

SanDisk SSD Dashboard

User Manual

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Revision History

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1. Preface

1.1 About This Document

This document describes the installation process and usage instructions for the SanDisk SSD Dashboard.

1.2 Typographical Conventions

This document follows these conventions:

Convention	Usage	Examples	
Note:	Important additional information or further explanation of a topic.	Note: A weekly backup is recommended.	
Warning!	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.	Warning! Do not change configuration parameters.	
Bold	A command or system input that you type, or text or a button displayed on a screen.	Click HELP for details on disaster recovery.	
Italic	 Italic font indicates any of the following: A term with a specific meaning in the context of this document. Emphasis on specific information. Reference to another document. 	Detailed information on <i>disaster</i> recovery methods is available in the Administrator Guide.	
Blue text	Hyperlinks are underlined; cross references to information within this document are not.	For more details, see Error! eference source not found., or visit www.sandisk.com.	

2. Introduction

2.1 Minimum System Requirements

The SanDisk SSD Dashboard is a Windows application. It can be installed on 32 or 64 bit Windows Vista, 7, 8, or 8.1 environments. Admin rights are required for installation and execution of the application.

Supported Operating Systems

- Windows Vista (32/64 bit)
- Windows 7 (32/64 bit)
- Windows 8 (32/64 bit)
- Windows 8.1 (32/64 bit)

Additional Requirements

- .NET 4.0 or above
- Internet Explorer 9 or above

2.2 Supported Languages

17 languages are supported:

_	Czec	ᄂ
•	1 700	rı

Danish

Dutch

English

French

German

Italian

Japanese

Korean

Polish

Portuguese

Russian

• Simplified Chinese

Spanish

Swedish

• Traditional Chinese

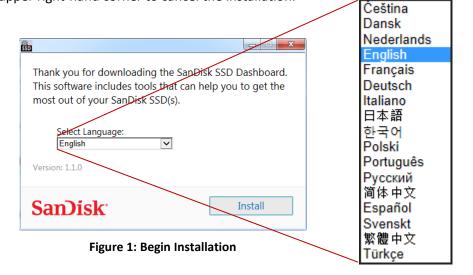
Turkish

Čeština
Dansk
Nederlands
English
Français
Deutsch
Italiano
日本語
한국어
Polski
Português
Русский
简体中文
Español
Svenskt
繁體中文
Türkçe

2.3 Installation

You may download the current version of the SanDisk SSD Dashboard software from http://www.sandisk.com/ssddashboard. Once it has been downloaded, double-click on the SanDiskSSDDashboadSetup.exe file icon to launch the installation program.

Select a language and then click on the **Install** button to proceed with the installation. Otherwise, click on the red button in the upper right-hand corner to cancel the installation.



When the installation has completed successfully, click on the **Finish** button. This will automatically launch the SanDisk SSD Dashboard and load the Status section.

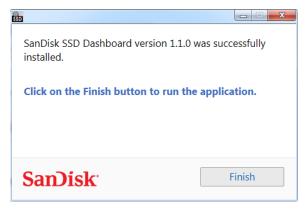


Figure 2: Installation Successful

Note: To perform an Application Update, see <u>section 6.1</u>.

2.4 Usage

The SanDisk SSD Dashboard will automatically scan for SanDisk SSDs when it loads.



Figure 3: Scanning for SanDisk SSDs

If a SanDisk SSD was not connected to the system when the application was loaded, or a specific one is not appearing in the SanDisk SSD Dashboard, you may (re)connect it, then click the **Refresh** icon to rescan the system for SanDisk SSDs.

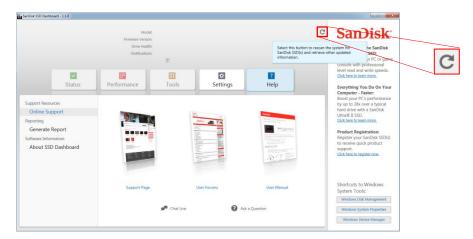


Figure 4: Rescan for SanDisk SSD(s)

Once all of the SanDisk SSD drives have been detected, you may select the specific drive you would like to examine by using the **Select drive** menu.

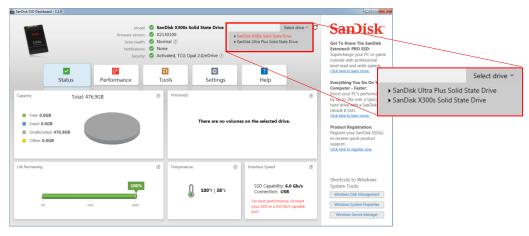


Figure 5: Select drive

3. Status

The Status section displays the overall state and health of the drive.

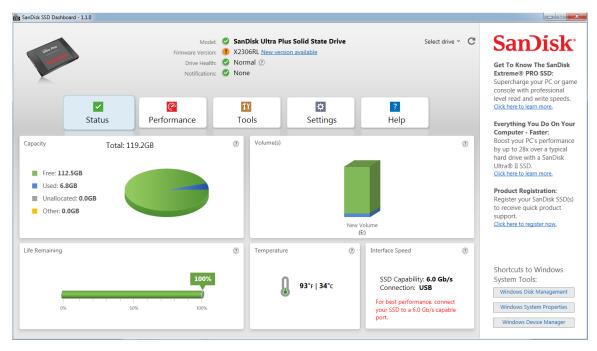


Figure 6: Status

Model

Product model of the selected SanDisk SSD.

Firmware Version

Version number of current firmware installed on the selected SSD.

Drive Health

Drive Health summarizes the current condition of the SSD based on S.M.A.R.T. attributes.

Normal The drive is in good condition.

Poor The number of spare blocks has reached the minimum threshold. It is suggested to

replace this drive with a new SSD.

Notifications

Any notifications, such as software or firmware updates available or S.M.A.R.T. attribute warnings, will be displayed in this area.

Security

If the selected drive supports security, this area will be visible.

It will display "Not Activated" if the security protocol is not active. Otherwise, it will display the name of the active security protocol, such as TCG Opal 2.0.

Capacity

Displayed capacity is based on Windows® total reported capacity.

Green Free space
Blue Used space

Gray Unallocated space

Yellow Other

Volumes

The chart displays any drive volumes recognized by Windows.

Green Free space

Blue Used space

Red No free space

Life Remaining

The Life Remaining percentage represents the remaining writes that the drive can perform in its lifetime.

Note: If this feature is not supported by the drive, a "Not Supported" message will be displayed.

Temperature

The temperature display is reported by the drive.

Green Normal operation

Red Drive is currently overheating

Interface Speed

SSD Capability is the fastest speed supported by the drive.

Connection Speed is the actual speed negotiated with this system. If the Connection Speed is lower than the SSD Capability, try connecting the drive to a faster port for better performance.

4. Performance

4.1 Performance Chart

The Performance chart has the ability to show two different real time performance metrics. The chart will scroll from right to left showing a moving 5 minutes time line on the horizontal axis. The vertical axis of the chart will show either Mega Bytes per second or I/O operation count per second.

Transfer Speed MB/s

The disk read and writes are shown in the chart with green and blue indicators, respectively.



Figure 7: Transfer Speed MB/s

Transfer IOPS

The disk I/O read and writes are shown in the chart with orange and purple indicators, respectively.

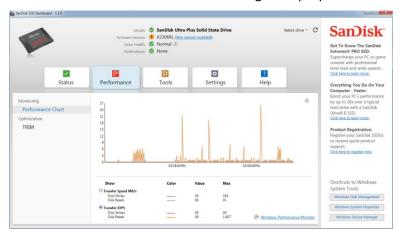


Figure 8: Transfer IOPS

4.2 TRIM

TRIM frees up space on the SSD used by files that have since been deleted.

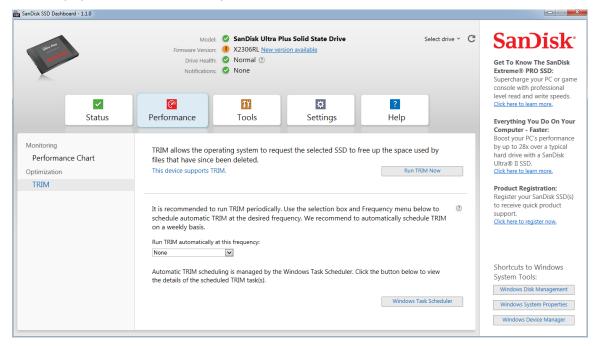


Figure 9: TRIM

Use the **Run TRIM Now** button to manually run TRIM.

It is recommended to run TRIM weekly. Select the frequency to be weekly.

To view SanDisk SSD Dashboard scheduled TRIM tasks, click the **Windows Task Scheduler** button to schedule the task. Each TRIM task is specific to a drive, so multiple drives can be scheduled differently for TRIM.

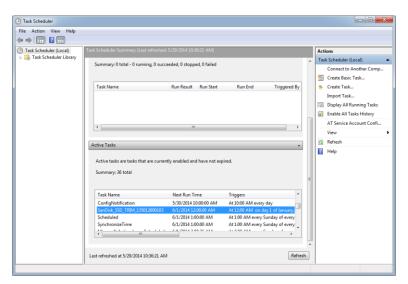


Figure 10: Windows Task Scheduler

5. Tools

5.1 Third Party Offers

Third party offers relevant to the SSD drive will be displayed at the bottom of the Tools section. These may include applications or services such as drive cloning, anti-virus software, theft recovery, drive security, etc... To find out more about a particular offer, simply click on the image or third party logo.

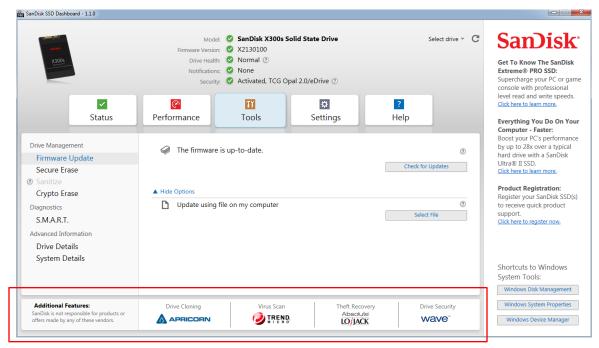


Figure 11: Third Party Offers

5.2 Firmware Update

You may use the **Update SSD Firmware** button to initiate an update or click on the **Show More Options** link to select additional methods to update the firmware.

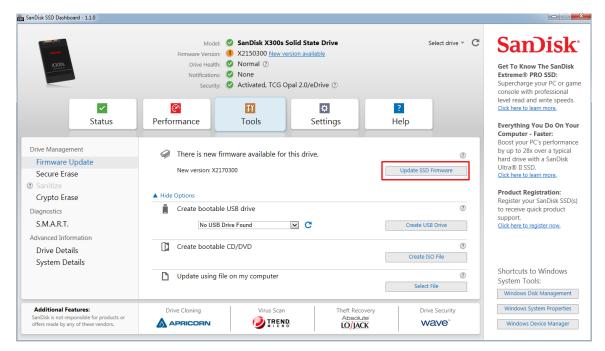


Figure 12: Firmware Update

When you click on the **Update SSD Firmware** button, a confirmation dialog will appear.

Note: It is strongly recommended that you backup your data before updating the firmware.

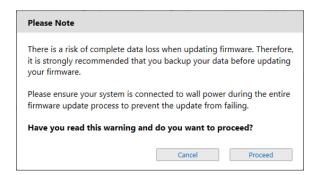


Figure 13: Firmware Update Confirmation

Once the firmware has been downloaded to the drive, the power to the SSD must be turned off to complete the firmware update process. This can usually be done by shutting down the computer then turning it back on.

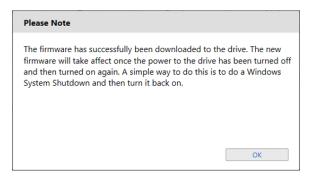


Figure 14: Firmware Update – System Shutdown Required

For legacy drives, SanDisk SSD Dashboard may ask to reboot the computer to run the firmware update tool.

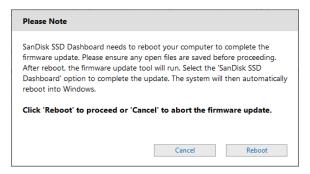


Figure 15: Firmware Update - Legacy Drives

When the boot process is complete, select SanDisk SSD Dashboard to initiate the firmware update.

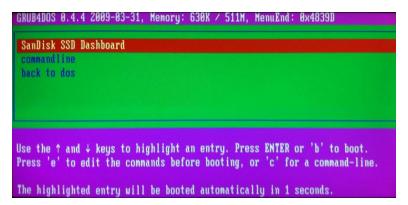


Figure 16: Bootable CD/DVD - Select SanDisk SSD Dashboard

The firmware update process will run, and upon successful completion, it will shut down the computer.

```
SanDisk Dashboard
Parsing Kernel Boot Command Options...
Found Command: ffu
Found Command: ffu
Found Parameter: 131996401387
Found Parameter: 131996401387
Run SanKit with FFU
Using Device 131996401387
Found 131996401387
Starting Download
Firmware File Size 1117184

The firmware update process is about to begin. Please do not turn off your commoter or disconnect the SSD during the update process.

HARNING: Power must not be removed from device during download!

Loading Firmware: firmware.bin, Size=2182 sectors

Updating Firmware...Download Mode 0x03
Firmware update process completed successfully.
System will shutdown in five seconds_
```

Figure 17: Bootable CD/DVD - Firmware Update Process

You will need to turn the computer back on.

Check for Updates

Click on Check for Updates to manually check if a firmware update is available for the selected drive.

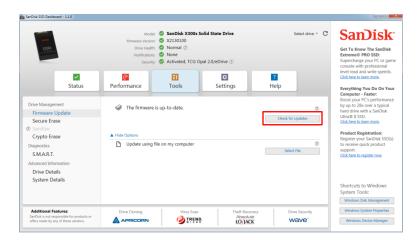


Figure 18: Check for Firmware Updates

If one is found, the status message will change to "There is new firmware available for this drive" and the available update options will be displayed.

Create Bootable USB Drive

Some firmware updates may require you to create a bootable USB with the firmware update tool on it. The bootable USB drive can also be used as a portable tool to update SSDs on multiple systems.

Click on the **Select USB Drive** dropdown to choose the desired USB drive and then click on the **Create USB Drive** button. If it is not listed, click on the **Refresh** icon next to the dropdown menu to scan for the USB drive. It is recommended to backup any existing data on the USB drive before proceeding.

Note: The USB drive must be formatted as FAT or FAT32.

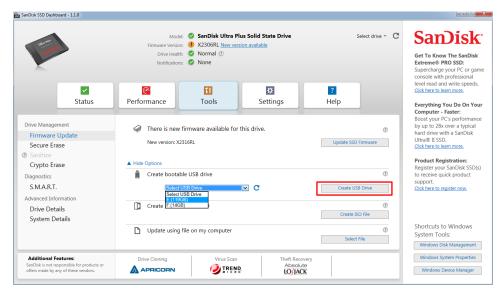


Figure 19: Create Bootable USB Drive

Reboot the computer with the USB drive plugged in and select USB Storage Device as the boot device.



Figure 20: Bootable USB Drive - Select USB Storage Device

When the boot process is complete, select **SanDisk SSD Dashboard** to initiate the firmware update.



Figure 21: Bootable CD/DVD - Select SanDisk SSD Dashboard

The firmware update process will run, and upon successful completion, it will shut down the computer.

```
SanDisk Dashboard
Parsing Kernel Boot Command Options...
Found Command: ffu
Found Command: ffu
Found Parameter: 131996401387
Found Parameter: 131996401387
Run SanKit with FFU
Using Device 131996401387
Found 131996401387
Starting Download
Firmware File Size 1117184

The firmware update process is about to begin. Please do not turn off your commander or disconnect the SSD during the update process.

WARNING: Power must not be removed from device during download!

Loading Firmware: firmware.bin, Size=2182 sectors

Updating Firmware...Download Mode 0x83
Firmware update process completed successfully.
System will shutdown in five seconds_
```

Figure 22: Bootable CD/DVD - Firmware Update Process

You will need to turn the computer back on.

Create Bootable CD/DVD

You may download an ISO file which can be used with your favorite CD/DVD burning software to create a bootable CD/DVD. This will allow you to boot from the disc and run the firmware update on an SSD.

Click on the Create ISO file button then select the folder where the ISO file will be saved.

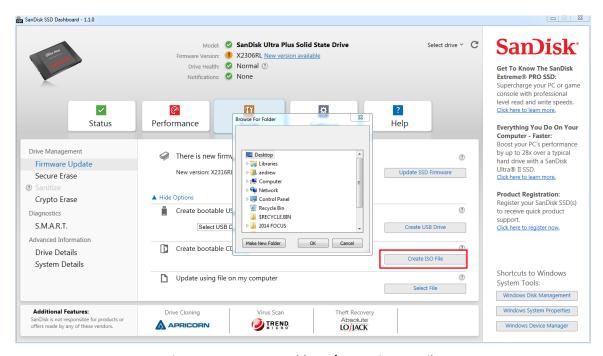


Figure 23: Create Bootable CD/DVD Using ISO File

Next, use your favorite CD/DVD burning software to select the downloaded ISO file and burn it to a disc.

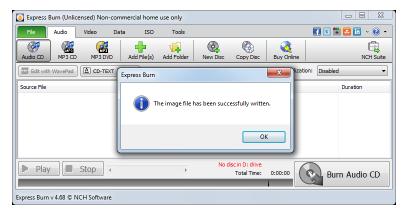


Figure 24: Create Bootable CD/DVD

Reboot the computer with the disc in the CD/DVD drive and select **CD/DVD Drive** as the boot device.

```
Use the f(Up) and 4(Doun) arrow keys to move the pointer to the desired boot device.

Press [Enter] to attempt the boot or ESC to Cancel. (* = Password Required)

Boot mode is set to: LEGACY: Secure Boot: OFF

LEGACY BOOT:

ST3189834698
SanDisk SDSSDHP1286
OD/DDD/CD-RU Drive
Onboard NIC

UEFI BOOT:

SanDisk SSD Dashboard
Windows Boot Manager
OTHER OPTIONS:
BIOS Setup
Diagnostics
Intel(R) Management Engine BIOS Extension (MEBx)
Change Boot Mode Settings
```

Figure 25: Bootable CD/DVD - Select CD/DVD Drive as Boot Device

When the boot process is complete, select **SanDisk SSD Dashboard** to initiate the firmware update.

```
GRUBADOS 0.4.4 2009-03-31, Memory: 630K / 511M, MenuEnd: 0x4839D

SanDisk SSD Dashboard

commandline
back to dus

Use the ↑ and ↓ keys to highlight an entry. Press ENTER or 'b' to boot.

Press 'e' to edit the commands before booting, or 'c' for a command-line.

The highlighted entry will be booted automatically in 1 seconds.
```

Figure 26: Bootable CD/DVD - Select SanDisk SSD Dashboard

The firmware update process will run, and upon successful completion, it will shut down the computer.

```
SanDisk Dashboard
Parsing Kernel Boot Command Options...
Found Command: ffu
Found Command: ffu
Found Parameter: 131996401387
Found Parameter: 131996401387
Run SanKit with FFU
Using Device 131996401387
Found 131996401387
Found 131996401387
Starting Download
Firmware File Size 1117184
The firmware update process is about to begin. Please do not turn off your com
ter or disconnect the SSD during the update process.

WARMING: Power must not be removed from device during download!
Loading Firmware: firmware.bin, Size=2182 sectors

Updating Firmware...Download Mode 0x83
Firmware update process completed successfully.
System will shutdown in five seconds_
```

Figure 27: Bootable CD/DVD - Firmware Update Process

You will need to turn the computer back on.

Update Using File on My Computer

If there is a specific firmware file already downloaded that should be used for the update, click on the **Select File** button.

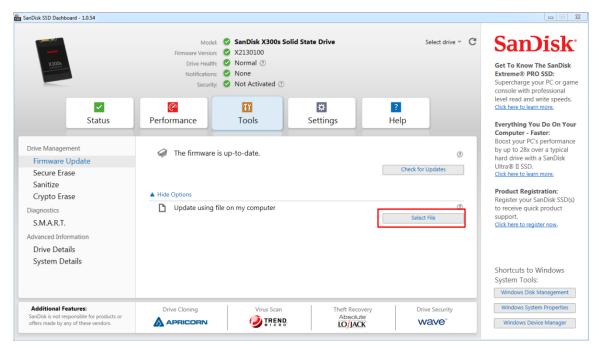


Figure 28: Firmware Update Using File on My Computer

A confirmation dialog will appear before you may proceed to select the file.

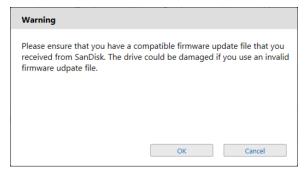


Figure 29: Firmware Update Warning

Note: Only compatible firmware update files may be used for this process.

5.3 Secure Erase

Secure Erase will erase the drive and can only be performed on SSD drives that are not the boot drive. Click **Erase Now** to erase the drive and leave it in an unformatted state.

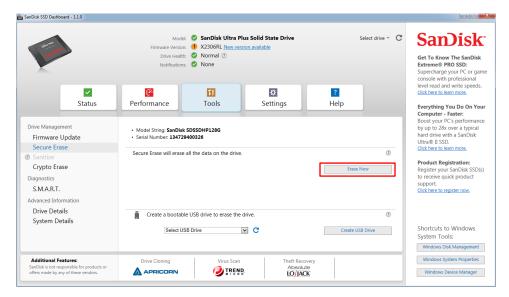


Figure 30: Secure Erase

If the SSD is the boot drive, you may create a bootable USB drive with the Secure Erase tool on it. The bootable USB drive can also be used as a portable tool to erase SSDs on multiple systems.

Click on the **Select USB Drive** dropdown to choose the desired USB drive and then click on the **Create USB Drive** button. If it is not listed, click on the **Refresh** icon next to the dropdown menu to scan for the USB drive. It is recommended to backup any existing data on the USB drive before proceeding.

Note: The USB drive must be formatted as FAT or FAT32.

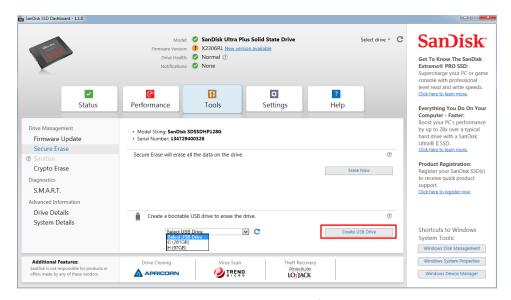


Figure 31: Create Bootable USB Drive for Secure Erase

5.4 Sanitize

Sanitize will explicitly erase all of the data on the drive and can only be performed on SSD drives that are not the boot drive. Click **Erase Now** to erase the drive and leave it in an unformatted state.

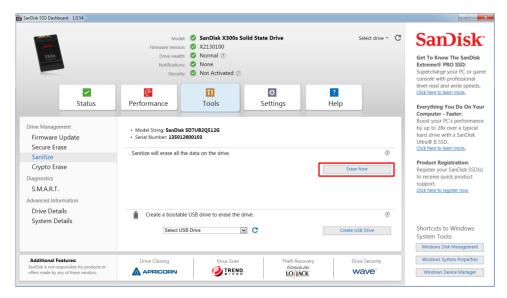


Figure 32: Sanitize

If the SSD is the boot drive, you may create a bootable USB drive with the Sanitize tool on it. The bootable USB drive can also be used as a portable tool to erase SSDs on multiple systems.

Click on the **Select USB Drive** dropdown to choose the desired USB drive and then click on the **Create USB Drive** button. If it is not listed, click on the **Refresh** icon next to the dropdown menu to scan for the USB drive. It is recommended to backup any existing data on the USB drive before proceeding.

Note: The USB drive must be formatted as FAT or FAT32.

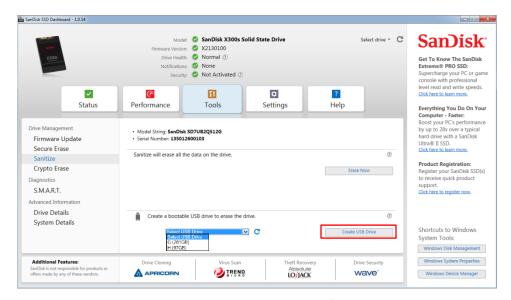


Figure 33: Create Bootable USB Drive for Sanitize

5.5 Crypto Erase

Crypto Erase is used to revert an OPAL-activated or eDrive-activated SanDisk SSD back to its factory default state. After a Crypto Erase, all security keys will be deleted, rendering the user data unrecoverable. Also, OPAL or eDrive security will be deactivated so that the drive can be reused with any compatible security application.

Crypto Erase can only be performed on security enabled SSDs that are not the boot drive. The drive's unique Physical Security ID (PSID), which is printed on the drive's label, is required to perform a Crypto Erase. Click **Erase Now** to erase the drive and leave it in an unformatted state.

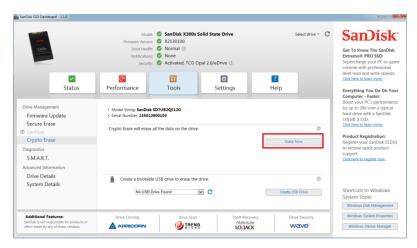


Figure 34: Crypto Erase

If the SSD is the boot drive, you may create a bootable USB drive with the Crypto Erase tool on it. The bootable USB drive can also be used as a portable tool to erase SSDs on multiple systems.

Click on the **Select USB Drive** dropdown to choose the desired USB drive and then click on the **Create USB Drive** button. If it is not listed, click on the **Refresh** icon next to the dropdown menu to scan for the USB drive. It is recommended to backup any existing data on the USB drive before proceeding.

Note: The USB drive must be formatted as FAT or FAT32.

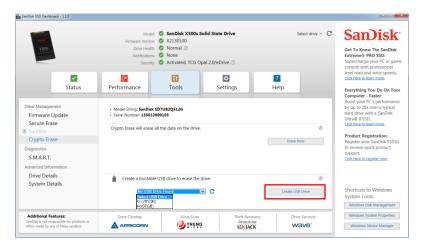


Figure 35: Create Bootable USB Drive for Crypto Erase

5.6 S.M.A.R.T.

S.M.A.R.T. is an industry standard and is an acronym for *Self-Monitoring, Analysis and Reporting Technology*.

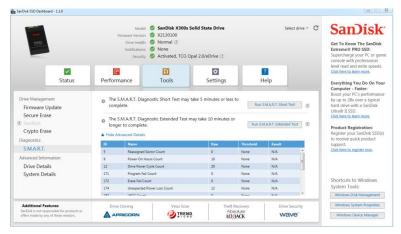


Figure 36: S.M.A.R.T.

Diagnostic Short Test

The S.M.A.R.T. Diagnostic Short Test is automatically run every time the application is launched. It is a quick drive health test as defined in the S.M.A.R.T. specification.

Diagnostic Extended Test

The S.M.A.R.T. Diagnostic Extended Test is an extended drive health test as defined in the S.M.A.R.T. specification. When this test is running, you will not be able to do anything else within the SanDisk SSD Dashboard. However, you can cancel the test at any time.

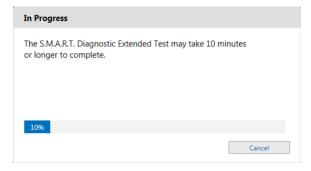


Figure 37: S.M.A.R.T. Diagnostic Extended Test

If the test is successful, the description text will change to a green success message. Otherwise, a link will be displayed to go the details of the test.



Figure 38: S.M.A.R.T. Diagnostic Extended Test Successful

5.7 Drive Details

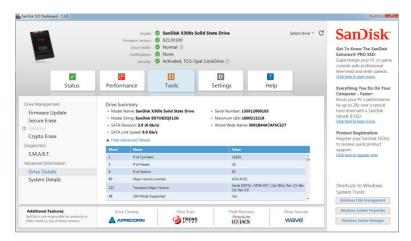


Figure 39: Drive Details

Drive Details displays the following information for the selected drive:

- Model Name
- Model String
- SATA Revision
- SATA Link Speed
- Serial Number
- Maximum LBA
- World Wide Name (a unique identifier used for all SanDisk drives)

For additional information, click on Show Advanced Details.

5.8 System Details

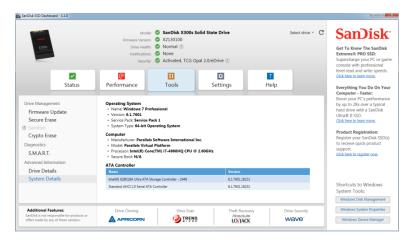


Figure 40: System Details

System Details displays information about the operating system, computer hardware, and ATA controller(s) used in the system on which SanDisk SSD Dashboard is installed.

6. Settings

6.1 Application Update

If a newer version of the application is available, a message will be displayed in the Notifications area.

Clicking on the **New Application Available** link will take you to the Settings section, which will display the number of the new version available. Click on **Update SanDisk SSD Dashboard** to initiate the update.

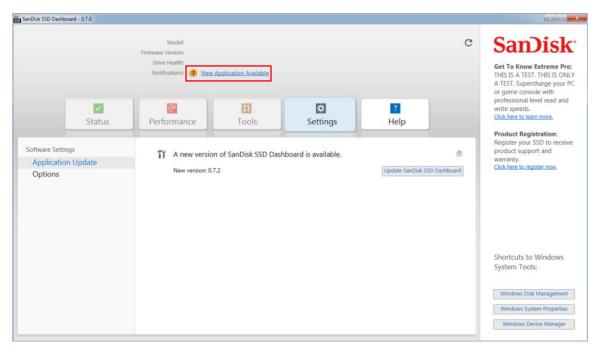


Figure 41: Application Update Notification

Click on **OK** to confirm and proceed with the application update (see figure 6). After the update has finished downloading, the installation process will begin (see <u>section 2.1</u>).

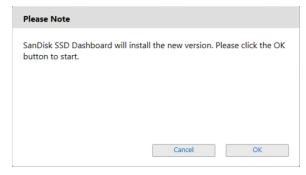


Figure 42: Application Update Dialog

6.2 Options

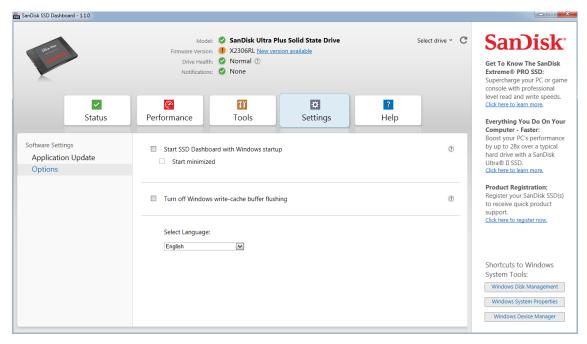


Figure 43: Options

Start SSD Dashboard with Windows Startup

To have the application start when Windows starts, check **Start SSD Dashboard with Window startup**.

Additionally, selecting the **Start minimized** checkbox will make the SanDisk SSD Dashboard start in a closed state in the Windows System Tray.

Windows Write-Cache Buffer Flushing

This Option is primarily meant to be used when running performance benchmarks on Windows 8 that will be compared against Windows 7.

Check **Turn off Windows write-cache buffer flushing** to disable this feature. It is recommended to be left unchecked otherwise.

Select Language

Use the dropdown menu to select the display language of the SanDisk SSD Dashboard.

7. Help

7.1 Online Support

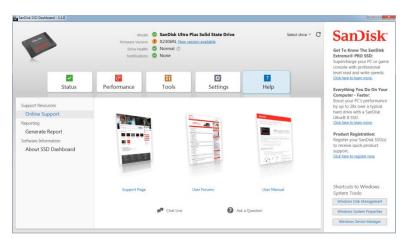


Figure 44: Online Support

The Online Support section contains links to the SanDisk SSD <u>Support Page</u>, <u>User Forums</u>, and the current version of this <u>User Manual</u>. In addition, it has links to <u>Chat Live</u> and <u>Ask a Question</u>, where interactive support may be found.

7.2 Generate Report

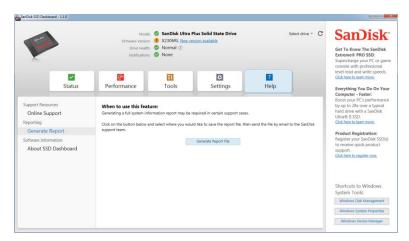


Figure 45: Generate Report File

Click on the **Generate Report File** button to create and save a full system report, which can provide more detailed information required for certain support cases. The two files generated are: SSD_Dashboard_Report.csv and SSD_Dashboard_Report_msinfo.txt.

7.3 About SSD Dashboard

The About SSD Dashboard section contains the version number of the SanDisk SSD Dashboard currently being run, as well as links to the End User License Agreement (EULA), third party notices, and the SanDisk Privacy Statement.

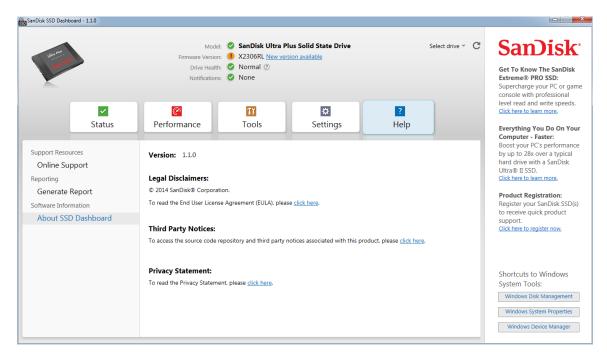


Figure 46: About SSD Dashboard