

bad sectors

SMART test

There are three types of self-tests that a device can execute (all are safe to user data):

- **Short:** runs tests that have a high probability of detecting device problems,
- **Extended or Long:** the test is the same as the short check but with no time limit and with complete disk surface examination,
- **Conveyance:** identifies if damage incurred during transportation of the device.

Run test in foreground mode:

```
smartctl -t short -C /dev/sdd
```

View test results:

```
sudo smartctl -l selftest /dev/sdd
```

Repair sector

```
smartctl -a /dev/sdb
```

```
SMART Self-test log structure revision number 1
Num Test_Description      Status                    Remaining  LifeTime(hours)
LBA_of_first_error
# 1 Short offline         Completed: read failure     90%        60539
974041815
# 2 Short offline         Completed without error     00%        60516
-
```

```
#Try to read bad sector:
```

```
hdparm --read-sector 974041815 /dev/sdb
```

```
/dev/sdb:
```

```
reading sector 974041815: SG_IO: bad/missing sense data, sb[]: 70 00 03 00
00 00 00 0a 40 51 e0 01 11 04 00 00 a0 d7 00 00 00 00 00 00 00 00 00 00 00
00 00 00
succeeded
```

```
hdparm --yes-i-know-what-i-am-doing --repair-sector 974041815 /dev/sdb
```

```
# Test rest of disk:
```

```
smartctl -t select,974041815-max /dev/sdb
```

```
smartctl -l selftest /dev/sdb
=== 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 Selective offline    Completed: read failure       90%        60550
974041843
# 2 Short offline        Completed: read failure       90%        60539
974041815

hdparm --yes-i-know-what-i-am-doing --repair-sector 974041843 /dev/sdb

# Test rest of disk:
smartctl -t select,974041815 -max /dev/sdb
```

Ready script to automate above: [How to use hdparm to fix a pending sector?](#) Fixed version:

```
#!/bin/bash -u
baddrive=/dev/sdb
badsect=974041815
while true; do
    echo Testing from LBA $badsect
    smartctl -t select,${badsect}-max ${baddrive} 2>&1 >> /dev/null

    echo "Waiting for test to stop (each dot is 5 sec)"
    while [ "$(smartctl -a ${baddrive} | awk '/Self-test execution status:/
{print $5}')" = "249)" ]; do
        echo -n .
        sleep 5
    done
    echo

    echo "Waiting for test to stop (each dot is 5 sec)"
    while [ "$(smartctl -l selftest ${baddrive} | awk '/^# 1/{print
substr($5,1,9)}')" != "Completed" ]; do
        echo -n .
        sleep 5
    done
    echo

    badsect=$(smartctl -l selftest ${baddrive} | awk '/# 1 Selective offline
Completed/ {print $10}')
    [ $badsect = "-" ] && exit 0

    echo Attempting to fix sector $badsect on $baddrive
    hdparm --repair-sector ${badsect} --yes-i-know-what-i-am-doing $baddrive
    echo Continuing test
done
```

For ZFS with RAIDZ filesystem, SCRUB is needed to replace bad data:

```
zpool scrub poolname  
zpool status -v poolname
```

https://github.com/hradec/fix_smart_last_bad_sector

<https://raw.githubusercontent.com/unxed/fixhdd/master/fixhdd.py>

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