

## View of errors and current historical data of parameters indicating the health of drive on CM Portal

### Remote tests of hard drives

**Example of remote tests result - [faultless state of disk](#), [defective disk](#)**

## **View of errors and current historical data of parameters indicating the health of drive on CM Portal**

Health of disks is checked automatically on each PC, where C-Monitor client is installed, by monitoring of S.M.A.R.T. parameters. If status of the critical parameters gets worse, the operator is informed that the disk's health has worsen, automatically by an email message. The status will also appear in errors of the given customer. To remove the error, you must first confirm it. If you select perfect condition of disk at the confirmation, the error will disappear. The error will also disappear, when the disk is replaced by a faultless one, and then full descript on PC runs normally. If by testing you find out that the disk is indeed defective, then select the option to confirm defective disk, after which the error will be marked by a green tick and remains in the list of errors until the disk is replaced by a faultless one.

Image: Poruchy SMART parametrov

Information about the current state of local disks are gathered on CM portal in the section *Presentation and Evaluation* -> *Presentation* -> *Zóny* -> *Zone Disks* - SMART as displayed on the next image.

Image: Zobrazenie zóny Disky - S.M.A.R.T s možnosťou zobrazenia históre

The next image shows the current state of S.M.A.R.T parameters. If the values aren't red, the disk should be fine. By clicking on a PC name, you'll see the history of SMART parameters changes.

**Zóny**

Spoločnosť:  Počítač & Umiestnenie: seanb08 Používateľ:   
 Operátor:  Zoradiť podľa: CM-ID Zoradiť ako: Vzostupne Hľadať  
 OS:  ☒ Zahnúť ručne zadane počítače ☐ Len online počítače

**Zóna Disky - SMART [zobrazená 1 položka]**

Sekcia	Parameter	1. SEANB08
History		Show history
Network Name		JURAJ-HP
Online connection		13. Feb 2013 10:10:37
User		Juraj
Current Login		Juraj-HP/Juraj
Location		Tapoleva

Sekcia	Parameter	1. SEANB08
Device 0	Status	OK
	SMART Test	Spasifik test
	Model number	ST9500420AS
	Supported smart	Yes
	Firmware revision	0006HPM1
	Serial number	5VJ7SW7Z
	Disk size	466.0 GB

Sekcia	Parameter	Value / Threshold / Worst / Raw
Device 0	[1] Raw read error rate	115 6 99 4163
	[3] Spin up time	97 0 97 0
	[4] Start/stop count	99 0 99 1210
	[5] Reallocated sector count	100 36 100 0
	[7] Seek error rate	71 30 60 9392
	[9] Power on hours count	98 0 98 2572
	[10] Spin retry count	100 97 100 0
	[12] Power cycle count	99 20 37 1192
	[183] Sata downshift error count	100 0 253 0
	[184] End to end error	100 97 100 0
	[187] Reported uncorrectable errors	100 0 100 0
	[188] Command timeout	100 0 98 5
	[189] High fly writes	100 0 100 0
	[190] Temp difference from 100	61 45 47 39
	[191] G sense error rate	100 0 100 136
	[192] Power off retract cycle	100 0 100 20
	[193] Load unload cycle count	97 0 97 6958
	[194] Temperature	39 0 53 39
	[195] Hardware ecc recovered	48 0 42 4163
	[196] Reallocation events count	100 36 100 0
	[197] Current pending sector count	100 0 100 0
	[198] Uncorrectable sector count	100 0 100 0
	[199] Ultradma crc error rate	200 0 200 0
	[254] Free fall protection	100 0 100 0

Image: Zobrazenie aktuálneho stavu S.M.A.R.T parametrov pre konkrétny počítač

There are four values for each parameter. Columns:

**Value** - a constant defined by SMART standard (current value)

**Threshold** - a value, below which Value cannot go, otherwise the disk is defective

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**Worst** - the worst recorded value so far

**RAW** - absolute value of the monitored parameter (e.g. number of reallocated sectors)

**Critical S.M.A.R.T parameters evaluated in CM according to increase of error events**

**Reallocated Sectors Count:** The number of sectors, that were marked as inapplicable by the disk's electronics, and the data was moved to another sector. The data transfer doesn't mean the data has been damaged, though for an increasing amount of bad sectors, the reading and writing speed decreases. This doesn't mean that these sectors will be displayed as bad when we'd scan the disk. Modern disks have an area of sectors, which they use to replace bad sectors, if there are any found.

**Reallocation Events Count:** Total number of both successful and unsuccessful tries to move data from damaged sectors.

**Current Pending Sector Count:** Number of sectors in the failing state. If the operation of writing and check of the written data is successful, the sector is classified as functional. Otherwise, the system will try to transfer these data.

**Uncorrectable Sector Count:** Number of permanently damaged sectors. The higher this number is, the bigger is the risk of failure of the entire disk.

**Other parameters evaluated in CM only by Value reaching a value under Treshold**

**Read Error Rate:** Errors of data reading. Any deficiencies in this area refer to an error of reading heads or the disc surface. Intensive increasing of defectiveness almost always leads to irreversible data losses.

**Spin Retry Count:** Number of repeated tries to spin the discs. An increasing value indicates a problem with the engine, or the control electronics.

**Spin-up Time:** Time, in which the drive's discs spin up to the operating speed. Its increasing indicates malfunction of the engine, or eventually of the control electronics. When combined with high temperature, it's most likely a case of worn bearings.

**Start/Stop Count:** Number of cycles of the disk's turning on/off. High values in combination with a low amount of working time may be caused by bad setup of saving modes (for example turning off the disk after three minutes of inactivity, if data is written every four minutes).

**Power On Hours count:** Total running time since the disk's production. There's nothing we can do with high values.

**Temperature:** There can be more than one information, temperature sensors can be found in the disk's body, in the outside environment, as well as inside.

If some parameter values are red, it's necessary to check the disk's status. In C-Monitor version 2.6 and higher, there are [Remote tests of hard drives](#) available, read more in the text below.

If a disk doesn't pass these tests, the user must be notified, that it's effective to replace it, at best along with export of parameter history output. The export is done by clicking on the Excel icon in the top right corner.

If you don't want to use the integrated solution for testing disks via C-Monitor client, you can use the manufacturer's own software for testing potentially defective drives.

## **Remote tests of hard drives**

[Launch of the remote test from the zone - Disks - S.M.A.R.T](#)

[Launch of the remote test from the section Errors](#)

## Launch of the remote test of hard drive from e-mail

### Assessment of the final and ongoing reports from remote drives tests

Since version 2.6, C-Monitor client provides an option to remotely test hard drives. The test of a drive can be launched on several places. The test's result, as well as the ongoing status will be delivered to you by email. During the test, the user may work normally and won't be limited at all, as he won't even be aware that the test is running. Read more information in the text below.

#### **Launch of the remote test from the zone - Disks - S.M.A.R.T**

Test of a disk can be carried out directly from the zone Disks - SMART, which is located in the section *Presentation and Evaluation -> Presentation -> Zones -> Zone Disks - SMART*. Search for a specific computer using the upper filter, and press the button *Run test* as displayed on the next image.

The screenshot shows the 'Zóny' (Zones) section of the C-Monitor web interface. The left sidebar has a 'Zóny' button highlighted. The main area shows a table of disk information for '1. SEAGOR08'. The table has columns for 'Selekcia', 'Parameter', and 'Value'. The 'Run test' button is highlighted with a red box, and a red arrow points to it with a text box saying 'Spustenie vzdialeného testu disku' (Launching remote disk test).

Selekcia	Parameter	Value
History		Show history
Network Name		JURAJ-HP
Online connection		13. Feb 2013 21:33:57
User		Juraj
Current Login		Juraj@PUBnet
Location		Tspolova

Selekcia	Parameter	Value
Device 0	Status	OK
	SMART Test	Spustit test
	Model number	ST9500420AS
	Supported smart	Yes
	Firmware revision	0008PM1
	Serial number	SVJ7BW7Z

Image: Spustenie vzdialeného testu pevného disku zo zóny disky-smart

In the next window you can enter any email address of the test result's sender, or keep the default address, and into the field *send test result to address* enter email or emails, to which the result is going to be sent, default address is the currently logged operator's one. Then press *Run test* which triggers an instruction to C-Monitor client to execute the test of drive. Here you can also interrupt a currently running test, as well as request the status of also running tests, which is also going to be sent to your email.

The screenshot shows the 'Zóny' (Zones) section of the Customer Monitor interface. The 'Disky - SMART' tab is selected. The 'Spustenie SMART Tests' form is visible, with fields for 'Email odoslať výsledku testu' and 'Výsledok testu poslať na adresu'. The 'Spustiť test' button is highlighted with a red box.

**Image: Spustenie vzdialeného testu pevného disku zo zóny disky-smart**

#### Launch of the remote test from the section Errors

Another option to launch the test is in the section *Presentation and Evaluation* -> *Warnings* -> *Errors*, then search for a specific S.M.A.R.T error. In this error's detail, there's a button to launch remote test of the disk, as displayed on the next image. The following window is the same as described for launching the test through the [zone Disks - SMART](#), therefore, all settings are the same as well.

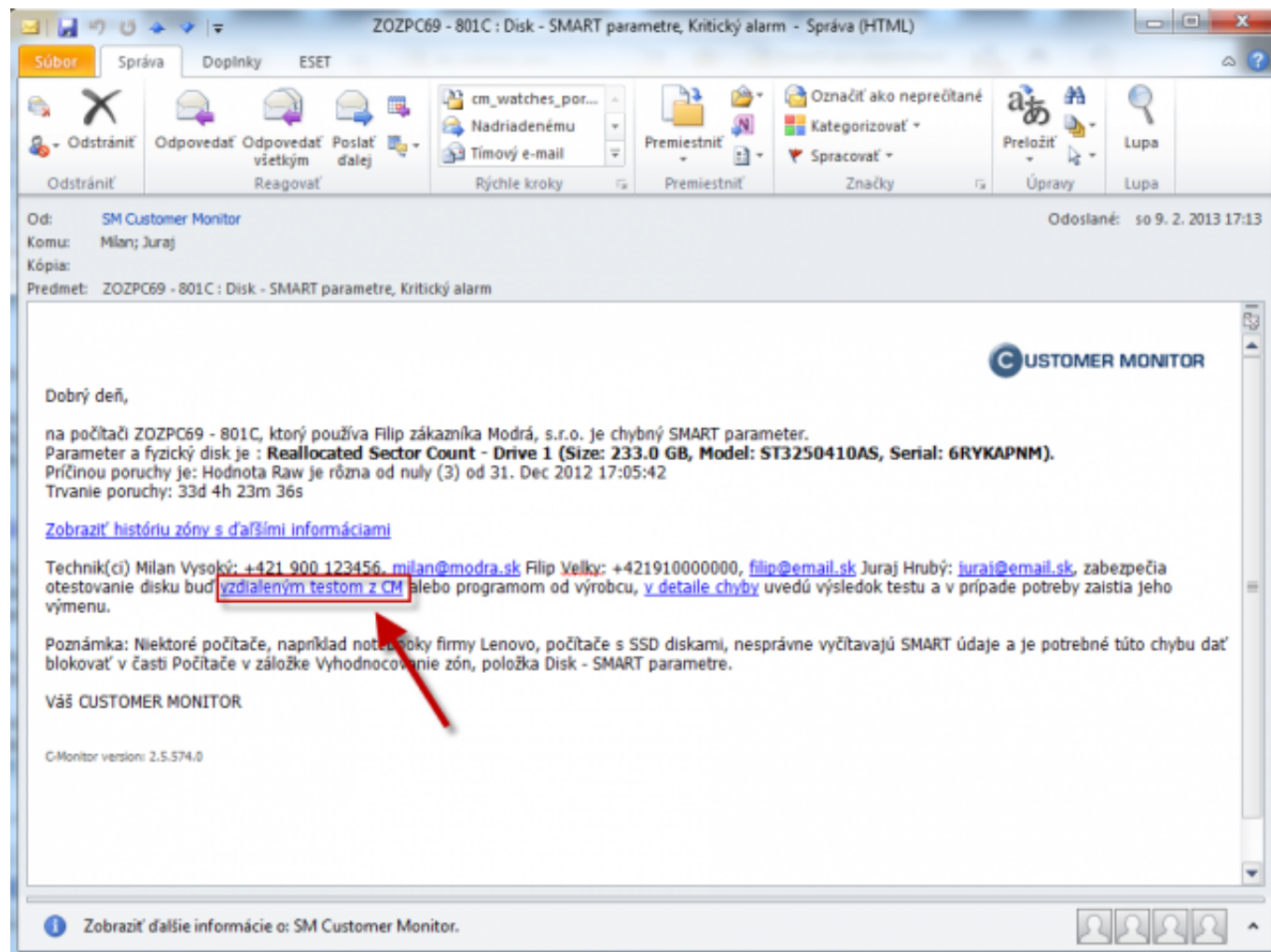
The screenshot shows the 'Poruchy' (Errors) section of the Customer Monitor interface. The 'Detail poruchy' form is visible, with the 'Spustiť test' button highlighted with a red box and a red arrow pointing to it.

**Image: Spustenie vzdialeného testu pevného disku z poruchy**

#### Launch of the remote test of hard drive from e-mail



For each error that is automatically evaluated on a computer, an information about the error is sent to the operator by email. When one of the important S.M.A.R.T parameters is changed, an error is generated that warns about defective disk. An email is sent to the operator regarding this situation, which is displayed on the next image. A link to execute a remote test of the disk from CM Portal is highlighted in the text. By clicking on this link, you'll be automatically redirected to CM Portal webpage.



**Image: Spustenie vzdialeného testu pevného disku z emailu**

After login to CM portal, you'll see this next window, where you just perform the same settings as are described at launch of the remote test from the section [zone Disks - SMART](#), and start the test

**Spustenie SMART Testu**

Spoločnosť: IT Services, s.r.o.  
 Počítač: ZOZPC02 / PC02611A / Lubica 13. Feb 2013 11:41:24  
 Model disku: ST3250310AS  
 Sériové číslo: 6RY7 SM7V  
 Kapacita disku: 233.0 GB  
 PhysicalDrive: PD0

Spustenie testu \*: Ihneď po prijatí na počítač  
 Email odosielateľa výsledku testu \*: vlastná voľba smarttest@emak  
 Výsledok testu poslať na adresu \*: vlastná voľba operator3@emak Viac emailov oddelte čiarkou alebo bodkočiarkou  
 Spôsob odoslania emailu s výsledkom testu z C-Monitora \*: Písané odoslanie z klienta cez SMTP 3.0, resp. SMTP 1.2 Zmeniť

Po spustení testu bude bez vyučenia používateľa otestovaný disk. Test obvykle trvá 1 - 3 hod. Zabezpečte, aby bol počítač počas testu stále zapnutý, inak test zopakujte. Po 6 hod. bude zaslaný stav/výsledok testu na vyššie zadajúcu adresu (v emailu bude priložený súbor). Pre viac informácií kliknite: [www.customermonitor.sk](http://www.customermonitor.sk)

**Spustiť test** Prerušit aktuálne bežiaci test Jednorázové vyžiadanie stavu

**História odoslaných požiadaviek (zobrazuje sa posledných 15 udalostí)**

Dátum	Udalosť	Spustenie testu	PhysicalDrive	Odosielateľ	Prijemca	Príkazový riadok	Spustiť
13. Feb 2013 10:44:55	Jednorázové vyžiadanie stavu		PD0	smarttest@customermonitor.sk	emaloperatora@emak.sk	smartcd.exe -a /dev/pd0	Juaj
13. Feb 2013 10:43:39	Prerušenie aktuálne bežaceho testu		PD0	smarttest@customermonitor.sk	emaloperatora@emak.sk	smartcd.exe -X /dev/pd0	Juaj
13. Feb 2013 10:43:24	Spustenie testu	Ihneď po prijatí na počítač	PD0	smarttest@customermonitor.sk	emaloperatora@emak.sk	smartcd.exe -a /dev/pd0	Juaj

**Image: Spustenie vzdialeného testu pevného disku z emailu**

Logs recording the test's execution, single status requests, as well as completion, are located in the bottom part of the window from where the tests are launched, and are displayed on the next image.

**Zóny**

Spoločnosť: Počítač & Umiestnenie: Požívateľ:  
 Disky - SMART: Operátor: Zoradiť podľa: Zoradiť ako: Vlastné: Hľadaj  
 OS: ☒ Zahŕňať ručne zadané počítače ☐ Len online počítače

Výsledok testu poslať na adresu \*: vlastná voľba emaloperatora@emak.sk Viac emailov oddelte čiarkou alebo bodkočiarkou  
 Spôsob odoslania emailu s výsledkom testu z C-Monitora \*: CM Server je doručený na CM server cez HTTP Zmeniť

Po spustení testu bude bez vyučenia používateľa otestovaný disk. Test obvykle trvá 1 - 3 hod. Zabezpečte, aby bol počítač počas testu stále zapnutý, inak test zopakujte. Po 6 hod. bude zaslaný stav/výsledok testu na vyššie zadajúcu adresu (v emailu bude priložený súbor). Pre viac informácií kliknite: [www.customermonitor.sk](http://www.customermonitor.sk)

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13. Feb 2013 10:43:39	Prerušenie aktuálne bežaceho testu		PD0	smarttest@customermonitor.sk	emaloperatora@emak.sk	smartcd.exe -X /dev/pd0	Juaj
13. Feb 2013 10:43:24	Spustenie testu	Ihneď po prijatí na počítač	PD0	smarttest@customermonitor.sk	emaloperatora@emak.sk	smartcd.exe -a /dev/pd0	Juaj

**Image: Zobrazenie histórie odoslaných požiadaviek SMART testu**

#### Assessment of the final and ongoing reports from remote drives tests

Request for status of a disk's test is performed automatically after 6 hours since the test started. You may request an ongoing status of the test anytime by clicking on the button *onetime check of status*, which is in the same section as the button for the test's execution. Results and status of the

test will be delivered to you by email, which is displayed on the following image. The results are saved in the attachments, marked by an arrow on the image, and it can be opened in the Notepad.

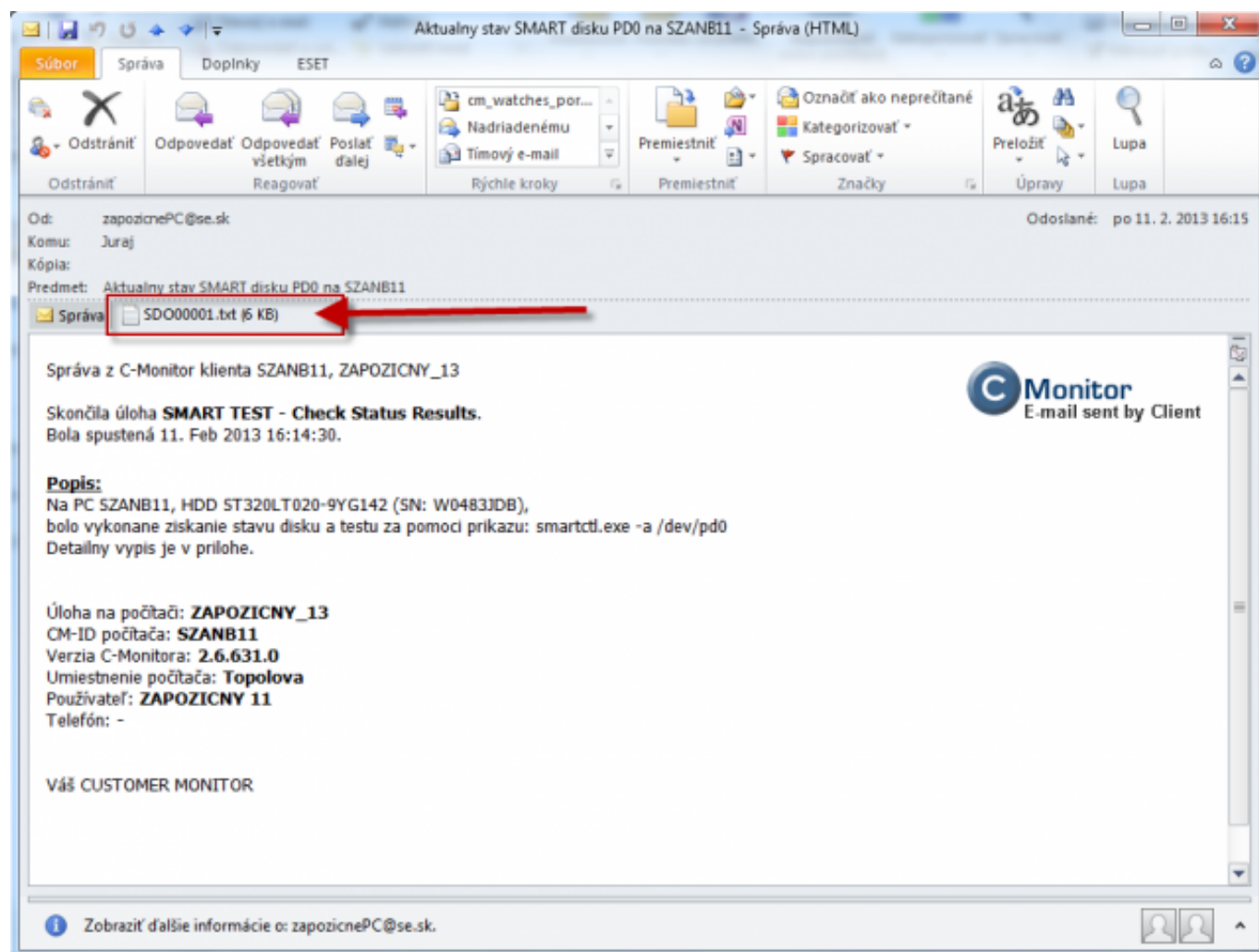


Image: Email s prílohou zobrazujúci priebežný a finálny stav vzdialeného testu disku

After opening the attachment, you'll see a report from the disk's test. Important parts that you should see are displayed on the next image.

First, check if the test ran on the required disk, by capacity or serial number. Sometimes, it might happen that name of the disk has changed after PC restart, and doesn't match the name on CM portal. Disks are only called according to PDx (Physical disk x).

In the bottom part of the report, marked as *SMART Self-test log structure revision number 1*, is the result of the test. Possible final states are described in the text below.



```
SDO00001.txt - Poznámkový blok
Súbor  Úpravy  Formát  Zobrazíť  Pomocník
smartctl 6.0 2012-10-10 r3643 [i686-w64-mingw32-win8(64)] (sf-6.0-1)
Copyright (C) 2002-12, Bruce Allen, Christian Franke, www.smartmontools.org

=== START OF INFORMATION SECTION ===
Device Model:     ST320LT020-9YG142
Serial Number:    W0483JDB
LU WWN Device Id: 5 000c50 0534284e1
Firmware version: 00031vm1
User Capacity:    320 072 933 376 bytes [320 GB]
Sector Sizes:     512 bytes logical, 4096 bytes physical
Rotation Rate:    5455 rpm
Device is:         Not in smartctl database [for details use: -P showall]
ATA Version is:    ATA8-ACS T13/1699-D revision 4
SATA Version is:   SATA 2.6, 3.0 Gb/s (current: 3.0 Gb/s)
Local Time is:     Mon Feb 11 16:14:31 2013
SMART support is:  Available - device has SMART capability.
SMART support is:  Enabled

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%          528              -
# 2 Vendor (0x50)         Completed without error   00%           0              -

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.
```

Image: Časti z výsledného reportu, ktoré sú pre vás dôležité

### Test has verified faultless state of the disk

The test ran without any errors, output from such test is displayed below. Text in the column **Status** gives information whether the test ran without errors - the disk is fine.

```
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 Extended offline      Completed without error   00%          528              -
# 2 Vendor (0x50)         Completed without error   00%           0              -
```

Image: Test overil bezchybný stav disku

### Test has proven a defective disk

The test is completed and an error has been found, the next image nicely shows result of a test, which has proven that the disk is faulty. For such tests, we recommend to replace the disk.

```
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    90%         1172            7726402
# 2 Extended offline      Interrupted (host reset)   80%           1              -
```

Image: Vyhodnotenie chybného stavu disku

## Other possible states

**1. Test is still running**, output from this status is displayed below, there's also an information how many % remain to the test's completion.

```
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	Extended offline	Self-test routine in progress	90%	526	-
# 2	Vendor (0x50)	Completed without error	00%	0	-

Image: Test ešte stále beží

## 2. The test hasn't run at all, description of possible states and reasons

**a**, If the output report contains the message Interrupted (host reset) , it means that a user has most likely turned off the device, on which the disk was tested. We recommend to settle on, that the user keeps the device turned on for at least 6 hours since beginning of the test, to be sure that the test will have enough time to be completed.

**b**, In case you're sure that the device has not been turned off, this message means that the test couldn't be finished, as the disk's defection is at such a high level, it simply wasn't possible. Therefore, we recommend to immediately backup all important data and replace the disk.

```
SMART Self-test log structure revision number 1
```

Num	Test_Description	Status	Remaining	LifeTime(hours)	LBA_of_first_error
# 1	Extended offline	Interrupted (host reset)	90%	454	-
# 2	Extended offline	Interrupted (host reset)	90%	362	-
# 3	Extended offline	Interrupted (host reset)	90%	1	-

Image: Testovanie sa nedokončilo

**c**, If the output report contains a message **Aborted by host** it means that the user, under which the test was carried out has logged off. As you can see on the next image, the test was not successful until the 5th time. We recommend to notify the user, that his disk is going to be tested, and he should not turn off the PC, or log out.

```
SMART Self-test log structure revision number 1
```

Num	Test_Description	Status	Remaining	LifeTime(hours)	LBA_of_first_error
# 1	Extended offline	Aborted by host	90%	1872	-
# 2	Extended offline	Aborted by host	90%	1872	-
# 3	Extended offline	Aborted by host	90%	1872	-
# 4	Extended offline	Aborted by host	90%	1872	-
# 5	Extended offline	Completed without error	00%	1871	-

Image: Testovanie bolo viackrát zrušené ale nakoniec sa test dokončil

**d, Request of ongoing status didn't show the running test** - in some cases, it might occur that after requesting ongoing status of the disk, it states that there are no running tests. In this case, we recommend to wait the 6 hours since beginning of the test and just view the report after the test is completed, as it already contains information about course of the test.

```
SMART self-test log structure revision number 1
```

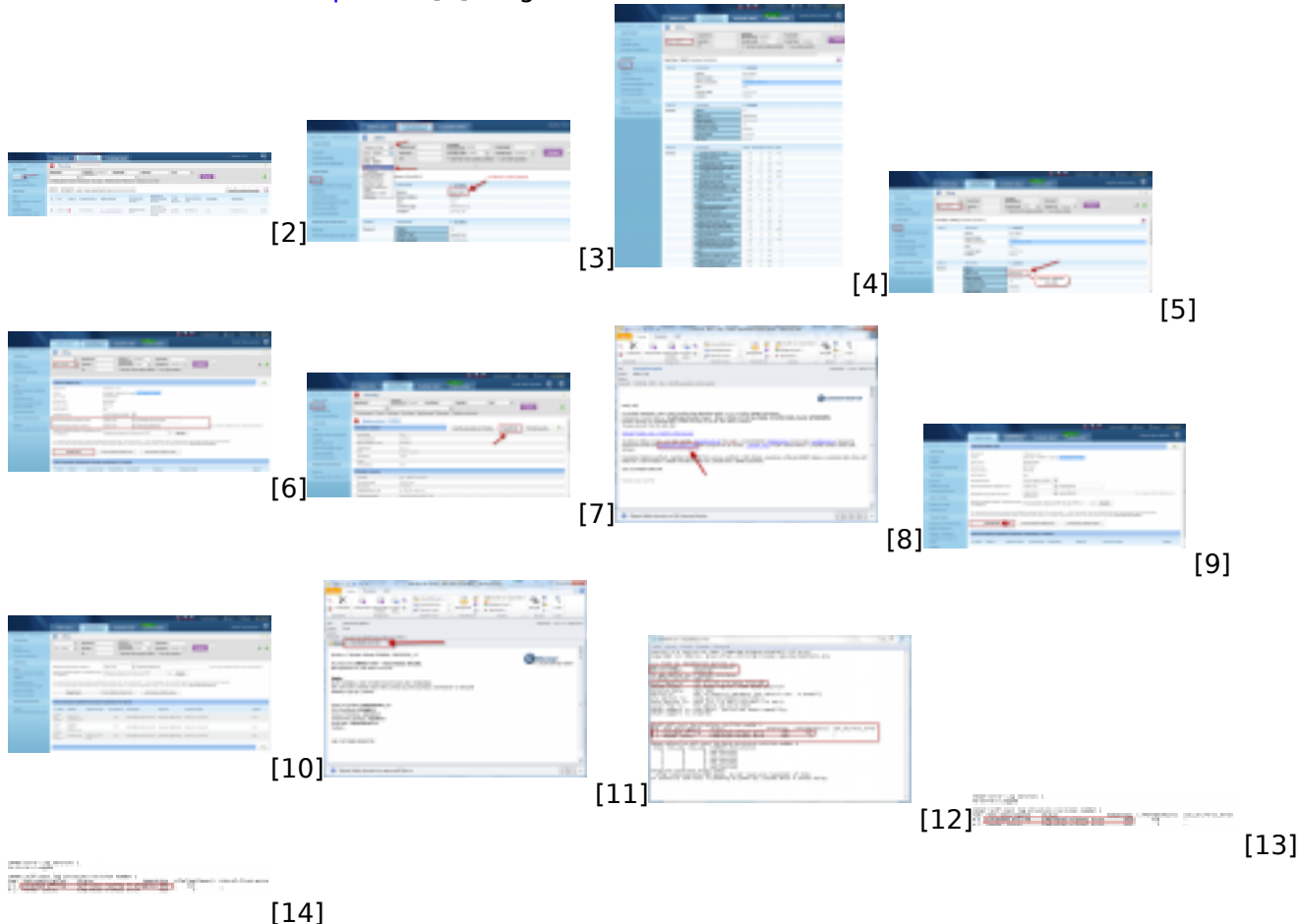
```
No self-tests have been logged. [To run self-tests, use: smartctl -t]
```

Image: Pri zisťovaní priebežného stavu sa nezistila prítomnosť žiadneho bežiaceho testu

Date:

03/28/2012 External Links:

[Nastavenia a notifikácia porúch](#) [1] Images:



## Links

[1] <https://www.customermonitor.eu/node/605>

[2] [https://www.customermonitor.eu/sites/default/files/10\\_2.png](https://www.customermonitor.eu/sites/default/files/10_2.png)

[3] [https://www.customermonitor.eu/sites/default/files/1\\_2\\_0\\_0.png](https://www.customermonitor.eu/sites/default/files/1_2_0_0.png)

[4] <https://www.customermonitor.eu/sites/default/files/zona%20smart.png>

[5] <https://www.customermonitor.eu/sites/default/files/spustenie%20smartu%20zo%20zony.png>

[6] <https://www.customermonitor.eu/sites/default/files/spustenie%20smart%20testu%20zo%20zony%20disk%20smart.png>

[7] <https://www.customermonitor.eu/sites/default/files/spustenie%20smart%20testu%20z%20poruchy.png>

[8] <https://www.customermonitor.eu/sites/default/files/spustenie%20smart%20testu%20z%20emailu.png>

[9] <https://www.customermonitor.eu/sites/default/files/spustenie%20testu%20z%20emailu.png>

[10] <https://www.customermonitor.eu/sites/default/files/historia%20odoslanych%20poziadaviek%20smart%20testu.png>

[11] <https://www.customermonitor.eu/sites/default/files/email%20skoncenie%20ulohy%20smart.png>

[12] <https://www.customermonitor.eu/sites/default/files/smart.png>

[13] [https://www.customermonitor.eu/sites/default/files/smart1\\_0.png](https://www.customermonitor.eu/sites/default/files/smart1_0.png)

[14] [https://www.customermonitor.eu/sites/default/files/smart%202\\_0.png](https://www.customermonitor.eu/sites/default/files/smart%202_0.png)