Monitor and Protect Your Precious Data with Hard Drive Sentinel

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Storage devices are unappreciated workhorses: spinning hard drives and immobile memory chips reliably and rapidly save and fetch your data, year after year. Until -- uh oh, something's wrong and where's my data?!

I've been running HD Sentinel (HDS -- http://www.harddisksentinel.com/) for about five months on two computers -- my desktop system and my wife's laptop. It's a powerful tool for monitoring storage device health, and for learning more about how they work than you likely imagined possible. While the tool's website focuses on simple hard drives, HD Sentinel also supports other storage devices: SSDs, SSHD (hybrid drives), memory cards and thumb drives (where available), tape drives, and RAID controllers.
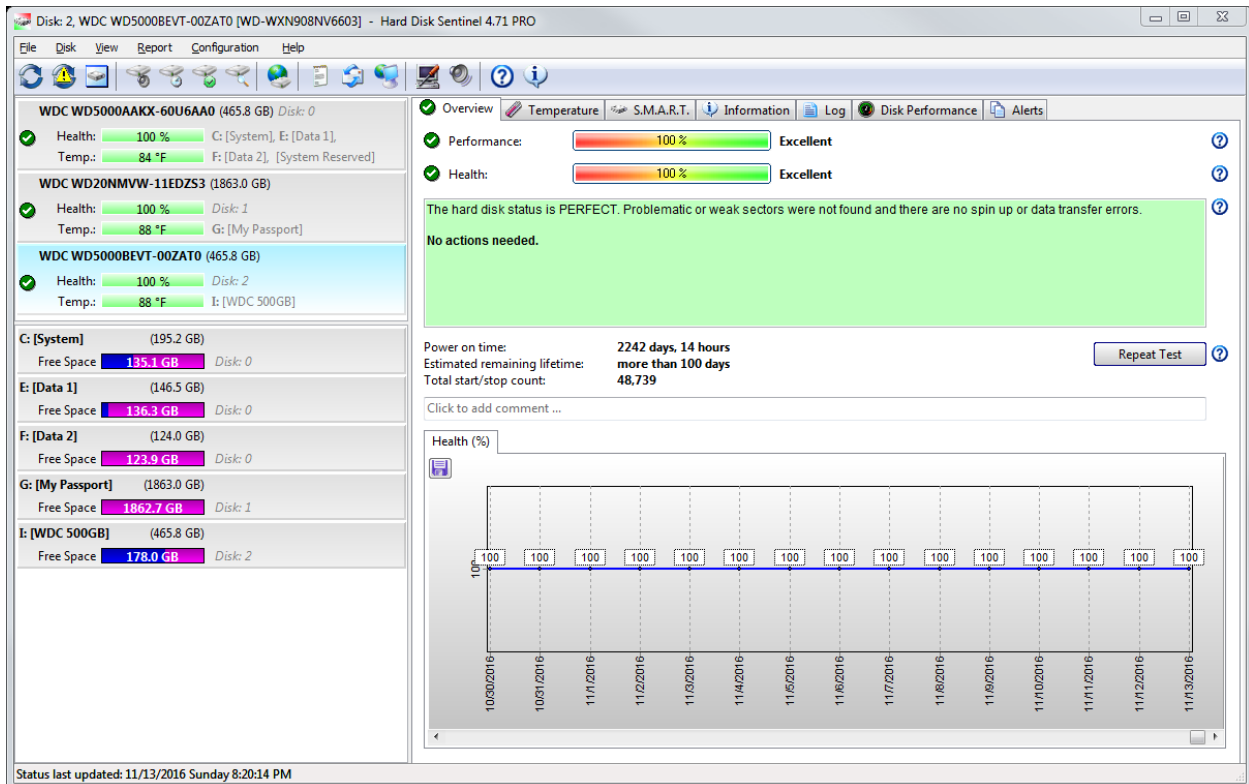
On both my systems, I've configured it to show icons for each connected hard drive: one on the laptop and three (one internal, two external) on my system. By default, the icon shows current disk temperature (with green/orange/red visually indicating status); mousing over icons displays a summary of disk health and clicking opens the comprehensive display.

HDS can be used for maintaining one's at-a-glance comfort level (I like all my drives described, "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.") and for drilling into drive history (temperature patterns, various sorts of errors, performance information, and more.
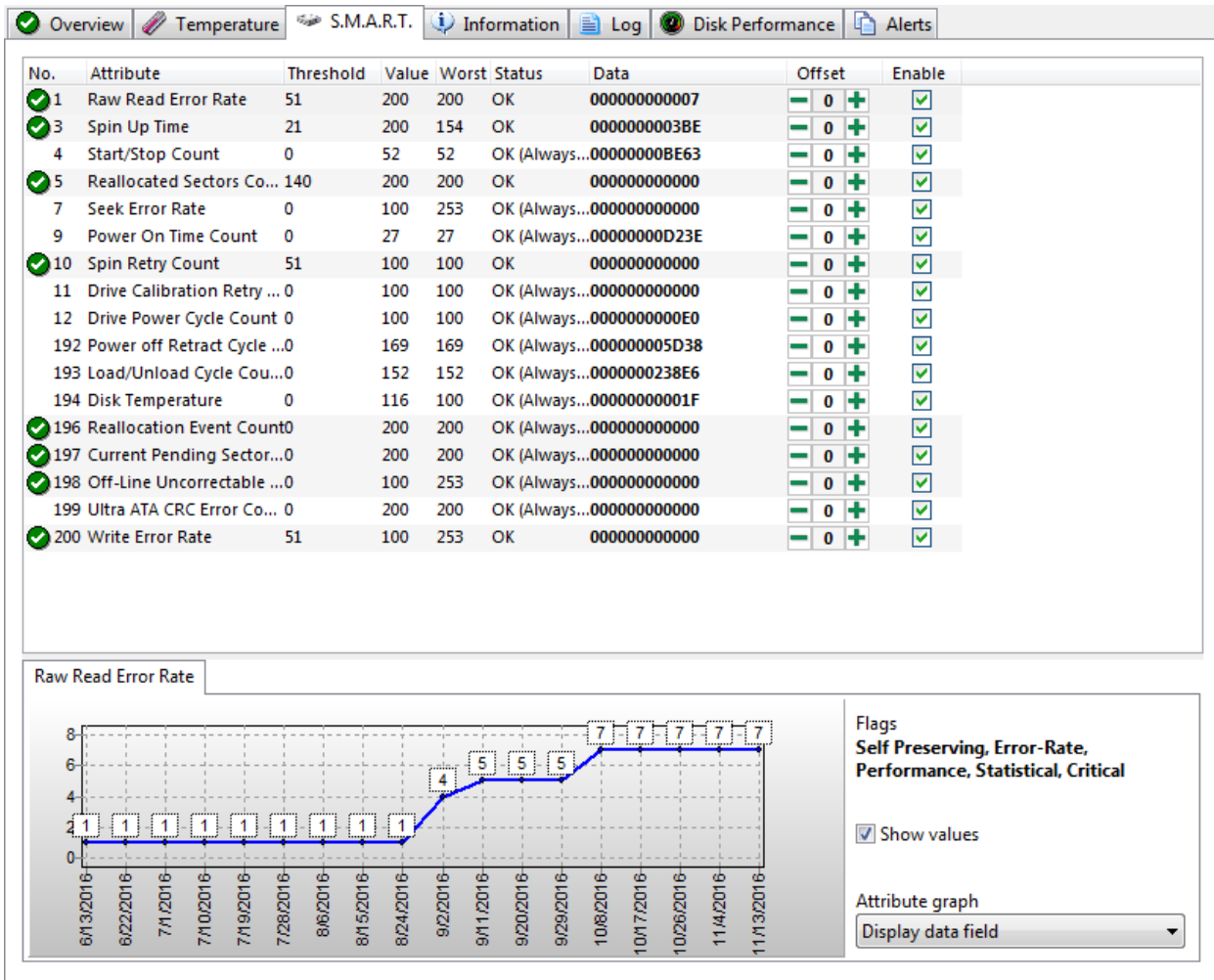
For many years, hard drives have included S.M.A.R.T. technology -- https://en.wikipedia.org/wiki/S.M.A.R.T. -- described as "a monitoring system included in computer hard disk drives (HDDs) and solid-state drives that detects and reports on various indicators of drive reliability, with the intent of enabling the anticipation of hardware failures". But annoyingly, most operating systems don't easily make that information -- and recommendations or warnings -- available. At least twice, based on such warnings, I've been able to replace drives in the process of failing before any data was at risk. So I'm a firm believer in having software running to disclose drive information while there's time to act on it.

HDS is developed/maintained/supported by a dedicated developer who's passionate about his product and brilliant at both tech support and answering questions about product usage. It's available at a bargain price for lifetime license (no renewal or subscription costs, free version upgrades) and a worthwhile investment in both knowledge and comfort.
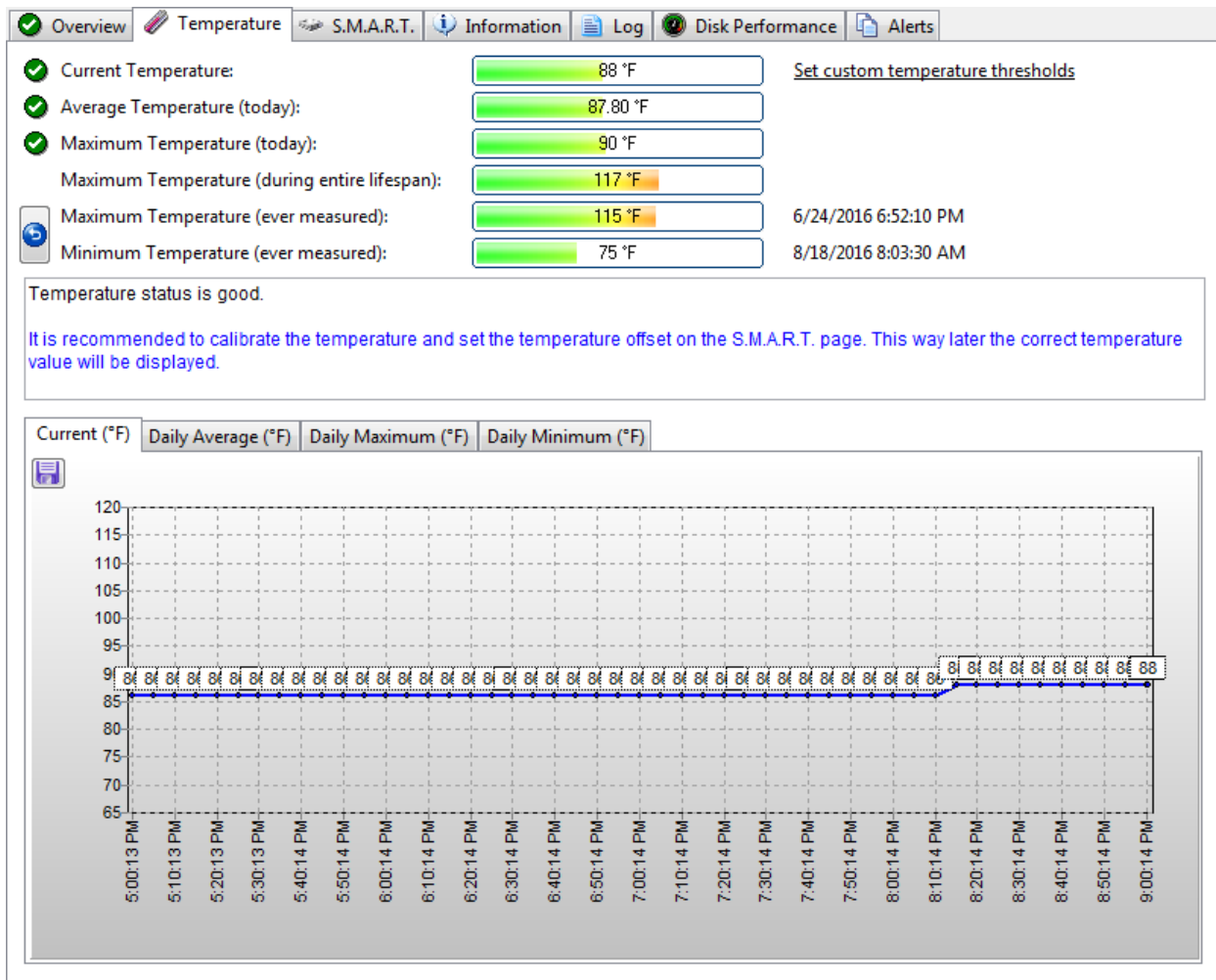
Overview display:



S.M.A.R.T. DISPLAY:

| No. | Attribute | Threshold | Value | Worst | Status | Data | Offset | Enable |
|-----|-----------|-----------|-------|-------|--------|------|--------|--------|
| ✓ 1 | Raw Read Error Rate | 51 | 200 | 200 | OK | 000000000007 | − 0 + | ☑ |
| ✓ 3 | Spin Up Time | 21 | 200 | 154 | OK | 0000000003BE | − 0 + | ☑ |
| 4 | Start/Stop Count | 0 | 52 | 52 | OK (Always... | 00000000BE63 | − 0 + | ☑ |
| ✓ 5 | Reallocated Sectors Co... | 140 | 200 | 200 | OK | 000000000000 | − 0 + | ☑ |
| 7 | Seek Error Rate | 0 | 100 | 253 | OK (Always... | 000000000000 | − 0 + | ☑ |
| 9 | Power On Time Count | 0 | 27 | 27 | OK (Always... | 00000000D23E | − 0 + | ☑ |
| ✓ 10 | Spin Retry Count | 51 | 100 | 100 | OK | 000000000000 | − 0 + | ☑ |
| 11 | Drive Calibration Retry ... | 0 | 100 | 100 | OK (Always... | 000000000000 | − 0 + | ☑ |
| 12 | Drive Power Cycle Count | 0 | 100 | 100 | OK (Always... | 0000000000E0 | − 0 + | ☑ |
| 192 | Power off Retract Cycle ... | 0 | 169 | 169 | OK (Always... | 000000005D38 | − 0 + | ☑ |
| 193 | Load/Unload Cycle Cou... | 0 | 152 | 152 | OK (Always... | 0000000238E6 | − 0 + | ☑ |
| 194 | Disk Temperature | 0 | 116 | 100 | OK (Always... | 00000000001F | − 0 + | ☑ |
| ✓ 196 | Reallocation Event Count | 0 | 200 | 200 | OK (Always... | 000000000000 | − 0 + | ☑ |
| ✓ 197 | Current Pending Sector... | 0 | 200 | 200 | OK (Always... | 000000000000 | − 0 + | ☑ |
| ✓ 198 | Off-Line Uncorrectable ... | 0 | 100 | 253 | OK (Always... | 000000000000 | − 0 + | ☑ |
| 199 | Ultra ATA CRC Error Co... | 0 | 200 | 200 | OK (Always... | 000000000000 | − 0 + | ☑ |
| ✓ 200 | Write Error Rate | 51 | 100 | 253 | OK | 000000000000 | − 0 + | ☑ |

**Raw Read Error Rate**

Flags
**Self Preserving, Error-Rate, Performance, Statistical, Critical**

☑ Show values

Attribute graph
Display data field

Temperature display:

Drive information display

### Hard Disk Summary

| | |
|---|---|
| Hard Disk Number | 2 |
| Interface | SAT Standard USB/ATA |
| Vendor Information | VID: 1058, PID: 0705 |
| Disk Controller | Renesas Electronics USB 3.0 Host Controller (USB 3.0) [VEN: 1033, DEV: 0194] Versio... |
| Hard Disk Model ID | WDC WD5000BEVT-00ZAT0 |
| Firmware Revision | 01.01A01 |
| Hard Disk Serial Number | WD-WXN908NV6603 |
| Total Size | 476937 MB |
| Power State: | Active |

### Logical Drive(s)

| | |
|---|---|
| Logical Drive | I: [WDC 500GB] |

### ATA Information

| | |
|---|---|
| Hard Disk Cylinders | 969021 |
| Hard Disk Heads | 16 |
| Hard Disk Sectors | 63 |
| ATA Revision | ATA8-ACS |
| Transport Version | SATA Rev 2.6 |
| Total Sectors | 976773168 |
| Bytes Per Sector | 512 |
| Buffer Size | 8192 KB |
| Multiple Sectors | 16 |
| Error Correction Bytes | 50 |
| Unformatted Capacity | 476940 MB |
| Maximum PIO Mode | 4 |
| Maximum Multiword DMA Mode | 2 |
| Active Multiword DMA Mode | 2 |
| Maximum UDMA Mode | 300 MB/s (6) |
| Minimum multiword DMA Transfer Time | 120 ns |