

# SalvationDATA Flash Doctor



New SalvationDATA Flash Doctor

## Technology for data recovery from NAND-based drives

NAND-based drives are new storage products, but their applications are growing rapidly wide. With the capacity of the flash memory device growing, more and more valuable data can and will be stored on it, therefore technology to support data recovery from this type of drives became an urgent need for data recovery business.



The damages that stop us from accessing the data can be divided into two types



**Logical Damages** the devices can be detected by the OS when they are connected, but just can't access the user data by using the standard method provided by the OS. In such cases, files can be recovered by using logical recovery utility included in the Data Compass kit.



**Physical Damages** are data lost caused by damage of device components and/or service area information, this is caused by failure in reading the content of the flash chip. This type of damage is more common than logical damage. Therefore, we developed the flash data recovery tool – **SD Flash Doctor complex**.

### SD Flash Doctor, latest product by SalvationDATA

**FLASH DOCTOR hardware-software complex aims to recover data from flash drives with physical damages by using the hardware controller and the accompanied software; the symptom of this kind of physically damaged drives is failure in reading the flash chip content using the native standard interface.**

#### Supported Flash Drives

It handles with all models of Flash drives (SD, SSD, SM, MMC, USB Flash Drive, memory stick, CompactFlash and so on), these drives either have their controllers damaged, or there are serious mechanical/electronic damages within, these damages stopped the flash drive from working normally.



#### External NAND Reader

Besides realizing proper interface, the controller of the flash drive will carry out special operation to the data allocation according to the capacity of the flash chip, which intends to make wear-leveling use of each NAND storage unit. Accordingly, in case of using the flash disk normally, the damaged controller leads to failure in reading the data in the flash drive. Under the circumstances, it is of necessity to unsolder the flash chip and read its content externally. For this purpose, Flash Doctor complex provides a utility which fulfils this specific operation – the External NAND Reader.

- Use this utility together with the software you can read the raw data (dump) of the flash chip to an image, all future analysis and recovery work from the image to make sure the efficiency and the security of the original flash chip.
- The chip adaptor (used for connecting the chip to the processor) is separated from the central processor (which is responsible for calculations and feature implementations) and adaptor, which enables users to change the adaptor to read different flash chips with different interfaces when we release an upgrade for the support list; also it makes the replacement of the adaptor (which would be damaged due to be frequently used) easy.
- Supports Flash chips with both 8 bit and 16 bit interfaces.
- Supports Flash chips with working voltage from 0.9V-5.0V (adjustable).
- Supports Flash chips with the size not multiple of 528 (database addible, currently we have added

- over 10 types of sizes in the database).
- Increasing reading speed up to 7-12 MB/S.

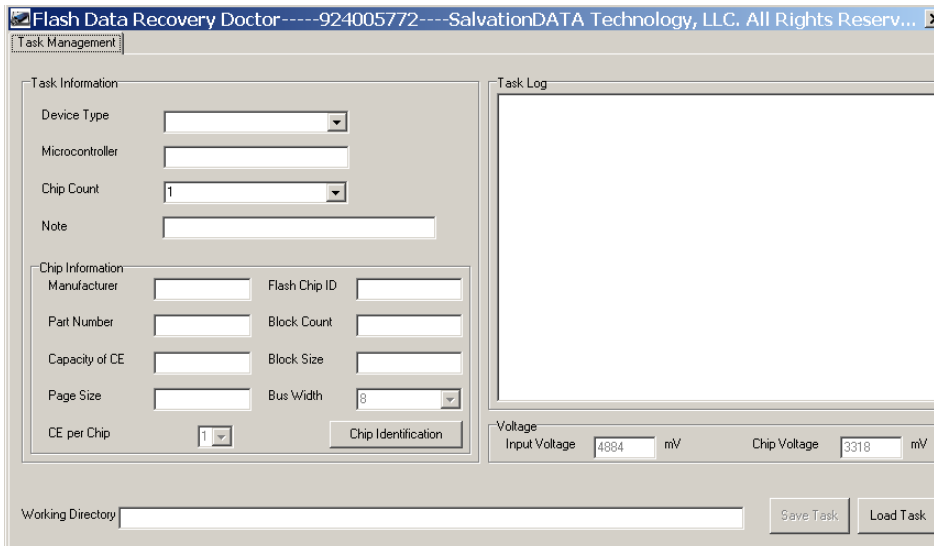
### What's included in data recovery from physically damaged flash drive?

If the flash drive can't be found when being connected to the standard interface provided by the system, or the system gives error message indicating the flash drive can't be accessed, you need to do all the followings for data recovery:

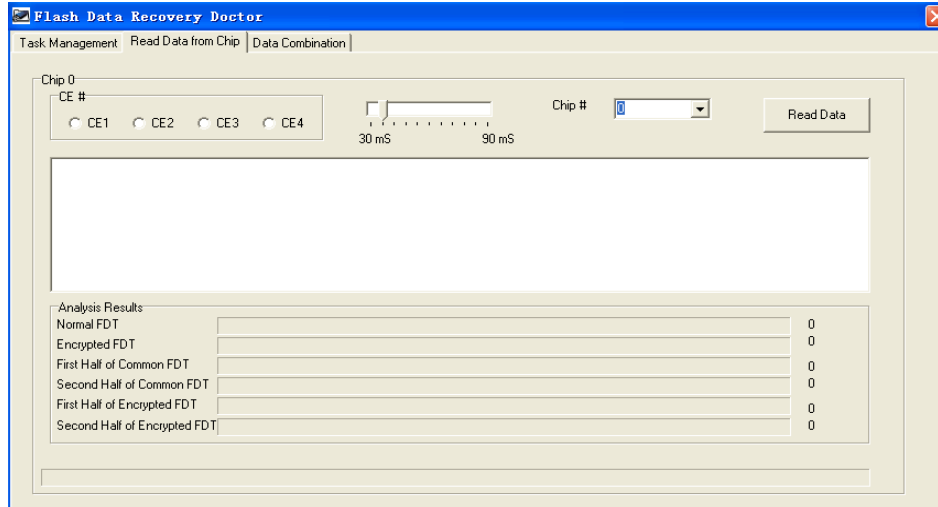
1. Unsolder all internal NAND chips using proper soldering devices.
2. Read the dump of all NAND chips by using FLASH DOCTOR complex.
3. Recover the original data following the correct procedure using the software analyzing utility. This result can be specific files needed or the drive image contains all user data. In Flash Doctor complex, we can realize easy and in-depth analysis to remove the data mix by configuring the variables according to the given instructions.

### FLASH DOCTOR complex Software

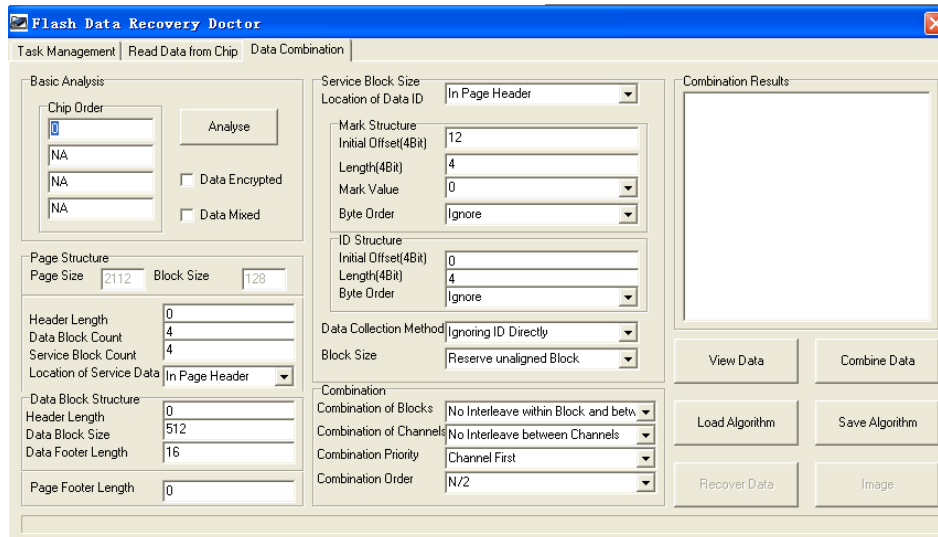
- Each task created will be saved individually with all variable configurations; users are allowed to import&export the variable configurations, namely the algorithms easily which makes automatic data recovery via database applicable.
- To enable users make use of the proven configurations, a database contains common and proven flash chip information will be added to the software.
- In order to add new types of flash drive into the database mentioned, users can upload their saved tasks to our FTP to be studied by our developers; also it is very easy for them to acquire remote assistance when doing flash recovery.
- The user guide and manual explain the basic principles of how the program works. Still you can have an on-line training by making use of the case studies and tutorials.



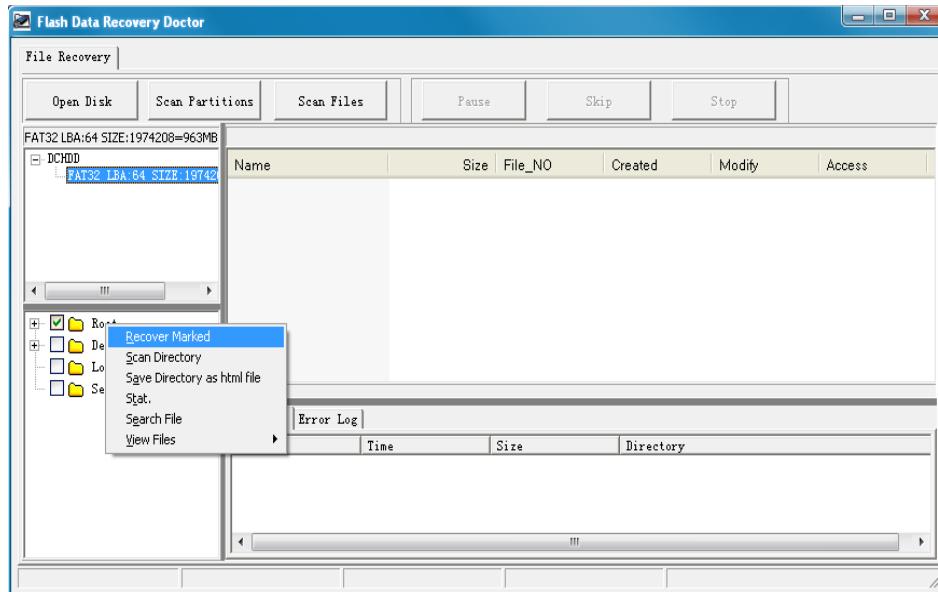
### Create New Task



## Read the chip



## Variable Configuration



## Verification and Recovery

### Choose the right tool to stay ahead in data recovery

The coming features available in the upgraded versions:

Add support to the future-trend storage device: SSD.

Optimize the algorithm used for automatic mode recovery to enable truly “One-Click” operation.



Increase the number of the supported flash chip types besides NAND (new adaptor and software upgrade included).

Add possibility to recover data from encrypted flash devices, such as SanDisk Flash.

Add more parameter setting possibilities for manual mode recovery to deal with the complicated cases.

Add support to those flash drives using data coding algorithm, such as SanDisk.

## Flash Doctor Specifications

Items	Details	Remarks
NAND Flash Programmer with TSOP-48 adapter		Reader can read ALL chips with NAND flash interface. For details please refer to the support list available on our website.
Dimension	16.2 x 11.3 x 3.2 cm	Portable device for you to carry out on-site services
Weight	0.4Kg	Portable device for you to carry out on-site services
Expansibility		The modular socket was provided for the user to easily add and change different adaptor modules, so that users can work on chips with different packages besides the default TSOP48.
Installation/connection interface	USB 2.0	With this popular and universal interface and its unlimited licensing policy, users can install the hardware-software complex to any computer they want, even a laptop.
Power supply	Use the 5V power supply from the USB cable, no extra power supply needed	Stand-alone hardware-software complex makes it very easy to work with.