addlink M.2 PCIe SSD Toolbox

User Manual

Table of Content

Product Introduction 3

System Requirements 3

Important Notice 3

Getting Started 3

addlink Toobox Functions 4

1. Selecting a Drive 4

Figure 1 4

2. Refreshing Information 4

3. Summary 4

Figure 2 5

4. Identify 5

Figure 3 Identify 6

5. SMART 6

Figure 4 SMART-1 7

Figure 5 SMART-2 9

6. Save CVS 10

Figure 6 Save CVS 10

7. Secure Erase 10

..... 11

Figure 7 Secure Erase 11

Figure 8 Execute Secure Erase 12

Q & A 12

Revision History 13

Product Introduction

addlink M.2 PCIe SSD Toolbox is a software that allows you to view current drive information for addlink X70, S72, S90, S92, S95, A90, A92, and A95 Solid State Drives, including:

- Drives Capacity, General SPEC, Firmware version
- Drive Health (SSD endurance and power on time.)
- Drive identify device command
- SMART attributes
- Run secure erase.

System Requirements

- Operating System: Microsoft Windows®10 32bit/64bit OS (.Net Framework4.5)
- Capacity: Minimum 40MB is required
- Support Model: addlink X70, S72, S90, S92, S95, A90, A92, and A95 M.2 SSD

Important Notice

- Please backup your data before executing “secure erase”
- The Toolbox is for us with addlink X70, S72, S90, S92, S95, A90, A92, and A95 SSD

Getting Started

- Please download addlink M.2 PCIe SSD tool box from the link below.
  https://www.addlink.com.tw/ssdtoolbox
- Unzip the file
- Double click “AddLink_PCIe_Tool_Box_1.2” to install the utility.

addlink Toobox Functions

1. Selecting a Drive

Select a Drive. Click “Disk x” 

to see the drive detail.

If you have two addlink M.2 NVMe SSDs (addlink X70, S72, S90, S92, S95, A90, A92, and A95), it will show “Disk 1” and “Disk 2” for your selection.

> ☞ Caution
>
> The toolbox only can recognize addlink M.2 SSD (X70, S72, S90, S92, S95, A90, A92, and A95).

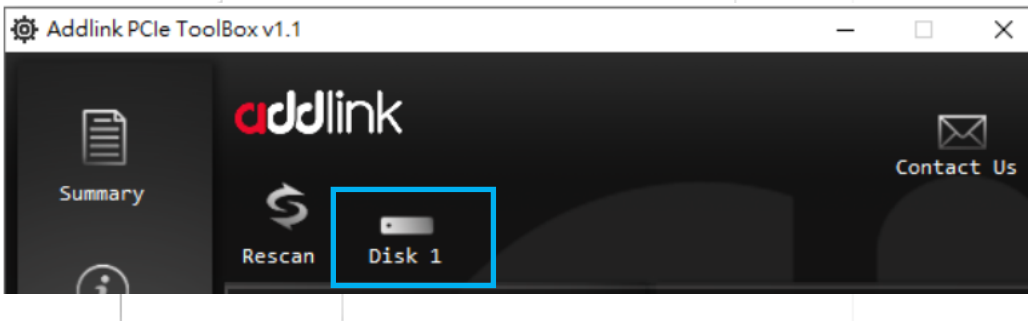


Figure 1

2. Refreshing Information

Click the “Rescan”  icon to refresh detected Drives.

3. Summary

Click “Summary” to see the SSD Information. Including: Disk Summary, Capacity, SMART Summary, and toolbox feature summary.

3.1 Disk Summary

It displays the drive information including model name, firmware version, serial number from disk summary.

3.2 SMART Summary

The SMART Summary shows Power-on time and endurance percentage.

3.2.1 Endurance %: A health indicator of SSD NAND Flash Endurance. When the number of bad blocks increases, the endurance percentage will decrease.

☞ Caution

If remaining endurance is lower than 10%, please backup your data and transfer to another disk immediately.

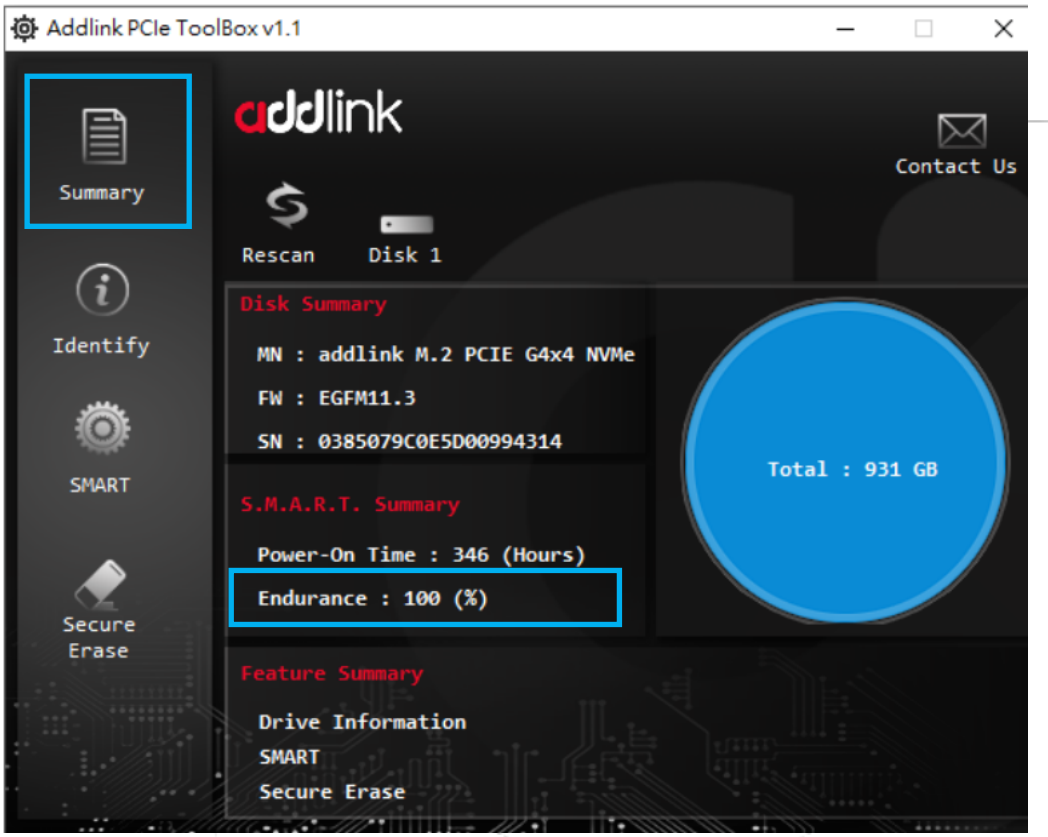


Figure 2

3.3 Capacity

On the right-hand side, there is a circular chart that display the capacity of this drive.

4. Identify

4.1 Check Drive “identify device command”

Click “Identify”, The toolbox screen will display the “identify device command”.

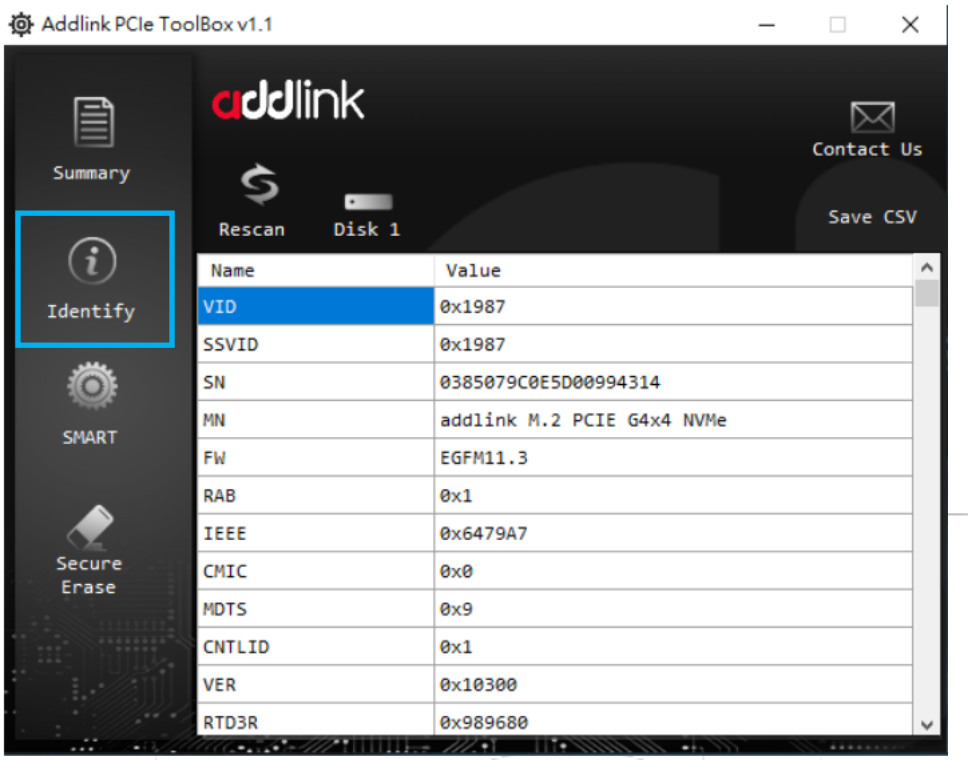


Figure 3 Identify

5. SMART

SMART is an acronym for Self-Monitoring, Analysis and Reporting Technology. With the SMART feature, user can monitor the SSD health status and potential failures and can choose to replace the drive to prevent unexpected outage or data loss.

The following are the MART attributes:

5.1 Critical Warning (01)

Value	Condition
0	Good
1	Temperature has exceeded threshold.
2	The flash memory has serious error, and the reliability is degraded, and it is time to consider replacing this drive.

3	The SSD has entered to the read-only mode. The SSD is locked to protect the data. User should start to replace the drive with another one immediately.

☞ Caution

When SSD read only mode occurs, the critical warning (01) value will show 3. User should start to replace the drive with another one immediately.

It is because the SSD is aged by cumulated program/erase cycles so that media worn- out and then cause increasing numbers of later bad block. When the number of usable good blocks falls outside a defined usable range, the drive will notify Host through AER event and Critical Warning to enter Read Only Mode to prevent further data corruption.

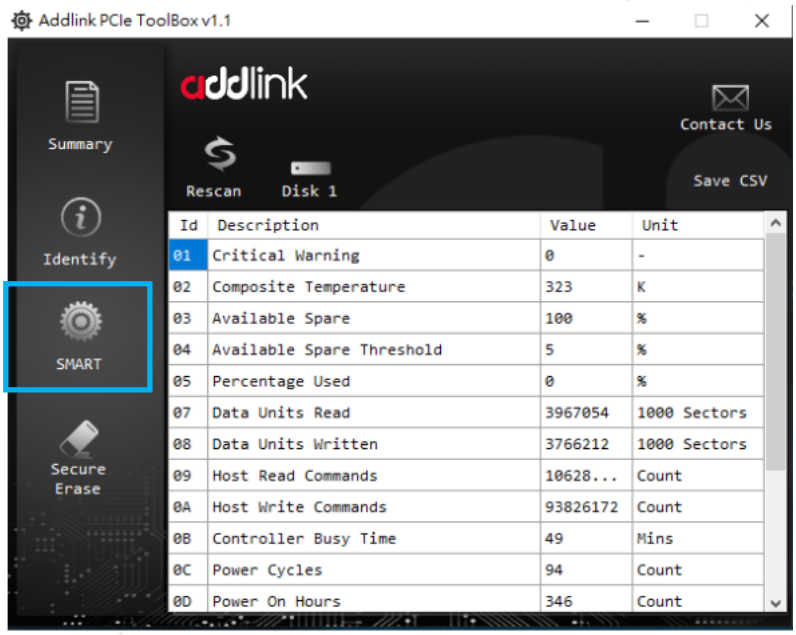


Figure 4 SMART-1

5.2 Composite Temperature (02)

The device current temperature in Kelvin (the Unit is “k”). After subtracting 273k, it is the degree Celsius, that we commonly used.

For example:

As the figure 4, the composite value is 323k. The degree Celsius will be 50°C.

323k – 273k = 50°C

5.3 Available Spare (03)
Contains a normalized percentage (0 to 100%) of the remaining spare capacity available. The Value is start from 100.

5.4 Available Spare Threshold (04)
The default threshold for SSD Percent Lifetime Remaining is set to 5%.

5.5 Percentage Used (05)
While 0 means the drive is healthy, while value is 100 means that 100% of the lifetime is used.

☞ Caution

Recommends backup the data replacing drive when reaching to 100%.

5.6 Data Units Read (07) /Data Units Written (08)
Contains the number of 512-byte data units the host has read/Write from the controller. This Value is reported in thousands (i.e., a value of 1 corresponds to 1000 units of 512 bytes read) and is rounded up.

5.7 Host Read Commands (09) /Host Write Commands (0A)
Contains the numbers of read/write commands issued to the controller.

5.8 Controller Busy Time (0B)
Contains the amount of time the controller is busy with I/O commands. This value is reported in minutes.

5.9 Power Cycles (0C)
Contains the number of power cycles.

5.10 Power On Hours (0D)
Contains the number of power-on hours.

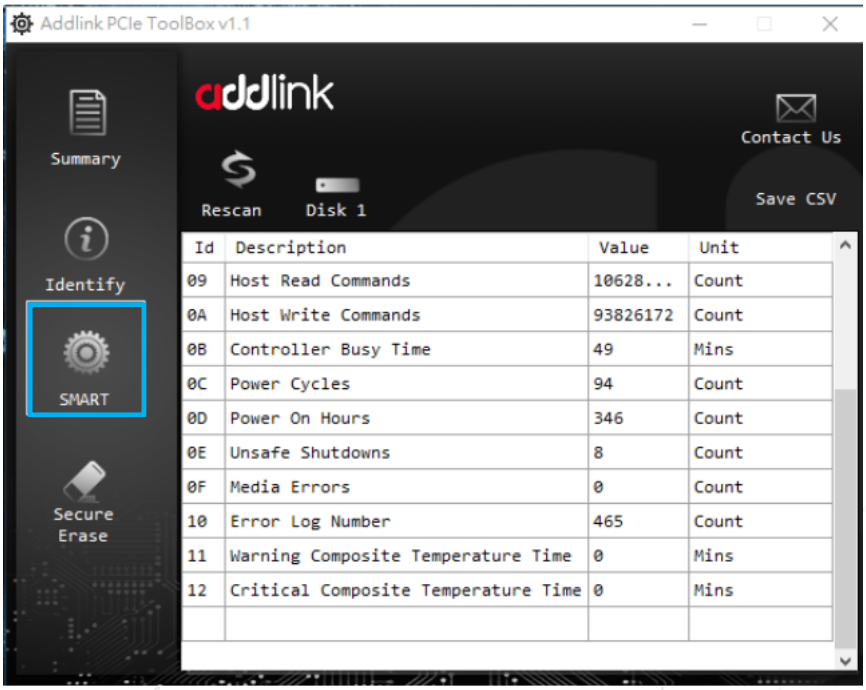


Figure 5 SMART-2

5.11 Unsafe Shutdowns (0E)

Contains the number of unsafe shutdowns.

5.12 Media Errors (0F)

Contain the number of unrecovered data integrity errors detected by the controller. Errors such as uncorrectable ECC, CRC checksum failure, or LBA tag mismatch are included in this field.

5.13 Error Log Number (10)

Contains the number of Error Information log entries over the life of the controller.

5.14 Warning Composite Temperature Time (11)

Contains the amount of time in minutes the controller is operational, and the composite temperature is greater than or equal to the warning composite temperature threshold and less than the critical composite temperature threshold.

5.15 Critical Composite Temperature Time (12)

Contains the amount of time in minutes the controller is operational, and the composite temperature is greater than the critical composite temperature threshold.

6. Save CVS

6.1 Export Identify

Please click “Identify” and click “Save CSV”. You will have the export drive technical information.

6.2 Export SMART Attribute

Click “Smart” and click “Save CSV” as shown in figure 5 and you will have the latest SAMRT attribute Log information.

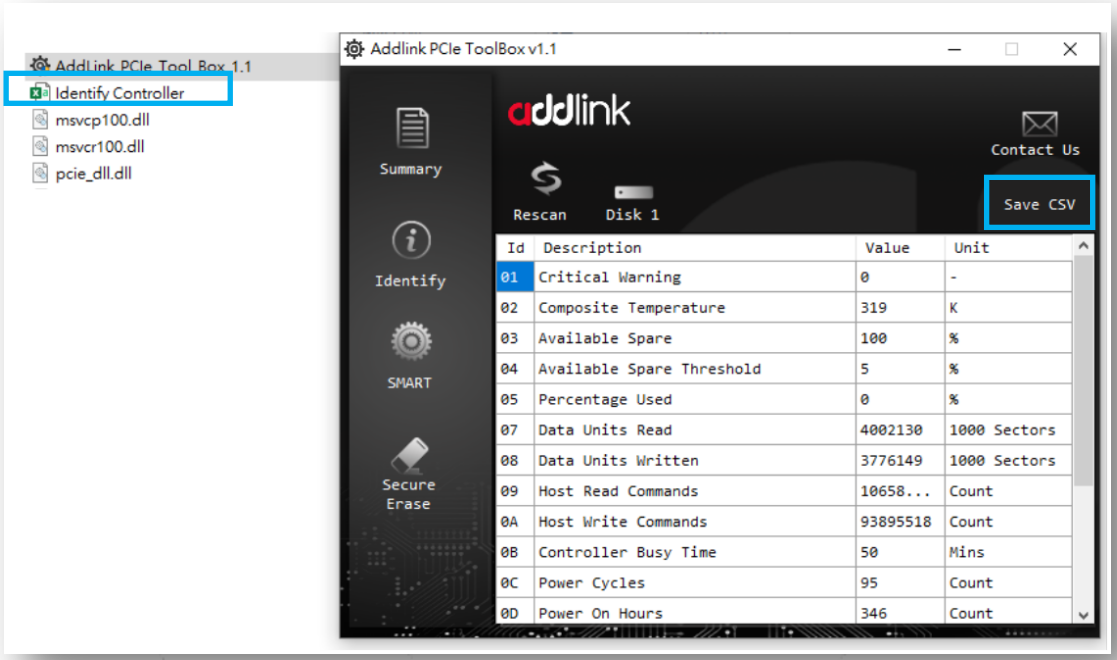


Figure 6 Save CVS

7. Secure Erase

Secure Erase is a format command and write all “0x00” to fully wipe all data on the SSDs. When the command is issued, SSD controller will erase its storage blocks and return to its factory default settings.

☞ Caution.

- Please backup your data before executing “secure erase”.
- Please select the “Disk” 

that you want to erase.

  Note: if you only see disk 1, it means you will choose to erase the SSD that your computer is running.
- The secure erase will erase all data on the drive and restore the drive to its factory default.

Execute Secure Erase

1. Click” Secure Erase” you will see the “Execute Secure Erase” Icon.

Figure 7 Secure Erase

2. Click” Execute Secure Erase” and you will see a screen pop up and ask you are you sure to secure erase device?
3. Click “Yes” to execute Secure Erase.

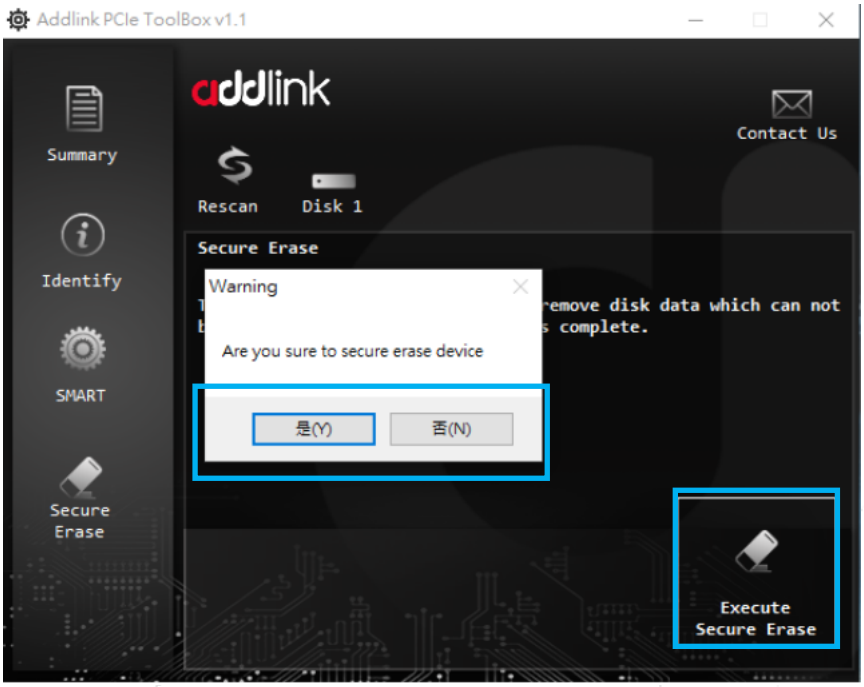


Figure 8 Execute Secure Erase

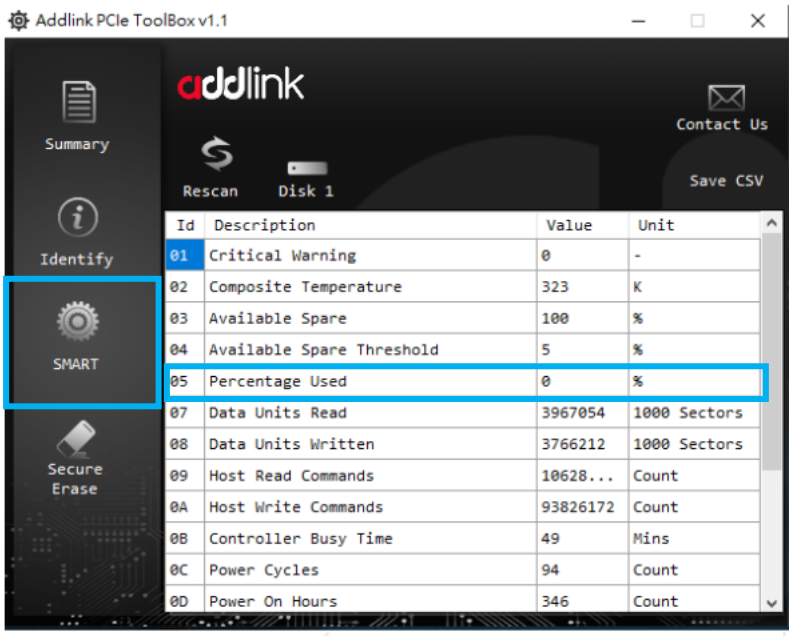
Q & A

1. How to check the SSD remaining lifespan (TBW)?

Please click “SMART” and check 05 Percentage Used to see the usage of SSD.

2. When I should backup data and replace my SSD

- When endurance percentage is under 10%
- When Critical Warning (01) value is 2 or 3 instead of 0
- When Percentage Used (05) is over 95%



3. What's difference between "format" and t "secure erase?

Secure Erase: Data is overwritten using an algorithm that is built into the SSD.

Format: The SSD is formatted. Data is not overwritten.

Revision History

Time	Version	Description
2020/11/15	1.0	1st Version Released
2021/07/07	1.1	Update addlink new toolbox to support S95 and X95 M.2 NVMe SSD
2021/07/15	1.2	Include Toolbox Q&A
2021/10/18	1.3	Contains AddGame A95, A90, and A92 three SSDs scan be supported by the toolbox
2024/12/12	1.3	Addgame G55H, addlink G55 can be supported by toolbox