

Dell Storage PowerTools Server Hardware Manager Version 3.2

Administrator's Guide

Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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Introduction

 **CAUTION:** See the **Safety, Environmental, and Regulatory Information** document for important safety information before following any procedures listed in this document.

An enclosure containing hard drives accessed through Enclosure Management Modules (EMMs) is called a storage enclosure. A storage enclosure includes various hardware components, such as hard drives, EMMs, fans, and power supply units (PSUs).

One or more host servers that are attached to the storage enclosure can access the data on the storage enclosure. Multiple physical paths can be established between the hosts and storage enclosure. The multiple paths prevent the loss of any single path from resulting in loss of access to data on the storage enclosure.

The Server Hardware Manager software on a host server manages the storage enclosure that is attached to the host. On the host server, the management software and the storage enclosure communicate management requests and event information by using in-band SAS connections.

The Server Hardware Manager Command Line Interface (SHM CLI) provides a CLI used to obtain device and status information of storage and hardware components. You can use the SHM CLI for firmware updates of hard disk drives (HDDs) within the enclosure. You can also use SHM CLI to update firmware on the MD1400/MD1420/ME484 enclosure EMMs.

Other information you may need

 **WARNING:** See the safety and regulatory information that shipped with your system. Warranty information can be included within this document or be included in a separate document.

You will need the documentation for your system. It provides information for configuring and managing your system, including those pertaining to the operating system, system management software, system updates, and system components that you purchased with your system.

 **NOTE:** All the documents, unless specified otherwise, are available at [Dell support](#). Always check this site for the latest version of documentation.

If you are connecting another supported enclosure, see the corresponding guides for installation, configuration, and troubleshooting information.

Dell Storage MD1400 series

- *Rack Installation Instructions*—Describes how to install your system into a rack. This document ships with your rack solution.
- *Getting Started Guide*—Provides an overview of system features, setting up your system, and technical specifications.
- *OpenManage Server Administrator*—Provides information about managing your storage solution using the storage management service within the server administrator.
- *Dell PowerEdge RAID Controller (PERC) H830 and Dell 12Gb SAS HBA User's Guide*—Provides information about configuring RAID.

Dell PowerVault ME484 JBOD

 **NOTE:** Dell Storage ME4 is not part of any Microsoft Storage Spaces Solution.

- *Rack Installation Instructions*—Describes how to install your system into a rack. This document ships with your rack solution.
- *Dell PowerVault ME4 Series JBOD 5U84 Enclosure Deployment Guide*—Provides guidance about setting up and configuring your 5U84 enclosure with JBOD.
- *Dell Storage PowerTools Server Hardware Manager Support Matrix* and the *Dell PowerVault ME484 JBOD Storage Enclosure Support Matrix*—Provides information about the software and hardware compatibility for the ME484 Enclosure storage systems.
- *Dell PowerVault ME4 Series Owner's Manual*—Provides information about system hardware features and describes how to troubleshoot the system and install or replace system components.

Dell PowerVault MD24 series

- *Dell Storage PowerTools Server Hardware Manager Support Matrix* and the *Dell PowerVault MD24 Series Enclosure Support Matrix*—Provides information about the software and hardware compatibility for the MD24 Series systems.
- *Dell PowerVault MD2412 and MD2424 Direct-Attach Storage for PowerEdge Servers Owner's Manual*—Provides information about system hardware features and describes how to install and troubleshoot the MD2412 and MD2424 systems and install or replace system components.
- *Dell PowerVault MD2460 Direct-Attach Storage for PowerEdge Servers Owner's Manual*—Provides information about system hardware features and describes how to install and troubleshoot the MD2460 system and install or replace system components.

Installation procedure

When connecting the storage enclosure to a Dell PowerEdge server, the server must have a supported SAS HBA installed. See the *Dell Storage PowerTools Server Hardware Manager Support Matrix* for information about supported SAS HBAs. If the host is connected to the storage enclosure by using multiple paths (two or more SAS connections), the host must have multipath configured. For more information about multipath configuration, see the documentation related to the server operating system.

The Dell storage products are compatible with Windows and Linux operating systems. For more information about the supported operating systems, see the support matrix for your product at [Dell support](#).

Server Hardware installation—Windows

Multipath I/O (MPIO)

Windows MPIO must be configured for the Server Hardware Manager software to recognize the hardware. For more information about MPIO configuration procedures, see Microsoft documentation related to MPIO.

 **NOTE:** The Failover Only policy is recommended.

Installation Wizard

Use this procedure to install PowerTools using the installation wizard.

Steps

1. Download the PowerTools Server Hardware Manager installation package from [Dell.com/support](#).
2. Go to the download directory, and extract the installation files from the `ServerHardwareManager-x.x.x.x-<OS>-installer.zip` file.
3. Go to the directory where the installation files were extracted.
4. Double-click the installation program: `ServerHardwareManager-x.x.x.x-windows-installer.exe`
5. Follow the on-screen instructions, and accept the End User License Agreement.

 **NOTE:** Installation of the SNMP monitoring service is optional.

6. When the installation is complete, run the CLI in administrator mode to use the `shmcli` commands.

Unattended installation

Use the CLI administrator command prompt for unattended installation.

About this task

 **NOTE:** There is no Windows console mode installation.

Steps

1. Download the Server Hardware Manager software installation package for Windows from [Dell.com/support](#).
2. Go to the download directory, and extract the installation files from the `ServerHardwareManager-x.x.x.x-<OS>-installer.zip` file.
3. Run the command prompt as an Administrator.

 **NOTE:** The command prompt must be an Administrator prompt for proper use of the CLI.

4. Go to the directory where the installation files were extracted.
5. To perform a silent (unattended) install using the default settings, run the following command:

```
ServerHardwareManager-x.x.x.x-windows-installer.exe --mode unattended
```

The default installation directory is C:\Program Files\Dell\ServerHardwareManager.

6. To change default settings before performing a silent (unattended) install, open the `installer.options` file in a text editor and modify the values.
For example, to change the installation directory, edit the following line in the `installer.options` file:

```
prefix=${platform_install_prefix}
```

7. To perform a silent (unattended) install using the `installer.options` file, run the following command:

```
ServerHardwareManager-x.x.x.x-windows-installer --mode unattended -options  
installer.options
```

8. When the installation is complete, run the CLI in administrator mode to use the `shmccli` commands.

Uninstalling the Server Hardware Manager software

The Server Hardware Manager software can be uninstalled using the command line or control panel:

Steps

1. To uninstall a software application using the Windows command line.
 - a. Start the command prompt as an administrator.
 - b. Go to the installation directory.
The default directory is C:\Program Files\Dell\ServerHardwareManager.
 - c. Run one of the following commands to uninstall the software:
 - `ServerHardwareManager_uninstall.exe` for a graphical uninstallation
 - `ServerHardwareManager_uninstall.exe --mode unattended` for silent uninstallation
2. To uninstall a software application using the Windows control panel:
 - a. Open the Control Panel, and click **Uninstall a program**.
 - b. Select the **Server Hardware Manager** program.
 - c. Click **Uninstall**.
 - d. Complete the on-screen instructions.

Server Hardware Manager Installation – Linux

 **NOTE:** Always check for updates on [Dell.com/support](https://www.dell.com/support), and read the Readme file because the information in the Readme often supersedes information in other documents.

Device Mapper Multipath

The Linux Device Mapper Multipath must be configured on the host server to allow the Server Hardware Manager Software to recognize the hardware properly. See the Linux documentation for proper Device Mapper Multipath configuration.

 **NOTE:** The Failover Policy is recommended.

Installation wizard

Use this procedure to install PowerTools using the installation wizard.

Steps

1. Download the Server Hardware Manager Software installation package from Dell.com/support.
2. Go to the download directory, and extract the installation files from the `ServerHardwareManager-x.x.x.x-<OS>-installer.tar.gz` file.
3. Go to the directory where the installation files were extracted.
4. Double-click the installation program: `ServerHardwareManager-x.x.x.x-<OS>-installer`.

 **NOTE:** Installation of the SNMP monitoring service is optional.

5. Follow the on-screen instructions, and accept the End User License Agreement.
6. When installation is complete, exit the shell and restart it with administrator (root) access to run `shmcli` commands.

Unattended installation

The installation requires full `root` user permissions.

About this task

 **NOTE:** Console installation is no longer available. Instead, run the installer with switch `--mode unattended` for the default installation. A default installation requires no arguments.

Steps

1. Download the Server Hardware Manager software installation package for Linux from Dell.com/support.
2. Go to the download directory, and extract the installation files from the `ServerHardwareManager-x.x.x.x-<OS>-installer.tar.gz` file.
3. Go to the directory where the installation files were extracted.
4. To perform a silent (unattended) install using the default settings, run the following command:

```
ServerHardwareManager-x.x.x.x-<OS>-installer --mode unattended
```

The default installation directory is `/opt/dell/ServerHardwareManager`.

5. To change default settings before performing a silent (unattended) install, open the `installer.options` file in a text editor and modify the values.

For example, to change the installation directory, edit the following line in the `installer.options` file:

```
prefix=${platform_install_prefix}
```

6. To perform a silent (unattended) install using the `installer.options` file, run the following command:

```
ServerHardwareManager-x.x.x.x-<OS>-installer --mode unattended -options  
installer.options
```

7. When installation is complete, exit the shell and restart it with administrator (root) access to run `shmcli` commands.

Uninstalling the Server Hardware Manager software

The uninstallation requires full `root` user permissions.

About this task

 **NOTE:** The `shmcli log` file remains after uninstallation.

Steps

1. Start a terminal, and go to the installation directory.
The default directory is: /opt/dell/ServerHardwareManager.
2. To uninstall the software, run the following command:

```
./ServerHardwareManager_uninstall
```

To perform a silent uninstallation, run the following command:

```
./ServerHardwareManager_uninstall --mode unattended.
```

3. Follow the on-screen instructions to complete the uninstallation.

Storage Hardware Manager CLI

This guide is intended for system administrators, developers, and engineers who use the Storage Hardware Manager CLI (SHM CLI) and its associated commands. For more information, see the hardware and software manuals that are shipped with the system.

The SHM CLI is a software application that enables storage installers, developers, and engineers to monitor and update storage enclosures and HDDs or SSDs. CLI commands can be run from an operating system prompt, such as the Microsoft Windows command prompt, or a Linux terminal.

Use the SHM CLI to perform the following functions:

- Display status information about the objects in the system.
- Update storage device firmware (EMM and drives).

Using the CLI

A CLI command consists of the following elements:

- Executable name — `shmcli`
- Command
- Path to the target
- Additional arguments

The following syntax is the general form of a CLI command:

```
shmcli command [path-to-target-object] {additional-arguments}
```

Where,

- `shmcli` — Invokes the command-line interface.
- `command` — Action the utility runs.
- `path-to-target-object` — List of arguments that defines the target object to which the command applies.

Command syntax structure

The commands for the Storage Enclosure CLI have a number of input parameters. Those parameters, in turn, can also have more than one valid attribute. However, each parameter can accept only one valid value for each run. This section defines the symbols used in the syntax of each command in this document and the syntax layout in the SHM CLI help.

Table 1. Command syntax structure

Input Parameter	Description
<code>a b</code>	Pipe symbol indicating alternative ("a" or "b")
<i>italicized-words</i>	Input value
<code>[...]</code>	Optional input
<code><></code>	Enclosed input value is required for parameter

Table 2. Parameter list

Parameter Name	Description	Valid Values
<code>-a</code>	Indicates target adapter	SAS WWID or Adapter Index

Table 2. Parameter list (continued)

Parameter Name	Description	Valid Values
-d	Indicates target drive	WWN (World Wide Name), Enclosure Slot Index, Drawer Slot Index, Serial Number, or Drive OS Path
-w	Indicates target enclosure drawer	Drawer Index (0, 1, 2, 3, or 4)
-s	Indicates target enclosure slot	Enclosure Slot Index
-startDate	Target start date	StartDate in the format of MM/DD/YY
-endDate	Target end date	EndDate in the format of MM/DD/YY
-event	Type of event to view from the event log	EventType (INFO, CRITICAL, ERROR, or WARN)
-count	Number of events to view	LatestEventCount numeric value (1-1000)
-outputformat	Format of output data from shmcli command	SupportedOutputFormats (XML, JSON)
-enc	Indicates target physical enclosure	Enclosure Index or WWN
-emm	Indicates target EMM	WWN or EMM Index
-file	Indicates target firmware file for updating a drive or EMM	Firmware update file location and name
-outputdir	Output directory to place the archived output file	Absolute path to the directory of output archive file

Table 3. Description of values for parameters

Parameter	Description	Valid for Parameter
Absolute Path to Firmware File	Indicates the absolute filepath to a valid drive or EMM firmware file	Valid value for the -file parameter
Adapter Index	Indicates the enumerated index value for installed supported HBAs	Valid value for the -a parameter
SAS WWID	Indicates the device specific SAS WWID of the installed supported HBAs	Valid value for the -a parameter
Device ID	Enumerated reference value that Indicates a target drive or EMM	Valid value for the -d and -emm parameters
Drawer Index	Indicates reference value for logical grouping of drives into drawers	Valid value for the -w parameter
Encl Index (Enclosure Index)	Indicates reference value for enclosures attached to a specified adapter	Valid value for the -enc parameter
WWN (Worldwide Name)	Indicates unique value that identifies a unique drive, EMM, or enclosure	Valid value for the -d, -emm, and -enc parameters
Enclosure Slot Index	Reference value that Indicates a target drive	Valid value for the -d and -s parameter
Drawer Slot Index	Indicates reference value for a drive slot in a specified drawer	Valid value for the -d parameter
EMM Index (Enclosure Management Module Index)	Indicates the reference value for EMMs in an specific enclosure	Valid value for the -emm parameter

Table 3. Description of values for parameters (continued)

Parameter	Description	Valid for Parameter
StartDate	Starting date to view logs in the format: MM/DD/YY	Valid value for the <code>-startDate</code> parameter
EndDate	End date to view logs in the format: MM/DD/YY	Valid value for the <code>-endDate</code> parameter
EventType	Type of event to view (INFO, CRITICAL, ERROR, or WARN)	Valid value for the <code>-event</code> parameter
LatestEventCount	Numeric value between 1–1000	Valid value for the <code>-count</code> parameter
SupportedOutputFormats	Supported out file formats: XML, JSON	Valid value for the <code>-outputformat</code> parameter
Serial Number	Unique identifier for the physical disk drive	Valid value for the <code>-d</code> parameter
Drive OS Path	Unique path to drive provided by the OS.	Valid value for the <code>-d</code> parameter

NOTE:

- Ensure the console window is able to fit at least 150 characters for each line to view the output properly.
- The output screenshots shown in the following procedures are examples and might be slightly different from the actual output depending on the version of your Server Hardware Manager software.

Command help

To get a list of all available commands:

```
shmcli (help | -help | -h)
```

To get help for a specific command:

```
shmcli [command] [ -help | -h ]
```

Identifying installed HBAs

Many SHM CLI commands require a respective adapter as an input parameter. To get the proper values for this parameter, run the following command:

```
shmcli list adapters
```

The following output is displayed:

```
list adapters - Executing command..
Adapter#      ProductName      WWID      FW. Rev
-----
0             SAS9207-8e      500605b008915cf0  18.00.00
1             SAS9207-8e      500605b008914e00  18.00.00
```

Figure 1. Running the shmcli command to identify HBAs

Note and record the values displayed in the `Adapter#` column because this represents the Adapter Index and also the WWID/SASAddresses column for the respective supported HBAs.

Identifying enclosures and EMMs

Identifying enclosures

For other management actions, you must provide information for a respective enclosure or EMM. These values are presented with respect to a specific adapter value provided.

To identify the attached enclosures to a specific adapter, run the following command:

```
shmcli list physical enclosures -a=<(SASAddress | AdapterIndex)>
```

The MD1400/MD1420/ME484 enclosures display the following output:

```
list physical enclosures - Executing command..
Encl Index  Name      Service Tag  Disk Status  Pwr Sply Sts  Temp Sens Sts  Volt Sens Sts  Fan Status  WWN
-----
0          MD3060e    PN_P1PRF    OK           OK            OK            OK            OK          50080e5175a1a000
```

Figure 2. Command output example for MD1400/MD1420/ME484 enclosures

The MD2412/MD2424/MD2460 enclosures display the following output:

```
list physical enclosures - Executing command..
Encl#      Name      Service Tag  Encl Overall Sts  WWN Side  # Adapters Connected
-----
0          SAS4 2U12    B5BGKT3      OK 5006048d6088d62a  B          1
1          SAS4 2U12    B5BGKT3      OK 5006048d6087d62a  A          1
```

Figure 3. Command output example for MD2412/MD2424/MD2460 enclosures

NOTE:

- In MD24 Series enclosures, a single enclosure is listed as two EMMs designated as side A and side B. Each pair of enclosure entries will have the same service tag number.
- Check the Side column to identify the location of the EMM. The side A and side B represents slot 1 and slot 2 respectively.

Identifying EMMs

To identify the adapters attached to each EMM, run the following command:

```
shmcli list emms -a=<(SASAddress | AdapterIndex)>
```

The MD1400/MD1420/ME484 enclosures display the following output:

```
list emms - Executing command..
Encl WWN      EMM Slot#  Vendor      Status      Rev      Serial      WWN
-----
50080e5205457000 1      DELL      OK          0395      6.0Gwembley60 Tr 50080e53d4a62025
50080e520545d000 0      DELL      OK          0395      6.0Gwembley60 Tr 50080e53d4ae2025
```

Figure 4. Command output example for MD1400/MD1420/ME484 enclosures

The MD2412/MD2424/MD2460 enclosures display the following output:

```
list emms - Executing command..
EMM Slot#      Encl WWN      Name      Vendor      Status      Rev      Serial      WWN Side # Adap      Enclosure
-----
2 5006048d6088d62a SAS4 2U12    DELL      OK          0604      THCET0029T4060 50060482b006717d B 1      B5BGKT3 (SAS4 2U12)
1 5006048d6087d62a SAS4 2U12    DELL      OK          0604      THCET0029T4050 50060482b006807d A 1      B5BGKT3 (SAS4 2U12)
```

Figure 5. Command output example for MD2412/MD2424/MD2460 enclosures

Note the Enclosure Slot Index and the WWN columns. These values are required for command parameters.

Identifying drawers

Verify the status and number of drives in the drawers of an enclosure by running the following command:

```
shmcli list drawers -a=<(SASAddress | AdapterIndex)> -enc=<(WWN | EnclIndex)>
```

```
list drawers - Executing command..
Drawer#      Status  Drawer Open  #HDD
-----
0            OK      NO           4
1            OK      NO           4
2            OK      NO           8
3            OK      NO          12
4            OK      NO          12
```

Figure 6. Command output example

Drawer 0 is the top drawer or the only drawer for the enclosure.

Updating drives

You can update drive firmware by using the information provided by running other SHM CLI commands. For information about the latest drive firmware versions, go to Dell.com/support. Dell recommends stopping all I/O between the server and the attached enclosures containing the drives that you want to update. By default, if the command entered updates multiple drives, the SHM CLI updates the drives one at a time. If multi argument is entered at the CLI, the SHM CLI updates the drives simultaneously in sets of 100.

To update a single drive when the WWN of the drive is known:

```
shmcli update drive -d=<(WWN)> -file=<FW.FilePath>
```

To update all drives visible to a specified adapter:

```
shmcli update drive -a=<(SASAddress | AdapterIndex)> -file=<FW.FilePath>
```

To update all the drives in a specified enclosure:

```
shmcli update drive -a=<(SASAddress | AdapterIndex)> -enc=<(WWN | EnclIndex)>
-file=<FW.FilePath>
```

To update all the drives in a specified drawer:

```
shmcli update drive -a=<(SASAddress | AdapterIndex)> -enc=<(WWN | EnclIndex)>
-w=<DrawerIndex> -file=<FW.FilePath>
```

To update a single drive:

```
shmcli update drive -d=<(WWN | EnclosureSlotIndex | DrawerSlotIndex | Serial Number |
Drive OS Path)> -file=<FW.FilePath>
```

An update summary is displayed after the command finishes.

i NOTE:

- When attempting to update multiple drives, the specified firmware file is used on all drives within the scope of the command. Drives compatible with the firmware file are updated while incompatible drives fail gracefully.
- If the firmware file path contains spaces, enclose the filepath in double quotation marks (""). For example, `-file="C:\My Files\my firmware.fwh"`
- Only firmware files with the .fwh extension are supported for updating drives using the SHM CLI.

Updating EMM firmware

Only MD1400/MD1420/ME484 enclosure EMMs can be updated using this command. The MD24 Series enclosures do not support this command.

Steps

1. Download the latest firmware package from [Dell support](#).
2. Stop all I/O between the server and the attached enclosures containing the EMMs you intend to update.

NOTE:

- After this update process begins, you may lose access to the drives or enclosures connected to the update target. The EMM does not respond to commands again until it is back online.
- If you have more than one storage enclosure in a daisy-chain, Dell recommends that you update the EMMs starting in the lowest tier of the chain and work back, up to the top enclosure.

3. Run the following command:

```
shmcli update emm -a=<(SASAddress | AdapterIndex)> -enc=<(WWN | EnclIndex)> -emm=<(WWN | EMMIndex)> -file=<FW.FilePath>
```

NOTE: The progress of the firmware transfer is indicated in the console.

4. EMM updates the firmware and restarts.

NOTE: This process may take up to five minutes.

Identifying drives

When identifying drives, there are optional parameters that you can include to narrow the scope of the drives from which to obtain information. You can identify drives from the adapter (all down-chain enclosures attached to a specified HBA), all the drives in a specific enclosure, or all the drives in a specified drawer in a specified enclosure. To get information about all the drives visible to an adapter, run the following commands:

To retrieve information about all of the drives on the server:

```
shmcli list drives
```

To retrieve information about all of the drives visible to an adapter:

```
shmcli list drives -a=<(SASAddress | AdapterIndex)>
```

list drives - Executing command...							
Enc Slot	Drwr/Slot	Vendor	ProductId	Serial	Size	Rev	WWN
0	00 / 00	SEAGATE	ST330006S0SS	Z29SE07V	2.73TB	RS16	5000c50055be7690
3	00 / 03	SEAGATE	ST330006S0SS	Z29SDYLF	2.73TB	RS16	5000c50055bea23c
6	00 / 06	SEAGATE	ST330006S0SS	Z290YP6X	2.73TB	RN08	5000c50034d010f0
9	00 / 09	SEAGATE	ST330006S0SS	Z29SDYHJ	2.73TB	RS16	5000c50055bea400
12	01 / 00	SEAGATE	ST330006S0SS	Z29SE00T	2.73TB	RS16	5000c50055be7dad
15	01 / 03	SEAGATE	ST330006S0SS	Z290YSPS	2.73TB	RN08	5000c50034cf2dfc
18	01 / 06	SEAGATE	ST330006S0SS	Z29SE18X	2.73TB	RS16	5000c50055be562c
21	01 / 09	SEAGATE	ST330006S0SS	Z29SDZVF	2.73TB	RS16	5000c50055be81c4

Figure 7. Command output

To retrieve information about all of the drives in a specific enclosure:

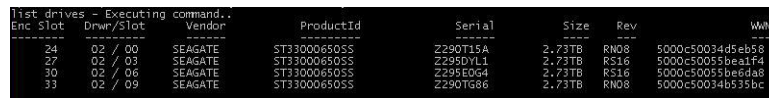
```
shmcli list drives -a=<(SASAddress | AdapterIndex)> -enc=<(WWN | EnclIndex)>
```

list drives - Executing command...							
Enc Slot	Drwr/Slot	Vendor	ProductId	Serial	Size	Rev	WWN
0	00 / 00	SEAGATE	ST330006S0SS	Z29SE07V	2.73TB	RS16	5000c50055be7690
3	00 / 03	SEAGATE	ST330006S0SS	Z29SDYLF	2.73TB	RS16	5000c50055bea23c
6	00 / 06	SEAGATE	ST330006S0SS	Z290YP6X	2.73TB	RN08	5000c50034d010f0
9	00 / 09	SEAGATE	ST330006S0SS	Z29SDYHJ	2.73TB	RS16	5000c50055bea400
12	01 / 00	SEAGATE	ST330006S0SS	Z29SE00T	2.73TB	RS16	5000c50055be7dad
15	01 / 03	SEAGATE	ST330006S0SS	Z290YSPS	2.73TB	RN08	5000c50034cf2dfc
18	01 / 06	SEAGATE	ST330006S0SS	Z29SE18X	2.73TB	RS16	5000c50055be562c
21	01 / 09	SEAGATE	ST330006S0SS	Z29SDZVF	2.73TB	RS16	5000c50055be81c4

Figure 8. Command output

To retrieve information about all of the drives in a drawer within an enclosure:

```
shmccli list drives -a=<(SASAddress | AdapterIndex)> -enc=<(WWN | EnclIndex)>
-w=<DrawerIndex>
```



Enc Slot	Drwr/Slot	Vendor	ProductId	Serial	Size	Rev	WWN
24	02 / 00	SEAGATE	ST330006S0S5	Z290T15A	2.73TB	RN08	5000c50034d5eb58
27	02 / 03	SEAGATE	ST330006S0S5	Z295D1L1	2.73TB	RS16	5000c50053bea1f4
30	02 / 06	SEAGATE	ST330006S0S5	Z295E0g4	2.73TB	RS16	5000c50053be6da8
33	02 / 09	SEAGATE	ST330006S0S5	Z290TG86	2.73TB	RN08	5000c50034b535bc

Figure 9. Command output

Record the Enclosure Slot Index and the WWN provided by the `list drives` command. These values are required to perform actions on a specific drive such as updating the firmware or making the LED of a drive blink for identification purposes.

CLI reference

This section lists all the commands available for managing your storage enclosure. These commands are listed by command type.

Drive commands

Blink drive

Table 4. Blink drive

Value	-	Description
Description	Helps visually locate the specified SCSI device by initiating a blink, or ending an existing blink session.	
Syntax	<pre>shmcli (blink drive blinkdrive bd) (-a=<(SAS WWID AdapterIndex)> [-enc=<(WWN EnclIndex)> [-w=<DrawerIndex>]] -d=<(WWN EnclosureSlotIndex DrawerSlotIndex Serial Number Drive OS Path)> [-off] -d=<(WWN Serial Number Drive OS Path)> [-off] [-h])</pre>	
Parameters	-a	Specifies the adapter to use for the command. This can be either SASAddress or AdapterIndex.
	-enc	Specifies the enclosure to use for the command. This is either WWN or EnclIndex.
	-w	Specifies the drawer index used for the command.
	-d	Specifies the drive used for the command. This can be any of the following: • WWN — Can be used anytime. • Enclosure Slot Index — Use if drawer argument is not being used for the command. • Drawer Slot Index (Index of the drive in the specific drawer)—Use if drawer argument is used for the command. • Serial Number—Can be used anytime. • Drive OS Path—Can be used anytime.
	-off	Disable the blink mode for the device by running the command.
	-h	Provides more information about the command, description, and usage.
Examples	• <code>blink drive -a=1 -enc=1 -w=0 -d=4</code> • <code>blink drive -a=1 -enc=1 -d=//./PHYSICALDRIVE50 -off</code> • <code>blink drive -a= 500abcdeffgh12345 -enc=1 -w=0 -d=4</code> • <code>blink drive -d= 500a123456789012</code>	

Drive power

Table 5. Drive power

Value	-	Description
Description	Turns off or turns on the drive in the specified enclosure slot number.	
Syntax	<pre>shmcli (drive power drivepower dp) (-a=<(SAS WWID AdapterIndex)> -enc=<(WWN EnclIndex)> -s=<EnclosureSlotIndex> [-on -off] [-h])</pre>	

Table 5. Drive power (continued)

Value	-	Description
Parameters	-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
	-enc	Specifies the enclosure used for the command. This can be either WWN or EnclIndex.
	-s	Specifies the Enclosure Slot Index used for the command. This is retrieved by the <code>list drives</code> or <code>info drive</code> command.
	-on	Turns on the drive on the specified enclosure slot.
	-off	Turns off the drive on the specified enclosure slot.
	-h	Provides more information about the command, description, and usage.

Drive smart

Table 6. Drive smart

Value	-	Description
Description		Enables or disables SMART functionality in the specified drive.
Syntax		<pre>shmcli (drive smart drivesmart ds) -a=<(SAS WWID AdapterIndex)> -enc=<(WWN EnclIndex)> -s=<EnclosureSlotIndex> [-on -off] [-h])</pre>
Parameters	-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
	-enc	Specifies the enclosure used for the command. This can be either WWN or EnclIndex.
	-s	Specifies the Enclosure Slot Index used for the command. This is retrieved by the <code>list drives</code> or <code>info drive</code> command.
	-on	Enables the SMART functionality in the specified drive.
	-off	Disables the SMART functionality in the specified drive.
	-h	Provides more information about the command, description, and usage.

List commands

List adapters

Description

This command lists the adapters accessible from the host.

Command syntax

```
shmcli (list adapters | listadapters | la) [-outputformat=<SupportedOutputFormats>]
      [-h]
```

Parameters

Table 7. List adapters

Parameter	Description
-h	Provides more information about the command, description and usage.
-outputformat	You can specify the following output formats: XML or JSON

List physical enclosures

Description

Shows the list of physical enclosures and related information for the specified adapter. Default output (no adapter input specified) lists all enclosures accessible by every supported adapter in the local system.

Command syntax

```
shmcli (list physical enclosures | list enclosures | listphysicalenclosures | lpe) [-a=<(SAS WWID | AdapterIndex)>] [-h]
```

Parameters

Table 8. List physical enclosure

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- list physical enclosures
- list physical enclosures -a=1
- list physical enclosures -a=500abcdefgh12345

List drives

Description

Shows the list of HDDs or SSDs and related information for the specified device. If no device is specified to obtain drives for, all drives accessible by supported adapters in the local system are listed.

Command syntax

```
shmcli (list drives | listdrives | ld) ([-a=<(SAS WWID | AdapterIndex)>] [-enc=<(WWN | EnclIndex)>] [-w=<DrawerIndex>]) [-outputformat=<SupportedOutputFormats>] [-verbose] | [-enc=<WWN>] [-w=<DrawerIndex>] [-outputformat=<SupportedOutputFormats>] [-verbose] | [-h])
```

Parameters

Table 9. List hard disk drive

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or I.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-w	Specifies the drawer index used for the command.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- list drives
- list drives -a=1
- list drives -a=1 -enc=0
- list drives -a=1 -enc=0 -w=2 -verbose
- list drives -enc=500a123456789012 -outputformat=xml

List EMMs

Description

This command lists the EMMs accessible from the specified adapter.

Command syntax

```
shmcli (list emms | listemms | le) (-a=<(SAS WWID | AdapterIndex)> [-enc=<(WWN | EnclIndex)>] [-outputformat=<SupportedOutputFormats>] | [-enc=<WWN>] [-outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 10. List EMMS

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- list emms -a=1
- list emms -a=1 -enc=0
- list emms -a=500abcdefgh12345
- list emms -enc=500a123456789012 -outputformat=xml

List drawers

Description

This command lists the drawers accessible from the specified enclosure. Depending on your enclosure, you may have one drawer or multiple drawers.

Command syntax

```
shmcli (list drawers | listdrawers | ldraw) (-a=<(SAS WWID | AdapterIndex)>  
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-  
outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 11. List drawers

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list drawers -a=1 -enc=500a123456789012`
- `list drawers -a=1 -enc=0`
- `list drawers -enc=500a123456789012 -outputformat=xml`

List EMM slots

Description

This command lists the EMM Slots and associated information for the specified enclosure.

Command syntax

```
shmcli (list emm slots | listemmslots | lemmslots) (-a=<(SAS WWID | AdapterIndex)>  
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-  
outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 12. List EMM slots

Parameter	Description
-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This can be either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list emm slots -a=1 -enc=500a123456789012`
- `list emm slots -a=1 -enc=0`
- `list emm slots -enc=500a123456789012 -outputformat=xml`

List drive slots

Description

This command lists the HDD slots and associated information about the specified enclosure.

Command syntax

```
shmcli (list drive slots | listdriveslots | lds) (-a=<(SAS WWID | AdapterIndex)>
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] [-verbose] |
-enc=<WWN> [-outputformat=<SupportedOutputFormats>] [-verbose] | [-h])
```

Parameters

Table 13. List hard disk drive slots

Parameter	Description
-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- list drive slots -a=1 -enc=500a123456789012
- list drive slots -a=1 -enc=0
- list drive slots -enc=500a123456789012 -outputformat=xml
- list drive slots -a=1 -enc=500a123456789012 -verbose

NOTE: On Linux systems, if the verbose argument is supplied, the **Logical Vols** column is displayed listing the logical drive mapping of the physical disk drives. For these values to be discovered correctly, the following system items must be installed and configured: Device Mapper Multipath and Smartmontools.

List fans

Description

This command lists the fans accessible from the specified enclosure.

Command syntax

```
shmcli (list fans | listfans | lf) (-a=<(SAS WWID | AdapterIndex)>
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-
outputformat=<SupportedOutputFormats>] | [-h])
```


Parameters

Table 14. List fans

Parameter	Description
-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This can be either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list fans -a=1 -enc=500a123456789012`
- `list fans -a=1 -enc=0`
- `list fans -enc=500a123456789012 -outputformat=xml`

List power supply units

Description

This command lists the power supply units (PSUs) accessible from the specified enclosure.

Command syntax

```
shmcli (list power supplies | listpowersupplies | lps) (-a=<(SAS WWID | AdapterIndex)>  
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-  
outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 15. List power supply unit devices

Parameter	Description
-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list power supplies -a=1 -enc=500a123456789012`

- `list power supplies -a=1 -enc=0`
- `list power supplies -enc=500a123456789012 -outputformat=xml`

List temperature sensors

Description

This command lists the temperature sensors accessible from the specified enclosure.

Command syntax

```
shmcli (list temp sensors | listtemperaturesensors | lts) (-a=<(SAS WWID | AdapterIndex)> -enc=<(WWN | EnclIndex)> [-outputformat<SupportedOutputFormats>] | -enc=<WWN> [-outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 16. List temperature sensors

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list temp sensors -a=1 -enc=500a123456789012`
- `list temp sensors -a=1 -enc=0`
- `list temp sensors -enc=500a123456789012 -outputformat=xml`

List voltage sensors

Description

This command lists the voltage sensors accessible from the specified enclosure.

Command syntax

```
shmcli (list voltage sensors | listvoltagesensors | lvs) (-a=<(SAS WWID | AdapterIndex)> -enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 17. List voltage sensors

Parameter	Description
-a	Specify the adapter used for the command. This can be either SAS WWID or AdapterIndex.
-enc	Specify the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list voltage sensors -a=1 -enc=500a123456789012`
- `list voltage sensors -a=1 -enc=0`
- `list voltage sensors -enc=500a123456789012 -outputformat=xml`

List current sensors

Description

Lists the current sensors accessible from the specified enclosure.

Command syntax

```
shmcli (list current sensors | listcurrentsensors | lcs) (-a=<(SAS WWID| AdapterIndex)>  
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-  
outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 18. List current sensors

Parameter	Description
-h, -help	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.
-a, -adapter	Specify the adapter used for the command. This is either SAS WWID or the AdapterIndex.
-enc	Specify the enclosure is used for the command. This is either WWN or the EnclosureIndex.

Command examples

- `list current sensors -a=1 -enc=500a123456789012`

- `list current sensors -a=1 -enc=0`
- `list current sensors -enc=500a123456789012 -outputformat=xml`

List failed drives

Description

Lists the drives that have been predicted to fail and/or drives which have returned errors through system calls. The output describes the call attempted and the SCSI error codes returned.

Command syntax

```
shmcli (list failed drives | lfd) ([-a=<(SAS WWID | AdapterIndex)>] [-enc=<(WWN | EnclIndex)> [-w= <DrawerIndex>]] [-outputformat=<SupportedOutputFormats>] [-verbose] | -enc=<WWN> [-outputformat=<SupportedOutputFormats>] [-verbose] | [-h])
```

Parameters

Table 19. List failed drives

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-w	Specifies the drawer index used for the command.
-h	Provides more information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `list failed drives`
- `list failed drives -a=0`
- `list failed drives -enc=500a123456789012`

Informational commands

Show adapter information

Description

This command provides information about the specified adapter and status or count of the attached devices.

Command syntax

```
shmcli (info adapter | infoadapter | ia) (-a=<(SAS WWID | AdapterIndex)> [-outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 20. Adapter information

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-h	Provides information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Show drive information

Description

This command provides detailed information about the specified HDD.

Command syntax

```
shmcli (info drive | infodrive | id) (-a=<(SAS WWID | AdapterIndex)> [-enc=<(WWN | EnclIndex)> [-w=<DrawerIndex>]] -d=<(WWN | EnclosureSlotIndex | DrawerSlotIndex | Serial Number | Drive OS Path)> [-outputformat=<SupportedOutputFormats>] [-smart] | -d=<(WWN | Serial Number | Drive OS Path [-outputformat=<SupportedOutputFormats>]) [-smart] | [-h])
```

Parameters

Table 21. Drive information

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-w	Specifies the drawer index used for the command.
-d	Specifies the hard disk drive used for the command. This can be any of the following: • WWN — Can be used anytime. • Serial Number — Can be used anytime. • Drive OS path — Can be used anytime. • Drawer Slot Index (Index of the drive in the specific drawer) — Use if the 'drawer' argument is used for the command. • Enclosure Slot Index — Use if drawer argument is not being used for the command
-outputformat	You can specify the following output formats: XML or JSON.
-h	Provides more information about the command, description, and usage.
-smart	Display the S.M.A.R.T attribute data for the specific physical drive.

Command examples

- `info drive -a=500abcdefgh12345 -enc=1 -w=0 -d=4`
- `info drive -a=1 -enc=1 -d=//./PHYSICALDRIVE50 -smart -outputformat=xml`
- `info drive -d=500a123456789012`

Show enclosure information

Description

This command provides detailed information about the specified enclosure.

Command syntax

```
shmcli (info enclosure | infoenclosure | ie) (-a=<(SAS WWID | AdapterIndex)>  
-enc=<(WWN | EnclIndex)> [-outputformat=<SupportedOutputFormats>] | -enc=<WWN> [-  
outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 22. Enclosure information

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-h	Provides information about the command, description, and usage.
-outputformat	You can specify the following output formats: XML or JSON.

Command examples

- `info enclosure -a=1 -enc=500a123456789012`
- `info enclosure -a=1 -enc=0`
- `info enclosure -enc=500a123456789012 -outputformat=xml`

Show firmware file information

Description

This command provides detailed information for the specified Firmware File such as its type and properties.

Command syntax

```
shmcli (info firmware | infofirmware | ifw) (-file=<FW.FilePath> [-  
outputformat=<SupportedOutputFormats>] | [-h])
```

Parameters

Table 23. Firmware File information

Parameter	Description
-file	Specify the file at the given path used for the command.
-outputformat	You can specify the following output formats: XML or JSON.
-h	Provides more information about the command, description, and usage.

 **NOTE:** If the filename contains special characters, you must enclose the file path within escaped double quotation marks.

Status adapter

Description

Shows information about the specified adapter status including PHY and expander information.

Command syntax

```
shmcli (status adapter | statusadapter | sa) (-a=<(SAS WWID | AdapterIndex)> [-  
outputformat=<supportedOutputFormats>] | [-h])
```

Parameters

Table 24. Status Adapter

Parameter	Description
-h, -help	Provides additional information about the command, description, and usage.
-outputformat	Following output formats can be specified: XML, or JSON.
-a, -adapter	Specifies the Adapter to be used for the command. This can either be the SAS WWID or the Adapter Index.

Global Topology

Description

Shows a global list of all objects in the system. Output is displayed only in XML format.

Command syntax

```
shmcli (global topology | global top | gt) [-h]
```

Parameters

Table 25. Global Topology

Parameter	Description
-h, -help	Provides more information about the command, description, and usage.

Log gathering

Get debug CLI

Description

This command provides debug CLI information for MD1400 and MD1420 enclosures.

Command syntax

```
shmcli (getdebugcli | get debugcli | gdc) -a=<(SAS WWID | AdapterIndex)> -enc=<(WWN | EnclIndex)> -outputdir=<OutputDirectory> | [-h])
```

Parameters

Table 26. Get debug CLI information

Parameter	Description
-a	Specify the Adapter to be used for the command. This can either be the SAS WWID or the Adapter Index.
-enc	Specify the Enclosure to be used for the command. This can either be WWN or the Enclosure Index.
-outputdir	Specify the output directory path.  NOTE: If the directory path contains special characters; it is required to enclose the directory path within escaped double quote characters.
-h	Provides more information about the command, description, and usage.

Get log

Description

This command provides the diagnostic log on MD2412/MD2424/MD2460 enclosures.

Command syntax

```
shmcli (get log | getlog | gl) ( [-type=<(trace | event)>] -a=<(SAS WWID | AdapterIndex)> [-enc=<(WWN | EnclIndex)>] [-outputdir=<OutputDirectory>] | [-h])
```

Parameters

Table 27. Get log

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or Adapter Index.
-enc	Specifies the enclosure used for the command. This is either WWN or the Enclosure Index.

Table 27. Get log (continued)

Parameter	Description
-outputdir	Specify the output directory path.  NOTE: If the directory path contains special characters; you must enclose the directory path within escaped double quotation marks.
-h	Provides more information about the command, description, and usage.

Get ddump

Description

This command fetches the ddump output for the provided enclosure.

Command syntax

```
shmcli (getddump | get ddump) (-a=<(SAS WWID | AdapterIndex)> -enc=<(WWN | EnclIndex)> -outputdir=<OutputDirectory> | [-h])
```

Parameters

Table 28. Get ddump

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or Adapter Index.
-enc	Specifies the enclosure used for the command. This is either WWN or the Enclosure Index.
-outputdir	Specify the output directory path.  NOTE: If the directory path contains special characters; you must enclose the directory path within escaped double quotation marks.
-h	Provides more information about the command, description, and usage.

Update commands

Update drive firmware

Description

This command updates the firmware version of the specified drives by using the provided firmware file. This command also verifies the integrity of the firmware file before applying the firmware.

Command syntax

```
shmcli (update drive | updatedrive | ud) (-a=<(SAS WWID | AdapterIndex)>
[-enc=<(WWN | EnclIndex)> [-w=<DrawerIndex>]] [-d=<(WWN | EnclosureSlotIndex |
DrawerSlotIndex | Serial Number | Drive OS Path)>] (-file=<FW.FilePath> [-force]
| -directory=<FW.DirectoryPath>) [-show] [-multi] | -enc=<WWN> [-w=<DrawerIndex>] [-
d=<(WWN | EnclosureSlotIndex | DrawerSlotIndex | Serial Number | Drive OS Path)>]
(-file=<FW.FilePath>[-force] | -directory=<FW.DirectoryPath>) [-show] [-multi] |
-d=<(WWN | EnclosureSlotIndex | DrawerSlotIndex | Serial Number | Drive OS Path)> (-
file=<FW.FilePath>[-force] | -directory=<FW.DirectoryPath>) [-show] [-multi] | [-h])
```

Parameters

Table 29. Update drive firmware

Parameter	Description
-a	Specifies the adapter used for the command. This is either SAS WWID or AdapterIndex.
-d	Specifies the HDD used for the command. This can be any of the following: • WWN—Can be used anytime. • Serial Number—Can be used anytime. • Drive OS path—Can be used anytime. • Enclosure Slot Index—Use if drawer argument is not used for the command. • Drawer Slot Index (Index of the drive in the specific drawer)— Use if drawer argument is used for the command. • Enclosure Slot Index—Use if drawer argument is not being used for the command.
-enc	Specifies the enclosure used for the command. This is either WWN or EnclIndex.
-w	Specifies the drawer index used for the command.
-file	Specifies the file at the given path used for the command.
-h	Provides additional information about the command, description, and usage.
-show	Display the list of drives that are updated by using the specified firmware file. The drives are not updated if this option is used.
-directory	Specifies the directory path containing firmware files used for the command.

Table 29. Update drive firmware (continued)

Parameter	Description
-force	Using this option updates the drive firmware with the firmware file provided, regardless of the drive's firmware version being equal to or newer compared to the firmware file.
-multi	Using this option causes drive updates to happen simultaneously, increasing overall update speed significantly. The speed increase is apparent during multi drive updates.

Command examples

- `update drive -a=1 -enc= 1 -w=2 -file=C:\Users\Administrator\firmware\upgrade.fwh`
- `update drive -enc=EnclosureWWN -file=C:\Users\Administrator\firmware\upgrade.fwh -force`
- `update drive -a=1 -directory=C:\Users\Administrator\firmware -multi`
- `update drive -d=DriveWWN -directory=C:\Users\Administrator\firmware -show`

 **NOTE:** If the directory or filename contains special characters, you must enclose the file path within escaped double quotation marks.

Update EMM firmware

Description

This command updates the firmware version of the specified EMM by using the provided firmware file. This command also verifies the integrity of the firmware file before applying the firmware.

 **NOTE:** Default behavior of the command uses the `-wait` functionality.

Command syntax

```
shmcli (update emm | updateemm) (-a=<(SAS WWID | AdapterIndex)> -enc=<(WWN | EnclIndex)>
-emmm=<(WWN | EMMIndex)> -file=<FW.Filepath> | -emm=<WWN> -file=<FW.Filepath> | [-nowait]
| [-h])
```

Parameters**Table 30. Update EMM firmware**

Parameter	Description
-a	Specifies the adapter used for the command. This can be either SAS WWID or AdapterIndex.
-enc	Specifies the enclosure used for the command. This can be either WWN or EnclIndex.
-emm	Specifies the EMM used for the command.
-file	Specifies the file at the given path used for the command.
-h	Provides more information about the command, description, and usage.
-wait	(default) If provided, the application waits to return until after the updated EMM is automatically turned on again.
-nowait	If provided, the application returns immediately after sending the firmware to the device. The device may not be available

Table 30. Update EMM firmware (continued)

Parameter	Description
	for use for some duration of time while it is applying the update.

 **NOTE:** If the file name contains special characters, you must enclose the file path within escaped double quotation marks.

Command examples

- `update emm -a=500abcdefgh12345 -enc=1 -emm=0 -file=C:\Users\Administrator\firmwares\emm_upgrade.esm`
- `update emm -enc=500rg67890123456 -emm=500a123456789012 -file=C:\Users\Administrator\firmwares\emm_upgrade.esm`
- `update emm -emm=500a123456789012 -file=C:\Users\Administrator\firmwares\emm_upgrade.esm`

Update adapter

Description

After running the following command, the updated firmware file's version is installed.

Command syntax

```
shmcli (update adapter | updateadapter) ( -a=<(SAS WWID | AdapterIndex)>
-file=<FW.FilePath> | [-h])
```

Parameters**Table 31. Update Adapter**

Parameter	Description
-h, -help	Provides more information about the command, description, and usage.
-outputformat	Following output formats can be specified: XML, JSON.
-a, -adapter	Specifies the adapter to be used for the command. This can either be the SAS WWID or the Adapter Index.
-file	Specifies the file at the given path used for the command.

 **NOTE:** If the filename contains special characters, you must enclose the file path within escaped double quotation marks.

Getting help

Contacting Dell

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area.

If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or the product catalog.

To contact Dell for sales, technical support, or customer service issues:

1. Go to **Dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.