

How to check hard drive health on FreeBSD et Linux

- <https://www.cyberciti.biz/faq/how-to-check-hard-drive-health-on-freebsd/>
- Sous Linux ci dessous ;)

1. Identifier le device de son disque dur

```
# dmesg | grep disk[    1.979182] sd 1:0:0:0: [sda] Attached SCSI disk
[ 7098.619891] sd 1:0:0:0: [sda] Stopping disk
[ 7099.957395] sd 1:0:0:0: [sda] Starting disk
[25933.946087] sd 1:0:0:0: [sda] Stopping disk
[25935.329464] sd 1:0:0:0: [sda] Starting disk
[26805.193511] sd 1:0:0:0: [sda] Stopping disk
[26806.560883] sd 1:0:0:0: [sda] Starting disk
[29011.221937] sd 1:0:0:0: [sda] Stopping disk
[29012.578359] sd 1:0:0:0: [sda] Starting disk
[42879.966037] sd 1:0:0:0: [sda] Stopping disk
[42881.326802] sd 1:0:0:0: [sda] Starting disk
```

Le disque est donc sda

2. Installer le paquet smartmontools

L'utilitaire est **smartctl**, il fait partie du paquet **smartmontools**, non présent par défaut. on l'installe.

```
# apt-get install smartmontools
Les NOUVEAUX paquets suivants vont être installés :
  exim4-base{a} exim4-config{a} exim4-daemon-light{a} guile-2.2-libs{a}
  libgnutls-dane0{a} libgsasl7{a} libkyotocabinet16v5{a} libmailutils5{a}
  libntlm0{a} libunbound8{a} mailutils{a} mailutils-common{a} psmisc{a}
  smartmontools
0 paquets mis à jour, 14 nouvellement installés, 0 à enlever et 3 non mis à
jour.
Il est nécessaire de télécharger 11,1 Mo d'archives. Après dépaquetage, 60,1
Mo seront utilisés.
Voulez-vous continuer ? [Y/n/?] Y
```

Cet utilitaire est un outil administrateur, il sera installé dans **/usr/sbin**

```
whereis smartctl
```

```
smartctl: /usr/sbin/smartctl /usr/share/man/man8/smartctl.8.gz
```

3. Utiliser smartctl

3.1. Obtenir des informations sur le disque (informations standards) (option -i)

```
# smartctl -i /dev/sda
smartctl 6.6 2017-11-05 r4594 [x86_64-linux-4.19.0-5-amd64] (local build)
Copyright (C) 2002-17, Bruce Allen, Christian Franke, www.smartmontools.org

=== START OF INFORMATION SECTION ===
Model Family:      Samsung based SSDs
Device Model:      Samsung SSD 840 EVO 250GB
Serial Number:     S1DBNSBF753656V
LU WWN Device Id: 5 002538 8a05cee2f
Firmware Version: EXT0BB6Q
User Capacity:     250 059 350 016 bytes [250 GB]
Sector Size:       512 bytes logical/physical
Rotation Rate:    Solid State Device
Device is:         In smartctl database [for details use: -P show]
ATA Version is:   ACS-2, ATA8-ACS T13/1699-D revision 4c
SATA Version is:  SATA 3.1, 6.0 Gb/s (current: 6.0 Gb/s)
Local Time is:    Wed Jun 12 17:25:53 2019 CEST
SMART support is: Available - device has SMART capability.
SMART support is: Enabled
```

3.2. Obtenir le maximum d'informations sur le disque (analyse détaillée) (option -a ou --all)

```
# /usr/sbin/smartctl -a /dev/sda
smartctl 6.6 2017-11-05 r4594 [x86_64-linux-4.19.0-5-amd64] (local build)
Copyright (C) 2002-17, Bruce Allen, Christian Franke, www.smartmontools.org

=== START OF INFORMATION SECTION ===
Model Family:      Samsung based SSDs
Device Model:      Samsung SSD 840 EVO 250GB
Serial Number:     S1DBNSBF753656V
LU WWN Device Id: 5 002538 8a05cee2f
Firmware Version: EXT0BB6Q
User Capacity:     250 059 350 016 bytes [250 GB]
Sector Size:       512 bytes logical/physical
Rotation Rate:    Solid State Device
Device is:         In smartctl database [for details use: -P show]
```

```
ATA Version is: ACS-2, ATA8-ACS T13/1699-D revision 4c
SATA Version is: SATA 3.1, 6.0 Gb/s (current: 6.0 Gb/s)
Local Time is: Wed Jun 12 17:27:10 2019 CEST
SMART support is: Available - device has SMART capability.
SMART support is: Enabled
```

```
=== START OF READ SMART DATA SECTION ===
SMART overall-health self-assessment test result: PASSED
```

General SMART Values:

```
Offline data collection status: (0x00) Offline data collection activity
was never started.
Auto Offline Data Collection: Disabled.
```

```
Self-test execution status: ( 0) The previous self-test routine
completed
without error or no self-test has ever
been run.
```

```
Total time to complete Offline
data collection: ( 4800) seconds.
```

```
Offline data collection
capabilities: (0x53) SMART execute Offline immediate.
Auto Offline data collection on/off support.
Suspend Offline collection upon new
command.
No Offline surface scan supported.
Self-test supported.
No Conveyance Self-test supported.
Selective Self-test supported.
```

```
SMART capabilities: (0x0003) Saves SMART data before entering
power-saving mode.
Supports SMART auto save timer.
```

```
Error logging capability: (0x01) Error logging supported.
General Purpose Logging supported.
```

```
Short self-test routine
recommended polling time: ( 2) minutes.
```

```
Extended self-test routine
recommended polling time: ( 80) minutes.
```

```
SCT capabilities: (0x003d) SCT Status supported.
SCT Error Recovery Control supported.
SCT Feature Control supported.
SCT Data Table supported.
```

SMART Attributes Data Structure revision number: 1

Vendor Specific SMART Attributes with Thresholds:

| ID# | ATTRIBUTE_NAME | FLAG | VALUE | WORST | THRESH | TYPE | UPDATED |
|-----|-----------------------|--------|-------|-------|--------|----------|---------|
| 5 | Reallocated_Sector_Ct | 0x0033 | 100 | 100 | 010 | Pre-fail | Always |
| - | 0 | | | | | | |
| 9 | Power_On_Hours | 0x0032 | 098 | 098 | 000 | Old_age | Always |
| - | 6547 | | | | | | |
| 12 | Power_Cycle_Count | 0x0032 | 097 | 097 | 000 | Old_age | Always |

```

-          2138
177 Wear_Leveling_Count      0x0013    091    091    000    Pre-fail  Always
-          103
179 Used_Rsvd_Blk_Cnt_Tot    0x0013    100    100    010    Pre-fail  Always
-           0
181 Program_Fail_Cnt_Total   0x0032    100    100    010    Old_age   Always
-           0
182 Erase_Fail_Count_Total   0x0032    100    100    010    Old_age   Always
-           0
183 Runtime_Bad_Block        0x0013    100    100    010    Pre-fail  Always
-           0
187 Uncorrectable_Error_Cnt  0x0032    100    100    000    Old_age   Always
-           0
190 Airflow_Temperature_Cel  0x0032    074    052    000    Old_age   Always
-          26
195 ECC_Error_Rate           0x001a    200    200    000    Old_age   Always
-           0
199 CRC_Error_Count          0x003e    099    099    000    Old_age   Always
-           2
235 POR_Recovery_Count       0x0012    099    099    000    Old_age   Always
-          113
241 Total_LBAs_Written        0x0032    099    099    000    Old_age   Always
-      3874801277

```

SMART Error Log Version: 1
No Errors Logged

SMART Self-test log structure revision number 1

| Num | Test_Description | Status | Remaining | LifeTime(hours) |
|--------------------|------------------|-------------------------|-----------|-----------------|
| LBA_of_first_error | | | | |
| # 1 | Short offline | Completed without error | 00% | 0 |
| - | | | | |
| # 2 | Short offline | Completed without error | 00% | 0 |
| - | | | | |
| # 3 | Short offline | Completed without error | 00% | 2 |
| - | | | | |

SMART Selective self-test log data structure revision number 1

| SPAN | MIN_LBA | MAX_LBA | CURRENT_TEST_STATUS |
|------|---------|---------|---------------------|
| 1 | 0 | 0 | Not_testing |
| 2 | 0 | 0 | Not_testing |
| 3 | 0 | 0 | Not_testing |
| 4 | 0 | 0 | Not_testing |
| 5 | 0 | 0 | Not_testing |

Selective self-test flags (0x0):
After scanning selected spans, do NOT read-scan remainder of disk.
If Selective self-test is pending on power-up, resume after 0 minute delay.

La ligne la plus importante est celle-ci.

SMART overall-health self-assessment test result: PASSED

Si le résultat est différent, il est vivement recommandé d'effectuer des sauvegardes immédiates de ce disque

Une autre ligne importante est celle-ci , elle montrera on non la présence de **badblocks**

```
187 Uncorrectable_Error_Cnt 0x0032 100 100 000 Old_age Always
- 0
```

3.3 Surveiller la santé de son disque (uniquement) (option -H)

```
/usr/sbin/smartctl -H /dev/sda
smartctl 6.6 2017-11-05 r4594 [x86_64-linux-4.19.0-5-amd64] (local build)
Copyright (C) 2002-17, Bruce Allen, Christian Franke, www.smartmontools.org

=== START OF READ SMART DATA SECTION ===
SMART overall-health self-assessment test result: PASSED
```

4. Réaliser des tests sur son disque

4.1. Estimer la durée des tests (option -c)

```
# /usr/sbin/smartctl -c /dev/sda
.....
Short self-test routine
recommended polling time: ( 2) minutes.
Extended self-test routine
recommended polling time: ( 80) minutes.
```

Le test court est estimé à 2 minutes (prenez un café), le long à 80 minutes (prenez quelques apéros...)

4.2. Effectuer un test court (option -t short)

```
/usr/sbin/smartctl -t short /dev/sda
smartctl 6.6 2017-11-05 r4594 [x86_64-linux-4.19.0-5-amd64] (local build)
Copyright (C) 2002-17, Bruce Allen, Christian Franke, www.smartmontools.org

=== START OF OFFLINE IMMEDIATE AND SELF-TEST SECTION ===
Sending command: "Execute SMART Short self-test routine immediately in off-
line mode".
Drive command "Execute SMART Short self-test routine immediately in off-line
mode" successful.
```

```
Testing has begun.  
Please wait 2 minutes for test to complete.  
Test will complete after Wed Jun 12 17:42:56 2019  
  
Use smartctl -X to abort test.
```

4.3. Afficher les résultats du test court (option -l selftest)

```
# /usr/sbin/smartctl -l selftest /dev/sda  
*smartctl 6.6 2017-11-05 r4594 [x86_64-linux-4.19.0-5-amd64] (local build)  
Copyright (C) 2002-17, Bruce Allen, Christian Franke, www.smartmontools.org  
  
=== START OF READ SMART DATA SECTION ===  
SMART Self-test log structure revision number 1  
Num Test_Description Status Remaining LifeTime(hours)  
LBA_of_first_error  
# 1 Short offline Completed without error 00% 0  
-  
# 2 Short offline Completed without error 00% 0  
-  
# 3 Short offline Completed without error 00% 0  
-  
# 4 Short offline Completed without error 00% 2  
-
```

4.3. Effectuer un test long (option -t long)

Même protocole mais avec l'option -t long

5. Utiliser le démon smartd

Ce démon va permettre d'automatiser les tâches précédentes.

Pour cela, il va falloir paramétrer le fichier de configuration de smartmontools, c'est à dire le fichier **/etc/smartd.conf**. (utiliser nano, xed, vi, vim ou n'importe quel éditeur...)

Premièrement rechercher la ligne suivante et commenter la.

```
DEVICESCAN -d removable -n standby -m root -M exec  
/usr/share/smartmontools/smartd-runner
```

Elle devient donc

```
# DEVICESCAN -d removable -n standby -m root -M exec
```

```
/usr/share/smartmontools/smartd-runner
```

Lisez le fichier, vous y trouverez peut-être des informations intéressantes (même sûrement, sans doute...)

Pour scanner votre disque /dev/sda, ajouter la ligne

```
/dev/sda -a -d sat -o on -S on -s (S/././././01|L/./././1/03) -m root -M  
exec /usr/share/smartmontools/smartd-runner
```

Faire de même pour tous les autres disques, par exemple si sdb également

```
/dev/sdb -a -d sat -o on -S on -s (S/././././02|L/./././2/03) -m root -M  
exec /usr/share/smartmontools/smartd-runner
```

On va passer des options supplémentaires au démon de smartctl afin qu'il gère correctement le disque

- -o on: Active la collecte des données hors connexion.
- -S on: Active la sauvegarde automatique des attributs.
- -d sat: Cette option n'est pas obligatoire si le type de votre disque est bien reconnu
- -s (S/././././01|L/./././1/03): La programmation horaire Ici, un test court tous les jours à 1 heure du matin et un test long tous les lundis à 3 heures du matin
- -m root : envoie un mail à l'utilisateur root

Si vous en voulez dans une boîte personnelle en plus

- -m root, mon.nom@mon.domaine.ext

Redémarrer le démon smartmontools pour prise en compte des modifications

```
# /etc/init.d/smartmontools restart
```

6. Automatiser le lancement du démon au démarrage

Dernière étape, lancer le démon smartmontools au démarrage du système. Editer le fichier **/etc/default/smartmontools** Et décommenter la ligne

```
# uncomment to start smartd on system startup  
#start_smartd=yes
```

Qui devient

```
# uncomment to start smartd on system startup  
start_smartd=yes
```

Sauvegarder

Plus d'informations : <https://sourceforge.net/projects/smartmontools/>

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