Disk Wiper™ 8.5

User Manual

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1 Introduction

Data security nowadays is the burning issue not only for companies and government agencies, but rank and file people as well. Our personality is now fully embedded in computer technology. It is computer you apply to when at work, it is also computer you use at home for entertainment or as a reservoir for containing some valuable data such as personal correspondence, banking account information, credit card numbers, financial records, whatever… It is obvious that this kind of data should in no way be available to others. That is why, when disposing of a storage device (a hard disk or a flash memory drive), the crucial thing is to make sure it does not contain any information, because simple deletion, or even reformatting do not guarantee data security at all. To do that, you need a specially designed tool.

Our program is a fast, convenient and reliable solution providing irreversible destruction of data on separate partitions or entire hard disks (IDE, SCSI, SATA, USB, etc.) as well as any type of flash memory devices. The key features of the program are listed in the special chapter.

Setting up any operation is accomplished by using practical wizards. Each step of the wizard includes in-depth information in order to allow the user to make the right choice. Graphical representations of the data help the user to gain a better understanding.

In this manual you will find the answers to many of the technical questions which might arise while using the program.

2 Key Features

Let us list some of the key features:

- User friendly interface. Easily understood icons accompany all functions of the program.
- Previewing the resulting layout of hard disks before actually executing operations (so-called virtual operations).
- Support of major national government and military data erasure standards as well as the possibility to create a customized algorithm.
- Wipe Wizard that enables to successfully destroy all on-disk information including standard *bootstrap code* and other system service structures, thus providing high level of security, and that even beginners may understand.
- Wiping Media Builder that helps the user to create bootable media with the DOS-based version of the program to boot from and destroy all on-disk information even when the current operating system cannot boot anymore. The DOS-based version can boast the same interface as the Windows version does, providing a unique possibility to enjoy XP-like environment and functionality under DOS.
- *Clear Free Space* function to destroy any remnants of deleted files/directories left on disk without affecting the used data.
- Schedule the operation. The user can set a convenient time for the program to perform the operation automatically.
- Basic functions for initializing, partitioning and formatting hard disks. Instead of the standard Windows disk tools, the program supports all file systems.
- *Shutdown After Apply* function enables to set the computer to automatically switch off on the successful accomplishment of any scheduled operation.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

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3 Disk Wiper Editions

The product is being released in several editions, *Personal* and *Professional*, which vary in price and provided functionality:

- The *Personal* edition does not enable to use national government and military data erasure standards, but two wipe algorithms (Paragon's and customized).
- The *Personal* edition does not support scripting, i.e. it cannot perform batch tasks in the unattended mode.
- *Generate Script* and *Save to Scheduler* program's dialogs are unavailable in the *Personal* edition.
- There is no possibility to send notifications by e-mail on the carried out operations in the *Personal* edition.

Supported Operating Systems

OS	Personal	Professional
Windows 95	Yes	Yes
Windows 98	Yes	Yes
Windows Me	Yes	Yes
Windows NT	Yes	Yes
Windows NT Server Family	Yes	Yes
Windows 2000 Professional	Yes	Yes
Windows XP Home Edition	Yes	Yes
Windows XP Professional/ 64-bit	Yes	Yes
Windows 2000 Server Family	Yes	Yes
Windows Storage Server 2003	Yes	Yes
Windows Server 2003 Web	Yes	Yes
Windows Server 2003 Standard	Yes	Yes
Windows Server 2003 Standard 64-bit	No	No
Windows Server 2003 Enterprise	Yes	Yes
Windows Server 2003 Enterprise 64-bit/ Itanium	No	No
Windows Server 2003 Datacenter	Yes	Yes
Windows Server 2003 Datacenter 64-bit/ Itanium	No	No
Windows Small Business Server 2003 Standard/ Premium	Yes	Yes
Windows Vista	Yes	Yes

Please take into consideration the mentioned above peculiarities of the certain versions when working with the program.

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4 Installation

This chapter provides information which is needed to perform the correct installation of the program, and in addition, checks if the current installation is working correctly.

4.1 Package Contents

The installation package includes the following components:

- Launcher (with an embedded HTML browser)
- Wipe Wizard
- Wiping Media Builder
- Partition Management
- Hard Disk Management
- Scheduler with Task Editor
- Extra Functionality

4.2 Minimum System Requirements

To use the program on a computer satisfactorily, ensure that it meets the following minimum system requirements:

- Operating systems: Windows 95/98/ME/NT/2000/XP/2003 Server/Vista and XP 64-bit
- Internet Explorer 5.0 or higher
- Intel Pentium CPU or its equivalent, with 300 MHz processor clock speed
- 128 MB of RAM
- Hard disk drive with 40 MB of available space
- SVGA video adapter and monitor
- Mouse

4.3 Installation Procedure

The installation process consists of the following steps:

1. **Run Setup Application**
From the folder, where the setup files are kept, run the *SETUP.EXE* file. This application will guide the user through the process of the program installation. The setup utility is compiled with the **InstallShield SDK**, hence it contains the standard user interface and set of installation steps.

In case there is some previous version of the program installed on the computer, the program will offer the user to uninstall it first.

2. **Starting Setup**
The Welcome page informs that the application is being installed. Click the *Next* button to continue.

3. **Confirm License Agreement**
The License Agreement page displays the Paragon License Agreement. Read the agreement and then click the *Yes* button to accept. If the user does not agree with any conditions stated there, the installation process will be interrupted.

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4. **Select an Installation Folder**
The Destination Location page allows the user to choose the folder where the program will be installed. By default, the installation folder will be created as:

C:\Program Files\Paragon Software\Paragon Disk Wiper. To select another folder, click the *Browse* button.

After you have selected the required folder, click the *Next* button to continue.

Do not install the program on network drives. Do not use Terminal Server sessions to install and run the program. In both cases, the program functionality will be limited

5. **Select a Program Group**

The Program Folder page enables the user to select the application's program group for the Start Menu. By default, it will be the program group:

Start > Programs > Paragon Disk Wiper.

Click the *Next* button to continue.

6. **Verify Setup Settings**

The Start Copying page allows the user to verify settings, which have already been made and correct them if necessary. Press the *Back* button to return to the previous page and modify the installation settings. Click the *Next* button to complete the installation process.

7. **Copying Files**

The Setup Status page shows the overall progress of the installation. Click the *Cancel* button to abort the setup.

8. **Finishing the Installation**

The Final page reports the end of the setup process.

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5 Basic Concepts

This chapter explains terms and ideas that show how the program works. To understand these helps to obtain a general notion of the operation performance and makes it easier for the user to operate the program.

5.1 Data Sanitization

Data security is a two-sided problem. It is to be made clear, that providing confidentiality implies not only information to be stored properly, but also be destroyed according to certain rules. The first step to protecting yourself is to know exactly which security precautions work and which do not.

Many people believe the misconception that repartitioning a disk will result in complete destruction of its contents. Actually that is not quite so. Repartitioning the drive only alters references to partitions in the *Partition Table*, leaving all file data intact. In fact, there are a number of programs available to successfully recover previously deleted partitions.

Formatting a drive also does not guarantee data destruction. Formatting procedure implies modification of the Master File Table (MFT) that keeps track of where file contents are stored on the disk and verification of each sector for consistency. Even a low-level format does not actually erase the file contents for good, since they can still be resurrected from their deleted state with minimal effort by using the popular today Magnetic Force Microscopy technology.

The only way to make sure that all the data has been erased from a hard drive is to overwrite all on-disk sectors with random patterns of ones and zeros. Although this sounds complex, there is an easy way to do this.

The process of deliberately, irreversibly removing or destroying the data stored on a memory device (magnetic disks, flash memory drives, etc.) is generally known as Data Sanitization. A device that has been sanitized has no usable residual data and even advanced forensic tools should not ever be able to recover it, thus providing maximum level of security.

5.2 Data Security Standards

To irreversibly destroy all on-disk information there have been developed a number of disk sanitizing standards. They are distinguished by wiping patterns and number of passes:

1. **US DoD 5220.22-M**. US Department of Defense recommends to overwrite all addressable locations with a character, its complement and then a random character. Finally, the target data area is to be verified;
2. **US Navy standards NAVSO P-5239-26**.
   - **NAVSO P-5239-26 for RLL encoded drives**. At first to write the fixed value (**0xffffffff**) to the target data area, then the fixed value (**0x27ffffff**), and then random values. Finally, the target data area is to be verified;
   - **NAVSO P-5239-26 for MFM encoded drives**. At first to write the fixed value (**0xffffffff**) to the target data area, then the fixed value (**0xbfffffff**), and then random values. Finally, the target data area is to be verified;
3. **British HMG Infosec Standard No.5**. At first to write a single character pattern, then its complement and then a random character. Finally, the target data area is to be verified;

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4. **German VSItR Standard**. Overwrite the deleted information 7 times, consistently filling it with the following patterns: **0x00**, **0xFF**, **0x00**, **0xFF**, **0x00**, **0xFF**, **0xAA**. Finally, the target data area is to be verified;
5. **Australian ASCI 33**. Overwrite with a character (**C**), then verify. Overwrite with **–C** (the first pass character's inverse), then verify again. Overwrite everything with both **C** and **–C** once again but without verification. Fill everything with random characters.
6. **Russian GOST R 50739-95**. Destroy information by a single pass with writing random characters into each sector byte.
7. **Peter Gutmann's algorithm**. A whopping 35 passes, with 27 random-order passes using specific patterns combined with eight passes using random patterns;
8. **Bruce Schneier's algorithm**. Two passes of specific patterns followed by five passes using a cryptographically secure pseudo-random sequence;
9. **Paragon's algorithm**.
   - Overwrite each sector with a forcefully randomized 512-byte string, new for each sector, using **CSPRNG** (cryptographically secure pseudo-random number generator).
   - Overwrite each erased sector with its complement.
   - Overwrite each sector with a 512-byte string (CSPRNG), again forcefully randomized and different from the first pass, and new for each sector.
   - Fill each erased sector with **0xAA** value. Finally, the target data area is to be verified.

Military and government standards always require 100 percent residual data verification. It is necessary to make sure that the operation has been properly accomplished. Besides corrupted sectors discovered during the operation are to be logged to keep the user informed, since these sectors may contain classified information.

All of the above-mentioned data erasure standards are implemented in the program. Besides the user has the possibility to create a customized algorithm, defining up to 4 wiping patterns, number of passes for each wiping pattern and for the group of patterns, thus providing the maximum possible security level.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

5.3 64-bit Support

The bulk of software today is written for a 32-bit processor. It can meet the requirements of almost any end user. However that is not the case when dealing with servers processing large amounts of data with complex calculations of very large numbers. That is where 64-bit architecture comes into play.

It can boast improved scalability for business applications that enables to support more customer databases and more simultaneous users on each server. Besides a 64-bit kernel can access more system resources, such as memory allocation per user. A 64-bit processor can handle over 4 billion times more memory addresses than a 32-bit processor. With these resources, even a very large database can be cached in memory.

Although many business applications run without problems on 32-bit systems, others have grown so complex that they use up the 4 GB memory limitation of a 32-bit address space. With this large amount of data, fewer memory resources are available to meet memory needs. On a 64-bit server, most queries are able to perform in the buffers available to the database.

Some 32-bit applications make the transition to the 64-bit environment seamlessly others do not. For instance, system-level utilities and programs that provide direct hardware access are likely to fail. Our program offers a full-fledged support of the 64-bit architecture providing fault-tolerant work for system dependent modules.

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5.4 Scheduling

The automation of the program's operations is particularly effective when the user has to repeat a sequence of actions on a regular basis. For example, when a specific project is being developed on a computer on a day-to-day basis and a clear free space operation is made every evening so as to destroy any remnants of deleted files/directories left on disk, thus maintaining confidentiality, it should be possible to simplify certain routine operations.

Another aspect of any automation process is that it runs automatically without the user having to be present. The program is able to execute operations without the user being involved. In addition, it allows an optimization of your computer's work-load. This is especially important when operations require a considerable amount of computer resources – processor time, memory and more. A number of operations, which can decrease the performance, can be run during the night or whenever the computer has the least work-load to perform.

The program has a special tool for scheduling. The user can set out a timetable for various operations. For example, some operations may be performed daily, others - weekly and so on. The scheduled operation starts at a specified time without interrupting the user's current activity.

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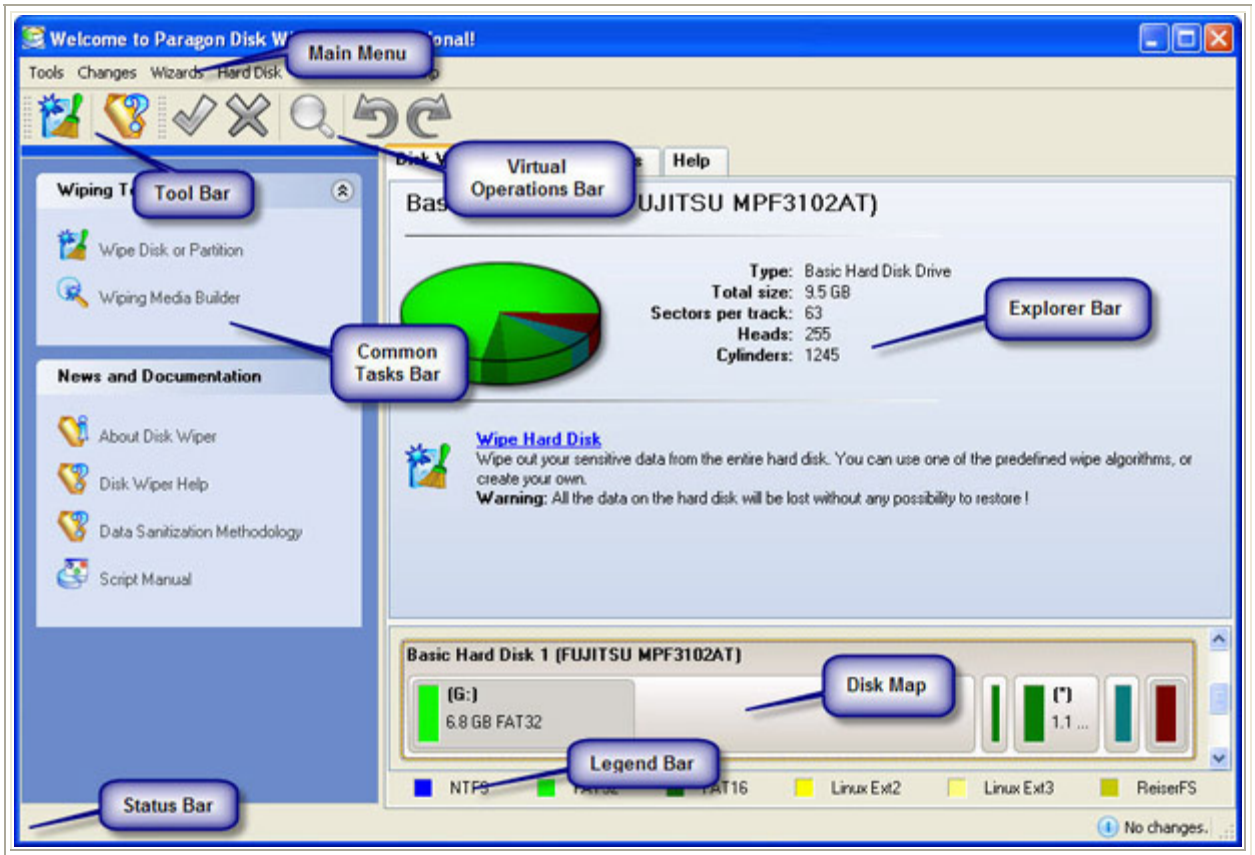
6 Interface Overview

This chapter introduces the graphical interface of the program to the user. The design of the interface precludes any mistake being made on the part of the user. Most operations are performed through the system of wizards. Buttons and menus are accompanied by easy understandable icons. Nevertheless, any problems that might occur while managing the program can be tackled by reading this very chapter.

6.1 General Layout

When the user starts the program, the first component that is displayed is called the *Launcher*. It enables the user to run wizards and utilities, to specify program settings, to visualize the operating environment and the hard disk configuration.

The Launcher's window can be conditionally subdivided into several sections that differ in their purpose and functionality:



1. Main Menu
2. Tool Bar
3. Virtual Operations Bar
4. Common Tasks Bar
5. Explorer Bar
6. Disk Map
7. Legend Bar
8. Status Bar

Some of the panels have similar functionality with a synchronized layout. The program enables the user to conceal some of the panels to simplify the interface management.

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All panels are separated by vertical and horizontal expandable sliders, allowing the user to customize the screen layout.

6.2 Main Menu

The Main Menu provides access to the entire functionality of the program. The available functions are as listed below:

MENU ITEM	FUNCTIONALITY
Tools	
Generate Script…	Generate a script for the task
Save to Scheduler…	Schedule pending operations
Send Log Files	Compress and send the log to the Paragon Support Team
Wiping Media Builder…	Create the DOS-based version of the program to boot from and destroy all on-disk information even when the current operating system cannot boot anymore
Settings...	Edit the general settings of the program
Exit	Exit the program
Changes	
Undo "the last virtual operation"	Cancel the last virtual operation on the List of Pending Operations
Redo "the last virtual operation"	Cancel the last undo virtual operation on the List of Pending Operations
View Changes…	Display the List of Pending Operations
Apply Changes	Launch the real execution of virtual operations
Discard All Changes	Cancel all virtual operations on the List of Pending Operations
Reload Disk Info	Refresh the current information about disks
Wizards	
Wipe Hard Disk or Partition...	Destroy all on-disk information including standard bootstrap code and other system service structures
Hard Disk	
Update MBR	Update MBR (Master Boot Record) of the selected hard disk
Edit/View Sectors…	View/edit sectors of the selected hard disk
Properties…	Get in-depth information on the properties of selected hard disk
Partition	
Create Partition…	Create a partition of any file system with the Create Partition dialog
Format Partition…	Format a partition of any file system Format Partition dialog
Delete Partition…	Delete a partition of any file system Delete Partition dialog
Assign Drive Letter…	Assign drive letter to the selected partition
Remove Drive Letter…	Remove drive letter for the selected partition
Clear Free Space…	Destroy any remnants of deleted files/directories left on disk without affecting the used data

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Test Surface…	Test surface of the selected partition/block of free space
Check File System Integrity…	Check the selected partition for possible file system errors
Edit/View Sectors…	View/edit sectors of the selected partition
Properties…	Get in-depth information on the properties of selected partition
View	
Toolbar	Manage the Tool Bar representation: show / hide standard and navigation buttons, text labels and large icons.
Status Bar	Display the Status bar
Common Tasks Bar	Display the Common tasks bar
Disk Map Legend	Display the Disk map legend
Disk Map Location	Select whether the Disk map will be located on the top of the main window or at the bottom
Help	
Help	Open the Help system
About	Open the dialog with information about the program

The Main Menu contents available at the moment may vary depending on the selected object.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

6.3 Tool Bar

The Toolbar provides fast access to the most frequently used operations:

BUTTON	FUNCTIONALITY
	Wipe a hard disk or partition
	Open the Help system

6.4 Virtual Operations Bar

The program supports previewing the resulting layout of hard disks before actually executing operations (so-called virtual mode of execution). In fact, when the virtual mode is enabled, the program does not accomplish operations immediately, but places them on the List of Pending Operations for later accomplishment.

The Virtual Operations Bar enables to manage pending operations.

BUTTON	FUNCTIONALITY
	Cancel the last virtual operation on the List of Pending Operations

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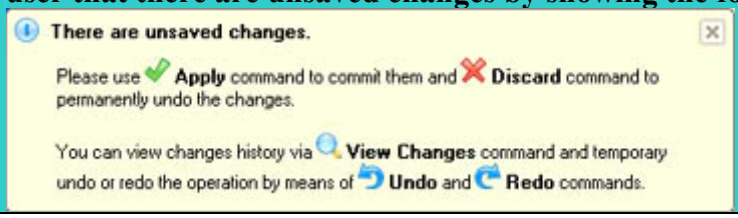
	Cancel the last undo virtual operation on the List of Pending Operations
	Display the List of Pending Operations
	Launch the real execution of virtual operations
	Cancel all virtual operations on the List of Pending Operations

Virtual mode is an effective way of protection from any troubles, since no operations will be executed until clicking the *Apply* button for confirmation, thus giving a second chance to weigh all pros and cons of this or that particular operation. The program politely reminds the user that there are unsaved changes by showing the following window:



6.5 Common Tasks Bar

The Common Tasks Bar is located on the left side of the main window. It is intended for easy access to the program's wizards that provide all the functionality needed to manage copy operations.

The bar contains two tabs named *Wiping Tools* and *News and Documentation*. Each of these contains a separate button bar which can be folded by clicking it.

Wiping Tools	
Wipe Disk or Partition	Starting the Wipe Wizard. The Wipe Wizard assists the user with destroying all on-disk information.
Wiping Media Builder	Starting the Wiping Media Builder Wizard that helps to create bootable media with the DOS-based version of the program.
News and Documentation	
About Disk Wiper	Opening the page which contains information about the program. This page will be displayed in the Explorer bar.
Disk Wiper Help	Launching the Help system.
Data Sanitization Methodology	Opening a brief review on the Data Sanitization issue.
Script Manual	Opening a brief review on the Paragon Scripting Language.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

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6.6 Disk Map

The Disk Map is displayed in the *Explorer bar* when the *Disk View* tab is selected. It is located either at the top or at the bottom of the window, depending on the state of the *Disk Map Location* option (Main menu: *View* > *Disk Map Location*). The user can change the current location of the map with this option.

As the name infers, the Disk Map displays the layout of physical and logical disks. Physical disks are represented with rectangle bars that contain small-sized bars. These small-sized bars represent logical disks. Their color depends on the file system of the appropriate partition.

Large-sized bars display the following information about physical disks:

- Manufacturer,
- Model.

Small-sized bars display the following information about logical disks:

- Serial number,
- Drive letter,
- Total size,
- File system.

Furthermore, it is possible to estimate the used disk space by looking at the size of the bar's shaded area.

Disk Map is synchronized with the *Explorer bar*. When the user selects a disk on the Disk Map the Explorer bar displays detailed information of the selected disk.

The user can click a large-sized bar to display information about the appropriate physical disk in the Explorer bar. A click on a small-sized bar will lead to displaying information about the appropriate logical disk.

6.7 Explorer Bar

The Explorer Bar is located in the center of the main window which emphasizes its importance. The bar displays reference information including:

- User Manual,
- Information about the program consisting of the product's name, the version of the program and a list of helpful links,
- Detailed information about disks selected on the Disk Map,
- List of scheduled operations,

According to these categories the Explorer bar has five tabs:

- **Disk View**, which allows the user to view detailed information about any of the disks.
- **Scheduled Tasks**, which gives the user the possibility of browsing and editing scheduled operations.
- **Help System**, which contains the User Manual and information about the program.

The user is able to access the desired information by clicking on the appropriate tab.

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The Explorer Bar is a fully-functional embedded HTML browser, which enables the user to address, for example, our company's website to look through important technical notes or download the latest updates without having to close the program. The Help System of the program is HTML-oriented. The user can read the user manual and follow external links from to get additional information.

To easily navigate through browsed pages, the program provides the following functionality:

BUTTON	FUNCTIONALITY
	Return to the previously browsed page
	Open the next browsed page
	Stop loading the current page
	Refresh the contents of the current page

6.8 Legend Bar

The Legend Bar explains the color scheme used for disk and partition presentation. The user can hide (or show) the bar with the appropriate Main menu item: *View > Disk Map Legend*. When it is activated it can be found at the bottom of the *Explorer bar*.

The program distinguishes between the following types of known file systems:

- FAT16/32,
- NTFS,
- Linux Ext2/3,
- Linux ReiserFS.

6.9 Status Bar

This is the bottom part of the main window. The status bar displays menu hints, for each item the cursor points to.

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The user can hide (or show) the bar with the appropriate Main menu item: *View* > *Status bar*.

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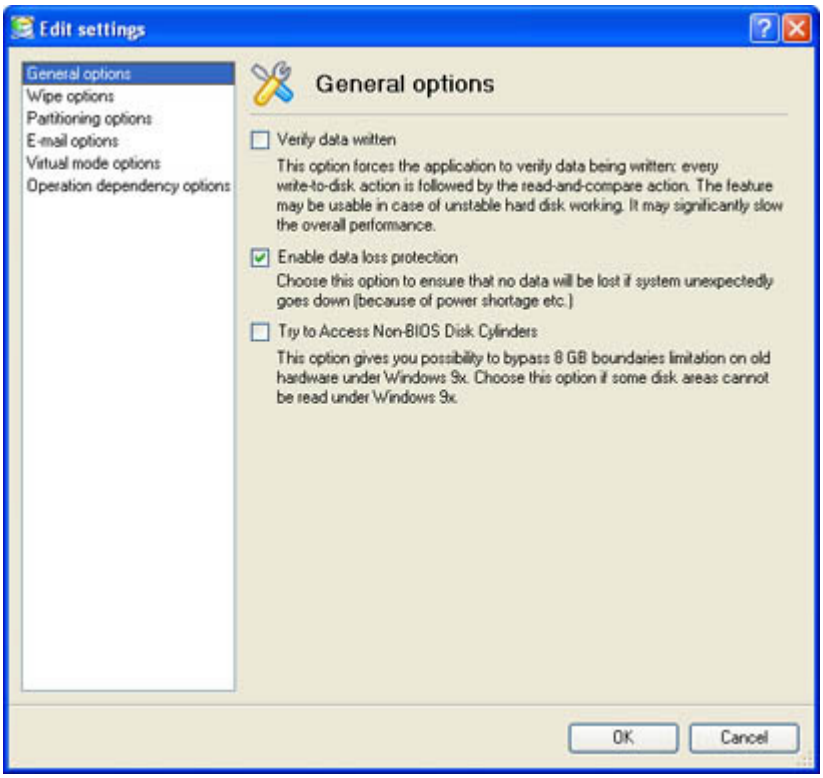
7 Settings Overview

The Settings dialog is available from the Main menu: *Tools* > *Settings*. All the settings are grouped into several sections of which the functions are described in the following paragraphs. The list of sections is placed on the left side of the dialog. By selecting a section from the list, the user opens a set of options.

7.1 General Options



This section contains a set of general options that will be taken into account during all the operations carried out with the program. The user can switch between the following modes:

- **Verify data written**. If this option is marked, every write-to-disk action is followed by the read-and-compare action. This feature may be helpful in case of running an unstable hard disk, however it will negatively affect the overall performance.
- **Enable data loss protection**. Activate the option to force the program to work in the *fail-safe mode* (also referred to as *data-loss protection mode*), which ensures more safety for operations by maintaining the special journal of operations' progress. In case of hardware malfunction, power outages or operating system failure, the modified partition may become corrupted and non-operable. However, the program will be able to complete the interrupted operation, thus "reviving" the partition.

  If the system has crashed during the operation in the fail-safe mode, insert the bootable Recovery CD and restart the computer. The program will automatically detect the journal of the interrupted operation and complete the operation.

It is strongly recommended to enable this option.

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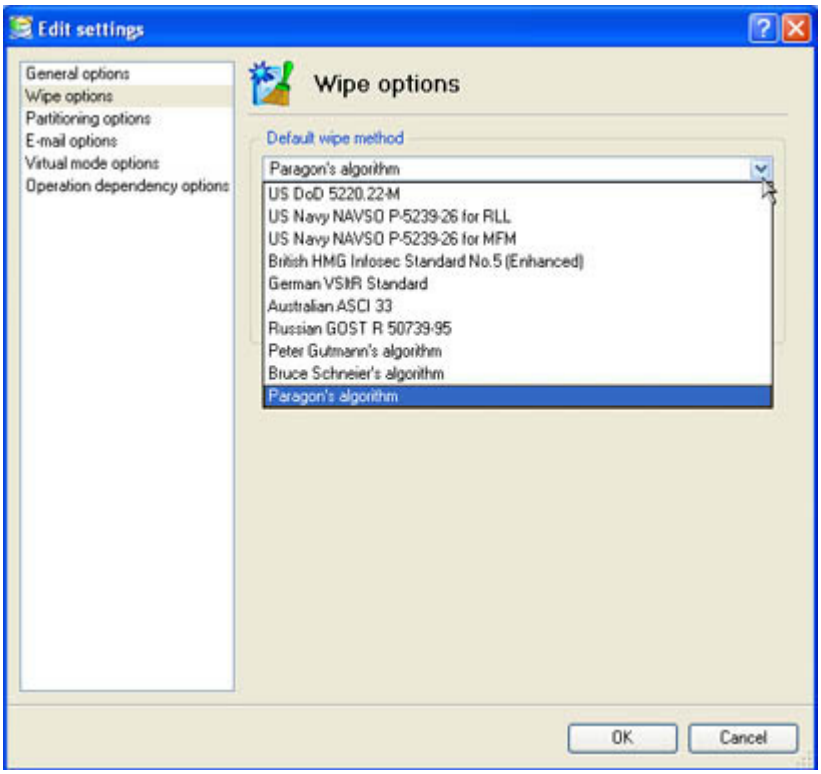
- **Try to access non-BIOS disk cylinders**. The option works only under Windows 95, 98, ME. When activated, the program performs a special procedure to define the disk capacity and does not use the value that is returned by BIOS.

7.2 Wipe Options



Here the user can select a wipe method from the pull down list to be used by default during wipe operations. The user can switch between the following modes:

- **US DoD 5220.22-M**
- **NAVSO P-5239-26 for RLL encoded drives**
- **NAVSO P-5239-26 for MFM encoded drives**
- **British HMG Infosec Standard No.5**
- **German VSItR Standard**
- **Australian ASCI 33**
- **Russian GOST R 50739-95**
- **Peter Gutmann's algorithm**
- **Bruce Schneier's algorithm**
- **Paragon's algorithm**

To know more about various erasure algorithms, please consult the Data Security Standards chapter.

7.3 Partitioning Options

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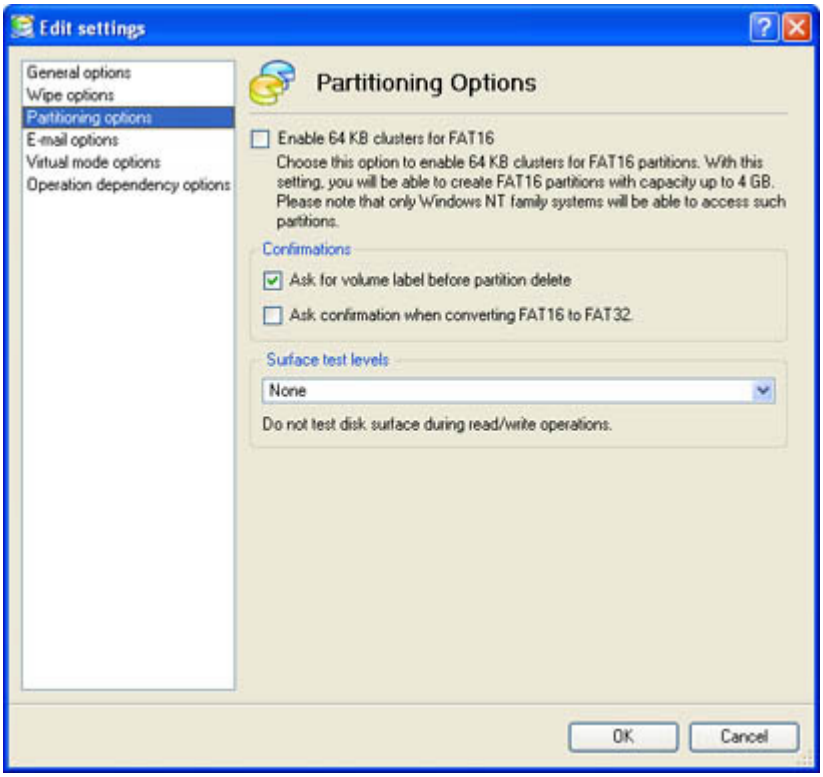

This section contains a set of options that will be taken into account during partitioning operations. The user can activate the following modes:

- **64 KB cluster size for FAT16 partitions.** Only Windows NT 4.0/2000/XP/2003 support 64 KB clusters.
- **Request confirmation before partition deletion.**
- **Request confirmation when converting FAT16 to FAT32** during such partitioning operations as copy disk/partition, restore disk/partition.
- **Surface test level.** The option affects the following operations: format partition, copy partition, restore partition, retest the surface. While performing the surface test, the program detects corrupted sectors and marks them as unusable.

7.4 E-Mail Options

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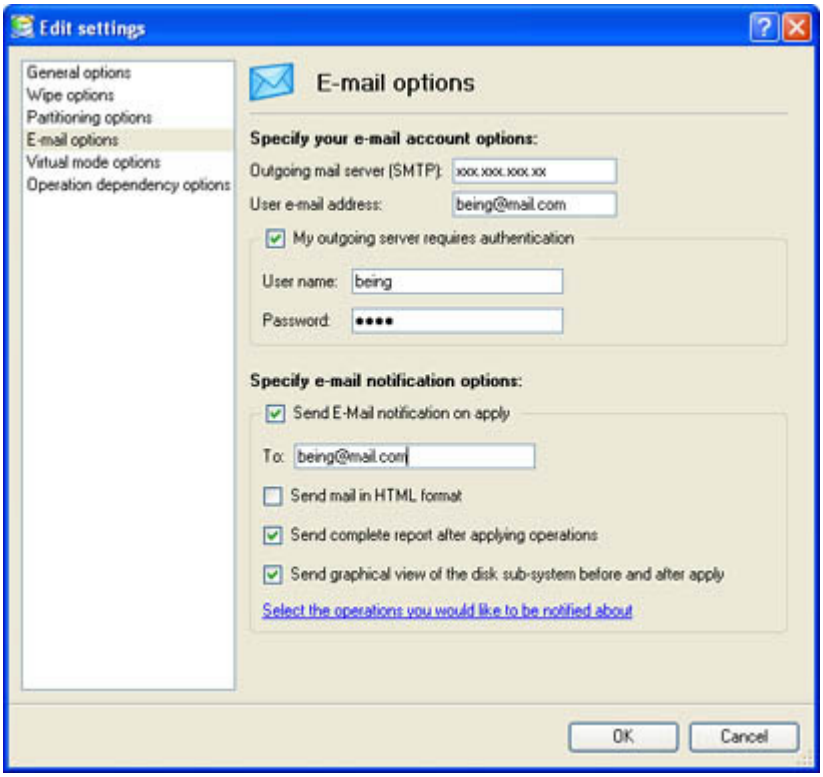

This section contains a set of options that will be taken into account during the *Send log files* and *Send e-mail notification* operations. The user can define:

- **Outgoing mail server (SMTP)**. To send messages by using the built-in mail client, it is necessary to have access to a computer running an SMTP (Simple Mail Transfer Protocol) server. All outgoing messages are first sent to the SMTP server, which in its turn delivers them to the required recipients. The address may be represented as a traditional Internet host name (e.g.: mail.com) or as an IP numeric address (e.g. xxx.xxx.xxx.xx).
- **User e-mail address**. Specify an e-mail address that has been assigned by the Internet Service Provider or organization's e-mail administrator.
- **My outgoing server requires authentication**. Activate the option to allow the program to make authentication on the server before sending messages.
  - **User name**. Enter the name that will be used to log in to the e-mail account.
  - **Password**. Enter the password that will be used to access the mail server.

- **Send e-mail notification on apply**. Specify an e-mail to send notifications on the carried out operations.
  - **Send mail in HTML format**. Activate the option to create messages in the HTML format instead of plain text.
  - **Send complete report after applying operations**. Activate the option to create an in-depth report on the carried out operations and send it after performing the last operation.
  - **Send graphical view of the disk sub-system before and after apply**. Activate the option to allow the program to attach two pictures of the disk layout made before and after the operation is completed.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

7.5 Virtual Mode Options

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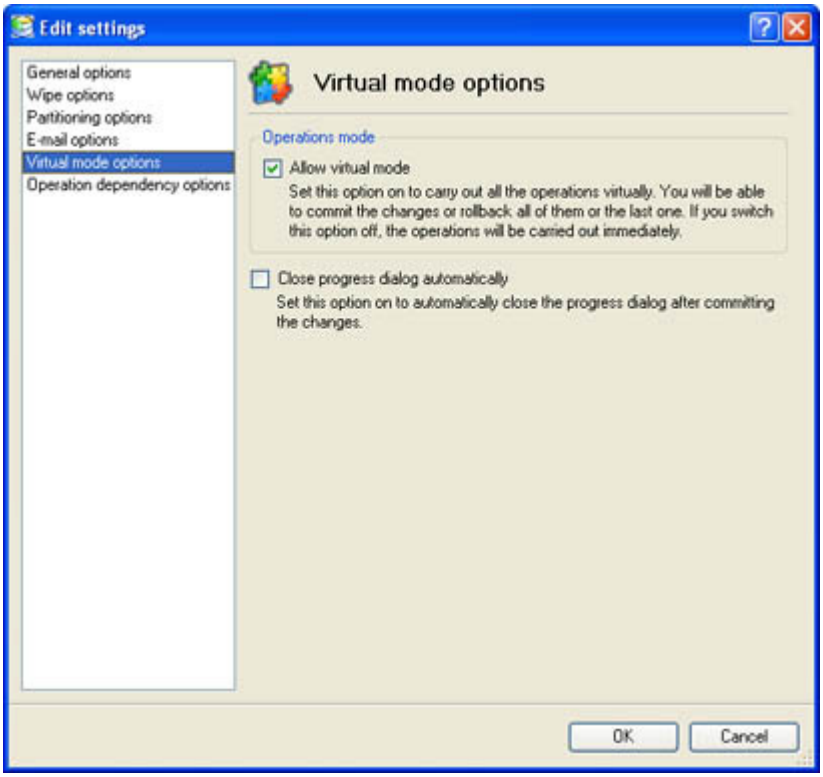

- **Allow virtual mode**. In this section the user can choose whether to allow operations to carry out immediately or to place them on the List of Pending Operations for later execution. Just mark the option to enable virtual operations.
- **Close progress dialog automatically**. Mark the option to automatically close the progress dialog when the required operation(s) is completed.

Virtual mode can be particularly beneficial for such operations as *Generate script…* or *Save to scheduler…*

7.6 Operation Dependency Options

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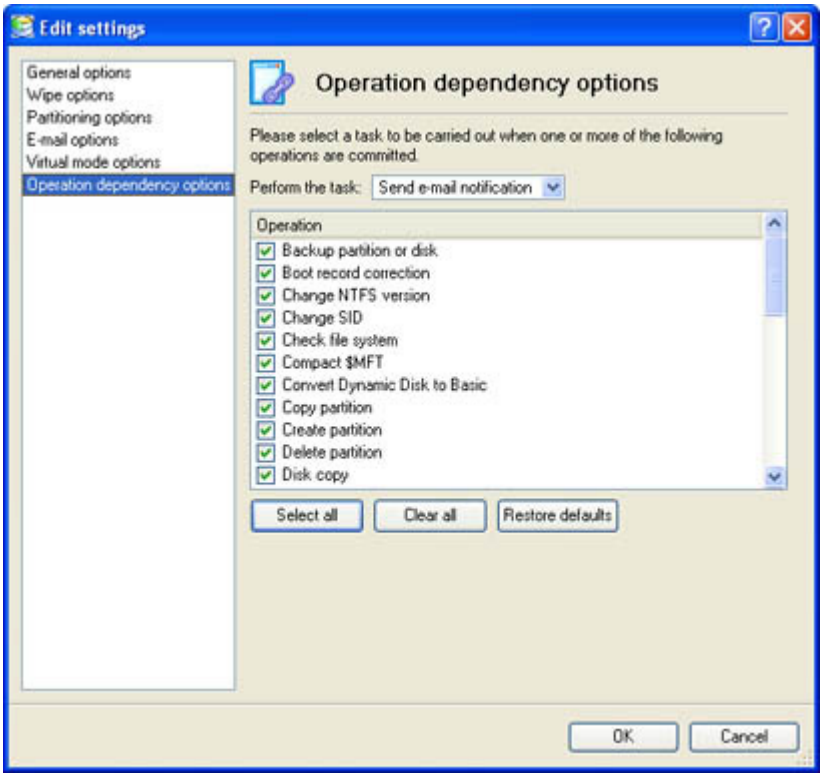

This section contains a set of options that will be taken into account when the *Send e-mail notification on apply* function is enabled. By marking the appropriate operations the user can choose whether to receive an e-mail notification after the particular operation is completed or not. However, the user will not be notified by e-mail in case operations (if any) require the system reboot.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

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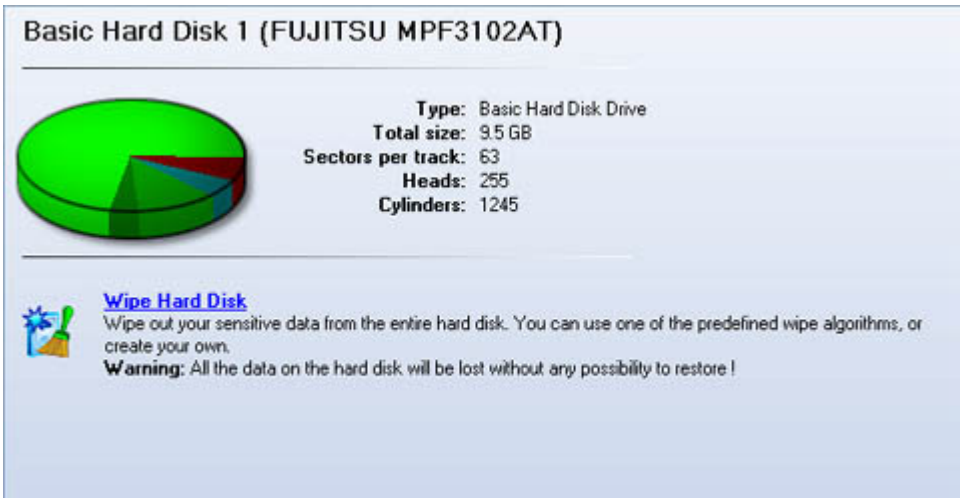
8 Getting Information about Disks

The user is able to view in-depth information on the properties of hard disks. The main tool to extract this information is the Disk Map. It represents the actual state of the computer's hard disks. The Disk Map chapter is a detailed description on this topic.

Generally the hard disks are represented on the map by rectangular bars, which also contain small-sized bars. The small-sized bars represent logical disks (partitions). When the user selects a large-sized bar, the Explorer bar displays information about the disk in a bright, graphical form.



The model and serial number of the disk serve as the title of the browsed page. The disk layout is shown in form of a circular graph, where the color of a sector corresponds to a file system of an appropriate partition. On the right the user may see a table, which contains the following information:

- Type of hard disk (basic or dynamic),
- Total size (in GB),
- Information on geometry of the disk (amount of sectors per track, heads and cylinders).

Below there is a list of wizards available for the user. If the user clicks a corresponding record the appropriate wizard will be started. All default values for the operation parameters will correspond to the disk's settings. The list of wizards contains a detailed description of tasks that can be performed by the wizard. This nullifies the possibility of selecting the wrong wizard.

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When the user selects a small-sized bar (i.e. corresponding to a logical disk), the Explorer bar will display information on it as well. The page title will contain a drive letter, which is assigned to the disk. The disk layout graph will be colored in accordance with the volume ratio of the used space to the free space (the light colored sector). The table on the right will contain the following information:

- Volume label (if available),
- Type of the logical disk,
- File system (represented by the color of the graph and the selected bar),
- Total size, used space and free space (in GB or MB).

Below there is a list of wizards, which may be called for this disk. All default values of parameters will correspond to the disk settings.

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9 Wipe Tasks

This chapter lists various scenarios of wipe operations which may be accomplished by the program. This has already been reviewed in the Basic concepts chapter. Here the user will find more useful recommendations and descriptions of operations.

9.1 Wipe Hard Disk/Partition

The program provides the ability to wipe hard disks/partitions of any file system. During the wiping process, the program destroys all on-disk information including standard *bootstrap code* and other *system service structures*, thus providing high level of security. The program offers support of major national government and military data erasure standards as well as the possibility to create a customized algorithm. This operation cannot be substituted by simply deleting or formatting of a hard disk/partition.

The operation can be accomplished with the *Wipe Wizard*. The wizard is so well designed that the user simply needs to follow its easy instructions to carry out the operation.

9.1.1 Starting

There are several ways to start the *Wipe Wizard*:

- In the Main menu: select *Wizards* > *Wipe Hard Disk or Partition…*
- On the Common Tasks bar: click the *Wipe Disk or Partition* item of the Wizards menu.
- In the Toolbar: click the *Wipe Wizard* button.
- Select a hard disk or partition on the Disk map and click the *Wipe Hard Disk* item if a hard disk was selected or *Wipe Partition* item if a partition was selected on the page that appears in the Explorer bar.

After following one of the above mentioned actions, the Welcome page of the wizard is displayed.

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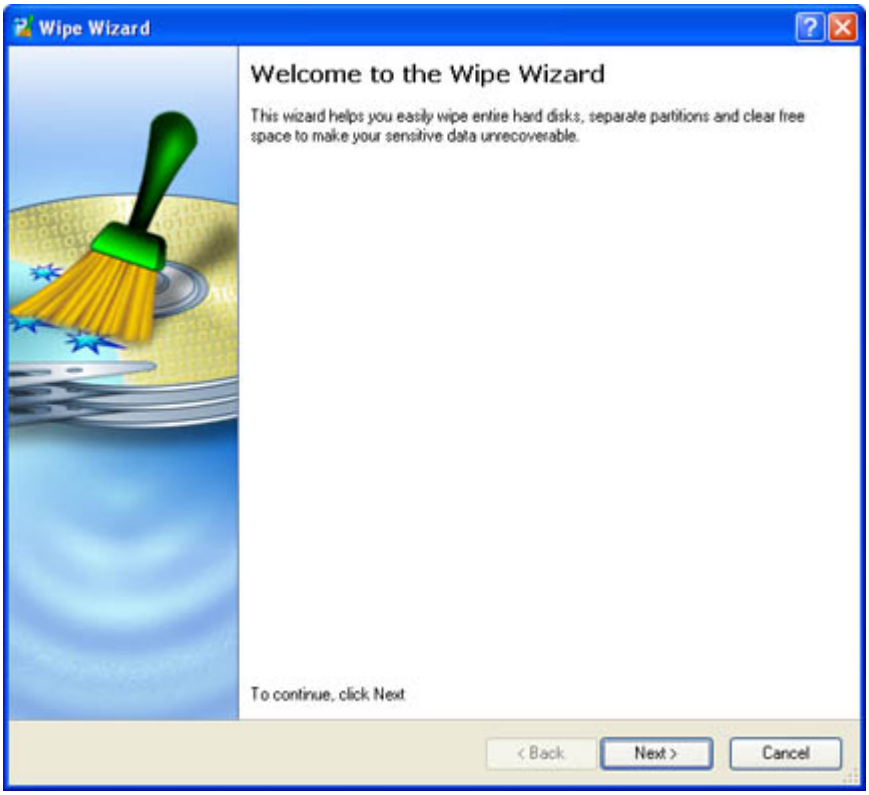
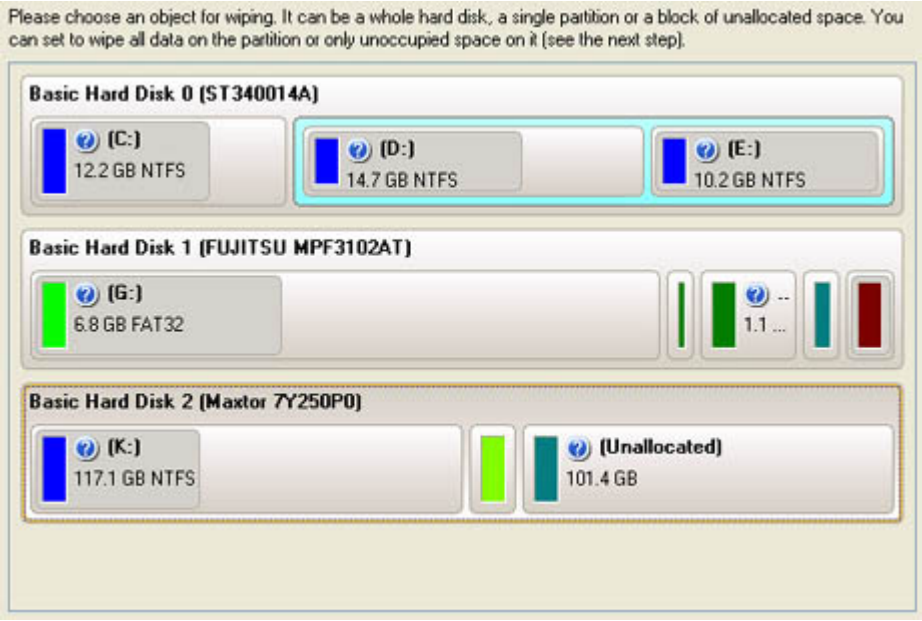


9.1.2 Settings

The Wipe Wizard allows the user to configure the settings and then start the operation in accordance with the entered parameters. Here the user sets the parameters of the operation defining:

- **The hard disk/partition to wipe**. Select a hard disk/partition the data of which you want to destroy.



- **Wipe mode**. This section enables to switch between two options:

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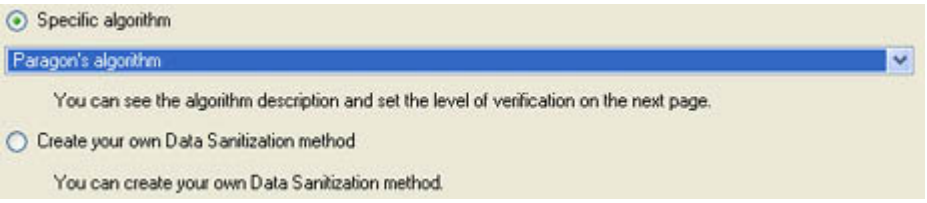
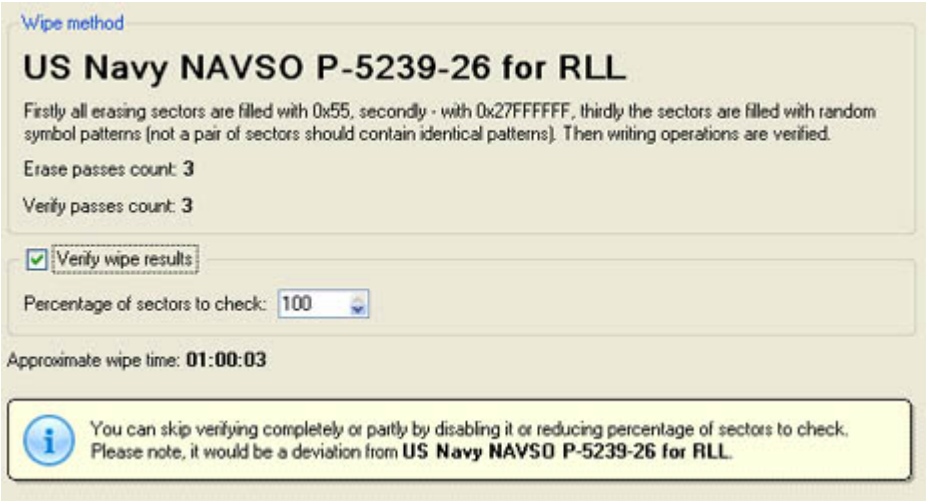
- **Wipe out all data**. Mark the option to irreversibly destroy all on-disk data of the selected object.
- **Clear (wipe) free space**. Mark the option to destroy any remnants of deleted files/directories left on disk without affecting the used data.

The Clear Free Space operation is available only for Logical and Primary partitions of known file systems.

- **Wipe method**. Here the user can select a specific data erasure algorithm from the pull down list or create a customized method by marking the appropriate option.



- In case the user preferred to use a specific algorithm, the next page of the wizard enables to get detailed information on the selected algorithm, choose whether to carry out residual data verification or not specifying the percentage of sectors to check and estimate the time required to accomplish the operation.



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- In case the user preferred to create a customized algorithm, the next page of the wizard enables to define up to 4 wiping patterns, number of passes for each wiping pattern and for the group of patterns. The **Mask** spinner control allows the user to set a two-figure hexadecimal character value ("00" by default). The available range is from "00" to "FF". The user can also choose whether to carry out residual data verification or not specifying the percentage of sectors to check.

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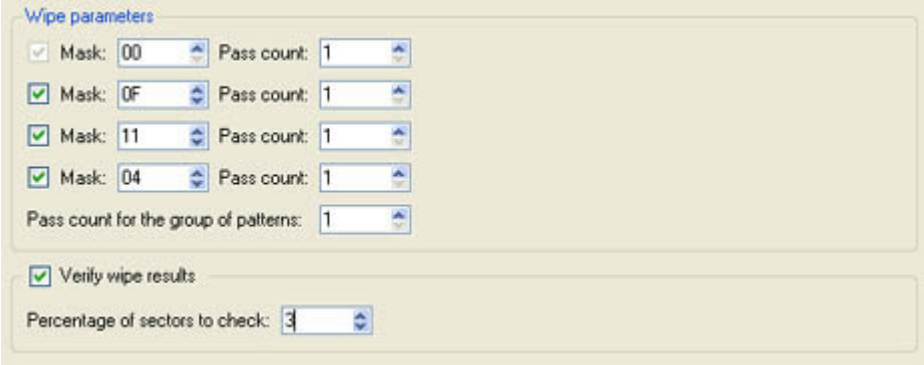
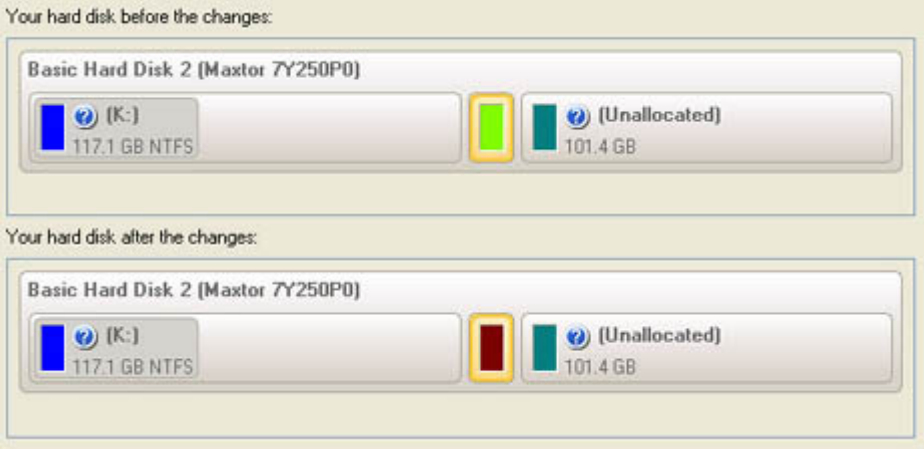


- **Revise your changes**. This page informs the user on all the actions to be made in the wizard in a bright, graphical form.



9.1.3 Results

Depending on the user's choice the Wipe Wizard:

- starts the operation
- reconsiders it

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

After the operation is completed the user can see a well informative summary page, providing structurally divided in-depth information on all the actions made in the wizard.

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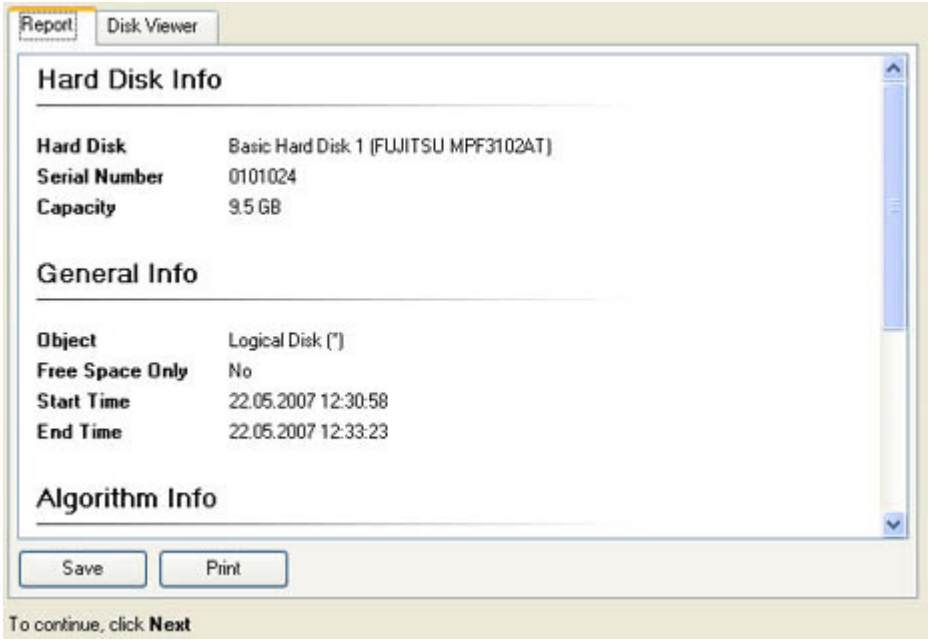
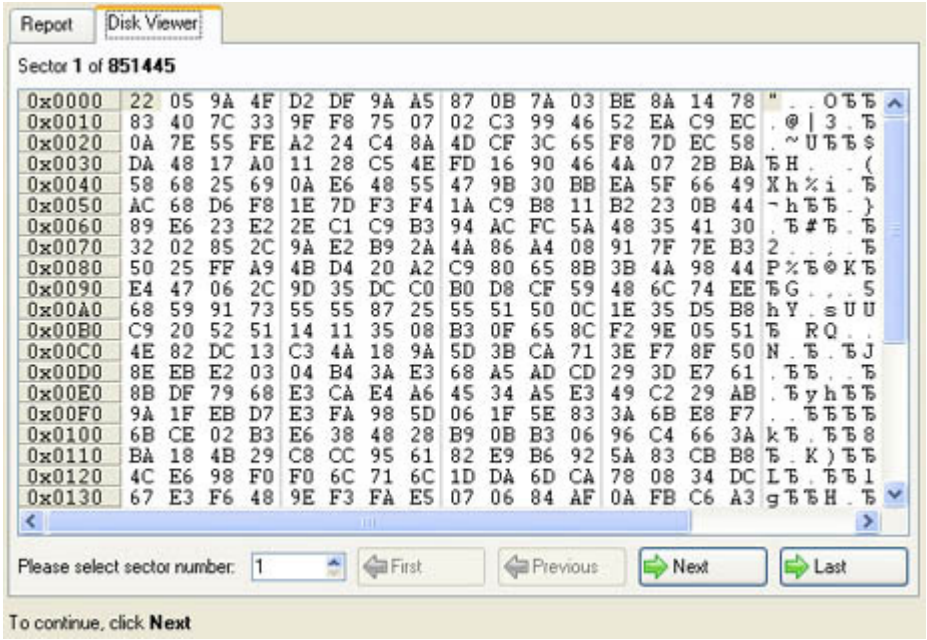


The program also enables to store the resulted report. To do that, just press the *Save* button and choose the exact location in the opened dialog.

To make sure that all on-disk data is irreversibly destroyed call the *Disk Viewer* dialog by clicking the appropriate tab and see it for yourself.



The *Summary page* will be available only when the *Virtual operations* are disabled.

9.2 Clear Free Space

The program allows the user to destroy any remnants of deleted files/directories left on disk without affecting the used data by overwriting contents of unused clusters with certain patterns. Besides providing high level of data protection this function can be particularly useful when dealing with certain non-standard protection/registration/deactivation hidden marks made by some software.

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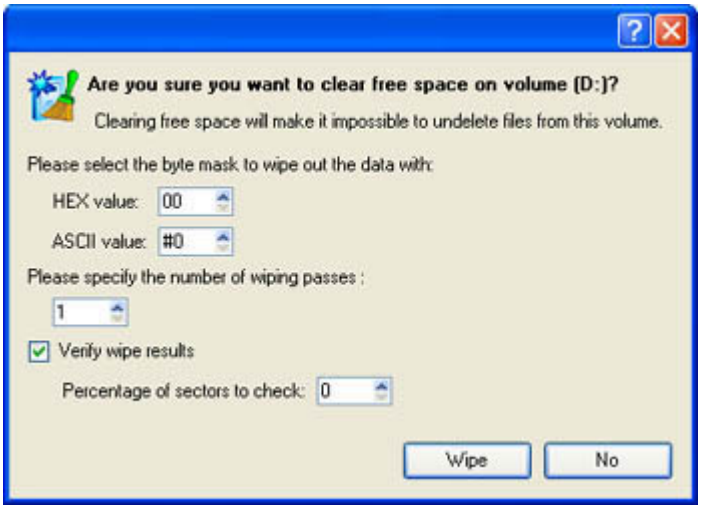
In order to start the operation the user should take the following steps:

1. Select a partition on the Disk Map.

2. Call the *Clear Free Space* dialog selecting in the Main menu: *Partition* > *Clear Free Space*...

3. Define parameters of the operation with the *Clear Free Space* dialog. Initially the program suggests some consistent values for all parameters. In most cases, the user may just press the *Wipe* button to confirm the operation.



- **HEX value**. The **Hex value** spinner control allows the user to set a two-figure hexadecimal character value ("00" by default). The available range is from "00" to "FF". It is synchronized with the **ASCII value**.
- **ASCII value**. The **ASCII value** spinner control enables to set the symbolic presentation of the character to use according to the 7-bit American Standard Code for Information Interchange ("#0" by default). It is synchronized with the **Hex value**.
- **Number of passes**. The user can choose number of passes for the wiping pattern (1 by default). The available range is from 1 to 100.
- **Verify wipe results**. The user can also choose whether to carry out residual data verification or not specifying the percentage of sectors to check.

The Clear Free Space operation is only available for Logical and Primary partitions of known file systems.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

9.3 Build Wiping Media

The program provides the possibility to create the DOS-based version of the program on external media (CD, DVD or floppy disks) to boot from and destroy all on-disk information even when the current

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operating system cannot boot anymore. The operation can be accomplished with the *Wiping Media Builder Wizard*.

9.3.1 Starting

There are several ways to start the *Wiping Media Builder Wizard*:

- In the Main menu: select *Tools* > *Wiping Media Builder*...
- On the Common Tasks bar: click the *Wiping Media Builder* item of the Wizards menu.

After following one of the above mentioned actions, the Welcome page of the wizard is displayed.

9.3.2 Settings

The Wiping Media Builder Wizard allows the user to make proper settings and then start the operation in accordance with the entered parameters. In our case we set parameters of the future bootable media defining:

- **Type of the wiping media the user is creating**. The program can be placed either on a CD/DVD disc or on a floppy disk.
- **Contents of the wiping media**. The bootable media may include the standard Wiping Media image (it is a part of the installation package) or software, defined by the user. In the last case the user can record a beforehand-prepared image setting the path to the image file on the disk.
- **A recording device**. Appropriate external media (CD/DVD or a floppy disk) should be inserted into the selected device.
- **CD/DVD writing parameters** (in case the user selects this kind of media). Writing parameters include writing speed (maximum or minimum) and the ability of ejecting the recorded disc after completing the operation.

The program supports CD-R, CD-RW, DVD-R, DVD+R, DVD-RW, DVD+RW and also DVD-R, DVD+R double layer discs. If the inserted disc is not empty the Wizard suggests erasing its contents. If the user confirms the operation the program erases the re-writable disc's contents and starts recording.

9.3.3 Results

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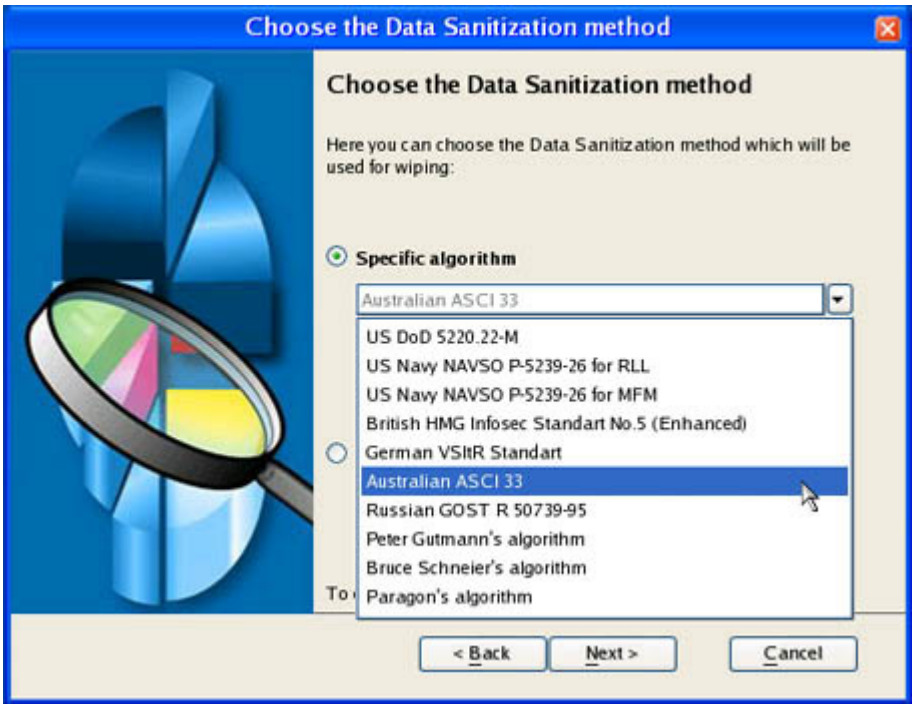
The Wiping Media Builder Wizard starts the operation after completing the settings mentioned above. As a result the user receives bootable media with the DOS-based version of the program.



It can boast the same interface as the Windows version does, providing a unique possibility to enjoy XP-like environment and functionality under the DOS environment.

The *Summary page* will be available only when the *Virtual operations* are disabled.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

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10 Scheduling Operations

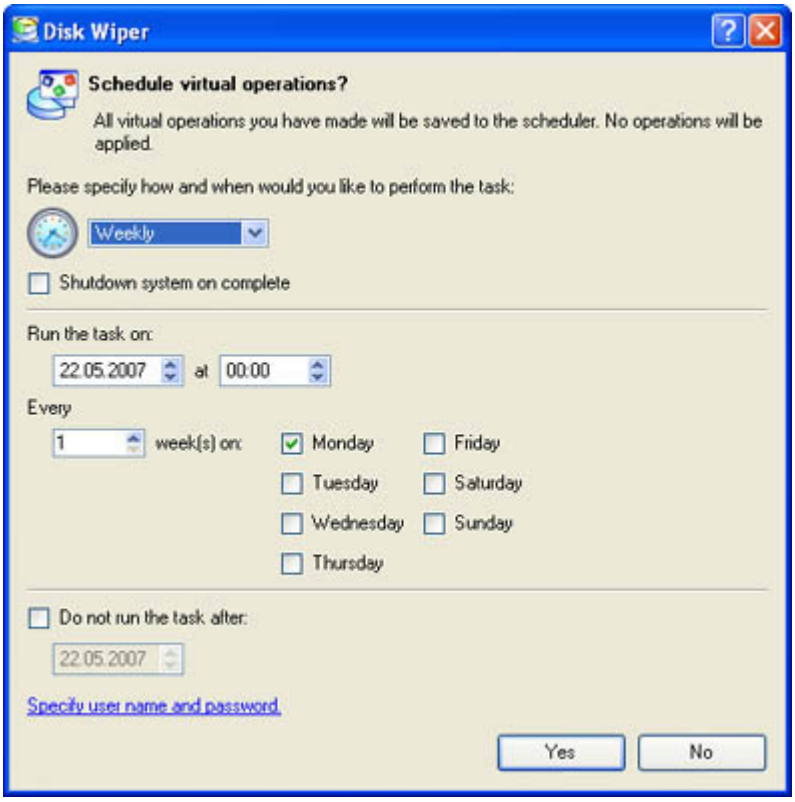
The program allows the user to automate operations. The utility for this purpose is referred to as the embedded Scheduler, which is used to specify the time for the execution of any operation. There are two categories for time settings (these correspond to appropriate items in the *Schedule type* menu):

- **Initiating operation by an event**:

  - One time only (i.e. the *Once* item)
  - When system starts (i.e. the *At System Startup* item)
  - When the user logs on (i.e. the *At Logon* item).

- **Initiating operation periodically** (i.e. *Daily, Weekly, Monthly*).

The user needs to select one of the variants. Depending on the choice, the scheduler will display a form that allows the user to set the schedule.



	**To run the task in the log-off mode, please specify administering login info by following the appropriate link in the left lower corner of the page.** **The *Shutdown System on Complete* option enables to automatically switch off the computer on the successful accomplishment of the operation.**

All scheduled tasks are placed in a separate list, which can be retrieved by clicking the **Scheduled Tasks** tab in the *Explorer bar*:

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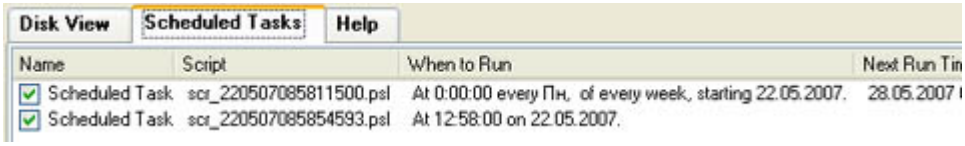


On every task the user can get in-depth information, including:

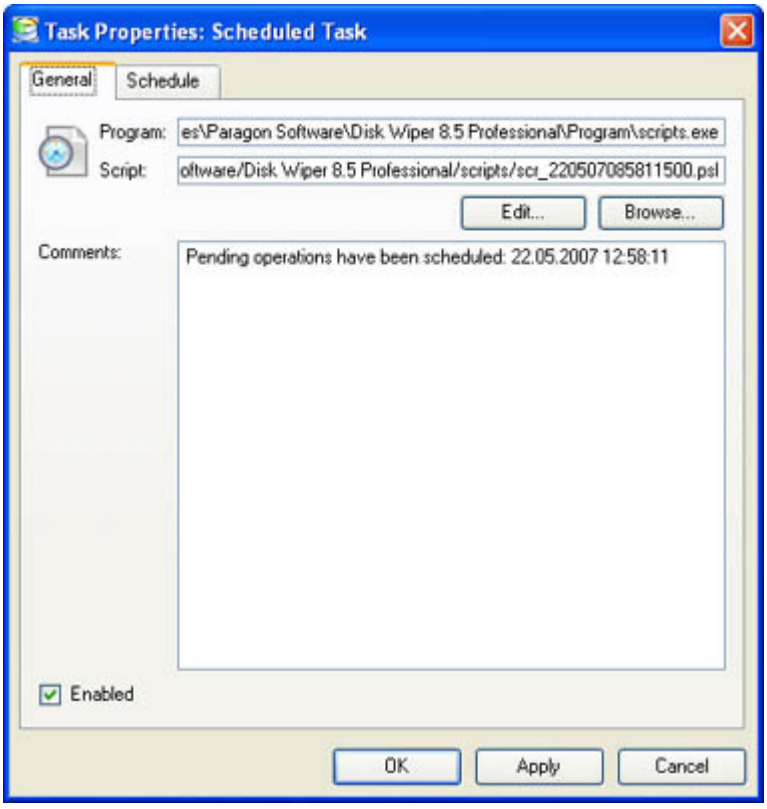
- The task name
- The full path to the generated script of the task
- Scheduled time of launch
- Statistics on the last launch
- Scheduled time of the next launch
- Used account information
- Comments to the task

To easily manage tasks, the program enables to arrange them according to a certain characteristic just by clicking on the required property.

This feature can be particularly beneficial when the *Scheduled Tasks* list contains too many items.

It is also possible to enable/disable, rename, delete, refresh or modify additional properties of the selected task.

To modify additional properties of the selected task with the Task Editor, the user should select the *Properties* item of the context menu, which can be called by a right-click on the appropriate task.



The dialog window has two tabs - *General* and *Schedule*. The *General* tab contains:

- The full path to the program-interpreter of the macro-commands which describes the scheduled task

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- The line of parameters for starting the interpreter (i.e. the task described in macro-language)
- Comments referring to the task
- The **option of enabling/disabling the task**.

The *Schedule* tab contains the timetable of the task, which the user can modify. In order to apply the changes, the user needs to click the *Apply* button at the foot of the dialog.

10.1 Save to Scheduler

The program provides the ability to schedule any virtual operation placed on the List of Pending Operations.

In order to start the operation the user should take the following steps:

1. Call the *Save to Scheduler* dialog in the Main menu: *Tools* > *Save to Scheduler*...

2. Specify the time for the execution of operations on the List of Pending Operations.

This command is unavailable if there are no operations on the List of Pending Operations.

To learn more about how to set a timetable for execution please consult the Scheduling Operations chapter.

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11 Scripting

The program actions can also be represented in form of a script. The script describes the appropriate operation with macro-language commands. There is an interpreter utility - **SCRIPTS.exe**, which is included in the program installation package. This utility works in the unattended mode, which allows the user to automate operations.

11.1.1 Starting

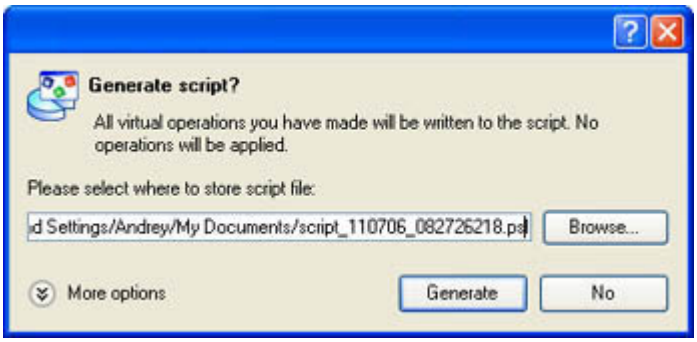
The user may not write a script since the program has a convenient interface for such a task. In order to generate a script on the base of the entered parameters of the required operation, the user should take the following steps:

- Select in the Main menu: *Tools* > *Generate Script*…

This command is unavailable if there are no operations on the List of Pending Operations.

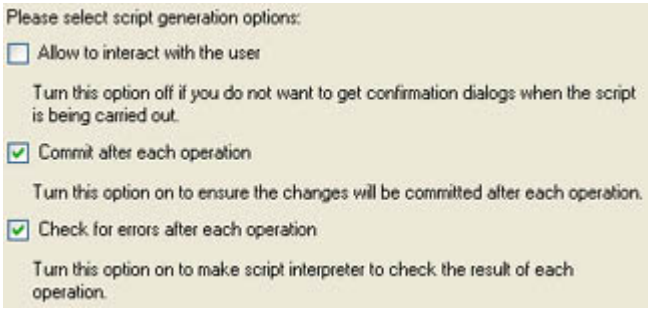
11.1.2 Settings

Define script generation options with the *Generate script* dialog.



- **Script file destination**. The program allows saving script files to local drives. Press the **Browse** button to define destination and a filename for a new script file. The default file extension that is reserved for scripting files is **.psl**. However, a script can be saved under any filename.

In addition, there is the possibility to make further detailed settings (although the default values will do in most cases). To activate the advance mode, the user needs to click the *More options* button at the foot of the dialog page. The following options become available:



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- **Interaction with the user**. Mark the option to pause the script interpreter during the execution to prompt the user's confirmation or other input. Otherwise the program will not stop using default values for parameters if needed.
- **Commit after each operation**. Mark the option to commit changes after each operation.
- **Check for errors after each operation**. Mark the option to insert a special code in script, which checks the status of the last executed operation and stops the script processing if there are errors of any kind.

11.1.3 Results

After the operation is completed the user receives a new script file. It is placed into the specified destination, its features defined in the dialog.

To learn more about scripts please consult the Paragon Scripting Language manual.

Some features may be unavailable in the version of the product you have. To learn more about it please consult the Disk Wiper Editions chapter.

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12 Partition Management

In this chapter you will find all the information necessary to carry out partitioning operations supported by the program.

12.1 Create Partition

The program provides the ability to create new partitions by using the *DOS partitioning scheme*.

12.1.1 Restrictions

1. Do not use the *Create Partition* function in order to undelete the last deleted partition.
2. The program cannot create new partitions on *Dynamic Disks*. The current version of the program supports only hard disks that use the *DOS partitioning scheme* (in Windows 2000 and XP these disks are named *Basic Disks*).
3. According to the rules of the DOS partitioning scheme, the following combinations of partitions cannot be created:
   - Two Extended Partitions on one hard disk
   - Five or more Primary partitions on one hard disk
   - If there is an Extended Partition on the disk, only three Primary partitions are allowed

4. The program allows creating new partitions only within blocks of unpartitioned space. It cannot *convert* a free space on an existing partition to a new partition.

12.1.2 Starting

In order to start the operation the user should take the following steps:

1. Select a block of free space on the Disk Map.

2. Call the *Create Partition* dialog to define appropriate settings. There are several ways to do it:

   - Select in the Main menu: *Partition* > *Create Partition*.
   - Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Create Partition*.

12.1.3 Settings

Define the future partition parameters with the *Create Partition* dialog. Initially the program suggests some consistent values for all parameters. In most cases, the user can just press the *Yes* button to confirm the operation.

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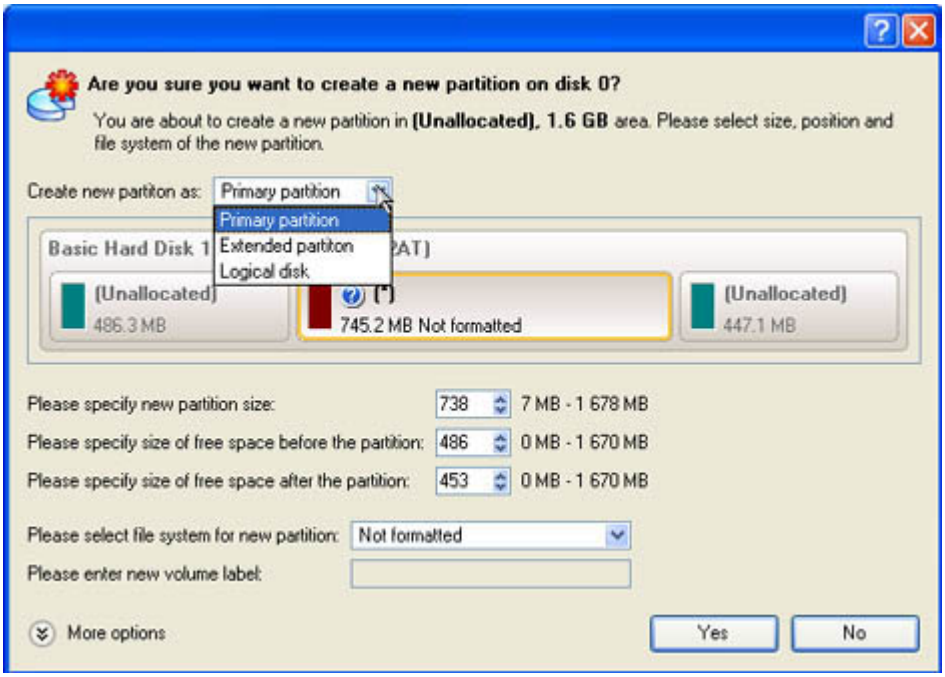
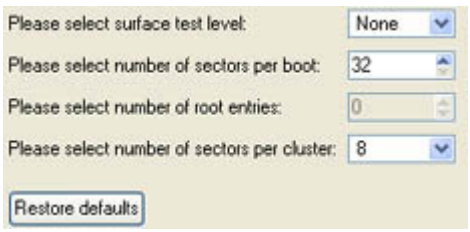


- **Define whether the partition will be Primary, Extended or Logical**. Select the desired type of the new partition from this pull-down list. As a matter of fact, the available alternatives fundamentally depend on the type of the selected block of free space - within the Logical free space, only Logical partitions can be created; Within the Primary free space, both Primary partitions or the Extended Partition can be created.
- **Partition Size**. Define the size (in MB) of the new partition.
- **Free space before**. Define the position (in MB) of the new partition relative to the beginning of the block of free space.
- **Free space after**. Define the amount of trailing free space (in Mb) at the end of the new partition.

Partition size and position may also be defined by using the *drag-and-drop* technique. To do that, just carry out the required operation on the Disk Map. The virtual operations are to be available.

- **File system for new partition**. From the pull-down list select a file system the newly created partition will be formatted to, otherwise the partition will remain unformatted (so that it will not be ready to use).

In addition, there is the possibility to make further detailed settings (although the default values will do in most cases). To activate the advance mode, the user needs to click the *More options* button at the foot of the dialog page. Depending on the file system, the following options become available:



- **Whether the surface test will be performed**. Mark the option to make the program perform the surface test on the formatted partition. In this case, the program will find bad and unstable sectors and mark them unusable in the file system metadata.

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- **The amount of sectors per boot**. This parameter is available exclusively for FAT16 and FAT32 file systems. Set the number of sectors to be reserved for the boot area on the partition with this spinner control.
- **The amount of root entries**. This parameter is available exclusively for FAT16 file system. Set the maximum amount of files/directories to be placed in the Root Directory on the FAT16 partition.
- **The amount of sectors per cluster**. Define the Cluster Size for the formatted partition with this spinner control.

12.1.4 Results

After the operation is completed the user receives a fully functional partition.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

12.2 Format Partition

Any partition should contain some file system to be used for keeping data. The process of installing a file system is commonly known as formatting. A huge variety of file systems have been developed these days. The program provides the ability to format existing or newly created partitions of the following file systems:

- FAT12 & FAT16
- FAT32
- NTFS
- Ext2
- Ext3
- ReiserFS
- Linux Swap v. 2
- HPFS

12.2.1 Starting

In order to start the operation the user should take the following steps:

1. Select a block of free space on the Disk Map.

2. Call the *Format Partition* dialog to define appropriate settings. There are the following ways to do it:

- Select in the Main menu: *Partition* > *Format Partition*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Format Partition*.

12.2.2 Settings

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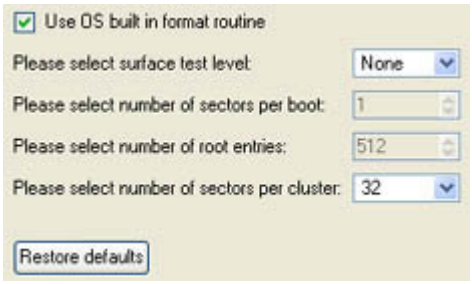
Define parameters of the formatting operation with the *Format Partition* dialog. Initially the program suggests some consistent values for all parameters. In most cases, the user can just press the *Format* button to confirm the operation.

- **File system**. Select the desired file system type from this pull-down list. In fact, the program displays only file systems that can be correctly placed to the selected partition, taking the capacity of the selected partition into account.
- **Volume label**. Enter a label for the selected partition in this textual field. The Volume label is an irrelevant parameter of a logical drive that can be used for drive identification.

In addition, there is the possibility to make further detailed settings (although the default values will do in most cases). To activate the advance mode, the user needs to click the *More options* button at the foot of the dialog page. Depending on the file system, the following options become available:



- **Use OS built-in routine**. Mark the option to restrict the available values according to the used OS.
- **Whether the surface test will be performed**. Mark the option to make the program perform the surface test on the formatted partition. In this case, the program will find bad and unstable sectors and mark them unusable in the file system metadata.
- **The amount of sectors per boot**. This parameter is available exclusively for FAT16 and FAT32 file systems. Set the number of sectors to be reserved for the boot area on the partition with this spinner control.
- **The amount of root entries**. This parameter is available exclusively for FAT16 file system. Set the maximum amount of files/directories to be placed in the Root Directory on the FAT16 partition.
- **The amount of sectors per cluster**. Define the Cluster Size for the formatted partition with this spinner control.

12.2.3 Results

After the operation is completed the user receives a fully functional partition formatted to the file system specified.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the**

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	progress dialog after the operation is completed. ❑ ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.** ❑ ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

12.3 Delete Partition

The program allows the user to delete partitions on hard disks partitioned with the *DOS partitioning scheme*. The program removes references to the partition from the *Partition Table*, so that the information from the deleted partition becomes inaccessible. The resulted disk space can be used to create new partitions.

Contents of the deleted partition do not disappear from the disk but merely are unavailable for the operating system.

12.3.1 Starting

In order to start the operation the user should take the following steps:

1. Select a block of free space on the Disk Map.

2. Call the *Delete Partition* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Delete Partition*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Delete Partition*.

12.3.2 Settings

Despite different work algorithms, both the *Delete Partition Wizard* and the *Delete Partition* dialog provide the same level of functionality, thus let us just take as an example the dialog version of the operation.

Define parameters of the delete operation with the *Delete Partition* dialog.

- **Enter the volume label to confirm deleting**. To confirm the deletion of the selected partition, enter its *Volume Label*. The actual Volume Label value is displayed above.
- **Do not ask volume label next time**. Mark the option to inhibit confirmation of the partition deletion.

In addition, there is the possibility to wipe partition data as well. To do that, just click the *More options* button at the foot of the dialog page. When it is marked, the following options become available:

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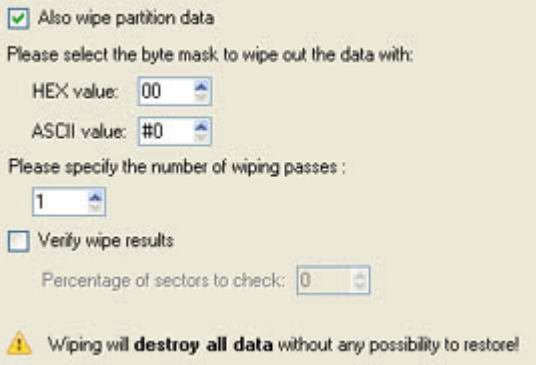

- **Select the byte mask…**. The **HEX value** spinner control allows the user to set a two-figure hexadecimal character value ("00" by default). The available range is from "00" to "FF". It is synchronized with the **ASCII value**.
- **Specify the number of wiping passes**. The user can choose number of passes for the wiping pattern.
- **Verify wipe results**. The user can also choose whether to carry out residual data verification or not specifying the percentage of sectors to check.

12.3.3 Results

The deletion of a partition takes only a fraction of a second. However, the program waits until Windows completes the modification of the disk layout.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

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13 Hard Disk Management

This chapter lists various scenarios of hard disk operations which may be accomplished by the program.

13.1 Update MBR

The program allows the user to overwrite the current *bootable code* in the MBR (Master Boot Record) by the standard *bootstrap code*.

This feature can repair corrupted bootable code on a hard disk as a result of *boot virus* attacks or malfunction in the boot managing software.

In order to start the operation the user should take the following steps:

1. Select a hard disk on the Disk Map.

2. There are several ways to run the operation:

- Select in the Main menu: *Hard Disk* > *Update MBR*.
- Call the popup menu for the selected hard disk (right click of the mouse button) on the Disk Map, then select the menu item: *Update MBR*.

3. The operation will be performed immediately after confirmation.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

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14 Extra Functionality

This chapter describes the supplementary functionality available in the program.

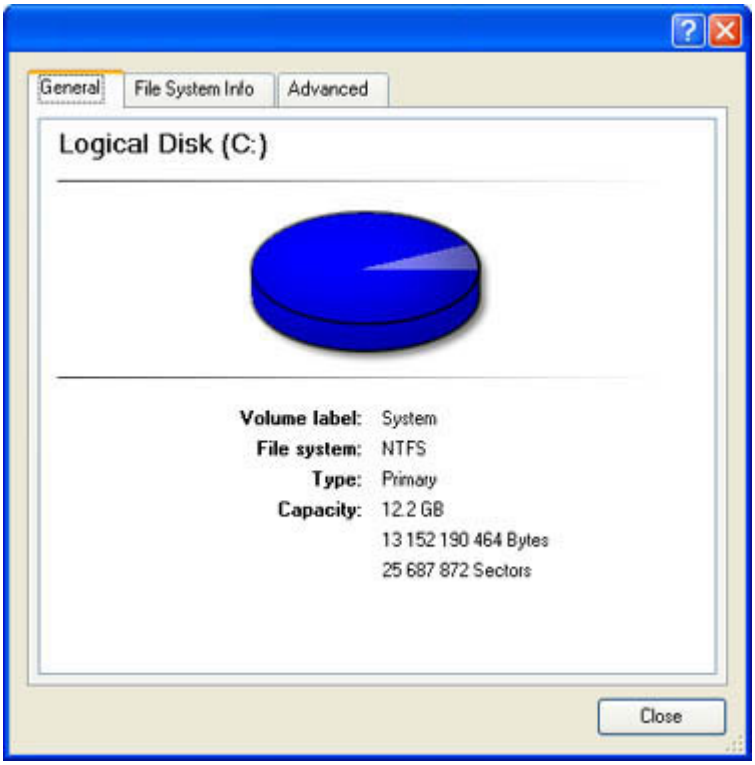
14.1 View Partition/Hard Disk Properties

The program enables to obtain in-depth information on the properties of hard disks/partitions. Besides the general information, such as capacity, used space or file system type it provides the possibility to get info on a hard disk geometry, cluster size, exact partition location, etc.

In order to view properties of a partition/hard disk the user should take the following steps:

1. Select a partition/hard disk on the Disk Map.

2. Call the popup menu for the selected partition/hard disk (right click of the mouse button) on the Disk Map, then select the menu item: *Properties*...



3. The provided information is grouped according to its properties, thus select the required tab and get the information you need.

14.2 Mount Partition

The program allows the user to assign or remove drive letters of existing formatted partitions.

14.2.1 Assign Drive Letter

In order to mount a partition the user should take the following steps:

1. Select a partition on the Disk Map.

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2. Call the *Add Drive Letter* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Assign Drive Letter*…
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Assign Drive Letter*...

3. Define a drive letter for the selected partition with the *Add Drive Letter* dialog. Initially the program suggests some consistent value for this parameter. So the user may just press the *Yes* button to confirm the operation.

Assign the following drive letter. The pull-down list contains vacant drive letters that can be associated with the selected partition. Assign a drive letter to a non-mounted partition, or change the existed drive letter for already mounted partition.

4. The operation will be performed immediately after confirmation.

14.2.2 Remove Drive Letter

In order to unmount a partition the user should take the following steps:

1. Select a partition on the Disk Map.

2. Call the *Remove Drive Letter* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Remove Drive Letter*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Remove Drive Letter*.

Modifying drive letter of the system partition will result in inability to boot the operating system.

After having processed partitions with installed software, some programs may not run properly.

3. The operation will be performed immediately after confirmation.

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By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

14.3 Test Surface

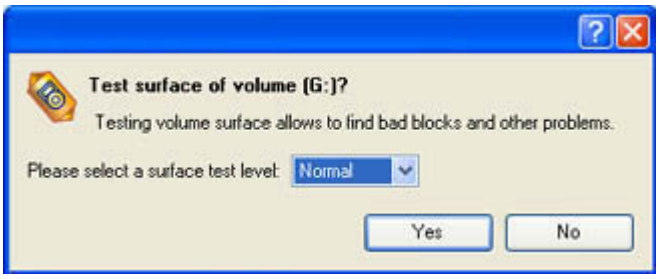
The program allows performing additional surface tests on existing partitions and blocks of free space.

In order to start the surface test the user should take the following steps:

1. Select a partition or a block of free space on the Disk Map.

2. Call the *Test Surface* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Test Surface*…
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Test Surface*…



Surface test level. Choose the level of the test procedure.

3. The operation will be performed immediately after confirmation.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

14.4 Check File System Integrity

The program can check the file system integrity on existing partitions. This function can be used for detecting file system errors before performing operations on a partition.

Most useful operations require the targeted partition to have a valid file system to be processed.

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In order to start the system integrity check the user should take the following steps:

1. Select a partition on the Disk Map or on the List of Partitions.

2. Call the *Check File System Integrity* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Check File System Integrity*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map, then select the menu item: *Check File System Integrity*.

3. The operation will be performed immediately after confirmation.

By clicking the *More options* button during the operation execution the user can set up a number of additional parameters:

- ***Close progress dialog automatically*. Mark the option to automatically close the progress dialog after the operation is completed.**
- ***Shutdown system on complete*. Mark the option to automatically switch off the computer on the successful accomplishment of the operation.**
- ***Minimize to system tray*. Click it to minimize the window to the Windows system tray.**

14.5 Edit/View Sectors

With the built-in *Edit/View Sectors* tool the program enables to view/edit sectors on existing partitions/hard disks providing the possibility to directly access and modify sectors, save and restore sectors from specified files, navigate through the system metadata, etc.

In order to start the *Edit/View Sectors* operation the user should take the following steps:

1. Select a hard disk/partition on the Disk Map or on the List of Partitions.

2. Call the *Edit/View Sectors* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition/Hard Disk* > *Edit/View Sectors*.
- Call the popup menu for the selected partition/hard disk (right click of the mouse button) on the Disk Map, then select the menu item: *Edit/View Sectors*.

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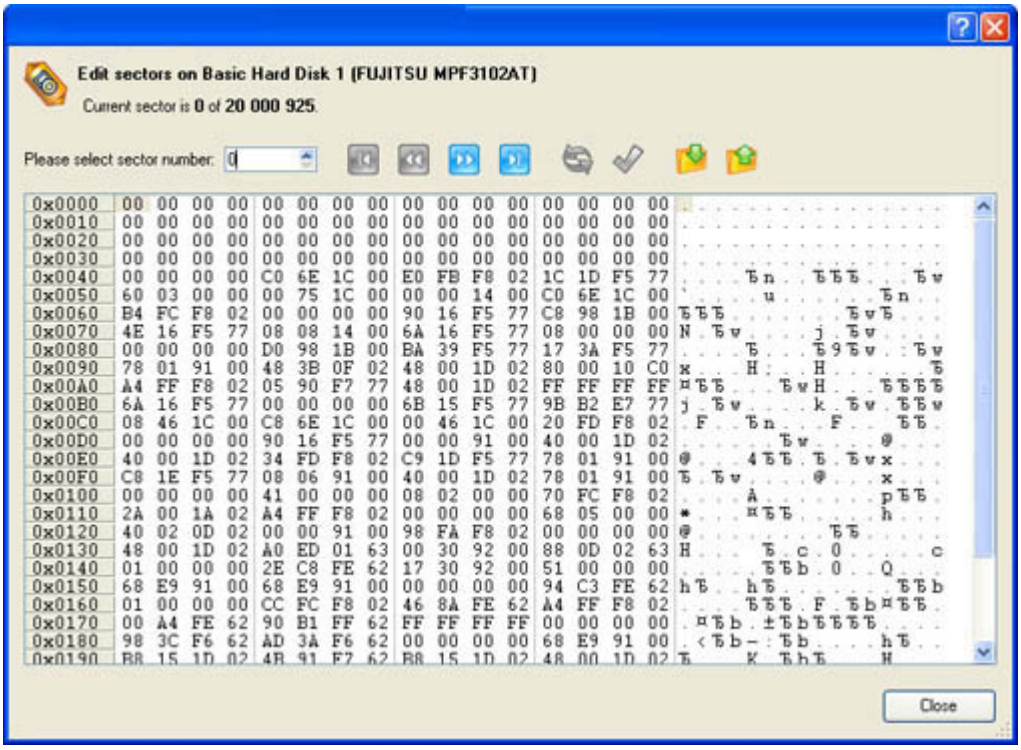


Careless use of the Edit Sectors function may result in the irreversible data corruption.

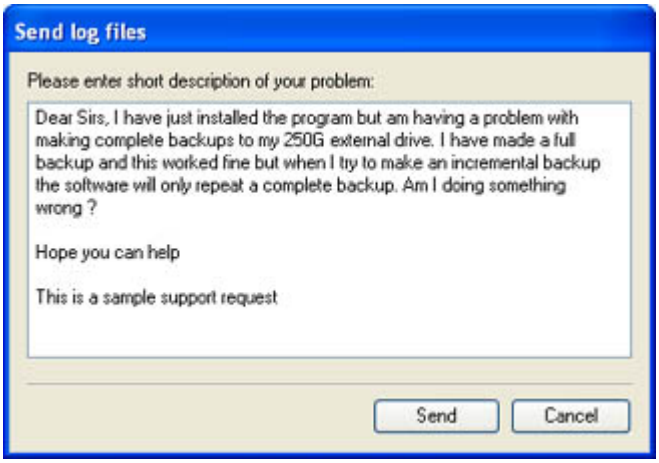
14.6 Send Log Files

The program allows the user to simplify the procedure of sending support requests to the Paragon Support Team. In case of having difficulties with handling the program, the user, with the help of this very function, can address the company support engineers and provide them with all the information they need such as disk layout, performed operations, etc. in order to tackle the encountered problem. Information of that kind is stored in Log files.

In order to start the operation the user should take the following steps:

1. Call the *Send Log Files* dialog in the Main menu: *Tools* > *Send Log Files*

2. Give a detailed description on the encountered problem.



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By clicking the *Send* button the built-in mail client will generate a template request with attached compressed log files and then send it to the Paragon Support Team.

14.6.1 Log Files

Log files are simple textual files that can be opened by any text editor. There are several log files automatically generated by the program:

Stubact.log	Contains in-depth information on parameters and performance of all operations carried out by the program
Pwlog.txt	Besides brief overview on operations it also contains detailed information about the state of all hard disks
Cdb.log	Contains low-level information on the CD/DVD devices used in the system
BioNTlog.txt or Bio95log.txt	It is an OS-dependent supplementary log file derived from Bioxx.dll. It may contain valuable information on Windows family operating systems

Log files do not contain any confidential information on the operating system settings or the user documents.

The Send Log Files function is only available when outgoing mail server (SMTP) and the user e-mail address are properly set. To learn more about it please consult the Settings Overview chapter.

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15 Glossary

Magnetic Force Microscopy (MFM) is an effective tool to magnetic investigations on submicron scale. Image obtained by MFM is the space distribution of some parameter characterizing magnetic probe-sample interaction, i.e. interaction force, amplitude of vibrating magnetic probe, etc. The MFM technology can be successfully used to resurrect deleted information.

Master File Table (MFT) is a relational database that consists of rows of file records and columns of file attributes. It contains at least one entry for every file on an NTFS volume, including the MFT itself. MFT is similar to a FAT table in a FAT file system.

Partitioning scheme is a set of rules, constraints and the format of on-disk structures that keep information of the partitions that are located on the hard disk. There are several partitioning schemes, which can be used. The most popular partitioning scheme is the so-called *DOS partitioning scheme*. It was introduced by IBM and Microsoft to use multiple partitions in the disk subsystems on IBM PC compatible computers.

Another popular partitioning scheme is the so-called *LDM* (Logical Disks Model) that originates from UNIX mainframe systems. The Veritas Executive accommodates the simplified version of LDM to the Windows 2000 operating system.

Windows 2000 and XP support two quite different partitioning schemes: the old DOS partitioning scheme and the new Dynamic Disk Management (DDM). The problem is that older versions of Windows do not support DDM. In addition, most hard disk utilities do not support it as well.

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