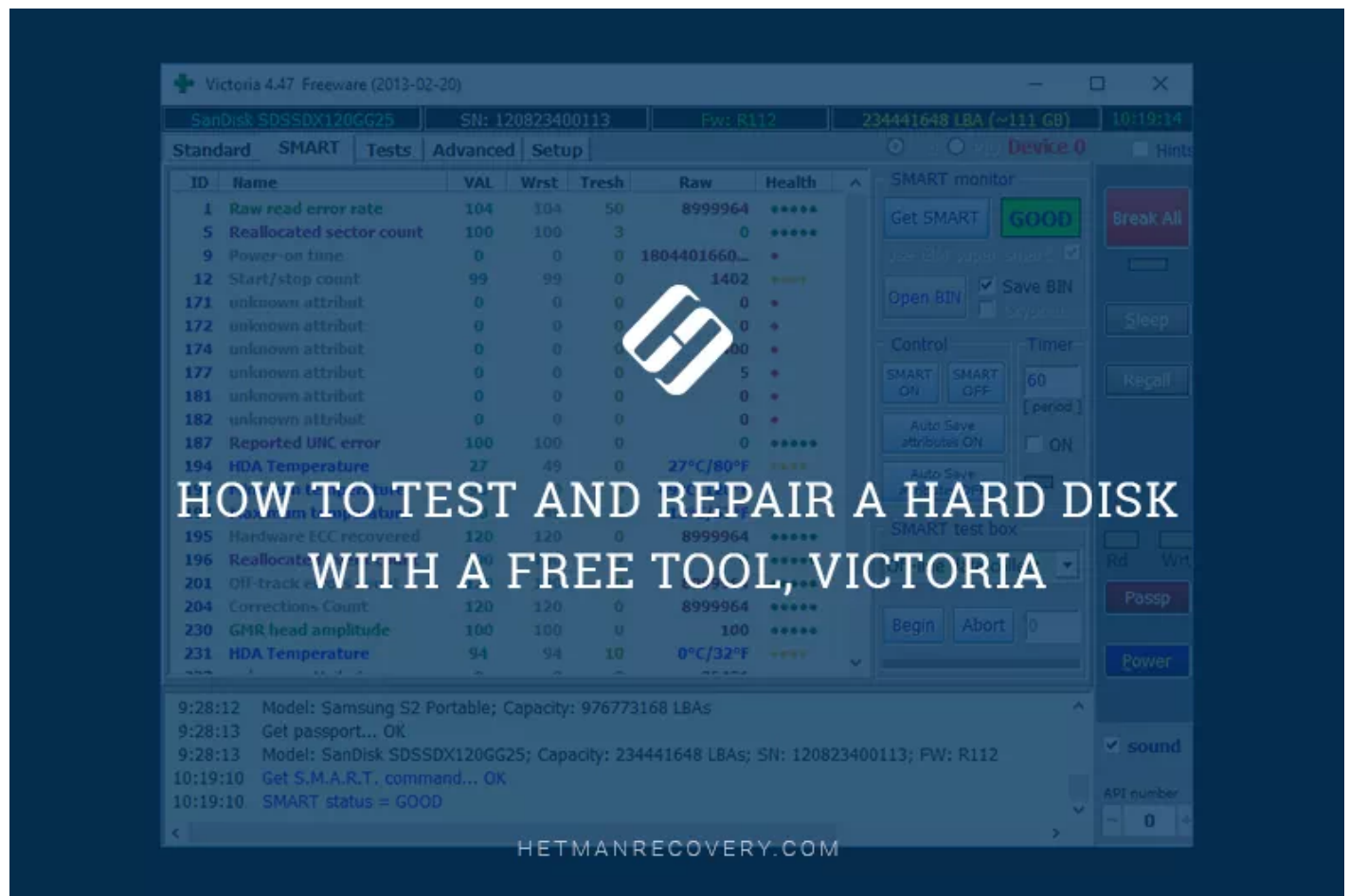




How to Test and Repair a Hard Disk with a Free Tool, Victoria

From this article, you'll learn **how to test a hard disk, external storage or SSD for surface defects and bad sectors**, and how to repair them using a free tool, Victoria.

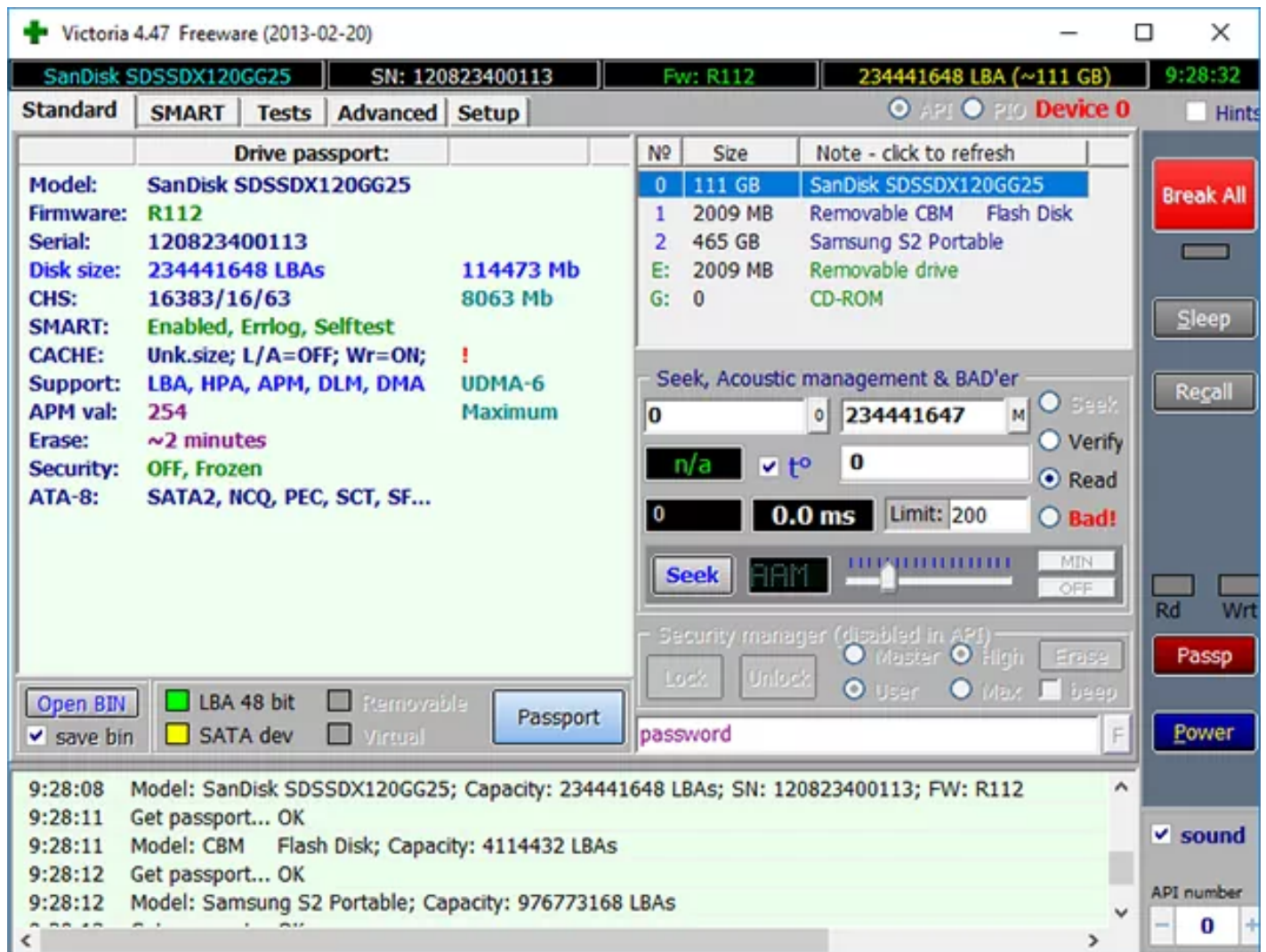


We can't imagine a modern computer without some kind of a hard disk. This is where all user data is stored and all software components are installed. As all things in this world, a hard disk has a certain resource that can be exhausted one day, and it is so far one of the least

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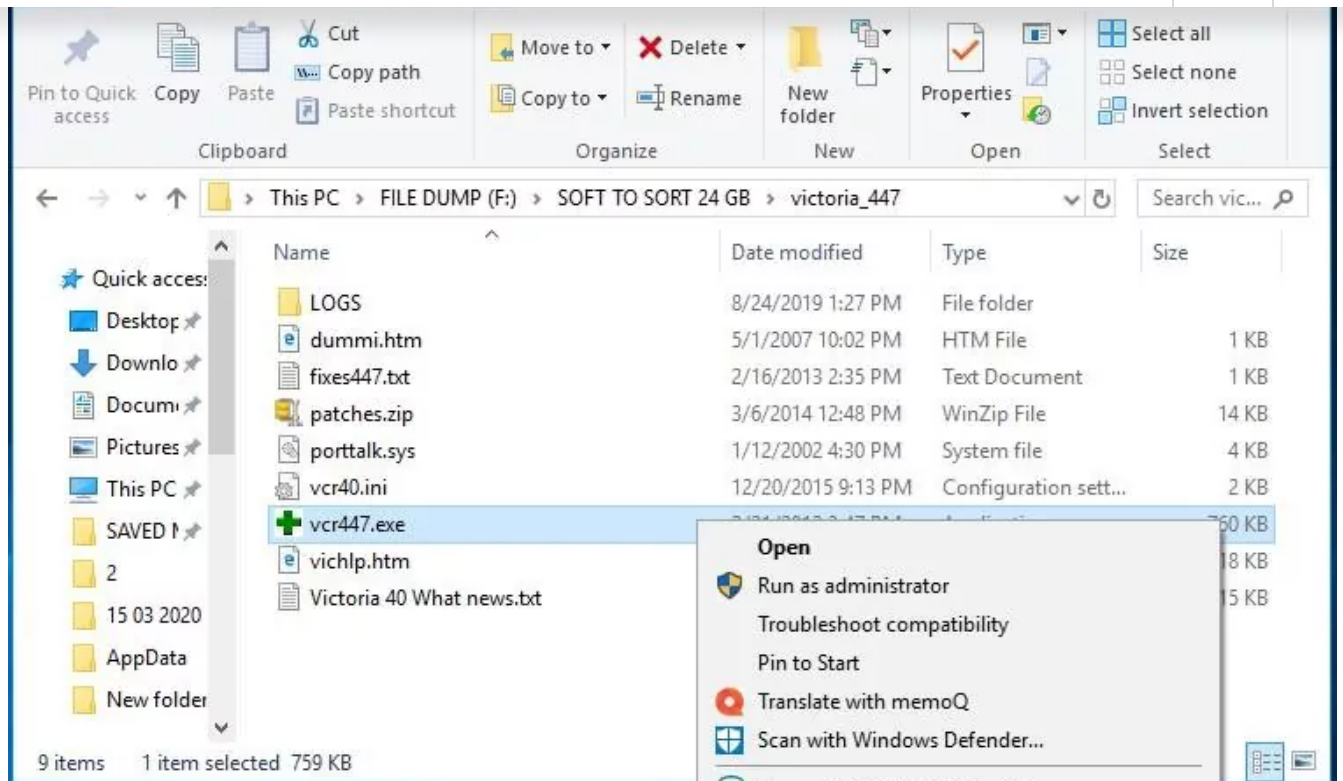
Keep in mind, though, that the tool we are using today can only repair the sectors damaged at the software level. Any sectors damaged physically can only be blocked, but never restored.

Victoria is a free tool available for download and use by anyone. The program's official website: <http://hdd.by/victoria/>. Also, it is available for download from many file-sharing services.

In order to test a hard disk for surface defects and bad sectors, and then repair them you with Victoria:

- Download the tool and run it as Administrator.





No installation is required. Just open its folder and start the file vcr447.exe.

- In the **Standard** tab that opens, we can see the list of all drives connected to this computer, and information on them.

It includes drive name and model, firmware version, the number of clusters, drive capacity and the motherboard connector the drive is using.





Standard | SMART | Tests | Advanced | Setup

API | PIO | Device 0

Drive passport:

Model: SanDisk SDSSDX120GG25
 Firmware: R112
 Serial: 120823400113
 Disk size: 234441648 LBAs 114473 Mb
 CHS: 16383/16/63 8063 Mb
 SMART: Enabled, Erlog, Selftest
 CACHE: Unk.size; L/A=OFF; Wr=ON; !
 Support: LBA, HPA, APM, DLM, DMA UDMA-6
 APM val: 254 Maximum
 Erase: ~2 minutes
 Security: OFF, Frozen
 ATA-8: SATA2, NCQ, PEC, SCT, SF...

Nº	Size	Note - click to refresh
0	111 GB	SanDisk SDSSDX120GG25
1	2009 MB	Removable CBM Flash Disk
2	465 GB	Samsung S2 Portable
E:	2009 MB	Removable drive
G:	0	CD-ROM

Seek, Acoustic management & BAD'er

0 0 234441647 M ☐ Seek
 n/a ☒ t⁰ 0 ☐ Verify
 0 0.0 ms Limit: 200 ☐ Read
☐ Bad!

Seek **RAM** MIN OFF

Security manager (disabled in API)

Lock Unlock ☐ Master ☒ High Erase
☐ User ☐ Max ☐ beep

password F

Open BIN ☒ save bin ☒ LBA 48 bit ☐ Removable ☐ Virtual Passport

9:28:08 Model: SanDisk SDSSDX120GG25; Capacity: 234441648 LBAs; SN: 120823400113; FW: R112
 9:28:11 Get passport... OK
 9:28:11 Model: CBM Flash Disk; Capacity: 4114432 LBAs
 9:28:12 Get passport... OK
 9:28:12 Model: Samsung S2 Portable; Capacity: 976773168 LBAs

Break All
 Sleep
 Recall
 Rd Wrt
 Passp
 Power
☒ sound
 API number 0

- Another tab, **SMART**, shows the drive status, namely its current SMART values. To see them, click on Get SMART and Victoria will show the current drive status in the right window. In the picture below, this is the green window saying **GOOD**.





ID	Name	VAL	Wrst	Tresh	Raw	Health
1	Raw read error rate	104	104	50	8999964	*****
5	Reallocated sector count	100	100	3	0	*****
9	Power-on time	0	0	0	1804401660...	•
12	Start/stop count	99	99	0	1402	*****
171	unknown attribut	0	0	0	0	•
172	unknown attribut	0	0	0	0	•
174	unknown attribut	0	0	0	1400	•
177	unknown attribut	0	0	0	5	•
181	unknown attribut	0	0	0	0	•
182	unknown attribut	0	0	0	0	•
187	Reported UNC error	100	100	0	0	*****
194	HDA Temperature	27	49	0	27°C/80°F	*****
194	Minimum temperature	90	49	0	49°C/120°F	-
194	Maximum temperature	90	49	0	12°C/53°F	-
195	Hardware ECC recovered	120	120	0	8999964	*****
196	Reallocated event count	100	100	3	0	*****
201	Off-track errors count	120	120	0	8999964	*****
204	Corrections Count	120	120	0	8999964	*****
230	GMR head amplitude	100	100	0	100	*****
231	HDA Temperature	94	94	10	0°C/32°F	*****

9:28:12 Model: Samsung S2 Portable; Capacity: 976773168 LBAs
 9:28:13 Get passport... OK
 9:28:13 Model: SanDisk SDSSDX120GG25; Capacity: 234441648 LBAs; SN: 120823400113; FW: R112
 10:19:10 Get S.M.A.R.T. command... OK
 10:19:10 SMART status = GOOD

Please note that SMART is not supported for USB drives.

The window in the left shows the list of attributes with their values. The most important values are those shown in Tresh and RAW columns. Tresh is the value that an attribute has to reach to be recognized as critical. [RAW is the most important indicator for evaluation of the drive condition](#). It contains real values directly telling you about the disk health.

There are many SMART attributes, and all of them are important. However, the following items will be most important for quick evaluation of a disk condition:

- **1** – frequency of read errors. There are many of them in the screenshot, but it's not critical because this number coincides with the attribute
- **195** – the number of errors that have been fixed with hardware means.
- **5** – the number of sectors reallocated by the hard drive to a reserved area. In this case, there are none – 0.



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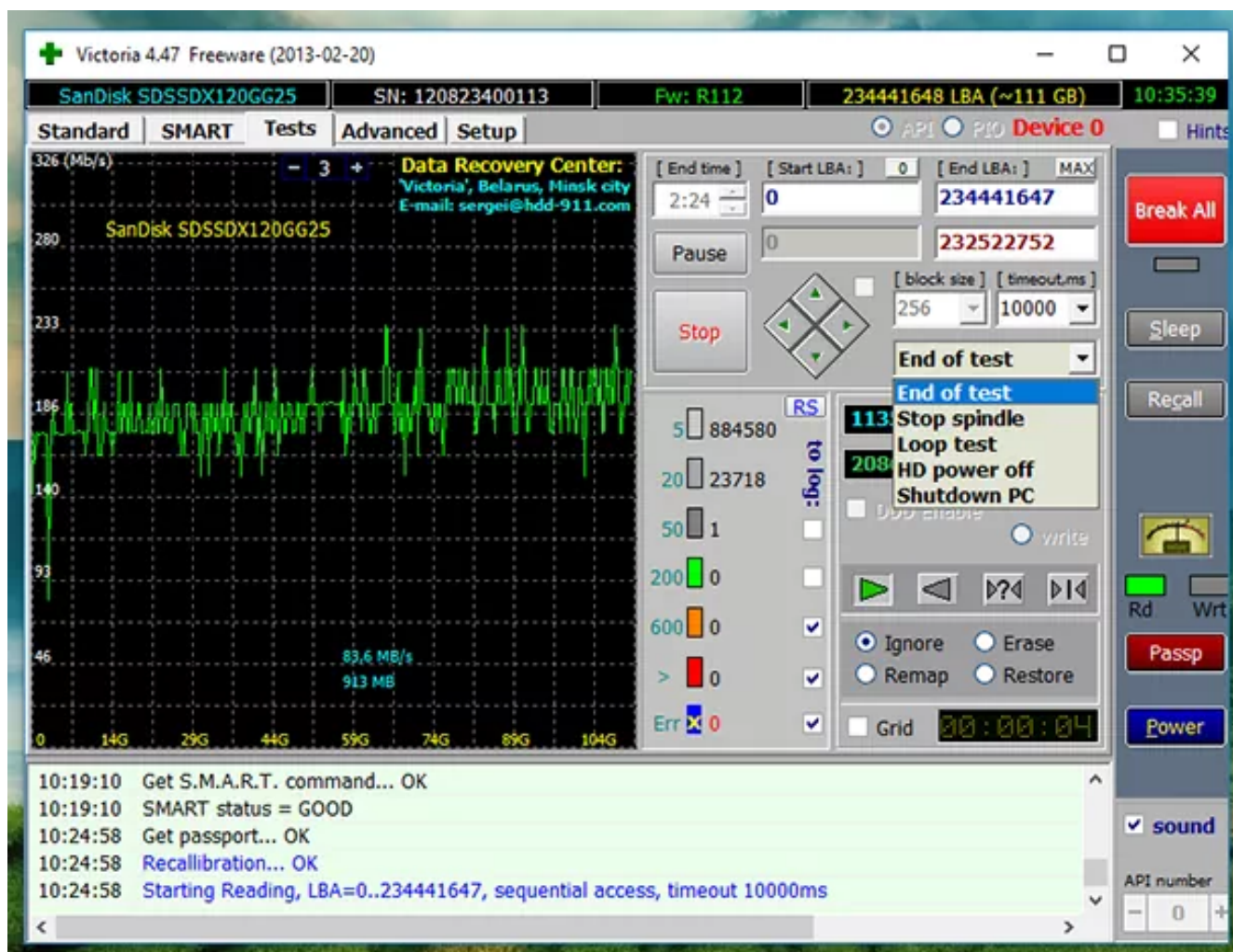
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If values in these attributes were higher than zero, or if they were not corrected with hardware means in time, it would indicate there are problems with the drive. The disk we are testing is knowingly in a good condition, and it is only used as an example to illustrate main features that Victoria has to offer.

- Now let us move to the most important tab **Tests** which actually checks the disk for bad sectors.



This is where you can set the beginning and the end of the tested area, which is by default set to cover the entire drive: these are fields Start LBA – End LBA. You can also choose what the program does after the test (see the End of Test pop-up menu), choose a test type and so on. For a simple test, leave everything as it is.

The principle is like this: the drive is divided into sectors having similar length. and the



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Before the test begins, choose of the options: Ignore, Remap, Erase, Restore.

- In the Ignore mode, the program analyses and represents information. At the moment, we started testing in this mode.
- In the Remap (reassign) mode, the program replaces damaged or broken sectors with good sectors from the drive's reserved area;
- With the help of Restore mode, you can try restoring the sectors damaged at the software level;
- In the Erase mode, the program tries to write data into the damaged sector and use it further. This mode is recommended to experienced users only, because using it in the wrong way can damage the disk and cause a data loss.

As you can see, Victoria analyses the drive and shows the number of sectors in categories depending on their response time. This information is also shown graphically in the left window.

The sectors shown in orange are supposed to have problems, while red or blue ones are damaged, i.e. broken sectors. Green sectors have a certain response delay but they don't need correction yet.

If the testing is over and it shows some damaged sectors, you can do the following to restore them:

- You can go over the drive in the Remap mode.
- If there are any bad sectors left after this operation, the drive can be tested again, this time in the Restore mode.

To do it, choose the necessary mode and click the Start button again to begin.

You should understand that Victoria is a very useful utility but it cannot eliminate all problems with your hard drive; its task is to test a working drive without physical damage and fix sectors at the software level. Victoria cannot fix a worn out or physically damaged drive.





Author: Maxim Cherniga, 3.09.2020 8:23

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Maxim Cherniga

31.08.2020 23:25 #

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