the adapter. The primary function of the boot code is communication with the external boot device before the operating system is up and running. Boot code can also perform secondary functions, including managing the setup for the adapter and initializing and testing the adapter's ISP.

challenge-handshake authentication protocol

See CHAP.

CHAP

Challenge-handshake authentication protocol (CHAP) is used for remote logon, usually between a client and server or a Web browser and Web server. A challenge/response is a security mechanism for verifying the identity of a person or process without revealing a secret password that is shared by the two entities. Also referred to as a *three-way handshake*.

CLI

Command line interface. A program interface driven by entering commands and parameters.

command line interface

See CLI.

device

A computer subsystem, such as an adapter card, that mediates data in a computer network. The term device is used interchangeably with *target* and *target device*.

driver

The software that interfaces between the file system and a physical data storage device or network media.

end user license agreement

See EULA.

enhanced transmission selection

See ETS.

Ethernet

The most widely used LAN technology that transmits information between computer, typically at speeds of 10 and 100 million bits per second (Mbps).

ETS

Enhanced transmission selection. A standard that specifies the enhancement of transmission selection to support the allocation of bandwidth among traffic classes. When the offered load in a traffic class does not use its allocated bandwidth, enhanced transmission selection allows other traffic classes to use the available bandwidth. The bandwidth-allocation priorities coexist with strict priorities. ETS includes managed objects to support bandwidth allocation.

EULA

End user license agreement. A legal contract between a software application author or publisher and the purchaser, establishing the purchaser's right to use the software.

FCoE

Fibre Channel over Ethernet. A new technology defined by the T11 standards body that allows traditional Fibre Channel storage networking traffic to travel over an Ethernet link by encapsulating Fibre Channel frames inside Layer 2 Ethernet frames. For more information, visit www.fcoe.com.

Fibre Channel over Ethernet

See FCoE.

firmware

Low-level software typically loaded into read-only memory and used to boot and operate an intelligent device.

graphical user interface

See GUI.

GUI

A user interface that is based upon icons and visual relationships rather than text.

host

One or more adapters governed by a single memory or CPU complex.

Host Bus Adapter

An adapter that connects a host system (the computer) to other network and storage devices.

initiator

System component, such as a network interface card, that originates an I/O operation.

Internet Protocol

See IP.

Internet small computer system interface

See iSCSI.

IP

Internet protocol. A method by which data is sent from one computer to another over the Internet. IP specifies the format of packets, also called *datagrams*, and the addressing scheme.

IPv4

Internet protocol version 4. A data-oriented protocol used on a packet switched inter-network (Ethernet, for example). It is a best-effort delivery protocol: it does not guarantee delivery, ensure proper sequencing, or avoid duplicate delivery. These aspects are addressed by an upper layer protocol (TCP, and partly by UDP). IPv4 does, however, provide data integrity protection through the use of packet checksums.

IPv6

Internet protocol version 6. Next-generation version of IP that, among other things, lengthens the IP address from 32 bits to 128 bits.

IQN

iSCSI qualified name. iSCSI node name based on the initiator manufacturer and a unique device name section.

iSCSI

Internet small computer system interface. Protocol that encapsulates data into IP packets to send over Ethernet connections.

Layer 2

Refers to the data link layer of the multilayered communication model, Open Systems Interconnection (OSI). The function of the data link layer is to move data across the physical links in a network, where a switch redirects data messages at the layer 2 level using the destination MAC address to determine the message destination.

LED

Light-emitting diode. Status indicator on a switch, router, adapter, or other device.

light-emitting diode

See LED.

logical unit number

See LUN.

LUN

Logical unit number, a subdivision of a SCSI target. It is the small integer handle that differentiates an individual disk drive or partition (volume) within a common SCSI target device such as a disk array.

Technically, a LUN can be a single physical disk drive, multiple physical disk drives, or a portion (volume) of a single physical disk drive. However, LUNs are typically not entire disk drives but rather virtual partitions (volumes) of a RAID set.

Using LUNs, the Fibre Channel host can address multiple peripheral devices that may share a common controller.

message signaled interrupts

See MSI, MSI-X.

MSI, MSI-X

Message signaled interrupts. One of two PCI-defined extensions to support message signaled interrupts (MSIs), in PCI 2.2 and later and PCI Express. MSIs are an alternative way of generating an interrupt through special messages that allow emulation of a pin assertion or deassertion.

MSI-X (defined in PCI 3.0) allows a device to allocate any number of interrupts between 1 and 2,048 and gives each interrupt separate data and address registers. Optional features in MSI (64-bit addressing and interrupt masking) are mandatory with MSI-X.

network interface card

See NIC.

NIC

Computer card installed to enable a dedicated network connection.

NIC partitioning

See NPAR.

NPAR

NIC partitioning. The division of a single NIC port into multiple physical functions or partitions, each with a user-configurable bandwidth and personality (interface type). Personalities include NIC, FCoE, and iSCSI.

OpenSSL

An open-source implementation of the SSL and transport layer security (TLS) protocols. The core library implements basic cryptographic functions and provides various utility functions. Wrappers are available to allow the use of the OpenSSL library in a variety of computer languages.

operating system

See OS.

OS

Operating system. After being loaded by the boot program, the program that manages all other programs on a computer.

path

A path to a device is a combination of a adapter port instance and a target port as distinct from internal paths in the fabric network. A fabric network appears to the operating system as an opaque network between the adapter (initiator) and the target.

Because a path is a combination of an adapter and a target port, it is distinct from another path if it is accessed through a different adapter and/or it is accessing a different target port. Consequently, when switching from one path to another, the driver might be selecting a different adapter (initiator), a different target port, or both.

This is important to the driver when selecting the proper method of failover notification. It can make a difference to the target device, which might have to take different actions when receiving retries of the request from another initiator or on a different port.

PCI Express (PCIe)

A third-generation I/O standard that allows enhanced Ethernet network performance beyond that of the older peripheral component interconnect (PCI) and PCI extended (PCI-x) desktop and server slots.

ping

A computer network administration utility used to test whether a specified host is reachable across an IP network, and to measure the round-trip time for packets sent from the local host to a destination computer.

port

Access points in a device where a link attaches. The four types of ports are:

- N_Port—a Fibre Channel port that supports point-to-point topology.
- NL_Port—a Fibre Channel port that supports loop topology.
- FL_Port—a port in a fabric where an N_Port can attach.
- FL_Port—a port in a fabric where an NL_Port can attach.

port instance

The number of the port in the system. Each adapter may have one or multiple ports, identified with regard to the adapter as port 0, port 1, and so forth. To avoid confusion when dealing with a system containing numerous ports, each port is assigned a port instance number when the system boots up. So port 0 on an adapter might have a port instance number of 8, for example, if it is the eighth port discovered by the system.

secure socket layer

See SSL.

simple network management protocol

See SNMP.

SNMP

Simple network management protocol. SNMP is a networking protocol that enables you to monitor the router using third-party applications that use SNMP.

SSL

Secure socket layer. A protocol that secures connections to the switch for Enterprise Fabric Suite, QuickTools, the API, and SMI-S.

target

The storage-device endpoint of a SCSI session. Initiators request data from targets. Targets are typically disk-drives, tape-drives, or other media devices. Typically a SCSI peripheral device is the target but an adapter may, in some cases, be a target. A target can contain many LUNs.

A target is a device that responds to a requested by an initiator (the host system). Peripherals are targets, but for some commands (for example, a SCSI COPY command), the peripheral may act as an initiator.

TCP

Transmission control protocol. A set of rules to send data in packets over the Internet protocol.

transmission control protocol

See TCP.

Index

Symbols

C

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