Hard Disk Sentinel

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Monitor/Protect Data

- Evolution: cassette, 5 1/4 and 3.5 floppies
- ...then rotating memory hard drives
- SSDs increasingly replace rotating drives
- Hard drives and SSDs taken for granted
- They reliably/rapidly save/fetch data
- Until uh oh, something's wrong

Hard Disk Sentinel (HDS)

- I use on two computers: tower and laptop
- Constantly monitors drive health
- Reports ultra-details on structure/operation
- Supports
 - Rotating hard drives
 - Solid state drives (SSD)
 - Hybrid (rotating plus SSD) drives
 - Memory cards, thumb drives, RAID controllers

Display

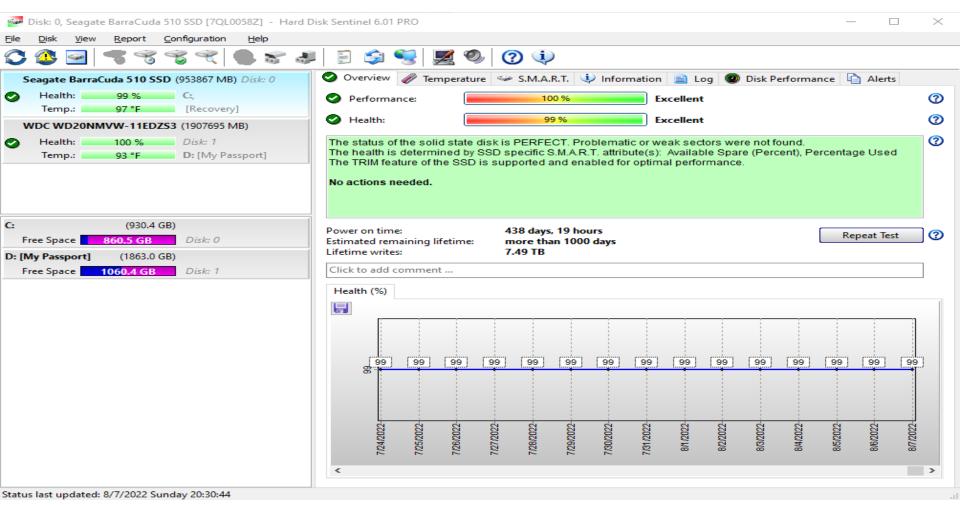
- I configure taskbar icon for each drive
 - One on laptop, two on tower (internal, external)
 - Shows temperature green/orange/red
 - Mouse over displays drive health summary
 - Click icon opens comprehensive display

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HDS Comfort Level and Details

- Desired summary: The hard disk status is PERFECT. Problematic or weak sectors were not found and there are no spin up or data transfer errors. No actions needed.
- Can explore drive history: temperature patterns, various errors, performance information, and much more.

HDS Main Display -- SSD



Note SSD Lifetime Writes

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1/16/20223.5203.520,000,0002,410,000,00015115,960,2651/23/20223.6303,630,000,000110,000,000715,714,2862/1/20223.8403,840,000,000210,000,000923,333,3332/7/20223.9703,970,000,000130,000,000621,666,6672/17/20224.1504,150,000,000180,000,0001018,000,0002/27/20224.3304,330,000,000180,000,0001018,000,0003/16/20224.6904,690,000,000360,000,0001721,176,4714/10/20225.2005,200,000,000510,000,0002520,400,0004/22/20225.4305,430,000,000230,000,0003120,322,581	8/10/2021	1.100	1,100,000,000	90,000,000	16	5,625,000
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2/27/20224.3304,330,000,000180,000,0001018,000,0003/16/20224.6904,690,000,000360,000,0001721,176,4714/10/20225.2005,200,000,000510,000,0002520,400,0004/22/20225.4305,430,000,000230,000,0001219,166,6675/23/20226.0606,060,000,000630,000,0003120,322,581	2/7/2022	3.970	3,970,000,000	130,000,000	6	21,666,667
3/16/20224.6904,690,000,000360,000,0001721,176,4714/10/20225.2005,200,000,000510,000,0002520,400,0004/22/20225.4305,430,000,000230,000,0001219,166,6675/23/20226.0606,060,000,000630,000,0003120,322,581	2/17/2022	4.150	4,150,000,000	180,000,000	10	18,000,000
4/10/20225.2005,200,000,000510,000,0002520,400,0004/22/20225.4305,430,000,000230,000,0001219,166,6675/23/20226.0606,060,000,000630,000,0003120,322,581	2/27/2022	4.330	4,330,000,000	180,000,000	10	18,000,000
4/22/20225.4305,430,000,000230,000,0001219,166,6675/23/20226.0606,060,000,000630,000,0003120,322,581	3/16/2022	4.690	4,690,000,000	360,000,000	17	21,176,471
5/23/2022 6.060 6,060,000,000 630,000,000 31 20,322,581	4/10/2022	5.200	5,200,000,000	510,000,000	25	20,400,000
	4/22/2022	5.430	5,430,000,000	230,000,000	12	19,166,667
6/24/20226.6306,630,000,000570,000,0003217,812,500	5/23/2022	6.060	6,060,000,000	630,000,000	31	20,322,581
	6/24/2022	6.630	6,630,000,000	570,000,000	32	17,812,500
7/26/2022 7.180 7,180,000,000 550,000,000 32 17,187,500	7/26/2022	7.180	7,180,000,000	550,000,000	32	17,187,500
9/5/2022 8.020 8,020,000,000 840,000,000 41 20,487,805	9/5/2022	8.020	8,020,000,000	840,000,000	41	20,487,805

- SSDs wear out, have finite write capacities
- Investigate excessive writes, indicated by decreasing health

Crucial Storage Executive

Software that helps optimize performance of Crucial SSD: This free downloadable tool enables Crucial SSD to be even faster and allows it to get periodic updates so it's performing at its best. With Storage Executive, you can see how much storage is used, download latest firmware, monitor drive temperature, reset encryption password, and enable Momentum Cache feature, which makes many SSD operations up to 10x faster

Benefits of Storage Executive:

•Enable Momentum Cache feature to make many operations up to 10x faster

- Download latest firmware
- •See how much storage is used
- •Monitor SSD operating temperature and overall health
- Reset SSD encryption password
- Verify SSD's model number for warranty claims
- •Clear data stored on drive

Crucial Storage Executive

🔁 Storage Executive

NEW!

available.

crucia

by Micron

Version 8.03.032022.04 is

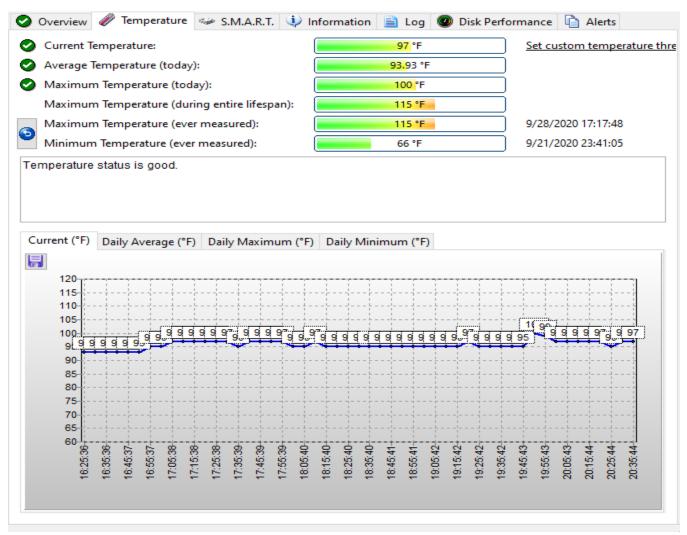
 Help About Contact Support
 GABES-W10-DESKTOP 192.168.1.150 - Windows 10 Pro (build 19044), 64-bit
 Physical Memory
 0 12.99G 13.3

You are currently on version 7.07.072021.00. 🔒 System Information mtinvme7QL0058Z - Good Health S.M.A.R.T. Seagate BarraCuda 510 SSD ZP1000CM30001 💻 Drive Details Serial Number: Firmware Revision: 7QL0058Z STPSC014 S.M.A.R.T. Drive Capacity: 1.00 TB 8% 🛓 Firmware Updates Ø Sanitize Drive S Format Drive PSID Revert **T** Momentum Cache Flex Capacity Over Provisioning Device Self-Test

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Heal	th (%)															
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HDS Temperature Display



HDS SMART Display

Attribute	1	Threshold		Value	Fl	Offset	E
Critical Warning				0	00	- 0 +	
Composite Temperature (Kelvin)				309	00	- 0 +	
Available Spare (Percent)				100	00	- 0 +	
Available Spare Threshold				5	00	- 0 +	
Percentage Used				1	00	- 0 +	
Data Units Read (512000 Bytes)				14,270,005	00	- 0 +	
Data Units Written (512000 Bytes)			16,078,789	00	- 0 +	
Host Read Commands				158,627,769	00	- 0 +	
Host Write Commands				408,776,577	00	- 0 +	
Controller Busy Time (minutes)				1,044	00	- 0 +	
Power Cycles				49	00	- 0 +	
Power On Hours				10,531	00	- 0 +	
Unsafe Shutdowns				11	00	- 0 +	
Media and Data Integrity Errors				0	00	- 0 +	
				-			
Number of Error Information Log	Ent			166	00	- 0 +	
-				_	00		
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HDS Information Display

Hard Disk Summary								
Hard Disk Number	0							
Interface	NVMe							
Disk Controller	Standard NVM Express Controller (PCI\CC_010802) [VEN: 1BB1, DE							
Disk Location	Bus Number 0, Target Id 0, LUN 0							
Hard Disk Model ID	Seagate BarraCuda 510 SSD							
Firmware Revision	STPSC014							
Hard Disk Serial Number	7QL0058Z							
Total Size	953867 MB							
Power State:	Active							
🐱 Logical Drive(s)								
Logical Drive	C: []							
	- 4							
Properties								
NVMe Standard Version	1.3							
PCI Vendor ID (VID)	0x1BB1							
PCI Subsystem Vendor ID (SSVID)	0x1BB1							
IEEE OUI Identifier	CF-24-00							
Recommended Arbitration Burst (RAB)	1							
Multi-Interface Capabilities	0							
Maximum Data Transfer Size	512 (9)							
Abort Command Limit	4							
Asynchronous Event Request Limit	4							
Number FW Slots Support	7							
Maximum Error Log Page Entries	63							
Total Number Of Power States	5							
Admin Vendor Specific CMD Format	1							
Submission Queue Entry Size	Max: 64, Min: 64							
Completion Queue Entry Size	Max: 16, Min: 16							

Why HDS?

- Drives include S.M.A.R.T. monitor
 - Detect/report drive reliability indicators
 - Anticipate drive failures
 - But most operating systems don't support
 - Warnings about failing drives: Norton, HDS
 - HDS maintained by dedicated developer
 - Passionate about product, brilliant support
 - Bargain price for multiple systems, lifetime support
 - Pro version includes portable tool
 - Smaller Linux version

https://www.hdsentinel.com

Hard Disk Sentinel (HDSentinel) is a multi-OS SSD and HDD monitoring and analysis software. Its goal is to find, test, diagnose and repair hard disk drive problems, report and display SSD and HDD health, performance degradations and failures. Hard Disk Sentinel gives complete textual description, tips and displays/reports the most comprehensive information about the hard disks and solid state disks inside the computer and in external enclosures (USB hard disks / e-SATA hard disks). Many different alerts and report options are available to ensure maximum safety of your valuable data.

No need to use separate tools to verify internal hard disks, external hard disks, SSDs, hybrid disk drives (SSHD), disks in RAID arrays and Network Attached Storage (NAS) drives as these are all included in a single software. In addition Hard Disk Sentinel Pro detects and displays status and S.M.A.R.T. information about LTO tape drives and appropriate industrial (micro) SD cards and eMMC devices too. See the How to: monitor Network Attached Storage (NAS) status for information about hard disk monitoring in Network Attached Storage (NAS) devices.

https://www.hdsentinel.com/

Hard Disk Sentinel monitors hard disk drive / HDD status including health, temperature and all S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) values for all hard disks. Also it measures the disk transfer speed in real time which can be used as a benchmark or to detect possible hard disk failures, performance degradations.

HDSentinel is the perfect data protection solution: it can be effectively used to prevent HDD failure and SSD / HDD data loss because it has the most sensitive disk health rating system which is extremely sensitive to disk problems. This way even a small HDD problem can't be missed. The Professional version has scheduled and automatic (on-problem) disk backup options to prevent data loss caused by not only failure but by malware or accidental delete also.

https://www.hdsentinel.com/

Store of Hard Disk Sentinel Software

Current special offer: use Hard Disk Sentinel Professional to protect the computers of the family.

(The second

Buy a Family license now: Protect up to 5 computers by Hard Disk Sentinel Professional Now just EUR 49.95 / USD 53.00 (lifetime license)



Product Comparison

Hard Disk Sentinel application is shareware. Download Hard Disk Sentinel Trial version to examine the application and test its functionality and verify hardware compatibility. If you like this software, register it after evaluation to get highest level of data protection, use all features and to get full support. The differences between the trial, the Standard and the Professional versions:

Feature	Trial	Standard	Professional	Enterprise
Display hard disk / SSD health and free space details	0	0	0	0
Support IDE/SATA/SCSI/SAS/USB/NVMe drives	0	0	0	0
Detect self-monitoring attributes, changes/degradations	0	0	0	0
Extended S.M.A.R.T. information	0	0	0	0
Display status on tray, disk icons, desktop/sidebar	0	0	0	0
Run as Application or Service (for non-admin users)	0	0	0	0
Hardware short/extended disk tests	8	O	0	0
Hard disk seek time, stress tests	8	0	0	0
Disk reports in text/HTML format	8	O	0	0
Information by web browser (WebStatus)	8	0	0	0
Customizable interface and reports	8	0	0	0
Backup and restore configuration, statistics	8	0	0	0
Password protection	8	O	0	0
Wide range of alerts (e-mail, sound, message, etc.)	8	0	0	0
Daily status reports	8	O	0	0
Clock synchronization with atomic clock	8	•	0	0

Gibson Research "In Control"

Manage Windows 10 and 11 out-of-control updating and upgrading

InControl: Of Windows updating and upgrading InControl: Of Windows updating and upgrading \times Control Microsoft's automatic unwanted Control Microsoft's automatic unwanted InControl InControl updating and upgrading of Windows. updating and upgrading of Windows. Freeware by Steve Gibson (@SGgrc). Freeware by Steve Gibson (@SGgrc). Version 1.0 Version 1.0 OS upgrades are not under YOU are in control of OS your control on this system! upgrades on this system This system may be upgraded / updated without your permission. Operating system upgrades are under your control on this system. Security updates will be received and installed as usual. But all If you wish to take control of this system's updating and upgrading, press the "Take Control" button below to take control. feature updates and OS upgrading are under YOUR control. For more information see the InControl web page For more information see the InControl web page See GRC's InControl web page at: https://grc.com/incontrol.htm See GRC's InControl web page at: https://grc.com/incontrol.htm for a full explanation of the use and operation of this freeware utility. for a full explanation of the use and operation of this freeware utility. Version / Release Version / Release 21H2 21H2 Take Control Release Control 10 Exit. E xit