

SMART

Hard Disk Monitoring

SMART is an acronym for *Self-monitoring, Analysis and Reporting Technology* and **smartmontools** is a software implementation of support for the technology. These software tools provide system administrators with a means of monitoring hard disk drives for impending or existing failure modes so that catastrophic failures can be avoided.

Modern ATA and SCSI hard disks are designed to provide information about their current state and the smartmontools provide the means to extract that data and to monitor drive status dynamically. smartmontools include the **smartd** daemon to perform real-time reporting and **smartctl** to report drive status.

Installing smartmontools

smartmontools can be found at smartmontools.sourceforge.net or possibly in your favorite rpm repository. Installation is straight-forward and is described in detail in the download documentation.

smartctl

The smartctl syntax is:

```
smartctl [options] device
```

For example,

```
smartctl -H /dev/hda reports the health of the first ATA drive.
```

It has a large number of options which include (not a complete list):

Option	Meaning
-i, -info	Report manufacturer data.
-a, -all	Reports all SMART data.
-s VALUE, -smart=VALUE	Enable or disable SMART on the device, where VALUE is on or off
-H, -health	Ask the device to report its health.
-A, -attributes	Print only the vendor specific attributes.
-A, -attributes	Print only the vendor specific attributes.
-t TEST, -test=TEST	Executes the given test immediately where test is offline , short , long or conveyance .

smartctl can be used to collect and log information to track hard drive performance. In order to make proper use of this data, a user needs to study the output, identify data which is of particular interest and define procedures for tracking it.

smartd

The **smartd** daemon should normally be run at system startup. Once started, it checks drive status every 30 minutes and reports failing health status, failed attributes or increasing numbers of errors via syslog (unless directed elsewhere). smartd behavior is configured via */etc/smartd.conf*. Each line in the file specifies a device and then a series of options indicating what smartd. For example:

```
/dev/hda -H -f -m bozo@clowns.org    reports health and failure data and sends reports to the  
                                         email address given.
```

There can be more than one entry for a device, so you can get different reports to different locations.

As with smartctl, there are many options, many of which have complex behaviors. The man page is very complete and you are encouraged to look there. The options allow you to:

1. Specify the properties of the devices to be surveyed.
2. Specify the tolerance to be applied to SMART errors.
3. Specify items to be reported.
4. Specify the reporting location.
5. Cause a script to be executed under certain error conditions.

For example,

Command	Meaning
<code>/dev/hda -a</code>	Report all data on hda through syslog.
<code>/dev/sdb -l errors -m sysadmin</code>	Monitor for increasing errors and email sysadmin.
<code>/dev/hdd -l selftest -l 194 -m sysadmin</code>	Monitor the selftest data for increasing errors except attribute 194 (temperature) and email.