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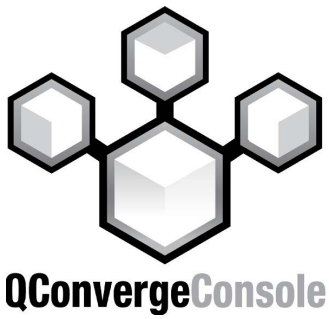
White Paper

Unified Adapter Management Across the Data Center

QConvergeConsole from Marvell® Simplifies and Accelerates Deployment and Management in Windows® and Linux®

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- The QConvergeConsole® (QCC) management tool from Marvell® maximizes application performance and availability.
- Administrators can manage the entire Marvell QLogic® Fibre Channel (FC) and Marvell FastLinQ products portfolio using one tool, which provides a single-pane-of-glass view for management of Fibre Channel, FCoE, iSCSI, Universal RDMA (RoCEv1/RoCEv2/iWARP), and IP functions.
- The QCC GUI allows for centralized management and configuration of multiple Marvell QLogic FC HBAs (Host Bus Adapters) and Marvell FastLinQ Converged Network Adapters (CNAs)/Intelligent Ethernet Adapters (IEA) within the entire network from LANs (Local Area Networks) to SANs (Storage Area Networks).
- Using the QCC CLI increases productivity by automating manual tasks on Linux and Windows.[1]



Key Benefits

- **Exceed Service Level Agreements:** The QCC delivers seamless, unified management of multiple LAN and SAN fabrics across the data center, enabling IT administrators to optimize the performance and availability of data and network resources.
- **Reduce Administration Time:** Offering a wizard-driven approach to adapter management, QCC saves time by automating repetitive tasks and providing automatic e-mail notifications on the status of various SAN and LAN components. In addition, a breadth of customized asset management options are also available.
- **Comply with Data Center Security Policies:** QCC allows flexible definitions of administrator roles and responsibilities, providing LAN and SAN administrators with access to the components they own and manage.

Executive Summary

IT managers face several ever-growing challenges to manage the data center, including: virtualization; power consumption; reliability, availability, and serviceability (RAS); security; and manageability. One method of addressing these concerns is to implement unified-management across the data center, which improves efficiency and saves costs. When taking this approach, it is imperative to select a management solution that is easy to deploy and offers single-pane-of-glass, intelligent, and automated operations management.

Marvell QConvergeConsole® (QCC) delivers a broad set of powerful Ethernet and Fibre Channel adapter management features for administrators to maximize application performance and availability. Available in both GUI and CLI options, QCC offers application-based wizards to enable the environment to be quickly and easily provisioned based on published best practices.

The QCC delivers a unified, Web-based, single-pane-of-glass management console across the broad product line of storage, networking, and caching adapters from Marvell.t.

Introduction to Marvell Management Tools

Marvell offers a robust set of management tools to help organizations simplify management and improve efficiency while reducing costs. Available for a wide range of operating systems and server platforms, QCC is capable of managing all generations and types of Marvell QLogic FC and Marvell FastLinQ IEA/CNA adapters from Marvell. The following tools simplify every step of the Marvell adapter life cycle: deployment, monitoring, troubleshooting, and firmware upgrades.

[1]. The QCC CLI does not support the QLE344x/QLE844x(578xx)/QL41xxx/QL45xxx adapters, which you can manage using the Marvell Control Suite (QCS) CLI utility or QCC PowerKit.

QCC GUI - A comprehensive, Web-based client and server GUI that allows for centralized management and configuration of multiple Marvell QLogic 16GFC and 32GFC 2500/2600/2700 FC HBAs, Marvell 3200 IEAs, Marvell FastLinQ 578xx/3400/41000/45000 IEAs, Marvell 8100/8200/8300 CNAs, and Marvell FastLinQ 578xx/8400/41000/45000 CNAs across the data center.

QCC CLI - A lightweight, agentless CLI interface for generations of Marvell QLogic 2500/2600/2700 FC HBAs, Marvell 3200 IEAs, and Marvell 8100/8200/8300 CNAs. Available for Windows®, Linux®, and Solaris® environments, the CLI includes both a menu-driven interface for quick operations and a scriptable interface for extensive scripting and integration tasks.

SuperInstaller: Single package to install all required software components for generations of Marvell QLogic 2500/2600/2700 FC HBAs, Marvell 3200 IEAs, and Marvell 8100/8200/8300 CNAs[2]. Available for Windows environments, the SuperInstaller (SI) package includes all the above drivers as well as the QCC CLI and QCC GUI management agents.

QCC GUI

The QCC GUI unified adapter management tool can be deployed on a management workstation or virtual machine (VM). It communicates with management agents residing on servers with Marvell adapters over a secure channel via HTTPS. Access to QCC GUI is available via any of the supported browsers by pointing the browser to the IP address of the management workstation or VM where QCC is installed. The management agents can be installed on servers with Marvell adapters in Windows and Linux environments.

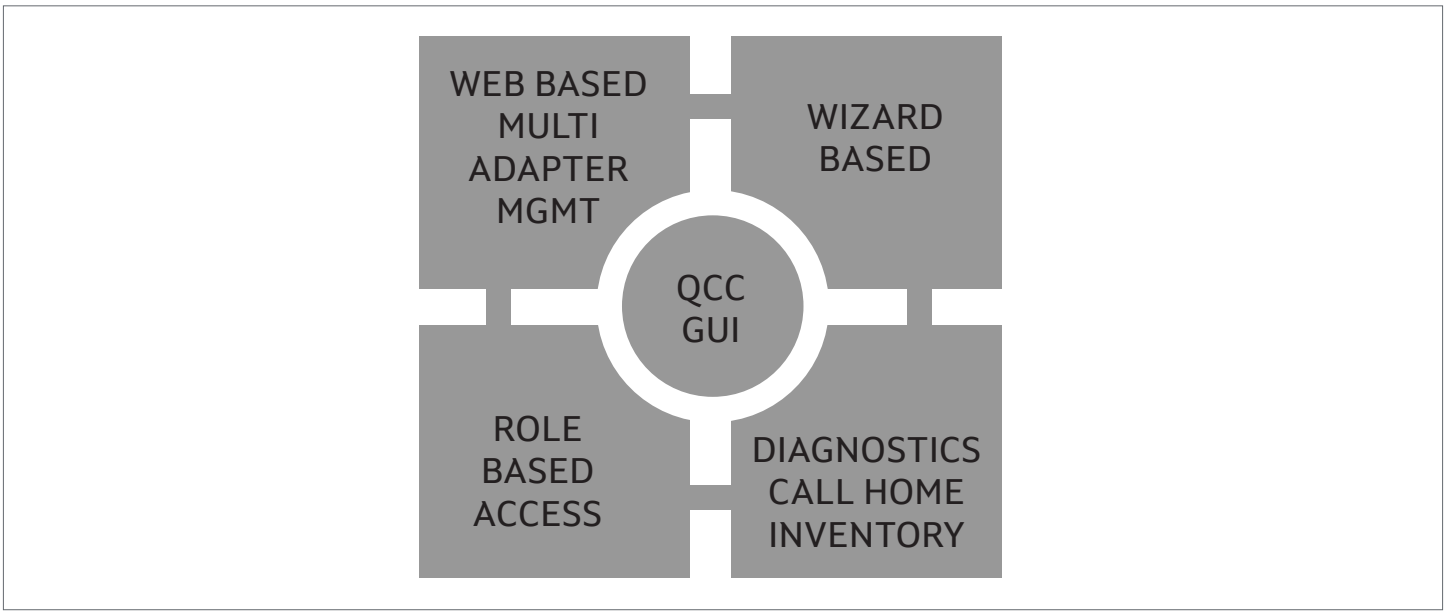


Figure 1. Key Features of the QCC GUI

Web-based Unified Adapter Management

Using a browser-based, intuitive, and easy-to-use interface, the QCC GUI provides a single-pane-of-glass management interface that enables IT organizations to manage generations of Marvell adapters. As a result, QCC GUI optimizes technology investment and significantly reduces the overall administrative burden.

Web-based Unified Adapter Management	GUI
Single Tool to Manage ALL Marvell Adapters	✓
Heterogeneous and Data Center-Wide Single-Pane-of-Glass Management	✓
Manage FC, FCoE, iSCSI, RDMA, and NIC Functions	✓

Wizard-based Approach

The QCC GUI limits decision making and errors by integrating best practices into a wizard-driven approach to most common management functions relating to Marvell adapters. Intuitive wizards provide IT administrators with an extensive set of features that enable them to perform key administrative tasks, which could normally take hours to be completed, in less than a few minutes.

Wizard-based Management	GUI
Data Center-wide Firmware Updates[1]	✓
Driver Update Wizards[1]	✓
Driver Parameters Update Wizard[1]	✓
Management Agent Update Wizard	✓
Protected Operations Password Update Wizard	✓

Role-based Access Control

All critical and disruptive operations that can be performed using the QCC GUI are protected from unauthorized access and erroneous use by using role-based authentication that allows for separate access for SAN and LAN administrators. This approach allows organizations to converge their LAN and SAN infrastructure without changing their organizational structure.

Role-based Access Control	GUI
Password Protected Operations	✓
Segregated Access for LAN and SAN Administrators	✓
Password Update Wizards to Comply with Security Policies	✓

[1].QLE344x/QLE844x(578xx)/QL41xxx/QL45xxx do not use the QCC CLI but instead use the QCS CLI utility and QCC PowerKit

[2]. The SuperInstaller is available on Windows OS's only and is for the Marvell QLogic FC HBAs and legacy CNA/IEAs, but not for the 57xx/57xxx/34xx/84xx/41xxx/45xxx series CNAs/IEAs.

Enterprise-class Management Features – Diagnostics, Inventory, and Call Home

The QCC GUI provides a rich set of features designed for the business needs and SLAs of an enterprise-class deployment. A wide range of proactive and user-initiated diagnostics help detect potential issues in the SAN and LAN before they can affect the enterprise applications that depend on Marvell's QLogic FC and FastLinQ Ethernet adapters. This simplifies inventory management of several hundred of these adapters with a wide range of inventory gathering techniques and built-in reports. Administrators can easily configure e-mail alerts for various critical, error, or informational messages to help them quickly resolve problems.

Enterprise-class Management	GUI
Integrated Diagnostics	✓
Inventory Reports	✓
E-mail Alerts	✓
Web-Based Application Updates	✓

QCC CLI

QCC CLI provides a lightweight, text-based interface for managing generations of Marvell QLogic 2500/2600/2700 FC HBAs, Marvell 3200 IEAs, and Marvell 8100/8200/8300 CNAs. Restricted to local mode adapter management for enhanced security, the QCC CLI provides both interactive modes for IT administrators who are unfamiliar with the syntax and a scriptable mode with a rich set of commands and options for scripting. QCC CLI is available for Windows, Linux, and Solaris environments and is available as a standalone package for installation, or it can be installed as part of the SI.

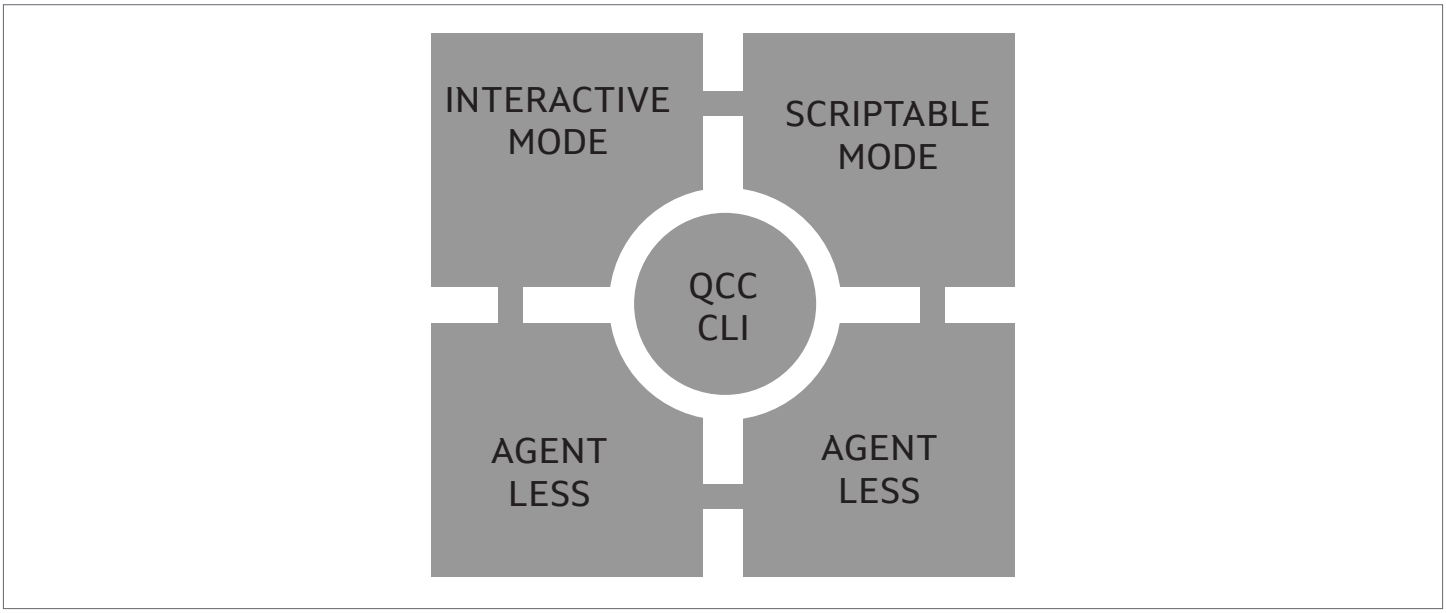


Figure 2. Key Features of the QCC CLI

SuperInstaller

SuperInstaller (SI) is an alternative and highly efficient way to deploy all the required and optional Marvell QLogic 2500/2600/2700 FC HBA, Marvell 3200 IEA, and Marvell 8100/8200/8300 CNA software components. SI is available for supported Windows platforms and contains all the latest and interoperable software components for generations of Marvell adapters[1] from Marvell. Administrators can deploy SI using either an interactive, menu-driven interface or a scriptable silent installation to install the following components:

- FC, FCoE, iSCSI, and Ethernet Networking (NDIS) drivers for select Marvell adapters
- QCC CLI management utility for the Marvell 2500/2600/2700/3 200/8100/8200/8300 Series adapters
- Windows Server 2018 R2 and earlier VLAN and NIC Teaming driver for the 3200/8100/8200/8300 Series Adapters
- FC, FCoE, iSCSI, and networking management agents to enable remote access using the QCC GUI management utility2. Using SI significantly reduces deployment time and enables IT administrators to rapidly deploy their IT infrastructure and save costs.

1. These features are only available for the Marvell QLogic 2500/2600/2700 FC HBA and Marvell legacy 3200 IEA, and Marvell legacy 8100/8200/8300 CNA series adapters, and not for the Marvell legacy 57xx/5771x and Marvell FastLinQ 578xx (34xx/84xx)/41xxx /45xxx series adapters.
2. The Linux/Windows remote agents for the Marvell 57xx/5771x and Marvell FastLinQ 578xx (34xx/84xx)/41xxx/45xxx Series adapters is in their respective OS's QCC GUI and QCS CLI installation packages.



Figure 3. Components of SuperInstaller (SI)

Marvell Advantage

While other adapter vendors also offer management tools to monitor and manage their adapters, these tools often lack the ease of use, maturity, and feature set required for the enterprise data center. The QCC leverages decades of experience to understand the IT administrator's management and monitoring needs and provides them with a seamless, single-pane-of-glass management tool for all Marvell QLogic HBAs and Marvell FastLinQ CNAs/IEAs adapters from Marvell.

Adapter Management Features	Marvell QCC	Broadcom OneCommand®
Unified LAN and SAN Adapter Management	✓	✗
IFully Featured Ethernet Adapter Management	✓	✗
Menu-Driven CLI	✓	✗
WSingle-pane-of-glass Management of Physical and Virtual SAN Functions	✓	✗
Physical and Logical Topology Maps	✓	✗

Conclusion

Marvell offers a robust management solution to help organizations simplify management and improve efficiency while reducing costs. The management solutions, under the umbrella of QCC, are designed to simplify storage, Ethernet, and converged networking environments. They offer cross-functionality views and support for Marvell QLogic FC HBAs, and Marvell FastLinQ CNAs, and Marvell FastLinQ IEAs. The QCC enables IT departments to standardize on one tool to manage all data, storage, and converged infrastructure.

Related Video: Marvell QLogic Knowhow:

QConvergeConsole GUI: Getting Started



Click on the Image to Watch a YouTube Video

1. The Marvell Advanced Server Program (QLASP) and legacy Marvell adapter VLAN Teaming and NIC Teaming driver is for Windows OS's only. QLASP is not available on Windows Server 2016 and later. The legacy Marvell 3200/8100/8200/8300 VLAN Teaming and NIC Teaming driver is not available on Windows Server 2012 and later.

To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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