



Marvell® QLogic® PowerKit

Windows® PowerShell® cmdlets for
2600, 2700, 2800 Series Marvell QLogic Fibre Channel Adapters

User's Guide

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Preface

Intended Audience

This guide is for users who want to install the Marvell QLogic Fibre Channel (MRVLFC) PowerKit (Windows PowerShell cmdlets) software to manage the Marvell QLogic Fibre Channel (FC) adapters on the system.

What Is in This Guide

This guide contains the basic information you need to get started using the Marvell cmdlets in the PowerKit application.

This preface specifies the intended audience, summarizes the contents of this guide, describes the typographic conventions used in this guide, and provides technical support.

The remainder of the user's guide is organized into the following chapters:

- [Chapter 1 General Information](#) describes Windows PowerKit and lists what you need to run it on a system containing Marvell adapters.
- [Chapter 2 Installation](#). This chapter describes how to download and install the MRVLFC PowerKit, which contains the Marvell cmdlets.
- [Chapter 3 Using MRVLFC PowerKit](#) describes how to start PowerKit, view all the Marvell cmdlets, and get help about individual cmdlets.
- [Chapter 4 Accessing PowerKit cmdlets on Local and Remote Systems](#) describes how to access PowerKit cmdlets from local and remote hosts.
- [Chapter 5 Cmdlets](#) lists the available Marvell cmdlets and provides a brief description of each one.
- [Appendix A USCM Virtual Lanes](#) provides information for USCM virtual lanes feature to Marvell QLogic adapters using FC PowerKit.
- [Appendix B USCM FPIN-LI/MPIO with FC/NVMe Storage](#) provides information for USCM multipath switching based on marginal links with integrity issues running on Marvell QLogic Adapters using PowerKit.
- [Appendix C Revision History](#) contains a list of changes made to this guide since the last revision.

Related Materials

For information about downloading documentation from the Marvell Web site, see [“Downloading Updates and Documentation” on page xi](#).

For a detailed summary of the last three releases, see <https://www.marvell.com/content/dam/marvell/en/drivers/release-matrix/release-matrix-qlogic-fc-sw-posting-by-release-matrix.pdf>

Documentation Conventions

This guide uses the following documentation conventions:

- The Marvell QLogic 2600/2700/2800 adapters from Marvell are collectively referred to as the *Marvell adapter*, *Marvell QLogic FC adapter*, or *adapter*.
- **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.marvell.com.
- Text in **bold** font indicates user interface elements such as 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 screen output. For example:
 - ❑ To return to the root directory from anywhere in the file structure:
Type `cd /root` and press ENTER.
- Text in **Courier bold** font indicates a command. For example:
 - ❑ 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 applicable *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 either within this manual or in the online help, which is also referred to as *the help system* throughout this document.

Technical Support

Customers should contact their authorized maintenance provider for technical support of their Marvell QLogic products.

Downloading Updates and Documentation

To download firmware, software, and documentation:

1. Go to www.marvell.com.
2. Click **Support**, and then under **Tools & Resources**, click **Driver Downloads**.
3. In the Marvell Drivers window:
 - a. (MUST) Under CATEGORY, select either FIBRE CHANNEL ADAPTERS or CONVERGED NETWORK ADAPTERS.
 - b. (optional) Under PLATFORM/OS, select the platform/OS that matches your system.
 - c. (optional) Under PART NUMBER, select the part number for your adapter.
 - d. (optional) Under KEYWORDS, type a keyword describing what you are looking for.
4. Click **Apply**.

5. Locate the firmware (boot code), software (drivers, management tools), or document (documentation for user's guides) you need, and then do one of the following:
 - a. Click the [blue](#) text in the DESCRIPTION column.
 - b. Click the arrow in the DOWNLOAD column.

NOTE

Marvell recommends downloading the associated Read Me and Release Notes for more information. To find them, enter either **Read Me** or **Release Notes** in the KEYWORDS search box.

A message may appear asking you to review and accept the Marvell Limited Use License Agreement.

6. If applicable, read the agreement, select the check box, and then click **I ACCEPT** to accept the end license agreement and start the download.

1

General Information

This section describes the Marvell QLogic Fibre Channel (MRVLFC) PowerKit and lists what you need to run it on a system containing Marvell QLogic Fibre Channel (FC) adapters.

MRVLFC PowerKit and Marvell QLogic Fibre Channel Adapters

Windows PowerShell is a Microsoft®-developed scriptable language for performing task automation and configuration management both locally and remotely.

PowerShell is based on the .NET framework and includes a command-line shell and a graphical user interface (GUI) integrated scripting environment (ISE) that allows you to create scripts without having to type all the commands in the command line. This compelling feature allows you to streamline and automate repetitive and monotonous Windows®, Linux®, and VMware® ESXi server jobs through scripts by linking multiple instructions together.

In addition to being a powerful scripting tool, the Marvell QLogic MRVLFC PowerKit comes with a selection of preconfigured *cmdlets* to monitor and manage your Marvell QLogic Fibre Channel adapters. A cmdlet is a script that performs a single function. For a list of the cmdlets and their functions, see [“Cmdlets” on page 36](#).

MRVLFC PowerKit

The MRVLFC PowerKit allows you to manage your Marvell adapters through the Windows PowerShell interface.

The MRVLFC PowerKit contains the following components:

- Windows management instrumentation (WMI) V2, open management interface (OMI) provider, and VMware® ESXi provider for Windows, Linux, and VMware ESXi, respectively.
- PowerShell cmdlets for managing Marvell adapters

System Requirements

This section lists the components you need to run the MRVLFC PowerKit with Marvell QLogic FC adapters.

Hardware Requirements

The MRVLFC PowerKit requires one or more Marvell QLogic 2600, 2700, 2800 Series adapters.

Software Requirements

The following software requirements must be met:

- The MRVLFC PowerKit must be installed on the Windows system from which you plan to manage the local/remote Windows/Linux/VMware ESXi host system with the Marvell adapter.
- The appropriate device driver for the Marvell QLogic FC adapter must be installed on the host system that will be managed by the MRVLFC PowerKit.
- The OMI server must be installed before installing the OMI provider on host Linux systems.

Server Agent Requirements

The following server agent requirement must be met:

- The WMIv2/OMI/VMware ESXi provider for Windows/Linux/VMware ESXi must be installed on the host system containing the Marvell QLogic FC adapter that will be managed through PowerKit.

Operating System Requirements

The MRVLFC PowerKit supports Windows 2022 and later.

For a detailed list of the currently supported operating systems, refer to the Read Me and Release Notes available at www.marvell.com. See section [Downloading Updates and Documentation](#).

NOTE

Ensure that the required .Net version is installed on Windows Server. The .Net version can be installed from following Microsoft site.

<https://docs.microsoft.com/en-us/dotnet/framework/install/>

For the OMI provider, the MRVLFC PowerKit supports RHEL 7.8 and later, RHEL 8.2 and later, SLES 15 SP 2 and later, SLES 12 SP 5, and later Linux distributions on which the OMI server/CIM object manager (CIMOM) is supported.

NOTE

Support for SLES 16 is pending Microsoft OMI support.

For the VMware ESXi provider, the MRVLFC PowerKit supports ESXi version 7.x, 8.x, and 9.x.

Supported Marvell QLogic Adapters

The MRVLFC PowerKit manages the 2600, 2700, and 2800 families of FC adapters.

NOTE

2670 Adapters do not support ESXi 8.0, 9.0 and RHEL 9.0.

Deployment Scenarios

Figure 1-1 illustrates the different ways to deploy MRVLFC PowerKit.

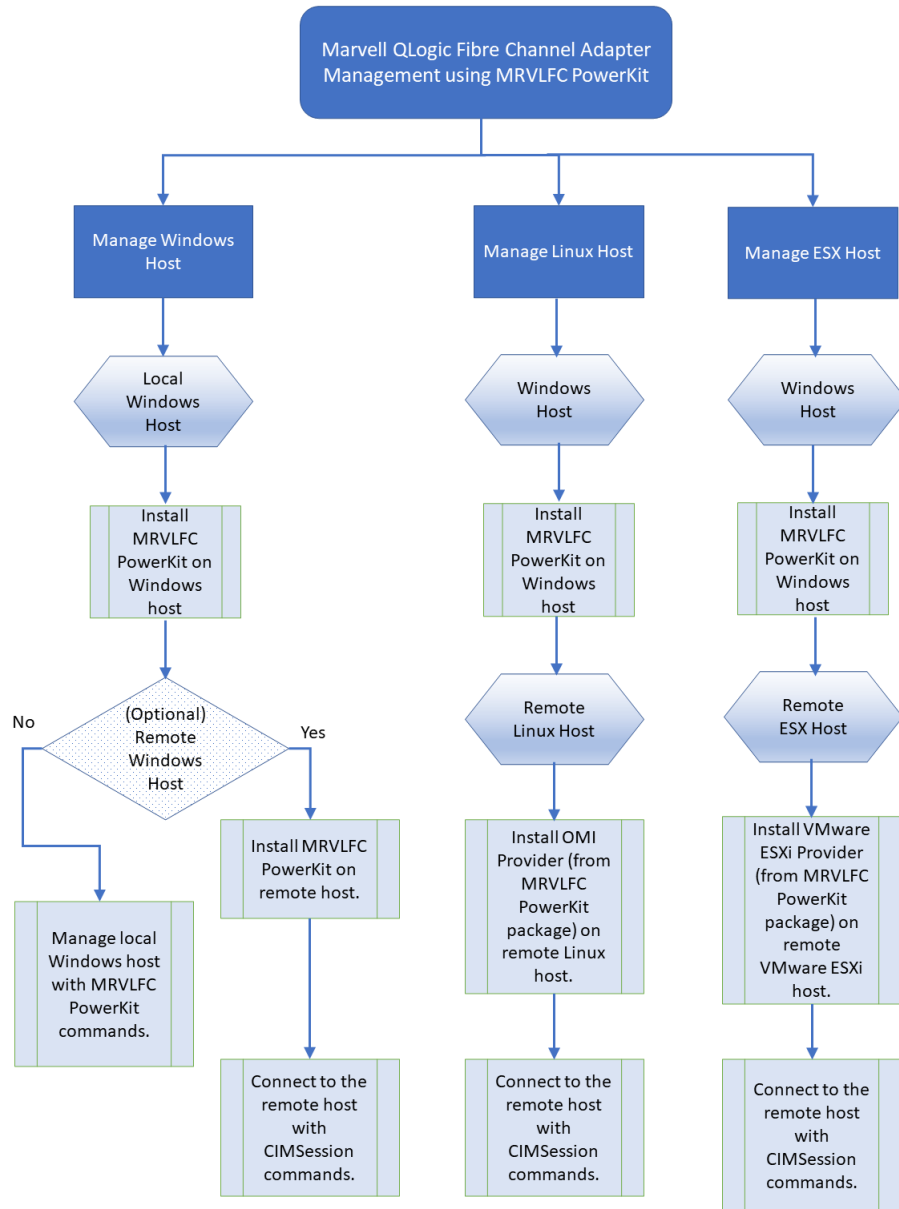


Figure 1-1. How to Deploy MRVLFC PowerKit

Figures 1-2 through 1-5 illustrate the needed components for each deployment scenario.

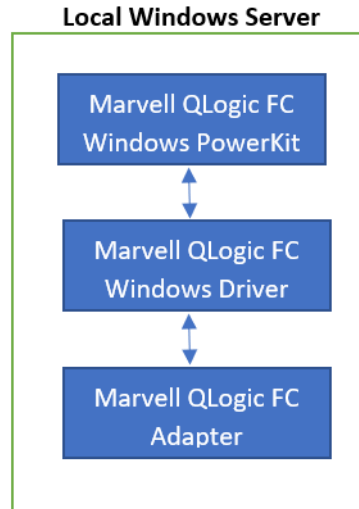


Figure 1-2. Local Windows Server Components for MRVLFC PowerKit

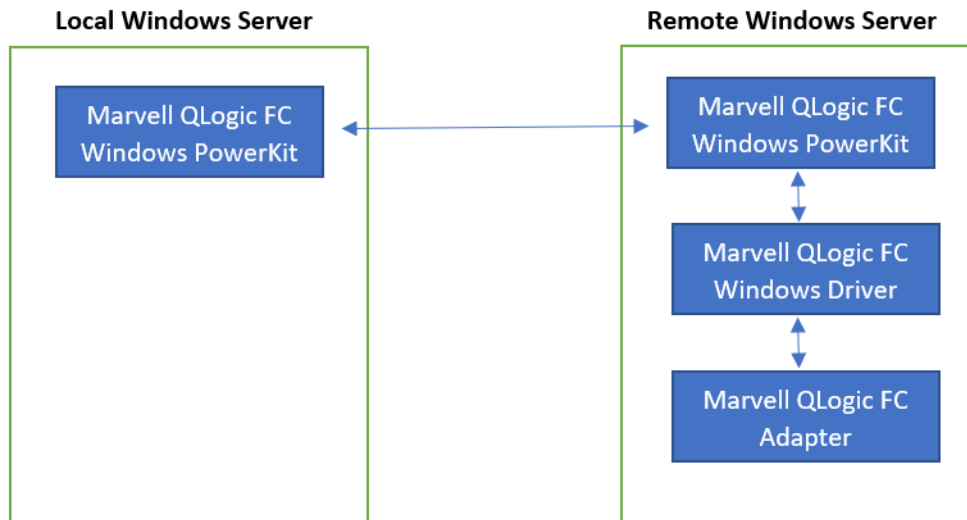


Figure 1-3. Remote Windows Server Components for MRVLFC PowerKit

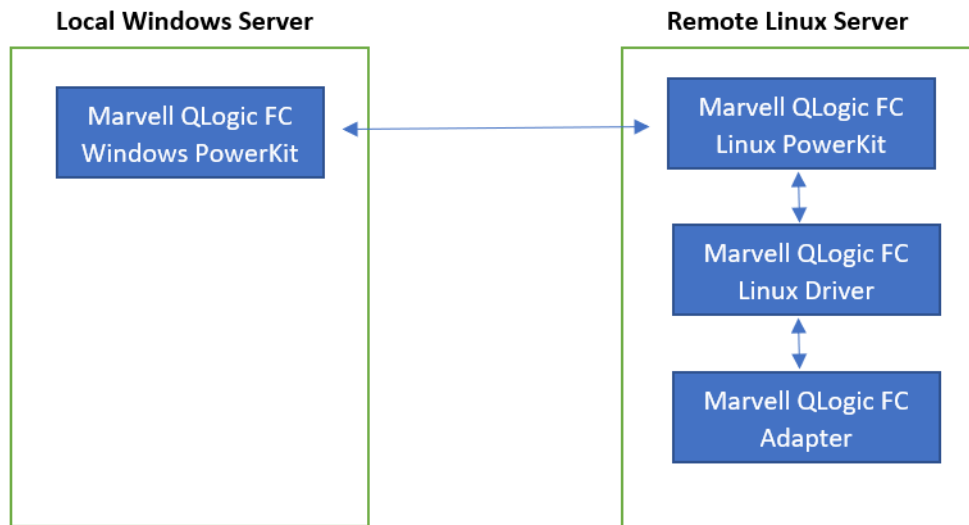


Figure 1-4. Remote Linux Server Components for MRVLFC PowerKit

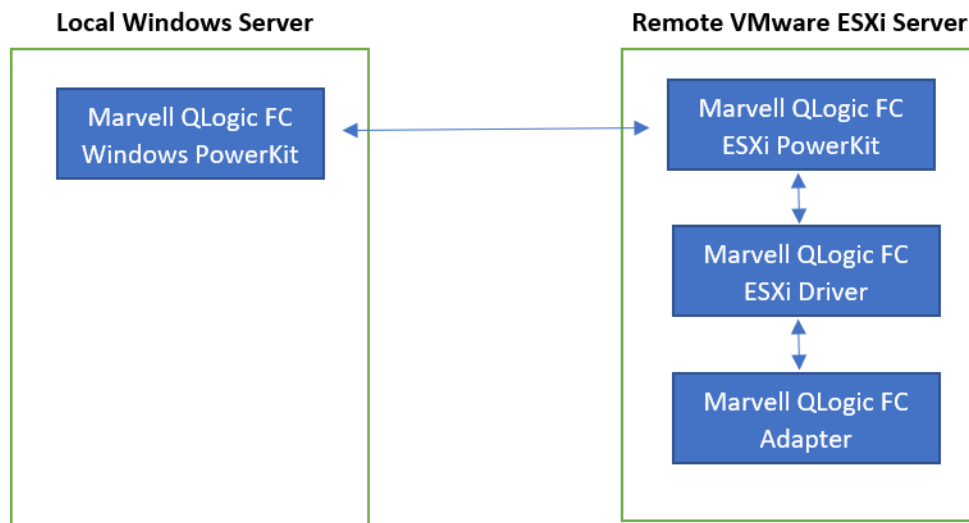


Figure 1-5. Remote VMware ESXi Server Components for MRVLFC PowerKit

2 Installation

This chapter describes how to download and install the MRVLFC PowerKit, which contains the Marvell QLogic FC cmdlets.

Downloading the MRVLFC PowerKit

The MRVLFC PowerKit is available on the Marvell web site, www.marvell.com. For instructions, see “[Downloading Updates and Documentation](#)” on page xi.

Alternately, you can download and install the MRVLFC PowerKit from the Windows PowerShell Gallery. See “[Installing the MRVLFC PowerKit Online Using PowerShell Gallery](#)” on page 10.

Installing the MRVLFC PowerKit

Follow the instructions for your OS in either the [Windows](#), [Linux](#), or [VMware ESXi](#) section.

Windows

You can install the MRVLFC PowerKit on a Windows OS offline using the installer files.

If you have a previous version of the MRVLFC PowerKit, uninstall it before installing the latest version.

- To see if you have a previous version installed, issue the PowerKit `Get-MRVLFCAdapter` command.
- To view the currently installed version of MRVLFC PowerKit (on the local Windows system), issue the PowerKit `Get-AppxPackage -Name “MRVLFCProvider”` command (see the output's Version line) or the `Get-MRVLFCManagedLocalHost` command (see the output's ProviderVersion line).

To check successful installation (apart from running the cmdlets), validate the location where the files were placed during installation.

For example:

```
PS C:\PowerKit\Installer> .\Install_MRVL_FC_PowerKit.ps1

WinRM Configuration
Do you want to configure WinRM in order to connect to Linux machines remotely?
[Y] Yes  [N] No  [?] Help (default is "Y"): Y
Added 'MRVLFCProvider-WindowsServer.appx' AppxPackage.
Copied dependent library to Wbem path : 'C:\Windows\System32\wbem'.
Copied dependent file - adapters_adapter_provider.properties to Wbem path :
'C:\Windows\System32\wbem'.
Copied dependent files - nvramdefs to Wbem path : 'C:\Windows\System32\wbem'.

Installation of module VMware.VimAutomation.Core
VMware.VimAutomation.Core is required to communicate with ESXi8.0 U2 for
Advanced Authentication.
[Y] Yes  [N] No  [?] Help (default is "Y"): Y

Untrusted repository
You are installing the modules from an untrusted repository. If you trust this
repository, change its InstallationPolicy value by running the
Set-PSRepository cmdlet. Are you sure you want
to install the modules from 'PSGallery'?
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default
is "N"): A
Successfully installed module VMware.VimAutomation.Core

WinRM successfully configured.
Successfully installed MarvellQLogicFCPowerKit for Windows.

Note: If this was an upgrade from a previous version, you may need to restart
the system for the new provider to be loaded.
PS C:\PowerKit\Installer>
```

Installing the MRVLFC PowerKit Offline Using the Installer Files

To install the MRVLFC PowerKit in a Windows OS:

1. Copy the MRVLFC PowerKit ZIP file to the Windows host.
2. Using Explorer, navigate to the location of the ZIP file.

3. Right-click the ZIP file, and then click **Extract** to extract the files onto the directory.
4. Open a PowerKit prompt as an administrator.
5. Navigate to the directory where you extracted the MRVLFC PowerKit files.
6. Issue one of the following commands to install both the WMIv2 provider and the cmdlets.

- ☐ Issue the following command on a new powerb2b-shell prompt session:

```
PS C:\> Import-Module .\Install_MRVL_FC_PowerKit.ps1 -Force
```

If you are working with the same shell with which you installed the previous version, append this command with “-Force”.

- ☐ Issue the following command on a new power-shell prompt session.

```
PS C:\> .\Install_MRVL_FC_PowerKit.ps1
```

A message may appear asking if you want to run software from an untrusted publisher.

```
Do you want to configure WinRM in order to connect to Linux machines remotely?
```

7. Type **Y**.

A message appears asking if you want to configure Windows Remote Management (RM):

```
WinRM Configuration
```

```
Do you want to configure WinRM in order to connect to Linux machines remotely?
```

```
[Y] Yes [N] No [?] Help (default is "Y"): Y
```

8. Type **Y**, and then press ENTER.

The cmdlets are now available for use.

9. Start typing Get-MRVLFC, and then press the TAB key.

The Get-MRVLFCAdapter cmdlet should auto-populate.

10. Issue the **Get-MRVLFC** command to confirm that the cmdlets are working properly.
11. If required, restart WMI from the **Services Window Panel**.
12. If required, close or end all the in process, old tasks named **WMI Provider Host** from the **Task Manager Window**.

13. If this installation is an upgrade from a previous version, restart the system to load the new provider.

If the installation fails:

1. Uninstall the provider by issuing the following command:

```
PS C:\>Import-Module .\Uninstall_MRVL_FC_PowerKit.ps1 -Force
```
2. Close or end all the in-process, old tasks named **WMI Provider Host** from the Task Manager Window, and then repeat this procedure from [Step 1](#).

Installing the MRVLFC PowerKit Online Using PowerShell Gallery

The following instructions describe how to install the MRVLFC PowerKit from the PowerShell Gallery web site:

<https://www.powershellgallery.com/packages/QLogicFastLinQPowerKit/1.1.8.0>

This is the current version (1.1.8.0) at the time of publication. Ensure that you download the most current version available.

NOTE

Before installation, ensure that the Install-Module cmdlet is available. If it is not, update MRVLFC PowerKit using the instructions in the following link:

<https://docs.microsoft.com/en-us/powershell/module/powershellget/install-module?view=powershell-7.1>

To install the MRVLFC PowerKit in a Windows OS:

1. Open the PowerKit prompt as an administrator and download the latest available version of the MRVLFC PowerKit from the PowerShell Gallery:

```
PS C:\> Install-Module -Name MarvellQlogicFCPowerKit
```

Or

```
PS C:\> Install-Module -Name MarvellQlogicFCPowerKit  
-RequiredVersion <version> (to install a specific version)
```
2. Ensure that the modules and functions of the MRVLFC PowerKit have been imported:

```
PS C:\> Get-Command -Module MarvellQlogicFCPowerKit
```
3. Install the MRVLFC PowerKit:

```
PS C:\>Install-MarvellQLogicFCPowerKit
```
4. If required, restart the Windows Management Instrumentation (WMI) from the Services Window panel.

5. If required, close or end all the old tasks named WMI Provider Host in process from the Task Manager window.

Linux

NOTE

If you have a previous version of the old provider, uninstall it before installing the latest version of the provider.

To install the MRVLFC PowerKit in a Linux OS:

1. Download the latest OMI server/CIMOM from either of the following locations:

<https://collaboration.opengroup.org/omi/>

<https://github.com/Microsoft/omi>

RPM packages are provided for the installation of OMI on most enterprise Linux distributions.

Choose the package based on the architecture, OpenSSL version, and Package format:

- ☐ 32-bit (x86) or 64-bit (x64) architecture.
- ☐ OpenSSL version 0.9.8, 1.0.x or 1.1.x (to determine your OpenSSL version, run: `openssl version`)
- ☐ RPM or Debian package format

2. Install the OMI server/CIMON. For example:

```
# rpm -ivh omi-1.4.2-5.ssl_100.ulinux.x64.rpm
```

3. Make sure that OMI server is running on the Linux host system, and then issue the following commands to set the port:

To see the status of OMI server.

```
# /opt/omi/bin/omiserver
```

To stop the OMI server on the Linux host system:

```
# /opt/omi/bin/omiserver --httpport 5985 --httpsport 5986 -s
```

To start the OMI server and set the http port:

```
# /opt/omi/bin/omiserver --httpport 5985 --httpsport 5986 -d
```

4. Extract the MRVLFC PowerKit files from the ZIP package. For example:

```
# unzip MRVL_FC_PowerKit_Linux-x.x.xx-0_Packages.zip
```

5. Copy the appropriate OMI provider rpm package:

- ☐ MRVL_FC_PowerKit_Linux-<version-number>.i386.rpm
(For x86 Linux)
- ☐ MRVL_FC_PowerKit_Linux-<version-number>.x86_64.rpm
(For x64 Linux)

6. Install the appropriate OMI provider rpm package. For example:

```
# rpm -ivh MRVL_FC_PowerKit_Linux-X.X.XX-0.x86_64.rpm
```

7. Restart the OMI server if necessary.

8. Add firewall exceptions to open the OMI server ports for remote cmdlets to talk to the OMI server/provider.

VMware ESXi

NOTE

If you have a previous version of the OMI provider, uninstall it before installing the latest version of the provider.

To install the MRVLFC VMware ESXi provider VIB on the ESXi host system:

1. Extract the MRVLFC PowerKit files from the ZIP package. For example:

```
# unzip MRVL-FC-PowerKit-ESXi70_<version_number>-package.zip
```
2. Install VMware ESXi provider VIB on the ESXi host system.
 - a. For installation on ESXi 7.0 use the following command:

```
# esxcli software vib install -f -d  
MRVL-FC-PowerKit-ESXi70_<version_number>.zip
```
 - b. For installation on ESXi 8.0 GA or ESXi 8.0 U1 use the following command:

```
# esxcli software vib install -d  
/path/to/MRVL-FC-Powerkit-ESXi80_<version_number>.zip
```

or

```
# esxcli software component apply -d  
/path/to/MRVL-FC-Powerkit-ESXi80_<version_number>.zip
```
 - c. For installation on ESXi 8.0 U2 and later, use the following command:

```
# esxcli software vib install -d  
/path/to/MRVL-FC-Powerkit-ESXi80U2_<version_number>.zip
```

or

```
# esxcli software component apply -d  
/path/to/MRVL-FC-Powerkit-ESXi80U2_<version_number>.zip
```
3. Reboot the system.

NOTE

Marvell recommends installing
MRVL-FC-Powerkit-ESXi80U2_<version_number>.zip for ESXi 8.0 U2
and later.

Uninstalling the MRVLFC PowerKit

NOTE

Marvell recommends restarting the computer after uninstalling MRVLFC PowerKit version 2.x.x.x.

PowerKit version 1.x.x.x can be removed by using the uninstall script from MRVLFC PowerKit version 2.x.x.x. MRVLFC PowerKit version 2.x.x.x cannot be removed by using the uninstall script of MRVLFC PowerKit version 1.x.x.x.

To uninstall the MRVLFC PowerKit in Windows, Linux OS, or VMware ESXi:

1. Open a PowerKit prompt as an administrator.
2. Navigate to the directory containing the installer files.
3. Issue the following commands to uninstall the cmdlets and verify that the package has been removed:

Windows (local and/or remote)

- a. Issue one of the following commands:

```
Import-Module .\Uninstall_MRVL_FC_PowerKit.ps1 -Force  
(if MRVLFC PowerKit was installed offline)  
Uninstall-MarvellQLogicFCPowerKit
```

(if the Windows MRVLFC PowerKit was installed online through the PowerShell Gallery (see [“Installing the MRVLFC PowerKit Online Using PowerShell Gallery”](#) on page 10))

Linux (remote)

- a. Verify that the OMI provider is installed:

```
rpm -qa | grep -i MRVL_FC_PowerKit_Linux
```

- b. Uninstall the OMI provider, for example:

```
rpm -e MRVL_FC_PowerKit_Linux-<version-number>.x86_64
```

- c. Verify that the package is no longer available:

```
rpm -qa | grep -i MRVL_FC_PowerKit_Linux
```

VMware ESXi (remote)

- a. Verify that the MRVLFC VMware ESXi provider is installed on the server.

To verify if Marvell FC ESXi 7.0 package is installed on the server:

```
esxcli software vib list | grep -i mrvlfc
```

To check if Marvell FC ESXi 8.0 or ESXi 8.0 U2 package is installed on the server:

```
# esxcli software vib list | grep -i mrvlfcpowerkit
```

- b. Uninstall the OMI provider.

To uninstall OMI Marvell FC ESXi 7.0 package

```
esxcli software vib remove -n mrvlfc
```

To uninstall OMI Marvell FC ESXi 8.0 or ESXi 8.0 U2

```
# esxcli software vib remove -n mrvlfcpowerkit
```

- c. Reboot the server.

- d. Verify that the OMI provider is no longer installed:

```
#esxcli software vib list | grep mrvlfc
```

4. Confirm that the MRVLFC PowerKit has been removed by typing the following cmdlet:

```
Get-MRVLFCAdapter
```

The command should fail. Any cmdlets that you have already used in the current PowerKit session may still auto-populate, but will not work if they are issued.

Additional Information

See the README text file in the MRVLFC PowerKit for:

- Limitations
- Known Issues
- Additional notes

3 Using MRVLFC PowerKit

This chapter describes how to start the MRVLFC PowerKit, view all the Marvell cmdlets, and get help about individual cmdlets.

Launching PowerKit

Start PowerKit from your Windows or Linux system.

A Windows PowerKit instance can provide either local control on a Windows server or remotely control other Windows, Linux, or VMware ESXi servers.

Windows

To start PowerKit, click the PowerKit icon in the task bar.

Getting Help

There is extensive help available for the Marvell cmdlets. For a list of the cmdlets, see [“Cmdlets” on page 36](#).

To view a list of all the available cmdlets, issue the following command:

```
Get-Module -ListAvailable | Where-Object { $_.Name.StartsWith  
( 'MarvellQLogicFCCmdlets' ) } | select name,exportedcommands |  
Format-Table -Wrap
```

NOTE

PowerKit commands are not case sensitive.

The following sections describe the available help levels and provide examples.

Basic Help

Basic help provides information in [Table 3-1](#).

Table 3-1. Basic Help Content

Information	Description
Name	The cmdlet name
Synopsis	A brief description of the cmdlet
Syntax	The cmdlet parameters
Description	The parameters that are output when the cmdlet completes successfully
Related Links	Additional general information about PowerKit and other topics of interest
Remarks	Instructions for accessing other types of help

To get basic help, issue one of the following commands:

Get-Help <cmdlet name>

<cmdlet name> -?

For example:

Get-Help Start-MRVLFCPortDiagTest

The following text is output when the previous command is issued:

NAME

Start-MRVLFCPortDiagTest

SYNOPSIS

This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle provided by user.

SYNTAX

Start-MRVLFCPortDiagTest -HostHandle <UInt32[]> -PhyPortHandle <UInt64[]> [-CimSession <CimSession[]>] [-ThrottleLimit <Int32>] [-AsJob <SwitchParameter>] [-WhatIf <SwitchParameter>] [-Confirm <SwitchParameter>] [<CommonParameters>]

```
Start-MRVLFCPortDiagTest -InputObject <CimInstance[]> [-CimSession <CimSession[]>]
[-ThrottleLimit <Int32>] [-AsJob <SwitchParameter>] [-WhatIf <SwitchParameter>]
[-Confirm <SwitchParameter>] [<CommonParameters>]
```

DESCRIPTION

This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle provided by user. PhyPortHandle can be discovered by CmdLet

'Get-MRVLFCPort'. Please see 'Get-MRVLFCPort' for details.

RELATED LINKS

REMARKS

To see the examples, type: "get-help Start-MRVLFCPortDiagTest -examples".

For more information, type: "get-help Start-MRVLFCPortDiagTest -detailed".

For technical information, type: "get-help Start-MRVLFCPortDiagTest -full".

Detailed Help

Detailed help provides the information in [Table 3-2](#).

Table 3-2. Detailed Help Content

Information	Description
Name	The cmdlet name
Synopsis	A brief description of the cmdlet
Syntax	The cmdlet parameters
Description	The parameters that are output when the cmdlet completes successfully
Parameters	Descriptions of the cmdlet parameters along with example cmdlet commands and output
Examples	Example cmdlet commands and output
Remarks	Instructions for accessing other types of help

To get detailed help, issue the following command:

Get-Help <cmdlet name> -Detailed

For example:

Get-Help StartMRVLFCPortDiagTest -Detailed

The following text is output when the previous command is issued:

NAME

Start-MRVLFCPortDiagTest

SYNOPSIS

This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle provided by user.

SYNTAX

```
Start-MRVLFCPortDiagTest -HostHandle <UInt32[]> -PhyPortHandle <UInt64[]> [-CimSession
<CimSession[]>] [-ThrottleLimit <Int32>] [-AsJob <SwitchParameter>] [-WhatIf
<SwitchParameter>] [-Confirm <SwitchParameter>] [<CommonParameters>]
```

```
Start-MRVLFCPortDiagTest -InputObject <CimInstance[]> [-CimSession <CimSession[]>]
[-ThrottleLimit <Int32>] [-AsJob <SwitchParameter>] [-WhatIf <SwitchParameter>]
[-Confirm <SwitchParameter>] [<CommonParameters>]
```

DESCRIPTION

This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle provided by user. PhyPortHandle can be discovered by CmdLet

'Get-MRVLFCPort'. Please see 'Get-MRVLFCPort' for details.

PARAMETERS

-HostHandle <UInt32[]>

-PhyPortHandle <UInt64[]>

-CimSession <CimSession[]>

-ThrottleLimit <Int32>

-AsJob [<SwitchParameter>]

-WhatIf [<SwitchParameter>]

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-Confirm [<SwitchParameter>]

-InputObject <CimInstance[]>

<CommonParameters>

This cmdlet supports the common parameters: Verbose, Debug, ErrorAction, ErrorVariable, WarningAction, WarningVariable, OutBuffer, PipelineVariable, and OutVariable. For more information, see about_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

----- Example 1 -----

```
@{paragraph=PS C:\>}Get-MRVLFCPort | Select-Object -Property PortName, PortType, HostHandle,
PhyPortHandle
```

PortName	PortType	HostHandle	PhyPortHandle
-----	-----	-----	-----
21:00:00:24:FF:78:96:C8	NPort	204727097	7660271871
21:00:00:24:FF:78:96:C9	NPort	204727097	11972016383
21:00:00:24:FF:78:96:CA	NPort	204727097	16283760895
21:00:00:24:FF:78:96:CB	NPort	204727097	20595505407

```
Start-MRVLFCPortDiagTest -HostHandle 204727097 -PhyPortHandle 20595505407
```

HBAPortName	: 21-00-00-24-FF-78-96-CB
HBAPortId	: 0A-01-00
HBAInstanceNo	: 2
HBAPort	: 3
HBAElectricalLoopbackTestType	: 210
HBAElectricalLoopbackTestResult	: 1
HBAElectricalLoopbackTestResultMessage	: Passed
HBAOpticalLoopbackTestType	: 211
HBAOpticalLoopbackTestResult	: 1
HBAOpticalLoopbackTestResultMessage	: Passed
HBAOverallTestResult	: 1
HBAOverallTestResultMessage	: Passed
HBALinkTrafficTestType	: 213
HBALinkTrafficTestResult	: 2

```
HBALinkTrafficTestResultMessage      : Skipped
StartTime                            : Fri Oct 09 15:55:17 2020

StopTime                             : Fri Oct 09 15:55:38 2020

Mbx1                                 : 65
Mbx2                                 : 57344
Details                             : N/A
ResultMessage                        : Operation Successful
ReturnValue                           : 0
```

This CmdLet will execute D-Port Diagnostic Tests on PhyPostHandle provided by user.

REMARKS

To see the examples, type: "get-help Start-MRVLFCPortDiagTest -examples".
For more information, type: "get-help Start-MRVLFCPortDiagTest -detailed".
For technical information, type: "get-help Start-MRVLFCPortDiagTest -full".

Technical Information

Technical information help provides the information in [Table 3-3](#).

Table 3-3. Technical Information Help Content

Information	Description
Name	The cmdlet name
Synopsis	A brief description of the cmdlet
Syntax	The cmdlet parameters
Description	The parameters that are output when the cmdlet completes successfully
Parameters	Descriptions of the cmdlet parameters and their valid values
Inputs	Input parameters for the cmdlet
Outputs	Output for the cmdlet
Notes	Additional information
Example	Example cmdlet commands and output
Related Links	Additional general information about PowerKit and other topics of interest

To get technical information, issue the following command:

Get-Help <cmdlet name> -Full

For example:

Get-Help Start-MRVLFCPortDiagTest -Full

The following text is output when the previous command is issued:

NAME

Start-MRVLFCPortDiagTest

SYNOPSIS

This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle provided by user.

SYNTAX

```
Start-MRVLFCPortDiagTest -HostHandle <UInt32[]> -PhyPortHandle <UInt64[]> [-CimSession  
<CimSession[]>] [-ThrottleLimit <Int32>] [-AsJob <SwitchParameter>] [-WhatI  
<SwitchParameter>] [-Confirm <SwitchParameter>] [<CommonParameters>]
```

```
Start-MRVLFCPortDiagTest -InputObject <CimInstance[]> [-CimSession <CimSession[]>]  
[-ThrottleLimit <Int32>] [-AsJob <SwitchParameter>] [-WhatIf <SwitchParameter>]  
[-Confirm <SwitchParameter>] [<CommonParameters>]
```

DESCRIPTION

This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle provided by user. PhyPortHandle can be discovered by CmdLet

'Get-MRVLFCPort'. Please see 'Get-MRVLFCPort' for details.

PARAMETERS

-HostHandle <UInt32[]>

-PhyPortHandle <UInt64[]>

-CimSession <CimSession[]>

-ThrottleLimit <Int32>

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```
-AsJob [<SwitchParameter>]

-WhatIf [<SwitchParameter>]

-Confirm [<SwitchParameter>]

-InputObject <CimInstance[]>
```

<CommonParameters>

This cmdlet supports the common parameters: Verbose, Debug, ErrorAction, ErrorVariable, WarningAction, WarningVariable, OutBuffer, PipelineVariable, and OutVariable. For more information, see about_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

INPUTS

OUTPUTS

NOTES

----- Example 1 -----

```
@{paragraph=PS C:\>}Get-MRVLFCPort | Select-Object -Property PortName, PortType, HostHandle,
PhyPortHandle
```

PortName	PortType	HostHandle	PhyPortHandle
-----	-----	-----	-----
21:00:00:24:FF:78:96:C8	NPort	204727097	7660271871
21:00:00:24:FF:78:96:C9	NPort	204727097	11972016383
21:00:00:24:FF:78:96:CA	NPort	204727097	16283760895
21:00:00:24:FF:78:96:CB	NPort	204727097	20595505407

```
Start-MRVLFCPortDiagTest -HostHandle 204727097 -PhyPortHandle 20595505407
```

HBAPortName	: 21-00-00-24-FF-78-96-CB
HBAPortId	: 0A-01-00
HBAInstanceNo	: 2
HBAPort	: 3
HBAElectricalLoopbackTestType	: 210

```
HBAElectricalLoopbackTestResult      : 1
HBAElectricalLoopbackTestResultMessage : Passed
HBAOpticalLoopbackTestType           : 211
HBAOpticalLoopbackTestResult         : 1
HBAOpticalLoopbackTestResultMessage  : Passed
HBAOverallTestResult                 : 1
HBAOverallTestResultMessage          : Passed
HBALinkTrafficTestType               : 213
HBALinkTrafficTestResult             : 2
HBALinkTrafficTestResultMessage      : Skipped
StartTime                           : Fri Oct 09 15:55:17 2020

StopTime                             : Fri Oct 09 15:55:38 2020

Mbx1                                 : 65
Mbx2                                 : 57344
Details                             : N/A
ResultMessage                       : Operation Successful
ReturnValue                         : 0
```

This CmdLet will execute D-Port Diagnostic Tests on PhyPostHandle provided by user.

RELATED LINKS

Examples

Example help provides the information in [Table 3-4](#).

Table 3-4. Example Help Content

Information	Description
Name	The cmdlet name
Synopsis	A brief description of the cmdlet
Example	Example cmdlet commands and output

To get example help, issue the following command:

Get-Help <cmdlet name> -Examples

For example:

Get-Help Start-MRVLFCPort -Examples

The following text is output when the previous command is issued:

```
NAME
    Start-MRVLFCPort

SYNOPSIS
    This Cmdlet will execute D-Port Diagnostic Test on FC port which matches with PhyPortHandle
    provided by user.

----- Example 1 -----

@{paragraph=PS C:\>}Get-MRVLFCPort | Select-Object -Property PortName, PortType, HostHandle,
PhyPortHandle

PortName          PortType HostHandle PhyPortHandle
-----
21:00:00:24:FF:78:96:C8 NPort      204727097    7660271871
21:00:00:24:FF:78:96:C9 NPort      204727097    11972016383
21:00:00:24:FF:78:96:CA NPort      204727097    16283760895
21:00:00:24:FF:78:96:CB NPort      204727097    20595505407

Start-MRVLFCPort -HostHandle 204727097 -PhyPortHandle 20595505407

HBAPortName      : 21-00-00-24-FF-78-96-CB
HBAPortId        : 0A-01-00
HBAInstanceNo    : 2
HBAPort          : 3
HBAElectricalLoopbackTestType : 210
HBAElectricalLoopbackTestResult : 1
HBAElectricalLoopbackTestResultMessage : Passed
HBAApticalLoopbackTestType : 211
HBAApticalLoopbackTestResult : 1
HBAApticalLoopbackTestResultMessage : Passed
HBAOverallTestResult : 1
HBAOverallTestResultMessage : Passed
HBALinkTrafficTestType : 213
```

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```
HBALinkTrafficTestResult      : 2
HBALinkTrafficTestResultMessage : Skipped
StartTime                     : Fri Oct 09 15:55:17 2020

StopTime                      : Fri Oct 09 15:55:38 2020

Mbx1                          : 65
Mbx2                          : 57344
Details                        : N/A
ResultMessage                  : Operation Successful
ReturnValue                     : 0
```

```
This CmdLet will execute D-Port Diagnostic Tests on PhyPortHandle provided by user. \
```

4 Accessing PowerKit cmdlets on Local and Remote Systems

Introduction

This section describes how to access PowerKit cmdlets from local and remote hosts.

- **Local Host.** The local host does not require `CimSession` commands to establish a session, because the commands are executed locally.
- **Remote Host.** The remote host must be connected by a CIM session, using `CimSession` commands.

Throughout this guide, examples show managing your Marvell QLogic adapters from a remote host (with `CimSession` commands) and from a local host (without `CimSession` commands).

Issuing cmdlets on the Local Host System

To issue cmdlets on the local Windows host system with 2600, 2700, 2800 Series Marvell QLogic Adapters that have the WMIv2 provider already installed, see [“Windows” on page 7](#).

Issuing cmdlets on a Remote Host System

To issue cmdlets on a remote host, you must first connect to that host through a CIM session.

Connecting to a Remote Host System Through a CIM Session

The following sections describe how to connect:

- [From a Local Windows Host to a Remote Windows Host](#)
- [From a Local Windows Host System to a Remote Linux Host System](#)
- [From a Local Windows Host System to a Remote VMware ESXi Host System](#)

From a Local Windows Host to a Remote Windows Host

Before following these instructions, ensure that the remote Windows host has the WMIv2 provider installed.

To connect to a remote Windows host system containing the Marvell adapters:

1. Install the MRVLFC PowerKit on the local Windows host (see [“Windows” on page 7](#)).
2. Add the remote Windows host system as a trusted host on the local Windows host system. For example, issue the following command (as an administrator) on the local Windows host in a command prompt:

```
winrm set winrm/config/client @{TrustedHosts="172.28.35.225"}
```

3. Install the latest MRVLFC PowerKit on the remote Windows host system.
4. Create the CIM session on the local Windows host system using the following syntax:

```
PS C:\> $Cred = Get-Credential <UserName with sudo privileges>
PS C:\> $Session = New-CimSession -ComputerName <Host IP
address> -Authentication Negotiate -Credential $Cred
-OperationTimeoutSec 1200000
PS C:\> Get-CimSession
```

For example:

```
PS C:\> $Cred = Get-Credential Administrator
PS C:\> $Session = New-CimSession -ComputerName 172.28.35.225
-Authentication Negotiate -Credential $Cred
-OperationTimeoutSec 1200000
PS C:\> Get-CimSession
```

5. Issue the desired cmdlet using a CIM session on the local Windows host system with the `-CimSession $Session` option. For example:

```
PS C:\> Get-MRVLFCAdapter -CimSession $Session
```

From a Local Windows Host System to a Remote Linux Host System

Before following these instructions, ensure that the remote Linux host has the OMI server/CIMOM and OMI provider installed (see [“Linux” on page 11](#)).

To connect to a remote Linux host system containing the Marvell adapters:

1. If you have not done so already, install the latest MRVLFC PowerKit on the local Windows host system (see [“Windows” on page 7](#)).

2. Add the remote Linux host system as a trusted host on the local Windows host system. For example, issue the following command (as an administrator) on the local Windows host in a command prompt:

```
PS C:\> winrm set winrm/config/client  
@{TrustedHosts="172.28.35.285"}
```

3. Create the CIM session on the local Windows host system using the following syntax:

```
PS C:\> $Cred = Get-Credential <UserName with sudo privileges>  
PS C:\> $Session = New-CimSession -ComputerName <Host IP  
address> -Authentication Basic -Credential $Cred  
-OperationTimeoutSec 1200000  
PS C:\> Get-CimSession
```

For example:

```
$Cred = Get-Credential root  
PS C:\> $Session = New-CimSession -ComputerName 172.28.35.285  
-Authentication Basic -Credential $Cred -OperationTimeoutSec  
1200000  
PS C:\> Get-CimSession
```

4. Issue the desired cmdlet using a CIM session on the local Windows host system with the `-CimSession $Session` option. For example:

```
PS C:\> Get-MRVLFCAdapter -CimSession $Session
```

From a Local Windows Host System to a Remote VMware ESXi Host System

Before following these instructions:

- Install the MRVLFC PowerKit on the local Windows host system (see [“Windows” on page 7](#)).
- Ensure that the remote ESXi host system has both the Small Footprint CIM Broker (SFCB) server/CIMOM and MRVLFC VMware ESXi provider installed.

VMware ESXi 7.x

To connect a remote ESXi host system with Marvell adapters to a local Windows host system:

1. If you have not already done so, install the latest MRVLFC VMware ESXi provider VIB on the remote ESXi Host System (see [“VMware ESXi” on page 12](#)).
2. Reboot the server.

3. (Optional) Issue one of the following commands on the remote ESXi host system as needed:

To restart the SFCB server:

```
# /etc/init.d/sfcbd-watchdog restart
```

To stop the SFCB server:

```
# /etc/init.d/sfcbd-watchdog stop
```

To start the SFCB server:

```
# /etc/init.d/sfcbd-watchdog start
```

Be sure to add firewall exceptions to open up the SFCB ports for remote cmdlets to talk to the SFCB server/provider.

4. Add the remote ESXi host system as a trusted host on the local Windows host system. For example, issue the following command (as an administrator) on the local Windows host in a command prompt:

```
PS C:\> winrm set winrm/config/client  
{TrustedHosts="172.28.35.285"}
```

5. Create the CIM session on the local Windows host system using the following syntax:

```
PS C:\> $Cred = Get-Credential <UserName with sudo privileges>  
PS C:\> $CIMOpt = New-CimSessionOption -SkipCACheck  
-SkipCNCheck -SkipRevocationCheck -UseSSL  
# $Session = New-CimSession -ComputerName <Host IP address>  
-Authentication Basic -Credential $Cred $CIMOpt -port 443  
-OperationTimeoutSec 1200000  
PS C:\> Get-CimSession
```

For example:

```
PS C:\> $Cred = Get-Credential root  
PS C:\> $CIMOpt = New-CimSessionOption -SkipCACheck  
-SkipCNCheck -SkipRevocationCheck -UseSSL  
PS C:\> $Session = New-CimSession -Authentication Basic  
-Credential $Cred -ComputerName "172.28.3.190" -SessionOption  
$CIMOpt -port 443 -OperationTimeoutSec 1200000
```

6. Issue the desired cmdlet using a CIM session on the local Windows host system with the `-CimSession $Session` option. For example:

```
PS C:\> Get-MRVLFCAadapter -CimSession $Session
```

VMware ESXi 8.0 GA and ESXi 8.0 U1

To connect a remote ESXi host system with Marvell adapters to a local Windows host system:

1. If you have not already done so, install the latest MRVLFC VMware ESXi provider VIB on the remote ESXi Host System (see [“VMware ESXi” on page 12](#)).
2. Reboot the server.
3. Add firewall exceptions to open up the REST API ports for remote cmdlets to talk to port 39999.
4. If you have not already done so, install the latest MRVLFC PowerKit on the local Windows host system (see [“Windows” on page 7](#)).
5. Create the credential to connect to the VMware ESXi system by issuing the following command:

```
# $Cred = Get-Credential <UserName with sudo privileges>
```

For example:

```
# $Cred = Get-Credential root
```

6. Issue the desired cmdlet using the `ComputerName` and `Credential` arguments on the local Windows host system. For example:

```
# Get-MRVLFCAdapter -ComputerName 10.30.45.200 -Credential $cred
```

VMware ESXi 8.0 U2 and Later

To connect a remote ESXi host system with Marvell adapters to a local Windows host system:

1. If you have not already done so, install the latest MRVLFC VMware ESXi provider VIB on the remote ESXi Host System (see [“VMware ESXi” on page 12](#)).
2. Reboot the server.
3. If you have not already done so, install the latest MRVLFC PowerKit on the local Windows host system (see [“Windows” on page 7](#)).
4. Create the a CIM Interaction user.
 - CIM Interaction user creation if the user is connecting through vCenter.
 - ☐ Log in to vCenter by visiting `https://<vcenter-url>` and click **LAUNCH VSPHERE CLIENT**.
 - ☐ If you are deploying a fresh instance of vCenter, then the login credentials are:

user:<user>@vsphere.local

password: <xxxxxxxxxxxx>

- ❑ Add a role named CIM Interaction by performing the following steps:
 - Click **vSphere Client** in the upper left corner.
 - Select **Administration** from the drop down list.
 - Click **Roles** in the left column list and then click **NEW** in the center column.
 - Enter **CIM Interaction** for the **Role name**.
 - Select **Host** in the left column.
 - Check **CIM interaction** in the right column.
 - Click **CREATE**.
- ❑ Add user xxxx@vsphere.local by performing the following steps:
 - On the **Administration**, click **Users and Groups** in the left column.
 - Change **Domain** to **vsphere.local** from the drop down list. Click **ADD**.
 - Enter the **Username**, **password**, **confirm password**. Click **ADD**.
- ❑ Add Global Permissions for user.
 - Click **Global Permission** in the left column menu and click **ADD**.
 - Enter value for the **User/Group** in the **Add Permission** box.
 - Choose role **CIM Interaction** from the drop down list.
 - Select **Propagate to children** check box and click **OK**.
- ❑ Add ESXi host to the vCenter cluster by performing the following steps:
 - Click **vSphere Client** in the upper left corner and select **Inventory** from the drop down list.
 - Click **Hosts and Clusters** in the upper banner and click **Actions**.
 - In the drop down list, click **New Datacenter** and click **OK**.
 - Click on **Datacenters** in the upper banner and click the check box next to **Datacenter**. Then right-click on **Datacenter**.
 - In the pull down list, click on **Add Host**. Enter the hostname for your ESXi host or its IP address in the **Hostname** or **IP address** field.

- Enter **root** for username and password you had set for your ESXi server.
- Click **YES** on the **Security Alert** page.
- Click **NEXT** on the **Host summary** page.
- Click **NEXT** on the **Assign license** page.
- Click **NEXT** on the **Lockdown mode** page.
- Click **NEXT** on the **VM location** page.
- Click **FINISH** on the **Ready to complete** page.
- CIM Interaction user creation if the user is directly connecting to ESXi 8.0 U2 and later host.
 - Log in to the ESXi host client by going to `https://<esxi-url>` using credentials: user: `root` password: `<xxxxxxx>`
 - Add the user by performing the following steps:
 - In the left column click **Manage** and then click **Security and Users**.
 - In the right pane, click **Users** and then click **Add User**.
 - Enter values in the **Username**, **Password**, and **Confirm Password** fields and click **Add**.
 - Add role **CimInteraction** as follows:
 - While still on Security & users page, click on Roles.
 - In the right pane, click on Add role.
 - Enter CimInteraction in the Role name field.
 - From the Privileges list, select **Host > Cim > CimInteraction**.
 - Click the Add button.
 - Add a role named CIM Interaction by performing the following steps:
 - Click **vSphere Client** in the upper left corner.
 - Select **Administration** from the drop down list.
 - Click **Roles** in the left column list and then click **NEW** in the center column.
 - Enter **CIM Interaction** for the **Role name**.
 - Select **Host** in the left column.
 - Check **CIM interaction** in the right column.
 - Click **CREATE**.

- ❑ Add **CIM Interaction** role to the user by performing the following steps:
 - In the left column click on **Host**.
 - In the right pane, click on **Actions** buttons and select **Permissions**.
 - In the **Manage Permissions**, click on **Add User**.
 - From the left drop-down list select the user.
 - From the right drop-down list select **CIM Interaction** role.
 - Click on **Add** user button to save the role for the user.

5. If the user is connecting to vCenter or ESXi 8.0 U2 and later host directly, then run the following commands:

For connecting through vCenter directly:

```
#Connect-MRVLFCESXiHostThruvCenter -ComputerName  
fcappsvcenter.marvell.com -Credential $cred  
-SkipCertValidation
```

For connecting to ESXi 8.0 U2 and later host directly:

```
#Connect-MRVLFCESXiHost -ComputerName 10.31.41.68  
-Credential $cred -SkipCertValidation
```

NOTE

The connection is valid up to the time displayed. After that, user needs to reconnect to vCenter or ESXi 8.0 U2 and later host.

6. Issue the desired cmdlet using the `ComputerName` on the local Windows host system. For example:

```
# Get-mrvlfcadapter -ComputerName 10.31.41.68  
-SkipCertValidation
```

NOTE

If you install the valid digital certificate provided by Trusted Root CA on vCenter or ESXi 8.0 U2 and later host, you can remove `SkipCertValidation` from the cmdlet. You can also create a valid digital certificate from `VMCA_ROOT_CERT` from vCenter.

To create valid digital certificate from VMCA_ROOT_CERT from vCenter

1. Create a DNS hostname for vCenter IP.
2. Log into vCenter by going to `https://<vcenter-url>`.
3. Click **LAUNCH VSPHERE CLIENT**. If you are deploying a fresh instance of vCenter, the credentials are:

user: <user>@vsphere.local

password: <xxxxxxxxxxxx>

4. Click on the **vSphere Client** in the upper left corner.
5. Select **Administration** in the drop-down list and click **Certificate Management** in the left column.
6. Select **Machine SSL** and click **Generate Certificate Signing Request (CSR)**. Fill the required information and click **Next**.
7. On **Generate CSR** page, click **Download** and save the CSR file.
 - a. Select **Trusted Root** tab.
 - b. Select **VMCA_ROOT_CERT**.
 - c. Click **ISSUE NEW LEAF CERTIFICATE**.
 - d. Upload the CSR file generated in the earlier step. Click **Next**.
 - e. Click **DOWNLOAD CERTIFICATE**. This saves the root certificate (.root.crt) and leaf certificate (.leaf.crt).
8. On Windows Client, install the root certificate (*.root.crt)
 - a. Copy root certificate on Windows host.
 - b. Double click the root certificate and click **Install Certificate**.
 - c. Select **Local Machine** and click **Next**.
 - d. Select **Place all certificates in the following store**. Browse and select **Trusted Root Certification Authorities**. Click **Next**.
9. Click **Finish**.

NOTE

After these steps are executed, when you execute the cmdlet for ESXi 8.0 U2 and later, there is no need to use the **SkipCertValidation** option.

5 Cmdlets

This chapter lists the available Marvell cmdlets and provides a brief description of each one. The cmdlets are organized by name (see [Table 5-1](#) and by function (see [Tables 5-2](#) through [5-12](#)).

For more information about the cmdlets, use the online help as shown in “[Getting Help](#)” on page 16.

Cmdlets by Name

[Table 5-1](#) lists the cmdlets alphabetically.

Table 5-1. Cmdlets by Name

cmdlet	Description
Disable-MRVLFCPort	Disables the diagnostic port feature on the specified port. This feature is supported on ports with a link speed of 16Gbps or 32Gbps.
Disable-MRVLFCPortBBCRCreditRecovery	Disables BBCR credit recovery on the Marvell adapter physical port.
Enable-MRVLFCPort	Enables the diagnostic port feature on the specified port. This feature is supported for ports with a link speed of 16Gbps or 32Gbps.
Enable-MRVLFCPortBBCRCreditRecovery	Enables BBCR credit recovery on the Marvell adapter physical port.
Get-MRVLFCAdapter	Retrieves information of one or more Marvell adapters. Provides information about 2600, 2700, and 2800 Series Fibre Channel Adapters.
Get-MRVLFCAdapterAlias	Gets Adapter Alias of Marvell QLogic FC Adapters.
Get-MRVLFCAdapterPersonalityType	Retrieves personality type of the Marvell adapter.
Get-MRVLFCAvailableVPorts	Retrieves the maximum number of available virtual ports.
Get-MRVLFCBootConfig	Retrieves boot configuration for the physical port.

Table 5-1. Cmdlets by Name (Continued)

cmdlet	Description
Get-MRVLFCFECMode	Provides Forward Error Control (FEC) status. ^a
Get-MRVLFCFECStats	Retrieves FEC statistics. ^a
Get-MRVLFCFlashInformation	Provides flash information for the Marvell adapter. This option appears only for select Marvell OEM Dell Fibre Channel adapters. The QLE2660, QLE2690, QLE2740, QLE2760, QLE2770, and QLE2800 adapters support Family Firmware Version.
Get-MRVLFCManagedLocalHost	Provides information of host that is managed on the available Marvell adapters.
Get-MRVLFCNVMeBootConfig	Retrieves the current NVMe boot configuration.
Get-MRVLFCNVRAMDPortValue	Retrieves the current DPort value from NVRAM.
Get-MRVLFCPort	Retrieves information of one or more physical ports on the Marvell adapters.
Get-MRVLFCPortAlias	Gets Physical Port Alias of Marvell QLogic FC Adapters
Get-MRVLFCPortBBCRCreditRecoveryStatus	Retrieves BBCR credit recovery status on the Marvell adapter physical port.
Get-MRVLFCPortBeaconStatus	Retrieves port beacon status.
Get-MRVLFCPortDMIData	Retrieves transceiver diagnostics monitoring interface (DMI) data for the Marvell adapter physical port.
Get-MRVLFCPortDriverStats	Retrieves the driver statistics of the physical port on the Marvell adapter.
Get-MRVLFCPortFWStats	Retrieves the firmware statistics of the physical port on the Marvell adapter.
Get-MRVLFCPortFCETrace	Retrieves FCE trace data for the Marvell adapter port in a file provided by the user. This cmdlet is not supported on VMware.
Get-MRVLFCPortParameters	Retrieves port adapter parameters.
Get-MRVLFCPortSCMCheck	Retrieves the current congestion status of the port.

Table 5-1. Cmdlets by Name (Continued)

cmdlet	Description
Get-MRVLFCPortSCMProfile	Retrieves the USCM profile of the specified adapter part.
Get-MRVLFCPortSCMStats	Retrieves the port's congestion statistics.
Get-MRVLFCPortStats	Retrieves physical port statistics.
Get-MRVLFCPortTarget	Retrieves one or more targets available on the port. The <code>PortHandle</code> displayed represents the physical or virtual port to which the target is connected.
Get-MRVLFCPortTargetLUN	Retrieves one or more LUNs available on the target.
Get-MRVLFCPortVPDData	Retrieves VPD data for the Marvell adapter physical port.
Get-MRVLFCTargetLinkSpeed	Retrieves the target link speed for the selected target connected to the Marvell adapter port. This feature is also known as intelligent interleaved direct memory access (iIDMA).
Get-MRVLFCTargetSCMCheck	Retrieves the target's current congestion.
Get-MRVLFCTargetSCMStats	Retrieves the target's congestion statistics.
Get-MRVLFCTargetStats	Retrieves the target's statistics information.
Get-MRVLFCUEFIBootConfig	Retrieves UEFI boot configuration for the physical port.
Get-MRVLFCVPort	Retrieves information of one or more virtual ports available on the physical port.
Get-MRVLFCVPortAlias	Gets Virtual Port Alias of Marvell QLogic FC Adapters
New-MRVLFCVPort	Creates a new virtual port.
Remove-MRVLFCVPort	Deletes a virtual port.
Reset-MRVLFCDefaultNVRAM	Restores the default NVRAM to the port.
Reset-MRVLFCFECCounters	Resets the FEC counters. ^a
Reset-MRVLFCPortCTCommandDiagnosticTest	Resets the CT diagnostic test parameters to their default values.

Table 5-1. Cmdlets by Name (Continued)

cmdlet	Description
Reset-MRVLFCPortEchoDiagnosticTest	Resets the FC ELS echo diagnostic parameters to their default values.
Reset-MRVLFCPortFWStats	Resets the FC statistics for the specified physical port on the Marvell adapter.
Reset-MRVLFCPortLinkStatusDiagnosticTest	Resets the link status data for the specified port.
Reset-MRVLFCPortLoopbackDiagnosticTest	Resets the loopback diagnostic test parameters to their default values.
Reset-MRVLFCPortPingDiagnosticTest	Resets the FC ping diagnostic test command parameters to their default values.
Reset-MRVLFCPortReadWriteBufferDiagnosticTest	Resets the read/write diagnostic parameters to their default values.
Reset-MRVLFCPortSCMStatistics	Resets the congestion statistics for the specified port and the targets connected to the port.
Save-MRVLFCAdapterConfigToFile	Saves the adapter configuration (firmware table, MPI configuration, NVRAM, SerDes table) to a file specified in the input parameter.
Save-MRVLFCBootConfigToXMLFile	Saves the boot configuration for the physical port in an XML file specified in the input parameter.
Save-MRVLFCBAPParamsToXMLFile	Saves port adapter parameters to an XML file specified in the input parameter.
Save-MRVLFCMPIFirmwareDumpToFile	Dumps the MPI firmware to a file specified in the input parameter.
Save-MRVLFCNVMeBootConfigToXMLFile	Saves the NVMe boot configuration to an XML file.
Save-MRVLFCPortNVRAMToFile	Saves NVRAM data for the Marvell adapter physical port. The HostHandle and PhyPortHandle parameters are available in Get-MRVLFCPort cmdlet.
Save-MRVLFCRISCFirmwareDumpToFile	Dumps the RISC firmware to a file specified in the input parameter.
Save-MRVLFCUEFIBootConfigToXMLFile	Saves the boot UEFI configuration for the physical port in an XML file specified in the input parameter.

Table 5-1. Cmdlets by Name (Continued)

cmdlet	Description
Set-MRVLFCAdapterConfigFromFile	Sets the adapter configuration (firmware table, MPI configuration, NVRAM, SerDes table) from a file specified in the input parameter. CAUTION: The wrong configuration may corrupt the adapter.
Set-MRVLFCAllTargetLinkSpeed	Sets the target link speed for all targets connected to the Marvell adapter physical port. This feature is also known as intelligent interleaved direct memory access (iiDMA).
Set-MRVLFCBootConfigFromXMLFile	Sets the boot configuration for a physical port from an XML file specified in the input parameter. CAUTION: Setting the wrong configuration may corrupt the adapter.
Set-MRVLFCFECMode	Updates FEC status. ^a
Set-MRVLFCHBAParamsFromXMLFile	Sets port adapters parameters from an XML file specified in the input parameter. CAUTION: Setting the wrong configuration may corrupt the adapter.
Set-MRVLFCNVMeBootConfigFromXMLFile	Sets the NVMe boot configuration from the specified XML file.
Set-MRVLFCPortNVRAMFromFile	Sets NVRAM data on a Marvell adapter port from the specified file. This cmdlet requires a reboot for the changes to take effect.
Set-MRVLFCPortSCMActivation	Sets how the adapter port handles congestion traffic.
Set-MRVLFCPortSCMProfileDriverSettings	Sets the current active profile setting (driver or NVRAM) for congestion on the specified adapter port.
Set-MRVLFCTargetLinkSpeed	Sets the target link speed for the selected target connected to the Marvell adapter physical port.
Set-MRVLFCUEFIBootConfigFromFile	Sets UEFI boot configuration data on a Marvell adapter port from the specified file.

Table 5-1. Cmdlets by Name (Continued)

cmdlet	Description
Start-MRVLFCPortCTCommandDiagnosticTest	Executes a common transport Fibre Channel trace route (CT FTR) diagnostic test when <code>CT_FABRIC_TRACEROUTE_REQUEST</code> is selected. NOTE: All inner-link switches between the initiator and the target must have Brocade switch firmware version 7.1.1 or later for the CT FTR test to work. For best results, Marvell recommends using HPE®'s P2000G3 or Promise® VTrakE610f as a target. To determine if your target is supported, contact Marvell Support. Executes a CT ping diagnostic test when <code>CT_PING_REQUEST</code> is selected. NOTE: The CT ping test is supported on a Brocade switch with Fabric OS version 7.1.1 and later.
Start-MRVLFCPortDiagTest	Executes a diagnostic port test on a port that supports the diagnostic port feature. This feature is applicable for ports with a link speed of 16Gbps or 32Gbps. NOTE: At the time of publication, Cisco does not support running diagnostics from the host server; it only supports running the diagnostics test from the switch. For details, see the Cisco user's guide. Do not run Dport when the switch port is configured in Dport mode. Before running diagnostics, ensure that the adapter is online by issuing the <code>Get-MRVLFCPort</code> cmdlet.
Start-MRVLFCPortEchoDiagnosticTest	Executes an FC extended link service (ELS) echo diagnostic test.
Start-MRVLFCPortLinkStatusDiagnosticTest	Provides the link status data for the port.
Start-MRVLFCPortLoopbackDiagnosticTest	Executes a loopback diagnostic test.
Start-MRVLFCPortPingDiagnosticTest	Executes the FC ping diagnostic test.
Start-MRVLFCPortRDPDiagnosticTest	Executes a Read Diagnostics Parameter (RDP) command from the port. NOTE: RDP is supported with Cisco® and Brocade switches; the output is slightly different for each switch.

Table 5-1. Cmdlets by Name (Continued)

cmdlet	Description
Start-MRVLFCPortReadWriteBufferDiagnosticTest	Executes a read/write buffer diagnostic test. NOTE: Some storage devices may not support Read/Write Buffer commands. Check with your hardware vendors or manufacturer.
Sync-MRVLFCHost	Updates the all data for MRVLFC PowerKit for the managed host.
Update-MRVLFCAdapterAlias	Updates Adapter Alias of Marvell QLogic FC Adapters.
Get-MRVLFCAdapterPersonalityType	Updates the personality type of the Marvell adapters.
Get-MRVLFCFlashInformation	Updates Physical Port Alias of Marvell QLogic FC Adapters.
Update-MRVLFCFlashFromFile	Updates the flash on the Marvell adapter
Update-MRVLFCVPortAlias	Updates Virtual Port Alias of Marvell QLogic FC Adapters
Update-MRVLFCPortBeaconStatus	Updates port beacon status.
Update-MRVLFCVPortAlias	Updates Virtual Port Alias of Marvell QLogic FC Adapters

^a The FEC feature is supported only on Marvell QLogic 16/32/64Gb Fibre Channel adapters including the QLE2690, QLE2670, QLE2700, and QLE2800 Series adapters. These adapters must be in FC mode if the current adapter port is connected to a Brocade switch with FEC support. For information on how to enable FEC on the switch, refer to the Brocade documentation. For 32/64Gb adapters, FEC is enabled by default and cannot be disabled.

Cmdlets by Function

Tables 5-2 through 5-12 list the cmdlets by function.

NOTE

Examples of the cmdlets' output follow each table; click the cmdlet name in the tables to view an example of the cmdlet output.

Some examples are shown by issuing the command from a remote Linux host to a local Windows host using `-CimSession $Session` commands. For instructions on issuing commands in this manner, see [“Connecting to a Remote Host System Through a CIM Session” on page 27](#).

Local and Remote Host Cmdlet

The local and remote host cmdlet is listed in [Table 5-2](#).

Table 5-2. Local and Remote Host cmdlet

cmdlet	Description
Get-MRVLFCManagedLocalHost	Provides information of host that is managed on the available Marvell adapters.

Get-MRVLFCManagedLocalHost

Get-MRVLFCManagedLocalHost -CimSession \$Session

```
AdapterInfo      : { [MRVLFC_Adapter.HostHandle=2636812815,AdapterHandle=8] }
AdapterList      : {8}
AgentVersion     : N/A
Architecture     : x86_64
BuildNumber      : 14393
HostHandle       : 2636812815
HostName         : WIN-BQVMRS90IUG
HostVersion      : Build 14393
IsAdmin          : True
MajorVersion     : 10
MinorVersion     : 0
OperatingSystem  : Windows
osVersion        : Windows Server 2016
PlatformId       : 2
ProductType      : 3
ProviderVersion  : v1.0.9.0
ServicePackMajor : 0
ServicePackMinor : 0
SuiteMask        : 402
PSComputerName   : 10.104.210.211
```

Following is an example for remote VMware ESXi 8.0 GA and U1 systems. The `-Computername` and `-Credential` parameters are specific to these VMware versions. The `CimSession` parameter is not valid in these VMware versions.

Get-mrvlfcmanagedlocalhost -ComputerName 10.30.45.41 -Credential \$cred

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Cmdlets by Function

```
HostHandle      : 2939186531
IsAdmin         : True
OperatingSystem : Vmware_ESXi
Architecture    : x86_64
MajorVersion    : 8
MinorVersion    : 0
ProductType     : 3
OsVersion       : 8.0.0
BuildNumber     : N/A
PlatformId      : N/A
ServicePackMajor : N/A
ServicePackMinor : N/A
SuiteMask       : N/A
AdapterList     : {751619276800}
AdapterInfo     : {[MRVLFC_Adapter.HostHandle=2939186531,
AdapterHandle=751619276800]}
ProviderVersion : v2.0.7.0
HostName        : localhost.marvell.com
HostVersion     : 8.0.0
AgentVersion    : N/A
PSComputerName  : 10.30.45.41
```

Example for ESXi 8.0 U2 and later:

```
PS C:\Users\Administrator> Get-mrvlfcmanagedlocalhost -ComputerName
10.31.41.68
```

```
HostHandle      : 154628089
IsAdmin         : True
OperatingSystem : Vmware_ESXi
Architecture    : x86_64
MajorVersion    : 8
MinorVersion    : 0
ProductType     : 3
OsVersion       : 8.0.3
BuildNumber     : N/A
PlatformId      : N/A
ServicePackMajor : N/A
ServicePackMinor : N/A
SuiteMask       : N/A
```

```
AdapterList      : {575525617664}
AdapterInfo      :

{ [MRVLFC_Adapter.HostHandle=154628089,AdapterHandle=575525617664] }
ProviderVersion  : v2.4.6.0
HostName         : FCAppsESX802Test1.marvell.com
HostVersion      : 8.0.3
AgentVersion     : N/A
PSComputerName   : 10.31.41.68
```

Adapter Level Cmdlets (Flash Update and Adapter Configuration)

The cmdlets that configure the adapter and update the flash are listed in [Table 5-3](#).

Table 5-3. Adapter Level cmdlets

cmdlet	Description
Get-MRVLFCAdapter	Retrieves information of one or more Marvell adapters. Provides information about 2600, 2700, and 2800 Series Fibre Channel Adapters.
Get-MRVLFCAdapterAlias	Gets Adapter Alias of Marvell QLogic FC Adapters.
Get-MRVLFCAdapterPersonalityType	Retrieves personality type of the Marvell adapter.
Update-MRVLFCAdapterAlias	Updates Adapter Alias of Marvell QLogic FC Adapters.
Update-MRVLFCAdapterPersonalityType	Updates the personality type of the Marvell adapter.
Update-MRVLFCFlashFromFile	Updates the flash on the Marvell adapter.
Get-MRVLFCFlashInformation	Provides flash information for the Marvell adapter. This option appears only for select Marvell OEM Dell Fibre Channel adapters. The QLE2660, QLE2690, QLE2740, QLE2760, QLE2770, and QLE2800 adapters support Family Firmware Version.
Save-MRVLFCAdapterConfigToFile	Saves the adapter configuration (firmware table, MPI configuration, NVRAM, SerDes table) to a file specified in the input parameter.

Table 5-3. Adapter Level cmdlets (Continued)

cmdlet	Description
Set-MRVLFCAdapterConfigFromFile	Sets the adapter configuration (firmware table, MPI configuration, NVRAM, SerDes table) from a file specified in the input parameter. CAUTION: The wrong configuration may corrupt the adapter.
Save-MRVLFCRISCFirmwareDumpToFile	Dumps the RISC firmware to a file specified in the input parameter.
Save-MRVLFCMPIFirmwareDumpToFile	Dumps the MPI firmware to a file specified in the input parameter.

Get-MRVLFCAdapter

Get-MRVLFCAdapter -CimSession \$Session

```
HostHandle           : 2268390258
AdapterHandle        : 130
HBADescription       : QLogic QLE2772 2x32Gb QLE2772 FC HBA
PortInfo             : {[MRVLFC_Port#1:
HostHandle=2268390258,PhyPortHandle=21788054740], [MRVLFC_Port#2:
HostHandle=2268390258,PhyPortHandle=26116576468]}
PortList             : {21788054740, 26116576468}
SerialNumber         : AFD1915Y07299
Manufacturer         : QLogic Corporation
DeviceISPID         : ISP2281
AdapterType          : FC_HBA
PCIBusID            : 130
AdapterModel         : QLE2772
ChipRevision         : 2
SubSystemID          : 0x2F3
VendorID             : 0x1077
DeviceID             : 0x2281
SubVendorID          : 0x1077
PhysicalPortCount    : 2
FCCodeVersion        : 0.00
FlashBIOSVersion     : 3.66
EFIVersion           : 7.33
FlashFirmwareVersion : 9.06.02
ActiveFirmwareVersion : 9.06.02 (d0d5)
FlashMultiBootVersion : 3.02.16
ChipType             : 2
VPDData              : {Product Identifier      : QLogic 2x32Gb QLE2772 FC HBA, VPD-R
Tag                  : , Part Number          : QLE2772,
                      Serial Number          : AFD1915Y07299...}
DriverVersion        : 10.02.02.00.a12-k
MPIFirmwareVersion   : 3.01.02
MPISoftROMVersion    : 255.255.00
PEPFirmwareVersion   : 3.00.29
PEPSoftROMVersion    : 3.00.13
PEPBrdCfgVersion     : 3.01.00
PreLoadFirmwareVersion : 4.01.11
FCBrdCfgVersion      : 3.09.00
```

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Cmdlets by Function

```
PCISerdesVersion      : 3.00.07
FlashImageVersion     : 3.02.16
FamilyFirmwareVersion : 15.20.06
CrbinitVersion        : N/A
PegtuneVersion        : N/A
FirmwareDisableLockdown : Disabled
PSComputerName        : 10.104.210.253
```

Following is an example output for remote VMware ESXi 8.0 GA and U1 systems. The `-Computername` and `-Credential` parameters are specific to these VMware versions. The `CimSession` parameter is not valid in these VMware versions.

```
Get-mrvlfcadapter -ComputerName 10.30.45.41 -Credential $cred
```

```
HostHandle           : 2939186531
AdapterHandle        : 751619276800
HBADescription       : QLogic QLE2772 2x32Gb QLE2772 FC HBA
SerialNumber         : AFD1923Y07491
Manufacturer         : QLogic Corporation
DeviceISPID          : ISP2281
AdapterType          : FC_HBA
PCIBusID             : 175
AdapterModel         : QLE2772
ChipRevision         : 0x2 (A1)
SubSystemID          : 0x2F3
VendorID             : 0x1077
DeviceID             : 0x2281
SubVendorID          : 0x1077
PhysicalPortCount    : 2
FCCodeVersion        : N/A
FlashBIOSVersion     : 3.66
EFIVersion           : 7.50
FlashFirmwareVersion : 9.09.00
ActiveFirmwareVersion : 9.09.00
FlashMultiBootVersion : 3.06.10
DriverVersion        : 5.2.46.0
MPIFirmwareVersion   : 3.03.04
MPISoftROMVersion    : 255.255.255
PEPFirmwareVersion   : 3.01.39
PEPSoftROMVersion    : 3.00.13
```

```
PEPBrdCfgVersion      : 3.01.00
PreLoadFirmwareVersion : 4.01.16
FCBrdCfgVersion       : 3.09.00
PCISerdesVersion      : 3.00.07
FlashImageVersion     : 3.06.10
FamilyFirmwareVersion : 16.00.10
CrbinitVersion        : N/A
PegtuneVersion        : N/A
FirmwareUpdateLockdown : Disabled
PortInfo              : {[MRVLFC_Port#1, HostHandle=2939186531, PhyPortHandle=8232195284],
                        [MRVLFC_Port#2, HostHandle=2939186531,
                        PhyPortHandle=12543939796]}
PortList              : {8232195284, 12543939796}
PSComputerName        : 10.30.45.41
```

Get-MRVLFCAdapterAlias

Get-MRVLFCAdapterAlias -HostHandle 259946390 -AdapterHandle 5

Alias	ResultMessage	ReturnValue
-----	-----	-----
Adapter_UFD1810V33945	Operation Successful.	0

Example for ESXi 8.0 U2 and later:

```
PS C:\Users\Administrator> Get-mrvlfcadapter -ComputerName
10.31.41.68
```

```
HostHandle           : 154628089
AdapterHandle        : 575525617664
HBADescription       : QLogic QLE2772 32Gb 2-port Fibre Channel
Adapter              :
HBAAlias             : N/A
SerialNumber         : AFD1924Y07568
Manufacturer         : Marvell
DeviceISPID          : ISP2281
AdapterType          : FC_HBA
PCIBusID             : 134
AdapterModel         : QLE2772
ChipRevision         : 0x2 (A1)
SubSystemID          : 0x2E4
```

```
VendorID           : 0x1077
DeviceID           : 0x2281
SubVendorID        : 0x1077
PhysicalPortCount  : 2
FCodeVersion       : N/A
FlashBIOSVersion   : N/A
EFIVersion         : 7.27
FlashFirmwareVersion : 9.08.02
ActiveFirmwareVersion : 9.08.02
FlashMultiBootVersion : 1.05.17
DriverVersion      : 5.4.200.0a6-debug
MPINFirmwareVersion : 3.03.00
MPISoftROMVersion   : 255.255.255
PEPFirmwareVersion  : 3.01.36
PEPSoftROMVersion   : 3.00.13
PEPBrdCfgVersion    : 3.01.00
PreLoadFirmwareVersion : 4.01.15
FCBrdCfgVersion     : 3.00.02
PCIESerdesVersion   : 3.00.07
FlashImageVersion   : 1.05.17
FamilyFirmwareVersion : N/A
CrbinitVersion      : N/A
PegtuneVersion      : N/A
FirmwareUpdateLockdown : Disabled
PortInfo           :

{[MRVLFC_Port#1, HostHandle=154628089,
PhyPortHandle=5279339732|#1, HostHandle=154628089,
PhyPortHandle=5279339732], [MRVLFC_Port#2, HostHandle=154628089,
PhyPortHandle=9591084244|#2, HostHandle=154628089,
PhyPortHandle=9591084244]}
PortList           : {5279339732, 9591084244}
PSComputerName     : 10.31.41.68
```

Update-MRVLFCAdapterAlias

```
Update-MRVLFCPortAlias -HostHandle 259946390 -PhyPortHandle  
20595505407 -AliasName "Adapter_UFD1810V33945_Port_1"
```

ResultMessage	ReturnValue
-----	-----
Operation Successful.	0

NOTE

The alias name cannot be more than 255 characters. You cannot assign an alias name that is already in use.

Get-MRVLFCAdapterPersonalityType

The following example shows the Marvell adapter personality type as FC.

**Get-MRVLFCAdapterPersonalityType -HostHandle 259946390
-AdapterHandle 4**

PersonalityType	ResultMessage	ReturnValue
FC	Operation Successful	0

The following example shows the Marvell adapter personality type as Converged Network Adapter (CNA).

**Get-MRVLFCAdapterPersonalityType -HostHandle 259946390
-AdapterHandle 5**

PersonalityType	ResultMessage	ReturnValue
CNA	Operation Successful	0

Update-MRVLFCAdapterPersonalityType

The following example changes the Marvell adapter personality type from CNA to FC.

**Update-MRVLFCAdapterPersonalityType -HostHandle 259946390
-AdapterHandle 5 -PersonalityType FC**

ResultMessage	ReturnValue
Operation Successful. Apply power cycle to a machine. Make sure to change the SFP module to compatible one before reboot.	0

The following example changes the Marvell adapter personality type from FC to CNA.

**Update-MRVLFCAdapterPersonalityType -HostHandle 259946390
-AdapterHandle 5 -PersonalityType CNA**

ResultMessage	ReturnValue

```
Operation Successful. Apply power cycle to a machine.      0
Make sure to change the SFP module to compatible one
before reboot.
```

Update-MRVLFCFlashFromFile

```
Update-MRVLFCFlashFromFile -AdapterHandle 8 -HostHandle 2636812815
-FileName /home/bk010205.bin -FlashUpdateFlags NO_RESET
-CimSession $Session
```

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.104.208.241

Get-MRVLFCFlashInformation

```
Get-MRVLFCFlashInformation -AdapterHandle 8 -HostHandle 2636812815 -CimSession
$Session
```

```
FamilyFWVersion   : 00.00.00.00
MBIVersion        : 01.92.05
MBIBuildDate      : 2020-10-02
FlashToolID       : QCLI
LastUpdateTime    : 2020-10-30 15:33:42
FlashToolVersion  : 02.04.00.14
ReturnValue        : 0
PSComputerName    : 10.30.43.163
```

Save-MRVLFCAdapterConfigToFile

```
Save-MRVLFCAdapterConfigToFile -HostHandle 3472657473 -AdapterHandle 4
-ConfigType FIRMWARE_TABLE -ConfigFileName "/home/fw_table.bin" -CimSession
$Session
```

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.104.208.241

Set-MRVLFCAdapterConfigFromFile

```
Set-MRVLFCAdapterConfigFromFile -HostHandle 3472657473 -AdapterHandle 4
-ConfigType FIRMWARE_TABLE -ConfigFileName "/home/fw_table.bin" -CimSession
$Session
```

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----

Operation Unsupported on HBA 0 10.104.208.241

Save-MRVLFCRISCFirmwareDumpToFile

```
Save-MRVLFCRISCFirmwareDumpToFile -HostHandle 2268390258 -AdapterHandle 130  
-FirmwareDumpFile "/home/no_dump_130.bin" -CimSession $Session
```

```
PhyPortHandles : {21788054740, 26116576468}  
ResultPerPort  : {HBA not ready, HBA not ready}  
ResultMessage   : Operation Successful  
ReturnValue      : 0  
PSComputerName  : 10.104.210.253
```

Save-MRVLFCMPIFirmwareDumpToFile

```
Save-MRVLFCMPIFirmwareDumpToFile -AdapterHandle 130 -HostHandle 2268390258  
-FirmwareDumpFile "/home/second_mpi_fw_dump.bin" -CimSession $Session
```

```
PhyPortHandles : {21788054740, 26116576468}  
ResultPerPort  : {HBA not ready, Operation Successful}  
ResultMessage   : Operation Successful  
ReturnValue      : 0  
PSComputerName  : 10.104.210.253
```

Port Level Cmdlets

The port level cmdlets are listed in [Table 5-4](#).

Table 5-4. Port Level cmdlets

cmdlet	Description
Get-MRVLFCPort	Retrieves information of one or more physical ports on the Marvell adapters.
Get-MRVLFCPortAlias	Gets Physical Port Alias of Marvell QLogic FC Adapters
Get-MRVLFCPortBeaconStatus	Retrieves port beacon status.
Update-MRVLFCPortAlias	Updates Port Alias of Marvell QLogic FC Adapters
Update-MRVLFCPortBeaconStatus	Updates port beacon status.
Reset-MRVLFCDefaultNVRAM	Restores the default NVRAM to the port.
Get-MRVLFCFECMode	Provides Forward Error Control (FEC) status. ^a

Table 5-4. Port Level cmdlets (Continued)

cmdlet	Description
Set-MRVLFCFECMode	Updates FEC status. ^a
Reset-MRVLFCFECCounters	Resets the FEC counters. ^a
Get-MRVLFCFECStats	Retrieves FEC statistics. ^a
Get-MRVLFCPortStats	Retrieves physical port statistics.
Get-MRVLFCPortBBCRCreditRecoveryStatus	Retrieves BBCR credit recovery status on the Marvell adapter physical port.
Enable-MRVLFCPortBBCRCreditRecovery	Enables BBCR credit recovery on the Marvell adapter physical port.
Disable-MRVLFCPortBBCRCreditRecovery	Disables BBCR credit recovery on the Marvell adapter physical port.
Get-MRVLFCPortVPDData	Retrieves VPD data for the Marvell adapter physical port.
Get-MRVLFCPortFCETrace	Retrieves FCE trace data for the Marvell adapter port in a file provided by the user. This cmdlet is not supported on VMware.
Save-MRVLFCPortNVRAMToFile	Saves NVRAM data for the Marvell adapter physical port. The HostHandle and PhyPortHandle parameters are available in Get-MRVLFCPort cmdlet.
Set-MRVLFCPortNVRAMFromFile	Sets NVRAM data on a Marvell adapter port from the specified file. This cmdlet requires a reboot for the changes to take effect.
Get-MRVLFCPortDMIData	Retrieves transceiver diagnostics monitoring interface (DMI) data for the Marvell adapter physical port.
Get-MRVLFCPortDriverStats	Retrieves the driver statistics of the physical port on the Marvell adapter.
Get-MRVLFCPortFWStats	Retrieves the firmware statistics of the physical port on the Marvell adapter.
Reset-MRVLFCPortFWStats	Resets the FC statistics of the physical port on the Marvell adapter.

Table 5-4. Port Level cmdlets (Continued)

cmdlet	Description
Set-MRVLFCAllTargetLinkSpeed	Sets the target link speed for all targets connected to the Marvell adapter physical port. This feature is also known as intelligent interleaved direct memory access (iiDMA).

^a The FEC feature is supported only on Marvell QLogic 16/32/64Gb Fibre Channel adapters including the QLE2690, QLE2670, QLE2700, and QLE2800 Series adapters. These adapters must be in FC mode if the current adapter port is connected to a Brocade switch with FEC support. For information on how to enable FEC on the switch, refer to the Brocade documentation. For 32/64Gb adapters, FEC is enabled by default and cannot be disabled.

Get-MRVLFCPort

Get-MRVLFCPort -CimSession \$Session

```

HostHandle           : 2268390258
PhyPortHandle        : 7293195476
HBAPortNumber        : 1
TargetInfo           : {[MRVLFC_PortTarget.HostHandle=2268390258,FCTargetHandle=1456025357],
[MRVLFC_PortTarget.HostHandle=2268390258,FCTargetHandle=1456025351]}
TargetList           : {1456025357, 1456025351}
HostNQN              : nqn.2014-08.org.nvmexpress:uuid:32324c58-6e35-3154-3943-505030303930
HostID               : 7286afd3b3ad45da83aa4f2cbdb3c10e
HBADescription       : QLogic QLE2772 32Gb 2-Port PCIe Fibre Channel Adapter
PhyPortNumber        : 1
PCIBusNumber         : 65
PCIDeviceNumber      : 0
PCIFunctionNumber    : 0
DeviceNumber         : 0
PortType             : NPort
NodeName             : 20:00:f4:e9:d4:54:b5:b2
PortName             : 21:00:f4:e9:d4:54:b5:b2
PortID               : 02-49-00
HBAStatus            : Online
HBATemperature       : 41
ActualDataRate       : 8 Gbps
SupportedSpeed       : 8 16 32 Gbps
PrincipalFabricWWN   : 20:02:00:de:fb:7f:5c:41
AdjacentFabricWWN    : 20:1a:00:05:73:c3:26:b0

```

5-Cmdlets

Cmdlets by Function

```
ChipModelName      : ISP2812-based Dual Port 64Gb Fibre Channel to PCIe Adapter
ChipRevision       : 2
SerialNumber       : 8SSN37A28358C1NA99T0SK5
DriverVersion      : 10.02.04.00.a1-k-debug
BIOSVersion        : N/A
RunningFirmwareVersion : 9.06.02 (d0d5)
RunningMPFI FirmwareVersion : 2.00.09
RunningPEP FirmwareVersion : 3.00.29
FCodeVersion       : 0.00
FlashBIOSVersion   : N/A
EFIVersion         : 7.11
FlashFirmwareVersion : 9.06.02
MPFI FirmwareVersion : 2.00.09
PEP FirmwareVersion : 3.00.29
ConnectionMode     : Point to Point
PCIDeviceID        : 0x2281
VendorID           : 0x1077
SubsystemDeviceID   : 0x2F5
SubsystemVendorID   : 0x1077
PCIEMaxBusWidth     : x8
PCIENegotiatedWidth : x8
PCIEMaxBusSpeed     : 16.0 Gtps
PCIENegotiatedSpeed : 16.0 Gtps
FwPreloadTablesVersion : 4.1.11
IsBootFromSAN       : False
ValidFWImage        : {Firmw, UEFI}
FECSupport          : 0
BBCRSupport         : 1
BBCRConfiguredSCN   : 8
ConfigLockdown      : Disabled
FirmwareUpdateLockdown : Disabled
MPILockdown         : Disabled
CongestionCurrentState : N/A
SecondsSinceLastEvent : 1610273579 (sec)
CongestionSeverity   : N/A
FabricConnectionFlags : N/A
PSComputerName      : 10.30.43.163

HostHandle          : 2268390258
PhyPortHandle       : 11604939988
```

5-Cmdlets

Cmdlets by Function

```
HBAPortNumber          : 2
TargetInfo              : {[MRVLFC_PortTarget.HostHandle=2268390258,FCTargetHandle=1456025349]}
TargetList              : {1456025349}
HostNQN                 : nqn.2014-08.org.nvmexpress:uuid:32324c58-6e35-3154-3943-505030303930
HostID                  : 7286afd3b3ad45da83aa4f2cbdb3c10e
HBADescription          : QLogic QLE2772 32Gb 2-Port PCIe Fibre Channel Adapter
PhyPortNumber           : 2
PCIBusNumber            : 65
PCIDeviceNumber         : 0
PCIFunctionNumber       : 1
DeviceNumber            : 1
PortType                : NPort
NodeName                : 20:00:f4:e9:d4:54:b5:b3
PortName                : 21:00:F4:e9:d4:54:b5:b3
PortID                  : 1E-0B-00
HBAAStatus              : Online
HBATemperature          : 41
ActualDataRate          : 16 Gbps
SupportedSpeed          : 8 16 32 Gbps
PrincipalFabricWWN      : 10:00:d8:1f:cc:06:72:29
AdjacentFabricWWN       : 20:0b:88:94:71:96:cb:cc
ChipModelName           : ISP2812-based Dual Port 64Gb Fibre Channel to PCIe Adapter
ChipRevision            : 2
SerialNumber            : 8SSN37A28358C1NA99T0SK5
DriverVersion           : 10.02.04.00.a1-k-debug
BIOSVersion             : N/A
RunningFirmwareVersion  : 9.06.02 (d0d5)
RunningMPINFirmwareVersion : 2.00.09
RunningPEPFirmwareVersion : 3.00.29
FCCodeVersion           : 0.00
FlashBIOSVersion        : N/A
EFIVersion              : 7.11
FlashFirmwareVersion    : 9.06.02
MPINFirmwareVersion     : 2.00.09
PEPFirmwareVersion      : 3.00.29
ConnectionMode          : Point to Point
PCIDeviceID             : 0x2281
VendorID                : 0x1077
SubsystemDeviceID       : 0x2F5
SubsystemVendorID       : 0x1077
```

5-Cmdlets

Cmdlets by Function

```
PCIEMaxBusWidth      : x8
PCIENegotiatedWidth   : x8
PCIEMaxBusSpeed       : 16.0 Gtps
PCIENegotiatedSpeed   : 16.0 Gtps
FwPreloadTablesVersion : 4.1.11
IsBootFromSAN         : False
Valid FW Image:       : {Firmw, UEFI}
FECSupport            : 0
BBCRSupport           : 1
BBCRConfiguredSCN     : 8
ConfigLockdown        : Disabled
FirmwareUpdateLockdown : Disabled
MPIILockdown          : Disabled
CongestionCurrentState : Healthy
SecondsSinceLastEvent  : 1610273579 (sec)
CongestionSeverity     : None
FabricConnectionFlags  : RDF Completed
PSComputerName         : 10.30.43.163
```

Following is an example for remote VMware ESXi 8.0 GA and U1 systems. The `-Computername` and `-Credential` parameters are specific to these VMware versions. The `CimSession` parameter is not valid in these VMware versions.

```
PS C:\Users\Administrator> Get-mrvlfcPort -ComputerName 10.30.45.41 -Credential $cred
```

```
HostHandle           : 2939186531
PhyPortHandle        : 8232195284
HBAPortNumber        : 1
HBADescription        : QLogic QLE2772 2x32Gb QLE2772 FC HBA
PhyPortNumber        : 1
PCIBusNumber         : 175
PCIDeviceNumber       : 0
PCIFunctionNumber     : 0
DeviceNumber         : 0
PortType             : NPort
NodeName             : 20:00:f4:e9:d4:54:ad:ea
PortName             : 21:00:f4:e9:d4:54:ad:ea
PortID              : 0a:07:00
HBAStatus            : Online 16 Gbps
HBATemperature       : 48
ActualDataRate       : 16 Gbps
```

5-Cmdlets

Cmdlets by Function

SupportedSpeed : 8 16 32 Gbps
PrincipalFabricWWN : 10:00:88:94:71:97:67:63
AdjacentFabricWWN : 20:07:88:94:71:97:67:63
ChipModelName : ISP2812-based 64/32G Fibre Channel to PCIe Controller
ChipRevision : 0x2 (A1)
SerialNumber : AFD1923Y07491
DriverVersion : 5.2.46.0
BIOSVersion : 3.66
RunningFirmwareVersion : 9.09.00
RunningMPINFirmwareVersion : 3.03.04
RunningPEPFirmwareVersion : 3.01.39
FCodeVersion : N/A
FlashBIOSVersion : 3.66
EFIVersion : 7.50
FlashFirmwareVersion : 9.09.00
MPINFirmwareVersion : 3.03.04
PEPFirmwareVersion : 3.01.39
ConnectionMode : Point_to_Point
PCIDeviceID : 0x2281
VendorID : 0x1077
SubsystemDeviceID : 0x2F3
SubsystemVendorID : 0x1077
PCIeMaxBusWidth : x8
PCIeNegotiatedWidth : x8
PCIeMaxBusSpeed : 16.0 Gtps
PCIeNegotiatedSpeed : 8.0 Gtps
FwPreloadTablesVersion : 4.1.16
IsBootFromSAN : False
FECSupport : Enabled
BBCRSupport : 0
BBCRConfiguredSCN : 0
ConfigLockdown : Disabled
FirmwareUpdateLockdown : Disabled
MPIILockdown : Enabled
CongestionCurrentState : Healthy
SecondsSinceLastEvent : 47
CongestionSeverity : None
FabricConnectionFlags : RDF Reject
ValidFWImage : {Firmware, UEFI, BIOS}
HostID : N/A

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Cmdlets by Function

```
HostNQN                : N/A
TargetInfo              : {[MRVLFC_PortTarget.HostHandle=2939186531,FCTargetHandle=655360]}
TargetList              : {655360}
PSComputerName          : 10.30.45.41

HostHandle              : 2939186531
PhyPortHandle           : 12543939796
HBAPortNumber           : 2
HBADescription          : QLogic QLE2772 2x32Gb QLE2772 FC HBA
PhyPortNumber           : 2
PCIBusNumber            : 175
PCIDeviceNumber         : 0
PCIFunctionNumber       : 1
DeviceNumber            : 1
PortType                : NPort
NodeName                : 20:00:f4:e9:d4:54:ad:eb
PortName                : 21:00:f4:e9:d4:54:ad:eb
PortID                  : 0a:0b:00
HBAStatus               : Online 16 Gbps
HBATemperature          : 48
ActualDataRate          : 16 Gbps
SupportedSpeed          : 8 16 32 Gbps
PrincipalFabricWWN      : 10:00:88:94:71:97:67:63
AdjacentFabricWWN       : 20:0b:88:94:71:97:67:63
ChipModelName           : ISP2812-based 64/32G Fibre Channel to PCIe Controller
ChipRevision            : 0x2 (A1)
SerialNumber            : AFD1923Y07491
DriverVersion           : 5.2.46.0
BIOSVersion             : 3.66
RunningFirmwareVersion  : 9.09.00
RunningMPFI FirmwareVersion : 3.03.04
RunningPEPFirmwareVersion : 3.01.39
FCCodeVersion           : N/A
FlashBIOSVersion        : 3.66
EFIVersion              : 7.50
FlashFirmwareVersion    : 9.09.00
MPFI FirmwareVersion    : 3.03.04
PEPFirmwareVersion      : 3.01.39
ConnectionMode          : Point_to_Point
PCIDeviceID             : 0x2281
```

5-Cmdlets
Cmdlets by Function

```
VendorID                : 0x1077
SubsystemDeviceID       : 0x2F3
SubsystemVendorID       : 0x1077
PCIEMaxBusWidth         : x8
PCIENegotiatedWidth     : x8
PCIEMaxBusSpeed         : 16.0 Gtps
PCIENegotiatedSpeed     : 8.0 Gtps
FwPreloadTablesVersion  : 4.1.16
IsBootFromSAN           : False
FECSupport              : Enabled
BBCRSupport             : 1
BBCRConfiguredSCN      : 8
ConfigLockdown          : Disabled
FirmwareUpdateLockdown  : Disabled
MPILockdown            : Enabled
CongestionCurrentState  : Healthy
SecondsSinceLastEvent   : 47
CongestionSeverity      : None
FabricConnectionFlags   : RDF Reject
ValidFWImage            : {Firmware, UEFI, BIOS}
HostID                  : N/A
HostNQN                 : N/A
TargetInfo              : {[MRVLFC_PortTarget.HostHandle=2939186531,FCTargetHandle=655360]}
TargetList              : {655360}
PSComputerName          : 10.30.45.41
```

Get-MRVLFCPortAlias

Get-MRVLFCPortAlias -HostHandle 259946390 -PhyPortHandle 20595505407

Alias	ResultMessage	ReturnValue
-----	-----	-----
Adapter_UFD1810V33945_Port_1	Operation Successful.	0

Example for ESXi 8.0 U2 and later:

PS C:\Users\Administrator> Get-mrvlfcPort -ComputerName 10.31.41.68

```
HostHandle              : 154628089
PhyPortHandle           : 5279339732
```

5-Cmdlets

Cmdlets by Function

HBAPortNumber	: 1
HBADescription	: QLogic QLE2772 32Gb 2-port Fibre Channel Adapter
HBAAlias	: N/A
PortAlias	: N/A
PhyPortNumber	: 1
PCIBusNumber	: 134
PCIDeviceNumber	: 0
PCIFunctionNumber	: 0
DeviceNumber	: 0
PortType	: NPort
NodeName	: 20:00:f4:e9:d4:54:ac:3a
PortName	: 21:00:f4:e9:d4:54:ac:3a
PortID	: 01:00:00
HBAStatus	: Online (FEC) 32 Gbps
HBATemperature	: 45
ActualDataRate	: 32 Gbps
SupportedSpeed	: 8 16 32 Gbps
PrincipalFabricWWN	: 10:00:d8:1f:cc:06:6e:c9
AdjacentFabricWWN	: 20:00:d8:1f:cc:06:6e:c9
ChipModelName	: ISP2812-based 64/32G Fibre Channel to PCIe
Controller	
ChipRevision	: 0x2 (A1)
SerialNumber	: AFD1924Y07568
DriverVersion	: 5.4.200.0a6-debug
BIOSVersion	: N/A
RunningFirmwareVersion	: 9.08.02
RunningMPINFirmwareVersion	: 3.03.00
RunningPEPFirmwareVersion	: 3.01.36
FCodeVersion	: N/A
FlashBIOSVersion	: N/A
EFIVersion	: 7.27
FlashFirmwareVersion	: 9.08.02
MPINFirmwareVersion	: 3.03.00

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Cmdlets by Function

```
PEPFirmwareVersion      : 3.01.36
ConnectionMode           : Point_to_Point
PCIDeviceID              : 0x2281
VendorID                 : 0x1077
SubsystemDeviceID        : 0x2E4
SubsystemVendorID        : 0x1077
PCIEMaxBusWidth          : x8
PCIENegotiatedWidth      : x8
PCIEMaxBusSpeed          : 16.0 Gtps
PCIENegotiatedSpeed      : 8.0 Gtps
FwPreloadTablesVersion   : 4.1.15
IsBootFromSAN            : False
FECSupport               : Enabled
BBCRSupport              : N/A
BBCRConfiguredSCN        : N/A
ConfigLockdown           : Disabled
FirmwareUpdateLockdown   : Disabled
MPIILockdown             : Disabled
CongestionCurrentState    : Healthy
SecondsSinceLastEvent     : 48
CongestionSeverity        : None
FabricConnectionFlags     : RDF Completed
ValidFWImage             : {Firmware, UEFI}
HostID                   : 66dfa48e826c60aa2d44b026287f1550
HostNQN                  : nqn.2014-08.com.marvell:nvme:FCAppsESX803Test1
TargetInfo               :

{ [MRVLFC_PortTarget.HostHandle=154628089,FCTargetHandle=71424],
  [MRVLFC_PortTarget.HostHandle=154628089,FCTargetHandle=68096],
  [MRVLFC_PortTarget.HostHandle=154628089,FCTargetHandle=70144] }
TargetList               : {71424, 68096, 70144}
PSComputerName           : 10.31.41.68
```

5-Cmdlets

Cmdlets by Function

HostHandle	: 154628089
PhyPortHandle	: 9591084244
HBAPortNumber	: 2
HBADescription	: QLogic QLE2772 32Gb 2-port Fibre Channel Adapter
HBAAlias	: N/A
PortAlias	: N/A
PhyPortNumber	: 2
PCIBusNumber	: 134
PCIDeviceNumber	: 0
PCIFunctionNumber	: 1
DeviceNumber	: 1
PortType	: NPort
NodeName	: 20:00:f4:e9:d4:54:ac:3b
PortName	: 21:00:f4:e9:d4:54:ac:3b
PortID	: 01:01:00
HBAStatus	: Online (FEC) 32 Gbps
HBATemperature	: 45
ActualDataRate	: 32 Gbps
SupportedSpeed	: 8 16 32 Gbps
PrincipalFabricWWN	: 10:00:d8:1f:cc:06:6e:c9
AdjacentFabricWWN	: 20:01:d8:1f:cc:06:6e:c9
ChipModelName	: ISP2812-based 64/32G Fibre Channel to PCIe
Controller	
ChipRevision	: 0x2 (A1)
SerialNumber	: AFD1924Y07568
DriverVersion	: 5.4.200.0a6-debug
BIOSVersion	: N/A
RunningFirmwareVersion	: 9.08.02
RunningMPIFirmwareVersion	: 3.03.00
RunningPEPFirmwareVersion	: 3.01.36
FCodeVersion	: N/A
FlashBIOSVersion	: N/A
EFIVersion	: 7.27

5-Cmdlets

Cmdlets by Function

```
FlashFirmwareVersion      : 9.08.02
MPIFirmwareVersion        : 3.03.00
PEPFirmwareVersion        : 3.01.36
ConnectionMode            : Point_to_Point
PCIDeviceID               : 0x2281
VendorID                  : 0x1077
SubsystemDeviceID         : 0x2E4
SubsystemVendorID         : 0x1077
PCIEMaxBusWidth           : x8
PCIENegotiatedWidth       : x8
PCIEMaxBusSpeed           : 16.0 Gtps
PCIENegotiatedSpeed       : 8.0 Gtps
FwPreloadTablesVersion    : 4.1.15
IsBootFromSAN             : False
FECSupport                : Enabled
BBCRSupport               : 1
BBCRConfiguredSCN         : 15
ConfigLockdown            : Disabled
FirmwareUpdateLockdown    : Disabled
MPIILockdown              : Disabled
CongestionCurrentState    : Healthy
SecondsSinceLastEvent     : 48
CongestionSeverity        : None
FabricConnectionFlags     : RDF Completed
ValidFWImage              : {Firmware, UEFI}
HostID                    : 66dfa48e826c60aa2d44b026287f1550
HostQN                     : nqn.2014-08.com.marvell:nvme:FCAppsESX803Test1
TargetInfo                :

{ [MRVLFC_PortTarget.HostHandle=154628089,FCTargetHandle=68096],
  [MRVLFC_PortTarget.HostHandle=154628089,FCTargetHandle=71424],
  [MRVLFC_PortTarget.HostHandle=154628089,FCTargetHandle=70144] }
TargetList                 : {68096, 71424, 70144}
```

PSComputerName : 10.31.41.68

Update-MRVLFCPortAlias

Update-MRVLFCAdapterAlias -HostHandle 259946390 -AdapterHandle 5 -AliasName "Adapter_UFD1810V33945"

ResultMessage	ReturnValue
-----	-----
Operation Successful.	0

NOTE

The alias name cannot be more than 255 characters. You cannot assign an alias name that is already in use.

Get-MRVLFCPortBeaconStatus

Get-MRVLFCPortBeaconStatus -HostHandle 204727097 -PhyPortHandle 20595505407 -CimSession \$Session

BeaconStatus : BEACON_ON
ResultMessage : Operation Successful
ReturnValue : 0
PSComputerName : 10.30.42.121

Update-MRVLFCPortBeaconStatus

Update-MRVLFCPortBeaconStatus -HostHandle 204727097 -PhyPortHandle 20595505407 -BeaconStatus BEACON_ON -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.30.42.121

Reset-MRVLFCDefaultNVRAM

Reset-MRVLFCDefaultNVRAM -HostHandle 204727097 -PhyPortHandle 20595505407 -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.30.43.163

Get-MRVLCFECMode

Get-MRVLCFECMode -HostHandle 204727097 -PhyPortHandle 20595505407 -CimSession \$Session

Mode : FEC_DISABLED
ResultMessage : Operation Successful
ReturnValue : 0
PSComputerName : 10.30.42.121

Set-MRVLCFECMode

Set-MRVLCFECMode -HostHandle 204727097 -PhyPortHandle 20595505407 -Mode FEC_ENABLE -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful! Reboot the machine!!	0	10.30.43.163

Reset-MRVLCFECCounters

Reset-MRVLCFECCounters -HostHandle 204727097 -PhyPortHandle 20595505407 -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.30.43.163

Get-MRVLCFECStats

Get-MRVLCFECStats -HostHandle 204727097 -PhyPortHandle 20595505407 -CimSession \$Session

StatsNames : {FECCorrErr, FECUncorrErr}
StatsValues : {0, 0}
ResultMessage : Operation Successful
ReturnValue : 0
PSComputerName : 10.30.42.121

Get-MRVLCFPortStats

Get-MRVLCFPortStats -CimSession \$Session

HostHandle : 2268390258
PhyPortHandle : 13293672916

```
ControllerErrorCount      : 0
DeviceErrorCount          : 0
IOCount                   : 0
MegabyteCount             : 0
LipResetCount             : 0
InterruptCount            : 0
LinkFailureCount          : 0
LossOfSyncCount           : 0
LossOfSignalCount         : 0
PrimitiveSeqProtocolErrorCount : 0
InvalidTransmissionWordCount : 0
InvalidCRCCount           : 0
PSComputerName            : 10.30.42.121
```

Get-MRVLFCPortBBCRCreditRecoveryStatus

Get-MRVLFCPortBBCRCreditRecoveryStatus -HostHandle 2636812815 -PhyPortHandle 16283760895

```
BBCRRecoveryStatus      : Enabled
BBCRRecoveryConfigured  : 8
BBCRRecoveryState       : Online
BBCRRecoveryNegotiated  : 8
BBCRRecoveryOfflineReason : N/A
ResultMessage           : Operation Successful
ReturnValue              : 0
```

Enable-MRVLFCPortBBCRCreditRecovery

Enable-MRVLFCPortBBCRCreditRecovery -HostHandle 2636812815 -PhyPortHandle 16283760895 -BBCreditRecoveryCount 10

ResultMessage	ReturnValue
-----	-----
Opertion Successful ! Reboot the machine !!	0

Disable-MRVLFCPortBBCRCreditRecovery

Disable-MRVLFCPortBBCRCreditRecovery -HostHandle 2636812815 -PhyPortHandle 16283760895

ResultMessage	ReturnValue
---------------	-------------

```
-----  
Operation Successful ! Reboot the machine !!                                0
```

Get-MRVLFCPortVPDData

\$FormatEnumerationLimit=-1

**Get-MRVLFCPortVPDData -HostHandle 2636812815 -PhyPortHandle 16283760895 |
Format-Custom**

```
class PSCustomObject  
{  
    VPDData =  
    [  
        Product Identifier           : Qlogic 16Gb 4-port FC to PCIe Gen3  
x8 Adapter  
        Part Number                  : QLE2694  
        Serial Number                : AFD1517Y01978  
        Engineering Date Code        : BK3212408-01 00  
        Flash Image Version          : 010205  
    ]  
  
    ResultMessage = Operation Successful  
    ReturnValue = 0  
}
```

Get-MRVLFCPortFCETrace

**Get-MRVLFCPortFCETrace -HostHandle 2636812815 -PhyPortHandle 16283760895
-FilePath C:\port4_trace_data.txt**

```
ResultMessage      ReturnValue  
-----  
Operation Successful      0
```

Save-MRVLFCPortNVRAMToFile

**Save-MRVLFCPortNVRAMToFile -HostHandle 2636812815 -PhyPortHandle 7660271871
-FilePath c:\port1.dat**

```
ResultMessage      ReturnValue  
-----  
Operation Successful      0
```

Set-MRVLFCPortNVRAMFromFile

Set-MRVLFCPortNVRAMFromFile -HostHandle 2636812815 -PhyPortHandle 7660271871
-FilePath c:\port1.dat

ResultMessage	ReturnValue
-----	-----
Operation Successful ! Reboot the machine !!	0

Get-MRVLFCPortDMIData

\$FormatEnumerationLimit=-1

Get-MRVLFCPortDMIData -HostHandle 2636812815 -PhyPortHandle 16283760895 | Format-Custom

```
class PSCustomObject
{
    SFPData =
    [
        -----
        Media Information
        -----

        Vendor: FINISAR CORP.
        Connector: LC (Lucent Connector)
        Media Type: 3200-M5-SN-S
        Part Number: FTLF8529P3BCV-QL
        Speed: 400 MBytes/Sec 1600 MBytes/Sec 800 MBytes/Sec
        Revision: A
        Serial Number: ULC028Z
        Identifier: SFP/SFP+/SFP28 and later
        Extended Compliance Codes: Unspecified
        Rate Identifier: FC-PI-6 (32/16/8G Independent Rx, Tx Rate_Select)

        QLogic SFP Installed: Yes

        -----
        Temperature Voltage Tx Bias Tx Power Rx Power
        (C) (V) (mA) (mW) (mW)
        -----
        Value 45.83 3.32 8.40 0.4590 0.6774
        Status Normal Normal Normal Normal Normal
        High Alarm 75.00 3.60 12.00 1.0000 1.2589
        High Warning 70.00 3.50 11.50 0.7943 1.0000
        Low Warning 0.00 3.10 2.00 0.1585 0.0158
        Low Alarm -5.00 3.00 1.00 0.1259 0.0100
```

Optical Transceiver Digital Diagnostic Data:

```
Address A0
    Identifier: SFP
    Ext. Identifier: GBIC/SFP defined by serial ID only
    Connector: LC
    Ethernet Speed:
        Compliance: 0x00 0x00 0x00
    FC Link Length: Short Distance (S)
    FC Transmitter Tech: Shortwave Laser w/o OFC (SN)
    FC Transmission Media: Multi-mode 50m (M5)
        FC Speed: 400 MBytes/Sec 1600 MBytes/Sec 800 MBytes/Sec
        Encoding: 64B66B
        BR, Nominal: 0x8c
    Length (9um) - km: 0x00
        Length (9um): 0x00
        Length (50um): 0x03
        Length (62.5um): 0x00
        Length (Copper): 0x00
        Vendor name: FINISAR CORP.           Ext Ethernet Speed: Unspecified
        Vendor OUI: 0x00 0x90 0x65
        Vendor PN: FTLF8529P3BCV-QL          Vendor Rev: A           Wave Length:
0x0352
        CC_BASE: 0xb0
        Options:-Signal Loss, as defined in SFP MSA: 0x1
                -Signal Loss, inverted from SFP MSA: 0x0
                -TX_FAULT signal implemented: 0x1
                -TX_DISABLE implemented & disables serial o/p: 0x1
                -RATE_SELECT implemented: 0x1
        BR, max: 0x00
        BR, min: 0x00
        Vendor SN: ULC028Z                    Date code: 110912    Diag Monitoring
Type:-Address change required: 0x0
        -Power Measurement: 0x1
        -Externally Calibrated: 0x0
        -Internally Calibrated: 0x1
        -Digital diag monitoring: 0x1
        -Legacy diagnostic: 0x0
    Enhanced Options:-Soft RATE_SELECT ctrl & monitoring: 0x1
```

5-Cmdlets

Cmdlets by Function

```
-Soft RX_LOS monitoring: 0x1
-Soft TX_FAULT monitoring: 0x1
-Soft TX_DISABLE ctrl & monitoring: 0x1
-Alarm/warning flags: 0x1

SFF-8472 Compliance: XENPAK
    CC_EXT: 0x07
    Vendor Specific: 0x51 0x4c 0x6f 0x67 0x69 0x63 0x00 0x00
                    0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
                    0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
                    0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00

Address A2
    Temp High Alarm: 0x4b00
    Temp Low Alarm: 0xfbb0
    Temp High Warning: 0x4600
    Temp Low Warning: 0x0000
    Voltage High Alarm: 0x8ca0
    Voltage Low Alarm: 0x7530
    Voltage High Warning: 0x88b8
    Voltage Low Warning: 0x7918
    Bias High Alarm: 0x1770
    Bias Low Alarm: 0x01f4
    Bias High Warning: 0x1676
    Bias Low Warning: 0x03e8
    TX Signal Power High Alarm: 0x2710
    TX Signal Power Low Alarm: 0x04eb
    TX Signal Power High Warning: 0x1f07
    TX Signal Power Low Warning: 0x0631
    RX Signal Power High Alarm: 0x312d
    RX Signal Power Low Alarm: 0x0064
    RX Signal Power High Warning: 0x2710
    RX Signal Power Low Warning: 0x009e
        Rx_PWR(4): 0x00000000
        Rx_PWR(3): 0x00000000
        Rx_PWR(2): 0x00000000
        Rx_PWR(1): 0x3f800000
        Rx_PWR(0): 0x00000000
        Tx_I(Slope): 0x0100
        Tx_I(Offset): 0x0000
        Tx_PWR(Slope): 0x0100
```

```
Tx_PWR(Offset): 0x0000
    T(Slope): 0x0100
    T(Offset): 0x0000
    V(Slope): 0x0100
    V(Offset): 0x0000
    Checksum: 0xfe
Temperature MSB: 0x2d
Temperature LSB: 0xd5
    Vcc MSB: 0x81
    Vcc LSB: 0xd5
    TX Bias MSB: 0x10
    TX Bias LSB: 0x66
    TX Power MSB: 0x11
    TX Power LSB: 0xee
    RX Power MSB: 0x1a
    RX Power LSB: 0x76
    Reserved MSB: 0x00
    Reserved LSB: 0x00
    Reserved MSB: 0x00
    Reserved LSB: 0x00
Status/Control Bits:-Data_Ready_Bar: 0x0
    -LOS: 0x0
    -TX Fault: 0x0
    -Soft RX Rate Select: 0x0
    -RX Rate Select State: 0x1
    -Soft TX Disable: 0x0
    -TX Disable State: 0x0
    -EWRAP Control Bit: 0x0
    -EWRAP FORWARD Control Bit: 0x0
    -OWRAP Control Bit: 0x0
    -OWRAP FORWARD Control Bit: 0x0
    -TX Signal Power Low Alarm: 0x0
    -TX Signal Power High Alarm: 0x0
    -TX Bias Low Alarm: 0x0
    -TX Bias High Alarm: 0x0
    -Vcc Low Alarm: 0x0
    -Vcc High Alarm: 0x0
    -Temp Low Alarm: 0x0
    -Temp High Alarm: 0x0
    -RX Signal Power Low Alarm: 0x0
```

```
-RX Signal Power High Alarm: 0x0
-TX Signal Power Low Warning: 0x0
-TX Signal Power High Warning: 0x0
-TX Bias Low Warning: 0x0
-TX Bias High Warning: 0x0
-Vcc Low Warning: 0x0
-Vcc High Warning: 0x0
-Temp Low Warning: 0x0
-Temp High Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-RX Power Low Warning: 0x0
-RX Power High Warning: 0x0
Vendor Specific: 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0x01
]
ResultMessage = Operation Successful
ReturnValue = 0 }
```

Following is an example for 64 G DMI Data support for Accelink SFP.

Get-MRVLFCPortDMIData -HostHandle 663597686 -PhyPortHandle 8880087309 | Format-Custom

```
class MarvellQLogicPortSFPDataLocal
{
    SFPData =
    [
        -----
        Media Information
        -----
            Vendor: WTD
            Connector: LC (Lucent Connector)
            Media Type: 6400-M5-SN-S
            Part Number: RTX520-571-C-QM
            Speed: 6400 MBytes/Sec 3200 MBytes/Sec 1600 MBytes/Sec
            Revision: 1.0
            Serial Number: MH222800310083
            Identifier: SFP/SFP+/SFP28 and later
    ]
}
```

5-Cmdlets

Cmdlets by Function

Extended Compliance Codes: Unspecified

Rate Identifier: FC-PI-7 (64/32/16G Independent Rx, Tx Rate Select)

QLogic SFP Installed: Yes

	Temperature	Voltage	Tx Bias	Tx Power	Rx Power
	(C)	(V)	(mA)	(mW)	(mW)
Value	58.45	3.31	6.80	1.0314	0.6370
Status	Normal	Normal	Normal	Normal	Normal
High Alarm	75.00	3.63	12.00	3.1623	3.1623
High Warning	70.00	3.46	11.20	2.5120	1.5849
Low Warning	0.00	3.13	3.60	0.1514	0.0759
Low Alarm	-5.00	2.97	3.00	0.0603	0.0302

Optical Transceiver Digital Diagnostic Data:

Address A0

Identifier: SFP/SFP+/SFP28 and later

Extended Identifier: GBIC/SFP defined by serial ID only

Connector: LC (Lucent Connector)

Ethernet Speed:

Compliance: 0x00 0x00 0x00

FC Link Length: Short Distance (S)

FC Transmitter Tech: Shortwave Laser w/o OFC (SN)

FC Transmission Media: Multi-mode 50m (M5)

FC Speed: 3200 MBytes/Sec 1600 MBytes/Sec

Encoding: PAM4

BR, Nominal: 0xff

Rate Identifier: FC-PI-7 (64/32/16G Independent Rx, Tx Rate Select)

Length (9um) - km: 0x00

Length (9um): 0x00

Length (50um,OM2): 0x00

Length (62.5um,OM1): 0x00

Length (50um,OM4,Copper): 0x0a

Length (50um,OM3,Copper): 0x07

Vendor name: WTD

Extended Compliance Codes: Unspecified

Vendor OUI: 0x00 0x1c 0xad

Vendor PN: RTXM520-571-C-QM

Vendor Rev: 1.0

5-Cmdlets

Cmdlets by Function

```
Wave Length: 0x0352
FC Speed 2: 6400 MBytes/Sec
CC_BASE: 0x28
Optional Transceiver Signals: -Linear Receiver Output Implemented: 0x0
                              -Power Level Declaration: 0x1
                              -Cooled Transceiver Declaration: 0x0
                              -Retimer or CDR indicator: 0x1
                              -Paging implemented indicator: 0x0
                              -High Power Level Declaration by bit 1: 0x0
                              -High Power Level Declaration by bits 1 and 5: 0x0
                              -Reserved: 0x0
                              -Signal Loss, as defined in SSFF-8419: 0x1
                              -Signal Loss, inverted from SFP MSA: 0x0
                              -TX_FAULT signal implemented: 0x1
                              -TX_DISABLE implemented & disables serial o/p: 0x1
                              -RATE_SELECT implemented: 0x1
                              -Tunable transmitter technology: 0x0
                              -Receiver decision threshold implemented: 0x0
Signaling Rate Max: 0x73
Signaling Rate Min: 0x38
Vendor SN: MH222800310083
Date code: 220621
Diag Monitoring Type: -Address change required: 0x0
                    -Power Measurement: 0x1
                    -Externally Calibrated: 0x0
                    -Internally Calibrated: 0x1
                    -Digital diag monitoring: 0x1
                    -Legacy diagnostic: 0x0
Enhanced Options: -Optional Soft Rate Select ctrl per SFF-8431: 0x1
                 -Optional Application Select ctrl per SFF-8079: 0x0
                 -Optional Soft RATE_SELECT ctrl & monitoring: 0x1
                 -Optional Soft RX_LOS monitoring: 0x1
                 -Optional Soft TX_FAULT monitoring: 0x1
                 -Optional Soft TX_DISABLE ctrl & monitoring: 0x1
                 -Optional Alarm/warning flags: 0x1
SFF-8472 Compliance: Includes functionality described in Rev 12.4 of SFF-8472
CC_EXT: 0xf9
Vendor Specific: 0x51 0x4c 0x6f 0x67 0x69 0x63 0x00 0x00
                0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
                0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
```

5-Cmdlets

Cmdlets by Function

```
                                0x00  0x00  0x00  0x00  0x00  0x00  0x00  0x00
SFP Firmware Version: 0x00  0x0b
MCU Firmware Version: 0x00  0x0b
DSP Firmware Version: 0x5a  0x63  0x48

Address A2

    Temp High Alarm: 0x4b00
    Temp Low Alarm:  0xfb00
    Temp High Warning: 0x4600
    Temp Low Warning: 0x0000
    Voltage High Alarm: 0x8dcc
    Voltage Low Alarm: 0x7404
    Voltage High Warning: 0x875a
    Voltage Low Warning: 0x7a76
    Bias High Alarm:  0x1770
    Bias Low Alarm:   0x05dc
    Bias High Warning: 0x15e0
    Bias Low Warning: 0x0708
    TX Signal Power High Alarm: 0x7b87
    TX Signal Power Low Alarm:  0x025b
    TX Signal Power High Warning: 0x6220
    TX Signal Power Low Warning: 0x05ea
    RX Signal Power High Alarm: 0x7b87
    RX Signal Power Low Alarm:  0x012e
    RX Signal Power High Warning: 0x3de9
    RX Signal Power Low Warning: 0x02f7
    Rx_PWR(4): 0x00000000
    Rx_PWR(3): 0x00000000
    Rx_PWR(2): 0x00000000
    Rx_PWR(1): 0x3f800000
    Rx_PWR(0): 0x00000000
    Tx_I(Slope): 0x0100
    Tx_I(Offset): 0x0000
    Tx_PWR(Slope): 0x0100
    Tx_PWR(Offset): 0x0000
    T(Slope): 0x0100
    T(Offset): 0x0000
    V(Slope): 0x0100
    V(Offset): 0x0000
    Checksum: 0x7d
```

```
Temperature MSB: 0x3a
Temperature LSB: 0x74
    Vcc MSB: 0x81
    Vcc LSB: 0x27
    TX Bias MSB: 0x0d
    TX Bias LSB: 0x48
    TX Power MSB: 0x28
    TX Power LSB: 0x4a
    RX Power MSB: 0x18
    RX Power LSB: 0xe2
    Reserved MSB: 0x00
    Reserved LSB: 0x00
    Reserved MSB: 0x00
    Reserved LSB: 0x00
Status/Control Bits: -Data_Ready_Bar: 0x0
                    -LOS: 0x0
                    -TX Fault: 0x0
                    -Soft RX Rate Select: 0x0
                    -RX Rate Select State: 0x1
                    -Soft TX Disable: 0x0
                    -TX Disable State: 0x0
                    -EWRAP Control Bit: 0x0
                    -EWRAP FORWARD Control Bit: 0x0
                    -OWRAP Control Bit: 0x0
                    -OWRAP FORWARD Control Bit: 0x0
                    -TX Signal Power Low Alarm: 0x0
                    -TX Signal Power High Alarm: 0x0
                    -TX Bias Low Alarm: 0x0
                    -TX Bias High Alarm: 0x0
                    -Vcc Low Alarm: 0x0
                    -Vcc High Alarm: 0x0
                    -Temp Low Alarm: 0x0
                    -Temp High Alarm: 0x0
                    -RX Signal Power Low Alarm: 0x0
                    -RX Signal Power High Alarm: 0x0
                    -TX Signal Power Low Warning: 0x0
                    -TX Signal Power High Warning: 0x0
                    -TX Bias Low Warning: 0x0
                    -TX Bias High Warning: 0x0
                    -Vcc Low Warning: 0x0
```

```
-Vcc High Warning: 0x0
-Temp Low Warning: 0x0
-Temp High Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-Reserved Warning: 0x0
-RX Power Low Warning: 0x0
-RX Power High Warning: 0x0
Extended Module Control: -Optional Power Level Select: 0x1
                        -Optional Power Level Operation State: 0x0
                        -Power Level 4 Enable: 0x0
                        -Soft RS(1) Select: 0x0
                        -Adaptive Input EQ Fail Flag: 0x0
                        -Reserved: 0x0
                        -Reserved: 0x0
                        -Reserved: 0x0
Extended Status Bytes: -Optional Tx CDR Unlocked: 0x0
                      -64GFC Mode: 0x0
                      -PAM4 Mode Rx Configured: 0x0
                      -PAM4 Mode Tx Configured: 0x0
                      -Reserved: 0x0
                      -Reserved: 0x0
                      -Reserved: 0x0
Vendor Specific: 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
TP1 to TP4 EWRAP Control: -EWRAP Disable: 0x0
                        -EWRAP Enable: 0x0
TP3 to TP2 OWRAP Control: -OWRAP Disable: 0x0
                        -OWRAP Enable: 0x0
Electrical Output Tx Tap Pre3: 0x00
Electrical Output Tx Tap Pre2: 0x00
Electrical Output Tx Tap Pre1: 0xfc
Electrical Output Tx Tap Main: 0x28
Electrical Output Tx Tap Post1: 0x00
DSP Status Timing Control: 0x30
    DSP Control: 0x00
    FC 64G Mode Control: 0xa3
    LSN Control: -Train 64G: 0x0
```

```
-Train 32G: 0x0
-Fixed Speed Switch to 64G: 0x0
-Reserved: 0x0
-Reserved: 0x0
-Reserved: 0x0
-Client Rx Adaptation Reset: 0x0
-LSN Mode: 0x0
CDR Firmware Version: 0x00 0x00 0x00
    Laser Version: 0x00
    TIA Version: 0x00
    CDR Version: 0x00
    HW Version: 0x00
    MCU Version: 0x00
    PLP API Version: 0x00
    Debug MCU Version: 0x00
]

ResultMessage = Operation Successful
ReturnValue = 0
```

NOTE

An optional argument `Refresh` can refresh driver cached SFP data before providing SFP data to the user.

Get-MRVLFCPortDriverStats

```
Get-MRVLFCPortDriverStats -HostHandle 439181965 -PhyPortHandle 5304167191
PortName           : 21:00:00:24:ff:78:96:ca
NodeName           : 20:00:00:24:ff:78:96:ca
PortID             : 0a:01:00
ControllerErrorCount : 2
DeviceErrorCount    : 0
IOCount            : 371
MegabyteCount       : 0
LipResetCount       : 0
InterruptCount       : 0
ResultMessage       : Operation Successful
ReturnValue          : 0
```

Get-MRVLFCPortFWStats

```
Get-MRVLFCPortFWStats -HostHandle 2636812815 -PhyPortHandle 16283760895
```

```
PortName           : 21:00:00:24:ff:78:96:ca
NodeName           : 20:00:00:24:ff:78:96:ca
PortID             : 0a:01:00
LinkFailureCount   : 0
LossOfSyncCount    : 0
LossOfSignalCount  : 0
PrimitiveSeqProtocolErrorCount : 0
InvalidTransmissionWordCount : 0
InvalidCRCCount    : 0
ResultMessage      : Operation Successful
ReturnValue        : 0
```

Reset-MRVLFCPortFWStats

```
Reset-MRVLFCPortFWStats -HostHandle 2636812815 -PhyPortHandle 16283760895

ResultMessage      ReturnValue
-----
Operation Successful      0Set-MRVLFCALLTargetLinkSpeed

Set-MRVLFCAllTargetLinkSpeed -HostHandle 2636812815 -PhyPortHandle
16283760895 -LinkSpeed SPEED_16GB

ResultMessage      ReturnValue
-----
Operation Successful      0
```

Target Level Cmdlets

The target level cmdlets are listed in [Table 5-5](#).

Table 5-5. Target Level cmdlets

cmdlet	Description
Get-MRVLFCPortTarget	Retrieves one or more targets available on the port. The <code>PortHandle</code> displayed represents the physical or virtual port to which the target is connected.
Get-MRVLFCTargetLinkSpeed	Retrieves the target link speed for the selected target connected to the Marvell adapter port. This feature is also known as intelligent interleaved direct memory access (iIDMA).
Get-MRVLFCTargetStats	Retrieves the target's statistics information.

Table 5-5. Target Level cmdlets (Continued)

cmdlet	Description
Set-MRVLFCPortLinkSpeed	Sets the target link speed for the selected target connected to the Marvell adapter physical port.

Get-MRVLFCPortTarget

Following is an example output for FCP targets.

Get-MRVLFCPortTarget -CimSession \$Session

```
HostHandle           : 1689059065
PortHandle           : 14388463359
TargetHandle          : 70658
NodeWWN               : 20:7f:d0:39:ea:23:c0:43
PortWWN               : 20:81:d0:39:ea:23:c0:43
PortID                : 01:14:02
TargetID              : 0
Path                  : 0
TargetVendorID        : NETAPP
TargetProductID       : LUN C-Mode
TargetRevision        : 9101
DeviceID              : 2
TargetBaseLunNumber   : 0
TargetType            : FCP_Disk
SerialNumber          : 81EYP$QRGiJc
CongestionCurrentState : Healthy
RemoteType            : Unknown
SessionState          : N/A
SecureMode             : Disabled
Status                : Online
LinkStatus            : Online
VirtualLane           : N/A
IOThrottling          : None
LunInfo               : {[MRVLFC_PortTargetLun.HostHandle=1689059065,
                        PortHandle=14388463359, TargetHandle=70658,
                        LunHandle=0]}
LunList               : {LUN_0}
NamespaceInfo         : {[No NVMe NS found]}
NamespaceList          : {[N/A]}
```

5-Cmdlets

Cmdlets by Function

```
StorageNQN           : N/A
StorageControllerID   : N/A
PSComputerName        : 10.104.211.52

HostHandle            : 1689059065
PortHandle            : 14388463359
TargetHandle          : 69382
NodeWWN               : 20:7f:d0:39:ea:23:c0:43
PortWWN               : 20:82:d0:39:ea:23:c0:43
PortID                : 01:0f:06
TargetID              : 1
Path                  : 0
TargetVendorID        : NETAPP
TargetProductID       : LUN C-Mode
TargetRevision        : 9101
DeviceID              : 3
TargetBaseLunNumber   : 0
TargetType             : FCP_Disk
SerialNumber          : 81EYP$QRGiJc
CongestionCurrentState : Healthy
RemoteType            : Unknown
SessionState          : N/A
SecureMode            : Disabled
Status                : Online
LinkStatus            : Online
VirtualLane           : N/A
IOThrottling          : None
LunInfo               : { [MRVLFC_PortTargetLun.HostHandle=1689059065,
                        PortHandle=14388463359, TargetHandle=69382,
                        LunHandle=0] }
LunList               : { LUN_0 }
NamespaceInfo         : { [No NVMe NS found] }
NamespaceList         : { [N/A] }
StorageNQN           : N/A
StorageControllerID   : N/A
PSComputerName        : 10.104.211.52

HostHandle            : 1689059065
PortHandle            : 14388463359
TargetHandle          : 69639
```

5-Cmdlets

Cmdlets by Function

```
NodeWWN           : 20:c5:d0:39:ea:23:c0:43
PortWWN           : 20:c6:d0:39:ea:23:c0:43
PortID            : 01:10:07
TargetID          : 2
Path              : 0
TargetVendorID    : NETAPP
TargetProductID   : LUN C-Mode
TargetRevision    : 9101
DeviceID          : 4
TargetBaseLunNumber : 0
TargetType        : FCP_Disk
SerialNumber      : 81EYP$QRGiK/
CongestionCurrentState : Healthy
RemoteType        : Unknown
SessionState      : N/A
SecureMode        : Disabled
Status            : Online
LinkStatus        : Online
VirtualLane       : N/A
IOThrottling      : None
LunInfo           : {[MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=0],
                    [MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=1],
                    [MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=2],
                    [MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=3],
                    [MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=4],
                    [MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=5],
                    [MRVLFC_PortTargetLun.HostHandle=1689059065,
                    PortHandle=14388463359, Targethandle=69639,
                    LunHandle=6],
```

```
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=14388463359, Targethandle=69639,
LunHandle=7],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=14388463359, Targethandle=69639,
LunHandle=8],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=14388463359, Targethandle=69639,
LunHandle=9]}
LunList           : {LUN_0, LUN_1, LUN_2, LUN_3, LUN_4, LUN_5, LUN_6,
LUN_7, LUN_8, LUN_9}
NamespaceInfo     : {[No NVMe NS found]}
NamespaceList     : {[N/A]}
StorageNQN        : N/A
StorageControllerID : N/A
PSComputerName    : 10.104.211.52
```

Following is an example output for NVMe targets.

```
HostHandle       : 1689059065
PortHandle       : 25908961549
TargetHandle     : 65536
NodeWWN         : 20:02:00:11:0d:27:b2:00
PortWWN         : 20:02:00:11:0d:27:b2:00
PortID          : 01:00:00
TargetID        : 3
Path            : 0
TargetVendorID   : SANBlaze
TargetProductID  : VLUN P2T0
TargetRevision   : V8.1-dev
DeviceID        : 7
TargetBaseLunNumber : 0
TargetType       : NVMe_Disk
SerialNumber     : 00-200200110d27b200
CongestionCurrentState : Healthy
RemoteType       : Unknown
SessionState     : N/A
SecureMode       : Disabled
Status          : Online
LinkStatus       : Online (FEC)
VirtualLane      : Non-Operational
IOThrottling     : None
```

```

LunInfo           : {[No LUN found]}
LunList           : {[N/A]}
NamespaceInfo     : {[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=1],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=2],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=3],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=4],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=5],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=6],
[MRVLFC_PortTargetLun.HostHandle=1689059065,
PortHandle=25908961549, Targethandle=65536,
LunHandle=7]}
NamespaceList     : {NSID_1, NSID_2, NSID_3, NSID_4, NSID_5, NSID_6,
NSID_7}
StorageNQN        : nqn.2014-08.com.sanblaze:virtualun.virtuallunnvme.2.0
StorageControllerID : 0x106
PSComputerName    : 10.104.211.52

```

Following is an example output for remote VMware ESXi 8.0 GA and U1 systems. The `-Computername` and `-Credential` parameters are specific to these VMware versions. The `CimSession` parameter is not valid in these VMware versions.

```

PS C:\Users\Administrator> Get-mrvlfcPorttarget -ComputerName 10.30.45.41
-Credential $cred

```

```

HostHandle       : 2939186531
PortHandle       : 8232195284
TargetHandle     : 655360
NodeWWN          : 50:0a:09:80:80:a2:ce:4d
PortWWN          : 50:0a:09:82:90:a2:ce:4d
PortID           : 0a:00:00
TargetID         : 0

```

5-Cmdlets

Cmdlets by Function

```
Path : 0
TargetVendorID : NETAPP
TargetProductID : LUN
TargetRevision : 820a
DeviceID : 1
TargetBaseLunNumber : 0
TargetType : FCP_Disk
SerialNumber : 80ADI+KeW-/i
CongestionCurrentState : Healthy
RemoteType : Unknown
SessionState : N/A
SecureMode : Disabled
Status : Online
LinkStatus : Online
VirtualLane : N/A
IOThrottling : N/A
LunInfo : {[MRVLFC_PortTargetLun.HostHandle=2939186531,
PortHandle=8232195284, Targethandle=655360,
LunHandle=0],
[MRVLFC_PortTargetLun.HostHandle=2939186531,
PortHandle=8232195284, Targethandle=655360,
LunHandle=1],
[MRVLFC_PortTargetLun.HostHandle=2939186531,
PortHandle=8232195284, Targethandle=655360,
LunHandle=2]}
LunList : {LUN_0, LUN_1, LUN_2}
NamespaceInfo : {[No NVMe NS found]}
NamespaceList : {[N/A]}
StorageNQN : N/A
StorageControllerID : N/A
PSComputerName : 10.30.45.41

HostHandle : 2939186531
PortHandle : 12543939796
TargetHandle : 655360
NodeWWN : 50:0a:09:80:80:a2:ce:4d
PortWWN : 50:0a:09:82:90:a2:ce:4d
PortID : 0a:00:00
TargetID : 0
Path : 0
TargetVendorID : NETAPP
```

5-Cmdlets

Cmdlets by Function

```
TargetProductID      : LUN
TargetRevision       : 820a
DeviceID             : 1
TargetBaseLunNumber  : 0
TargetType           : FCP_Disk
SerialNumber         : 80ADI+KeW-ca
CongestionCurrentState : Healthy
RemoteType           : Unknown
SessionState         : N/A
SecureMode           : Disabled
Status               : Online
LinkStatus           : Online
VirtualLane          : N/A
IOThrottling         : N/A
LunInfo              : {[MRVLFC_PortTargetLun.HostHandle=2939186531,
                        PortHandle=12543939796,Targethandle=655360,
                        LunHandle=1]}
LunList              : {LUN_1}
NamespaceInfo        : {[No NVMe NS found]}
NamespaceList        : {[N/A]}
StorageNQN           : N/A
StorageControllerID   : N/A
PSComputerName       : 10.30.45.41
```

Example for ESXi 8.0 U2 and later:

```
PS C:\Users\Administrator> Get-MRVLFCPortTarget -ComputerName 10.31.41.68
```

```
HostHandle           : 154628089
PortHandle           : 5279339732
TargetHandle         : 71424
NodeWWN              : 20:00:00:24:ff:84:20:b3
PortWWN              : 21:00:00:24:ff:84:20:b3
PortID               : 01:17:00
TargetID             : 0
Path                 : 0
TargetVendorID       : SCST_BIO
TargetProductID      : loc5Ram_0
TargetRevision       : 370
```

5-Cmdlets

Cmdlets by Function

DeviceID : 3
TargetBaseLunNumber : 0
TargetType : FCP_Disk
SerialNumber : 34ba1752
CongestionCurrentState : Healthy
RemoteType : Target
SessionState : N/A
SecureMode : Disabled
Status : Online
LinkStatus : Online (FEC)
VirtualLane : Non-Operational
IOThrottling : None
LunInfo :

```
{ [MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=5279339732,
TargetHandle=71424, LunHandle=0], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=5279339732, TargetHandle=71424, LunHandle=1],
[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=5279339732,
TargetHandle=71424, LunHandle=2], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=5279339732, TargetHandle=71424, LunHandle=3]... }
```

LunList : {LUN_0, LUN_1, LUN_2, LUN_3...}
NamespaceInfo : {[No NVMe NS found]}
NamespaceList : {[N/A]}
StorageNQN : N/A
StorageControllerID : N/A
PSComputerName : 10.31.41.68

HostHandle : 154628089
PortHandle : 5279339732
TargetHandle : 68096
NodeWWN : 50:0a:09:80:80:a2:ce:4d
PortWWN : 50:0a:09:82:90:a2:ce:4d
PortID : 01:0a:00
TargetID : 1
Path : 0
TargetVendorID : NETAPP
TargetProductID : LUN
TargetRevision : 820a
DeviceID : 10
TargetBaseLunNumber : 0

5-Cmdlets

Cmdlets by Function

```
TargetType           : FCP_Disk
SerialNumber         : 80ADI+KeW-dX
CongestionCurrentState : Healthy
RemoteType           : Target
SessionState         : N/A
SecureMode           : Disabled
Status               : Online
LinkStatus           : Online (FEC)
VirtualLane          : Non-Operational
IOThrottling         : None
LunInfo              : {[MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=5279339732, TargetHandle=68096, LunHandle=0],
[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=5279339732,
TargetHandle=68096, LunHandle=1]}
LunList              : {LUN_0, LUN_1}
NamespaceInfo        : {[No NVMe NS found]}
NamespaceList        : {[N/A]}
StorageNQN           : N/A
StorageControllerID   : N/A
PSComputerName       : 10.31.41.68

HostHandle           : 154628089
PortHandle           : 5279339732
TargetHandle         : 70144
NodeWWN              : 20:00:00:24:ff:84:20:b0
PortWWN              : 21:00:00:24:ff:84:20:b0
PortID               : 01:12:00
TargetID             : 2
Path                 : 0
TargetVendorID       : Linux
TargetProductID      :
TargetRevision       : 5.14.21-
DeviceID             : 9
TargetBaseLunNumber  : 0
TargetType           : NVMe_Disk
SerialNumber         : 55cd2e414d10d492
CongestionCurrentState : Healthy
RemoteType           : Target
SessionState         : N/A
SecureMode           : Disabled
```

5-Cmdlets

Cmdlets by Function

Status : Online
LinkStatus : Online (FEC)
VirtualLane : Non-Operational
IOThrottling : None
LunInfo : {[No LUN found]}
LunList : {[N/A]}
NamespaceInfo :

```
{[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=5279339732,
Targethandle=70144, LunHandle=1], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=5279339732, Targethandle=70144, LunHandle=2],
[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=5279339732,
Targethandle=70144, LunHandle=3], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=5279339732, Targethandle=70144, LunHandle=4]...}
```

NamespaceList : {NSID_1, NSID_2, NSID_3, NSID_4...}
StorageNQN : fctest1
StorageControllerID : 0x102
PSComputerName : 10.31.41.68

HostHandle : 154628089
PortHandle : 9591084244
TargetHandle : 68096
NodeWWN : 50:0a:09:80:80:a2:ce:4d
PortWWN : 50:0a:09:82:90:a2:ce:4d
PortID : 01:0a:00
TargetID : 0
Path : 0
TargetVendorID : NETAPP
TargetProductID : LUN
TargetRevision : 820a
DeviceID : 3
TargetBaseLunNumber : 0
TargetType : 31
SerialNumber :
CongestionCurrentState : Healthy
RemoteType : Target
SessionState : N/A
SecureMode : Disabled
Status : Online
LinkStatus : Online (FEC)

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Cmdlets by Function

VirtualLane : Non-Operational
IOThrottling : None
LunInfo : {[No LUN found]}
LunList : {[N/A]}
NamespaceInfo : {[No NVMe NS found]}
NamespaceList : {[N/A]}
StorageNQN : N/A
StorageControllerID : N/A
PSComputerName : 10.31.41.68

HostHandle : 154628089
PortHandle : 9591084244
TargetHandle : 71424
NodeWWN : 20:00:00:24:ff:84:20:b3
PortWWN : 21:00:00:24:ff:84:20:b3
PortID : 01:17:00
TargetID : 1
Path : 0
TargetVendorID : SCST_BIO
TargetProductID : loc5Ram_0
TargetRevision : 370
DeviceID : 4
TargetBaseLunNumber : 0
TargetType : FCP_Disk
SerialNumber : 34ba1752
CongestionCurrentState : Healthy
RemoteType : Target
SessionState : N/A
SecureMode : Disabled
Status : Online
LinkStatus : Online (FEC)
VirtualLane : Non-Operational
IOThrottling : None
LunInfo :

{[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=9591084244,
TargetHandle=71424, LunHandle=0], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=9591084244, TargetHandle=71424, LunHandle=1],
[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=9591084244,

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Cmdlets by Function

```
TargetHandle=71424, LunHandle=2], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=9591084244, TargetHandle=71424, LunHandle=3]...
```

```
LunList           : {LUN_0, LUN_1, LUN_2, LUN_3...}
NamespaceInfo     : {[No NVMe NS found]}
NamespaceList     : {[N/A]}
StorageNQN        : N/A
StorageControllerID : N/A
PSComputerName    : 10.31.41.68
```

```
HostHandle        : 154628089
PortHandle        : 9591084244
TargetHandle      : 70144
NodeWWN           : 20:00:00:24:ff:84:20:b0
PortWWN           : 21:00:00:24:ff:84:20:b0
PortID            : 01:12:00
TargetID          : 2
Path              : 0
TargetVendorID    : Linux
TargetProductID   :
TargetRevision    : 5.14.21-
DeviceID          : 10
TargetBaseLunNumber : 0
TargetType        : NVMe_Disk
SerialNumber      : 55cd2e414d10d492
CongestionCurrentState : Healthy
RemoteType        : Target
SessionState      : N/A
SecureMode        : Disabled
Status            : Online
LinkStatus        : Online (FEC)
VirtualLane       : Non-Operational
IOThrottling      : None
LunInfo           : {[No LUN found]}
LunList           : {[N/A]}
NamespaceInfo     :
```

```
{[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=9591084244,
TargetHandle=70144, LunHandle=1], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=9591084244, TargetHandle=70144, LunHandle=2],
[MRVLFC_PortTargetLun.HostHandle=154628089, PortHandle=9591084244,
```

```
TargetHandle=70144, LunHandle=3], [MRVLFC_PortTargetLun.HostHandle=154628089,
PortHandle=9591084244, TargetHandle=70144, LunHandle=4]...}
NamespaceList      : {NSID_1, NSID_2, NSID_3, NSID_4...}
StorageNQN         : fctest1
StorageControllerID : 0x103
PSComputerName     : 10.31.41.68
```

Get-MRVLFCTargetLinkSpeed

Get-MRVLFCTargetLinkSpeed -HostHandle 2636812815 -PortHandle 16283760895 -TargetHandle 1342885453

LinkSpeed	ResultMessage	ReturnValue
-----	-----	-----
16 Gbps	Operation Successful	0

Get-MRVLFCTargetStats

Get-MRVLFCTargetStats -HostHandle 2636812815 -PortHandle 16283760895 -TargetHandle 655360

NodeName	:	50:0a:09:80:80:a2:ce:4d
PortName	:	50:0a:09:82:90:a2:ce:4d
PortID	:	0a:00:00
TargetNumber	:	0
LinkFailureCount	:	0
LossOfSyncCount	:	0
LossOfSignalCount	:	0
PrimitiveSequenceProtocolErrorCount	:	0
InvalidTransmissionWordCount	:	0
InvalidCRCCount	:	0
ResultMessage	:	Operation Successful
ReturnValue	:	0

LinkSpeed	ResultMessage	ReturnValue
-----	-----	-----
16 Gbps	Operation Successful	0

Set-MRVLFCTargetLinkSpeed

Set-MRVLFCTargetLinkSpeed -HostHandle 2636812815 -PortHandle 16283760895 -TargetHandle 1342885453 -LinkSpeed SPEED_8GB

ResultMessage	ReturnValue
---------------	-------------

Operation Successful 0

LUN Level Cmdlet

The LUN level cmdlet is listed in [Table 5-6](#).

Table 5-6. LUN Level cmdlet

cmdlet	Description
Get-MRVLFCPortTargetLUN	Retrieves one or more LUNs available on the target.

Get-MRVLFCPortTargetLUN

Following is an example output for FCP target LUNs.

Get-MRVLFCPortTargetLUN -CimSession \$Session

HostHandle : 1689059065
PortHandle : 25908961549
TargetHandle : 65537
LunHandle : 7
LunID : 7
NSID : N/A
LunVendorID : SANBlaze
LunProductID : VLUN P2T1L7
LunRevision : V8.3
WWULN : 60:01:10:d0:02:27:b2:01:03:02:00:01:da:bf:d7:d9
LunOSSDeviceName :
Size : 15.00 MB
DeviceType : SBC-2 Direct access block device (e.g. magnetic disk)
PSComputerName : 10.104.211.52

Following is an example output for NVMe target LUNs.

HostHandle : 1689059065
PortHandle : 25908961549
TargetHandle : 65542
LunHandle : 1
LunID : N/A
NSID : 1
LunVendorID : SANBlaze

5-Cmdlets

Cmdlets by Function

```
LunProductID      : VLUN P2T6
LunRevision       : V8.3-dev
WWULN             : N/A
LunOSSDeviceName  :
Size              : 16.00 MB
DeviceType        : SBC-2 Direct access block device (e.g. magnetic disk)
PSComputerName    : 10.104.211.52
```

Following is an output example for remote VMware ESXi 8.0 GA and U2 systems. The `-Computername` and `-Credential` parameters are specific to these VMware versions. The `CimSession` parameter is not valid in these VMware versions.

```
PS C:\Users\Administrator> Get-mrvlfcPorttargetlun -ComputerName 10.30.45.41
-Credential $cred
```

```
HostHandle        : 2939186531
PortHandle        : 8232195284
TargetHandle      : 655360
LunHandle         : 0
LunID             : 0
NSID              : N/A
LunVendorID       : NETAPP
LunProductID      : LUN
LunRevision       : 820a
WWULN             : 4e:45:54:41:50:50:20:20:20:4c:55:4e:20:38:30:41:44:49:
                  2b:4b:65:57:2d:2f:69:00:00:00:00:00:00:00:00:00
LunOSSDeviceName  :
Size              : 7.00 GB
DeviceType        : SBC-2 Direct access block device (e.g. magnetic disk)
PSComputerName    : 10.30.45.41
```

```
HostHandle        : 2939186531
PortHandle        : 8232195284
TargetHandle      : 655360
LunHandle         : 1
LunID             : 1
NSID              : N/A
LunVendorID       : NETAPP
LunProductID      : LUN
LunRevision       : 820a
```

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Cmdlets by Function

```
WWULN          : 4e:45:54:41:50:50:20:20:20:4c:55:4e:20:38:30:41:44:49:
                  2b:4b:65:57:2d:63:36:00:00:00:00:00:00:00:00:00:
LunOSSDeviceName :
Size           : 54.00 MB
DeviceType     : SBC-2 Direct access block device (e.g. magnetic disk)
PSComputerName : 10.30.45.41

HostHandle     : 2939186531
PortHandle     : 8232195284
TargetHandle   : 655360
LunHandle      : 2
LunID          : 2
NSID           : N/A
LunVendorID    : NETAPP
LunProductID   : LUN
LunRevision    : 820a
WWULN          : 4e:45:54:41:50:50:20:20:20:4c:55:4e:20:38:30:41:44:49:
                  2b:4b:65:57:2d:63:4e:00:00:00:00:00:00:00:00:00:
LunOSSDeviceName :
Size           : 39.00 MB
DeviceType     : SBC-2 Direct access block device (e.g. magnetic disk)
PSComputerName : 10.30.45.41

HostHandle     : 2939186531
PortHandle     : 12543939796
TargetHandle   : 655360
LunHandle      : 1
LunID          : 1
NSID           : N/A
LunVendorID    : NETAPP
LunProductID   : LUN
LunRevision    : 820a
WWULN          : 4e:45:54:41:50:50:20:20:20:4c:55:4e:20:38:30:41:44:49:
                  2b:4b:65:57:2d:63:61:00:00:00:00:00:00:00:00:00:
LunOSSDeviceName :
Size           : 3.00 GB
DeviceType     : SBC-2 Direct access block device (e.g. magnetic disk)
PSComputerName : 10.30.45.41
```

Example for ESXi 8.0 U2 and later:

```
PS C:\Users\Administrator> Get-MRVLFCPortTargetLUN -ComputerName  
10.31.41.68
```

```
HostHandle      : 154628089  
PortHandle      : 5279339732  
TargetHandle    : 71424  
LunHandle       : 0  
LunID           : 0  
NSID            : N/A  
LunVendorID     : SCST_BIO  
LunProductID    : loc5Ram_0  
LunRevision     : 370  
WWULN          :  
53:43:53:54:5f:42:49:4f:33:34:62:61:31:37:35:32:2d:6c:6f:63:35:52:  
61:6d:5f:30  
LunOSSDeviceName :  
Size            : 127.00 MB  
DeviceType      : SBC-2 Direct access block device (e.g. magnetic  
disk)  
PSComputerName  : 10.31.41.68
```

```
HostHandle      : 154628089  
PortHandle      : 5279339732  
TargetHandle    : 71424  
LunHandle       : 1  
LunID           : 1  
NSID            : N/A  
LunVendorID     : SCST_BIO  
LunProductID    : loc5Ram_1  
LunRevision     : 370  
WWULN          :  
53:43:53:54:5f:42:49:4f:32:37:31:38:38:66:32:35:2d:6c:6f:63:35:52:  
61:6d:5f:31  
LunOSSDeviceName :  
Size            : 127.00 MB  
DeviceType      : SBC-2 Direct access block device (e.g. magnetic  
disk)  
PSComputerName  : 10.31.41.68
```

```
HostHandle      : 154628089  
PortHandle      : 5279339732  
TargetHandle    : 71424  
LunHandle       : 2  
LunID           : 2  
NSID            : N/A
```

```
LunVendorID      : SCST_BIO
LunProductID     : loc5Ram_2
LunRevision      : 370
WWULN            :
53:43:53:54:5f:42:49:4f:31:33:66:66:32:37:62:63:2d:6c:6f:63:35:52:
61:6d:5f:32
LunOSSDeviceName :
Size             : 127.00 MB
DeviceType       : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName   : 10.31.41.68

HostHandle       : 154628089
PortHandle       : 5279339732
TargetHandle     : 71424
LunHandle        : 3
LunID            : 3
NSID             : N/A
LunVendorID     : SCST_BIO
LunProductID    : loc5Ram_3
LunRevision      : 370
WWULN            :
53:43:53:54:5f:42:49:4f:35:64:62:66:63:62:2d:6c:6f:63:35:52:61:6d:
5f:33
LunOSSDeviceName :
Size             : 127.00 MB
DeviceType       : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName   : 10.31.41.68

HostHandle       : 154628089
PortHandle       : 5279339732
TargetHandle     : 71424
LunHandle        : 4
LunID            : 4
NSID             : N/A
LunVendorID     : SCST_BIO
LunProductID    : loc5Ram_4
LunRevision      : 370
WWULN            :
53:43:53:54:5f:42:49:4f:37:61:33:30:37:36:38:65:2d:6c:6f:63:35:52:
61:6d:5f:34
LunOSSDeviceName :
Size             : 127.00 MB
DeviceType       : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName   : 10.31.41.68

HostHandle       : 154628089
```

5-Cmdlets

Cmdlets by Function

```
PortHandle      : 5279339732
TargetHandle    : 71424
LunHandle       : 5
LunID           : 5
NSID            : N/A
LunVendorID     : SCST_BIO
LunProductID    : loc5Ram_5
LunRevision     : 370
WWULN          :
53:43:53:54:5f:42:49:4f:36:39:39:32:65:65:66:39:2d:6c:6f:63:35:52:
61:6d:5f:35
LunOSSDeviceName :
Size            : 127.00 MB
DeviceType      : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName  : 10.31.41.68

HostHandle      : 154628089
PortHandle      : 5279339732
TargetHandle    : 71424
LunHandle       : 6
LunID           : 6
NSID            : N/A
LunVendorID     : SCST_BIO
LunProductID    : loc5Ram_6
LunRevision     : 370
WWULN          :
53:43:53:54:5f:42:49:4f:35:64:37:35:34:36:36:30:2d:6c:6f:63:35:52:
61:6d:5f:36
LunOSSDeviceName :
Size            : 127.00 MB
DeviceType      : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName  : 10.31.41.68

HostHandle      : 154628089
PortHandle      : 5279339732
TargetHandle    : 71424
LunHandle       : 7
LunID           : 7
NSID            : N/A
LunVendorID     : SCST_BIO
LunProductID    : loc5Ram_7
LunRevision     : 370
WWULN          :
53:43:53:54:5f:42:49:4f:34:65:64:37:64:65:31:37:2d:6c:6f:63:35:52:
61:6d:5f:37
LunOSSDeviceName :
Size            : 127.00 MB
```

5-Cmdlets

Cmdlets by Function

```
DeviceType      : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName  : 10.31.41.68

HostHandle      : 154628089
PortHandle      : 5279339732
TargetHandle    : 68096
LunHandle       : 0
LunID           : 0
NSID            : N/A
LunVendorID     : NETAPP
LunProductID    : LUN
LunRevision     : 820a
WWULN           :
4e:45:54:41:50:50:20:20:20:4c:55:4e:20:38:30:41:44:49:2b:4b:65:57:
2d:64:58:00:00:00:00:00:00:00
LunOSSDeviceName :
Size            : 45.00 GB
DeviceType      : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName  : 10.31.41.68

HostHandle      : 154628089
PortHandle      : 5279339732
TargetHandle    : 68096
LunHandle       : 1
LunID           : 1
NSID            : N/A
LunVendorID     : NETAPP
LunProductID    : LUN
LunRevision     : 820a
WWULN           :
4e:45:54:41:50:50:20:20:20:4c:55:4e:20:38:30:41:44:49:2b:4b:65:57:
2d:63:58:00:00:00:00:00:00:00
LunOSSDeviceName :
Size            : 2.01 GB
DeviceType      : SBC-2 Direct access block device (e.g. magnetic
disk)
PSComputerName  : 10.31.41.68

HostHandle      : 154628089
PortHandle      : 5279339732
TargetHandle    : 70144
LunHandle       : 1
LunID           : N/A
NSID            : 1
LunVendorID     : Linux
LunProductID    :
LunRevision     : 5.14.21-
```

```
WWULN           :  
LunOSSDeviceName :  
Size            : 250.00 GB  
DeviceType      : SBC-2 Direct access block device (e.g. magnetic  
disk)  
PSComputerName  : 10.31.41.68
```

Boot Configuration Cmdlets

The boot configuration cmdlets are listed in [Table 5-7](#).

Table 5-7. Boot Configuration cmdlets

cmdlet	Description
Get-MRVLFCBootConfig	Retrieves boot configuration for the physical port.
Save-MRVLFCBootConfigToXMLFile	Saves the boot configuration for the physical port in an XML file specified in the input parameter.
Set-MRVLFCBootConfigFromXMLFile	Sets the boot configuration for a physical port from an XML file specified in the input parameter. CAUTION: Setting the wrong configuration may corrupt the adapter.
Get-MRVLFCNVMeBootConfig	Retrieves the current NVMe boot configuration.
Get-MRVLFCUEFIBootConfig	Retrieves UEFI boot configuration for the physical port.
Save-MRVLFCNVMeBootConfigToXMLFile	Saves the NVMe boot configuration to an XML file.
Save-MRVLFCUEFIBootConfigToXMLFile	Saves the UEFI boot configuration for the physical port in an XML file specified in the input parameter.
Set-MRVLFCBootConfigFromFile	Sets the UEFI boot configuration for a physical port from an XML file specified in the input parameter. CAUTION: Setting the wrong configuration may corrupt the adapter.
Set-MRVLFCNVMeBootConfigFromXMLFile	Sets the NVMe boot configuration from the specified XML file.

Get-MRVLFCBootConfig

```
Get-MRVLFCBootConfig -HostHandle 2636812815 -PhyPortHandle 11972016383  
-CimSession $Session
```

```
Drive0WWPN           : 50:0a:09:82:90:a2:ce:4d
Drive0LUN             : 1
AdapterBIOS          : Disabled
SelectableBoot        : Disabled
FabricAssignBootLun   : Disabled
Drive1WWPN           : 50:0a:09:82:90:a2:ce:4d
Drive1LUN             : 1
Drive2WWPN           : 50:0a:09:82:90:a2:ce:4d
Drive2LUN             : 1
Drive3WWPN           : 50:0a:09:82:90:a2:ce:4d
Drive3LUN             : 1
ResultMessage         : Operation Successful
ReturnValue            : 0
```

Save-MRVLFCBootConfigToXMLFile

Save-MRVLFCBootConfigToXMLFile -HostHandle 204727097 -PhyPortHandle 20595505407 -bootConfigXMLFile "c:\FCBootConfig.xml" -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful!! Boot Config Saved to File!!	0	10.30.43.163

Set-MRVLFCBootConfigFromXMLFile

Set-MRVLFCBootConfigFromXMLFile -HostHandle 204727097 -PhyPortHandle 20595505407 -bootConfigXMLFile "c:\FCBootConfig.xml" -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful!! Boot Config Saved to File!!	0	10.30.43.163

Get-MRVLFCNVMeBootConfig

Get-MRVLFCNVMeBootConfig -hostHandle 1689059065 -PhyPortHandle 30203928845 -CimSession \$Session

```
AdapterDriver        : Disabled
SelectiveLogin        : Disabled
SelectiveLUNLogin     : Disabled
WorldLogin            : Disabled
FabricAssignBootLUN   : Enabled
```

5-Cmdlets

Cmdlets by Function

```
FCNVMe           : Enabled
HostNQN          : nqn.2014-08.local.devlab:nvme:ESXD-FD4-GAD23776-SRV4
HostID           : 60d0a2836b88f5e8414db02628de8060
Storage0         : Disabled
Storage0WWNN     : 00:00:00:00:00:00:00:00
Storage0WWPN     : 00:00:00:00:00:00:00:00
Storage0NQN      :
Storage0ControllerID : 0
Storage0NamespaceID : 0
Storage1         : Disabled
Storage1WWNN     : 00:00:00:00:00:00:00:00
Storage1WWPN     : 00:00:00:00:00:00:00:00
Storage1NQN      :
Storage1ControllerID : 0
Storage1NamespaceID : 0
Storage2         : Enabled
Storage2WWNN     : 20:02:00:11:0d:27:b2:02
Storage2WWPN     : 20:02:00:11:0d:27:b2:02
Storage2NQN      : nqn.2014-08.com.sanblaze:virtualun.virtuallunnvme.2.2
Storage2ControllerID : 309
Storage2NamespaceID : 2
Storage3         : Disabled
Storage3WWNN     : 00:00:00:00:00:00:00:00
Storage3WWPN     : 00:00:00:00:00:00:00:00
Storage3NQN      :
Storage3ControllerID : 0
Storage3NamespaceID : 0
Storage4         : Enabled
Storage4WWNN     : 20:02:00:11:0d:27:b2:04
Storage4WWPN     : 20:02:00:11:0d:27:b2:04
Storage4NQN      : nqn.2014-08.com.sanblaze:virtualun.virtuallunnvme.2.4
Storage4ControllerID : 310
Storage4NamespaceID : 4
Storage5         : Enabled
Storage5WWNN     : 20:02:00:11:0d:27:b2:06
Storage5WWPN     : 20:02:00:11:0d:27:b2:06
Storage5NQN      : nqn.2014-08.com.sanblaze:virtualun.virtuallunnvme.2.6
Storage5ControllerID : 311
Storage5NamespaceID : 6
```

```
Storage6           : Enabled
Storage6WWNN       : 20:02:00:11:0d:27:b2:06
Storage6WWPN       : 20:02:00:11:0d:27:b2:06
Storage6NQN        : nqn.2014-08.com.sanblaze:virtualun.virtuallunnvme.2.6
Storage6ControllerID : 311
Storage6NamespaceID : 6
Storage7           : Enabled
Storage7WWNN       : 20:02:00:11:0d:27:b2:06
Storage7WWPN       : 20:02:00:11:0d:27:b2:06
Storage7NQN        : nqn.2014-08.com.sanblaze:virtualun.virtuallunnvme.2.6
Storage7ControllerID : 311
Storage7NamespaceID : 7
ResultMessage      : Operation Successful
ReturnValue         : 0
PSComputerName     : 10.104.211.52
```

Get-MRVLFCUEFIBootConfig

```
Get-MRVLFCUEFIBootConfig -HostHandle 2636812815 -PhyPortHandle 11972016383  
-Cimsession $Session
```

```
AdapterDriver      : Disabled
SelectiveLogin     : Disabled
SelectiveLUNLogin  : Disabled
WorldLogin         : Disabled
FabricAssignBootLun : Disabled
Drive0WWPN        : 00:00:00:00:00:00:00:00
Drive0LUN         : 0
Drive1WWPN        : 00:00:00:00:00:00:00:00
Drive1LUN         : 0
Drive2WWPN        : 00:00:00:00:00:00:00:00
Drive2LUN         : 0
Drive3WWPN        : 00:00:00:00:00:00:00:00
Drive3LUN         : 0
Drive4WWPN        : 00:00:00:00:00:00:00:00
Drive4LUN         : 0
Drive5WWPN        : 00:00:00:00:00:00:00:00
Drive5LUN         : 0
Drive6WWPN        : 00:00:00:00:00:00:00:00
Drive6LUN         : 0
Drive7WWPN        : 00:00:00:00:00:00:00:00
```

```
Drive7LUN           : 0
ResultMessage       : Operation Successful
ReturnValue          : 0
```

Save-MRVLFCUEFIConfigToXMLFile

```
Save-MRVLFCUEFIBootConfigToXMLFile -HostHandle 2636812815 -PhyPortHandle
11972016383 -UEFIConfigXMLFile C:\port_uefi_boot2.xml
```

```
ResultMessage       ReturnValue
-----
Operation Successful 0
```

Save-MRVLFCNVMeBootConfigToXMLFile

```
Save-MRVLFCNVMeBootConfigToXMLFile -hostHandle 1689059065 -PhyPortHandle
30203928845 -NVMeConfigXmlFile /scratch/port_nvme_4b_08.dat -CimSession
$Session
```

```
ResultMessage       ReturnValue PSComputerName
-----
Operation Successful 0 10.104.211.52
```

Set-MRVLFCUEFIBootConfigFromFile

```
Set-MRVLFCUEFIBootConfigFromXMLFile -HostHandle 2636812815 -PhyPortHandle
11972016383 -UEFIConfigXMLFile C:\port_uefi_boot2.xml
```

```
ResultMessage       ReturnValue
-----
Operation Successful!! 0
```

Set-MRVLFCNVMeBootConfigFromXMLFile

```
Set-MRVLFCNVMeBootConfigFromXMLFile -hostHandle 1689059065 -PhyPortHandle
30203928845 -NVMeConfigXmlFile /scratch/port_nvme_4b_08.dat -CimSession
$Session
```

```
ResultMessage       ReturnValue PSComputerName
-----
Operation Successful!! 0 10.104.211.52
```

Diagnostic Test Cmdlets

The diagnostic test cmdlets are listed in [Table 5-8](#).

Table 5-8. Diagnostic Test cmdlets

cmdlet	Description
Start-MRVLFCPortCTCommandDiagnosticTest	Executes a common transport Fibre Channel trace route (CT FTR) diagnostic test when <code>CT_FABRIC_TRACEROUTE_REQUEST</code> is selected. NOTE: All inner-link switches between the initiator and the target must have Brocade switch firmware version 7.1.1 or later for the CT FTR test to work. For best results, Marvell recommends using HPE®'s P2000G3 or Promise® VTrakE610f as a target. To determine if your target is supported, contact Marvell Support. Executes a CT ping diagnostic test when <code>CT_PING_REQUEST</code> is selected. NOTE: The CT ping test is supported on a Brocade switch with Fabric OS version 7.1.1 and later.
Reset-MRVLFCPortCTCommandDiagnosticTest	Resets the CT diagnostic test parameters to their default values
Start-MRVLFCPortEchoDiagnosticTest	Executes an FC extended link service (ELS) echo diagnostic test.
Reset-MRVLFCPortEchoDiagnosticTest	Resets the FC ELS echo diagnostic parameters to their default values.
Start-MRVLFCPortPingDiagnosticTest	Executes the FC ping diagnostic test.
Reset-MRVLFCPortPingDiagnosticTest	Resets the FC ping diagnostic test command parameters to their default values.
Start-MRVLFCPortRDPDiagnosticTest	Executes a Read Diagnostics Parameter (RDP) command from the port. NOTE: RDP is supported with Cisco® and Brocade switches; the output is slightly different for each switch.
Start-MRVLFCPortLinkStatusDiagnosticTest	Provides the link status data for the port.
Reset-MRVLFCPortLinkStatusDiagnosticTest	Resets the link status data for the specified port.
Start-MRVLFCPortLoopbackDiagnosticTest	Executes a loopback diagnostic test.

Table 5-8. Diagnostic Test cmdlets (Continued)

cmdlet	Description
Reset-MRVLFCPortLoopbackDiagnosticTest	Resets the loopback diagnostic test parameters to their default values.
Start-MRVLFCPortReadWriteBufferDiagnosticTest	Executes a read/write buffer diagnostic test.
Reset-MRVLFCPortReadWriteBufferDiagnosticTest	Resets the read/write diagnostic parameters to their default values.
Start-MRVLFCPortDiagTest	Executes a diagnostic port test on a port that supports the diagnostic port feature. This feature is applicable for ports with a link speed of 16Gbps or 32Gbps. NOTE: At the time of publication, Cisco does not support running diagnostics from the host server; it only supports running the diagnostics test from the switch. For details, see the Cisco user's guide. Do not run Dport when the switch port is configured in Dport mode. Before running diagnostics, ensure that the adapter is online by issuing the Get-MRVLFCPort cmdlet.
Enable-MRVLFCPort	Enables the diagnostic port feature on the specified port. This feature is supported for ports with a link speed of 16Gbps or 32Gbps.
Disable-MRVLFCPort	Disables the diagnostic port feature on the specified port. This feature is supported on ports with a link speed of 16Gbps or 32Gbps.
Get-MRVLFCNVRAMVarEnabledDPortValue	Retrieves the current DPort value from NVRAM.

Start-MRVLFCPortCTCommandDiagnosticTest

```
Start-MRVLFCPortCTCommandDiagnosticTest -HostHandle 204727097 -PhyPortHandle
16283760895 -TargetWWPN 50:0a:09:82:90:a2:ce:4d -iIteration 1 -iStopOnError 0
-CTDiagType CT_Ping -CimSession $Session
```

```
uElapsedTime      : 0
ResultMessage     : Success
ReturnValue        : 0
PSComputerName    : 10.30.43.163
```

Reset-MRVLFCPortCTCommandDiagnosticTest

```
Reset-MRVLFCPortCTCommandDiagnosticTest -PhyPortHandle 11604939988  
-HostHandle 2268390258 -CimSession $Session
```

```
iIteration      : 10  
iStopOnError    : IGNORE  
ResultMessage   : Operation Successful  
ReturnValue      : 0  
PSComputerName  : 10.30.43.163
```

Start-MRVLFCPortEchoDiagnosticTest

```
Start-MRVLFCPortEchoDiagnosticTest -PhyPortHandle 16283760895 -HostHandle  
204727097 -TargetWWPN 50:0a:09:82:90:a2:ce:4d -iIteration 2 -iAddressType  
ADDRESSTYPE_PORTID -iStopOnError IGNORE -CimSession $Session
```

```
FrameSent           : 2  
FrameReceived       : 2  
ResponseLength      : 512  
ElsEchoTestStatus   : 0  
ElsEchoTestMessage  : Success  
uElapsedTime        : 0  
Status              : 2  
ResultMessage       : Operation Successful  
ReturnValue          : 0  
PSComputerName      : 10.30.43.163
```

Reset-MRVLFCPortEchoDiagnosticTest

```
Reset-MRVLFCPortEchoDiagnosticTest -HostHandle 204727097 -PhyPortHandle  
16283760895
```

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.30.43.163

Start-MRVLFCPortPingDiagnosticTest

```
Start-MRVLFCPortPingDiagnosticTest -PhyPortHandle 38902792959 -HostHandle  
4129762548 -TargetWWPN 20:05:00:11:0d:d1:9b:00 -iIteration 10 -iStopOnError  
IGNORE -CimSession $Session
```

```
FCPortInstanceID : 21-00-00-24-FF-82-C9-0E
```

```
uElapsedTime      : 10
Message           : 10 replies in 10 ms
ResultMessage     : Operation Successful
ReturnValue        : 0
PSComputerName    : 10.30.42.24
```

Reset-MRVLFCPortPingDiagnosticTest

Reset-MRVLFCPortPingDiagnosticTest -HostHandle 4129762548 -PhyPortHandle 38902792959 -CimSession \$Session

```
ResultMessage      ReturnValue PSComputerName
-----
Operation Successful      0 10.30.42.24
```

Start-MRVLFCPortRDPDiagnosticTest

Start-MRVLFCPortRDPDiagnosticTest -HostHandle 4129762548 -PhyPortHandle 38902792959 -CimSession \$Session

```
FCPortInstanceID : 21:00:34:80:0d:60:a1:80
RdpData           : {Diagnostics Parameters Descriptor List Length:
                   : 396 Bytes}
ResultMessage     : Operation Successful
ReturnValue        : 0
PSComputerName    : 10.30.43.163
```

Start-MRVLFCPortLinkStatusDiagnosticTest

Start-MRVLFCPortLinkStatusDiagnosticTest -HostHandle 4129762548 -PhyPortHandle 38902792959 -CimSession \$Session

```
LinkStatus          : Online (FEC)
iLinkStatus         : {0, 0, 0}
acLinkStatusMessage : {Unknown, Success, Success}
iLoopID             : {128, 65535, 65535}
acPortID            : {01:00:00, 1501:00:00,
                      : 401:00:00}
acNodeWWN           : {20:00:f4:e9:d4:54:ab:14,
                      : 5b:5c:00:11:0d:0b:00:00,
                      : 20:80:00:c0:ff:11:40:ac}
acPortWWN           : {21:00:f4:e9:d4:54:ab:14,
                      : 5b:5c:00:11:0d:0b:00:00,
                      : 21:70:00:c0:ff:11:40:ac}
```

```
acDevType           : {Port, FCP Disk, FCP Disk}
lControllerErrorCount : {0, 0, 0}
lDeviceErrorCount    : {0, 0, 0}
lIOCount             : {0, 0, 0}
lMegabyteCount       : {0, 0, 0}
lLipResetCount       : {0, 0, 0}
lInterruptCount      : {0, 32767, 32767}
lLinkFailureCount    : {45095, 0, 0}
lLossOfSyncCount     : {643, 0, 0}
lLossOfSignalCount   : {0, 0, 0}
lPrimitiveSeqProtocolErrorCount : {0, 0, 0}
lInvalidTranmissionWordCount : {0, 0, 0}
lInvalidCRCCount     : {0, 0, 0}
iStatus              : {0, 0, 0}
acStatus              : {, , }
acReservedStatus     : {03:42:50 AM, 03:42:50 AM,
                        : 03:42:50 AM}
ResultMessage        : Operation Successful
ReturnValue           : 0
PSComputerName       : 10.104.210.253
```

Reset-MRVLCFCPortLinkStatusDiagnosticTest

Reset-MRVLCFCPortLinkStatusDiagnosticTest -HostHandle 4129762548 -PhyPortHandle 38902792959 -CimSession \$Session

```
ResultMessage      ReturnValue PSComputerName
-----
Operation Successful      0 10.30.42.24
```

Start-MRVLCFCPortLoopbackDiagnosticTest

Start-MRVLCFCPortLoopbackDiagnosticTest -PhyPortHandle 38902792959 -HostHandle 4129762548 -iNumberOfTest 1 -iTestType IGNORE -iPatternType CJTPAT -iLoopBackType EXTERNAL_LOOPBACK_MAX_10 -iDataSize 10 -CimSession \$Session

```
iLoopbackTestStatus : COMPLETE
lCRCErrror           : 0
lDisparityError      : 0
lFrameLengthError    : 0
ResultMessage        : Success
```

```
ReturnValue          : 0
PSComputerName       : 10.104.210.253
```

Reset-MRVLFCPortLoopbackDiagnosticTest

```
Reset-MRVLFCPortLoopbackDiagnosticTest -PhyPortHandle 38902792959 -HostHandle 4129762548 -CimSession $Session
```

```
iNumberOfTest      : 10
iTestType          : IGNORE
iPatternType       : 0
iLoopBackType      : SPECIAL_ECHO_FCoE_LOOPBACK_252_IN_SIZE
iDataSize          : 8
acTestPattern      : {0, 0, 0, 0...}
ResultMessage      : Operation Successful
ReturnValue         : 0
PSComputerName     : 10.30.42.24
```

Start-MRVLFCPortReadWriteBufferDiagnosticTest

```
Start-MRVLFCPortReadWriteBufferDiagnosticTest -HostHandle 4129762548 -PhyPortHandle 38902792959 -iNumberOfTest 10 -iTestIncrement 1 -iPatternType Random -iDataSize 10 -CimSession $Session
```

```
iReadWriteBufferTestStatus : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
acReadWriteBufferTestMessage : {Success, Success, Success, Success, Success, Success, Success, Success, Success, Success}
iLoopID                     : 68608
acPortID                   : 01-0C-00
lDataMiscompare             : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
lLinkFailure                : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
lSyncLoss                   : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
lSignalLoss                 : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
lInvalidCRC                 : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
iStatus                     : {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}
acPortWWN                   : 20-05-00-11-0D-D1-9B-00
ResultMessage               : Operation Successful
ReturnValue                 : 0
PSComputerName              : 10.30.42.24
```

Reset-MRVLFCPortReadWriteBufferDiagnosticTest

**Reset-MRVLFCPortReadWriteBufferDiagnosticTest -PhyPortHandle 38902792959
-HostHandle 4129762548 -CimSession \$Session**

```
iNumberOfTest : 10
iTestIncrement : 1
iPatternType : Random
iDataSize : 8
acTestPattern :
ResultMessage : Operation Successful
ReturnValue : 0
PSComputerName : 10.30.42.24
```

Start-MRVLFCPortDiagTest

**Start-MRVLFCPortDiagTest -HostHandle 204727097 -PhyPortHandle 20595505407
-CimSession \$Session**

```
HBAPortName : 21:00:00:24:ff:78:96:ca
HBANodeName : 51:40:2e:c0:12:3c:f4:a1
HBAPortId : 0a:01:00
HBAInstanceNo : 2
HBAPort : 3
HBAElectricalLoopbackTestType : 210
HBAElectricalLoopbackTestResult : 1
HBAElectricalLoopbackTestResultMessage : Passed
HBAOpticalLoopbackTestType : 211
HBAOpticalLoopbackTestResult : 1
HBAOpticalLoopbackTestResultMessage : Passed
HBAOverallTestResult : 1
HBAOverallTestResultMessage : Passed
HBALinkTrafficTestType : 213
HBALinkTrafficTestResult : 2
HBALinkTrafficTestResultMessage : Skipped
StartTime : Fri Oct 09 15:55:17 2020
StopTime : Fri Oct 09 15:55:38 2020
Mbx1 : 65
Mbx2 : 57344
TxPower : 0x1c86
RxPower : 0x1cc4
RoundtripLinkLatency : 551 ns
```

```
CableLinkDistance           : 19 meters
AllowablePowerLoss          : 0.133000
EgressPower                  : Tx: -1.365581 dBm, Rx: -1.233781
                              dBm, Diff: -0.131801 dBm
IngressPower                 : Tx: -1.257501 dBm, Rx: -1.328862
                              dBm, Diff: 0.071360 dBm
Details                      : N/A
ResultMessage                : Operation Successful
ReturnValue                  : 0
PSComputerName               : 10.104.178.8
```

Enable-MRVLFCDPort

Enable-MRVLFCDPort -HostHandle 204727097 -PhyPortHandle 16283760895

```
ResultMessage      ReturnValue      PSComputerName
-----
Operation Successful. Reboot machine. 0 10.30.43.163
```

Disable-MRVLFCDPort

Disable-MRVLFCDPort -HostHandle 204727097 -PhyPortHandle 6283760895

```
ResultMessage      ReturnValue      PSComputerName
-----
Operation Successful. Reboot the machine. 0 10.30.43.163
```

Get-MRVLFCNVRAMVarEnabledPortValue

**Get-MRVLFCNVRAMVarEnabledPortValue -HostHandle 204727097 -PhyPortHandle 11568567508
-CimSession \$Session**

```
NVRAMVarEnabledPort : 0
ResultMessage        : Operation Successful
ReturnValue           : 0
PSComputerName       : 10.30.43.67
```

Port Parameters Cmdlets

The cmdlets for port parameters are listed in [Table 5-9](#).

Table 5-9. Port Parameters cmdlets

cmdlet	Description
Get-MRVLFCPortParameters	Retrieves port adapter parameters.
Save-MRVLFCBAParamsToXMLFile	Saves port adapter parameters to an XML file specified in the input parameter.
Set-MRVLFCBAParamsFromXMLFile	Sets port adapters parameters from an XML file specified in the input parameter. CAUTION: Setting the wrong configuration may corrupt the adapter.

Get-MRVLFCPortParameters

```
Get-MRVLFCPortParameters -HostHandle 1689059065 -PhyPortHandle 25908961549  
-CimSession $Session
```

```
DataRate : Auto  
ConnectionOptions : 2-Loop Preferred, Otherwise Point-to-Point  
EnableFibreChannelTapeSupport : Enabled  
MaxLunsPerTarget : 128  
HostAdapterBIOS : Enabled  
EnableHardLoopId : Disabled  
HardLoopId : 0  
FrameSize : 2048  
LipFullLogin : Enabled  
TargetReset : Enabled  
LoopResetDelay : 5  
LoginRetryCount : 8  
PortDownRetryCount : 30  
ExecutionThrottle : 0  
OperationMode : 6-Interrupt when Interrupt Delay Timer expires  
or no active I/O  
InterruptDelayTimer : 2  
LinkDownTimeout : 30 seconds  
OutOfOrderFrameAssembly : Disabled  
FabricAssignWWN : Enabled  
LRExtendedCredits : Disabled
```

```
PreferFCPSupport      : 0-Login to NVMe LUNs,ignore FCP LUNs behind
                        the same storage
USCMSSupport          : Enabled
VirtualLane           : Disabled
ResultMessage         : Operation Successful
ReturnValue            : 0
PSComputerName        : 10.104.211.52
```

Save-MRVLFCHBAParamsToXMLFile

```
Save-MRVLFCHBAParamsToXMLFile -HostHandle 204727097 -PhyPortHandle 20595505407
-hbaConfigXMLFile "C:\FCHBACfg.xml"
```

ResultMessage	ReturnValue
-----	-----
Operation Successful!! HBA Params Config Saved to File!!	0

Following is Sample content of XML file:

```
<USCMSSupport>0</USCMSSupport>
<ValidValues>
  <ValueSet>
    <Value>0</Value>
    <ValueDescription>Disabled</ValueDescription>
    <Value>1</Value>
    <ValueDescription>Enabled</ValueDescription>
  </ValueSet>
</ValidValues>
```

NOTE

The XML file saved can be used in the
[Set-MRVLFCHBAParamsFromXMLFile](#) cmdlet to change NVMRAM
Parameters.

Set-MRVLFCHBAParamsFromXMLFile

```
Set-MRVLFCHBAParamsFromXMLFile -HostHandle 204727097 -PhyPortHandle
20595505407 -hbaConfigXMLFile "C:\FCHBACfg.xml"
```

ResultMessage	ReturnValue
-----	-----
Operation Successful!! HBA Params Set from File!!	0

NOTE

The XML file saved in the [Save-MRVLFC HBAParamsToXMLFile](#) cmdlet can be used in this cmdlet to change NVMRAM Parameters.

Following is an example to enable USCM support. Change the `USCMSupport` parameter to `1` as shown.

```
<USCMSupport>1</USCMSupport>
<ValidValues>
  <ValueSet>
    <Value>0</Value>
    <ValueDescription>Disabled</ValueDescription>
    <Value>1</Value>
    <ValueDescription>Enabled</ValueDescription>
  </ValueSet>
</ValidValues>
```

Save the XML file. Apply the changed XML file in '[Set-MRVLFC HBAParamsFromXMLFile](#)'.

Virtual Port Operations Cmdlets

The cmdlets for virtual port operations are listed in [Table 5-10](#).

Table 5-10. Virtual Port Operations cmdlets

cmdlet	Description
New-MRVLFCVPort	Creates a new virtual port.
Remove-MRVLFCVPort	Deletes a virtual port.
Get-MRVLFCAvailableVPorts	Retrieves the maximum number of available virtual ports.
Get-MRVLFCVPort	Retrieves information of one or more virtual ports available on the physical port.
Get-MRVLFCVPortAlias	Gets Virtual Port Alias of Marvell QLogic FC Adapters
Update-MRVLFCVPortAlias	Updates Virtual Port Alias of Marvell QLogic FC Adapters

New-MRVLFCVPort

New-MRVLFCVPort -HostHandle 2636812815 -PhyPortHandle 20595505407 -CimSession \$Session

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.104.178.8

Remove-MRVLFCVPort

Remove-MRVLFCVPort -HostHandle 2636812815 -PhyPortHandle 20595505407 -WWPN 21:07:00:24:ff:78:96:cb

ResultMessage	ReturnValue
-----	-----
Operation Successful	0

Get-MRVLFCAvailableVPorts

Get-MRVLFCAvailableVPorts -HostHandle 2636812815 -PhyPortHandle 20595505407 -CimSession \$Session

NoOfAvailableVport : 63
ResultMessage : Operation Successful
ReturnValue : 0
PSComputerName : 10.104.178.8

Get-MRVLFCVPort

Get-MRVLFCVPort -CimSession \$Session

AdjacentFabricWWN	: 20:01:88:94:71:97:67:63
BBCRConfiguredSCN	: 0
BBCRSupport	: 0
BIOSVersion	: 3.62
ChipModelName	: ISP2714-based 16/32Gb Fibre Channel to PCIe Adapter
ChipRevision	: 1
CongestionEventPeriod	: N/A
CongestionEventType	: N/A
CongestionNotification	: N/A
CongestionSeverity	: N/A
ConnectionMode	: Point to Point

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Cmdlets by Function

DeliveryNotification	: N/A
DeviceNumber	: 2
DisplayPersonalityChangeOption	: 29
DriverVersion	: STOR Miniport 9.3.3.20
EFIVersion	: 7.12
FCFPrimVLANId	: 0
FCFPriSelEnable	: 0
FCodeVersion	: 4.11
FECSupport	: 0
FlashBIOSVersion	: 3.62
FlashFirmwareVersion	: 9.06.01
FwPreloadTablesVersion	: 1.3.3
HBADescription	: QLE2694 Quad Port 16Gb FC to PCIe : Gen3 x8 Adapter
HBAStatus	: Online
HBATemperature	: 56
HostHandle	: 2636812815
IsBootFromSAN	: False
LinkEventThreshold	: N/A
LinkEventType	: N/A
MaxSpeed	: 16 Gbps
MPIFirmwareVersion	: 3.00.04
NodeName	: 21:04:00:24:ff:78:96:ca
PCIBusNumber	: 8
PCIDeviceNumber	: 0
PCIeMaxBusSpeed	: 8.0 Gtps
PCIeMaxBusWidth	: x8
PCIeNegotiatedSpeed	: 8.0 Gtps
PCIeNegotiatedWidth	: x8
PCIFunctionNumber	: 2
PEPFirmwareVersion	: 1.00.35
PersonalityType	: 0
PhyPortHandle	: 16283760895
PhyPortNumber	: 0
PortID	: 0A-01-00
PortName	: 21:04:00:24:ff:78:96:ca
PortType	: NPort
PrincipalFabricWWN	: 10:00:88:94:71:97:67:63
RunningFirmwareVersion	: 9.06.01
RunningMPIFirmwareVersion	: Not Running

```
RunningPEPFirmwareVersion      : 1.00.35
SerialNumber                    : AFD1517Y01978
Speed                           : 16 Gbps
SubsystemDeviceID               : 670
SubsystemVendorID               : 4215
SupportedSpeed                  : 4,8,16 Gbps
TargetInfo                      : {[MRVLFC_PortTarget.HostHandle=
                                : 2636812815,FCTargetHandle=1305387664]}
TargetList                      : {1305387664}
VirtualPortHandle               : 14597988279384015905
PSComputerName                  : 10.104.210.211
```

Get-MRVLFCVPortAlias

Get-MRVLFCVPortAlias -HostHandle 259946390 -PhyPortHandle 20595505407

Alias	ResultMessage	ReturnValue
-----	-----	-----
Adapter_UFD1810V33945_Port_1_VPort_1	Operation Successful.	0

Update-MRVLFCVPortAlias

**Update-MRVLFCVPortAlias -HostHandle 259946390 -PhyPortHandle 20595505407
-VirtualPortHandle 13080529970 -AliasName
"Adapter_UFD1810V33945_Port_1_VPort_1"**

ResultMessage	ReturnValue
-----	-----
Operation Successful.	0

NOTE

The alias name cannot be more than 255 characters. You cannot assign an alias name that is already in use.

Syncing Host Cmdlet

The cmdlet that updates the managed host is listed in [Table 5-12](#).

Table 5-11. Syncing Host cmdlet

cmdlet	Description
Sync-MRVLFCHost	Updates the all data for MRVLFC PowerKit for the managed host.

Sync-MRVLFCHost Example

```
Sync-MRVLFCHost -HostHandle 2636812815 -CimSession $Session
```

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----
Operation Successful	0	10.104.208.241

Universal SAN Congestion Mitigation (USCM) Cmdlets

NOTE

SAN congestion management (SCM) is a common noun, and describes a standards-based Fibre Channel technology.

Universal SAN Congestion Mitigation (USCM) is Marvell's IP, and describes Marvell's capabilities that encompass SCM and additional functionalities to further assist users.

USCM is not supported on all adapters.

USCM statistics are gathered for all ports on the Marvell QLogic FC adapter and connected targets in the configured zones with active sessions.

- USCM statistics are not gathered for other initiators in the configured zones.
- USCM is supported on QLE2800, QLE2770, and QLE2690 Series Adapters.
- USCM statistics track the following types of Fabric Performance Impact Notification (FPIN) Extended Link Services (ELs) to provide SAN congestion awareness:

FPIN ELS Statistic	Initiator Port	Target Port
Congestion	✓	—
Peer congestion	—	✓

FPIN ELS Statistic	Initiator Port	Target Port
Link integrity	✓	✓
Delivery	✓	✓

- USCM also displays a set of congestion mitigation statistics that reflect actions taken by the adapter to minimize the impact of congestion caused by the endpoints.

You can view the USCM congestion mitigation status and statistics; the statistics can also be reset.

The cmdlets that control USCM are listed in [Table 5-12](#).

Table 5-12. USCM cmdlets

cmdlet	Description
Reset-MRVLFCPortSCMStatistics	Resets the congestion statistics for the specified port and the targets connected to the port.
Get-MRVLFCPortSCMCheck	Retrieves the initiator port's congestion status.
Get-MRVLFCPortSCMStats	Retrieves the initiator port's congestion statistics.
Get-MRVLFCTargetSCMCheck	Retrieves the target's congestion status.
Get-MRVLFCTargetSCMStats	Retrieves the target's congestion statistics.
Get-MRVLFCPortSCMProfile	Retrieves the USCM profile of the specified adapter part.
Set-MRVLFCPortSCMActivation	Sets how the adapter port handles congestion traffic.
Set-MRVLFCPortSCMProfileDriverSettings	Sets the current active profile setting (driver or NVRAM) for congestion on the specified adapter port.

Reset-MRVLFCPortSCMStatistics

All USCM statistics related to this port and connected targets are cleared.

```
Reset-MRVLFCPortSCMStatistics -HostHandle 3315969209 -PhyPortHandle  
14001162514
```

ResultMessage	ReturnValue	PSComputerName
-----	-----	-----

Operation Successful 0 10.30.43.263

Get-MRVLFCPortSCMCheck

Get-MRVLFCPortSCMCheck -HostHandle 1689059065 -PhyPortHandle 25908961549
-CimSession \$Session

NodeName : 20:00:34:80:0d:61:4b:08
PortName : 21:00:34:80:0d:61:4b:08
PortID : 01:20:00
HBAStatus : Online (FEC)
CongestionCurrentState : Healthy
CongestionSeverity : None
SecondsSinceLastEvent : 4295
FabricConnectionFlags : RDF Completed
LinkIntegrityEvents : No
DeliveryNotificationEvents : No
VirtualLane : Non-Operational
IOThrottling : None
ResultMessage : Operation Successful
ReturnValue : 0
PSComputerName : 10.104.211.52

Initiator Port Status

The USCM initiator port congestion status ([Table 5-13](#)) indicates the current status of the particular adapter port, based on congestion events (both ELS and signals) from the switch. At a given point in time, the adapter port is either *Congested* or *Healthy*. The other status indicates the congestion severity and the time since the last congestion event.

Contact the fabric/switch vendor for more information relating to congestion severity within their products.

Table 5-13. USCM Initiator Port Status

Status	Description
CongestionCurrentState	Healthy Congested

Table 5-13. USCM Initiator Port Status (Continued)

Status	Description
CongestionSeverity	Warning. Congestion is building and may have reached a severe level. Alarm. Congestion has reached a severe level. None. No congestion present. Reserved NOTE: For more FPIN information, see the user's guide for your switch.
SecondsSinceLastEvent	Event time period (in seconds) since the last congestion notification was received.
FabricConnectionFlags	RDF Reject. The adapter is either not connected or does not support RDF, or the connected switch does not support USCM. RDF Completed. The connected Brocade or Cisco switch does not support virtual lanes or the virtual lanes feature is disabled at initiator port. RDF Completed (Cisco). The connected Cisco switch has virtual lanes up and running. NOTE: RDF stands for Registration Diagnostic Function.
LinkIntegrityEvents	Yes. A link event has been received. No
DeliveryNotificationEvents	Yes. Delivery notification event has been received. No
Virtual Lane ^a	Operational. Virtual lane negotiation is complete and fully functional. Non-Operational. Virtual lane negotiation with the switch failed. Disabled. Virtual lanes are disabled at either the driver or the initiator port parameter (NVRAM).
I/O Throttling ^b	Active. I/O throttling is currently active. The I/O queue depth is ramping up. None. I/O throttling is not active. I/Os are running with the normal queue depth value. Disabled. I/O throttling is disabled on the adapter. N/A. I/O throttling is not supported on the adapter.

^a Virtual Lane is supported on 2770 and 2870 Series Marvell QLogic adapters.

^b I/O throttling is supported on 2690, 2770, and 2870 Series Marvell QLogic adapters. For more about virtual lanes and I/O throttling features, see the appropriate Marvell QLogic Fibre Channel Adapter User Guide.

Get-MRVLFCPortSCMStats

**Get-MRVLFCPortSCMStats -HostHandle 3172831626 -PhyPortHandle 35159561428
-CimSession \$Session**

NodeName	: 20:00:00:24:ff:78:96:c9
PortName	: 21:00:f4:e9:d4:54:ac:2f
PortID	: 0A-00-20
HBAStatus	: Online (FEC)
TimeStamp	: 05/23/2022 09:38:19
CongestionAlarmCount	: 1
CongestionWarningCount	: 1
ClearedCongestionCount	: 0
ThrottledUpCount	: 0
ThrottledDownCount	: 0
BottomOutCount	: 0
ReturnedBusyCount	: 0
LinkFailureCount	: 0
LinkUnknownEvent	: 0
LossOfSyncCount	: 0
LossOfSignalCount	: 0
LinkDeviceSpecificEvent	: 0
PrimitiveSeqProtocolErrorCount	: 0
InvalidTransmissionWordCount	: 0
InvalidCRCCount	: 0
DeliveryFailureUnknownCount	: 0
DeliveryTimeoutCount	: 0
DeliveryUnableToRouteCount	: 0
DeliveryFailureDeviceSpecificCount	: 0
CongestionClearCount	: 0
CongestionLostCreditCount	: 0
CongestionCreditStallCount	: 0
CongestionOversubscriptionCount	: 0
CongestionDeviceSpecificCount	: 0
ResultMessage	: Operation Successful
ReturnValue	: 0
PSComputerName	: 10.104.211.112

Get-MRVLFCPortSCMStats -HostHandle 2636812815 -PhyPortHandle 11972016383

NodeName	: 20:00:00:24:ff:78:96:c9
PortName	: 21:00:00:24:ff:78:96:c9
PortID	: 0a:06:00

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Cmdlets by Function

HBAStatus	: Online
TimeStamp	: 04/14/2023 13:57:09
CongestionAlarmCount	: 0
CongestionWarningCount	: 0
ClearedCongestionCount	: 0
ThrottledUpCount	: 0
ThrottledDownCount	: 0
BottomOutCount	: 0
ReturnedBusyCount	: 0
LinkFailureCount	: 0
LinkUnknownEvent	: 0
LossOfSyncCount	: 0
LossOfSignalCount	: 0
LinkDeviceSpecificEvent	: 0
PrimitiveSeqProtocolErrorCount	: 0
InvalidTransmissionWordCount	: 0
InvalidCRCCount	: 0
LinkUncorrectableFECCount	: 0
DeliveryFailureUnknownCount	: 0
DeliveryTimeoutCount	: 0
DeliveryUnableToRouteCount	: 0
DeliveryFailureDeviceSpecificCount	: 0
CongestionClearCount	: 0
CongestionLostCreditCount	: 0
CongestionCreditStallCount	: 0
CongestionOversubscriptionCount	: 0
CongestionDeviceSpecificCount	: 0
ResultMessage	: Operation Successful
ReturnValue	: 0

Get-MRVLFCPortSCMStats -HostHandle 2636812815 -PhyPortHandle 11972016383

NodeName	: 20:00:00:24:ff:78:96:c9
PortName	: 21:00:00:24:ff:78:96:c9
PortID	: 0a:06:00
HBAStatus	: Online
TimeStamp	: 04/14/2023 13:57:09
CongestionAlarmCount	: 0
CongestionWarningCount	: 0
ClearedCongestionCount	: 0

ThrottledUpCount	: 0
ThrottledDownCount	: 0
BottomOutCount	: 0
ReturnedBusyCount	: 0
LinkFailureCount	: 0
LinkUnknownEvent	: 0
LossOfSyncCount	: 0
LossOfSignalCount	: 0
LinkDeviceSpecificEvent	: 0
PrimitiveSeqProtocolErrorCount	: 0
InvalidTransmissionWordCount	: 0
InvalidCRCCount	: 0
LinkUncorrectableFECCount	: 0
DeliveryFailureUnknownCount	: 0
DeliveryTimeoutCount	: 0
DeliveryUnableToRouteCount	: 0
DeliveryFailureDeviceSpecificCount	: 0
CongestionClearCount	: 0
CongestionLostCreditCount	: 0
CongestionCreditStallCount	: 0
CongestionOversubscriptionCount	: 0
CongestionDeviceSpecificCount	: 0
ResultMessage	: Operation Successful
ReturnValue	: 0

Initiator Port Statistics

USCM statistics are gathered for all initiator ports of this adapter.

USCM statistics are not gathered for other initiators in the configured zones.

USCM statistics for initiators provide SAN congestion awareness by tracking three types of FPIs: congestion, link integrity, and delivery.

USCM also displays a set of statistics to track the actions taken by the adapter to minimize the impact of congestion in the fabric at the initiator ports.

The initiator congestion mitigation port statistics in [Table 5-14](#) are part of Marvell's USCM functionality that reflects actions taken by the Marvell QLogic FC adapter to mitigate the congestion, while providing visibility into the initiator port's performance as a result of SAN congestion.

Table 5-14. USCM Initiator Port Congestion Mitigation Statistics

Statistic	Description
TimeStamp	Date and time the command was issued.
CongestionAlarmCount	Counter for the number of alarm events in CongestionSeverity .
CongestionWarningCount	Counter for the number of warning events in CongestionSeverity .
ClearedCongestionCount	The number of times the congestion event was cleared for this port.
ThrottledDownCount	The fabric is congested at this port. ■ Each increment indicates that the port is receiving congestion notifications from the fabric. ■ For each increment, the port decreases the I/O bandwidth. ■ Incrementing stops when the low watermark performance for the port is reached.
ThrottledUpCount	The fabric is <i>not</i> congested at this port. ■ Each increment indicates that the port is <i>not</i> receiving congestion notifications from the fabric. ■ For each increment, the port increases the I/O bandwidth (up to the maximum I/O bandwidth for the port). ■ Incrementing starts only after the Throttle Down Count increments (and congestion notifications abate). ■ Incrementing stops when the port reaches its optimal performance.
BottomOutCount	This port is operating at its low watermark performance and the fabric continues to be congested at this port. ■ Each increment indicates that the port is receiving congestion notifications from the fabric. ■ This port cannot decrease the I/O bandwidth any further.

Table 5-14. USCM Initiator Port Congestion Mitigation Statistics (Continued)

Statistic	Description
ReturnedBusyCount	The number of times the driver returns an I/O request queued by the initiator's storage stack. This request must be retried because the port is congested. The count is incremented faster when the driver is throttling down, and slower when the driver is throttling up.

Get-MRVLFCTargetSCMCheck

```
Get-MRVLFCTargetSCMCheck -HostHandle 3315969209 -PhyPortHandle 14001162514  
-TargetHandle 52428800
```

```
NodeName           : 21:00:00:00:00:00:20:03  
PortName           : 21:00:00:00:00:00:20:03  
PortID            : 0a:00:00  
CongestionCurrentState : Healthy  
SecondsSinceLastEvent : 4422  
LinkIntegrityEvents  : No  
VirtualLane:       : Non-Operational  
IO Throttling       : None  
ResultMessage       : Operation Successful  
ReturnValue          : 0  
PSComputerName      : 10.104.211.52
```

Target Port Status

The USCM target congestion status ([Table 5-15](#)) indicates the current status/health of connected target ports based on FPIN ELSs received from the switch.

This status includes peer congestion, link integrity, and delivery notifications, as well as details about each of these events for each active target port.

Table 5-15. USCM Target Port Status

Status	Description
CongestionCurrentState	See CongestionCurrentState .
SecondsSinceLastEvent	See SecondsSinceLastEvent .

Table 5-15. USCM Target Port Status (Continued)

Status	Description
LinkIntegrityEvent	Yes. A link event has been received. No.
Virtual Lane ^a	Slow. The current target is marked as slow device and was moved to a slow virtual lane due to congestion. Normal. The current target is healthy. No congestion is detected. Fast. Fast traffic is flowing to a fast virtual lane. Non-operational. Either virtual lanes is disabled at the initiator or it is not supported by the connected switch. NA. Virtual lanes is not supported on the connected adapter and/or the driver.
I/O Throttling ^a	See I/O Throttling .

^a For more about virtual lanes and I/O throttling, see the appropriate Marvell QLogic Fibre Channel Adapter user's guide.

Get-MRVLFCTargetSCMStats

**Get-MRVLFCTargetSCMStats -HostHandle 2268390258 -PhyPortHandle 21788054740
-TargetHandle 553656325 -CimSession \$Session**

```

Message                               : Success
NodeName                             : 50:0a:09:80:80:a2:ce:4d
PortName                             : 50:0a:09:82:90:a2:ce:4d
PortID                               : 0a:00:00
TimeStamp                             : 05/05/2022 18:50:19
ClearedCongestionCount                : 0
ThrottledUpCount                     : 0
ThrottledDownCount                   : 0
BottomOutCount                       : 0
ReturnedBusyCount                    : 0
LinkFailureCount                     : 0
LinkUnknownEvent                     : 0
LossOfSyncCount                      : 0
LossOfSignalCount                    : 0
LinkDeviceSpecificEvent              : 0
PrimitiveSeqProtocolErrorCount        : 0

```

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Cmdlets by Function

InvalidTransmissionWordCount	: 0
InvalidCRCCount	: 0
CongestionClearCount	: 0
CongestionLostCreditCount	: 0
CongestionCreditStallCount	: 0
CongestionOversubscriptionCount	: 0
CongestionDeviceSpecificCount	: 0
PUNCount	: 0
ResultMessage	: Operation Successful
ReturnValue	: 0

**Get-MRVLFCTargetSCMStats -HostHandle 80232398 -PhyPortHandle 21788054740
-TargetHandle 553656324**

Message	: Success
NodeName	: 50:0a:09:80:80:a2:ce:4d
PortName	: 50:0a:09:82:90:a2:ce:4d
PortID	: 0a:00:00
TimeStamp	: 04/14/2023 13:55:17
ClearedCongestionCount	: 0
ThrottledUpCount	: 0
ThrottledDownCount	: 0
BottomOutCount	: 0
ReturnedBusyCount	: 0
LinkFailureCount	: 0
LinkUnknownEvent	: 0
LossOfSyncCount	: 0
LossOfSignalCount	: 0
LinkDeviceSpecificEvent	: 0
PrimitiveSeqProtocolErrorCount	: 0
InvalidTransmissionWordCount	: 0
InvalidCRCCount	: 0
LinkUncorrectableFECCount	: 0
CongestionClearCount	: 0
CongestionLostCreditCount	: 0
CongestionCreditStallCount	: 0
CongestionOversubscriptionCount	: 0
CongestionDeviceSpecificCount	: 0
PUNCount	: 0

PUNClearCount : 0
ReturnValue : 0

Target Port Statistics

USCM statistics are gathered for all targets connected to all ports on this adapter in the configured zones with active sessions.

USCM statistics for targets provide SAN congestion awareness by tracking three types of FPINs: peer congestion, link integrity, and delivery.

USCM also displays a set of congestion mitigation statistics to track the actions taken by the Marvell QLogic FC adapter to minimize the impact of congestion in the fabric at target ports.

The target congestion mitigation port statistics in [Table 5-16](#) are part of Marvell's USCM functionality that reflects actions taken by the adapter to mitigate the congestion, while providing visibility into the target port's performance as a result of SAN congestion.

NOTE

The peer congestion FPINs reflect fabric congestion at the specified target port.

Table 5-16. USCM Target Port Congestion Mitigation Statistics

Statistic	Definition
TimeStamp	See TimeStamp .
ClearedCongestionCount	See ClearedCongesgestionCount .
ThrottledUpCount	See ThrottledUpCount .
ThrottledDownCount	See ThrottledDownCount .
BottomOutCount	See BottomOutCount .
ReturnedBusyCount	See ReturnedBusyCount .
LinkFailureCount	Counter for number of link failure events.
LinkUnknownEvent	Counter for the number of unknown events.
LossOfSyncCount	Counter for the number of loss of sync events.

Table 5-16. USCM Target Port Congestion Mitigation Statistics (Continued)

Statistic	Definition
LossOfSignalCount	Counter for the number of loss of signal count events.
LinkDeviceSpecificEvent	Counter for the number of device specific events.
PrimitiveSeqProtocolErrorCount	Counter for the number of primitive sequence protocol errors.
InvalidTransmissionWordCount	Counter for the number of transmission word errors.
InvalidCRCCount	Counter for the number of invalid CRC events.
DeliveryFailureUnknownCount	Counter for the number of unknown events.
DeliveryTimeoutCount	Counter for the number of timeout events.
DeliveryUnableToRouteCount	Counter for the number of unable to route events.
DeliveryFailureDeviceSpecificCount	Counter for the number of device specific events.
PeerCongestionClearCount	Counter for the number of times the peer congestion event was cleared for this target.
PeerCongestionLostCreditCount	Counter for the number of lost credit events.
PeerCongestionCreditStallCount	Counter for the number of credit stall events.
PeerCongestionOversubscriptionCount	Counter for the number of oversubscription events.
PeerCongestionDeviceSpecificCount	Counter for the number of device-specific events.
PUNCount	Number of priority update notifications received.

Get-MRVLFCPortSCMProfile

```
Get-MRVLFCPortSCMProfile -HostHandle 2268390258 -PhyPortHandle 21788054740  
-CimSession $Session
```

```
NodeName           : 20:00:f4:e9:d4:54:ab:12  
PortName           : 21:00:f4:e9:d4:54:ab:12  
PortID             : 01:00:00  
USCMConfigurationStatus : Enabled  
USCMCongestionProfileManagement : NVRAM  
USCMCongestionProfileActivation : Moderate  
ResultMessage      : Operation Successful  
ReturnValue         : 0  
PSComputerName     : 10.104.211.112
```

The Get-MRVLFCPortSCMProfile, Set-MRVLFCPortSCMActivation, and Set-MRVLFCPortSCMProfileDriverSettings cmdlets allow you to manage adapter congestion by selecting either the driver default profile settings, or customizing different profile settings for each adapter port on a case-by-case basis. [Table 5-17](#) lists the available profiles and their values.

Table 5-17. USCM Profiles

Profile	Description
USCMConfigurationStatus	Indicates if the USCM feature of the specified adapter port is supported. Valid values are: Enabled Disabled
USCMCongestionProfileManagement	Indicates the current active profile setting for congestion on the specified adapter port. Valid values are: Driver (default) NVRAM
USCMCongestionProfileActivation ^a	Valid values are: Monitor-only (default) Conservative Moderate Aggressive

^a See [Table 5-18](#) for more information.

The `USCMCongestionProfileActivation` profiles are described in [Table 5-18](#).

Table 5-18. USCM Congestion Profile Activation Values

Value	Description
Monitor Only (default)	Records adapter performance and congestion history for review. No actions are taken to resolve congestion.
Conservative	Maintains optimum throughput while gradually reducing congestion. Queue depth (outstanding I/Os) is reduced to half of the current value as part of the throttle down operation. Marvell recommends this setting for high-priority workloads.
Moderate	Queue depth (outstanding I/Os) is reduced to one-quarter of the current value as part of the throttle down operation.
Aggressive	Reduces congestion on priority while reducing throughput. Queue depth (outstanding I/Os) is reduced to one-eighth of the current value as part of the throttle down operation. Marvell recommends this setting for low-priority workloads.

Set-MRVLFCPortSCMActivation

```
Set-MRVLFCPortSCMActivation -HostHandle 2268390258 -PhyPortHandle 21788054740  
-CongestionProfileActivation Aggressive -CimSession $Session
```

```
ResultMessage      ReturnValue PSComputerName  
-----  
Operation Successful      0 10.104.211.112
```

Set-MRVLFCPortSCMProfileDriverSettings

This cmdlet resets the USCM adapter port profile to the `Driver` setting.

```
PS C:\> Set-MRVLFCPortSCMProfileDriverSettings -HostHandle 2268390258  
-PhyPortHandle 21788054740 -CimSession $Session2
```

```
ResultMessage      ReturnValue PSComputerName  
-----  
Operation Successful      0 10.104.211.112
```

A

USCM Virtual Lanes

This section provides information for USCM virtual lanes feature to Marvell QLogic adapters using FC PowerKit.

When setting up virtual lanes, consider the following:

- This feature is available only when the adapter is connected to a supported Cisco switch running a fabric OS version that supports the equivalent feature on the fabric.
- USCM must be enabled to use the virtual lanes feature.
 - ❑ The USCM parameter is seen under '[Get-MRVLFCPortParameters](#) as `USCMSupport`.
 - ❑ The USCM parameter can be changed as follows:
 1. Save the HBA parameters by issuing [Save-MRVLFCHBAParamsToXMLFile](#).
 2. Change the `USCMSupport` parameter value in the XML file.
 3. Apply the changed XML file by issuing [Set-MRVLFCHBAParamsFromXMLFile](#).
- By default, the USCM virtual lanes feature is disabled.
- The USCM virtual lanes feature can be enabled on both target and initiator ports.
- The USCM virtual lanes feature is available only on Fibre Channel 2770 and 2800 Series Adapters.
- The USCM virtual lanes feature can be enabled/disabled using the `VirtualLane` port parameter.
 - ❑ The virtual lane parameter is seen under '[Get-MRVLFCPortParameters](#) as `VirtualLane`.
 - ❑ The virtual lane parameter can be changed as follows:
 1. Save the HBA parameters by issuing [Save-MRVLFCHBAParamsToXMLFile](#) in an XML file.
 2. Change the `VirtualLane` parameter value in the XML file.
 3. Apply the changed XML file by issuing [Set-MRVLFCHBAParamsFromXMLFile](#).

B USCM FPIN-LI/MPIO with FC/NVMe Storage

This appendix provides information for USCM multipath switching based on marginal links with integrity issues running on Marvell QLogic Adapters using PowerKit.

Prerequisites

When enabling and configuring FPIN-LI/MPIO, consider the following:

- This feature is available for FCP or FC-NVMe storage only with ESX 8.0 U3 or later hosts.
- This feature is available for FCP storage only with RHEL 8.7 or later and RHEL 9.0 or later hosts. See the following note regarding FC-NVMe storage.
- USCM must be enabled to use the FPIN-LI/MPIO feature.
- This feature is available on QLE2600, QLE2700, and QLE2800 Series Adapters.

NOTE

For more information about configuring FPINs for FPIN-LI/MPIO operation in Pluggable Storage Architecture (PSA), see the VMware vSphere 8.0 U3 documentation.

NOTE

RHEL 9.4 and later support FPIN marginal pathgroups for both FC-NVMe and FCP protocols. For more information, see the Red Hat RHEL 9.4 Release Notes and documentation.

C Revision History

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Changes	Sections Affected
Added a note "Support for SLES 16 is pending Microsoft OMI support."	"Operating System Requirements" on page 2



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