



## **SCLI User Guide**

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### Revision History

Revision	Date	Description
1.0	19 March 2013	Initial release of the document.
1.1	15 October 2014	Updated help for CloudSpeed and Optimus drives
1.2	11 December 2015	Added support for PCIe Devices

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## About This Guide

This guide describes the Command Line Interface (**scli**) utility for the SanDisk disk drives. The information in this guide is intended for administrators responsible for servers and storage systems.

It is presumed you are already familiar with basic Linux™, Microsoft® Windows®, Citrix® XenServer, or VMware® ESXi system administration. Later sections provide details about CLI functions, parameters, and return codes.

## Typographical Conventions

This document follows these conventions:

Convention	Usage	Examples
<b>Note:</b>	Important additional information or further explanation of a topic.	<b>Note:</b> <i>A weekly backup is recommended.</i>
<b>Warning!</b>	The task or operation might have serious consequences if conducted incorrectly or without appropriate safeguards. If you are not an expert in the use of this product, consult SanDisk for assistance.	<b>Warning!</b> <i>Do not change configuration parameters.</i>
<b>Bold</b>	A command or system input that you type, or text or a button displayed on a screen.	Click <b>HELP</b> for details on disaster recovery.
<i>Italic</i>	Italic font indicates any of the following: <ul style="list-style-type: none"> <li><i>A term with a specific meaning</i> in the context of this document.</li> <li><i>Emphasis</i> on specific information.</li> <li><i>Reference</i> to another document.</li> </ul>	Detailed information on <i>disaster recovery</i> methods is available in the <i>Administrator Guide</i> .
Courier	System output, filenames, or pathnames.	> Recovery in progress.
Square [ ] Brackets	Syntax elements within square brackets are optional. Vertical bars separate choices from which none or only one can be selected.	<b>scli</b> [-h help ?]
Angle < > Brackets	Syntax elements within angle brackets are required and must be replaced with user-specified inputs. Vertical bars separate choices from which at least one must be selected.	<b>scli</b> <cmd>
Blue text	<a href="#">Hyperlinks</a> are underlined; <a href="#">cross references</a> to information within this document are not.	For more details, see <a href="#">Additional Resources</a> , or visit <a href="http://www.sandisk.com">www.sandisk.com</a> .

## Additional Resources

Additional documentation is available online at [www.sandisk.com](http://www.sandisk.com):

## Overview of the scli Utility

The **scli** provides commands to manage the SanDisk enterprise SSDs. Based on the parameters passed to it, the **scli** utility can perform various operations on one or more drives.

### Synopsis:

```
scli <cmd> [devlist] [param] [-z|--nobanner] [-h|-?|--help]
```

### Parameters:

<b>cmd</b>	Specify the command to be performed.
<b>devlist</b>	List drive(s) on which the command is to be executed, as follows: <b>all devName1 [, devName2] . . .</b> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list.
<b>param</b>	Provide optional parameter(s) for the specified command.
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

**Note:** *Administrative privileges are required to use this utility.*

Providing no arguments or insufficient arguments results in the help message being printed in the console.

### Exit Code:

0	- Successful
1	- Error

## OS Matrix

Operating System	Flavors
<b>Windows</b>	Windows 2008 R2
	Windows 2012 R2
	Windows 8.1 x86
	Windows 8.2 x64
<b>Linux</b>	RHEL 5.9 x86
	RHEL 5.9 x64
	RHEL 5.10 x86
	RHEL 5.10 x64
	RHEL 6.4 x86
	RHEL 6.4 x64
	RHEL 6.5 x86
	RHEL 6.5 x64
	RHEL 7 x86
	RHEL 7 x64
	CentOS 6.5 x86
	CentOS 6.5 x64
	Ubuntu 12.04 x86
	Ubuntu 12.04 x64
	SLES 10 SP4 x86
	SLES 10 SP4 x64
SLES 11 SP3 x86	
SLES 11 SP3 x64	
<b>Solaris</b>	Solaris 11.11 x86
	Solaris 11.11 x64
<b>Citrix</b>	Citrix Xenserver 6.2

### Windows

Device names can be used as shown in Disk Management (Disk0, Disk1, and so forth). Because drive names that contain valid integers after a leading 0 are not supported, drive names can be given as 'Disk0', 'Disk1', or 'Disk101', but not as 'Disk01' or 'Disk001'.

### Linux / Citrix XenServer

In Linux / Citrix XenServer, device names can be used how they are discovered or in likes of **/dev/sd<x>** or **/dev/nvme<x>n<y>**

## Solaris

In Solaris the device entries exist as links under `/dev/dsk`, pointing to the device node files in the `/devices` tree. Actually every device has got a second instance under `/dev/rdisk`. The ones under `/dev/dsk` are "block" devices, used in a random-access manner. The "raw" device links are character devices, used for low-level access functions and these are to be used with SCLI.

```
/dev/rdisk/c<C>t<A>d<0>s<S>
```

where C is the controller number, A is the SCSI address, and S is the "slice". Slice 0 is the whole disk; the other slices are the partition numbers

```
$ ls -lL /dev/rdisk/c1t*
```

```
br----- 1 root  sys    27, 16 Jun  2 16:26 /dev/rdisk/c1t0d0p0
br----- 1 root  sys    27, 17 Jun  2 16:26 /dev/rdisk/c1t0d0p1
br----- 1 root  sys    27, 18 Jun  2 16:26 /dev/rdisk/c1t0d0p2
br----- 1 root  sys    27, 19 Jun  2 16:26 /dev/rdisk/c1t0d0p3
br----- 1 root  sys    27, 20 Jun  2 16:26 /dev/rdisk/c1t0d0p4
```

The p0 device, eg c1t0d0p0, indicates the whole disk as seen by the BIOS.

### Note:

To run SCLI in Solaris, gcc runtime (version 4.5.x) is needed. To install, please issue the following command.

```
pkg install gcc-45-runtime
```

## Commands Supported for NVMe Voyager SSDs

- SCLI for NVMe Devices is supported only in Linux and Windows.
- In Linux, PCIe devices are supported with kernel version 3.3 or greater.
  - SCLI commands supported for NVMe devices
 

<ul style="list-style-type: none"> <li>▪ show</li> <li>▪ set</li> <li>▪ get</li> <li>▪ getsmart</li> <li>▪ createsupportarchive</li> <li>▪ format</li> </ul>	<ul style="list-style-type: none"> <li>▪ erase</li> <li>▪ update</li> <li>▪ nvmelog</li> <li>▪ nvmeidentify</li> <li>▪ getnvmergs</li> </ul>
--	--
- In Windows 8.1 and 2012R2 with *Inbox driver*
  - Only below commands are supported.
    - show all
    - show all -a
    - update <deviceName> -p <firmwareImage>
- In Windows Server 2008 R2, 2012, 2012 R2 and Windows 7, 8, 8.1 with *OFA Community driver* all SCLI commands for NVMe are supported.

## SCLI Commands

### scli show

List the details, such as serial number, capacity, port type, number of ports, geometry information, etc., of specified drives.

#### Synopsis:

```
scli show <devlist [-a|-g|-p|-s|-S|-P|-r|-v]>[-R
<FILENAME>][-z] [-h|?]

scli show <devlist [--asset|--geometry|--port|--state|--stats|
--Progress|--protection|--version]> [--
redirect<FILENAME>]

[--nobanner] [--help]
```

#### Parameters:

<b>devlist</b>	List drive(s) for which the details are to be shown, as follows: <b>all</b>   <b>devName1</b> [, <b>devName2</b> ] . . . Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported for port, operational, and statistics information; all attached drives are supported for the rest of the arguments.
<b>-a</b>   <b>--asset</b>	Show only asset information, such as drive name, serial number, capacity, revision level, etc.
<b>-g</b>   <b>--geometry</b>	Show only geometric information, such as capacity, etc.
<b>-p</b>   <b>--port</b>	Show only port-specific details, such as port type, number of ports, etc.
<b>-r</b>   <b>--protection</b>	Show drive protection information.

<b>-s --state</b>	Show drive state information with an appropriate description of reason(s) why the drive is in that state.
<b>-S --stats</b>	Show drive statistics information like total read, write, total write/read commands, life used, etc.
<b>-P --Progress</b>	Show the progress of background operation, if any.
<b>-v --version</b>	Shows the Driver, Firmware version of the device.
<b>-R --redirect</b>	Redirect output to the file specified by FILENAME. If the file already exists, redirected content is appended to the file. If an absolute path for FILENAME is not specified, the file is created in the folder where <b>scli</b> is executed.
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

The **show** command lists details, based on the input parameters. By default, if no parameters (**--asset|--geometry|--port|--partition**) are provided after **devlist**, then the device summary is listed as below:

DeviceName	Port	Capacity	State	Boot Device	Serial	Model

In the table above, **DeviceName** specifies the name of the device, as populated in the operating system. **ProductType** specifies the type of the device, while **PortType** specifies the interface type, such as SATA, SAS, SOP, or NVMe. **BootDevice** indicates whether the system is booted from that device or not.

The **State** column shows whether a drive is running as expected or has issues. The device can be in either "Good" or "Critical" or "Warning" or "Not Ready". If there are any operations running in the device, then the device will be in "Not Ready" state. If there are any SMART trips detected then the device will be in "Warning" state.

This command does not support listing geometric, port, partition, drive state, drive status, or drive statistics information when an erase or format operation is in progress on the specified drive. However, asset information is shown, irrespective of whether any operations are running or not.

If optional parameters are specified in the command line, then the details are printed as a summary with a name-value pair.

**Products Supported:**

Parameter	Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe
<b>asset</b>	Yes	Yes	Yes	Yes
<b>Geometry</b>	Yes	Yes	Yes	Yes
<b>Port</b>	Yes	Yes	No	No
<b>Protection</b>	Yes	Yes	No	Yes
<b>State</b>	Yes	Yes	Yes	Yes
<b>Stats</b>	Yes  Life Used Temperature Total Read Total Write Total Read Commands Total Write Commands Total Read Errors Total Write Errors GList Count Lifetime Max Temperature	Yes  Total Read Commands Total Write Commands Number of Logical Blocks Received Number of Logical Blocks Transmitted Read Command Processing Intervals Write Command Processing Intervals Weighted Read Plus Write Commands Weighted Read Plus Write Command Processing Total Corrected Write Errors Total Uncorrected Write Errors Total Corrected Read Errors Total Uncorrected Read Errors	No	Yes  Life Used Temperature Power on Hours
<b>Progress</b>	Yes	Yes	Yes	No
<b>version</b>	Yes	No	No	No

**Note:** The capacity shown is calculated as GB (not GiB) by dividing total drive capacity by 1000, rather than by 1024.

The driver version for the SAS device will be shown as "unknown".

Protection type option is supported only for SCSI devices.

## Examples:

### Windows:

Show details for all supported drives in tabular form:

```
scli show all
```

Redirect geometry information for device **disk1** to file **show.txt**:

```
scli show disk1 --geometry --redirect show.txt
```

Show asset information for devices **disk1** and **disk2** without a banner:

```
scli show disk1,disk2 -a -z
```

### Linux:

Show details for devices **/dev/sda** and **/dev/sdb** in tabular form:

```
scli show /dev/sda,/dev/sdb
```

Redirect port information for all supported drives to the **my.txt** file in the home directory:

```
scli show all -p -R /home/my.txt
```

Show statistics information for device **/dev/sda** without a banner:

```
scli show /dev/sda --nobanner -stats
```

### Solaris:

Show details for devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0** in tabular form:

```
scli show /dev/rdisk/c1t0d0p0, /dev/rdisk/c1t0d1p0
```

Redirect port information for all supported drives to the **my.txt** file in the home directory:

```
scli show all -p -R /home/my.txt
```

Show statistics information for device **/dev/rdisk/c1t0d0p0** without a banner:

```
scli show /dev/rdisk/c1t0d0p0 --nobanner -stats
```

/dev/rdisk/c1t0d0p0

## Exit Code:

0	- Successful
1	- Error

## scli set

Set operational parameters of a drive. The set operation includes enabling or disabling operations and the setting of interval values. Before firing this Operation, it is recommended to fire get Command to get all the supported Operational Parameters of the device and their alias names.

### Synopsis:

```
scli set <devList> [-l|<paramNameValueList>] [-R<filename>]
[-z] [-h|-?]
scli set <devList> [--list|<paramNameValueList>] [--redirect<FILENAME>]
[--nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) on which the set operation is to be performed, as follows: <code>all devName1 [, devName2] . . .</code> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<code>-l --list</code>	This Option will list all the supported operational Parameter Names with their alias names.
<code>paramNameValueList</code>	Name-Value Pair of the Device Operational Parameter to be set. Name and Value are separated by <code>=</code> . And Name is an alias Name for Operational Parameter.
<code>-R --redirect</code>	Re-direct the output to the file specified by <b>FILENAME</b> . If the file already exists, redirected content is appended to the file. Use an absolute path with <b>FILENAME</b> ; otherwise, the file is created in the folder where <b>scli</b> is executed.
<code>-z --nobanner</code>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<code>-h ? --help</code>	Print the help message.

**Input Values For Parameters:**

<b>Index</b>	<b>Parameter</b>	<b>Alias Names</b>	<b>Value</b>	<b>Product Family</b>
1	Device Initiated Power Management	Dipm	enable disable	CloudSpeed
2	Advanced Power Management	Apm	levelValue   disable	CloudSpeed
3	Host Write cache	Hwc	enable   disable	CloudSpeed
4	Auto Partial To Slumber Transition	Aptst	enable   disable	CloudSpeed
5	Spread Spectrum Clock Shift	sscshift	Integer(>=0),default	CloudSpeed
6	Enable Spread Spectrum	esSpectrum	enable   disable,default	CloudSpeed
7	Spread Spectrum Range	ssrange	Integer(>=0,<=3),default	CloudSpeed
8	Gen1 Pre Emphasis	gen1pemphasis	Integer(>=0),default	CloudSpeed
9	Gen2 Pre Emphasis	gen2pemphasis	Integer(>=0),default	CloudSpeed
10	Gen3 Pre Emphasis	gen3pemphasis	Integer(>=0),default	CloudSpeed
11	Gen1 Amplitude	gen1amplitude	Integer(>=0),default	CloudSpeed
12	Gen2 Amplitude	gen2amplitude	Integer(>=0),default	CloudSpeed
13	Gen3 Amplitude	gen3amplitude	Integer(>=0),default	CloudSpeed
14	SATA PHY Speed	spspeed	Integer(>=0,<=2),default	CloudSpeed
15	DevSlp	Devslp	enable   disable	CloudSpeed
16	Security State	ss		CloudSpeed

17	Security Unlock(Master Password)	sump	<password string>	CloudSpeed
18	Security Unlock(User Password)	suup	<password string>	CloudSpeed
19	Security Password(Master )	spm	<password string>	CloudSpeed
20	Security Password(User)	spu	<password string>	CloudSpeed
21	Disable Security(Master Password)	dsmP	<password string>	CloudSpeed
22	Disable Security(User Password)	dsup	<password string>	CloudSpeed
23	Background Media Scan	BMS	enable   disable	Lightning / Lightning Gen. II
24	Auto Verify	autoverify	enable   disable	Lightning / Lightning Gen. II
25	Enable Cache	enablecache	enable   disable	Lightning / Lightning Gen. II
26	Performance	perf	0   1, enable   disable	Optimus
27	Background Function	bf	0   1, enable   disable	Optimus
28	Warning	warning	0   1, enable   disable	Optimus
29	Disable Exception Control	dec	0   1, enable   disable	Optimus
30	Test	test	0   1, enable   disable	Optimus
31	Log Error	le	0   1, enable   disable	Optimus

32	Reporting Method	rm	Hexadecimal(0-0xF)	Optimus
33	Interval Timer	it	Hexadecimal(0-0xFFFFFFFF)	Optimus
34	Writeback Cache Enable	wce	0   1, enable   disable	Optimus
35	Caching Analysis	cap	0   1, enable   disable	Optimus
36	Read Cache Disable	rcd	0   1, enable   disable	Optimus
37	Force Sequential Write	fcw	0   1, enable   disable	Optimus
38	Disable Read Ahead	dra	0   1, enable   disable	Optimus
39	Cache Segment Count	csc	Hexadecimal(0-0xFF)	Optimus
40	Power Loss Timeout	plt	Hexadecimal(0-0xFFFF)	Optimus
41	Background Scan Interval	bsi	Hexadecimal(0-0xFFFF)	Optimus
42	Arbitration Burst	abBurst	Integer(>=0, <=7)	Voyager
43	Low Priority Weight	lowPriWeight	Integer(>=0, <=255)	Voyager
44	Medium Priority Weight	medPriWeight	Integer(>=0, <=255)	Voyager
45	High Priority Weight	highPriWeight	Integer(>=0, <=255)	Voyager
46	Power State	pwrState	Integer(>=0, <=number of power states in identify controller data)	Voyager
47	Number of LBA Ranges	numLbaRange	Integer(>=0)	Voyager
48	Temperature Threshold	tempThreshold	Integer(>=0, <=65535)	Voyager
49	Time Limited Error Recovery	timeErrRecovery	Integer(>=0, <=65535)	Voyager
50	Volatile Write	WCE	Either 0 or 1	Voyager

	Cache Enable			
51	Number of I/O Submission Queues Allocated	numSubQueues	63	Voyager
52	Number of I/O Completion Queues Allocated	numCompleQueues	63	Voyager
53	Aggregation Threshold	aggreThreshold	Integer(>=0, <=255)	Voyager
54	Aggregation Time	aggreTime	Integer(>=0, <=255)	Voyager
55	Interrupt Vector	interruptVector	0	Voyager
56	Coalescing Disable	coalesingDisable	Either 0 or 1	Voyager
57	Disable Normal	disableNormal	Either 0 or 1	Voyager
58	SMART / Health Critical Warnings	SMART	Either 0 or 1	Voyager
59	Autonomous Power State Transition Enable	pwrStateEnable	Either 0 or 1	Voyager
60	Pre-boot Software Load Count	pbslc	Integer(>=0, <=255)	Voyager

### Description:

Upon successful command execution, a table stating the Operational Parameter along with the Command Status is printed. Also, a message indicating success for each drive is printed in the console; if an error occurs, an appropriate message is printed. If the Operational Parameter is not supported, a message stating as Invalid Parameter be displayed.

#### Note:-

*This command is supported for primary and secondary SanDisk devices.*

**Important:** In above table, parameters 5-15 are valid only in case of U & I series of devices. Also, to reflect the changes done by set command, power-cycle of the device is required (for parameters 5-14).

**Important for Optimus:** No need to give "0x" as a prefix where hexadecimal input is required. Value can be provided directly e.g. it=aaaa, bsi=a0 etc.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	Yes

### Examples:

#### Windows:

Enable Background Media Scan for all supported drives:

```
scli set all bms=enable
```

Disabled the Background Media Scan for device **disk1** and suppress the banner:

```
scli set disk1 bms=disable -z
```

#### Linux:

Enable Background Media Scan for devices **/dev/sda** and **/dev/sdb** and suppress the banner:

```
scli set /dev/sda,/dev/sdb bms=enable -z
```

Disable the Background Media Scan for all supported drives.

```
scli set all bms=disable.
```

#### Solaris:

##### **/dev/rdisk/c1t0d0p0**

Enable Background Media Scan for **/dev/rdisk/c1t0d0p0** device and suppress the banner:

```
scli set /dev/rdisk/c1t0d0p0 bms=enable -z
```

Disable the Background Media Scan for all supported drives.

```
scli set all bms=disable.
```

### Exit Code:

0	- Successful
1	- Error

## scli get

Gets operational parameters of a drive.

### Synopsis:

```
scli get <devList> [-l|-p<paramList>] [-R<filename>] [-z] [-h|-?]
scli get <devList> [--list|--parameterList<paramList>]
                    [--redirect <FILENAME>] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) on which the get operation is to be performed, as follows: <b>all</b>   <b>devName1</b> [, <b>devName2</b> ] . . . Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-l --list</b>	This Option will list all the supported operational Parameter Names with their alias names.
<b>-p --parameterList</b>	Comma Separated Names of the Operational Parameters whose values need to be retrieved. Ex: apm, dipm. "all" can be used to retrieve the values of all Operational Parameters.
<b>-R --redirect</b>	Re-direct the output to the file specified by <b>FILENAME</b> . If the file already exists, redirected content is appended to the file. Use an absolute path with <b>FILENAME</b> ; otherwise, the file is created in the folder where <b>scli</b> is executed.
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

Upon successful command execution, a list containing the Name-value pair of Operational Parameters is printed. Also, a message indicating success for each drive is printed in the console; if an error occurs, an appropriate message is printed. If the Operational Parameter is not supported, a message stating as Invalid Parameter be displayed.

**Note:** This command is supported for primary and secondary SanDisk devices.

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	Yes

**Examples:****Windows:**

Lists the supported Operational Parameters of all the drives along with their alias names.

```
scli get all -l
```

Gets the Background Media Scan for device **disk1** and suppress the banner:

```
scli get disk1 -p bms -z
```

**Linux:**

Gets Device Background Media Scan and Auto Verify for devices **/dev/sda** and **/dev/sdb** and suppress the banner:

```
scli get /dev/sda,/dev/sdb -p bms,autoverify -z
```

Gets all the operational Parameters for all the devices.

```
scli get all -p all
```

**Solaris:**

Gets Device Background Media Scan and Auto Verify for devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0** and suppress the banner:

```
scli get /dev/rdisk/c1t0d0p0,/dev/rdisk/c1t0d1p0 -p bms,autoverify -z
```

Gets all the operational Parameters for all the devices.

```
scli get all -p all
```

**Exit Code:**

0	- Successful
1	- Error

## scli log

Read log(s) from a drive. This command is support only for Lightning / Lightning Gen II.

### Synopsis:

```
scli log <devList> <-c|-k > [-R <PATH>] [-z] [-h|-?]
scli log <devlist> <--cmdeventlog|--chkconditionlog>
      [--redirect <PATH>] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) on which to read log information, as follows:  <b>all devName1 [, devName2] . . .</b>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-c --cmdeventlog</b>	Fetch command event log data.
<b>-k --chkconditionlog</b>	Fetch log information about check condition events.
<b>-R --redirect</b>	Redirect the output to <b>PATH</b> , which represents a valid folder or directory where the log file is to be placed. The format of the output filename is as follows:  <b>DeviceName_LogType_TimeStamp.txt</b>
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

Drives log events for various factors, such as error handling, status handling, statistics, accounting, and so forth. This command retrieves logs based on specified parameters and prints the logs in the console. The log can also be redirected optionally to a file using the **-R** flag.

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	No	No	No

**Examples:****Windows:**

Fetch command event log data for all supported drives:

```
scli log all -cmdeventlog
```

Fetches log information about check condition events for device **disk1** and store output in the root folder on the C drive:

```
scli log disk1 -k -R c:\
```

**Linux:**

Fetch log information about check condition events for device **/dev/sda**:

```
scli log /dev/sda -k -z
```

Fetch command event log data for devices **/dev/sda** and **/dev/sdb** and store output in **Folder1** in the home directory:

```
scli log /dev/sdb,/dev/sda --chkconditionlog --redirect  
/home/Folder1/
```

**Solaris:**

Fetch log information about check condition events for device

**/dev/rdisk/c1t0d0p0**:

```
scli log /dev/rdisk/c1t0d0p0 -k -z
```

Fetch command event log data for devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0** and store output in **Folder1** in the home directory:

```
scli log /dev/rdisk/c1t0d0p0, /dev/rdisk/c1t0d1p0 --chkconditionlog --  
redirect /home/Folder1/
```

**Exit Code:**

0	- Successful
1	- Error

## scli getsmart

Retrieve the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) data of drive(s) specified.

### Synopsis:

```
scli getsmart <devList> <-a | -r | -s> [-R <FILENAME>] [-z] [-h|-?]
scli getsmart <devList> < --attributes | --readdata | --status > [--
redirect <FILENAME>] [--nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) for which S.M.A.R.T. data are to be fetched, as follows: <code>all   devName1 [, devName2] . . .</code> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list.
<code>-a, --attributes</code>	Retrieves the S.M.A.R.T. attributes of the device.
<code>-r, --readdata</code>	Retrieves the S.M.A.R.T. READ DATA of the device in raw format.
<code>-s, --status</code>	Retrieves the S.M.A.R.T. status of the device.
<code>-R --redirect</code>	Redirect the output to the file specified by <b>FILENAME</b> . If the file already exists, redirected content is appended to the file. Use an absolute path with <b>FILENAME</b> ; otherwise, the file is created in the folder where <b>scli</b> is executed.
<code>-z --nobanner</code>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<code>-h ? --help</code>	Print the help message.

### Description:

This command retrieves all S.M.A.R.T. attributes, status and read data and lists them in summary with attribute value pairs. If an error occurs, appropriate details and the error status are printed in the console. SMART Read Data will be displayed on console as raw data.

**Note:** This command is supported for primary, secondary, Sandisk and non-Sandisk devices.

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	Yes

**Examples:****Windows:**

Retrieve SMART attributes for all supported drives:

```
scli getsmart all -a
```

Retrieve SMART status for device **disk1** and store output in the **smart.txt** file in the current directory:

```
scli getsmart disk1 -s --redirect smart.txt
```

Retrieve SMART read data for devices **disk1** and **disk2** and suppress the banner:

```
scli getsmart disk1,disk2 -r -nobanner
```

**Linux:**

Retrieve SMART attributes for devices **/dev/sda** and **/dev/sdb**:

```
scli getsmart /dev/sda,/dev/sdb -a
```

Retrieve SMART status for all supported drives and store the output in the **smart.txt** file in the home directory:

```
scli getsmart all -s --redirect /home/smart.txt
```

**Solaris:**

Retrieve SMART attributes for devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0**:

```
scli getsmart /dev/rdisk/c1t0d0p0,/dev/rdisk/c1t0d1p0 -a
```

Retrieve SMART status for all supported drives and store the output in the **smart.txt** file in the home directory:

```
scli getsmart all -s --redirect /home/smart.txt
```

**Exit Code:**

0	- Successful
1	- Error

## scli createsupportarchive

Create a binary file containing crash dump information for specified drive(s).

### Synopsis:

```
scli createsupportarchive <devList> <path> [-e] [-c] [-R <FILENAME>]
    [-z] [-h|-?]

scli createsupportarchive <devList> <path> [--eventlog] [--coredump]
    [--redirect <FILENAME>]
    [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) for which an archive of support logs are to be created, as follows: <b>all</b>   <b>devName1</b> [, <b>devName2</b> ] . . .
<b>path</b>	Place the binary in this path.
<b>-e, --eventlog</b>	Fetches only the event log.
<b>-c, --coredump</b>	Fetches only the core dump.
<b>-R --redirect</b>	Redirect output to the file specified by FILENAME. If the file already exists, redirected content is appended to the file. If an absolute path for FILENAME is not specified, the file is created in the folder where <b>scli</b> is executed.
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

Lightning Drives:

This command dumps all crash dump information about the drive(s) into a binary file. The data being dumped includes logs, inquiry, mode pages, firmware data, defects lists, etc. The binary filename is created in the following format:

```
DeviceName_SerialNo_TimeStamp.bin
```

**Optimus Drives:**

This command will fetch all inquiry pages, log pages, event log, and crash dump. It also fetches the mode pages for current, saved and default for page code 3Fh and subpage FFh. Rest of mode pages are ignored. All these are packed into a zip file using the following format.

```
DRIVE_ESSENTIALS_SerialNo_Firmware_Version_Timestamp.zip
```

Upon successful file creation, a message indicating success is printed in the console; if any error occurs, appropriate details with the error status are printed.

If multiple drives are given as inputs, a file is created for each drive in the format specified above.

**CloudSpeed Drives:**

This command fetches details of 'IdentifyDevice Data', 'eventlog', 'SMARTAttributesDump', 'DumpSnapShot', 'DumpScram', 'DumpLog3E' and 'Log pages'. And these are zipped into following file name format.

```
DRIVE_ESSENTIALS_SerialNo_Timestamp.zip
```

**Note:** *If an error occurs, or if a specified drive is busy performing any operation, the binary file is not created for the drive(s), and an appropriate error message is printed in the console.*

*If the dump trace is available in the drive and is fetched successfully from the drive, the dump trace is erased from the drive.*

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	Yes

**Examples:****Windows:**

Create a binary file of support logs in the current directory for all supported drives:

```
scli createsupportarchive all .
```

Create a binary file of only event logs in the current directory for all supported drives:

```
scli createsupportarchive all . -e
```

Create a binary file of support logs for devices **disk1** and **disk2** in **Folder1** and suppress the banner:

```
scli createsupportarchive disk1,disk2 c:\Folder1\ --nobanner
```

Show the help message for the **createsupportarchive** command:

```
scli createsupportarchive -help
```

**Linux:**

Create a binary file of support logs in the **Desktop** directory for all supported drives:

```
scli createsupportarchive all /root/Desktop/
```

Create a binary file of support logs for device **/dev/sda** in **Folder1**:

```
scli createsupportarchive /dev/sda /home/Folder1/ --nobanner
```

**Solaris:**

Create a binary file of support logs in the **Desktop** directory for all supported drives:

```
scli createsupportarchive all /root/Desktop/
```

Create a binary file of support logs for device **/dev/rdisk/c1t0d0p0** in **Folder1**:

```
scli createsupportarchive /dev/rdisk/c1t0d0p0  
/home/Folder1/ --nobanner
```

**Exit Code:**

0	- Successful
1	- Error

## scli locate

Locates the specified drive(s).

### Synopsis:

```
scli locate <devlist> <-b|-s> [-R <FILENAME>] [-z] [-h|-?]
scli locate <devlist> <--start|--stop>
                [--redirect <FILENAME>] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) on which LEDs should blink, as follows: <b>all devName1 [, devName2] . . .</b> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-b --start</b>	Blink the LEDs.
<b>-s --stop</b>	Stop blinking the LEDs.
<b>-R --redirect</b>	Redirect output to the file specified by FILENAME. If the file already exists, redirected content is appended to the file. If an absolute path for FILENAME is not specified, the file is created in the folder where <b>scli</b> is executed.
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

This command blinks the LEDs on the specified drive(s), as follows:

```
scli locate DISK0,DISK2 -b
```

Upon successful completion, no message is printed in the console; if an error occurs, appropriate details with the error status are printed.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	No	No	No

## Examples:

### Windows:

Starts blinking on **all** the supported devices.

```
scli locate all --start
```

Stops blinking on **disk1** with banner suppressed.

```
scli locate disk1 -s -z
```

### Linux:

Starts blinking on **all** the supported devices.

```
scli locate all --start
```

Stops blinking on **/dev/sda** with banner suppressed.

```
scli locate /dev/sda -s -z
```

### Solaris:

Starts blinking on **all** the supported devices.

```
scli locate all --start
```

Stops blinking on **/dev/rdisk/c1t0d0p0** with banner suppressed.

```
scli locate /dev/rdisk/c1t0d0p0 -s -z
```

## Exit Code:

0	- Successful
1	- Error

## scli selftest

Run the short or extended self test on the specified drive(s).

### Synopsis:

```
scli selftest <devlist> [<-s|-e [-b]>|[-P]] [-R <FILENAME>]
                    [-z] [-h|-?]

scli selftest <devlist> <--shorttest|--extendedtest|--Progress>
                    [--redirect <FILENAME>] [--blocked] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) on which self-tests should run, as follows:  <code>all devName1 [, devName2] . . .</code>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-s --shorttest</b>	Run only the short test.
<b>-e --extendedtest</b>	Run only the extended test.
<b>-b --blocked</b>	Perform the self-test operation as a blocking operation, where the CLI returns after the self-test operation completes. By default, the CLI returns immediately. To query self-test operation progress, use the <b>-P --Progress</b> option.
<b>-P --Progress</b>	Use this option to query progress of the self-test operation, which is performed in the background. When self-test is not in progress, this option returns the result of the last self-test operation.
<b>-R --redirect</b>	Redirect output to the file specified by FILENAME. If the file already exists, redirected content is appended to the file. If an absolute path for FILENAME is not specified, the file is created in the folder where <b>scli</b> is executed.

- `-z|--nobanner` Suppress the banner that **scli** prints, which includes information, such as copyright, license, etc.
- `-h|?|--help` Print the help message.

### Description:

This command runs diagnostic self-tests in the specified drive(s). The short test requires only a few minutes to finish; the extended test requires 15 minutes or more to complete. The percentage of completion is shown. If an error occurs, the error and its details are printed in the console; on successful completion, a message indicating success per drive is printed in the console. The order in which status is printed depends on the order in which drives complete execution.

Because erase, format, and update firmware takes precedence over self-test operations, an ongoing self-test operation is aborted if any of the following operations are executed:

```
scli format
scli erase
scli update
```

**Note:** *Self tests are not performed on the drive in which the operating system has been booted.*

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	No

### Examples:

#### Windows:

Initiate the **shorttest** operation on all supported drives:

```
scli selftest all --shorttest
```

Initiate the **extendedtest** operation on **disk1** and block CLI inputs until the **selftest** command completes or fails:

```
scli selftest disk1 --extendedtest --blocked
```

Show the progress, if any, at one point in time of an **extendedtest** or **shorttest** operation on **disk1** and **disk2**:

```
scli selftest disk1,disk2 -P
```

#### Linux:

Initiate an **extendedtest** operation on all supported drives:

```
scli selftest all --extendedtest
```

Show the progress, if any, of a **selftest** operation on devices **/dev/sda** and **/dev/sdb** and block CLI inputs until the **selftest** command completes.

```
scli selftest /dev/sda,/dev/sdb --Progress -blocked
```

### Solaris:

Initiate an **extendedtest** operation on all supported drives:

```
scli selftest all --extendedtest
```

Show the progress, if any, of a **selftest** operation on devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0** and block CLI inputs until the **selftest** command completes.

```
scli selftest /dev/rdisk/c1t0d0p0,/dev/rdisk/c1t0d1p0 --Progress --blocked
```

### Exit Code:

- |   |              |
|---|--------------|
| 0 | - Successful |
| 1 | - Error      |

## scli format

Format the specified drive(s).

### Synopsis:

```
scli format <devlist> [[-w][-p <0|1|2|3>] [-i <pattern>] [-f]
    [-s <n>][-m <n>] [-l] [-t <nvmeLBAformatTypeId>] [-P] [-b]
    [-R <FILENAME>] [-z] [-h|-?]
```

```
scli format <devlist> [--slow][--protectiontype <0|1|2|3>]
    [--initpattern <pattern>] [--force][--blocksize <n>]
    [--maxlba <n>] [--nvmeListFormatType]
    [--nvmeSetFormatType <nvmeLBAformatTypeId>]
    [--Progress] [--blocked]
    [--redirect <FILENAME>] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) to be formatted, as follows: <b>all devName1 [, devName2] . . .</b> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-p --protectiontype</b>	Specify the protection type.
<b>-i --initpattern</b>	Specify the initialization pattern, which can be given as space-separated hexadecimal value within quotes.
<b>-b --blocked</b>	Perform the format operation as a blocking operation, where the CLI returns after the format operation completes. By default, the CLI returns immediately. To query format operation progress, use the <b>-P --Progress</b> option.
<b>-s --blocksize</b>	Specify the logical block size.
<b>-m --maxlba</b>	Specifies the maximum LBA the device to support. If value is zero then defaults to original max LBA.
<b>-w --slow</b>	Does a format with an initialization pattern.
<b>-l --nvmeListFormatType</b>	This option is applicable for NVMe devices only.

List all the supported LBA Formats in table structure as below:

FormatTypeID	MetaDataSize	LbaDataSize	RelativePerformance

**FormatTypeID:** Unique ID for the Format Type. This ID is to be used in `nvmeListFormatType` option to select LBA Format.

**MetaDataSize:** Number of metadata bytes provided per LBA .

**LbaDataSize:** LBA data size supported.

**RelativePerformance:** This field indicates the relative performance of the LBA format indicated relative to other LBA formats supported by the controller.

**-t|--nvmeSetFormatType**

This option is applicable for NVMe devices only. Use this option to format NVMe device with a chosen LBA format Type listed in `nvmeListFormatType` option.

**-P|--Progress**

Use this option to query the progress of the format operation, which is performed in the background.

**-f|--force**

Force the format operation.

**-R|--redirect**

Redirect output to the file specified by FILENAME. If the file already exists, redirected content is appended to the file. If an absolute path for FILENAME is not specified, the file is created in the folder where **scli** is executed.

**-z|--nobanner**

Suppress the banner that **scli** prints, which includes information, such as copyright, license, etc.

**-h|?|--help**

Print the help message.

### Description:

This command formats the specified drive(s). The initialization pattern specifies the pattern to be written on each logical block while formatting. Define this pattern in hexadecimal with space-separated values within quotes.

For example: "AA BB CC DD"

Use the **-f** flag to force a format operation. By default, **scli** asks for confirmation. For protection information, refer to T10 standards.

For older SanDisk Lightning Series drives, supported block sizes are 512 and 520 bytes only. Only the 512-byte block size supports protection type 0, 1, and 2. For block size 520, only protection type 0 is supported.

For newer SanDisk Lightning Series drives, supported block sizes are 512, and 4096 bytes. Block sizes of 512 and 4096 bytes support protection type 0, 1 and 2.

If an error occurs, the error and its details are printed in the console; on successful completion, the completion percentage is printed in the console.

**Note:** You cannot issue the **format** command to a drive on which the operating system is booting. Also, **scli** prompts for drives that have valid partitions.

**WARNING:** When the logical block size of a drive is not in multiples of 512 bytes, geometry information is not available, as the file system does not support other block sizes. Linux does not discover such drives, and Windows shows such drives in disk management but does not allow you to execute any operations on them.

If value for blocksize & maxlba are mentioned, then user should take care of the size limit ( i.e., multiplication of maxlba & block size exceeds the device size, the device may return invalid param list error )

Format on a format corrupted device changes the maxLBA & defaults to original max LBA

Formatting with new block size will reset the max LBA to original capacity for the given block size.

### Products Supported:

Parameter	Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
slow	Yes	No	No	No
protectiontype	Yes	Yes	No	Yes
initpattern	Yes	No	No	No
blocksize	Yes	Yes	No	No
maxlba	Yes	Yes	No	No
nvmeListFormatType	No	No	No	Yes
nvmeSetFormatType	No	No	No	Yes

## Examples:

### Windows:

Initiate a **format** operation on all supported drives:

```
scli format all
```

Initiate a **format** operation with initialization pattern 'AA BB' and protection type 1 on device **disk1**:

```
scli format disk1 --protection 1 --initpattern AA BB
```

Show the progress, if any, of a **format** operation on devices **disk1** and **disk2** and block CLI inputs until the **format** command completes or fails:

```
scli format disk1,disk2 --Progress --blocked
```

### Linux:

Forcefully initiate a **format** operation on all supported drives and block CLI inputs until the **format** command completes or fails:

```
scli format all --force --blocked
```

Initiate a **format** operation with initialization pattern '01 02' on device **/dev/sda**:

```
scli format /dev/sda -i 01 02
```

Show the progress, if any, at one point in time of a **format** operation on devices **/dev/sdb** and **/dev/sdb**:

```
scli format /dev/sdb,/dev/sda --Progress
```

### Solaris:

Forcefully initiate a **format** operation on all supported drives and block CLI inputs until the **format** command completes or fails:

```
scli format all --force --blocked
```

Initiate a **format** operation with initialization pattern '01 02' on device **/dev/rdisk/c1t0d0p0**:

```
scli format /dev/rdisk/c1t0d0p0 --i 01 02
```

Show the progress, if any, at one point in time of a **format** operation on devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0**:

```
scli format /dev/rdisk/c1t0d0p0,/dev/rdisk/c1t0d1p0,/dev/sda --  
Progress
```

## Exit Code:

0	- Successful
1	- Error

## scli erase

Perform the secure erase operation on the specified drive(s).

### Synopsis:

```
scli erase <devlist> <[-n|-e <-m|-u password>]|-d|-B|-c|-o
<pattern>|-t|-P> [-b] [-f] [-R <FILENAME> ] [-z] [-h|-?]
```

```
scli erase <devlist> <[--normal|--enhanced <--master|--user
password>]|--userdataerase|--blockererase|--crypto|-- overwrite
<pattern>|--trim|--Progress] [--blocked] [--force] [--redirect
<FILENAME>] [--nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) to be erased, as follows: <code>all devName1 [, devName2] . . .</code> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported
<code>-f, --force</code>	Forces the erase operation without asking for user confirmation .
<code>-n, --normal</code>	Executes normal security erase operation.
<code>-e, --enhanced</code>	Executes enhanced security erase operation.
<code>-t, --trim</code>	Trims LBAs from 0 to Max. User Addressable LBAs, wipes the entire drive, can be an alternative for secure erase in windows environment
<code>-B, --blockererase</code>	Executes blockererase sanitize operation.
<code>-o &lt;pattern&gt;, --overwrite &lt;pattern&gt;</code>	Executes overwrite sanitize operation This option takes a overwrite pattern, 32-bit integer as a mandatory input parameter.
<code>-c, --crypto</code>	Executes cryptoscrumble sanitize operation.

- d, --userdataerase**     User Data Erase – Applicable only for NVMe Devices.
- m, --master**             Master Password option for Normal or Enhanced Erase.
- u, --user**                User Password option for Normal or Enhanced Erase.
  
- R|--redirect**            Redirect output to the file specified by FILENAME. If the file already exists, redirected content is appended to the file. If an absolute path for FILENAME is not specified, the file is created in the folder where **scli** is executed.
- b|--blocked**            Perform the erase operation as a blocking operation, where the CLI returns after the erase operation completes. By default, the CLI returns immediately.
  
- P|--Progress**           This option is used to query the progress of the erase operation, which is performed in the background.
  
- z|--nobanner**          Suppress the banner that **scli** prints, which includes information, such as copyright, license, etc.
  
- h|?|--help**             Print the help message.

### Description:

This command issues the secure erase operation. Since this is a destructive operation, **scli** prompts for confirmation before execution of this operation. To force the operation, use the **-f** flag.

If an error occurs, the error and its details are printed in the console; on successful completion, the completion percentage is printed in the console.

**Note:** *The **erase** command is not issued to the drive in which the operating system has been booted. Also, **scli** prompts for the drives that have valid partitions.*

*The **erase** command(normal/enhanced) is not supported in Windows 2012 R2.*

*Default erase type for SAS devices is block erase.*

### Products Supported:

Erase Type	Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Security Erase	No	No	Yes	No

Normal				
Security Erase Enhanced	No	No	Yes	No
Full Drive Trim	No	No	No	No
Sanitize - Block Erase	Yes	No	Yes	No
Sanitize - Overwrite	No	No	Yes	No
Cryptographic Erase	No	No	Yes	Yes
User Data Erase	No	No	No	Yes

## Examples:

### Windows:

Initiate **Security Erase(normal)** operation on all supported drives:

```
scli erase all -n
```

Forcefully initiate **Block erase** operation on device **disk1** and block CLI inputs until the command completes:

```
scli erase disk1 -B -f -b
```

Display the progress, if any, of an **erase** operation on devices **Disk1** and **Disk2** and block CLI inputs until the **erase** command completes:

```
scli erase Disk1,Disk2 --Progress -blocked
```

### Linux:

Forcefully initiate an **Security Erase(normal)** operation on all supported drives and suppress the banner:

```
scli erase all -n --nobanner --force
```

Show the progress, if any, at one point in time of an **erase** operation on devices **/dev/sda** and **/dev/sdb**:

```
scli erase /dev/sda,/dev/sdb -P
```

### Solaris:

Forcefully initiate an **Security Erase(normal)** operation on all supported drives and suppress the banner:

```
scli erase all -n --nobanner --force
```

Show the progress, if any, at one point in time of an **erase** operation on devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0**:

```
scli erase /dev/rdisk/c1t0d0p0,/dev/rdisk/c1t0d0p0 -P
```

**Exit Code:**

- 0 - Successful
- 1 - Error

## scli update

Update the drive firmware with new firmware on the specified drive(s).

### Synopsis:

```
scli update <devlist> [-p <imagepath>] [-v | -m <modetype>] [-l
<numberOf512Bytes>] [-f] [-R<filename>] [-z] [-h|-?]
```

```
scli update <devlist> [--path <imagepath>] [--validate] [--mode
<modetype>] [-length <numberOf512Bytes>] [--force] [--redirect
<filename>] [-z] [-h|-?]
```

### Parameters:

**devList**

List drive(s) on which firmware is to be updated, as follows:

**all** | **devName1** [, **devName2**] . . .

Device names are OS-specific. For example, in Windows they are as shown in Disk Management (**Disk0**, **Disk1**, and so forth). In Linux they are **/dev/sdx** or

**/dev/nvmeXnY**, or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If **all** is specified, only SanDisk drives are supported.

**-p** | **--path**

Provide the absolute path to the new firmware image.

**-v** | **--validate**

Validate the firmware image with the specified drive(s).

**-m** | **--mode**

Mode Type to update firmware. Valid mode types are as below:

<modetype>	Mode Description	Download	Save	Activate
<b>dnld-activate</b>	Download microcode, save and activate	one segment only	Yes	Yes
<b>dnld-wo-activate</b>	Download with offsets, save and activate	one or more segments	Yes	Yes
<b>dnld-wo</b>	Download with offsets and save microcode for future use	one or more segments	Yes	No
<b>activate</b>	Activate downloaded microcode	No	No	Yes

**-l** | **--length**

Valid only with **<modetype>** as **dnld-wo-activate** or **dnld-wo**. **<numberOf512Bytes>** is the transfer length expressed

	as number of 512 bytes. For example, to set transfer length as 1024 bytes, the field <code>&lt;numberOf512Bytes&gt;</code> should have 2.
<code>-f --force</code>	Force the update process.
<code>-R --redirect</code>	Redirect the output to the file specified by <b>FILENAME</b> . If the file already exists, redirected content is appended to the file. Use an absolute path with <b>FILENAME</b> ; otherwise, the file is created in the folder where <b>scli</b> is executed. If redirect option is set along with mode option then force option is mandatory for all values of mode option expect <b>activate</b> .
<code>-z --nobanner</code>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<code>-h ? --help</code>	Print the help message.

### Description:

The **validate** option helps in validating the specified drive(s) that are supported for the firmware image. This option prints the image version, supported model, and the following information for supported drives:

Device Name	Serial Number	FW Version	Compatible
-------------	---------------	------------	------------

For the **validate** option, the above information is printed only for drives that are supported; information for unsupported drives is not printed.

When performing an update without the **validate** option, the above information is printed for all specified drives in the **devlist**, and the "Compatible" column shows whether a drive is upgradable or not. If all specified drives in the **devlist** have a lower version than the new firmware version, then the above information is printed and the tool prompts for confirmation before continuing to upgrade the firmware.

If one or more drives have the same or higher revision than the supplied firmware image, a "\*" mark is placed in the "FW Version" column to indicate a warning message. In this case, **scli** prints a message that one or more drives have the same or higher version and asks for confirmation before proceeding.

When performing an update, if one or more specified drives are unsupported, the above information is printed with the "Compatible" column as "NO" for each such drive, and the command fails with appropriate error status.

Use the **force** option to force the update process. By default the tool asks for confirmation; also, if the firmware revision is found to be lower than in a specified drive's existing version, the tool asks for confirmation. In both of these cases, you can use the **-f** flag to force the process.

Use the **redirect** option to redirect the output to **FILENAME** with an absolute path. The redirect *MUST* be given only with either validate option or force option.

If an error occurs, the error and its details are printed in the console; on successful completion, a message indicating success for each drive is printed in the console.

#### The Default Update (with no **-m** or **-v** option)

For Boot Drive:

- **scli** will update with one segment

For Non-Boot Drive:

- **scli** will update microcode with one or more segments

#### **Note:**

1. **-path** is a mandatory with **-validate**
2. **--path** is mandatory with **-mode** for all **<modetype>** except **activate**
3. **-redirect** is valid with **-mode** only when **--force** is given
4. **-force** is not allowed with **-validate**
5. **-length** is allowed only with **-mode** with **<modetype>** as **dnld-wo-activate** or **dnld-wo**

**WARNING:** Update Firmware on Boot Device with mode type **dnld-wo** or **dnld-wo-activate** is not suggested because it can result in critical state of drive.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	*Yes

\*:For Voyager,

- In windows and Linux
  - Only default mode is supported.
  - The new firmware image will be reflected only at next reset.

## Examples:

### Windows:

Update the firmware of device **disk1** with the given firmware image in

**<modetype>** as **dnld-activate** :

```
scli update disk1 -p prod_codedownloadpackage_sas.bin -m dnld-activate
```

Validate the firmware of all supported drives with the given firmware image and store output to the **update.txt** file in the current directory:

```
scli update all -p prod_codedownloadpackage_sas.bin -v -R update.txt
```

Update given firmware image with segment length as **two 512 bytes** (i.e the transfer length is 1024 bytes) in **disk4**:

```
scli update disk4 -p prod_codedownloadpackage_sas.bin -m dnld-wo-activate -l 2
```

### Linux:

Validate the given firmware image on devices **/dev/sda** and **/dev/sdb**:

```
scli update /dev/sda,/dev/sdb -p prod_codedownloadpackage_sas.bin --validate
```

Update the firmware of all supported drives with the given firmware image, but do so only when the system does a cold reboot:

```
scli update all -p prod_codedownloadpackage_sas.bin -m dnld-wo
```

### Solaris:

Validate the given firmware image on devices **/dev/rdisk/c1t0d0p0** and **/dev/rdisk/c1t0d1p0**:

```
scli update /dev/rdisk/c1t0d0p0,/dev/rdisk/c1t0d1p0 --path prod_codedownloadpackage_sas.bin --validate
```

Activate the firmware of all supported drives for which download of firmware image is done earlier:

```
scli update all --mode activate
```

## Exit Code:

0	- Successful
1	- Error

## scli dumptrace

Performs operations related to dump trace on specified drive(s).

### Synopsis:

```
scli dumptrace <devlist> [-d|-c|-g <path>] [-R <FILENAME>] [-z] [-h|-?]
scli dumptrace <devlist> [--detail|--clear|--get <path>] [--Redirect<FILENAME>]
                                [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) on which dump trace operation needs to be done, as follows: <b>all devName1 [, devName2] . . .</b> Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. In both Linux and Windows, drive names can be no more than 16 characters long. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-d --detail</b>	Displays detailed information of dump trace.
<b>-c --clear</b>	Clears the dump trace.
<b>-g --get</b>	Get dumptrace in the path provided.
<b>-R, --redirect</b>	Redirects the output to the file specified by FILENAME. If the file already exists, the redirected content will be appended to the file. FILENAME should have the absolute path else the file will be created in the current folder from where the scli is being executed.
<b>-z --nobanner</b>	Suppress the banner that <b>scli</b> prints, which includes information, such as copyright, license, etc.
<b>-h ? --help</b>	Print the help message.

### Description:

This command does operations related to dump trace on the specified drive(s), as follows:

```
scli dumptrace DISK0,DISK2 -d
```

Upon successful completion, detailed information about the dump trace is printed; if an error occurs, appropriate details with the error status are printed.

```
scli dumptrace DISK0,DISK2 -c
```

Upon successful completion, clears the dump trace from device & prints the status of clear operation; if an error occurs, appropriate details with the error status are printed.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	"Get" is the only option supported	No	No

### Examples:

#### Windows:

Clears the dumptrace in **disk1**.

```
scli dumptrace disk1 -c
```

Displays whether dumptrace info present or not in all devices

```
scli dumptrace all
```

#### Linux:

Clears the dumptrace in **/dev/sda**.

```
scli dumptrace /dev/sda -c
```

Displays whether dumptrace info present or not in all devices

```
scli dumptrace all
```

#### Solaris:

Clears the dumptrace in **/dev/rdisk/c1t0d0p0**.

```
scli dumptrace /dev/rdisk/c1t0d0p0 -c
```

Displays whether dumptrace info present or not in all devices

```
scli dumptrace all
```

### Exit Code:

0	- Successful
1	- Error

## scli aop

Adjust OverProvisioning (AOP) of the drives, supported subcommands - Get, Set, and Reset on secondary drives.

### Synopsis:

```
scli aop <devlist> <-g|-s <New-Max-LBA>|-r|> [-f] [ -R <FILENAME>] [-z]
[-h|-?]
```

```
scli aop <devlist> <--get|--set <New-Max-LBA>|--reset> [--force] [--
redirect <FILENAME>] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) on which to issue AOP, as follows:  <b>all</b>   <b>devName1</b> [, <b>devName2</b> ] . . .  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-g, --get</b>	Gets the actual user addressable max LBA. Force option is not allowed with this option.
<b>-s, --set</b>	Sets the user addressable max LBA to a new value that must be supplied after this option.
<b>-r, --reset</b>	Resets the user addressable max LBA to actual value.
<b>-f, --force</b>	Forcing the over provisioning, valid for set (-s, --set) and reset (-r, --reset) options only.
<b>-R, --redirect</b>	Redirects the output to the file specified by <b>FILENAME</b> . If the file already exists, the redirected content will be appended to the file. <b>FILENAME</b> should have the absolute path else the file will be created in the current folder from where the scli is being executed. Force is mandatory with redirect for set and reset options.
<b>-z, --nobanner</b>	For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.

-h|-?, --help Prints the help message.

### Description:

Adjust Overprovisioning (AOP) of the drives, supported subcommands - Get, Set, and Reset. The set command modifies the user accessible max LBA. The get command returns the actual user addressable max LBA and the reset command resets any modified max LBA back to actual value.

**Note:** AOP is not supported on non-SanDisk devices and primary devices, supported only on SATA devices.

**Limitation:** Certain firmware revisions in U and I series SSDs, do not support "READ NATIVE MAX ADDRESS EXT - 27h" but the "Host Protected Area (HPA) feature set" bit may still be on. This is a familiar firmware issue. This section will be updated later with the exact U and I Firmware revisions responsible for such a behavior.

**WARNING:** Do not perform any operation on the device after an "aop" set or reset operation, until the drive undergoes a power-on reset. The changes will be reflected to the Operating system only after the power-on-reset.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
No	No	Yes	No

### Examples:

#### Windows:

Gets the actual user addressable max LBA for disk1, disk2 and disk3 and redirects the output to file aop.txt:

```
scli aop disk1,disk2,disk3 -g -R aop.txt
```

Sets the user addressable max LBA value for disk1 to 117220823 (with force)

i.e. without prompting for confirmation:

```
scli aop disk1 -s 117220823 -f
```

#### Linux:

Resets the user addressable max LBA to their actual or original value for all drives:

```
scli aop all -r
```

### Exit Code:

0 - Successful  
1 - Error

## scli atalog

Read log(s) from one or more SATA/AHCI SSDs. Decoding of the following log addresses is supported by the tool. Raw option is supported on all available pages.

1. Extended Comprehensive SMART Error Log(3h)
2. Device Statistics(4h)
3. Extended SMART Self-Test Log(7h)
4. NCQ Command Error(10h)
5. SATA PHY Event Counter(11h)

### Synopsis:

```
scli atalog <devList> <-d | [-a <logAddress> [-p <pageList>]]> [-r]
[-R <PATH>] [-z] [-h|-?]
```

```
scli atalog <devList> <--directory |
--address <logAddress> [--pages <pageList>]]>
--raw [--redirect <PATH>] [--nobanner] [--
help]
```

### Parameters:

<b>devList</b>	List drive(s) on which to read log information, as follows:  <b>all devName1[, devName2]...</b>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-d --directory</b>	Lists all the log addresses supported by the device(s). This includes the General Purpose Logs and SMART Log. Log address, description and number of pages at the log address are printed. Only those Log Addresses are displayed in which Number of pages are greater than zero.
<b>-a --address</b>	Specifies the log address (0h to FFh) from which log pages are to be displayed. Log address ( <i>logAddress</i> ) shall be specified in hexadecimal number (e.g. 3h for Extended Comprehensive SMART Error Log)
<b>-p --pages</b>	Pages from the log address to be displayed. This is an optional argument, if not specified, all the pages are

displayed. The page numbers are specified either in decimal number. The following notations are supported for *pageList*

**startPage..endPage** : Displays the log pages from *startPage* till *endPage* (e.g. 3..10)

**startPage..+count** : Displays count number of pages from *startPage* (e.g. 2..+3, displays 3 pages from page number 2)

**p1[,p2 ...]** : List of log pages to be displayed (e.g. 3, 7, 8 – displays log pages 3, 7 and 8)

- r|--raw** This option dumps the raw data buffer on the console for the actual atalog command. This is only supported with **-d|--directory** or **-a|--address** options.
- R|--redirect** Redirect the output to **PATH**, which represents a valid folder or directory where the log file is to be placed. The format of the output filename is as follows:  
**DeviceName\_LogType\_TimeStamp.txt**
- z|--nobanner** Suppress the banner that **scli** prints, which includes information, such as copyright, license, etc.
- h|?|--help** Print the help message.

## Description:

Drives log events for various factors, such as error handling, status handling, statistics, accounting, and so forth. This command retrieves logs based on specified parameters and prints the logs in the console. The log can also be redirected optionally to a file using the **-R** flag. If the Log Address is not supported by Tool, a message stating the same will be displayed. For all the supported Log Addresses by Tool, If that Log Address is not supported by device or it does not contain any Pages, a message saying "No Log Pages Found" will be displayed. It is recommended to list the directory first to get all the log addresses supported by device. For ex:- Extended SMART Self Test Logs are not supported by U-Series drive, so they will not be listed in directory by U-Series drive. If user tries to get the Extended SMART Self Test Logs, then message stating "No Log Pages Found will be displayed".

**Note:** *atalog* is supported for primary and secondary Sandisk SATA devices

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	Yes	Yes	No

**Examples:****Windows:**

Fetch log directory for **all** supported drives:

```
scli atalog all -d
```

Fetch log pages ranging from log page number "0" to log page number "3" for log page with log address "4h" for **disk1** and **disk2** and store output in the root folder on the C drive:

```
scli atalog disk1,disk2 -a 4h -p 0..3 -R c:\
```

Fetch 5 log pages starting from log page number 3 in log address 3h **all** supported disks:

```
scli atalog all -a 3h -p 3..+5
```

**Linux:**

Fetch all supported log types for **all** supported drives:

```
scli atalog all -d
```

Fetch log pages ranging from log page number "0" to log page number "3" for log page with log address "4h" for **/dev/sda** and **/dev/sdb** and store output in **/root/home/folder1**:

```
scli atalog /dev/sda,/dev/sdb --address 4h -pages 0..3  
-R /root/home/folder1
```

Fetch all log pages from log address 3h for **/dev/sda**:

```
scli atalog /dev/sda -a 3h
```

**Solaris:**

This command is not supported in Solaris.

**Exit Code:**

```
0          - Successful  
1          - Error
```

**scli idd**

Retrieves the identify device data of a drive.

**Synopsis:**

```
scli idd <devList> [-R<filename>] [-z] [-h|-?]  
scli idd <devList> [--redirect<filename>] [--nobanner] [--help]
```

**Parameters:**

- devList** List drive(s) on which to get identify device data, as follows:  
**all** | **devName1** [ , **devName2** ] . . .  
Device names are OS-specific. For example, in Windows they are as shown in Disk Management (**Disk0**, **Disk1**, and so forth). In Linux they are **/dev/sdx** or **/dev/nvmeXnY**, or however drives are identified. Enter more than one drive name as a comma-separated list. If **all** is specified, only SanDisk drives are supported.
- R, --redirect** Redirects the output to the file specified by **FILENAME**. If the file already exists, the redirected content will be appended to the file. **FILENAME** should have the absolute path else the file will be created in the current folder from where the scli is being executed. Force is mandatory with redirect for set and reset options.
- z, --nobanner** For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
- h|-?, --help** Prints the help message.

**Description:**

Upon successful command execution, a list containing the identify device data for each drive is displayed. The Identify Device Data contains Information regarding optional features and command support. If the host issues a command that is indicated as not supported in IDENTIFY DEVICE DATA, the device shall respond as if an unsupported command has been received.

**Note:** *This command is supported for primary and secondary SanDisk SATA devices.*

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
No	No	Yes	No

**Examples:****Windows:**

List all IDENTIFY DEVICE information for all supported devices:

```
scli idd all
```

**Linux:**

Gets the identify data for devices **/dev/sda** and **/dev/sdb** and suppress the banner:

```
scli idd /dev/sda,/dev/sdb -z
```

Gets the Identify Data and redirects the output to File

```
scli idd all -R C:\idd.txt
```

**Solaris:**

This command is not supported in Solaris.

**Exit Code:**

0	- Successful
1	- Error

## scli ahci

Retrieves the contents of the host AHCI configuration registers.

### Synopsis:

```
scli ahci [-R<filename>] [-z] [-h|-?]
scli ahci [--redirect<filename>] [--nobanner] [--help]
```

### Parameters:

- R, --redirect      Redirects the output to the file specified by **FILENAME**. If the file already exists, the redirected content will be appended to the file. **FILENAME** should have the absolute path else the file will be created in the current folder from where the scli is being executed. Force is mandatory with redirect for set and reset options.
- z, --nobanner      For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
- h|-?, --help      Prints the help message.

### Description:

Upon successful command execution, contents of host AHCI configuration registers are displayed. Also, a message indicating success is printed in the console, if an error occurs, an appropriate message is printed.

**Important:** *This command is only supported in Linux environment and not in Windows. Also, it does not take any device name as its input.*

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
NA	NA	NA	No

**Examples:****Linux:**

Gets the contents of AHCI configuration registers data on console:

```
scli ahci
```

Gets the contents of AHCI configuration registers and redirects the output to File

```
scli ahci -R C:\ahci.txt
```

**Solaris/Windows:**

This command is not supported.

**Exit Code:**

0	- Successful
1	- Error

## scli standby

Puts the device in standby mode.

### Synopsis:

```
scli standby <devList> [-R<filename>] [-z] [-h|-?]  
scli standby <devList> [--redirect<filename>] [--nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) to be put on standby mode, as follows:  <code>all   devName1 [ , devName2 ] . . .</code>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<code>-R, --redirect</code>	Redirects the output to the file specified by <b>FILENAME</b> . If the file already exists, the redirected content will be appended to the file. <b>FILENAME</b> should have the absolute path else the file will be created in the current folder from where the scli is being executed.  Force is mandatory with redirect for set and reset options.
<code>-z, --nobanner</code>	For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
<code>-h -?, --help</code>	Prints the help message.

### Description:

Upon successful command completion, puts the device in standby mode. In Standby mode the device is capable of responding to commands but the device may take longer to complete commands than in the idle mode. Power consumption may be reduced from that of idle mode.

**Note:** *standby is not supported on non-SanDisk devices and primary devices, supported only on SATA devices.*

**Products Supported:**

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
No	No	Yes	No

**Examples:****Windows:**

Puts 'disk1' in standby mode:

```
scli standby disk1
```

Puts all supported devices in standby mode and redirects the output to file:

```
scli standby all -R C:\standby.txt
```

**Linux:**

Puts **/dev/sda** and **/dev/sdb** in standby mode and suppress the banner:

```
scli standby /dev/sda,/dev/sdb -z
```

**Solaris:**

This command is not supported in Solaris.

**Exit Code:**

0	- Successful
1	- Error

## scli pwrconsumptionid

Provides a method to select a power consumption level.

### Synopsis:

```
scli pwrconsumptionid <devList> < -m <pageControlParam> -p
    <pwrIdentifierValue>| -g |-l > [-R<filename>] [-z] [-h|-?]
```

```
scli pwrconsumptionid <devList> < --mode <pageControlParam> --powerid
<pwrIdentifierValue> |--get|--list > [--redirect<filename>] [--
nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) to be put on standby mode, as follows:  <code>all   devName1 [, devName2] . . .</code>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<code>-m, --mode</code>	Option that takes page control field as its value. The page control (PC) field specifies the type of mode parameter values to be returned in the mode pages.  Valid values of this option ( i.e <pageControlParam>)are: <b>- current</b> <b>- saved</b>
<code>-p, --powerid</code>	Option to set new power consumption identifier, value of this option takes Id of the corresponding power as input. Id-power mapping values can be got from <b>--list</b> option of this command.
<code>-g, --get</code>	Display power consumption identifier values of all page control modes.
<code>-l, --list</code>	Lists all valid power values and its identifiers. Identifier is a unique value associated with each power value.

- R, --redirect                      Redirects the output to the file specified by **FILENAME**. If the file already exists, the redirected content will be appended to the file. **FILENAME** should have the absolute path else the file will be created in the current folder from where the scli is being executed.
- Force is mandatory with redirect for set and reset options.
- z, --nobanner                      For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
- h|-?, --help                      Prints the help message.

### Description:

This command provides a method to select a maximum power consumption level while in the active power condition. Also provides list of valid maximum power consumption levels.

### Note:

- **<-m,--mode>** or **<-l,--list>** or **<-g|--get>** is a mandatory option
- **<-p,--powerid>** is mandatory with **<-m,--mode>** and vice-versa.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
Yes	No	No	No

### Examples:

#### Windows:

List all valid power values for **disk1**

```
scli pwrconsumptionid disk1 -l
```

Set power value which has identifier **3** for device **disk6** in **saved** mode

```
scli pwrconsumptionid disk6 --mode saved -powerid 3
```

#### Linux:

Get all valid power values for /dev/sda in all page control modes

```
scli pwrconsumptionid /dev/sda -g
```

Set power value which has identifier **3** for device **/dev/sda** in **saved** mode

```
scli pwrconsumptionid /dev/sda --mode saved -powerid 3
```

#### Solaris:

List all valid power values for **/dev/rdisk/c1t0d0p0**

```
scli pwrconsumptionid /dev/rdisk/c1t0d0p0 -l
```

Set power value which has identifier **3** for device **/dev/rdisk/c1t0d0p0**  
in **saved** mode

```
scli pwrconsumptionid /dev/rdisk/c1t0d0p --mode saved -powerid 3
```

**Exit Code:**

- 0 - Successful
- 1 - Error

## scli nvme log

Lists NVMe Controller Log Pages.

### Synopsis:

```
scli nvme log <devList> <-s |-e [numOfEntries]|-f |-v [logId]> [-r][-R
    <PATH>] [-z] [-h|-?]
scli nvme log <devList> < --smart|--errorlog [numOfEntries]|-fwslot|-
    vendorlog [logId]> [--raw][--redirect <PATH>]
    [--nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) to be put on standby mode, as follows:  <code>all devName1[,devName2]...</code>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<code>-s --smart</code>	Get SMART/Health Data.
<code>-e --errorlog</code>	Get Error Log Data.
<code>-f --fwslot</code>	Get Firmware Slot Data.
<code>-v --vendorlog</code>	Get Vendor Log Data.
<code>-r --raw</code>	This option dumps the raw data buffer on the console for the actual <b>nvme log</b> command.
<code>-R, --redirect</code>	Redirects the output to the file specified by <b>FILENAME</b> . If the file already exists, the redirected content will be appended to the file. <b>FILENAME</b> should have the absolute path else the file will be created in the current folder from where the scli is being executed.
<code>-z, --nobanner</code>	For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
<code>-h -?, --help</code>	Prints the help message.

### Description:

There are four NVMe controller log pages as follows:

- *SMART/health information* **<-s,--smart>** is gathered over the life of the controller and is retained across power cycles. It includes critical warnings about the controller and device status, such as temperature threshold, available spare, device life status, and various I/O statistics used for calculating I/O performance.
- *Error information* **<-e,--errorlog>** is extended error information for commands that completed with error or reported an error that is not specific to a particular command. A number **numOfEntries(n)** reports the last n entries in error information log. By default if the number of supported entries is more than 64 than the last 64 entries are returned , otherwise if the number of supported entries is less than 64 than all supported entries are returned. Please note n can minimum be 1 and should not exceed 64.
- *Firmware Slot Information* **<-f,--fwslot>** provides the firmware revision stored in each firmware slot supported and the active slot number.
- *Vendor Log information* **<-v,--vendorlog>** is the vendor-specific NVMe log information of logIdentifier **logId**.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
No	No	No	Yes

### Examples:

#### Windows:

List all supported error Information entries for disk1  
`scli nvmelog disk1 -e`

List SMART Information for disk1  
`scli nvmelog disk1 -s`

#### Linux:

List all supported error Information entries for disk1  
`scli nvmelog /dev/nvme0n1 -e`

Get SMART Information for /dev/sda in raw format and redirect to smartLog.txt  
`scli nvmelog /dev/nvme0n1 -s -r -R smartLog.txt`

### Exit Code:

0 - Successful  
 1 - Error

## scli nvmeidentify

Lists NVMe Identify Controller Structure.

### Synopsis:

```
scli nvmeidentify <devList> <-c|-n>[-r][-R <PATH>] [-z] [-h|-?]  
scli nvmeidentify <devList> [controller|namespace][--raw][--redirect  
    <PATH>] [--nobanner] [--help]
```

### Parameters:

<code>devList</code>	List drive(s) to be put on standby mode, as follows:  <code>all devName1 [, devName2] . . .</code>  Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <code>/dev/sdx</code> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<code>-c, --controller</code>	This option specifies the controller command type.
<code>-n, --namespace</code>	This option specifies the namespace command type.
<code>-r, --raw</code>	This option dumps the raw data buffer on the console for the actual <b>nvmeidentify</b> command.
<code>-R, --redirect</code>	Redirects the output to the file specified by <b>FILENAME</b> . If the file already exists, the redirected content will be appended to the file. <b>FILENAME</b> should have the absolute path else the file will be created in the current folder from where the scli is being executed.
<code>-z, --nobanner</code>	For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
<code>-h -?, --help</code>	Prints the help message.

### Description:

For given NVMe device, sends an identify controller or namespace command and prints the returned structure.

On success, the structure may be returned in one of several ways depending

on the options; the structure may be parsed by the program or the raw buffer may be printed.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
No	No	No	Yes

### Examples:

#### Windows:

List NVMe Identify Controller in parsed format for device disk1

```
scli nvmeidctrl disk1 -c
```

List NVMe Identify Controller in raw format for device disk1

```
scli nvmeidctrl disk1 -c -r
```

#### Linux:

List NVMe Identify Controller in parsed format for device /dev/sda

```
scli nvmeidctrl /dev/sda -c
```

List NVMe Identify Controller in raw format for device /dev/sda and redirects to idController.txt

```
scli nvmeidctrl /dev/sda -c -r -R idController.txt
```

### Exit Code:

- 0 - Successful
- 1 - Error

## scli getnvmerregs

Lists defined NVMe controller registers.

### Synopsis:

```
scli getnvmerregs <devList> [-R <PATH>] [-z] [-h|-?]
scli getnvmerregs <devList> [redirect <PATH>] [--nobanner] [--help]
```

### Parameters:

<b>devList</b>	List drive(s) to be put on standby mode, as follows:  <b>all</b>   <b>devName1</b> [, <b>devName2</b> ] . . .
	Device names are OS-specific. For example, in Windows they are as shown in Disk Management ( <b>Disk0</b> , <b>Disk1</b> , and so forth). In Linux they are <b>/dev/sdx</b> or <b>/dev/nvmeXnY</b> , or however drives are identified. Enter more than one drive name as a comma-separated list. If <b>all</b> is specified, only SanDisk drives are supported.
<b>-R, --redirect</b>	Redirects the output to the file specified by <b>FILENAME</b> . If the file already exists, the redirected content will be appended to the file. <b>FILENAME</b> should have the absolute path else the file will be created in the current folder from where the scli is being executed.
<b>-z, --nobanner</b>	For each command scli prints a tool banner which includes information like copyright, license, etc. This option suppresses printing of banner.
<b>-h -?, --help</b>	Prints the help message.

### Description:

Maps the NVMe PCI controller registers and prints them in a readable format. This command is only supported in Linux.

### Products Supported:

Lightning / Lightning Gen. II SAS SSD	Optimus SAS SSD	CloudSpeed SATA SSD	Voyager NVMe SSD
No	No	No	Yes

### Examples:

**Linux:**

List NVMe PCI controller registers for /dev/sda

```
scli getnvmerregs /dev/sda
```

List NVMe PCI controller registers for /dev/sda and redirect output to registers.txt

```
scli getnvmerregs /dev/sda -R registers.txt
```

**Exit Code:**

0	- Successful
1	- Error

## Appendix A: Return Codes

### Error Codes Returned by API

The codes described in this section return the value shown in parentheses.

<b>SNDK_STATUS_SUCCESS</b>	<b>(0)</b>
The command or operation completed successfully.	
<b>SNDK_STATUS_FAILURE</b>	<b>(-1)</b>
The command or operation failed to complete successfully.	
<b>SNDK_STATUS_INSUFFICIENT_MEMORY</b>	<b>(-2)</b>
Operation failed due to insufficient memory. Check the system resources.	
<b>SNDK_STATUS_INVALID_PARAMETER</b>	<b>(-3)</b>
One or more of the parameters passed are invalid.	
<b>SNDK_STATUS_NOT_INITIALIZED</b>	<b>(-4)</b>
Operation failed because the library is not initialized.	
<b>SNDK_STATUS_FILE_OPEN_FAILED</b>	<b>(-5)</b>
Operation failed to open the file.	
<b>SNDK_STATUS_LOCK_CREATE_FAILED</b>	<b>(-6)</b>
Operation unable to create the required locks.	
<b>SNDK_STATUS_LOCK_ACQUIRE_FAILED</b>	<b>(-7)</b>
Operation unable to acquire the required locks.	
<b>SNDK_STATUS_NO_ADMIN_PRIVILEGE</b>	<b>(-8)</b>
The caller must have administrator privileges.	
<b>SNDK_STATUS_INVALID_COMMAND</b>	<b>(-9)</b>
An invalid command was input.	
<b>SNDK_STATUS_UNABLE_TO_OPEN_DEVICE</b>	<b>(-10)</b>
Operation was unable to open the device.	
<b>SNDK_STATUS_SCSI_ERROR</b>	<b>(-11)</b>
A SCSI error occurred.	

<b>SNDK_STATUS_DEVICE_NOT_SUPPORTEDED</b>	<b>(-12)</b>
The device is not supported.	
<b>SNDK_STATUS_ALREADY_INITIALIZED</b>	<b>(-13)</b>
Library was already initialized and is being used.	
<b>SNDK_STATUS_INVALID_DEVICE</b>	<b>(-14)</b>
Device is invalid.	
<b>SNDK_STATUS_DEVICE_NOT_READY</b>	<b>(-15)</b>
Device is busy or not ready.	
<b>SNDK_STATUS_BOOT_DEVICE_OPERATION_NOT_ALLOWED</b>	<b>(-16)</b>
Operations are not allowed on the disk in which the OS has booted.	
<b>SNDK_STATUS_DATA_NOT_READ_FULL</b>	<b>(-17)</b>
Data read operation was unable to read all of the data from the device.	
<b>SNDK_STATUS_SET_FILE_POINTER_ERROR</b>	<b>(-18)</b>
Operation was unable to set file pointer.	
<b>SNDK_PHYSICAL_READ_FAIL</b>	<b>(-19)</b>
Attempt to perform physical read operation was unsuccessful.	
<b>SNDK_STATUS_ZERO_DEVICES_FOUND</b>	<b>(-20)</b>
Zero or no supported devices were found.	
<b>SNDK_STATUS_OPERATION_NOT_ALLOWED</b>	<b>(-21)</b>
Operation is not allowed.	
<b>SNDK_STATUS_FW_UPGRADE_FAILED</b>	<b>(-22)</b>
Firmware update/validation failed to complete successfully.	
<b>SNDK_STATUS_FW_IMAGE_NOT_SUITABLE</b>	<b>(-23)</b>
Firmware image is not suitable for the device.	
<b>SNDK_STATUS_FW_IMAGE_FILE_UNABLE_TO_OPEN</b>	<b>(-24)</b>
Operation was unable to read the firmware image file.	
<b>SNDK_STATUS_DEVICE_HAS_USER_DATA</b>	<b>(-25)</b>
Format or erase operation failed because a device contains user data.	
<b>SNDK_STATUS_IMAGE_FILE_UNABLE_TO_READ</b>	<b>(-26)</b>
Unable to read the firmware image file.	

<b>SNDK_STATUS_FILE_SIZE_ZERO</b>	<b>(-27)</b>
Image file is empty.	
<b>SNDK_STATUS_NO_PARAMETERS_IN_DRV_STATISTICS_PAGE</b>	<b>(-28)</b>
No parameters available in the drive statistics.	
<b>SNDK_STATUS_UNABLE_TO_WRITE_FILE</b>	<b>(-29)</b>
Unable to write to the file.	
<b>SNDK_STATUS_ONE_OR_MORE_OP_FAILED</b>	<b>(-30)</b>
One or more operations failed.	
<b>SNDK_STATUS_INVALID_DEVICE_ENTRY_IN_CACHE</b>	<b>(-31)</b>
Invalid device entry in the cache.	
<b>SNDK_STATUS_UNABLE_TO_CREATE_THREAD_POOL</b>	<b>(-32)</b>
Unable to create the thread pool.	
<b>SNDK_STATUS_IMG_INVALID</b>	<b>(-33)</b>
Firmware image is invalid.	
<b>SNDK_STATUS_UNABLE_TO_WRITE_ALL_DATA</b>	<b>(-34)</b>
Unable to write all of the data but data was partially written.	
<b>SNDK_STATUS_INQUIRY_VPDPAGE3_NODATA</b>	<b>(-35)</b>
No data was found in Inquiry Page 3.	
<b>SNDK_STATUS_DIR_ALREADY_EXISTS</b>	<b>(-36)</b>
Directory entry already exists.	
<b>SNDK_STATUS_PATH_NOT_FOUND</b>	<b>(-37)</b>
The path is invalid.	
<b>SNDK_STATUS_CREATE_DIRECTORY_FAILED</b>	<b>(-38)</b>
Unable to create directory.	
<b>SNDK_STATUS_DELETE_DIRECTORY_FAILED</b>	<b>(-39)</b>
Unable to delete directory.	
<b>SNDK_STATUS_UNABLE_TO_OPEN_FILE</b>	<b>(-40)</b>
Unable to open file.	
<b>SNDK_STATUS_UNABLE_TO_OPEN_ZIP_FILE</b>	<b>(-41)</b>
Unable to open zip file.	

<b>SNDK_STATUS_INVALID_IMAGE_FILE_TYPE</b>	<b>(-42)</b>
Invalid firmware image file type. Only .bin, .bet, .rel, or .fwh file extensions are supported.	
<b>SNDK_STATUS_UNABLE_TO_LOCK_DEVICE</b>	<b>(-43)</b>
Unable to lock the device.	
<b>SNDK_STATUS_ACCESS_DENIED</b>	<b>(-44)</b>
Access Denied. Verify the permissions.	
<b>SNDK_STATUS_SELFTEST_ABORTED</b>	<b>(-45)</b>
Self-test operation was aborted.	
<b>SNDK_STATUS_SELFTEST_FAILED</b>	<b>(-46)</b>
Attempt to perform self-test operation was unsuccessful.	
<b>SNDK_STATUS_SELFTEST_NOT_EXECUTED</b>	<b>(-47)</b>
Self-test operation was not performed.	
<b>SNDK_STATUS_NO_REG_ENTRY</b>	<b>(-48)</b>
No registry entry was found.	
<b>SNDK_STATUS_ENTRY_ALREADY_EXISTS</b>	<b>(-49)</b>
Registry entry already exists.	
<b>SNDK_STATUS_BMSINTERVAL_NOT_IN_SUPPORTED_RANGE</b>	<b>(-50)</b>
BMS interval value is not in the supported range.	
<b>SNDK_STATUS_STATSINTERVAL_NOT_IN_SUPPORTED_RANGE</b>	<b>(-51)</b>
Statistics interval value is not in the supported range.	
<b>SNDK_STATUS_UPDATE_FW_NOT_EXECUTED</b>	<b>(-52)</b>
Firmware update operation was not performed.	
<b>SNDK_STATUS_OPERATION_NOT_SUPPORTED</b>	<b>(-53)</b>
The operation is not supported.	
<b>SNDK_STATUS_PROTECTION_TYPE_NOT_SUPPORTED</b>	<b>(-54)</b>
Protection type is not supported by the device.	
<b>SNDK_STATUS_BLOCK_SIZE_AND_DIF_TYPE_NOT_COMPATIBLE</b>	<b>(-55)</b>
Block size and T10 DIFF type are not compatible.	
<b>SNDK_STATUS_NO_DEVICE_FOUND</b>	<b>(-56)</b>
Zero or no device found.	

<b>ESSDLIB_NOT_AN_NVME_DEVICE</b>	<b>(-57)</b>
Device does not support NVME interface.	
<b>SNDK_STATUS_UNABLE_TO_GET_LOGICAL_DEVICE_PORT_TYPE</b>	<b>(-58)</b>
Unable to get the device port type.	
<b>SNDK_STATUS_NO_DUMPTRACE_IN_DEVICE</b>	<b>(-59)</b>
Dump traces are not available in the device.	
<b>SNDK_STATUS_UNABLE_TO_DELETE_DUMP_TRACE</b>	<b>(-60)</b>
Unable to delete the dump trace but fetched successfully from the device.	
<b>SNDK_STATUS_UNABLE_TO_GET_BLINK_STATUS</b>	<b>(-61)</b>
Unable to the get the LED blinking status.	
<b>SNDK_STATUS_UNABLE_TO_GET_DRIVER_VERSION</b>	<b>(-62)</b>
Unable to get the driver version of the device.	
<b>SNDK_STATUS_UNABLE_TO_GET_BDF_NUMBER</b>	<b>(-63)</b>
Unable to get the bus, device and function number of the device.	
<b>SNDK_STATUS_MAX_LBA_OUT_OF_LIMIT</b>	<b>(-64)</b>
Value provided for setting maxlba is out of limit.	
<b>SNDK_STATUS_NO_SUPPORTED_DEVICE_FOUND</b>	<b>(-65)</b>
No supported Device found to executed the command.	
<b>SNDK_STATUS_INVALID_INPUT</b>	<b>(-66)</b>
Invalid Input, Command Terminated.	
<b>SNDK_STATUS_USER_CANCELLED_OPERATION</b>	<b>(-67)</b>
User cancelled the operation, Command Terminated.	
<b>SNDK_STATUS_DEV_LIST_IS_EMPTY</b>	<b>(-68)</b>
Argument DeviceList is not provided.	
<b>SNDK_STATUS_DEV_LIST_SYNTAX_MISMATCH</b>	<b>(-69)</b>
Device List syntax mismatch.	
<b>SNDK_STATUS_UNKNOWNOPTION</b>	<b>(-70)</b>
Unknown option found.	
<b>SNDK_STATUS_MANDATORY_OPTION_MISSING</b>	<b>(-71)</b>
Mandatory option is not provided.	

<b>SNDK_STATUS_OPTION_VALUE_INVALID</b>	<b>(-72)</b>
Option value is not matching the allowed valued.	
<b>SNDK_STATUS_OPTION_VALUE_MISSING</b>	<b>(-73)</b>
Option value is not provided.	
<b>SNDK_STATUS_OPTION_TOKEN_MISSING</b>	<b>(-74)</b>
Option token is missing.	
<b>SNDK_STATUS_OPTION_REPEATED</b>	<b>(-75)</b>
Option is provided more than once.	
<b>SNDK_STATUS_OPTION_NOT_ALLOWED</b>	<b>(-76)</b>
Path is not valid.	
<b>SNDK_STATUS_INVALID_PATH</b>	<b>(-77)</b>
Option is provided more than once.	
<b>SNDK_STATUS_UNKNOWN_ARGUEMNT</b>	<b>(-78)</b>
Unknown argument is provided.	
<b>SNDK_STATUS_OPTION_IS_MISSING</b>	<b>(-79)</b>
Option is missing.	
<b>SNDK_STATUS_OPTION_VALUE_OUT_OF_RANGE</b>	<b>(-80)</b>
Option value is out of range.	
<b>SNDK_STATUS_UPDATE_FAILED_DEVICE_HAS_DUMP_TRACE</b>	<b>(-81)</b>
Device has dumptrace, can not update the firmware.	
<b>SNDK_STATUS_UNABLE_TO_DELETE_DUMP_TRACE_CREATED_ARCHIVE</b>	<b>(-82)</b>
Unable to delete the dump trace but fetched successfully from the device.	
<b>SNDK_STATUS_DRIVER_ERROR</b>	<b>(-83)</b>
Device Driver error.	
<b>SNDK_STATUS_DRIVER_BUSY</b>	<b>(-84)</b>
Device Driver is busy.	
<b>SNDK_STATUS_DELETE_FILE_FAILED</b>	<b>(-85)</b>
Delete File Failed.	
<b>SNDK_STATUS_FILE_INVALID</b>	<b>(-86)</b>
Given file has invalid contents.	

<b>SNDK_STATUS_UNABLE_TO_UNZIP_FILE</b>	<b>(-87)</b>
Unable to unzip the directory.	
<b>SNDK_STATUS_LOG_FILE_NOT_FOUND</b>	<b>(-88)</b>
Log file not found in the directory.	
<b>SNDK_STATUS_INQUIRY_FILE_NOT_FOUND</b>	<b>(-89)</b>
Inquiry page file is not found in the directory.	
<b>SNDK_STATUS_NO_SUPPORTED_LOG_PAGE_FOUND</b>	<b>(-90)</b>
No supported log page found in the log file.	
<b>SNDK_STATUS_UNKNOWN_COMMAND</b>	<b>(-91)</b>
Command is unknown.	
<b>SNDK_STATUS_INCORRECT_USE_OF_OPTION</b>	<b>(-92)</b>
Option used in an inappropriate combination.	
<b>SNDK_STATUS_BLOCK_SIZE_NOT_SUPPORTED</b>	<b>(-93)</b>
Specified block size is not supported.	
<b>SNDK_STATUS_INVALID_MODE_PAGE_FIELD</b>	<b>(-94)</b>
Given modepage field is invalid.	
<b>SNDK_STATUS_INVALID_PAGE_CONTROL</b>	<b>(-95)</b>
Given page control for mode sense is invalid.	
<b>SNDK_STATUS_INDEX_EXCEEDS_NUMBER_OF_ENTRIES</b>	<b>(-96)</b>
Index Exceeds number of entries.	
<b>SNDK_STATUS_INVALID_MODE_PAGE_FIELD_VALUE</b>	<b>(-97)</b>
Given modepage field value is invalid.	
<b>SNDK_STATUS_MODE_PAGE_FIELD_NOT_CHANGEABLE</b>	<b>(-98)</b>
Value of mode-page field is not changeable.	
<b>SNDK_STATUS_INVALID_VALUE_FOR_ASSERT_BITS</b>	<b>(-99)</b>
Invalid value for RxTxAssertBits.	
<b>SNDK_STATUS_INVALID_HEX_INPUT</b>	<b>(-100)</b>
Invalid hex input is given.	
<b>SNDK_STATUS_ARGUMENT_IS_MISSING</b>	<b>(-101)</b>
Argument is missing.	

<b>SNDK_STATUS_UNSUPPORTED_PAGE</b>	<b>(-102)</b>
Unsupported page.	
<b>SNDK_STATUS_UNABLE_TO_GET_SMART_TRIP_DETAILS</b>	<b>(-103)</b>
Unable to get smart trip details.	
<b>SNDK_STATUS_NO_SMART_TRIP</b>	<b>(-104)</b>
SMART trip is not detected.	
<b>SNDK_STATUS_UNABLE_TO_DECODE_PAGE_DATA_MISMATCH</b>	<b>(-105)</b>
Unable to decode page due to invalid data.	
<b>SNDK_STATUS_ATA_CMD_RETURNS_ALIGNMENT_ERROR</b>	<b>(-106)</b>
Used when ATA command returned alignment error	
<b>SNDK_STATUS_ATA_CMD_RETURNS_DEVICEFAULT</b>	<b>(-107)</b>
Used when ATA command returned device fault error	
<b>SNDK_STATUS_ATA_CMD_RETURNS_SMART_UNCORRECTABLE</b>	<b>(-108)</b>
Used when ATA command returned SMART uncorrectable error	
<b>SNDK_STATUS_ATA_CMD_RETURNS_SMART_ID_NOT_FOUND</b>	<b>(-109)</b>
Used when ATA command returned SMART ID not found error	
<b>SNDK_STATUS_COULD_NOT_FIGURE_OUT_BOOT_DEVICE_STATUS</b>	<b>(-110)</b>
Unable to find the status of the boot device	
<b>SNDK_STATUS_DEVICE_IS_NOT_A_SATA_DEVICE</b>	<b>(-111)</b>
Device is not a SATA device.	
<b>SNDK_STATUS_DEVICE_IS_NOT_A_SANDISK_DEVICE</b>	<b>(-112)</b>
Device is not a SanDisk device.	

<b>SNDK_STATUS_ACTIVATE_NOW_IS_CURRENTLY_NOT_SUPPORTED</b>	<b>(-113)</b>
Activate now is not supported.	
<b>SNDK_STATUS_INVALID_DEV_LIST</b>	<b>(-114)</b>
Invalid device list.	
<b>SNDK_STATUS_48BIT_COMMAND_SET_NOT_SUPPORTED</b>	<b>(-115)</b>
48Bit command set is not supported.	
<b>SNDK_STATUS_HOST_PROTECTED_AREA_FEATURE_NOT_SUPPORTED</b>	
<b>(-116)</b>	
Host Protected area feature not supported.	
<b>SNDK_STATUS_NEW_MAX_LBA_IS_MORE_THAN_CURRENT_MAX_LBA</b>	
<b>(-117)</b>	
New MAX LBA is greater than current MAX LBA.	
<b>SNDK_STATUS_MAX_32_SUPPORTED_DEV_SUPPORTED</b>	<b>(-118)</b>
Maximum 32 devices are supported.	
<b>SNDK_STATUS_POWER_MANAGEMENT_FEATURES_NOT_SUPPORTED</b>	<b>(-119)</b>
Power management features are not supported.	
<b>SNDK_STATUS_MORE_DEVICES_PRESENT</b>	<b>(-120)</b>
More than no. of supported devices are present.	
<b>SNDK_STATUS_REQUESTED_ACTIVATION_MODE_NOT_SUPPORTED</b>	<b>(-121)</b>
Requested activation mode is not supported.	
<b>SNDK_STATUS_OPERATION_FAILED_ALL_DEVICES</b>	<b>(-122)</b>
Operation failed on all devices.	
<b>SNDK_STATUS_INVALID_LOG_ADDRESS</b>	<b>(-123)</b>
Log Address is invalid.	
<b>SNDK_STATUS_SECURITY_FEATURE_NOT_SUPPORTED</b>	<b>(-124)</b>
Security feature is not supported.	
<b>SNDK_STATUS_SECURITY_IN_FROZEN_STATE</b>	<b>(-125)</b>
Security status is in frozen state.	
<b>SNDK_STATUS_SECURITY_IN_LOCKED_STATE</b>	<b>(-126)</b>
Security status is in locked state.	
<b>SNDK_STATUS_SANITIZE_FEATURE_SET_NOT_SUPPORTED</b>	<b>(-128)</b>
Sanitize feature is not supported.	
<b>SNDK_STATUS_COMMAD_NOT_SUPPORTED</b>	<b>(-129)</b>

Command is not supported.

<b>SNDK_STATUS_FAILED_TO_ENABLE_SECURITY</b>	<b>(-130)</b>
Failed to enable the security in the device.	
<b>SNDK_STATUS_DEVICE_STILL_IN_SECURITY_ENABLED_STATE</b>	<b>(-131)</b>
Device is still in security enabled state.	
<b>SNDK_STATUS_INVALID_PAGE_LIST</b>	<b>(-132)</b>
Invalid page list.	
<b>SNDK_STATUS_NO_LOG_PAGES_FOUND</b>	<b>(-133)</b>
No logs pages are found in the device.	
<b>SNDK_STATUS_UNABLE_TO_FIND_AHCI_CONTROLLER</b>	<b>(-134)</b>
Unable to find the AHCI controller.	
<b>SNDK_STATUS_DIPM_NOT_SUPPORTED</b>	<b>(-135)</b>
DIPM is not supported.	
<b>SNDK_STATUS_APM_NOT_SUPPORTED</b>	<b>(-136)</b>
APM is not supported.	
<b>SNDK_STATUS_APM_NOT_VALID_VALUE</b>	<b>(-137)</b>
Value for APM is invalid.	
<b>SNDK_STATUS_HWC_NOT_SUPPORTED</b>	<b>(-138)</b>
HWC is not supported.	
<b>SNDK_STATUS_APTST_NOT_SUPPORTED</b>	<b>(-139)</b>
APTST is not supported.	
<b>SNDK_STATUS_DEVSLP_NOT_SUPPORTED</b>	<b>(-140)</b>
DEVSLP is not supported.	
<b>SNDK_STATUS_TRIM_BIT_NOT_SUPPORTED</b>	<b>(-141)</b>
TRIM is not supported.	
<b>SNDK_STATUS_ERROR_INVALID_FUNCTION</b>	<b>(-142)</b>
Invalid function.	
<b>SNDK_STATUS_INVALID_INPUT_PARAMETER</b>	<b>(-143)</b>
Invalid input parameter.	
<b>SNDK_STATUS_INVALID_INPUT_VALUE</b>	<b>(-144)</b>
Invalid value.	
<b>SNDK_STATUS_UNRECOVERABLE_ERROR</b>	<b>(-145)</b>

Unrecoverable error.

<b>SNDK_STATUS_SCTP_STAT_SIGNATURE_MISSING</b>	<b>(-146)</b>
SCTP signature is missing.	
<b>SNDK_STATUS_SCTP_ERROR_IN_STATUS</b>	<b>(-147)</b>
SCTP Error.	
<b>SNDK_STATUS_INVALID_SECTION</b>	<b>(-148)</b>
Invalid Section.	
<b>SNDK_STATUS_DULPLICATE_DLEFORMAT</b>	<b>(-149)</b>
Duplicate DLE Format found.	
<b>SNDK_STATUS_DULPLICATE_FIRMWARE</b>	<b>(-150)</b>
Duplicate firmware.	
<b>SNDK_STATUS_DULPLICATE_CONFIG</b>	<b>(-151)</b>
Duplicate Configuration.	
<b>SNDK_STATUS_DULPLICATE_FORMAT</b>	<b>(-152)</b>
Duplicate Format.	
<b>SNDK_STATUS_MISSING_DLEFORMAT</b>	<b>(-153)</b>
Missing DLE Format.	
<b>SNDK_STATUS_MISSING_FIRMWARE</b>	<b>(-154)</b>
Firmware is missing.	
<b>SNDK_STATUS_MISSING_CONFIG</b>	<b>(-155)</b>
Configuration is missing.	
<b>SNDK_STATUS_DULPLICATE_SSA</b>	<b>(-156)</b>
SSA is duplicate.	
<b>SNDK_STATUS_DULPLICATE_APP</b>	<b>(-157)</b>
Duplicate APP.	
<b>SNDK_STATUS_CANNOT_SWITCH_TO_ROM_MODE</b>	<b>(-158)</b>
Unable to switch to ROM Mode.	
<b>SNDK_STATUS_FW_IMAGE_NOT_COMPATIBLE_WITH_DEVICE</b>	<b>(-159)</b>
Firmware image is not compatible with the device.	
<b>SNDK_STATUS_BOT_FILE_NOT_SUPPORTED</b>	<b>(-160)</b>
BOT File is not supported.	
<b>SNDK_STATUS_POWER_CYCLE_REQUIRED</b>	<b>(-161)</b>

Power cycle to the device is required.

<b>SNDK_STATUS_INVALID_PERCENTAGE</b>	<b>(-162)</b>
Invalid percentage.	
<b>SNDK_STATUS_INVALID_TIME</b>	<b>(-163)</b>
Invalid time.	
<b>SNDK_STATUS_INVALID_IO</b>	<b>(-164)</b>
Invalid IO.	
<b>SNDK_STATUS_INVALID_QDEPTH</b>	<b>(-165)</b>
Invalid QDepth.	
<b>SNDK_STATUS_CANNOT_SWITCH_FROM_ROM_MODE</b>	<b>(-166)</b>
Unable to switch from ROM Mode.	
<b>SNDK_STATUS_FORMAT_FAILED</b>	<b>(-167)</b>
Format failed.	
<b>SNDK_STATUS_DM_MAX_TRANSFER_SIZE_INVALID</b>	<b>(-168)</b>
DM MAX transfer size specified is invalid.	
<b>SNDK_STATUS_UNABLE_TO_FIND_DEVICE_AFTER_ROM_MODE_CHANGE</b> <b>(-169)</b>	
Unable to detect the device after ROM Mode change.	
<b>SNDK_STATUS_UNABLE_TO_CREATE_THREAD</b>	<b>(-170)</b>
Unable to create threads in the system.	
<b>SNDK_STATUS_LOCK_RELEASE_FAILED</b>	<b>(-171)</b>
Failed to release the locks.	
<b>SNDK_STATUS_TEST_FAILED</b>	<b>(-172)</b>
Test failed.	
<b>SNDK_STATUS_OPTION_ORDER_INCORRECT</b>	<b>(-173)</b>
Order of the option provided is wrong.	
<b>SNDK_STATUS_NO_LLS_OR_CNTR_LOG_PAGES_FOUND</b>	<b>(-174)</b>
Unable to find LLS / Center log pages.	
<b>SNDK_STATUS_ALL_STRING_INSTEAD_OF_DEV_NAME</b>	<b>(-175)</b>
All devices is selected instead of device name.	
<b>SNDK_STATUS_DEV_LIST_INSTEAD_OF_DEV_NAME</b>	<b>(-176)</b>
Device list is provided instead of device name.	

<b>SNDK_STATUS_UNCANCELABLE_JOB</b> Job cant be canceled.	<b>(-177)</b>
<b>SNDK_STATUS_JOB_DELETED</b> Job deleted.	<b>(-178)</b>
<b>SNDK_STATUS_JOB_ALREADY_DELETED</b> Job is already deleted.	<b>(-179)</b>
<b>SNDK_STATUS_JOB_IN_PROGRESS</b> Job is in progress.	<b>(-180)</b>
<b>SNDK_STATUS_JOB_ALREADY_OPEN</b> Job is already opened.	<b>(-181)</b>
<b>SNDK_STATUS_FAILED_TO_CREATE_JOB</b> Unable to create Job.	<b>(-182)</b>
<b>SNDK_STATUS_JOB_CANCELED</b> Job is cancelled.	<b>(-183)</b>
<b>SNDK_STATUS_JOB_WAIT_TIMED_OUT</b> Job timed out.	<b>(-184)</b>
<b>SNDK_STATUS_QUICK_FORMAT_NOT_SUPPORTED</b> Quick format is not supported.	<b>(-185)</b>
<b>SNDK_STATUS_Q_DEPTH_LESS</b> Specified Q-Depth is less.	<b>(-186)</b>
<b>SNDK_STATUS_INVALID_COMBINATION</b> Invalid combination.	<b>(-187)</b>
<b>SNDK_STATUS_CRITICAL_ERROR</b> Critical error.	<b>(-188)</b>
<b>SNDK_STATUS_ATA_TRUSTED_COMMAND_SET_NOT_SUPPORTED</b> Trusted command set is not supported.	<b>(-189)</b>
<b>SNDK_STATUS_TCG_PROTOCOL_NOT_SUPPORTED</b> TCG Protocol is not supported.	<b>(-190)</b>
<b>SNDK_STATUS_TCG_VERSION_2_NOT_SUPPORTED</b> TCG Protocol version 2 is not supported.	<b>(-191)</b>

<b>SNDK_STATUS_TCG_OPAL_NOT_ACTIVATED</b>	<b>(-192)</b>
TCG OPAL Protocol is not supported.	
<b>SNDK_STATUS_FAILED_TO_OPEN_TCG_SESSION</b>	<b>(-193)</b>
Unable to open a TCG Session.	
<b>SNDK_STATUS_UNABLE_TO_GET_SMART_TRIP_DETAILS</b>	<b>(-194)</b>
Unable to get the SMART Trip details.	
<b>SNDK_STATUS_NO_SMART_TRIP</b>	<b>(-195)</b>
Device has no SMART trip.	
<b>SNDK_STATUS_UNSUPPORTED_PAGE</b>	<b>(-196)</b>
Unsupported Page.	
<b>SNDK_STATUS_INVALID_PROGRESS_TIME</b>	<b>(-197)</b>
Invalid progress time.	
<b>SNDK_STATUS_TCG_RESET_FAILED</b>	<b>(-198)</b>
TCG Reset failed.	
<b>SNDK_STATUS_TCG_OPEN_SESSION_FAILED</b>	<b>(-199)</b>
Unable to open a TCG Session.	
<b>SNDK_STATUS_TCG_CLOSE_SESSION_FAILED</b>	<b>(-200)</b>
Unable to close the TCG session.	
<b>SNDK_STATUS_DATA_BUFFER_SIZE_MORE_THAN_DRIVER_LIMIT</b>	<b>(-201)</b>
Data buffer size is more than the value supported by driver.	
<b>SNDK_STATUS_OPTION_NOT_REQUIRED_IN_THIS_CASE</b>	<b>(-202)</b>
Option is not required in this case.	
<b>SNDK_STATUS_ROMMODE_SERIALNO_WWN_MUST</b>	<b>(-203)</b>
WWN is missing in the ROM Mode.	
<b>SNDK_STATUS_NONROMMODE_INVALID_WWN</b>	<b>(-204)</b>
Found Invalid WWN in NON ROM Mode.	
<b>SNDK_STATUS_SYSCALL_INTERRUPT</b>	<b>(-205)</b>
System call interrupt.	
<b>SNDK_STATUS_UNABLE_TO_DECODE_PAGE_DATA_MISMATCH</b>	<b>(-206)</b>
Unable to decode page due to mismatch.	
<b>SNDK_STATUS_DEVICE_LED_ALREADY_BLINKING</b>	<b>(-207)</b>
LED is already blinking in device.	

<b>SNDK_STATUS_DEVICE_LED_ALREADY_STOPPED_BLINKING</b>	<b>(-208)</b>
LED is not blinking.	
<b>SNDK_STATUS_ASSETFALSE_FAILED_DEVICE_HAS_DUMP_TRACE</b>	<b>(-209)</b>
Device has dumptrace, cannot issue assertfalse.	
<b>SNDK_STATUS_SELFTEST_COMPLETED_SUCCESSFULLY</b>	<b>(-210)</b>
Selftest completed successfully	
<b>SNDK_STATUS_SELFTEST_HAS_ABORTED</b>	<b>(-211)</b>
Selftest aborted by the host	
<b>SNDK_STATUS_SELFTEST_UNKNOWN_TEST_ERROR_OCCURED</b>	<b>(-212)</b>
Selftest aborted as unknown test error occurred	
<b>SNDK_STATUS_SELFTEST_UNKNOWN_TEST_ELEMENT_FAILED</b>	<b>(-213)</b>
Selftest completed with unknown element failed	
<b>SNDK_STATUS_SELFTEST_ELECTRICAL_ELEMENT_FAILED</b>	<b>(-214)</b>
Selftest completed with electrical element <b>failed</b>	
<b>SNDK_STATUS_SELFTEST_SERVO_SEEK_ELEMENT_FAILED</b>	<b>(-215)</b>
Selftest completed with servo/seek element failed	
<b>SNDK_STATUS_SELFTEST_READ_ELEMENT_FAILED</b>	<b>(-216)</b>
Selftest completed with read element failed	
<b>SNDK_STATUS_SELFTEST_HAVE_HANDLING_DAMAGE</b>	<b>(-217)</b>
Selftest completed with device suspected to have handling damage	
<b>SNDK_STATUS_OPERATION_IN_PROGRESS</b>	<b>(-218)</b>
Operation in progress	
<b>SNDK_STATUS_INVALID_OBJECT_NAME</b>	<b>(-219)</b>
Invalid Object Name	
<b>SNDK_STATUS_SYNTAX_ERROR</b>	<b>(-220)</b>
Syntax Error	
<b>SNDK_STATUS_DUPLICATE_ENTRY</b>	<b>(-221)</b>
Duplicate Entry	
<b>SNDK_STATUS_ENTRY_NOT_FOUND</b>	<b>(-222)</b>
Entry not found	
<b>SNDK_STATUS_EOF_REACHED</b>	<b>(-223)</b>
EOF Reached	
<b>SNDK_STATUS_DEVICE_BUSY</b>	<b>(-224)</b>
Device in busy state	

<b>SNDK_STATUS_DEVICE_IN_REDEUCED_FUNC_MODE</b> Device in reduced functionality mode	<b>(-225)</b>
<b>SNDK_STATUS_UPDATE_NOT_REQUIRED</b> Update not required	<b>(-226)</b>
<b>SNDK_STATUS_INCOMPATIBLE_IMAGE</b> Incompatible Image	<b>(-227)</b>
<b>SNDK_STATUS_INVALID_PROTOCOL_IDENTIFIER_SAS</b> Invalid protocol identifier.	<b>(-228)</b>
<b>SNDK_STATUS_NO_OPERATION_IN_PROGRESS</b> No Operation In Progress	<b>(-229)</b>
<b>SNDK_STATUS_INVALID_SAS_ADDRESS</b> Invalid SAS Address	<b>(-230)</b>
<b>SNDK_STATUS_UNREACHABLE_DEVICE</b> Unreachable device	<b>(-231)</b>
<b>SNDK_STATUS_JOB_MESSAGE_QUEUE_EMPTY</b> Job Message Queue is Empty.	<b>(-232)</b>
<b>SNDK_STATUS_FIRMWARE_NOT_SUPPORTED</b> Firmware Not Supported	<b>(-234)</b>
<b>SNDK_STATUS_NAND_LIFE_BELOW_THRESHOLD</b> NAND Life Below Threshold.	<b>(-235)</b>
<b>SNDK_STATUS_INCORRECT_LINK_RATE</b> Unsupported or Invalid Link Rate	<b>(-236)</b>
<b>SNDK_STATUS_EXCEEDED_THRESHOLD_FAILURE_COUNT</b> Exceeded threshold failure count	<b>(-237)</b>
<b>SNDK_STATUS_GLIST_THRESHOLD_EXCEEDED</b> GList count exceeded	<b>(-238)</b>
<b>SNDK_STATUS_GLIST_COUNT_INCREASED</b> GList count increased	<b>(-239)</b>
<b>SNDK_STATUS_EVENTLOG_OVERLAPPED</b> Event Log has overlapped	<b>(-240)</b>
<b>SNDK_STATUS_SMART_TRIP_DETECTED</b> SMART Trip Detected	<b>(-241)</b>

<b>SNDK_STATUS_IO_FAIL</b> Read / Write Tests Failed	<b>(-246)</b>
<b>SNDK_STATUS_UNABLE_TO_RESTORE_SMART</b> Failed to restore SMART data	<b>(-247)</b>
<b>SNDK_STATUS_UNABLE_TO_RETUNE_DSP</b> Failed to reset power on hours	<b>(-248)</b>
<b>SNDK_STATUS_CRC_THRESHOLD_EXCEEDED</b> CRC Count exceeded the threshold value	<b>(-249)</b>
<b>SNDK_STATUS_DUMP_TRACE_EXISTS</b> Dump trace Exists	<b>(-250)</b>
<b>SNDK_STATUS_KILI_FDF_NOT_FOUND</b> KILI FDF Not found	<b>(-251)</b>
<b>SNDK_STATUS_SMART_STATUS_BAD</b> SMART trip has occurred	<b>(-252)</b>
<b>SNDK_STATUS_INVALID_TRANSFER_LENGTH</b> Invalid Transfer Length	<b>(-253)</b>
<b>SNDK_STATUS_UPDATE_COMPLETED_BUT_DEVICE_STATE_NOT_GOOD (-254)</b> Update Completed Successfully but Device State not Good	
<b>SNDK_STATUS_UNKNOWN_STATE_OF_SANITIZE_OPERATION</b> Unknown state of Sanitize Operation	<b>(-255)</b>
<b>SNDK_STATUS_UNABLE_TO_ARCHIVE_EXCEEDED_FILES_LIMIT</b> Unable to create archive, files limit exceeded	<b>(-256)</b>
<b>SNDK_STATUS_DIAG_COMMAND_TIME_OUT_WITHOUT_STATUS</b> Diagnostic timed out without returning status - diagnostic lost!	<b>(-257)</b>
<b>SNDK_STATUS_IMAGE_NOT_SUPPORTED_BY_DRIVE_MODEL</b> Image not supported by Drive Model	<b>(-258)</b>
<b>SNDK_STATUS_GENERIC_NOT_SUPPORTED</b> Not supported	<b>(-259)</b>
<b>SNDK_STATUS_NOT_APPLICABLE</b> Not applicable	<b>(-260)</b>
<b>SNDK_STATUS_NOT_STARTED</b> Not started	<b>(-261)</b>

<b>SNDK_STATUS_OPERATION_NOT_HANDLED</b> Operation not handled	<b>(-262)</b>
<b>SNDK_STATUS_TEST_UNIT_READY_TIMED_OUT</b> Device not ready after wait time	<b>(-263)</b>
<b>SNDK_STATUS_UNABLE_TO_GET_NATIVE_MAX_LBA</b> Unable to get native MAX LBA	<b>(-264)</b>
<b>SNDK_STATUS_INVALID_FORMAT_TYPE</b> Invalid Format Type	<b>(-265)</b>
<b>SNDK_STATUS_DO_NOT_RETRY</b> Same command resubmitted is expected to fail	<b>(-266)</b>
<b>SNDK_STATUS_INVALID_NVME_STATUS_CODE</b> Invalid status Code in CQE	<b>(-267)</b>
<b>SNDK_STATUS_FEATURE_NOT_CHANGEABLE</b> Set features not changeable	<b>(-268)</b>
<b>SNDK_STATUS_INVALID_BUFFER_SIZE</b> Invalid Buffer Size	<b>(-269)</b>
<b>SNDK_STATUS_INVALID_LOG_ENTRIES</b> Invalid Log Entries Requested	<b>(-270)</b>

## Drive Protocol Specific Error Codes

### SCSI Error Codes

**Table 1.1: SCSI Error Codes**

Sense Key	ASC	ASCQ	Description
00	0B	01	No sense, SMART threshold exceeded temperature
00	5D	10	No sense, SMART threshold exceeded hardware failure
00	5D	14	No sense, SMART threshold exceeded reassigns
00	5D	FF	No sense, SMART threshold test
00	5D	32	No sense, SMART threshold exceeded read error rate
00	5D	42	No sense, SMART threshold exceeded write error rate
00	5D	73	No sense, SMART threshold exceeded endurance limit
01	10	00	Recovered error, Id/crc/ecc error
01	1C	00	Recovered error, defect list not found
01	37	00	Recovered error, rounded parameter
01	0B	01	Recovered error, SMART threshold exceeded temperature
01	5D	10	Recovered error, SMART threshold exceeded hardware failure
01	5D	14	Recovered error, SMART threshold exceeded reassigns
01	5D	FF	Recovered error, SMART threshold test
01	5D	32	Recovered error, SMART threshold exceeded read error rate
01	5D	42	Recovered error, SMART threshold exceeded write error rate
01	5D	73	Recovered error, SMART threshold exceeded endurance limit
02	04	01	Not ready, logical unit is in process of becoming ready
02	04	02	Not ready, logical unit not ready, initializing command required
02	04	04	Not ready, logical unit not ready, format in progress
02	04	07	Not ready, logical unit not ready, Operation in progress
02	04	09	Not ready, logical unit not ready, self-test in progress
02	04	11	Not ready, logical unit not ready, notify enable spin up required
02	04	1B	Not ready, logical unit not ready, Sanitize in progress
02	31	00	Not ready, logical unit not ready,, format corrupted
02	31	03	Not ready, logical unit not ready,, Sanitize Command failed
02	3A	00	Not ready, medium not present

03	11	00	Medium error, unrecovered read error
03	31	00	Medium error, format corrupted
03	31	01	Medium error, format command failed
03	31	03	Medium error, Sanitize command failed
04	09	03	Hardware error, spindle servo failure
04	0C	00	Hardware error, write error
04	11	00	Hardware error, unrecovered read error
04	19	01	Hardware error, defect list not available
04	32	00	Hardware error, no spares available
04	41	00	Internal target failure
04	44	00	Internal target failure
04	45	00	Internal target failure Erase failure
04	51	00	Hardware error, erase failure
05	1A	00	Illegal request, parameter list length error
05	20	00	Illegal request, invalid command operation code
05	21	00	Illegal request, logical block address out of range
05	24	00	Illegal request, invalid field In Cdb
05	24	94	Illegal request, unsupported transfer length
05	25	00	Illegal request, logical unit not supported
05	26	00	Illegal request, invalid field In parameter list
05	26	04	Illegal request, invalid release of persistent reservation
05	26	82	Illegal request, invalid field In parameter list, vendor specific
05	26	99	Illegal request, mismatched Microcode In Buffer
05	2C	00	Illegal request, command sequence error
05	44	80	Illegal request, internal target failure
05	55	04	Illegal request, insufficient registration resources
06	28	00	Unit attention NOT READY TO READY TRANSITION - MEDIUM MAY HAVE CHANGED
06	29	01	Unit attention power on occurred
06	29	02	Unit attention, scsi bus reset occurred
06	29	03	Unit attention, bus device reset function occurred
06	29	04	Unit attention, device internal reset
06	29	07	Unit attention, IT Nexus loss occurred
06	2A	01	Unit attention, mode parameters changed
06	2A	02	Unit attention, log parameters changed

06	2A	03	Unit attention, reservations pre-empted
06	2A	04	Unit attention, reservation released
06	2A	05	Unit attention , registrations per-empted
06	2A	09	Unit attention, capacity data may have changed
06	2F	00	Unit attention, commands cleared by another initiator
06	2F	01	Unit attention, commands cleared by power loss notification
06	3F	01	Unit attention, micro code has been changed
06	3F	05	Unit attention, device identifier changed
06	44	81	Unit attention, internal target failure
06	0B	01	Unit attention, SMART threshold exceeded temperature
06	5D	10	Unit attention, SMART threshold exceeded hardware failure
06	5d	14	Unit attention, SMART threshold exceeded reassigns
06	5D	FF	Unit attention, SMART threshold test
06	5D	32	Unit attention, SMART threshold exceeded read error rate
06	5D	42	Unit attention, SMART threshold exceeded write error rate
06	5D	73	Unit attention, SMART threshold exceeded endurance limit
07	27	00	Data protect, write protected
0B	00	06	IO process terminated
0B	10	01	Rx DIF Guard check failed
0B	10	02	Rx DIF App Tag check failed
0B	10	03	Rx DIF Ref Tag check failed
0B	0E	01	Iu too short
0B	41	00	Tx Data path failure
0B	44	00	Internal target failure
0B	4A	00	Command phase error
0B	4B	02	Too much write data
0B	4B	03	Ack Nak time out
0B	4B	04	Nak received
0B	4B	05	Data offset error
0B	4B	06	Initiator response timeout
0B	4E	00	Tx
0B	FF	FF	IO process aborted
0E	10	01	Mis-compare during verify operation
0E	10	02	Mis-compare during verify operation
0E	10	03	Mis-compare during verify operation

0E	1D	00	Mis-compare during verify operation
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## NVMe Error Codes

**Table 2.1 : Generic NVMe Error Codes**

Status Code	Description
1	Invalid Command Opcode
2	Invalid Field in Command
3	Command ID Conflict: The command identifier is already in use.
4	Data Transfer Error
5	Commands Aborted due to Power Loss Notification
6	Internal Device Error
7	Command Abort Requested
8	Command Aborted due to SQ Deletion
9	Command Aborted due to Failed Fused Command
A	Command Aborted due to Missing Fused Command
B	Invalid Namespace or Format
C	Command Sequence Error
D	Invalid SGL Last Segment Descriptor
E	Metadata SGL Length Invalid
F	SGL Descriptor Type Invalid
10	LBA Out of Range
11	SGL Descriptor Type Invalid
80	LBA Out of Range
81	Namespace Not Ready
82	Capacity Exceeded
83	Reservation Conflict

**Table 2.2: Command Specific NVMe Error Codes**

Status Code	Description
1	Completion Queue Invalid
2	Invalid Queue Identifier
3	Maximum Queue Size Exceeded

4	Abort Command Limit Exceeded
5	Asynchronous Event Request Limit Exceeded
6	Invalid Firmware Slot
7	Invalid Firmware Image
8	Invalid Interrupt Vector
9	Invalid Log Page
A	Invalid Format
B	Firmware Application Requires Conventional Reset
C	Invalid Queue Deletion
D	Feature Identifier Not Saveable
E	Feature Not Changeable
F	Feature Not Namespace Specific
80	Firmware Application Requires NVM Subsystem Reset
81	Invalid Protection Information
82	Attempted Write to Read Only Range

**Table 2.3: Media Data NVMe Error Codes**

Status Code	Description
80	Write Fault: The write data could not be committed to the media.
81	Unrecovered Read Error: The read data could not be recovered from the media.
82	End-to-end Guard Check Error
83	End-to-end Application Tag Check Error
84	End-to-end Reference Tag Check Error
85	Compare Failure: The command failed due to a mismatch during a Compare command
86	Access Denied

## Appendix B: Open Source Attribution

This product incorporates open source work.

Name	Description
Jansson	<p>Copyright (c) 2009-2013 Petri Lehtinen &lt;petri@digip.org&gt;</p> <p>Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:</p> <p>The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.</p> <p>THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.</p>
Zlib	<p>ZLIB DATA COMPRESSION LIBRARY</p> <p>zlib 1.2.7 is a general purpose data compression library. All the code is thread safe. The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <a href="http://tools.ietf.org/html/rfc1950">http://tools.ietf.org/html/rfc1950</a> (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).</p> <p>All functions of the compression library are documented in the file <code>zlib.h</code> (volunteer to write man pages welcome, contact <a href="mailto:zlib@gzip.org">zlib@gzip.org</a>). A usage example of the library is given in the file <code>test/example.c</code> which also tests that the library is working correctly. Another example is given in the file <code>test/minigzip.c</code>. The compression library itself is composed of all source files in the root directory.</p>

To compile all files and run the test program, follow the instructions given at the top of Makefile.in. In short `./configure; make test`, and if that goes well, `make install` should work for most flavors of Unix. For Windows, use one of the special makefiles in `win32/` or `contrib/vstudio/`. For VMS, use `make_vms.com`.

Questions about zlib should be sent to [zlib@gzip.org](mailto:zlib@gzip.org), or to Gilles Vollant [info@winimage.com](mailto:info@winimage.com) for the Windows DLL version. The zlib home page is <http://zlib.net/>. Before reporting a problem, please check this site to verify that you have the latest version of zlib; otherwise get the latest version and check whether the problem still exists or not.

PLEASE read the zlib FAQ [http://zlib.net/zlib\\_faq.html](http://zlib.net/zlib_faq.html) before asking for help.

Mark Nelson [markn@ieee.org](mailto:markn@ieee.org) wrote an article about zlib for the Jan. 1997 issue of Dr. Dobb's Journal; a copy of the article is available at <http://marknelson.us/1997/01/01/zlib-engine/>.

The changes made in version 1.2.7 are documented in the file `ChangeLog`.

Unsupported third party contributions are provided in directory `contrib/`.

zlib is available in Java using the `java.util.zip` package, documented at <http://java.sun.com/developer/technicalArticles/Programming/compression/>.

A Perl interface to zlib written by Paul Marquess [pmqs@cpan.org](mailto:pmqs@cpan.org) is available at CPAN (Comprehensive Perl Archive Network) sites, including <http://search.cpan.org/~pmqs/IO-Compress-Zlib/>.

A Python interface to zlib written by A.M. Kuchling [amk@amk.ca](mailto:amk@amk.ca) is available in Python 1.5 and later versions, see <http://docs.python.org/library/zlib.html>.

zlib is built into tcl: <http://wiki.tcl.tk/4610>.

An experimental package to read and write files in `.zip` format, written on top of zlib by Gilles Vollant [info@winimage.com](mailto:info@winimage.com), is available in the `contrib/minizip` directory of zlib.

Notes for some targets:

- For Windows DLL versions, please see `win32/DLL_FAQ.txt`
- For 64-bit Irix, `deflate.c` must be compiled without any optimization. With `-O`, one `libpng` test fails. The test works in 32 bit mode (with the `-n32`

compiler flag). The compiler bug has been reported to SGI.

- zlib doesn't work with gcc 2.6.3 on a DEC 3000/300LX under OSF/1 2.1 it works when compiled with cc.
- On Digital Unix 4.0D (formely OSF/1) on AlphaServer, the cc option -std1 is necessary to get gzprintf working correctly. This is done by configure.
- zlib doesn't work on HP-UX 9.05 with some versions of /bin/cc. It works with other compilers. Use "make test" to check your compiler.
- gzdopen is not supported on RISCOS or BEOS.
- For PalmOs, see <http://palmzlib.sourceforge.net/>

#### Acknowledgments:

The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by L. Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

#### Copyright notice:

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If you use the zlib library in a product, we would appreciate \*not\* receiving lengthy legal documents to sign. The sources are provided for free but without warranty of any kind. The library has been entirely written by Jean-loup Gailly and Mark Adler; it does not include third-party code.

If you redistribute modified sources, we would appreciate that you include in the file ChangeLog history information documenting your changes. Please read the FAQ for more information on the distribution of modified source versions.