

## My transcript for fixing error based on original documentation

```
root@t42:~# smartctl -l selftest /dev/hda
smartctl version 5.38 [i686-pc-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

```
=== 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	Extended offline	Completed: read failure	50%	1863	48784734
# 2	Extended offline	Completed: read failure	50%	1719	48784734

**sic we have an error at 48784734**

```
root@t42:~# smartctl -A /dev/hda
smartctl version 5.38 [i686-pc-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

```
=== START OF READ SMART DATA SECTION ===
```

```
SMART Attributes Data Structure revision number: 16
```

```
Vendor Specific SMART Attributes with Thresholds:
```

ID#	ATTRIBUTE_NAME	FLAG	VALUE	WORST	THRESH	TYPE	UPDATED	WHEN_FAILED	RAW_VALUE
1	Raw_Read_Error_Rate	0x000b	100	100	062	Pre-fail	Always	-	65536
2	Throughput_Performance	0x0005	100	100	040	Pre-fail	Offline	-	3662
3	Spin_Up_Time	0x0007	250	250	033	Pre-fail	Always	-	1
4	Start_Stop_Count	0x0012	100	100	000	Old_age	Always	-	1520
5	Reallocated_Sector_Ct	0x0033	100	100	005	Pre-fail	Always	-	0
7	Seek_Error_Rate	0x000b	100	100	067	Pre-fail	Always	-	0
8	Seek_Time_Performance	0x0005	100	100	040	Pre-fail	Offline	-	0
9	Power_On_Hours	0x0012	096	096	000	Old_age	Always	-	1866
10	Spin_Retry_Count	0x0013	100	100	060	Pre-fail	Always	-	0
12	Power_Cycle_Count	0x0032	100	100	000	Old_age	Always	-	1319
191	G-Sense_Error_Rate	0x000a	100	100	000	Old_age	Always	-	1
192	Power-Off_Retract_Count	0x0032	100	100	000	Old_age	Always	-	1703983
193	Load_Cycle_Count	0x0012	095	095	000	Old_age	Always	-	56800
194	Temperature_Celsius	0x0002	171	171	000	Old_age	Always	-	32 (Lifetime)
196	Reallocated_Event_Count	0x0032	100	100	000	Old_age	Always	-	5
197	Current_Pending_Sector	0x0022	100	100	000	Old_age	Always	-	1
198	Offline_Uncorrectable	0x0008	100	100	000	Old_age	Offline	-	0
199	UDMA_CRC_Error_Count	0x000a	200	200	000	Old_age	Always	-	0

**And we do have Current\_Pending\_Sector**

```
root@t42:~# fdisk -lu /dev/hda
```

```
Disk /dev/hda: 40.0 GB, 40007761920 bytes
255 heads, 63 sectors/track, 4864 cylinders, total 78140160 sectors
Units = sectors of 1 * 512 = 512 bytes
Disk identifier: 0xcccdcccd
```

Device	Boot	Start	End	Blocks	Id	System
/dev/hda1	*	63	75119939	37559938+	83	Linux
/dev/hda2		75119940	78140159	1510110	5	Extended
/dev/hda5		75120003	78140159	1510078+	82	Linux swap / Solaris

**sector is part of /dev/hda1**

let's find it, first what is filesystem block size?

```
root@t42:~# tune2fs -l /dev/hda1 | grep Block
Block count:          9389984
Block size:           4096
Blocks per group:     32768
```

Then let's calculate offset in /dev/hda1 partition:

```
root@t42:~# bc
( ( 48784734 - 63 ) * 512 ) / 4096
6098083
```

Let's see do we have any files there...

```
root@t42:~# debugfs /dev/hda1
debugfs 1.41.3 (12-Oct-2008)
debugfs: icheck 6098083
Block      Inode number
6098083 <block not found>
```

No files landed on it yet.

So let's just relocate it:

```
root@t42:~# dd if=/dev/zero of=/dev/hda1 bs=4096 count=1 seek=6098083
1+0 records in
1+0 records out
4096 bytes (4.1 kB) copied, 6.0343e-05 s, 67.9 MB/s
root@t42:~# sync
```

And check smart status again:

```
root@t42:~# smartctl -A /dev/hda
smartctl version 5.38 [i686-pc-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

=== START OF READ SMART DATA SECTION ===

SMART Attributes Data Structure revision number: 16

Vendor Specific SMART Attributes with Thresholds:

ID#	ATTRIBUTE_NAME	FLAG	VALUE	WORST	THRESH	TYPE	UPDATED	WHEN_FAILED	RAW_VALUE
1	Raw_Read_Error_Rate	0x000b	100	100	062	Pre-fail	Always	-	1
2	Throughput_Performance	0x0005	100	100	040	Pre-fail	Offline	-	3662
3	Spin_Up_Time	0x0007	250	250	033	Pre-fail	Always	-	1
4	Start_Stop_Count	0x0012	100	100	000	Old_age	Always	-	1520
5	Reallocated_Sector_Ct	0x0033	100	100	005	Pre-fail	Always	-	0
7	Seek_Error_Rate	0x000b	100	100	067	Pre-fail	Always	-	0
8	Seek_Time_Performance	0x0005	100	100	040	Pre-fail	Offline	-	0
9	Power_On_Hours	0x0012	096	096	000	Old_age	Always	-	1866
10	Spin_Retry_Count	0x0013	100	100	060	Pre-fail	Always	-	0
12	Power_Cycle_Count	0x0032	100	100	000	Old_age	Always	-	1319
191	G-Sense_Error_Rate	0x000a	100	100	000	Old_age	Always	-	1
192	Power-Off_Retract_Count	0x0032	100	100	000	Old_age	Always	-	1703983

193	Load_Cycle_Count	0x0012	095	095	000	Old_age	Always	-	56800
194	Temperature_Celsius	0x0002	157	157	000	Old_age	Always	-	35 (Lifetime)
196	Reallocated_Event_Count	0x0032	100	100	000	Old_age	Always	-	6
197	Current_Pending_Sector	0x0022	100	100	000	Old_age	Always	-	0
198	Offline_Uncorrectable	0x0008	100	100	000	Old_age	Offline	-	0
199	UDMA_CRC_Error_Count	0x000a	200	200	000	Old_age	Always	-	0

You will see that `Current_Pending_Sector` dropped to 0 and `Reallocated_Event_Count` increased to 6. It's probably time to throw away this disk...

### Let's run test again

```
root@t42:~# smartctl -t long /dev/hda
smartctl version 5.38 [i686-pc-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/

=== START OF OFFLINE IMMEDIATE AND SELF-TEST SECTION ===
Sending command: "Execute SMART Extended self-test routine immediately in off-line mode".
Drive command "Execute SMART Extended self-test routine immediately in off-line mode" successful.
Testing has begun.
Please wait 29 minutes for test to complete.
Test will complete after Tue Jan 27 14:07:03 2009

Use smartctl -X to abort test.
```

### And wait for test to finish to get:

```
root@t42:~# smartctl -l selftest /dev/hda
smartctl version 5.38 [i686-pc-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/

=== 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 Extended offline Completed without error 00% 1866 -
# 2 Extended offline Completed: read failure 50% 1863 48784734
# 3 Extended offline Completed: read failure 50% 1719 48784734
```