

Basic Tutorial of Repairing Bad Sectors (red and green blocks) of Seagate F3 Series HDDs

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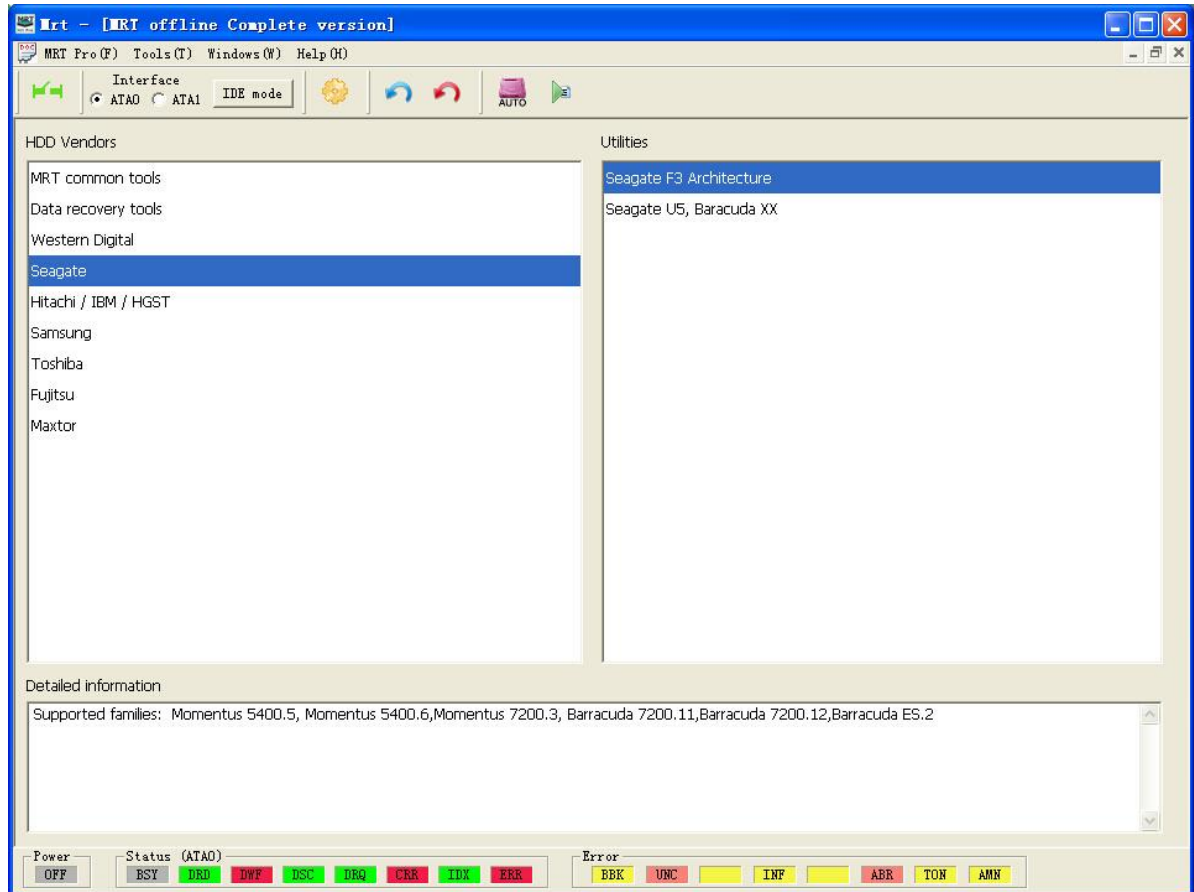
When we repair Seagate F3 Series HDDs (such as 7200.11 or 7200.12 and so on), there are big problems that bad tracks and bad sectors are very difficult to repair. Generally, there are two kinds of bad sectors. One is logical bad sector, and another is physical bad sector. For logical bad sector, we usually execute M command to format the HDD, and it can be repaired. However, for physical bad sectors, the effect of low level formatting is very limited.

In fact, If there are many bad tracks in Seagate F3 series, generally, it causes by two situations. The First one is that disk has scratch. It generates a large number of physical bad tracks. The second one is poor performance on heads. It will produce very regular bad tracks and bad sectors (red and green blocks). Many HDDs of .11 or .12 are above to situations. How to deal with these two situations? MRT Laboratory has had lots of tests for Seagate HDDs and summed up the following method:

1. For the first situation, defective disk, that is physical bad sectors. The correct way is to put all the bad sectors into HDD defect list. After the addresses of bad sectors are added into HDDs defect list, those bad sectors (red and green blocks) will be hidden completely. And then when we scan the HDD, we will get a fully good HDD.
2. For the second situation, that is poor performance on heads. It will cause all sectors of those heads within the jurisdiction become red and green blocks or can not be read. It is not caused by physical bad sectors, so it is not the right way to add them into defect list. For HDDs with poor performance on heads, the only effective way is to shield heads (remove heads). To shield poor heads, The remaining capacity of HDD can be used properly.

For the method of shielding heads of Seagate F3, MRT Laboratory will introduce the relevant information in the subsequent time. This document mainly introduces the treatment method of the first situation, that is how to add bad sectors (red and green blocks) into defect list. At first, we need to have a Seagate repair tool. PC3000 UDMA or MRT Data Recovery Tool can conduct such operations.

This operation will use the MRT data recovery tool to conduct.



Let's scan the HDD first. This is a Seagate .12 HDD of OEM.

We can see that previous part of HDD has plenty of bad sectors (red and green blocks). MRT is different with color definitions of commonly used MHDD. MRT uses color definition standard of PC3000 UDMA. Green represents good sector. Yellow and pink represents the sectors that are read slowly. Red or gray represents the sectors (bad sectors) that can't be read. That is to say, the red and green blocks in MHDD are the read, yellow, pink blocks in MRT. And the gray blocks (normal sectors) in MHDD are the green blocks in MRT. For convenience, we use the wording of red and green blocks that represents bad sectors and sectors that is difficult to read in this document.

We record the position of these bad sectors and copy the addresses of few red blocks and pink blocks. Among them, red blocks are the blocks that can't be read (correspond to the red blocks in MHDD). Pink blocks are the blocks that read slowly.

Re-opening the scanning program, we select bad sectors and add the addresses of them into defect list. And then all the bad sectors and reading slow sectors will be recorded into the specified defect list file. Let's scan it again. We can see the places we just scanned, which all the addresses of red and green blocks have been recorded and saved into file. Opening the Seagate module of MRT, we write the defect list files that just scanned into HDD. We can choose to write into G-List or P-List. P-List is usually the permanent defects, so writing into P-list is better,

After writing defect list into HDD, we need to use MRT to let defect list take effect. This operation takes a little time. If the factory formatting process starts, we need to maintain the power of HDD. SATA interface can be used to repair next HDD. It takes three to five hours for factory low level formatting process. In order to save time here, we don't open the factory process and just let defect list take effect. It will be much faster.

Now, defect list has taken effect. Finally, we need to conduct a comprehensive erasing for HDD. Notice: If you select "Let defect list take effect and start factory low level formatting process" in the previous step, after formatting, the HDD can be used directly and doesn't need to be erased. If you don't start formatting process, then you need to conduct erasing operation. Because comprehensive erasing takes much time, here we only erase the previous part.

Notice: If you don't want to erase, you just need to start factory formatting process directly. After formatting process, the HDD also can be repaired. When you start factory formatting process, HDD doesn't need to connect to SATA interface and only need maintain the power for it. It takes about three to five hours. After that, the HDD can be used.

After erasing, we re-scan the positions that has red and green blocks before. As we can see, red and green blocks disappear.

At this point, repairing bad sectors (red and green block) completed.

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