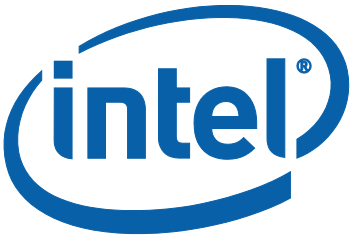

Intel® SSD Configuration Manager

User Guide

Software Version 2.1.0

Order Number: 327744-003

Contents

1.0 Introduction

The purpose of this guide is to describe how to use the *Intel® SSD Configuration Manager Tool 2.1*. The tool provides a command line interface for interacting with and issuing commands to Intel solid-state drives (SSDs).

***Note**: The Intel SSD Configuration Manager 2.X Tool provides configuration functionality for Intel® SATA SSDs and the Intel® SSD DC P3500, P3600 and P3700 Series only, but will identify and display ID/SMART information for any SATA drive. Version 2.X of the Intel SSD Configuration Manager Tool does not support the Intel® SSD 910 Series. Please use the Intel® SSD Datacenter Tool 1.0 for that drive.*

This Configuration Manager tool is intended to check the current state of, and configure Intel SATA and PCIe* SSDs for a production environment.

Version 2.X of the Intel SSD Configuration Manager Tool adds a significant amount of NVMe* commands to support our new family of NVMe* PCIe drives.

1.1 Features

This tool provides a suite of capabilities for interacting with Intel SATA and NVMe* SSDs. The functionality includes:

- Detecting drives attached on the system
- Parsing drive's Identify Device information, Parsing Drive's SMART information
- Performing a secure_erase
- Resizing the SSD's usable storage capacity by changing its max LBA
- Updating SSD firmware with separate firmware binaries. Firmware can be upgraded or downgraded
- Enabling and disabling DIPM on the drive
- Enabling and disabling Write Cache on the drive
- Formatting a drive:
  - For ATA drives this means issuing an Enhanced Secure Erase
  - For NVMe* drives this means an NVMe* Format will be run
- Calculating drive life expectancy. (Endurance Analyzer)
  - NOTE: Intel® X25-E SATA Solid-State Drive and Intel® Solid-State Drive 510 Series drives do not support Endurance Analyzer
  - NOTE: Intel® X18-M and X25-M SATA SSDs with firmware older than release 02M0 do not support Endurance Analyzer
- Issuing a Standby Immediate command

The following features apply to the Intel® SSD DC S3700 and Intel® SSD DC S3500 drives only:

- Enabling and disabling Spread Spectrum Clocking (SSC)
- Issuing SCT Error Recover Control command.
- Issuing SCT Write Same command.
- Setting drive PHY Speed: 1.5Gbs, 3.0Gbs, and 6.0Gbs.
- Setting PHY configs:
  - 0 (Default Enterprise Settings)
  - 1 (Client Settings)
  - 2 (Alternate Enterprise Settings)
- Parsing SCT Data Tables: HDA Temp and Endurance Manager Status.
- Issuing a drive self-test. Supported tests are short, extended, and conveyance.
- Support for SCT Feature Control:
  - Write cache state
  - Write cache reordering state
  - Temperature logging interval

- PLI Cap test time interval (vendor unique)
- Power Governor Mode (vendor unique). Three modes are supported:
  - 0 (Unconstrained. Power will be limited by maximum budget only.
  - 1 (Typical (7W))
  - 2 (Low (5W))
- Power Governor Burst power (vendor unique)
- Power Governor Average power (vendor unique)

The following features apply to the Intel® SSD DC P3700 and Intel® SSD DC P3500 drives only:

- Identifying NVMe* Controller
- Get NVMe* Log Pages
- Get and parse NVMe* feature structures

Set the drive's temperature threshold value

1.2 System Requirements

The tool is supported on the following operating systems:

- Windows* Server 2012
- Windows* Server 2008 SP2 / R2
- Windows* 8/8.1
- Windows* 7
- WindowsPE* 6.2.9200
- Red Hat* Enterprise Linux* (RHEL) 6.5
- SUSE* 13.1
- Ubuntu* 12.04.3; 13.10

NOTE: *Windows 8*, Windows 7*, and Server 2012/2008/R2*, administrator access is required via one of the following methods:*

- Open a command prompt as administrator and run the tool via the commands described in this document
- Disable UAC where applicable and run the tool by running it in a command prompt

NOTE: *On Linux* systems, the tool must be run with root privileges. This can be done through either sudo or su commands.*

- If running as non-root user, the tool will not be able to communicate with the drive. Only basic drive information will be displayed and drive functions will not work.
- The Linux* executable is a 32-bit binary that contains statically linked-in C/C++ libraries. It should work on both 32-bit and 64-bit systems.

1.3 Supported SSDs

The following Intel SATA SSDs are recognized and supported by Configuration Manager Tool 2.1. Please note that not all functions will be available for all drives.

- Intel® X25-E SATA Solid-State Drive
- Intel® X25-M SATA Solid-State Drive
- Intel® Solid-State Drive 310 Series
- Intel® Solid-State Drive 311 Series
- Intel® Solid-State Drive 313 Series
- Intel® Solid-State Drive 320 Series
- Intel® Solid-State Drive 330 Series
- Intel® Solid-State Drive 335 Series
- Intel® Solid-State Drive 510 Series

- Intel® Solid-State Drive 520 Series
- Intel® Solid-State Drive 521 Series
- Intel® Solid-State Drive 525 Series
- Intel® Solid-State Drive 530 Series
- Intel® Solid-State Drive 710 Series
- Intel® Solid-State Drive DC S3700 Series
- Intel® Solid-State Drive DC S3500 Series
- Intel® Solid-State Drive DC P3700 Series
- Intel® Solid-State Drive DC P3500 Series

Not Supported

1) Drives that may be connected through a third party SATA controller on a motherboard. The tool was validated on directly connected SATA ports only.
2) The Intel® Solid-State Drive 910 Series is not supported within this tool. Please obtain the Intel® SSD Datacenter 1.0 version for Intel®SSD 910 Series.

1.4 Known Issues

Issue	Functions Affected	Description
1	–max_address	Reading native max LBA and setting the max LBA is NOT SUPPORTED on Lenovo* SKUs of Intel SSD 330 Series, Intel SSD 335 Series, Intel SSD 520 Series, Intel SSD 521 Series and Intel SSD 525 Series drives.
2	–enable_wc –disable_ssc	Only Lenovo SKUs of Intel SSD 330 Series, Intel SSD 335 Series, Intel SSD 520 Series, Intel SSD 521 Series and Intel SSD 525 Series support the toggling of Write Cache.
3	–endurance_analyzer	Intel SSD X25-E and Intel SSD 510 Series drives do not support Endurance Analyzer. Intel SSD X25-M drives with firmware older than 2M0 do not support Endurance Analyzer.
4	Reading Native Max LBA	• Reading the native max LBA is problematic on WindowsXP* 2003 systems in IDE mode. If the drive is greater than 128GB, the 48-bit ATA command is required to read the native max LBA. This command does not return the correct data on these systems. The OS/Driver does not properly set the higher order bytes of the return task file for this command. As a result the return native max LBA is smaller than it actually is. o Same thing happens on SUSE* 32-bit systems. • Reading native max LBA isn't supported on certain CV Lenovo* SKU drives. The ATA command Read Native Max returns an error.
5	-standby_immediate	Cannot issue a standby immediate to the Host drive. The OS will most likely put the drive back into Active/Idle state before Configuration Manager can verify the state with check power mode command.
6	-enable_dipm, -disable_dipm	• The enable DIPM feature does not work as expected on Linux* OS running 3.7 and 3.8 kernel. Both SUSE* 12.3 and Ubuntu* 13.04 use these kernels. The issue is the ATA set feature command to enable DIPM succeeds however the OS then issues a comreset/cominit sequence. Verified

Issue	Functions Affected	Description
		with SG3 utils application. • These features do not work on Intel SSD DC S3700 and S3500 Series since those drives do not support DIPM.
7	-pg_mode, -error_recovery_control, -temp_logging_interval, -pli_test_time_interval, -enable_wc, -disable_wc, -wc_state	S3700 and S3500 SCT features that do a read operation and have the return value in the TF do not work properly in 32-bit systems with the Microsoft driver. This was tested on an ASUS Z78 board with Windows 7 32-bit using the 6.1 driver. Using Windows 7* 64-bit did work. These SCT features also do not work as expected with RST 11.6-12.6 drivers. The issue was fixed in RST 12.8. Solution: Install the latest RST driver for your intel-based systems.
8	-read_phy_settings	This functionality was introduced in S3700 firmware 267 and S3500 firmware 360. This command will fail if using firmware that was released prior to those versions
9	-self_test	Issues observed with this command, WinPE* systems on Z Series HP systems have blue screened.
10	All NVMe* Features	• On Ubuntu* 12.04.3 (LTS) the production NVMe* driver has issues loading P3700 drivers. If this is the case then NVMe* features of Configuration Manager (including drive detection) will not work. • With all latest 64-bit Linux distributions using the NVMe* production driver, the driver does not handle the 32-bit Configuration Manager tool properly with NVMe* commands. This is a known issue with the NVMe* production driver and is fixed on the latest branch of code. Current workaround is to use the 64-bit version of Configuration Manager.
11	-get_feature 198 -pg_mode (for FD drives)	• TBD

2.0 Command Line Options

The Configuration Manager uses a Command Line Interface (CLI). Table 1 shows the available command line options, which includes a brief description of each option. Alternatively, the tool can be executed without any options in order to print out the table.

The ***Command*** column describes the ATA or NVMe* command involved in the function.

The Firmware column describes the minimum firmware required to run that feature. All later firmware revisions is expected to work unless otherwise noted. If left blank, the feature should work on all firmware revisions.

Table 1: Features

Feature	***Brief Description***	***Command***	***Drives***	***Firmware***
Help with tool commands	Displays the command line options table. All other CLI arguments are ignored.	-help	All	
Display license	Displays the Tool's end-user license text.	-license	All	
List drives on the system	Scans the system for attached drives and display the results. The data will be saved to a file in CSV format if filename is provided. All other CLI arguments are ignored.	-drive_list	All	
Select a drive	Selects which attached drive to execute functions on.	-drive_index	All	
Force an action	Bypasses the user prompt	-force	All	
Log command results	Outputs a detailed log of the tool's functionality.	-log	All	
Set the Volatile Bit	Sets the volatile bit of the Option Flags for SCT Feature Control.	-volatile	S3700, S3500	
Display ATA drive Identify Device Information	Parses Identify Device information for ATA.	-identify	SATA drives	
Display NVMe Identify Namespace Information	Parses Identify Namespace for NVMe drives.	-identify (namespace #)	NVMe drives	
Display NVMe controller information	Parses Identify Controller data for NVMe drives.	-identify –controller	NVMe drives	
Display SMART information	Parses ATA SMART information.	–smart	All Intel SATA drives.	

Feature	Brief Description	Command	Drives	Firmware
Complete a Secure Erase	Secure Erase the drive. This deletes all user data!	–secure_erase	All Intel SATA drives.	
Set a different user capacity on the drive	Set the drives max LBA.	–max_address	All Intel SATA drives. (There are exceptions. See Known Issues)	
Complete a SATA firmware update	Update the drive's firmware with supplied firmware binary file.	–firmware_update	All SATA drives.	
Complete a NVMe firmware update	Update the drive's firmware with supplied firmware binary file and activate it.	-firmware_update	All NVMe drives.	
Enable DIPM on a drive	Enable drive's DIPM feature	-enable_dipm	All Intel SATA drives. (There are exceptions. See Known Issues)	
Disable DIPM	Disable drive's DIPM feature	–disable_dipm	All Intel SATA drives. (There are exceptions. See Known Issues)	
Enable Write Cache	Enabled drive's Write Cache feature	–enable_wc	All Intel SATA drives. (There are exceptions. See Known Issues)	
Disable Write Cache	Disable drive's Write Cache Feature	–disable_wc	All Intel SATA drives. (There are exceptions. See Known Issues)	

Feature	***Brief Description***	***Command***	***Drives***	***Firmware***
Complete a drive Endurance Calculation	Calculate the drive's life expectancy in years utilizing SMART attribute E2 (Media wear indicator)	–endurance_analyzer	All Intel SATA drives. (There are exceptions. See Known Issues)	
Notify a drive of pending power shutdown	Put the drive into standby mode preparing the drive for a power cycle	–standby_immediate	All Intel SATA drives	
Enable Spread Spectrum Clocking (SSC)	Enable the drives spread spectrum clocking feature	–enable_ssc	525 S3700 S3500	LCW 0267 0359
Disable SSC	Disable the drives spread spectrum clocking feature	–disable_ssc	525 S3700 S3500	LCW 0267 0359
Set a drive's physical interface (PHY)speed	Set the drives negotiated speed. Speed can be: 1.5Gbs, 3.0Gbs, and 6.0Gbs.	–set_phy_speed	S3700 S3500	0267 0359
Set a drive's PHY configuration	Set the drives PHY configuration. See read_phy_settings for reading the PHY settings.	–set_phy_config	S3700 S3500	0267 0359
Set error recovery control	Set the drives error recovery control for read and write timers	-error_recovery_control	S3700 S3500	0267 0359
Write a specific pattern to a drive	Issue a write same to the drive. This feature can be used to write a known pattern to the drive.	–write_same	S3700 S3500	0267 0359
Display the HDA temperature	Parse the drive's HDA temperature	–hda_temp	S3700 S3500	0267 0359
Display a drive's endurance manager status	Parse the drive's endurance manager status.	–em_status	S3700 S3500	0267 0359
Display the power governor burst data	Parse the drive's power governor burst setting.	–pg_burst	S3700 S3500	0267 0359

Feature	Brief Description	Command	Drives	Firmware
Display the average power governor data	Parse the drive's power governor average setting.	–pg_average	S3700 S3500	0267 0359
Display and set SATA power governor	Parse and set the drives power governor mode.	–pg_mode	S3700 S3500	0267 0359
Display and set NVMe power governor	Parse and set the drives power governor mode.	-get_feature	P3700	
Set WC state	Set the write cache state. This is similar to -enable_wc and -disable_wc	–wc_state	S3700 S3500	0267 0359
Display and change cache reordering	Parse and change the write cache reordering state	–wc_reordering_state	S3700 S3500	0267 0359
Display and set the temperature logging interval	Parse and set the temperature logging interval	–temp_logging_interval	S3700 S3500	0267 0359
Display and set PLI test timer interval	Parse and set the PLI test timer interval	–pli_test_time_interval	S3700 S3500	0267 0359
Complete a drive self test	Issue a drive self test. The tests you can run are: Short, extended and conveyance.	–self_test	S3700 S3500	0267 0359
Enable NCQ support	Set the NCQ bit in the identify block to enable NCQ	-enable_ncq_support	S3700 S3500	0267 0359
Disable NCQ support	Set the NCQ bit in the identify block to disable NCQ	-disable_ncq_support	S3700 S3500	0267 0359
Read the current PHY settings	Read the drives PHY settings. See -set_phy_config for changing the settings.	-read_phy_settings	S3700 S3500	0267 0359
Display PHY counters	Parse the drives PHY counters.	-phy_counters	S3700 S3500	0267 0359
Complete an Enhanced Secure Erase on a SATA drive	Issue a format to the drive erasing all user data. Use this if you want to issue an enhanced Secure Erase to and ATA drive.	-format	All Intel SATA Drives (Secure Erase)	

Feature	***Brief Description***	***Command***	***Drives***	***Firmware***
Complete an NVMe Format Operation	Issue a format to an NVMe drive erasing all user data.	-format	P3700	0030
Display NVMe log pages	Parse the NVMe log pages. Error Information (Log Page 1) SMART / Health Information (Log Page 2) Firmware Slot Information (Log Page 3) Endurance Manager Statistics (Log Page 196) Temperature Statistics (Log Page 197) SMART Attributes (Log Page 202)	-get_log	P3700	0030
Display NVMe Get Features structures	Parse the NVMe get features structures: Arbitration (FID 1) Power Management (FID 2) Temperature Threshold (FID 4) Error Recovery (FID 5) Number of queues (FID 7) Interrupt Coalescing (FID 8) Interrupt Vector Configuration (FID 9) Write Atomicity (FID 10) Asynchronous Event Configuration (FID 11) Native Max LBA (FID 194) Power Governor (FID 198)	-get_feature	P3700	0030
Display or write the SATA general purpose log	Read the general purpose log binary and save it to the given filename.	-read_gpl	S3700 S3500	026A 0370
Display or set the physical sector size	Display or set the selected drives physical sector size. Possible settings are 4KBytes and 512 Bytes	-physical_sector_size	S3700 S3500	026A 0370
Set an NVMe drive temperature threshold	Set the drives temperature threshold value.	-set_temp_threshold	P3700	0030

2.1 –help

Description:	The **–help** command displays the command line options table. All other arguments will be ignored.
Arguments:	None.
Used with:	None.
Errors Returned:	None.
Usage:	ISSDCM_win32.exe –help See Chapter 4.1: Display Tool Help for more information.

2.2 –license

Description:	The **–license** command displays Intel SSD Configuration Manager's End-User License Agreement. All other arguments will be ignored.
Arguments:	None.
Used with:	None.
Errors Returned:	None.
Usage:	**ISSDCM_win32.exe –license** See Chapter 4.2: Display Tool License for more information.

2.3 –drive_list [filename]

Description:	The **–drive_list** command scans the system for attached drives and adapters, and displays the results. All other arguments will be ignored. Use this option to see the drive indexes which will be used by –drive_index.
Arguments:	**Argument** / **Description** filename / This is an optional argument. When given the drive list will be saved to the given filename in CSV format.
Used with:	None.
Errors Returned:	**Error Code** / **Description** 73 / Invalid command line arguments are provided.
Usage:	**ISSDCM_win32.exe –drive_list** See Chapter 4.3: Displaying Drives for more information.

2.4 –drive_index [num]

Description:	The **-drive_index** command is used to select which attached drive to execute functions on. Run –drive_list to see the drive indexes for each attached drive. Basic drive information will be displayed if no additional options/functions are used.
Arguments:	**Argument** / **Description** num / The numeric value corresponds to the drive index from –list.
Used with:	-identify, -smart, -enable_dipm, -disable_dipm, -enable_wc, -disable_wc, -firmware_update, -max_address, -endurance_analyzer, -standby_immediate
Errors Returned:	**Error Code** / **Description** 73 / Invalid command line arguments are provided. 87 / Given index value is invalid. Its either non-numeric or out of range.
Usage:	**ISSDCM_win32.exe –drive_index X** See Chapter 4.6: Display Drive Info for more information.

2.5 –force

Description:	**–force** is used to bypass any warning prompts.
Arguments:	None.
Used with:	-firmware_update, -secure_erase, -max_address, -write_same
Errors Returned:	<table><tr><th>Error Code</th><th>Description</th></tr><tr><td>73</td><td>Provide –force with an argument. Example: -force ABC</td></tr></table>
Usage:	See Chapter 4.4: By-pass Prompt for more information.

2.6 –log [name of log file]

Description:	The **-log** command is used to save a detailed output file of the execution steps that the tool took to run the specified functionality. **NOTE: Does not log the functionality output displayed on the screen.** Mainly useful for debug purposes.
Arguments:	<table><tr><th>Argument</th><th>Description</th></tr><tr><td>name of the file</td><td>A valid filename and path.</td></tr></table>
Used with:	All tool functions.
Errors Returned:	<table><tr><th>Error Code</th><th>Description</th></tr><tr><td>73</td><td>Invalid command line arguments are provided. No filename is given, or multiple options are given to –log</td></tr><tr><td>122</td><td>Tool fails to write the log file.</td></tr></table>
Usage:	**ISSDCM_win32.exe –drive_index X [function] –log [name of file]** See Chapter 4.5 Running Log for more information.

2.7 –volatile

<table>
<tr><td>Description:</td><td>The –volatile flag is used to change the Option Flags for SCT Feature Control commands so the changes made will persist after a power cycle.</td></tr>
<tr><td>Arguments:</td><td>none</td></tr>
<tr><td>Used with:</td><td>–wc_state, -wc_reordering_state, -temp_logging_interval, -pli_test_time_interval</td></tr>
<tr><td>Errors Returned:</td><td><table><tr><th>Error Code</th><th>Description</th></tr><tr><td>73</td><td>Invalid command line arguments are provided.</td></tr></table></td></tr>
<tr><td>Usage:</td><td>See sections on SCT Write Cache State, SCT Write Cache Reordering State, Temperature Logging Interval, PLI Test Time Interval for more information.</td></tr>
</table>

2.8 –identify [filename]

Description:	The **-identify** command displays the drive's Identify Device information. Provide a filename to save the output to a file in CSV format. When used with –controller provides the information of the NVMe* controller
Arguments:	

Argument	Description
filename	This is an optional argument. When given, the Identify Device data will be saved to the given filename in CSV format.

Used with:	-drive_index -controller
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
20	The ATA identify device command returned a failure.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
122	If a filename is given and it failed to write the data to the file.

Usage:	**ISSDCM_win32.exe – drive_index X –identify** See Chapter 4.7: Identify Device for more information.

2.9 –smart [filename]

Description:	The **–smart** command displays the drive's SMART information. Provide a filename to save the output to a file in CSV format.
Arguments:	

Argument	Description
filename	This is an optional argument. When given the identify device data will be saved to the given filename in CSV format.

Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
22	The ATA read SMART thresholds command returned a failure.
23	The ATA read SMART data command returned a failure.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
122	If a filename is given and it failed to write the data to the file.

Usage:	**ISSDCM_win32.exe – drive_index X –smart** See Chapter 4.8: SMART for more information.

2.10 –secure_erase

Description:	The **–secure_erase** command is used to issue a Secure Erase to the selected drive and erase all data. ***NOTE:*** *Secure Erase can be executed on drives that contain a partition, and this will erase the partition! A second warning message will be displayed if the tool detects that the selected drive has a partition.* If –force is not used then the user will be prompted whether or not to continue the command.
Arguments:	None.
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
12	Drive was found to be Security Frozen.
15	The ATA Erase Unit command returned a failure.
16	The ATA Erase Prepared command returned a failure.
17	The ATA command to enable security returned a failure.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
77	Selected drive is an RST RAID member (CSMI drive).
81	The command was canceled by the user. Answered no to the prompt
86	The ATA Stand By Immediate command failed.
97	Selected drive is a RAID array.

Usage:	**ISSDCM_win32.exe –drive_index X –secure_erase** See Chapter 4.9: Secure Erase for more information.

2.11 –max_address [native | value | percent | capacity]

Description:

The **–max_address** command is used to set the drives max LBA value.

NOTE: *This will issue a Secure Erase to the drive before changing the Max LBA!*

If –force is not used then the user will be prompted whether or not to continue the command.

Arguments:

Argument	Description
native	This will set the drive back to its native max LBA value. **Note: no additional option is needed!**
value X	This will change the drives max LBA to the given **decimal** value X.
percent X	This sets the drives max LBA based on the given percentage of native max. X must be between 1 and 100.
capacity X	This sets the drive to the given size in Gigabytes. The tool calculates the corresponding LBA to achieve the given capacity. Note: there is some rounding error.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided. This can occur if they provide invalid percentage values, invalid capacity values, and invalid LBA values.
97	Selected drive is a RAID array.
110	The ATA Set Max Address command returned a failure.
*	**NOTE: All error codes generated from the –secure_erase command are also possible with –max_address.**

Usage:

ISSDCM_win32.exe –drive_index X –max_address native

ISSDCM_win32.exe –drive_index X –max_address value 1234567

ISSDCM_win32.exe –drive_index X –max_address percent 50

ISSDCM_win32.exe –drive_index X –max_address capacity 22

See Chapter 4.10: Set Max Address for more information.

2.12 –firmware_update [FW Filename]

Description:	The **–firmware_update** command is used to update the selected drive's firmware. When used on an NVMe* drive it will load the binary file and activate it. If –force is not used then the user will be prompted whether or not to continue the command.
Arguments:	**Argument** / **Description** FW Filename – The name of the firmware binary to download to the drive.
Used with:	-drive_index
Errors Returned:	**Error Code** / **Description** 3 – Selected drive index is not an ATA drive. 4 – Failed to connect / open the device. 10 – Failed to read in the given binary file. 19 – Failed to update the firmware. Download microcode command(s) failed. 45 – Selected drive index is not an Intel drive. 73 – Invalid command line arguments are provided. 81 – Update process was canceled by the user. Answered no to the prompt. 84 – Failed to enable SMART feature. 85 – Failed to disable SMART feature. 86 – The ATA Standby Immediate command failed. 97 – Selected drive is a RAID array. 98 – The system is in IDE mode and the selected drive firmware update is not supported. 128 – Error: Security is enabled on the drive
Usage:	**ISSDCM_win32.exe –drive_index X –firmware_update fwBinary.bin** See Chapter 4.11 Update Firmware for more information.

2.13 –enable_dipm

Description:	The **–enable_dipm** command is used to enable the drive's DIPM feature. This can be checked in the drive's Identify Device information: **Word 79, Bit 3**. If that bit is 1 then DIPM is enabled. The tool automatically checks that bit to make sure it was set correctly.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
108	The ATA Set Feature command failed.
124	The selected drive does not support DIPM.

Usage:	**ISSDCM_win32.exe –drive_index X –enable_dipm** See Chapter 4.12: Enable DIPM for more information.

2.14 –disable_dipm

Description:	The **–disable_dipm** command is used to disable the drive's DIPM feature. This can be checked in the drive's Identify Device information: **Word 79, Bit 3**. If that bit is 0 then DIPM is disabled. The tool automatically checks that bit to make sure it was set correctly.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
108	The ATA Set Feature command failed.
124	The selected drive does not support DIPM.

Usage:	**ISSDCM_win32.exe –drive_index X –disable_dipm** See Chapter 4.13 Disable DIPM for more information.

2.15 –enable_wc

Description:	The **–enable_wc** command is used to enable the drive's Write Cache feature. This can be checked in the drive's Identify Device information: **Word 85, Bit 5.** If that bit is 1 then write cache is enabled. The tool automatically checks that bit to make sure it was set correctly.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
108	The ATA Set Feature command failed.
125	The selected drive does not support Write Cache.

Usage:	**ISSDCM_win32.exe –drive_index X –enable_wc** See Chapter 4.14: Enable Write Cache for more information.

2.16 –disable_wc

Description:	The **–disable_wc** command is used to disable the drive's Write Cache feature. This can be checked in the drive's Identify Device information: **Word 85, Bit 5.** If that bit is 0 then write cache is disabled. The tool automatically checks that bit to make sure it was set correctly.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
108	The ATA Set Feature command failed.
125	The selected drive does not support Write Cache.

Usage:	**ISSDCM_win32.exe –drive_index X –disable_wc** See Chapter 4.15: Disable Write Cache for more information.

2.17 –endurance_analyzer [reset]

Description:

Use the **–endurance_analyzer** command to run the endurance analyzer calculation to determine drive's life expectancy as follows:

STEP 1: Reset SMART Attributes using [reset] option.

STEP 2: Remove the SSD and install in test system.

STEP 3: Apply minimum 60-minute workload to SSD.

STEP 4: Reinstall SSD in original system. Compute endurance using -endurance_analyzer.

Arguments:

Argument	Description
[reset]	Run this option to reset the SMART attributes and save the SMART data. The file is saved with the drive's serial number in the filename.
No Option	Run just –endurance_analyzer to calculate the expected life of the drive. It will reread the drive's SMART data as well as the data saved when **–endurance_analyzer reset** was run.

Used with: -drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
23	The ATA read SMART data command returned a failure.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
86	The ATA Stand By Immediate command failed.
97	Selected drive is a RAID array.
112	Failed to read the saved SMART data file. This file is saved by the Endurance Analyzer reset function.
113	The selected drive is an SSD generation that does not support Endurance Analyzer (Intel X25-E SSD or Intel SSD 510 Series).
114	The selected drive is an Intel X18-M or X25-M SATA SSD with older firmware (earlier than version 02M0), which does not support Endurance Analyzer.
120	The ATA SMART Execute offline immediate command returned a failure. This command is issued when doing a RESET
121	Failed to write the SMART data to file. This is done by REST and used in the Endurance calculation.

Usage:

ISSDCM_win32.exe –drive_index X –endurance_analyzer reset
ISSDCM_win32.exe –drive_index X –endurance_analyzer

See Chapter 4.16: Endurance Analyzer for more information.

2.18 –standby_immediate

<table>
<tr><td>Description:</td><td>Run the –standby_immediate command to shut down all current read/write operations as well as any internal operations of the drive. Typically used prior to removing power to a drive.</td></tr>
<tr><td>Arguments:</td><td>NA</td></tr>
<tr><td>Used with:</td><td>-drive_index</td></tr>
<tr><td>Errors Returned:</td><td>
<table>
<tr><th>Error Code</th><th>Description</th></tr>
<tr><td>3</td><td>Selected drive index is not an ATA drive.</td></tr>
<tr><td>4</td><td>Failed to connect / open the device.</td></tr>
<tr><td>23</td><td>The ATA read SMART data command returned a failure.</td></tr>
<tr><td>45</td><td>Selected drive index is not an Intel drive.</td></tr>
<tr><td>73</td><td>Invalid command line arguments are provided.</td></tr>
<tr><td>86</td><td>The ATA Stand By Immediate command failed.</td></tr>
<tr><td>97</td><td>Selected drive is a RAID array.</td></tr>
<tr><td>127</td><td>The ATA Check Power Mode command failed.</td></tr>
</table>
</td></tr>
<tr><td>Usage:</td><td>ISSDCM_win32.exe –drive_index X –standby_immediate
See Chapter 4.17: Standby Immediate for more information.</td></tr>
</table>

2.19 –enable_ssc

<table>
<tr><td>Description:</td><td>Use the –enable_ssc command to enable the drive's Spread Spectrum Clocking (SSC) ability. This can be checked in the drive's identify device information: Word 129, Bit 1. If that bit is 1 then SSC is enabled.

This functionality is only supported in Intel DC S3700 and DC S3500 drives, and SSD 520 Series with LCW or later firmware and SSD 525 Series drives with LCW or later firmware.

The drive must be power cycled for the settings to take effect</td></tr>
<tr><td>Arguments:</td><td>NA</td></tr>
<tr><td>Used with:</td><td>-drive_index</td></tr>
<tr><td>Errors Returned:</td><td>
<table>
<tr><th>Error Code</th><th>Description</th></tr>
<tr><td>3</td><td>Selected drive index is not an ATA drive.</td></tr>
<tr><td>4</td><td>Failed to connect / open the device.</td></tr>
<tr><td>45</td><td>Selected drive index is not an Intel drive.</td></tr>
<tr><td>73</td><td>Invalid command line arguments are provided.</td></tr>
<tr><td>97</td><td>Selected drive is a RAID array.</td></tr>
<tr><td>116</td><td>ATA command: Write Smart Log failed.</td></tr>
<tr><td>118</td><td>Selected drive is the wrong generation.</td></tr>
</table>
</td></tr>
<tr><td>Usage:</td><td>ISSDCM_win32.exe –drive_index X –enable_ssc

The drive banner for SSC supported drives will have an additional attribute (SSC) listed with the current setting.

See Chapter 4.18: Enable SSC for more information.</td></tr>
</table>

2.20 –disable_ssc

Description:	The **–disable_ssc** command is used to disable the drive's Spread Spectrum Clocking (SSC) ability. This can be checked in the drive's identify device information: **Word 129, Bit 1**. If that bit is 0 then SSC is disabled. This functionality is only supported in Intel DC S3700 and DC S3500 drives, and SSD 520 Series with LCW or later firmware and SSD 525 Series drives with LCW or later firmware. The drive must be power cycled for the settings to take effect
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.

Usage:	**ISSDCM_win32.exe –drive_index X –disable_ssc** The drive banner for SSC supported drives will have an additional attribute (SSC) listed with the current setting. See Chapter 4.19: Disable SSC for more information.

2.21 –set_phy_speed (speed)

Description:	Use the **–set_phy_speed** command to change the drive's negotiated operation speed. This can be checked in the drive's identify device information: **Word 77, Bits 1-3**. This functionality is only supported in Intel DC S3700 and DC S3500 drives. The drive must be power cycled for the settings to take effect.
Arguments:	**Argument** / **Description** speed — This specifies the speed at which the drive should operate at. Supported values are: 1.5, 3, and 6.
Used with:	-drive_index
Errors Returned:	**Error Code** / **Description** 3 — Selected drive index is not an ATA drive. 4 — Failed to connect / open the device. 45 — Selected drive index is not an Intel drive. 73 — Invalid command line arguments are provided. 97 — Selected drive is a RAID array. 116 — ATA command: Write Smart Log failed. 118 — Selected drive is the wrong generation. 157 — Invalid PHY speed given. Supported values are: 1.5, 3, and 6
Usage:	**ISSDCM_win32.exe –drive_index X –set_phy_speed (speed)** See Chapter 4.20: Set PHY Speed for more information.

2.22 –set_phy_config (config)

Description:

Use the **–set_phy_config** command to change the drive's PHY settings. This can be checked in the drive's identify device information **Word 138**. It will also be displayed with the drive status information.

This functionality is only supported in Intel DC S3700 and DC S3500 drives.

The drive must be power cycled for the settings to take effect.

Arguments:

Argument	Description
0	Default Enterprise Settings
1	Client Settings
2	Alternate Enterprise Settings

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
183	Invalid PHY config given. Supported values are: 0, 1, and 2

Usage:

ISSDCM_win32.exe –drive_index X –set_phy_config (config)

See Chapter 4.21: Set PHY Config for more information.

2.23 –error_recovery_control (timer) (value)

Description:

Use the –error_recovery_control command to display and set the drive's read and write error recovery timers.

This functionality is only supported in Intel® DC S3700 and DC S3500 drives.

Arguments:

Argument	Description
<none>	Default Enterprise Settings
(timer)	Used to select which timer to interact with. Possible values are: 'read_timer' and 'write_timer'. If no other argument is provided, then that timer's current setting will be displayed.
(value)	Used to set the selected (timer) value.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
158	Invalid error recovery option provided.

Usage:

ISSDCM_win32.exe –drive_index X –error_recovery_timer

ISSDCM_win32.exe –drive_index X –error_recovery_timer read_timer

ISSDCM_win32.exe –drive_index X –error_recovery_timer write_timer 5

See Chapter 4.22: SCT Error Recovery Control for more information.

2.24 –write_same (LBA) (count) (pattern)

Description:

Use the **–write_same** command to write a given pattern to the drive starting at the given LBA for a given number of sectors. The tool will prompt the user before issuing the SCT Write Same command.

Use the –force argument to bypass the prompt.

This functionality is only supported in Intel® DC S3700 and DC S3500 drives.

Arguments:

Argument	Description
(LBA)	The starting LBA to begin the write. LBA must be in LBA range.
(count)	The number of sectors to write. This must be a numeric value. The starting LBA and count cannot exceed the selected drive's LBA range. If count is 0 then the write will go from the started LBA to the max LBA.
(pattern)	The 4-byte pattern to write to the drive. This value can be in hex or decimal value.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
81	The command was canceled by the user. Answered 'no' to the prompt
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
163	Invalid write same options provided.
170	The given LBA and count for write same are not numeric.
171	The given LBA is not in user defined LBA space.
172	The given count for write same exceeds LBA range.
173	Invalid write same pattern given.

Usage:

ISSDCM_win32.exe –drive_index X –write_same 5 1 0xABABABAB

See Chapter 4.23: Write Same for more information.

2.25 –hda_temp

Description:	Use the **–hda_temp** command to display the selected drive's HDA Temperature data. This functionality is only supported in Intel® DC S3700 and DC S3500 drives.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
117	Read SMART log ATA command failed.
118	Selected drive is the wrong generation.

Usage:	**ISSDCM_win32.exe –drive_index X –hda_temp**

2.26 –em_status

Description:	Use the **–em_status** command to display the selected drive's endurance manager status. This functionality is only supported in Intel DC S3700 and DC S3500 drives.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
117	Read SMART log ATA command failed.
118	Selected drive is the wrong generation.

Usage:	**ISSDCM_win32.exe –drive_index X –em_status**

2.27 –pg_burst

Description:	Use the **–pg_burst** command to display the selected drive's power governor burst power setting. Value returned is in milliwatts. This functionality is only supported in Intel® DC S3700 and DC S3500 drives.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
117	Read SMART log ATA command failed.
118	Selected drive is the wrong generation.

Usage:	**ISSDCM_win32.exe –drive_index X –pg_burst**

2.28 –pg_average

Description:	Use the **–pg_average** command to display the selected drive's power governor average power setting. Value returned is in milliwatts. This functionality is only supported in Intel DC S3700 and DC S3500 drives.
Arguments:	NA
Used with:	-drive_index
Errors Returned:	

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.

Usage:	**ISSDCM_win32.exe –drive_index X –pg_average**

2.29 –pg_mode (mode)

<table>
<tr><td>Description:</td><td>Use the –pg_mode command to display, and set, the selected drive's power governor mode.
This functionality is only supported in Intel® DC S3700 and DC S3500 drives.</td></tr>
<tr><td>Arguments:</td><td>
<table>
<tr><th>Argument</th><th>Description</th></tr>
<tr><td>0</td><td>Unconstrained. Power will be limited by maximum budget</td></tr>
<tr><td>1</td><td>Typical (7W)</td></tr>
<tr><td>2</td><td>Low (5W)</td></tr>
</table>
</td></tr>
<tr><td>Used with:</td><td>-drive_index</td></tr>
<tr><td>Errors Returned:</td><td>
<table>
<tr><th>Error Code</th><th>Description</th></tr>
<tr><td>3</td><td>Selected drive index is not an ATA drive.</td></tr>
<tr><td>4</td><td>Failed to connect / open the device.</td></tr>
<tr><td>45</td><td>Selected drive index is not an Intel drive.</td></tr>
<tr><td>73</td><td>Invalid command line arguments are provided.</td></tr>
<tr><td>97</td><td>Selected drive is a RAID array.</td></tr>
<tr><td>116</td><td>ATA command: Write Smart Log failed.</td></tr>
<tr><td>118</td><td>Selected drive is the wrong generation.</td></tr>
<tr><td>159</td><td>Invalid power mode options provided.</td></tr>
</table>
</td></tr>
<tr><td>Usage:</td><td>ISSDCM_win32.exe –drive_index X –pg_mode
See Chapter 4.24: Power Governor Mode for more information.</td></tr>
</table>

2.30 –get_feature (fid)

Description:	Use the **–get_feature (fid)** to d**ispaly the given NVMe feature ID data to the screen**. Only supported on NVMe* drives. **(Required) The feature ID (fid) is required to parse. The fid must be a decimal integer literal. Supported feature ID's are listed below**
(fid) Numbers:	

(fid)	**Description**
1	Arbitration
2	Power Management
4	Temerature Threshold
5	Error Recovery
7	Number of Queues
8	Interrupt Coalescing
9	Interrupt Vector Configuration
10	Write Atomicity
11	Asynchronus Event Configuration
194	Native Max LBA
198	Power Governor

Used with:	
Usage:	**ISSDCM_win32.exe –drive_index X –pg_mode** See Chapter 4.24: Power Governor Mode for more information.

2.31 –wc_state (state)

Description:

Use the **–wc_state** command to alter the write cache state of the selected drive.

When changing the write cache state, use the -volatile flag to change the Options Flag. Using this flag will make the changes persist after a power cycle.

NOTE: *This is done via the SCT command! This is different than enabling/disabling write cache state via set features.*

This functionality is only supported in Intel® DC S3700 and DC S3500 drives.

Arguments:

Argument	Description
<none>	If no argument is provided with –wc_state the selected drive's current write cache state and option flags are displayed.
1	The write cache state is determined by Set Features.
2	Write cache state is enabled.
3	Write cache state is disabled.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
163	Invalid write cache state provided.

Usage:

ISSDCM_win32.exe –drive_index X –wc_state

See Chapter 4.26: SCT Write Cache State for more information.

2.32 –wc_reordering_state (enable|disable)

Description:

Use the **–wc_reordering_state** command to display, and set the selected drive's write cache reordering state.

When enabling/disabling the write cache reordering state, use the -volatile flag to change the Options Flag. Using this flag will make the changes persist after a power cycle.

This functionality is only supported in Intel® DC S3700 and DC S3500 drives.

Arguments:

Argument	Description
<none>	If no argument is provided with –wc_reordering_state the selected drives current write cache reordering state is displayed.
enable	The selected drive's write cache reordering state will be enabled.
disable	the selected drive's write cache reordering state will be disabled.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
165	Invalid write cache reordering state provided. State was not 'enable' or 'disable'.

Usage:

ISSDCM_win32.exe –drive_index X –wc_reordering_state

See Chapter 4.27: SCT Write Cache Reordering State for more information.

2.33 –temp_logging_interval (time)

Description:

Use the **–temp_logging_interval** command to display and change the selected drive's temperature logging time interval.

When changing the temperature logging interval time, use the -volatile flag to change the Options Flag. Using this flag will make the changes persist after a power cycle.will make the changes persist after a power cycle.

This functionality is only supported in Intel® DC S3700 and DC S3500 drives.

Arguments:

Argument	Description
<none>	If no argument is provided with –temp_logging_interval the selected drives current temperature logging interval time is displayed.
time	If a time value is provided, the selected drive's temperature logging interval time will be set. This time value is in minutes and must be a numeric value.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
162	Invalid time for temperature logging interval provided. Given time must be between 1 and 65535 inclusive.

Usage:

ISSDCM_win32.exe –drive_index X –temp_logging_interval

See Chapter 4.28: Temperature Logging Interval for more information.

2.34 –pli_test_time_interval (value)

Description:

Use the **–pli_test_time_interval** command to display and change the selected drive's PLI test time interval.

When changing the PLI test time interval, use the -volatile flag to change the Options Flag. Using this flag will make the changes persist after a power cycle.

This functionality is only supported in Intel® DC S3700 and DC S3500 drives.

Arguments:

Argument	Description
<none>	If no argument is provided with –temp_logging_interval the selected drives current temperature logging interval time is displayed.
0	Stop interval testing; no immediate test.
1	Stop interval testing; do immediate test.
2	Test every hour (60 minutes); do immediate test.
3	Test every day (1440 minutes); do immediate test.
4	Test every 3 days (4320 minutes); do immediate test.
5	Test every 7 days (10080 minutes); do immediate test.
6	Test every 14 days (20160 minutes); do immediate test.

Used with:

-drive_index

Errors Returned:

Error Code	Description
3	Selected drive index is not an ATA drive.
4	Failed to connect / open the device.
45	Selected drive index is not an Intel drive.
73	Invalid command line arguments are provided.
97	Selected drive is a RAID array.
116	ATA command: Write Smart Log failed.
118	Selected drive is the wrong generation.
164	Invalid time for PLI test time interval provided. Given value must be between 0 and 6 inclusive

Usage:

ISSDCM_win32.exe –drive_index X –pli_test_time_interval

See Chapter 4.29: PLI Test Time Interval for more information.

2.35 –self_test (short|extended|conveyance)

Description:	Use the **–self_test** command to execute a self-test on the selected drive. ***NOTE**: Self-test routines take several minutes to complete!* This functionality is only supported in Intel® DC S3700 and Intel DC S3500 drives.
Arguments:	<table><tr><th>Argument</th><th>Description</th></tr><tr><td>short</td><td>Execute a short self-test on the selected drive.</td></tr><tr><td>extended</td><td>Execute an extended self-test on the selected drive.</td></tr><tr><td>conveyance</td><td>Execute a conveyance self-test on the selected drive.</td></tr></table>
Used with:	-drive_index
Errors Returned:	<table><tr><th>Error Code</th><th>Description</th></tr><tr><td>3</td><td>Selected drive index is not an ATA drive.</td></tr><tr><td>4</td><td>Failed to connect / open the device.</td></tr><tr><td>23</td><td>Failed to issue ATA command read SMART data.</td></tr><tr><td>45</td><td>Selected drive index is not an Intel drive.</td></tr><tr><td>73</td><td>Invalid command line arguments are provided.</td></tr><tr><td>97</td><td>Selected drive is a RAID array.</td></tr><tr><td>120</td><td>Failed to issue ATA command SMART execute offline immediately.</td></tr><tr><td>168</td><td>Invalid self-test provided. Please use 'short' or 'extended' or 'conveyance'.</td></tr><tr><td>169</td><td>The selected self-test failed on the selected drive.</td></tr></table>
Usage:	**ISSDCM_win32.exe –drive_index X –self_test extended**

2.36 –enable_ncq_support, -disable_ncq_support

Description:	Use the **–enable_ncq_support and –disable_ncq_support** commands to set the NCQ bit in the identify device block. This functionality is only supported in Intel® DC S3700 and Intel DC S3500 drives.
Arguments:	None
Used with:	None
Usage:	**ISSDCM_win32.exe –enable_ncq_support, -disable_ncq_support**

2.37 –read_phy_settings

Description:	Use the **–read_phy_settings** command to display the selected drive's PHY settings. This functionality is only supported in Intel DC S3700 and Intel DC S3500 drives.
Arguments:	None
Used with:	-drive_index
Usage:	**ISSDCM_win32.exe –drive_index 1 –read_phy_settings**

2.38 –phy_counters

Description:	Use the **–phy_counters** command to display the PHY Counters data to the screen. This functionality is only supported in Intel DC S3700 and Intel DC S3500 drives.
Arguments:	none
Used with:	-drive_index
Usage:	**ISSDCM_win32.exe –drive_index 1 –phy_counters**

2.39 –format [SES | PI | LBAF | PIL | MS]

Description:	The **–format** command is used format the selected drive. The tool will prompt prior to issuing the format. Use this if you want to complete an Enhanced Secure Erase on a SATA drive. For NVMe* drives, this command will erase all user data. ***WARNING:*** *FORMAT WILL ERASE ALL DATA ON THE DRIVE!!.*
Arguments:	

Argument	Description
[SES]	(optional) Secure Erase Setting. Supported values are 0 = No Secure Erase {NVMe: Default } / Standard Secure Erase {ATA : Default } 1 = User Data Erase {NVMe } / Enhanced Secure Erase {ATA} 2 = Crypto Erase {NVMe Only}
[PI]	(Optional) Protection Information {NVMe Only. Selected drive may not support all options}. Supported values are: 0 = Protection Information not enabled {Default } 1 = Protection Information Type 1 enabled 2 = Protection Information Type 2 enabled 3 = Protection Information Type 3 enabled
[LBAF]	(Optional) LBA Format {NVMe Only. Selected drive may not support all options.} See identify controller information for supported values. Default = 0
[PIL]	(Optional) Protection Information Location {NVMe Only}. Supported values are: 0 = Protection information is transferred as the last 8 bytes of metadata when protection information is enabled. {Default} 1 = Protection information is transferred as the first 8 bytes of metadata when protection information is enabled.
[MS]	(Optional) Metadata Settings {NVMe Only}. Supported values are: 0 = Metadata is transferred as part of a separate contiguous buffer. {Default} 1 = Metadata is transferred as part of an extended data LBA.

Used with:	-drive_index
Usage:	**ISSDCM_win32.exe –drive_index 1 -format** **ISSDCM_win32.exe –drive_index 1 –format 1 2 0**

2.40 –get_log (log id)

<table>
<tr><td>Description:</td><td>The –get_log command is used to display the given NVMe* log data to the screen</td></tr>
<tr><td>Arguments:</td><td>
<table>
<tr><th>Argument</th><th>Description</th></tr>
<tr><td>(log id)</td><td>(Required) NVMe Log ID to parse. Supported log ID's are:
1 - Error Information
2 - SMART / Health Information
3 - Firmware Slot Information
196 - Endurance Manager Statistics
197 - Temperature Statistics
202 - SMART Attributes</td></tr>
</table>
</td></tr>
<tr><td>Used with:</td><td>-drive_index</td></tr>
<tr><td>Usage:</td><td>ISSDCM_win32.exe –drive_index 1 –get_log 2</td></tr>
</table>

2.41 –get_feature (fid)

<table>
<tr><td>Description:</td><td>The –get_feature command is used to display the given NVMe* feature ID data to the screen</td></tr>
<tr><td>Arguments:</td><td>
<table>
<tr><th>Argument</th><th>Description</th></tr>
<tr><td>(fid)</td><td>(Required) The feature ID to parse. fid must be a decimal integer literal. Supported feature ID's are:
1 - Arbitration
2 - Power Management
4 - Temperature Threshold
5 - Error Recovery
7 - Number of Queues
8 - Interrupt Coalescing
9 - Interrupt Vector Configuration
10 - Write Atomicity
11 - Asynchronous Event Configuration
194 - Native Max LBA
198 - Power Governor</td></tr>
</table>
</td></tr>
<tr><td>Used with:</td><td>-drive_index</td></tr>
<tr><td>Usage:</td><td>ISSDCM_win32.exe –drive_index 1 –get_feature 4</td></tr>
</table>

2.42 –read_gpl (filename) [log address] [page #] [sectors]

<table>
<tr><td>Description:</td><td>The –read_gpl command is used to read the general purpose log binary and save it to the given filename.</td></tr>
<tr><td>Arguments:</td><td>
<table>
<tr><th>Argument</th><th>Description</th></tr>
<tr><td>(filename)</td><td>((Required) Name of the file to save the GPL binary data to.</td></tr>
<tr><td>[log address]</td><td>(Optional) Address of the GPL to read. Value must be a decimal integer literal. Default = 0.</td></tr>
<tr><td>[page #]</td><td>(Optional) Log page to start reading at. Value must be a decimal integer literal. Default = 0.</td></tr>
<tr><td>[sectors]</td><td>(Optional) Number of sectors to read from the given GPL address. Value must be a decimal integer literal. Default = 1.</td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Used with:</td><td>-drive_index</td></tr>
<tr><td>Usage:</td><td>ISSDCM_win32.exe –drive_index 1 –read_gpl supportedGPL.bin 0 0 1</td></tr>
</table>

2.43 –physical_sector_size [state]

Description:	The **–physical_sector_size** command is used to display the selected drive's physical sector size to the screen
Arguments:	<table><tr><th>Argument</th><th>Description</th></tr><tr><td>[state]</td><td>(Optional) Set the selected drive's physical sector size. Supported values are: 0 = 512Byte physical sector size. 1 = 4KByte physical sector size.</td></tr></table>
Used with:	-drive_index
Usage:	**ISSDCM_win32.exe –drive_index 1 –physical_sector_size 1**

2.44 –set_temp_threshold (value)

Description:	The **–set_temp_threashold** command is used to set the selected drive's threshold value
Arguments:	<table><tr><th>Argument</th><th>Description</th></tr><tr><td>(value)</td><td>(Required) Temperature threhold value in units Kelvin. Max allowed value is 65535. Value must be given as a decimal integer literal</td></tr></table>
Used with:	-drive_index
Usage:	**ISSDCM_win32.exe –drive_index 1 –set_temp_threshold 1234**

3.0 Error Codes

Following is a table of the possible error and status codes that are returned from the tool. The first column lists the numeric value of the error/status code that is returned by the tool. In Windows, to display the numeric return value, type the following in the command prompt after running the tool:

```
echo %errorlevel%
```

Error / Status Code	Error / Status Name	Description
0	DM_NO_ERRORS	Completed successfully.
1	DM_READY	Ready to run.
2	DM_STOPPED	Canceled.
3	DM_NOT_ATA	The tool cannot communicate with the selected Intel SSD. Consider changing to another storage driver compatible with your system and try the tool again.
4	DM_OPEN_DEVICE_FAILED	Error: Could not communicate with drive.
10	DM_ERROR_READING_FILE	Error: Failed reading a file necessary for the feature. Reboot and try again.
12	DM_SECURITY_FROZEN	Error: The selected Intel SSD is in the Security Frozen state. Secure Erase cannot run until the Security Freeze Lock is cleared. To remove the lock, power-cycle the SSD while the operating system is running. This can be done by unplugging and plugging in the SSD.
13	DM_HAS_PARTITION	Selected Drive contains a partition
14	DM_NO_PARTITION	The selected Intel SSD has no partition. This feature requires a partition to run.
15	DM_ERASE_UNIT_FAILED	Error: Secure Erase Unit command failed. Reboot and try again. If error persists, consider using a DOS-based tool for Secure Erase.
16	DM_ERASE_PREPARED_FAILED	Error: Secure Erase Prepare command failed. Reboot your system and try again. If error persists, consider using a DOS-based tool for Secure Erase.
17	DM_SECURITY_ENABLE_FAILED	Error: Security Set Password command failed. Reboot your system and try again. If error persists, consider using a DOS-based tool for Secure Erase.
18	DM_NO_FW_UPDATE	The selected Intel SSD contains current firmware as of this tool release.
19	DM_UPDATE_FAILED	Error: Firmware update failed.
20	DM_IDENTIFY_DEVICE_FAILED	Error: Identify device command failed.

Error / Status Code	Error / Status Name	Description
22	DM_READ_SMART_THRESHOLDS_FAILED	Error: SMART read thresholds command failed.
23	DM_READ_SMART_DATA_FAILED	Error: SMART read data command failed.
45	DM_NOT_INTEL	Error: Drive is not an Intel SSD.
66	DM_FW_PRE_PRODUCTION	Your Intel SSD has pre-production firmware. Please contact Intel Customer Support for further assistance at the following website: http://www.intel.com/go/ssdsupport.
67	DM_FW_UNSUPPORTED	Your Intel SSD has unsupported firmware. Please contact Intel Customer Support for further assistance at the following website: http://www.intel.com/go/ssdsupport.
68	DM_FW_ICS	Please contact Intel Customer Support for further assistance at the following website: http://www.intel.com/go/ssdsupport.
69	DM_FW_USE_DOS	The firmware update process cannot be completed in Windows for this firmware. Please use the Intel SSD Firmware Update Tool in DOS.
73	DM_INVALID_ARGS	Error: Invalid arguments provided.
77	DM_CSMI	Error: This feature cannot run on a RAID member.
81	DM_CANCELED	Canceled.
84	DM_ENABLE_SMART_FAILED	Error: Failed to enable SMART.
85	DM_DISABLE_SMART_FAILED	Error: Failed to disable SMART.
86	DM_STANDBY_IMMEDIATE_FAILED	Error: ATA Stand By Immediate command failed.
87	DM_INVALID_DRIVE_INDEX	Error: Given drive index is invalid. Drive could not be found.
97	DM_RAID	This feature cannot run on a RAID volume. Select a specific RAID member to run this feature.
98	DM_IDE_MODE	Your system is in IDE Mode making it incompatible with Windows-based firmware updates. Please use the Intel SSD Firmware Update Tool in DOS to complete the firmware update.
103	DM_FW_CONTACT_VENDOR	Please contact your system vendor for the most current firmware for this drive.
108	DM_ERROR_SET_FEATURE	Error: ATA Set Feature command failed.
109	DM_ERROR_READ_NATIVE_MAX	Error: ATA read native max command failed.
110	DM_ERROR_SET_MAX_ADDRESS	Error: ATA Set native max command failed.

Error / Status Code	Error / Status Name	Description
112	DM_ERROR_READING_SMART_FILE	Error: Failed to read the saved SMART data. Did you reset the SMART attributes?
113	DM_INVALID_GENERATION	Error: Selected SSD Generation does not support Endurance Analyzer.
114	DM_INVALID_PV_GENERATION	Error: Failed to start Endurance Analyzer. Invalid SSD Generation. Intel Postville SSD must have firmware version 02M0 or newer.
115	DM_INVALID_DRIVE_SERIAL	Error: Given drive serial is invalid. Drive could not be found.
116	DM_WRITE_SMART_LOG_FAILED	Error: Write SMART Log command failed.
117	DM_READ_SMART_LOG_FAILED	Error: Read SMART Log command failed.
118	DM_WRONG_GENERATION	Error: This feature does not support this drive.
119	DM_READ_LOG_EXT_FAILED	Error: Read Log Extended command failed.
120	DM_SMART_EXECUTE_OFFLINE_IMMEDIATE_FAILED	Error: Failed to issue SMART execute offline immediate command.
121	DM_ERROR_WRITING_ENDURANCE_ANALYZER_FILE	Error: Failed to save SMART attributes file for Endurance Analyzer.
122	DM_ERROR_WRITE_FILE	Error: Failed to write file.
124	DM_NO_DIPM_SUPPORT	Error: Drive does not support DIPM.
125	DM_NO_WRITE_CACHE_SUPPORT	Error: Drive does not support Write Cache.
126	DM_INVALID_DRIVE_LETTER	Error: Given drive letter is invalid. Drive could not be found.
127	DM_CHECK_POWER_MODE_FAILED	Error: ATA Check Power Mode command failed.
136	DM_SECURITY_ENABLED	The firmware cannot be updated on the selected drive because ATA security is enabled. Consider turning off ATA security before updating the firmware with the tool.
141	DM_INSUFFICIENT_BUFFER_SIZE	Error: The supplied buffer is not large enough for this command.
148	DM_WRONG_SKU	Error: Invalid drive SKU.
149	DM_SECURITY_ENABLED_SE	Secure Erase cannot be run on the selected drive because ATA security is enabled. Consider turning off ATA security before erasing the selected drive with the tool.
152	DM_STORAGE_SPACE_MEMBER	The selected Intel SSD is part of a Storage Space. The SSD must be removed from the Storage Space to use this feature.

Error / Status Code	Error / Status Name	Description
155	DM_SECURE_ERASE_WIN_8	Secure Erase cannot be run on the selected drive because it is not a supported feature under Windows 8 or Windows Server 2012.
157	DM_INVALID_PHY_SPEED	Error: Invalid PHY speed given. Supported values are: 1.5 3.0 and 6.0.
158	DM_INVALID_ERROR_RECOVERY_OPTION	Error: Invalid error recovery control option given. See -help for valid options.
159	DM_INVALID_POWER_MODE_OPTIONS	Error: Invalid power mode given. Valid modes are 0 1 and 2.
160	DM_INVALID_THROTTLE_OPTIONS	Error: Invalid thermal throttle options give. Valid options are: 'enable' and 'disable'.
161	DM_INVALID_FEATURE_CONTROL_OPTION	Error: Invalid SCT feature control options given. see -help for proper usage.
162	DM_INVALID_TEMP_LOGGING_INTERVAL_OPTION	Error: Invalid time given for termperature logging interval. Value must be between 1 and 65535 (inclusive).
163	DM_INVALID_WRITE_CACHE_STATE_OPTION	Error: Invalid write cache state option given. Valid options are: 1 2 and 3.
164	DM_INVALID_PLI_TEST_TIME_INTERVAL_OPTION	Error: Invalid value given for PLI test time interval. Valid values are: 0-6 (inclusive).
165	DM_INVALID_WRITE_CACHE_REORDERING_OPTION	Error: Invalid write cache reordering option given. Valid options are: 'enable' and 'disable'.
166	DM_INVALID_WRITE_SAME_OPTIONS	Error: Invalid write same options given. See -help for proper usage.
167	DM_WRITE_SAME_COMMAND_FAILED	Error: Write same command failed.
168	DM_INVALID_SELF_TEST	Error: Invalid self-test given. Valid tests are: 'short' 'extended' and 'conveyance'.
169	DM_SMART_SELF_TEST_FAILED	Error: Drive self-test failed.
170	DM_INVALID_WRITE_SAME_LBA_COUNT	Error: Invalid write same parameters. LBA and count must be numeric.
171	DM_INVALID_WRITE_SAME_LBA	Error: Given LBA is not in user LBA range.
172	DM_INVALID_WRITE_SAME_COUNT	Error: Given count will exceed LBA range.
173	DM_INVALID_WRITE_SAME_PATTERN	Error: Invalid write same pattern given.
179	DM_STANDBY_IMMEDIATE_FAILED_SE	Error: Standby Immediate command failed. Reboot your system and try again. If error persists, consider using a DOS-based tool for Secure Erase.
183	DM_INVALID_PHY_CONFIG	Error: Invalid PHY Config value given. Supported values are: 0 1 and 2.

Error / Status Code	Error / Status Name	Description
188	DM_DEVICE_FAULT	Error: The device fault is set on the selected drive. This functionality is not supported in the device fault state.
189	DM_ERROR_NVME_WINDOWS_DRIVER	Error from Windows NVMe Driver.
190	DM_ERROR_NVME_COMPLETION_ENTRY	Error: NVMe Command failed.
192	DM_INVALID_SYSTEM_PLL_OPTION	Error: Invalid clock speed given. See -help for proper usage.
193	DM_INVALID_NAND_TIMING_MODE_OPTION	Error: Invalid NAND speed option given. See -help for proper usage.
197	DM_INVALID_CUSTOM_PHY_PARAMETERS	Invalid custom PHY settings given.
198	DM_SCAN_NOT_RUN	Error: Scan was not run. Please run Scan before using GetDeviceList or GetDeviceString.
199	DM_INVALID_DRIVE_ID	Error: Given device ID is invalid. Drive could not be found.
201	DM_INVALID_GET_FEATURE_ID	Error: Invalid feature ID given.
202	DM_INVALID_GET_LOG_ID	Error: Invalid log ID given.
203	DM_INVALID_DRIVE_PATH	Error: Given drive path is invalid. Drive could not be found.
204	DM_INVALID_DRIVE_CSMI	Error: Given CSMI information is invalid. Drive could not be found.
205	DM_NO_MEDIA_WEAR	Note: Workload did not induce any wear on the drive. Expected life calculation is invalid. Ensure that workloads run for an hour or more for accurate calculations.
238	DM_ADAPTER_RESET_FAILED	Error: failed to reset Adapter.
239	DM_SYSTEM_RESCAN_FAILED	Error: System rescan failed.
252	DM_DISABLE_LOGICAL_STATE	Error: Selected drive is in a disable logical state.

4.0 Examples

4.1 Display Tool Help

The help table can be displayed by using the –help command line option:

```
ISSDCM_win32.exe –help
```

4.2 Display Tool License

The -license option will display the End-User license agreement for Intel® SSD Configuration Manager:

```
ISSDCM_win32.exe –license
```

4.3 Displaying Drives

The –drive_list option will display a list of drives on the system:

```
ISSDCM_win32.exe –drive_list
```

4.4 Bypass Prompt (force)

The –force option is used to bypass the warning prompts associated with the –secure_erase, -firmware_update, –max_address and –write_same commands.

4.5 Running Log

The –log [filename] option is used to take a detailed log of the tool's functionality. It is very useful for debugging purposes.

4.6 Display Drive Info

The –drive_index option is used to select a drive via drive index (see –drive_list) to execute functions on. Use –drive_index by itself (no other options) to print out drive information:

```
ISSDCM_win32.exe –drive_index 1
```

If the tool does not return with complete native max data it will report the following:

```
No MAX LBA info: Failed to read native max. Please try enabling Legacy IDE mode in your BIOS and retry
```

Some drives do not support the read native max command. The following error will be returned if such a drive is selected:

```
No MAX LBA info: Error: Invalid Drive SKU
```

The Intel® SSD 520 Series, Intel® SSD DC S3700, and Intel® SSD DC S3500 will display additional information such as SATA negotiation speed.

4.7 Identify Device

The –identify option is used to read and parse the ATA Identify device information of the selected drive. The filename argument is optional. If it is not given then the identify device information will be displayed on the screen in table format. NOTE: Identify device is a large table and the console window may not be large enough to display it in a readable format.

```
ISSDCM_win32.exe –drive_index 1 –identify
```

If a filename is given then the identify device information will be saved to the file in CSV format.

```
ISSDCM_win32.exe –drive_index 3 –identify idInfo.csv
```

4.8 SMART

The –smart option is used to read and parse the ATA SMART data information of the selected drive.

```
ISSDCM_win32.exe –drive_index 3 –smart
```

If the filename option is given then the SMART information will be saved to the file in CSV format.

```
ISSDCM_win32.exe –drive_index 1 –smart smartInfo.csv
```

4.9 Secure Erase

The –secure_erase option will erase all the data on the drive.

```
ISSDCM_win32.exe –drive_index 1 –secure_erase
```

The user will be prompted unless the –force option is used:

```
WARNING: You have selected to secure erase the drive!
Proceed with the secure erase? (Y/N)
```

If the drive contains a partition, the prompt contains a second warning message:

```
WARNING: You have selected to secure erase the drive!
WARNING: Tool has detected as partition on the drive!
Proceed with the secure erase? (Y/N)
```

To bypass the warning prompts, use the –force option:

```
ISSDCM_win32.exe –drive_index 1 –secure_erase -force
```

4.10 Set Max Address

The –max_address option is used to change the drive's maximum storage capacity up to the native capacity of the drive (ie MAX LBA). It has four options:

NOTE: issuing –max_address will issue a Secure Erase first! The user will be prompted unless –force is given.

Native is used to reset the drive back to its native Max LBA, or 100% of the drive.

```
ISSDCM_win32.exe –drive_index 1 –max_address native
```

```
WARNING: Changing the drive's MAX LBA requires a secure erase!
WARNING: You have selected to secure erase the drive!
Proceed with the secure erase? (Y/N)
```

Value option is used when the user wants to specify the drive's max LBA. The parameter given to "value" is decimal. The example below sets the drive's Max LBA to 55555.

```
ISSDCM_win32.exe –drive_index 1 –max_address value 55555
```

The percent option is used when the user wants to change the drive's size based on a percentage of native max. Values of 1-100 are valid, where a value of 100 is equivalent to using the native option of –max_address.

```
ISSDCM_win32.exe –drive_index 1 –max_address percent 55
```

The capacity option can be used to set the drive to a specific capacity in gigabytes. The command will result in an error if the given number of gigabytes is less than 1 or is greater than the drive's max capacity.

```
ISSDCM_win32.exe –drive_index 1 –max_address capacity 20
```

4.11 Update Firmware

The -firmware_update is used to update the firmware of the selected drive:

```
ISSDCM_win32.exe –drive_index 1 –firmware_update 4PC10362.css
```

If security is enabled on the drive then the firmware update process will not proceed:

```
Error: Security is enabled on the drive. You must disable password
protection before updating the firmware.
```

4.12 Enable DIPM

The –enable_dipm option will enable the DIPM feature on the drive. The host OS still has the ability to re-enable this feature.

```
ISSDCM_win32.exe –drive_index 1 –enable_dipm
```

4.13 Disable DIPM

The –disable_dipm option will disable the DIPM feature on the drive. The host OS still has the ability to re-enable this feature.

```
ISSDCM_win32.exe –drive_index 1 –disable_dipm
```

4.14 Enable Write Cache

The –enable_wc option will enable the write cache feature on the drive. The host OS still has the ability to re-enable this feature.

```
ISSDCM_win32.exe –drive_index 3 –enable_wc
```

The following error will be returned if the selected drive is the wrong SKU:

```
Error: Invalid drive SKU
```

4.15 Disable Write Cache

The –disable_wc option will disable the write cache feature on the drive. The host OS still has the ability to re-enable this feature.

```
ISSDCM_win32.exe –drive_index 1 –disable_wc
```

The following error will be returned if the selected drive is the wrong SKU:

```
Error: Invalid drive SKU
```

4.16 Endurance Analyzer

The –endurance_analyzer option is used to calculate the life expectancy of the drive based on a user workload.

Below are the instructions:

STEP 1: Reset SMART Attributes using [reset] option. This will also save a file that contains the base SMART data. This file is needed, and used, in step 4 when the life expectancy is calculated.

```
ISSDCM_win32.exe –drive_index 2 –endurance_analyzer reset
```

STEP 2: Remove the SSD and install in test system.

STEP 3: Apply minimum 60-minute workload to SSD.

STEP 4: Reinstall SSD in original system. Compute endurance using -endurance_analyzer.

```
ISSDCM_win32.exe –drive_index 2 –endurance_analyzer
```

4.17 Standby Immediate

The –standby_immediate will send an ATA Standby Immediate command to the selected drive. This prepares the drive for removal from the system.

```
ISSDCM_win32.exe –drive_index 1 –standby_immediate
```

4.18 Enable SSC

The –enable_ssc command will enable the Spread Spectrum clocking feature of the drive. After running this command the drive will need to be power cycled to have the setting take effect.

This functionality is only supported on Intel® SSD 520 Series drives drives with firmware LCU or greater, or Intel® SSD 525 Series drives with firmware LCW or greater.

Functionality is supported on Intel® SSD DC S3700 and Intel® SSD DC S3500 drives.

The Drive banner will show the current setting for SSC. Note: this setting only appears when a supported drive is selected.

```
ISSDCM_win32.exe –drive_index 1 –enable_ssc
```

***Important Note**: On Intel SSD DC S3700 and Intel SSD DC S3500 drives, a COMINIT is required to commit the changes. This is done by Intel® SSD Configuration Manager. Once the command completes, due to the COMINIT, the drive must be power cycled. Until the drive is power cycled, SSD Configuration Manager cannot communicate with the drive.*

4.19 Disable SSC

The –disable_ssc command will disable the clocking feature of the drive. After running this command the drive will need to be power cycled to have the setting take effect.

This functionality is supported on Intel SSD DC S3700 and Intel SSD DC S3500 drives, and is also supported on Intel SSD 520 Series drives drives with firmware LCU or greater firmware and Intel SSD 525 Series drives with LCW or greater firmware.

The Drive banner will show the current setting for SSC. Note: this setting only appears when a supported drive is selected.

```
ISSDCM_win32.exe –drive_index 1 –disable_ssc
```

On Intel SSD DC S3700 and Intel SSD DC S3500 drives, a COMINIT is required to commit the changes. This is done by the Tool. Once the command completes, due to the COMINIT, the drive must be power cycled. Until the drive is power cycled, the tool cannot communicate with the drive.

4.20 Set PHY Speed

Use –set_phy_speed to change the speed at which the selected drive operates at. This functionality is only supported on Intel SSD DC S3700 and Intel SSD DC S3500 drives.

Supported speeds are: 1.5, 3, and 6Gbs.

***Important Note**: On Intel SSD DC S3700 and Intel SSD DC S3500 drives, a COMINIT is required to commit the changes. This is done by SSD Configuration Manager. Once the command completes, due to the COMINIT, the drive must be power cycled. Until the drive is power cycled, SSD Configuration Manager cannot communicate with the drive.*

```
ISSDCM_win32.exe –drive_index 1 –set_phy_speed 1.5
```

4.21 Set PHY Config

Use –set_phy_config to change the drive's PHY settings. This functionality is only supported on Intel SSD DC S3700 and Intel SSD DC S3500 drives. Supported values are:

0 - Default Enterprise Settings

1 - Client Settings.

2 - Alternate Enterprise Settings

***Important Note**: On Intel® SSD DC S3700 and Intel® SSD DC S3500 drives, a COMINIT is required to commit the changes. This is done by Intel® SSD Configuration Manager. Once the command completes, due to the COMINIT, the drive must be power cycled. Until the drive is power cycled, SSD Configuration Manager cannot communicate with the drive.*

```
ISSDCM_win32.exe –drive_index 1 –set_phy_config 2
```

The drive information will display the current PHY configuration for your selected drive (Intel SSD DC S3700 only)

4.22 SCT Error Recovery Control

The –error_recovery_control function is used to display and set the read/write error recovery timers. To display both read and write timers use no arguments:

```
ISSDCM_win32.exe –drive_index 1 –error_recovery_control
```

If you are interested in just the read recovery timer: (Use 'write_timer' to see the write recovery timer)

```
ISSDCM_win32.exe –drive_index 1 –error_recovery_control read_timer
```

If you want to set the write recovery time: (use 'read_timer' to set the read recovery timer). Value given is in 100ms units.

```
ISSDCM_win32.exe –drive_index 1 –error_recovery_control write_timer 5
```

4.23 Write Same

Use –write_same to issue the SCT Write Same command to the drive. This allows you to fill up a sequential area of the drive with a known data pattern. The required options for this command are:

LBA = Starting LBA to being writing at. This value must be within the user defined LBA range. If it is not, an error will be returned.

Count = The number of sectors to write from the starting LBA. If a count of 0 is given then the write will go from the starting LBA to the end of the user defined LBA range.

Pattern = a 4 byte value to write to the drive.

```
ISSDCM_win32.exe –drive_index 1 –write_same 5 1 0xFFFFABAB
```

The example above will write the pattern: 0xFFFFABAB to LBA 5.

4.24 Power Governor Mode

Use –pg_mode to display and/or change the selected drive's power governor mode. Below are the supported modes:

0 – Unconstrained. Limited by maximum budget only
1 – Typical (7W)
2 – Low (5W)

To view the current setting:

```
ISSDCM_win32.exe –drive_index 1 –pg_mode
```

To explicitly set the power governor mode, provide one of the supported mode options to –pg_mode:

```
ISSDCM_win32.exe –drive_index 1 –pg_mode 2
```

Re-run –pg_mode without arguments to view the new setting.

4.25 SCT Write Cache State

Use –wc_state to display and change the write cache state of the selected drive. Supported states are:

1 – Write Cache state is determined by Set Features

2 – Write Cache state is enabled.

3 – Write Cache state is disabled.

With no arguments, the selected drive's write cache state is displayed:

```
ISSDCM_win32.exe –drive_index 1 –wc_state
```

Provide a valid state (see list above) to the –wc_state option to change the write cache state.

```
ISSDCM_win32.exe –drive_index 1 –wc_state 3
```

Re-run the –wc_state command without arguments to see the new setting.

Use the –volatile flag to make the changes persist on power cycle. If –volatile is not used, then the Option Flag: non-volatile bit is set to 1. This will cause the settings to be reset on the next power cycle.

4.26 SCT Write Cache Reordering State

Use –wc_reordering_state without arguments to display the selected drive's write cache reordering state:

```
ISSDCM_win32.exe –drive_index 1 –wc_reordering_state
```

You can use the arguments **enable** and **disable** to set the state:

```
ISSDCM_win32.exe –drive_index 1 –wc_reordering_state enable
```

Use the –volatile flag to make the changes persist on power cycle. If –volatile is used, then the Option Flag: non-volatile bit is set to 0. This will cause the settings to persist after power cycle.

4.27 Temperature Logging Interval

Use –temp_logging_interval to display the selected drive's temperature logging interval time.

```
ISSDCM_win32.exe –drive_index 1 –temp_logging_interval
```

Time is displayed in minutes.

You can explicitly set the temperature logging interval by providing it a time value. The given value must be between **1** and **65535** inclusive.

```
ISSDCM_win32.exe –drive_index 1 –temp_logging_interval 55
```

Use the –volatile flag to make the changes persist on power cycle. If –volatile is used, then the Option Flag: non-volatile bit is set to 0. This will cause the settings to persist after power cycle.

4.28 PLI Test Time Interval

Use the –pli_test_time_interval command to display the selected drive's PLI cap test time interval setting:

```
ISSDCM_win32.exe –drive_index 1 –pli_test_time_interval
```

You can explicitly set the PLI test time interval by specifying one of the supported values 0-6:

```
ISSDCM_win32.exe –drive_index 1 –pli_test_time_interval 2
```

The following list enumerates the available settings:

0: Stop interval testing; no immediate test will run
1: Stop interval testing; do immediate test
2: Test once every hour (60 minutes); do immediate test
3: Test once every day (1440 minutes); do immediate test
4: Test once every 3 days (4320 minutes); do immediate test
5: Test once every 7 days (10080 minutes); do immediate test
6: Test once every 14 days (20160 minutes); do immediate test

Use the –volatile flag to make the changes persist on power cycle. If –volatile is not used, then the Option Flag: non-volatile bit is set to 1. This will cause the settings to be reset on the next power cycle.

5.0 Revision History

Date	Revision	Description
September 2012	001	Initial release for software version 1.0.1
February 2013	002	Updated for software version 1.1.0
February 2014	003	Updated for software version 2.1.0