

Brief Introduction to the service area C zone of IBM/Hitachi HDD

What is HDD firmware? Let me put it this way. HDD is like a computer, while its firmware is like the operating system and application programs. Firmware contains boot instructions and code such as P list, partition table, etc. A small part of firmware is stored in the PCB rom, while the other part in the service area (on the platter) of HDD. This service area can only be used by manufacturers which is inaccessible for average users. Such design favors manufacturers for not having to buy costly PCB chips to store all the firmware modules so that their cost can be much reduced. Due to the service area is the most frequently accessed area which would be read and written every time when the computer starts, such repeated read and write or accidental power off would cause some part of the firmware lost/damaged, just like the operating system shuts itself down because of some fatal errors. According to many of our experiences, most hard drives which can't be identified by the computer, losing some parts of the firmware or some of them are disordered is the main cause. This is pretty much like the OS fails to startup because of missing some necessary boot files. On the nowadays market, the known professional tools for fixing Hitachi firmware are HD Doctor for IBM/Hitachi from SalvationDATA and PC3K from ACE Lab. Our HD Doctor for IBM/Hitachi, well I can be very proud to tell that it has more advantages over PC3K for the related analysis and repairs.

We know that firmware of average hard drives has two identical copies. We can call them A zone and B zone, or Primary zone and Secondary zone, also we know that Maxtor HDD firmware has 3 copies, the third one is called C zone, but most of the engineers don't know that Hitachi drive has a third copy of firmware too. Now here we are going to go through this Hitachi C zone. First question, what is C zone? As I stated before, A zone and B zone are identical copies, which means they've got same modules. If one of them is damaged/corrupted, we can use the other good one to replace it. While C zone is kind of different, well, though having the same modules of A or B. The difference is that C zone was solidified after the hard drive got auto-calibrated by manufacturers, meaning it can't be used or altered afterwards forever, even if both A zone and B zone are damaged at the same time. Now, PC3K from ACE Lab is not capable of allowing their users to write C zone, HDD Doctor for IBM/HITACHI from SalvationDATA is your sole choice, by which you can reconstruct A zone and B zone with the C zone copy so that you can fix bad hard drives successfully and recover data eventually.

In Hitachi firmware, we can usually see such common modules as INFO, PL, GL, etc. These modules, by our HD Doctor, can be accessed at your will. In our practice, the most frequently encountered problem for a bad Hitachi drive is one or several modules are damaged /corrupted instead of physical damages. The only thing we have to do to fix the drive is to recover the firmware, then the hard drive will work properly again, and the data can be



retrieved. Due to the importance of firmware, we can say that it determines everything for fixing bad hard drives, especially for successful data recovery. While the C-zone design for Hitachi hard drives substantially facilitates the recovery of damaged A zone or B zone, as I said before, aided by our software, we can use C copy to rebuild A and B.

For Hitachi hard drives, advanced manufacturing technology gifts its complicated physical structure and internal theory. Till today, there is no related material for analyzing the structure and functions of Hitachi hard drives available for us to refer to. However, after years of researching and experimenting, SalvationDATA finally come to understand the whole firmware mechanism of Hitachi HDD and have already developed the world's first set of professional application for fixing Hitachi HDD. As many hard drive repair engineers know, ACE also has a tool which only allows users to READ Hitachi HDD's C zone while HDD doctor for IBM/HITACHI from Salvationdata allows users not only to READ but also WRITE it. In addition, this tool also provides another practical and powerful function- Turn the activated firmware zone to C, which can be very useful when both A zone and B zone are damaged and inaccessible, therefore HDD can't be identified, but we do need to operate on the firmware zone. With regard to "write C zone" function which is excessively powerful, our engineers decide not to make it public for the time being for the sake of protecting C zone not to be damaged accidentally by the users.

Let's take an example to illustrate how useful "turn the activated firmware zone to C" is. Say, your Hitachi HDD becomes password-protected because of virus or man-made encryption, in such a case, we can't access the activated firmware zone A and B by any tools, but we can use HD Doctor to "turn the activated firmware zone to C", which has not been password protected (C zone remains unchanged after being released from the factory), thus we can directly operate on the C zone to remove the password.