

Image by selective head(s):

The application of “Head Map” in drive imaging

Drives presented for recovery sometimes have some heads or surfaces damaged (physical damage). The problem is severe enough for the drive to stop working in its native system. However, with the latest upgraded Data Compass DCEXP utility, it is possible now (before installation of MHA replacement) to create a copy of data using the remaining good surfaces or drive heads; small files can even be recovered directly.

What’s more, this procedure will also be essential in cases:

1. When the drive is having read instability problem: by reading the surfaces one by one, it greatly reduces the seek time & times, smoothes the reading of the data, thus in some cases the original “damaged” head or surface becomes available, and users will then have no need to perform a risky MHA replacement.
2. When users have only a donor MHA with some heads damaged also: we can use the native head to read the available data first and then replace it with the donor one for reading the available data; if these two MHAs happen to be a complement to each other (for example native MHA with head 1 damaged, and donor MHA happens to have head 1 remained good), even in fact we don’t have/use a good MHA at all, we can recover all the data on the drive.

The head map building is realized using the command for LBA→CHS conversion; the engineers know such command (however not for all the models) so that by initializing the conversion using the utility, the drive will be informed to carry out LBA→CHS conversion and return with a LBA→Head relation; by selecting specific head(s) for reading, in fact we are selecting specific surface(s), or in another word, specific LBA, for reading. Please note that what we do is to initialize the conversion, and the conversion procedure is carried out by the drive system, so the conversion result is reliable and fast.

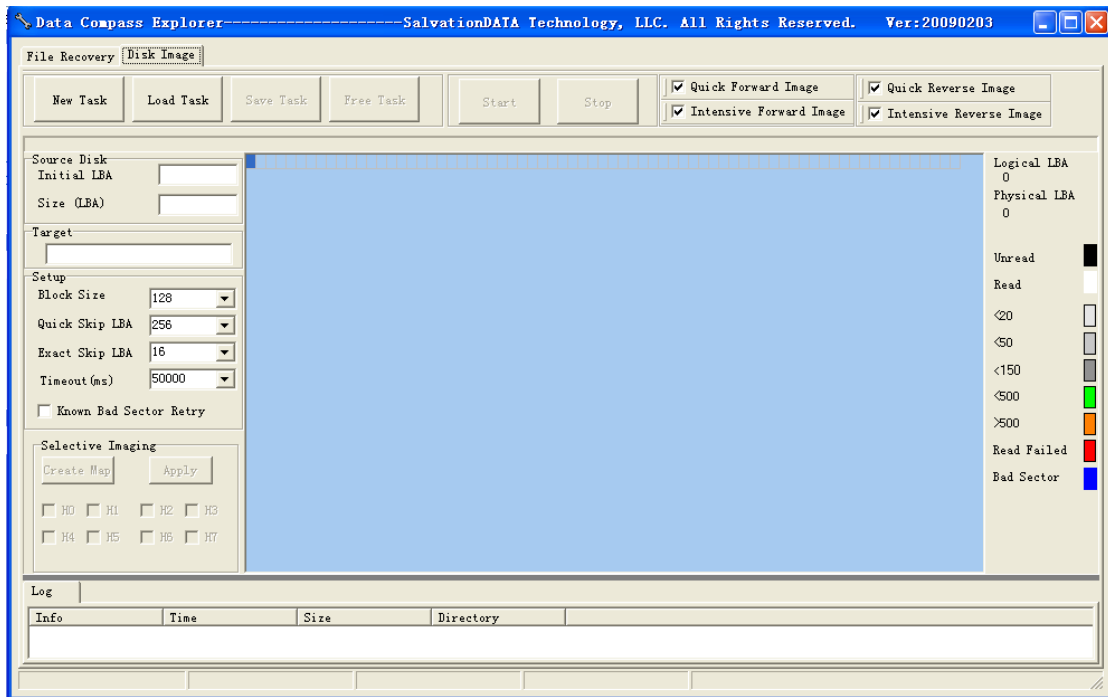
Success rate will be another essential focus of attention for users. There we need some background knowledge: one complete file will not be stored in one surface by one head, but to be stored in all available surfaces by all available heads considering the reasonable use of the drive resources (quick access by using multiple heads); therefore in case users read data using specific heads only, there will be a chance of data loss. In fact the success rate is greatly related to the drive type, the size of the needed file as well as the file type:

1. Newly announced drives have higher success rate compared with old ones. That’s because the continuous recording section on one surface is becoming larger as the technology upgrades, thus there is a bigger chance to have a complete file stored in one surface.
2. Recovery of small size file has higher success rate compared with large size files. Small size files are more likely being stored on one surface.
3. Some types of files, like pictures and videos, can still be opened even they contains partial content only; but for some types of files, a loss of several bytes will be severe enough to corrupt the entire file.

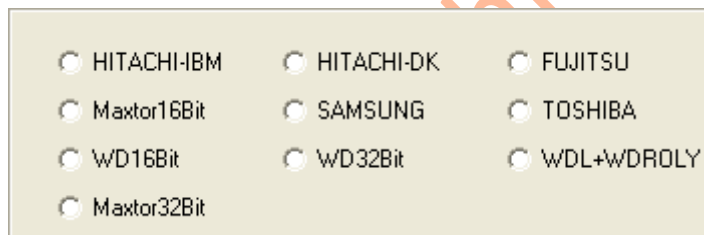
Despite of the above, sometimes selective imaging turns out to be the only solution, and what we can do is to recover as much data as we can, success rate will then be a matter we don’t care.

How it works

You can choose "Create Disk Image" tab from the DCEXP utility; there you can create a new image task for the connected patient drive to create data copy (image) from the device being inspected; the said image will contain a sector-by-sector map of results. The data recovered with errors will be statistically processed, the program will add to the copy most reliable data only. The “create map” option won’t be available before the creation of the image task.

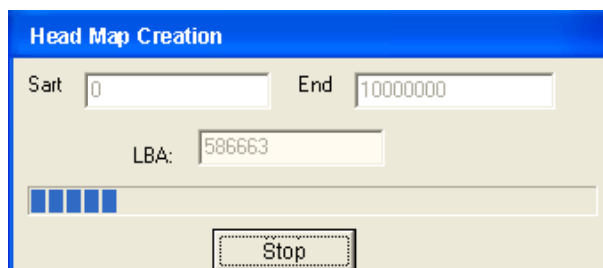


Upon clicking the “Create Map” button, you will receive a prompt to select the type of the drive which you are going to perform the imaging procedure for.

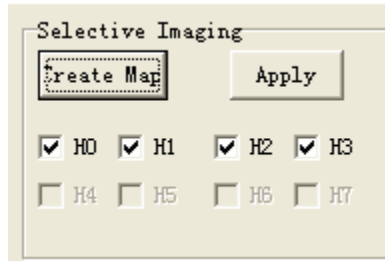


Users may notice that the utility does not support Seagate hard drive at the moment. We know that the building of the head map is realized using the command for LBA → CHS conversion, but currently available conversion command for Seagate which is using by our competitors is COM command, it is a time-consuming conversion method and not very accurate. SalvationDATA is now working on the advanced IDE command for conversion instead, and it will be provided as a free upgrade to our customers in the soon future.

After the drive type is selected, users need to spend some time waiting for the creation of a heads map for the sector range they defined for the image task.



When the head map is created, users can specify which head(s) will NOT be used for reading by uncheck the corresponding head(s).



All conversion algorithm of LBA→CHS is the latest technologies – we guarantee increased speed of conversion compared with our competitor’s product for some drive types.

SalvationDATA Customer First Team

SalvationDATA Technology, LLC.