How to Quickly Gather Hard Drive Health Information in Windows

Gathering SMART Information

All modern hard drives keep SMART information which can be used to quickly tell if a hard drive has had any reliability events so far during its life.

The attached utility will gather information from all SATA hard drives in a system and generate an output file (OUTPUT.TXT by default).

Instructions

- Download the file attached to the article.
- Extract it to a folder on a Windows system.
- Open an **Administrative** command prompt and go to the folder where you extracted the files.
- Either run `SGT` on its own, or run `SGT` followed by the system serial number as a filename.

For example: `SGT P1103083599` to save the output as P1103083599.TXT

Note: This utility cannot be used on most SATA RAID controllers including Intel Matrix RAID Controllers.

Looking At the Results

Then examine the file to look at the drive health, looking at the RAW_VALUE columns.

If its a traditional mechanical hard drive:

```
  5 Reallocated_Sector_Ct
 10 Spin_Retry_Count
 11 Calibration_Retry_Count
196 Reallocated_Event_Count
197 Current_Pending_Sector
198 Offline_Uncorrectable
199 UDMA_CRC_Error_Count  223 Load_Retry_Count
```

If its a Solid State Drive (SSD):

```
  5 Reallocated_Sector_Ct
177 Wear_Leveling_Count
179 Used_Rsvd_Blk_Cnt_Tot
181 Program_Fail_Cnt_Total
182 Erase_Fail_Count_Total
183 Runtime_Bad_Block
187 Uncorrectable_Error_Cnt
190 Airflow_Temperature_Cel
195 ECC_Error_Rate
199 UDMA_CRC_Error_Count
235 POR_Recovery_Count
241 Total_LBAs_Written
```

If the drive shows perfect health (i.e. zero for all of the above values, except for the total number of blocks written (`241 Total_LBAs_Written`)) then it is likely to be a drive in good working order. If the drive has problems, run the manufacturer's dianostic test to see if it has reached the manufacturer's failure threshold, which could be lower than the drives overall "SMART failure" threshold.

Threshold Example

The table below illustrates the possible differences between a drive that could pass SMART but fail the manufacturer's test (50 reallocated sectors in the example) or it may pass the manufacturer's test but have definite problems and will likely fail (20 reallocated sectors in the example).

Number of Reallocated Sectors	Drive Health
0	Perfect.
1	The drive has experienced a problem but the user is unlikely to be impacted.
20	Drive is failing. It is likely to be slow and the user may be impacted.
50 (for example)	Drive may now fail the manufacturer's test.

100 (for example)	Drive now fails its own SMART failure threshold and the BIOS will display a SMART warning, if supported.

Limitations

The SMART Gather tool can only get SMART information from drives connected to non-RAID controllers. RAID controllers and some USB adapters prevent hard drives from being accessed directly. However, if you have replaced a SATA drive in a RAID array you can still verify that a drive was genuinely faulty by then connecting the drive as a second drive in a PC system, and then running SGT.

Credit

The Stone Smart Gather Tool is based upon Smartmontools.

Version History

Version 1.0Q:

- Updated SMARCTL binaries to version 7.0.1

Version 1.0N:

- Updated SMARCTL binaries to version 6.6-1.

Version 1.0h:

- Updated SMARCTL binaries to version 6.51.

Version 1.0f:

- Updated SMARCTL binaries to version 6.50. Includes beta NVMe support.

Version 1.0e:

- Now detects all device names in use and gathers SMART info for all of them.
- Updated SMARTCTL binaries to version 6.41.
- Improved OUTPUT.TXT info collection.

Applies to:

- All desktop and laptop products

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