7Tools Partition Manager™ 2009

User Manual

CONTENTS

Introduction

Sooner or later any PC user faces the problem of modifying the hard disk structure. One day you realize that your hard drive cannot meet your requirements any more. Either its capacity is insufficient and it is time to think about a little upgrade, or you are to carry out some partitioning operations. Whatever the problem is, it requires solution.

Our program is a fast, convenient and reliable solution of disk copying, upgrading and configuring needs. It provides a wide-range functionality in the field of managing disk layout structures. The key features of the program are listed in the special chapter.

Setting up major operations 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.

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).
- Basic functions for initializing, partitioning and formatting hard disks. Instead of the standard Windows disk tools, the program supports all file systems.
- Carrying out advanced partitioning operations such as redistribution of available disk space or merging of adjacent partitions of NTFS, FAT or FAT32 file systems with the help of easy-to-use wizards.
- Boot Manager Setup Wizard to easily manage several operating systems on one computer.
- Hot Resize NTFS upward allows the user to enlarge NTFS partitions (system, locked) without rebooting Windows and interrupting its work.
- Copy Partition/Hard Disk Wizards that enable to successfully transfer all on-disk information including standard bootstrap code and other system service structures, thus maintaining the operating system's working capability, and that even beginners may understand.
- Non-destructive modification of partitions parameters, providing the ability to successfully migrate operating systems to larger hard disks.
- Effective tools for file system optimization. Defragmentation of FAT and NTFS file systems will help improve the hard disk performance while working with these systems.
- Conversion of FAT and NTFS file systems without reformatting.
- Recovering of any accidentally deleted partition by using the Undelete Partitions Wizard.
- *Shutdown After Apply* function enables to set the computer to automatically switch off on the successful accomplishment of any operation.
- Volume Explorer utility allows the user to browse and export contents of the local mounted/unmounted volumes of any file system as well as 7Tools backups.
- Build external recovery media that help the user to restore the system even when the current operating system cannot boot anymore.

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.

Package Contents

The installation package includes the following components:

- Launcher (with an embedded HTML browser)
- Partition Management
- Hard Disk Management
- Copy Partition/ Hard Disk Wizards
- Boot Manager
- Recovery Media Builder
- Extra Functionality

Minimum System Requirements

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

- Operating systems: Windows 98/NT/2000/XP/Vista and XP/Vista 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

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.

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\7Tools Partition Manager. 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 > 7Tools Partition Manager.

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.

To accomplish online copy of locked partitions/hard disks the program uses a kernel mode *hotcore driver*, thus the system reboot is required to complete the installation procedure.

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.

Drive Partitioning

As you probably know a hard drive is to be split into one or more partitions, since it cannot hold data until it is carved up and space is set aside for the operating system. Until recently most PCs used to have just one partition, which filled the entire hard disk and contained the OS. The situation has changed however, thanks to new cost-effective high capacity hard drives, thus opening up numerous possibilities for PC users, such as editing video, archiving music, backing up CD images, etc. Huge increase in space is great, but it poses a number of problems, most important of which are effective data organization and speed.

Large drives are always going to take longer to search than smaller volumes, and an operating system is going to have its work cut out both finding and organizing files. It is for this reason that many people decide to invest in multiple hard drives, but there is an easy solution – drive partitioning. Partitioning lets you divide a single physical drive into a number of logical drives, each of which servers as a container with its own drive letter and volume label, thus enabling the operating system to process data more efficiently. Besides partitioning makes it possible to organize data so that it is easy to find and manage. You can set aside, for instance, 40 GB of a 160 GB hard drive for the OS, 70 GB for storing video and another 50 GB for your favorite music collections to provide transparent data storage.

It is also worth mentioning to that with a hard drive properly partitioned, such routine operations as files de-fragmentation or consistency check will not be that annoying and time-consuming any more.

By detaching the OS from the rest of the data you can tackle one more crucial issue – in case of a system malfunction, you can get the system back on track in minutes by recovering it from a backup image located on the other partition of the hard drive.

But that is not all drive partitioning may be used for. If you are willing to play games in Windows while browsing the Internet in Linux, 100-percent sure that no virus will attack your PC, drive partitioning is a necessity. In order to run several OSs on a single hard drive you are to create a corresponding number of partitions to effectively delineate the boundaries of each OS.

All of the above-mentioned partitioning applications are implemented in the program. And all the necessary actions are performed by using the system of convenient wizards. This means that the user simply has to follow easy step-by-step instructions to make the appropriate settings.

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 such system dependent modules as *Hot Processing*.

Copy Operations

Hard drive duplication nowadays is becoming highly popular among PC users. That is due to some definite advantages it can offer. First of all, many people clone hard disks just to back up data for security reasons. The present day copy utilities enable to successfully transfer all on-disk information including standard bootstrap code and other system service structures, thus maintaining the operating system's working capability. In case of a system malfunction, the user can get the system back on track in minutes. No additional configuration is required, what is very convenient.

The second possible application is the upgrade of a hard disk to a new one. The capacity of a modern hard drive doubles every two years, thus opening up new possibilities for software developers. As a result programs become more complicated and require considerable amount of free space. One day the user realizes that there is no more free space left on the hard disk and the only way out is to upgrade. Usually that means that besides purchasing a new hard disk, the user is to face a large re-installation procedure spanning several days of tedious work. But all of this can be avoided just by copying the contents of the old hard disk to a new one proportionally resizing the partitions.

And the last but not least is the copying of hard disks for cloning purposes. It may be of great use when setting up similar computers. There is no need for a system administrator to install an operating system from scratch on every one of them. It is enough just to configure one and then clone it to the others.

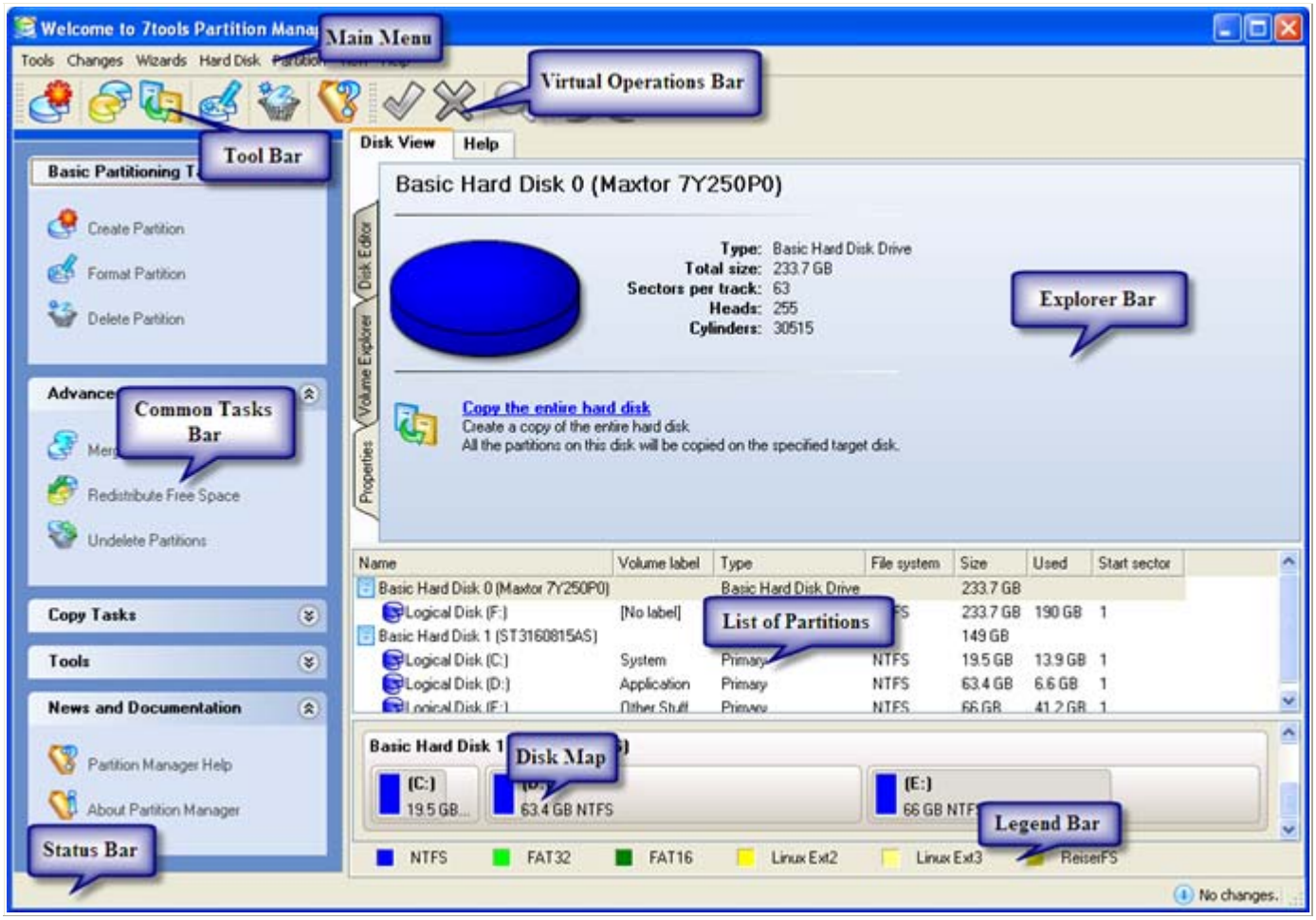
Interface Overview

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.

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. List of Partitions

7. Disk Map
8. Legend Bar
9. 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.

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

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	
Send Log Files	Compress and send the log to the 7Tools Support Team
Boot Manager…	Manage several operating systems on one computer
Recovery Media Builder…	Restore the system 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	
Create Partition…	Create a partition of any file system
Format Partition…	Format a partition of any file system
Delete Partition…	Delete a partition of any file system
Copy Hard Disk…	Create a hard disk copy
Copy Partition…	Create a partition copy
Merge Partitions…	Merge adjacent partitions of NTFS, FAT or FAT32 file systems
Redistribute Free Space…	Redistribute available disk space of existed partitions
Undelete Partitions…	Recover any of accidentally deleted partition
Hard Disk	

Update MBR	Update MBR (Master Boot Record) of the selected hard disk
Change Primary Slots…	Modify the primary partitions enumeration for 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
Move/Resize…	Move/Resize the selected partition
Convert File System…	Convert file system of the selected partition
Assign Drive Letter…	Assign drive letter to the selected partition
Remove Drive Letter…	Remove drive letter for the selected partition
Hide Partition…	Make the selected partition unavailable for the operating system
Unhide Partition…	Make the selected partition available for the operating system
Mark Partition as Active	Make the selected partition bootable by default
Mark Partition as Inactive	Make the selected partition non-bootable by default
Change Cluster Size…	Change cluster size of the selected partition
Change Boot Size…	Change boot size of the selected partition
Change Root Size…	Change root size of the selected partition
Change Volume Label…	Change volume label of the selected partition
Change Serial Number…	Change serial number of the selected partition
Change Partition ID…	Change identifier of the selected partition
Downgrade NTFS version…	Decrease version of the selected NTFS partition
Make Partition Primary…	Make the selected partition Primary
Make Partition Logical…	Make the selected partition Logical
Defragment Partition…	Defragment data on the selected partition
Defragment MFT…	Defragment MFT (Master File Table) of the selected NTFS partition
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

Properties and Commands	Display the Explorer bar
Disk Map Location	Select whether the Disk map will be located on the top of the main window or at the bottom
Choose Columns…	Select properties to display on the List of partitions
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.

Tool Bar

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

BUTTON	FUNCTIONALITY
	Create a partition
	Copy a partition
	Copy a hard disk
	Format a partition
	Delete a partition
	Open the Help system

Virtual Operations Bar

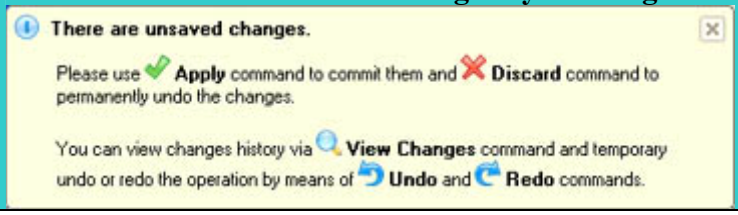
The program supports previewing the resulting layout of hard disks before actually executing operations (so-called virtual mode of execution). In fact, when the virtual mode is enabled, the program does not accomplish operations immediately, but places them on the List of Pending Operations for later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

The Virtual Operations Bar enables to manage pending operations.

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

	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:



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 several tabs named *Basic Partitioning Tasks*, *Advanced Partitioning Tasks, Copy Tasks, Tools* and *News and Documentation*. Each of these contains a separate button bar which can be folded by clicking it.

Basic Partitioning Tasks	
Create Partition	Starting the Create Partition Wizard. The Create Partition Wizard assists the user to create partitions of any file system.
Format Partition	Starting the Format Partition Wizard. The Format Partition Wizard allows formatting existing partitions to one of the file systems supported by the program.
Delete Partition	Starting the Delete Partition Wizard that enables to delete partitions of any file system.
Advanced Partitioning Tasks	
Merge Partitions	Starting the Merge Partitions Wizard. The Merge Partitions Wizard allows merging adjacent partitions of NTFS, FAT, FAT32 file systems.
Redistribute Free Space	Starting the Redistribute Free Space Wizard that enables to redistribute available disk space of existed partitions.

Undelete Partitions	Starting the Undelete Partitions Wizard that helps to recover accidentally deleted partitions.
Copy Tasks	
Copy Hard Disk	Starting the Copy Hard Disk Wizard that helps to make an exact copy of a hard disk.
Copy Partition	Starting the Copy Partition Wizard that helps to make an exact copy of a partition.
Tools	
Boot Manager Wizard	Starting the Boot Manager Setup Wizard that enables to easily manage several operating systems on one computer.
News and Documentation	
About Partition Manager	Opening the page which contains information about the program. This page will be displayed in the Explorer bar.
Partition Manager Help	Launching the Help system.

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.

Explorer Bar

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

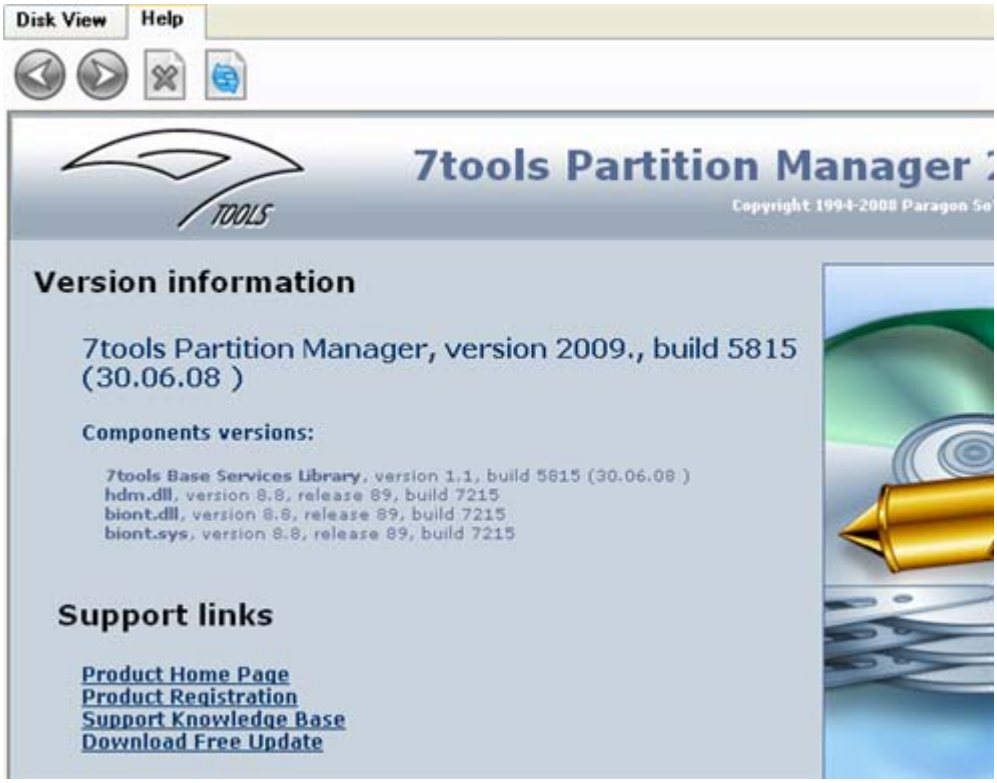
- User Manual,
- Information about the program consisting of the product's name, the version of the program and a list of helpful links,
- Detailed information about disks selected on the Disk Map,
- Volume Explorer utility,
- Disk Editor utility.

According to these categories the Explorer bar has several tabs:

- **Disk View**, which offers the user the following options:
  - *Disk Editor* to view/edit sectors of the selected partition/hard disk;
  - *Volume Explorer* to browse and export contents of the selected partition/hard disk;
  - *Properties* to view detailed information on the selected partition/hard disk in the bright graphical form.
- **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.

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

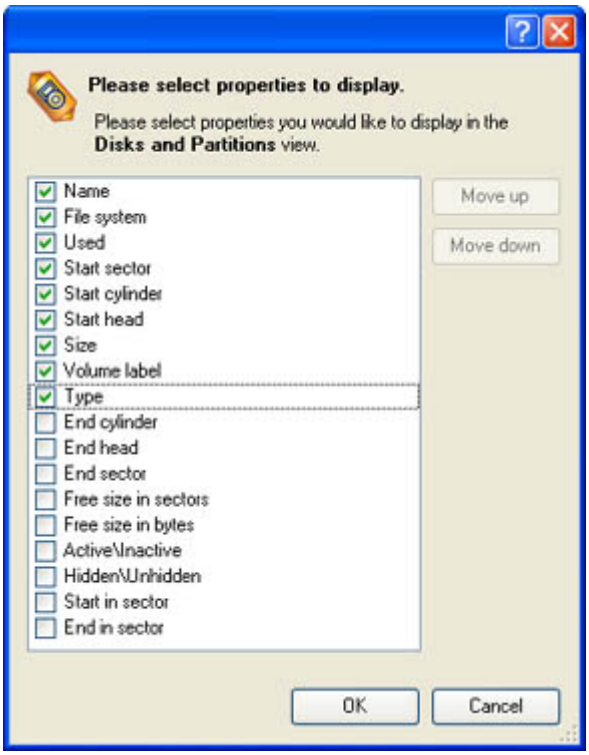
List of Partitions

The List of Partitions is another helpful tool that enables the user to get a clear-cut picture of the current state of the system hard disks/partitions. Partitions are sorted according to their starting position. For every item of the list there is the possibility to call the context-sensitive popup menu with available operations. Besides, the program provides detailed information on all hard disks/partitions found in the system including the following properties:

- Name,
- Volume label (if exists),
- Partition type (Primary/Extended /Logical),
- File system type,
- Size,
- Amount of used and unused (free) space,
- Start/End cylinder,
- Start/End head,
- Start/End sector

- Free size in sectors/bytes
- Active/Inactive attribute
- Hidden/Unhidden attribute

The user may customize the outlook of the List of Partitions with the appropriate Main menu item: *View > Choose Columns…*



By marking checkboxes the user can choose whether the required item will be displayed or not.

Furthermore, the List of Partitions is synchronized with the *Explorer bar* and the *Disk Map*.

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.

Status Bar

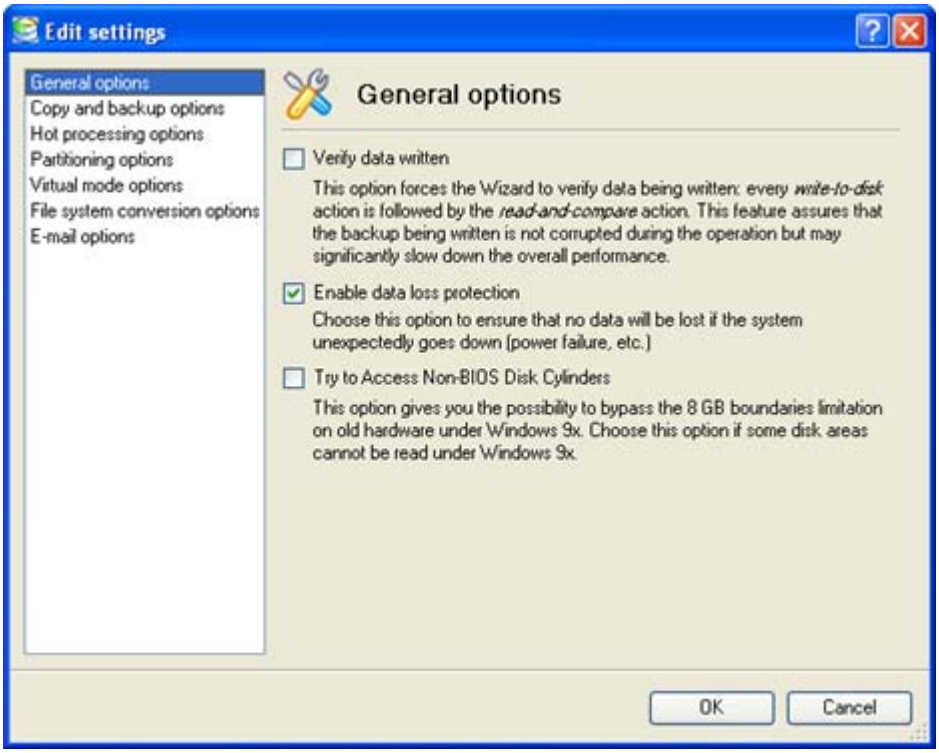
This is the bottom part of the main window. The status bar displays menu hints, for each item the cursor points to.

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

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.

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:

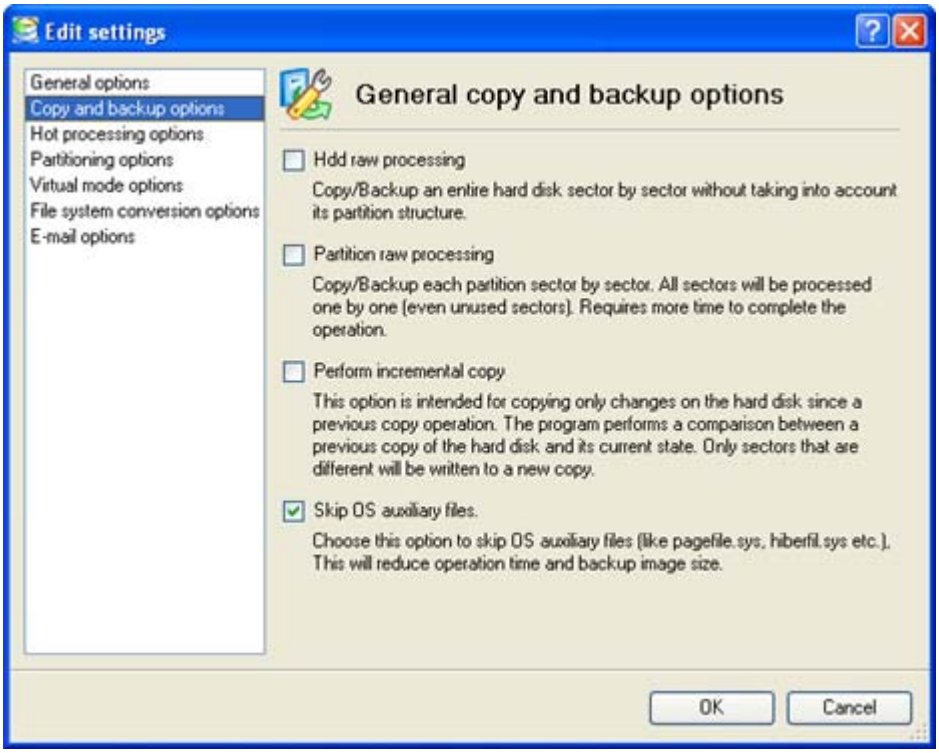
- **Verify data written**. If this option is marked, every write-to-disk action is followed by the read-and-compare action. This feature may be helpful in case of running an unstable hard disk, however it will negatively affect the overall performance.
- **Enable data loss protection**. Activate the 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.

- **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.

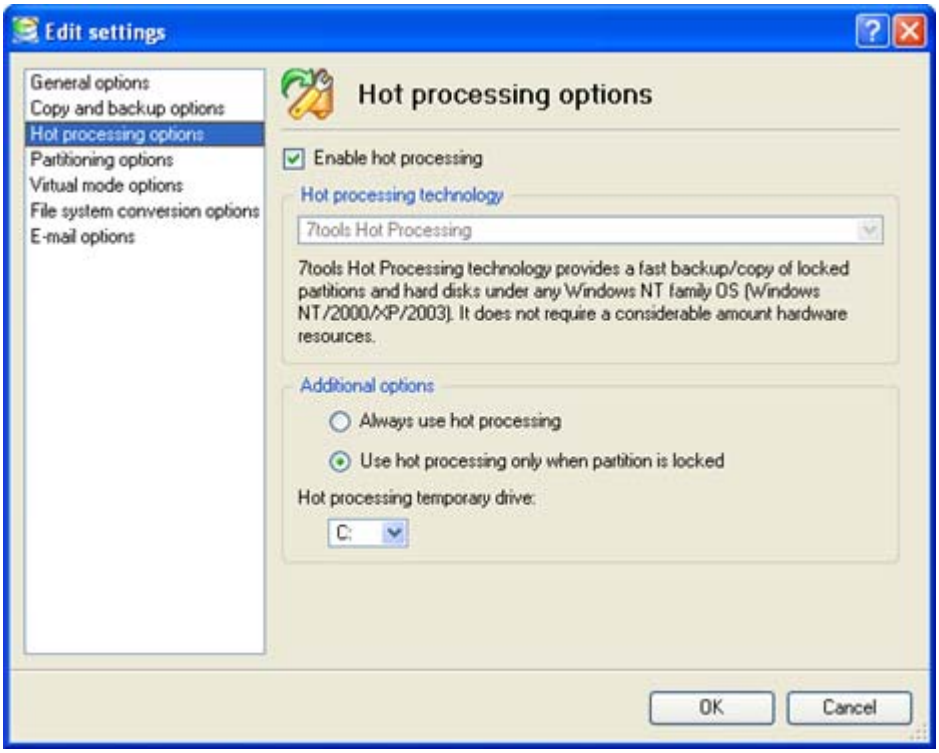
General Copy and Backup Options



This section contains a set of options that will be taken into account during copy and backup operations. The user can switch between the following modes:

- **HDD raw processing**. Activate the option to copy a hard disk in the sector-by-sector mode to successfully process unknown file systems. However it is not recommended to enable this option when working with supported file systems as it takes more time to accomplish the operation.
- **Partition raw processing**. Activate the option to copy a partition in the sector-by-sector mode to successfully process unknown file systems. However it is not recommended to enable this option when working with supported file systems as it takes more time to accomplish the operation.
- **Perform incremental copy**. Once the complete copy of a hard disk is created, it can be used as a base for the incremental copy. Mark the option to make the program perform the exact bit-wise comparison of the previous data (saved in the parental copy) with the current data (that is actually the hard disk itself). After that only most recent information will be processed. It considerably decreases the amount of data written.

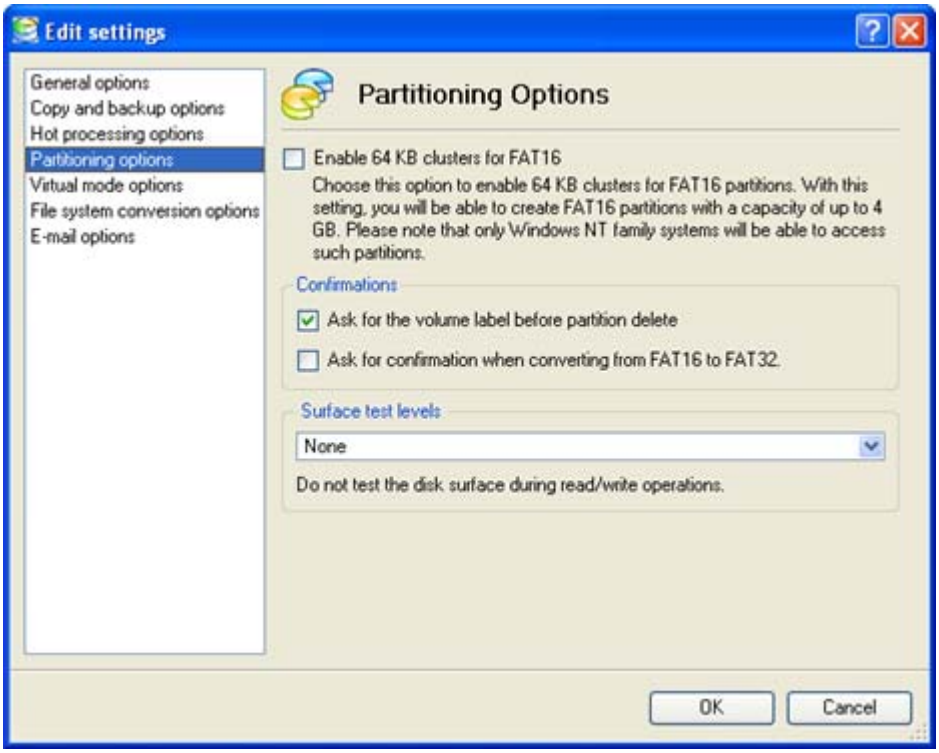
Hot Processing Options



This section contains a set of options that will be taken into account in case the *Hot Processing* mode is enabled. The Hot Processing mode is a part of the copy operation that allows the program to process a disk without restarting the computer. The program forces the system to restart to obtain exclusive access to the processing data. The Hot Processing mode may be used to process locked partitions or any copy operation. The user defines the method in this section.

The user can also set a *Temporary drive*. This option defines a partition (by default – C:) for the Hot Processing temporary file. The temporary file will be deleted when the hot copy is performed which may require a large amount of disk space. Should there not be enough space on drive C:, then another drive needs to be selected.

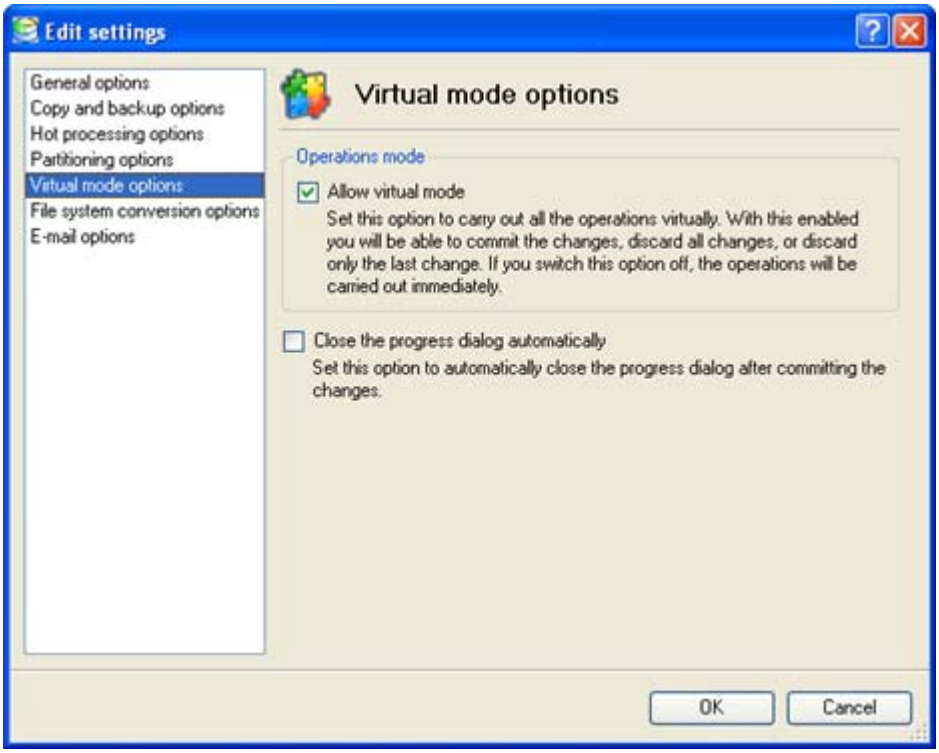
Partitioning Options



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

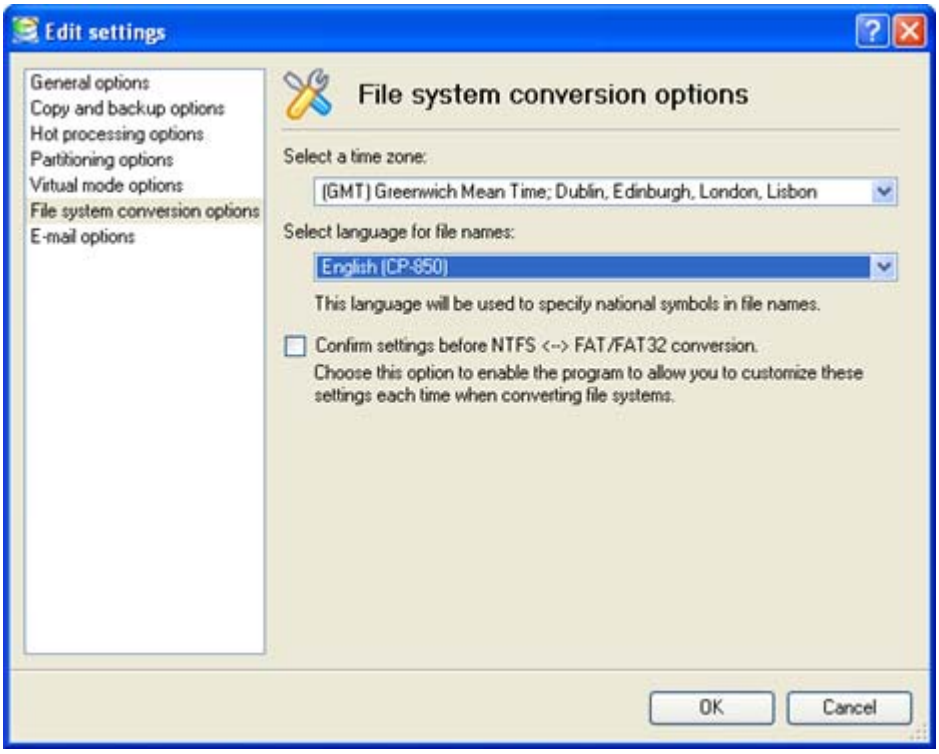
- **64 KB cluster size for FAT16 partitions.** Only Windows NT 4.0/2000/XP/2003 support 64 KB clusters.
- **Request confirmation before partition deletion.**
- **Request confirmation when converting FAT16 to FAT32** during such partitioning operations as copy disk/partition, restore disk/partition.
- **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.

Virtual Mode Options



- **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.

File System Conversion Options



This section contains a set of options that will be taken into account while converting file systems. By default, the program takes locale (regional) settings from the system. However, the user can customize default locale settings such as: *time zone* and *language of file names*.

These parameters affect the conversion of file systems "FATxx ->NTFS" and "NTFS -> FATxx". The problem lies in the use of different standards for file names and file time stamps (*Created*, *Modified* and *Last access time*) of NTFS and FATxx file systems.

Initially, the program displays the default locale settings, which may be changed:

- **Time zone**. Specify the time zone to use during a file system conversion. NTFS keeps file timestamps in GMT (Greenwich Mean Time) while FAT uses the unadjusted local date and time. The program takes proper account of the difference between internal formats of file timestamps and enables to use the time zone information to adjust the timestamp values.

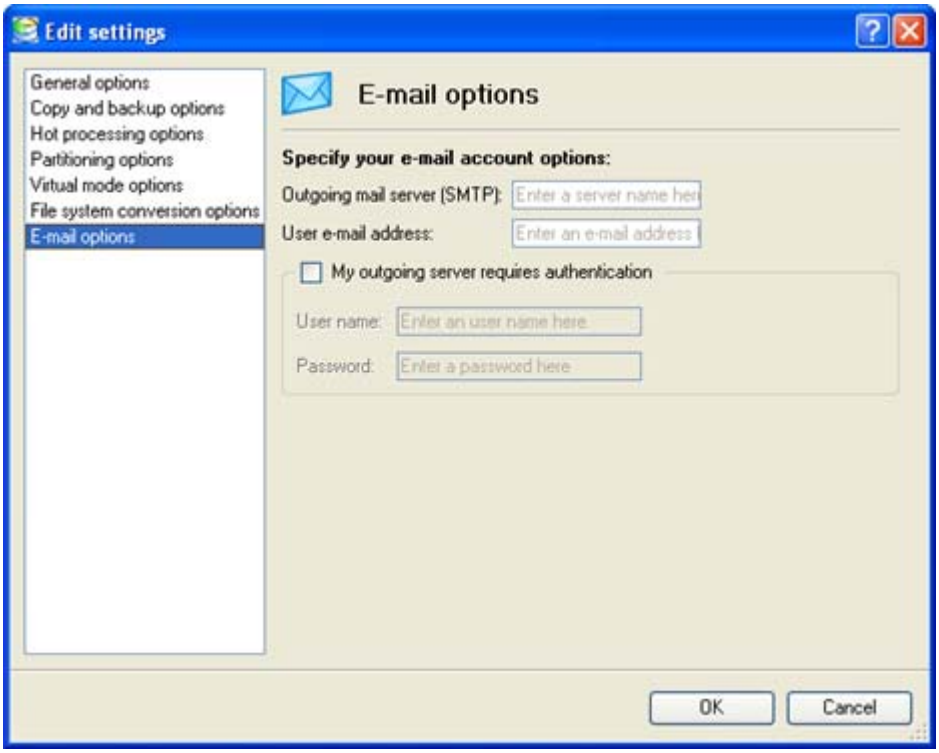
In some cases incorrect use of the time zone may lead to inability to run certain software.

- **Language for file names**. Choose the correct code page value. NTFS stores file names in Unicode while FAT/FAT32 file systems use ANSI encoding for saving short filenames (also called DOS aliases). The code page information is required for correct conversion of non-English filenames from Unicode to ANSI and vice versa.

Incorrect settings will result in corruption of non-English filenames.

- **Request confirmation of settings before NTFS < - > FAT/FAT32 conversion**. Mark the option to automatically display the dialog of the locale settings confirmation every time the *Convert file system* operation is performed.

E-Mail Options



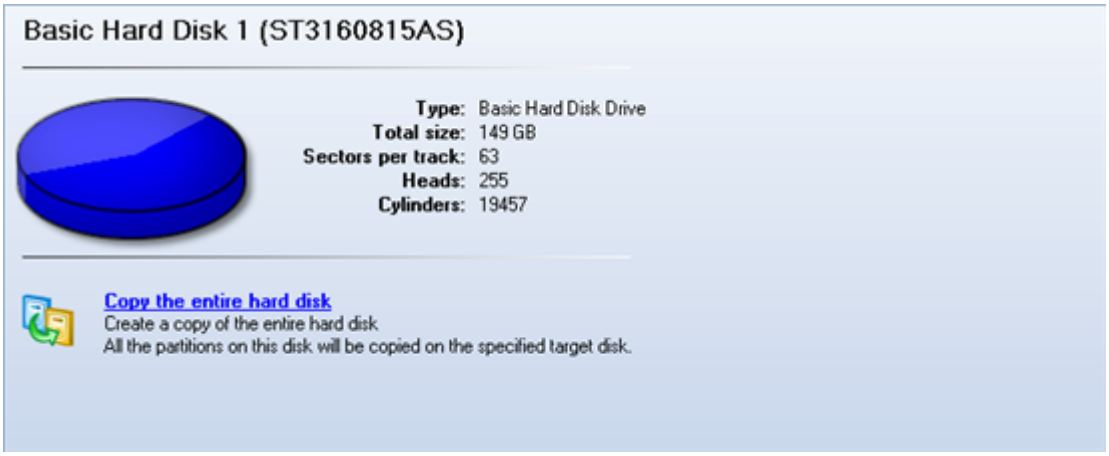
This section contains a set of options that will be taken into account during the *Send log files* and *Send e-mail notification* operations. The user can define:

- **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.

Getting Information about Disks

The user is able to view in-depth information on the properties of hard disks. The main tools to extract this information are the Disk Map and the List of Partitions. The two represent the actual state of the computer's hard disks.

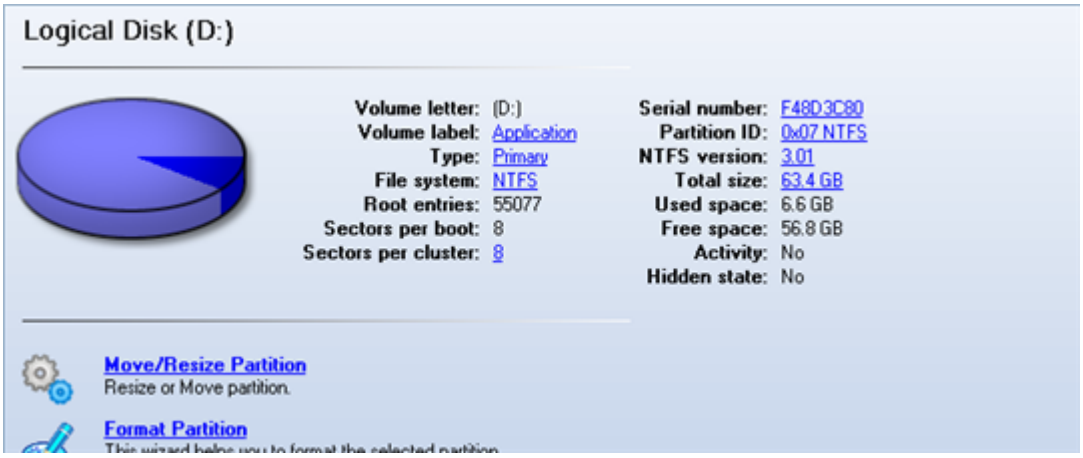
Generally the hard disks are represented on the map by rectangular bars, which also contain small-sized bars. The small-sized bars represent logical disks (partitions). When the user selects a large-sized bar, the Explorer bar displays information about the disk in a bright, graphical form.



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.



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.

Partition Management

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

Basic Partitioning Operations

Here you can learn how to accomplish basic partitioning operations (create, format, delete) supported by the program. To meet the requirements of any user these operations can be accomplished either with the help of easy-to-use wizards or through the corresponding dialogs.

Create Partition

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

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

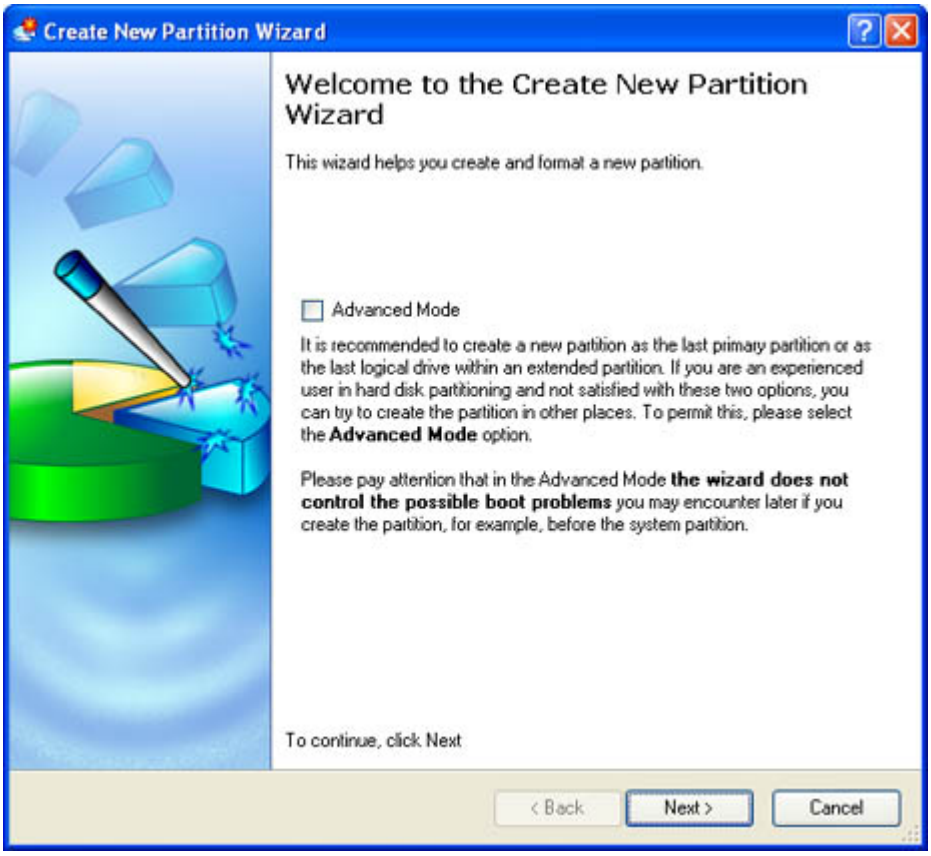
4. The program allows creating new partitions only within blocks of unpartitioned space. It cannot *convert* a free space on an existing partition to a new partition.

Starting Wizard

There are several ways to start the *Create Partition Wizard*:

- In the Main menu: select Wizards > Create Partition…
- On the Common Tasks bar: click the Create Partition item of the Wizards menu.
- In the Toolbar: click the Create Partition button.

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



Starting Dialog

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

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

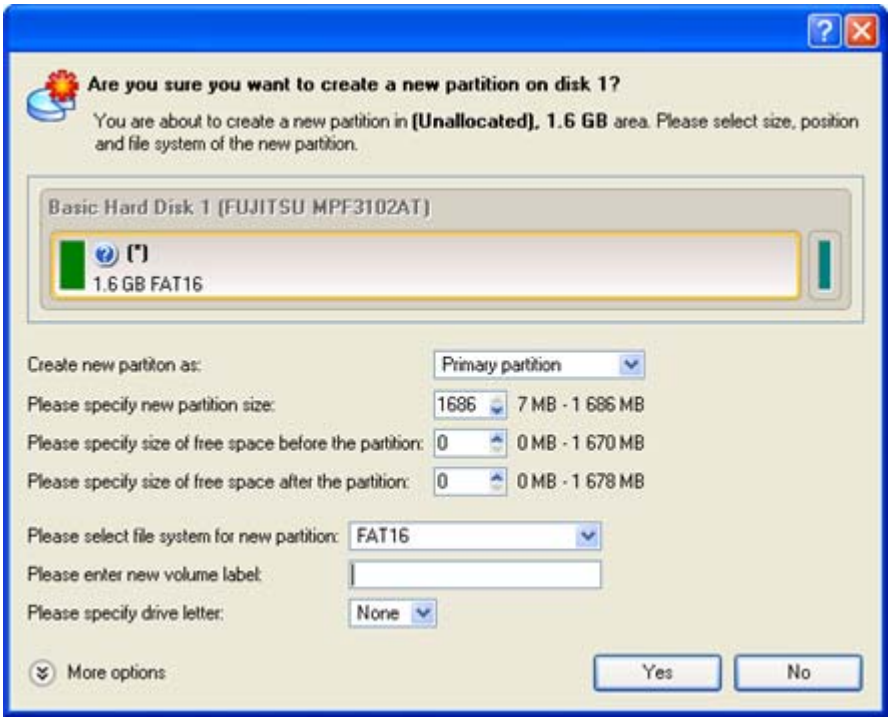
2. Call the *Create Partition* dialog to define appropriate settings:

   - Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Create Partition*.

Settings

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

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.

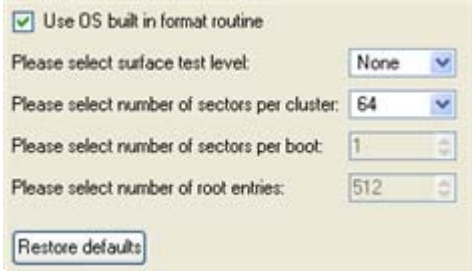


- **Define whether the partition will be Primary, Extended or Logical**. Select the desired type of the new partition from this pull-down list. As a matter of fact, the available alternatives fundamentally depend on the type of the selected block of free space - within the Logical free space, only Logical 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:



- **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.

Results

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

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:

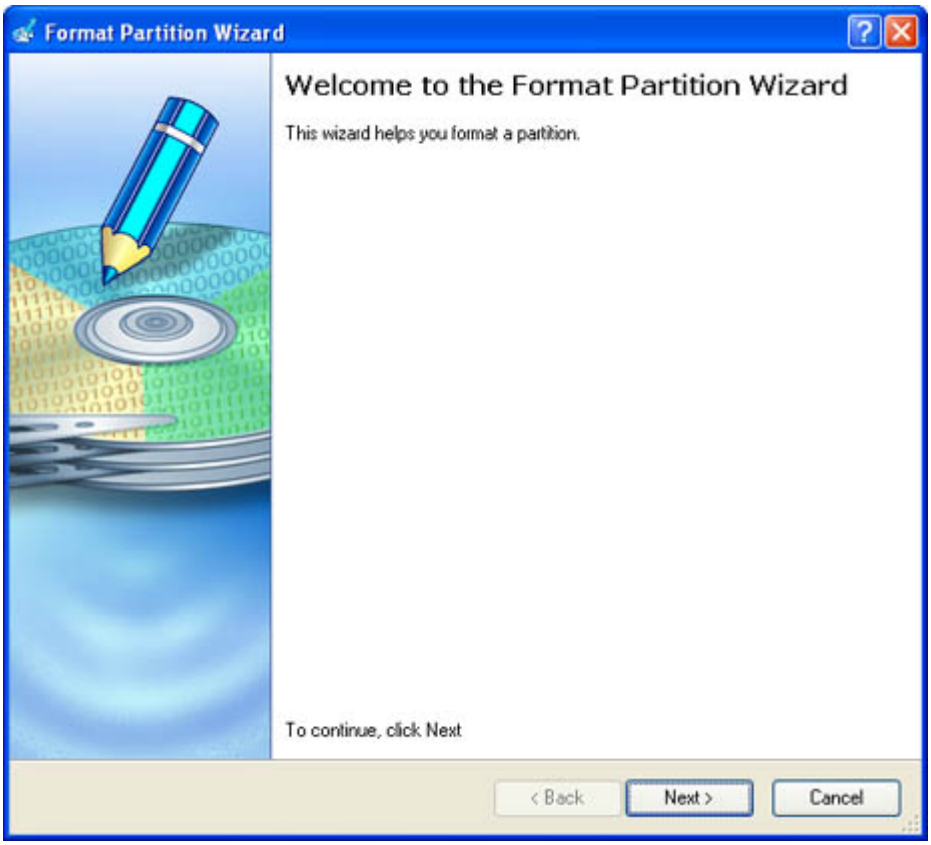
- FAT12 & FAT16
- FAT32
- NTFS
- Ext2
- Ext3
- ReiserFS
- Linux Swap v. 2
- HPFS

Starting Wizard

There are several ways to start the *Format Partition Wizard*:

- In the Main menu: select Wizards > Format Partition…
- On the Common Tasks bar: click the Format Partition item of the Wizards menu.
- In the Toolbar: click the Format Partition button.

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



Starting Dialog

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

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

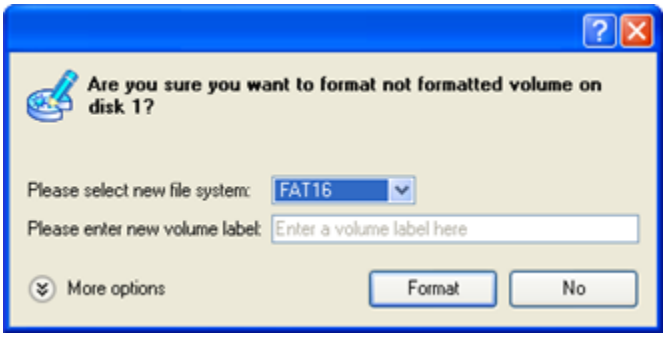
2. Call the *Format Partition* dialog to define appropriate settings:

- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Format Partition*.

Settings

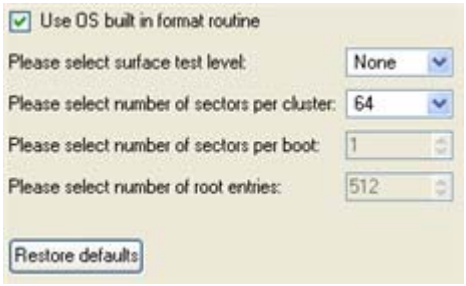
Despite different work algorithms, both the *Format Partition Wizard* and the *Format Partition* dialog provide the same level of functionality, thus let us just take as an example the dialog version of the operation.

Define parameters of the 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.

Results

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

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.

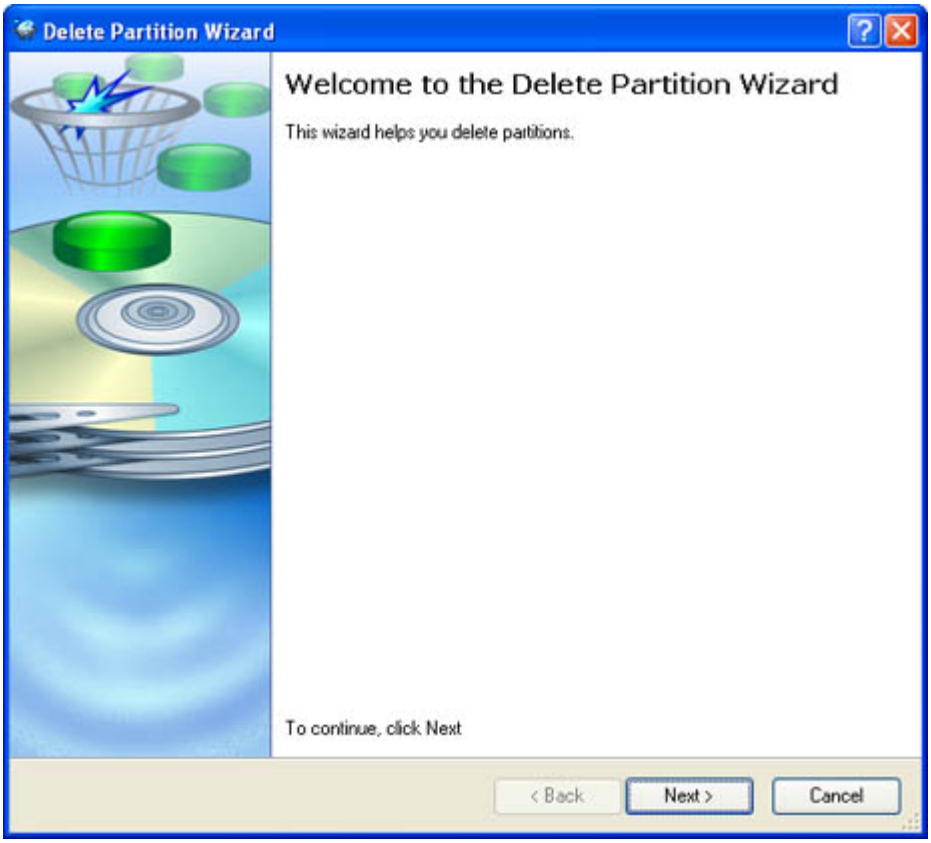
Contents of the deleted partition do not disappear from the disk but merely are unavailable for the operating system.

Starting Wizard

There are several ways to start the *Delete Partition Wizard*:

- In the Main menu: select Wizards > Delete Partition…
- On the Common Tasks bar: click the Delete Partition item of the Wizards menu.
- In the Toolbar: click the Delete Partition button.

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



Starting Dialog

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

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

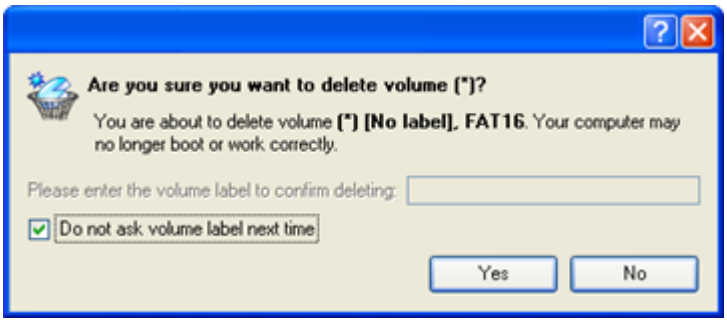
2. Call the *Delete Partition* dialog to define appropriate settings:

- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Delete Partition*.

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.

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.

Advanced Partitioning Operations

Here you can learn how to accomplish advanced partitioning operations (merge, redistribute free space, undelete, etc.) supported by the program.

Merge Partitions

The *Merge Partitions Wizard* enables to consolidate the disk space, which originally belongs to two adjacent partitions, into a single, larger partition. The order, in which two partitions have been chosen, is important since the contents of the second selected partition will be placed in the folder of the first selected partition.

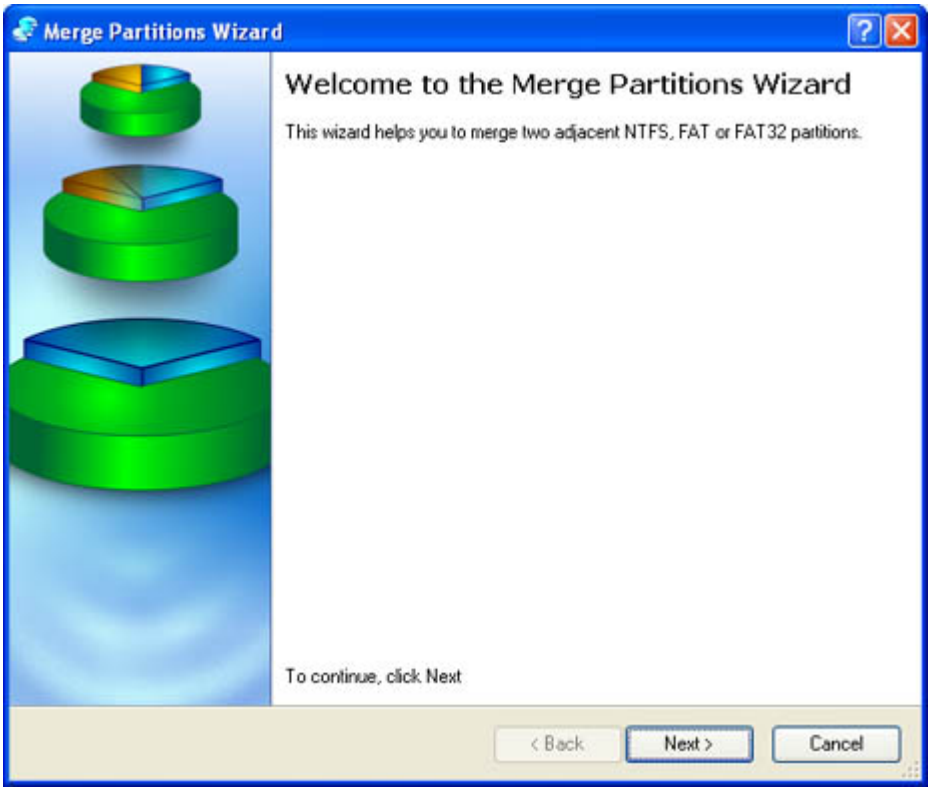
The program provides the ability to merge only NTFS, FAT16 or FAT32 partitions.

Starting

There are several ways to start the *Merge Partitions Wizard*:

- In the Main menu: select Wizards > Merge Partitions…
- On the Common Tasks bar: click the Merge Partitions item of the Wizards menu.

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



Settings

The Merge Partitions 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 partition to expand**. Select a partition that will be expanded to take contents of an adjacent partition.
- **The partition to merge with**. Choose the second partition for the merge operation, the contents of which will be placed in the folder of the first selected partition. By default the program automatically offers a folder name to store files of the second partition, which however can be customized by the user.

Be particularly careful when selecting system partitions to process, since the incorrect order, in which two partitions have been chosen, will result in inability to boot the operating system.

Results

After the operation is completed the disk space of the two adjacent partitions will be consolidated.

Redistributing Unused Space between Partitions

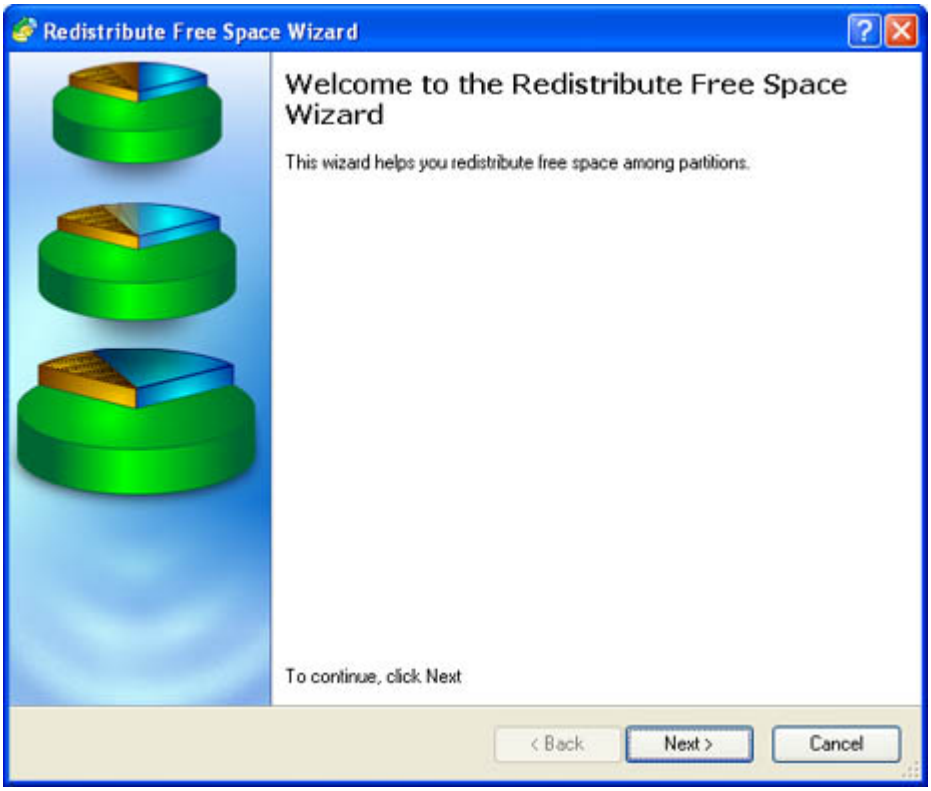
The *Redistribute Free Space Wizard* helps to increase free space on one partition at the expense of unused space on others. By default, the wizard adds to the target partition the 50% of unused space of other partitions, which have been selected to donate space. The user can manually control what part of unused space will be left on a partition. The wizard automatically recalculates the positions of the partitions and moves their contents to new locations.

Starting

There are several ways to start the *Redistribute Free Space Wizard*:

- In the Main menu: select Wizards > Redistribute Free Space…
- On the Common Tasks bar: click the Redistribute Free Space item of the Wizards menu.

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



Settings

The Redistribute Free Space 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 partition to enlarge**. Select a partition, the size of which will be increased at the expense of other partitions. Blocks of free space, if any will be automatically added to the target partition.
- **The partition to donate**. Choose any partition (not only adjacent) to donate free space if available. By default, the program leaves 50% of the unused space on a partition and removes another 50% to add it to the target partition, however the size to take can be customized by moving the slider at the bottom of the page.

Results

After the operation is completed free space of the specified partition will be increased at the expense of unused space of the others.

Undelete Partition

When deleting a partition, disk management software only removes references to it in the *Partition Table* so that a previously deleted partition can still be recovered (in case of valid restoration of the record in the *Partition Table*). The program provides the ability to find and recover these partitions. This function minimizes the hazard of occasional partitions deletion and is usually known as *undelete*.

A restored partition will be fully functional, as long as other partitions were not created, moved or exceeded the disk space occupied by the partition. That is why the program enables the *Undelete Partition* function only for blocks of free space.

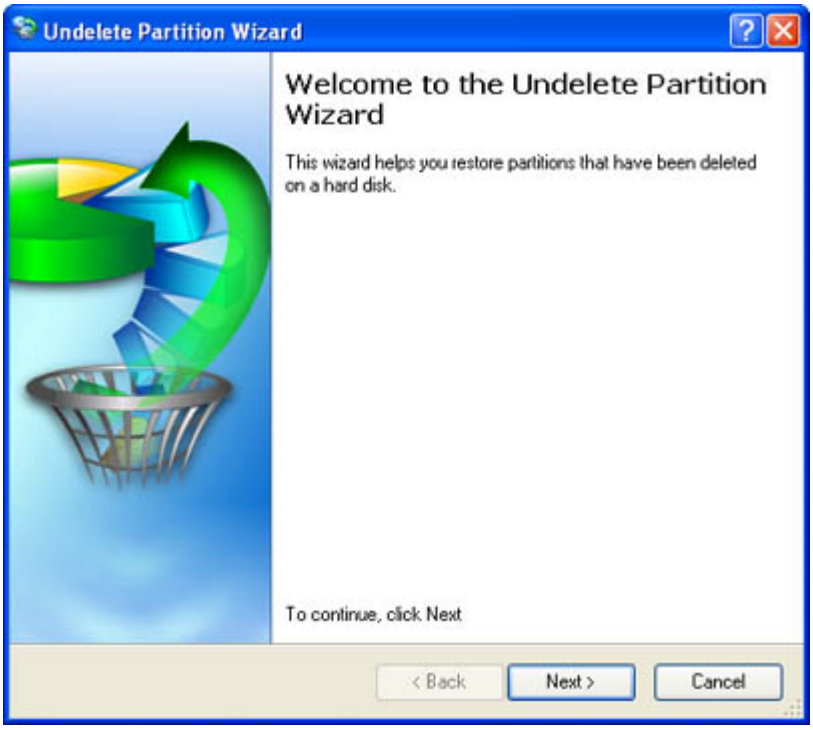
The operation can be accomplished with the *Undelete Partition Wizard*.

Starting

There are several ways to start the *Undelete Partition Wizard*:

- In the Main menu: select Wizards > Undelete Partitions…
- On the Common Tasks bar: click the Undelete Partition item of the Wizards menu.
- Select a disk on the Disk map and click the Recover Lost Partitions item on the page that appears in the Explorer bar.

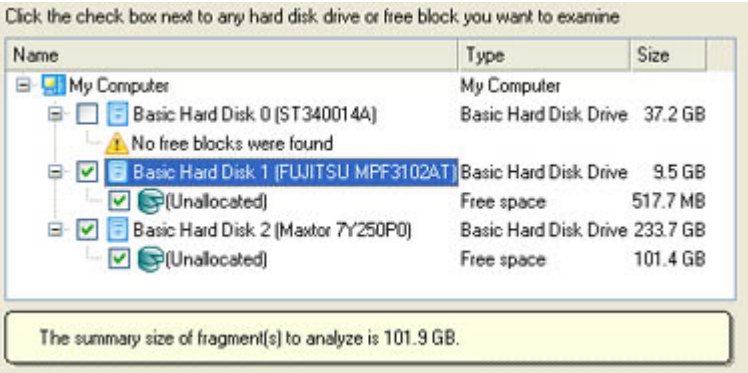
After following one of the above mentioned actions, the Welcome page of the wizard is displayed.



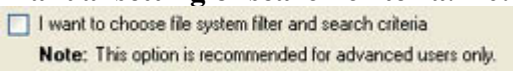
Settings

The Undelete Partition 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:

- **Free blocks to scan for lost partitions**. Choose a free block from a tree-like list of available disks and their partitions.

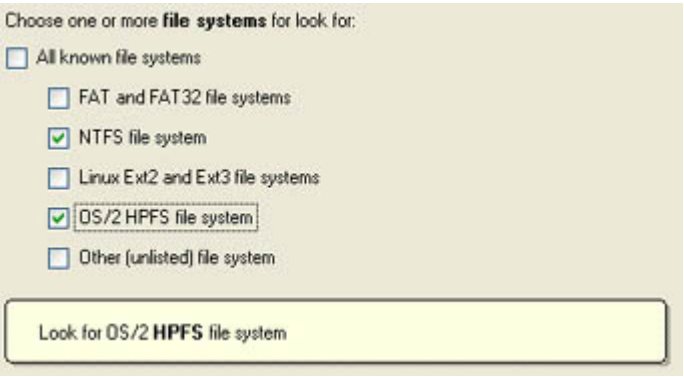


- **Manual setting of search criteria**. Activate the advance mode

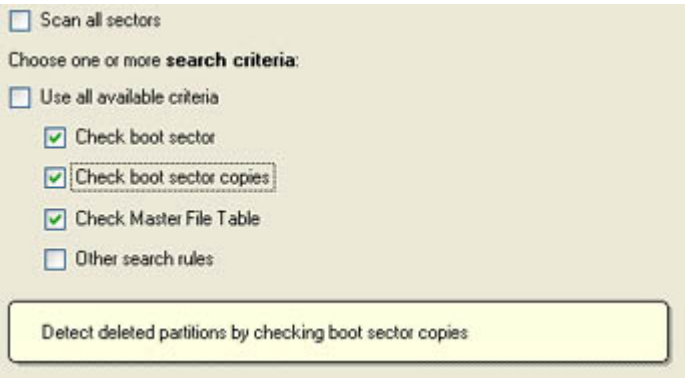


to manually specify:

- *A particular file system to look for*;



- *Required search criteria*.



To use the advance mode, a good knowledge of hard disk structure is required.

Results

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

Move & Resize Partition

The *Move & Resize Partition* function allows the user to modify the size and position of partitions on the hard disk keeping all on-disk information intact.

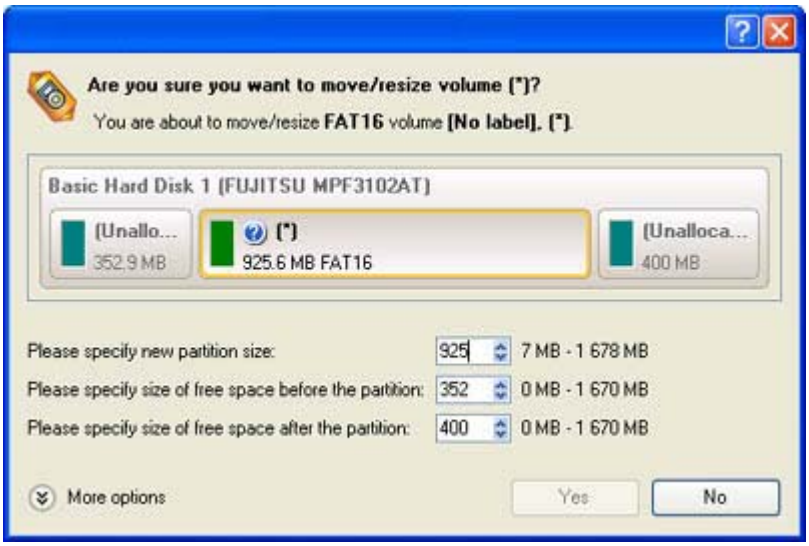
In order to move/resize a partition the user should take the following steps:

1. Select a partition on the Disk Map.

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

- Select in the Main menu: *Partition* > *Move/Resize Partition* …
- On the Explorer bar: click on the current *total size* value.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Move/Resize Partition*…

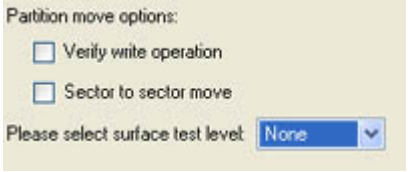
3. Define parameters of the operation with the *Move/Resize Partition* dialog.



- **Partition preview**. The disk map displays the resulting disk layout after the move/resize operation is completed.
- **Partition size**. Define the size (in Mb) of the modified partition.
- **Free space before**. Define the position (in Mb) of the partition relative to the beginning of the available range of disk space.
- **Free space after**. Define the amount of trailing free space (in Mb) at the end of the available range of disk space.

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.

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:



- **Verify write operation.** Define whether the Writing Verification test will be accomplished during the operation or not.
- **Sector to sector move.** Activate the sector-to-sector mode (allows to process any file system, even unknown one).
- **Surface test level.** Select from the pull-down list the level of the surface test.

When resizing a FAT16 partition beyond the 2GB limit (maximum file system size), the partition will be automatically converted to FAT32.

The program enables to enlarge NTFS partitions (system, locked) without rebooting Windows and interrupting its work providing 100 percent guarantee that your data is kept intact.

4. The operation will be performed immediately after confirmation.

Convert File System

The program provides the ability to change the file system type without destroying data. While performing the operation, the program first checks for consistency the current file system and then verifies whether the on-partition data meet the requirements of the desired file system or not. After having passed the testing, the program re-organizes the file system metadata and user files.

The program enables to convert the following file system types:

- FAT16 > NTFS, FAT32
- FAT32 > NTFS, FAT16
- NTFS > FAT16, FAT32
- Ext2 > Ext3

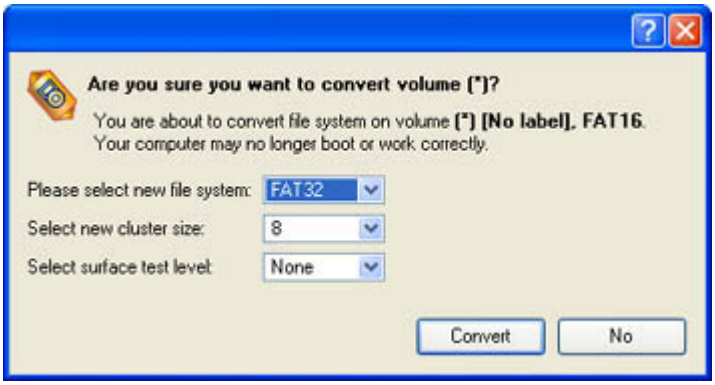
In order to convert file system of a partition the user should take the following steps:

1. Select a partition on the Disk Map.

2. Call the *Convert file system of partition* dialog to define appropriate settings:

- Select in the Main menu: *Partition* > *Convert file system*…
- On the Explorer bar: click on the current *file system type*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Convert File System*…

3. Define parameters of the operation with the *Convert file system of partition* dialog. Initially the program suggests some consistent values for all parameters. In most cases, the user may just press the *Convert* button to confirm the operation.



- **Current file system**. The dialog allows the user to get information on the selected partition.
- **New file system**. The pull-down list contains file systems to convert to. The program only displays available variants, taking into account current parameters of the selected partition and the file system limitations.
- **Convert options**.
  - *New cluster size*. Define the *Cluster Size* for the partition to convert.

The option is only available for FAT16>NTFS and FAT32>NTFS conversion.

The user can only decrease the current cluster size.

- *Surface test level*. Select from the pull-down list the surface test level.

4. The operation will be performed immediately after confirmation.

Change Cluster Size

Cluster Size is one of the important parameters of any file system. The Cluster Size value affects implicitly the performance of the files input-output activity since it defines the size of the file system metadata. Besides, the so-called *waste space factor* also depends on the Cluster Size value.

The program provides the ability to change the *Cluster Size* to any available value without destroying data.

In order to change the cluster size of a partition the user should take the following steps:

1. Select a partition on the Disk Map.

2. Call the *Change Cluster Size* dialog to define appropriate settings:

- Select in the Main menu: *Partition* > *Modify* > *Change Cluster Size*…
- On the Explorer bar: click on the current *sectors per cluster* value.

3. Define a new value with the *Change Cluster Size* dialog.

Sectors per cluster. Select a new cluster size value from the pull-down list.

The Cluster Size value is expressed in Sectors Per Cluster. To get the Cluster Size in Kbytes, divide it into half.

4. The operation will be performed immediately after confirmation.

Make Logical/Make Primary

The program provides the ability to include a Primary Partition in the Extended Partition, or exclude a Logical Partition from the Extended Partition, without partition duplication.

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

1. Select a primary or logical partition on the Disk Map.

2. There are several ways to *Make Partition Logical/Primary*:

- Select in the Main menu: *Partition* > *Modify* > *Make Partition Logical/Primary*.
- On the Explorer bar: click on the current *partition type*.

The *Make Primary > Logical* option is only available when the selected partition is adjacent to the Extended partition and vice versa.

The *Make Primary > Logical* option of the system partition will result in inability to boot the operating system.

3. The operation will be performed immediately after confirmation.

Changing Partition Attributes

This chapter explains how the user can change partition attributes (*Active* flag, *Hidden* flag, *Partition ID*, *Volume Label, etc.*).

Mark Partition Active/Inactive

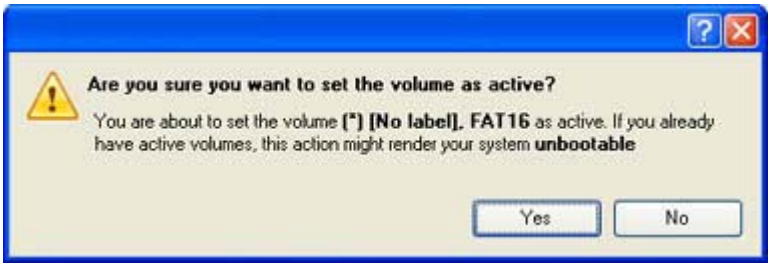
The program enables to set *Active/Inactive* flag for primary partitions of the hard disk. By default the operating system will boot from the active (bootable) partition at startup.

In order to mark partition Active/Inactive the user should take the following steps:

1. Select a primary partition on the Disk Map.

2. There are several ways to *Mark Partition Active/Inactive*:

- Select in the Main menu: *Partition* > *Mark Partition Active/Inactive*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Mark Partition Active/Inactive*.



There can only be one active partition on a hard disk, otherwise the operating system will fail to boot.

3. The operation will be performed immediately after confirmation.

Hide/Unhide Partition

The program allows the user to *Hide/Unhide* primary and logical partitions. The operating system does not mount *hidden* partitions, thus preventing access to their contents.

In order to *Hide/Unhide* a partition the user should take the following steps:

1. Select a partition on the Disk Map.
2. There are several ways to *Hide/Unhide* partitions:

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

It is strongly recommended not to hide the system partition, otherwise the operating system will fail to boot.

3. The operation will be performed immediately after confirmation.

Set Label of a Partition

The Partition Label is a small textual field (up to 11 characters) that is located in the *partition's boot sector*. This value is detectable by any partitioning tool; it is used for notification purposes only.

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

1. Select a partition on the Disk Map.

2. Call the *Change Volume Label* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Modify* > *Change Volume Label*.
- On the Explorer bar: click on the current *volume label*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Change Volume Label*.

3. Define the label of the partition with the *Change Volume Label* dialog:

New volume label. Enter the new value of the Partition Label. The length of the Label is limited to 11 characters.

The dialog also displays the current partition label.

4. The operation will be performed immediately after confirmation.

Change Partition ID

Partition ID is an identifier of a file system that is placed in the partition. Partition ID is saved in the *Partition Table*; it is used to quickly detect partitions of supported types. By manually changing the Partition ID value, it is possible to manipulate the accessibility of partitions.

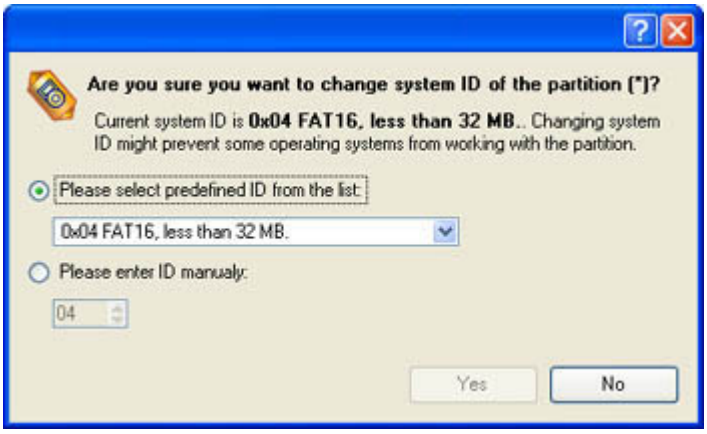
In order to change a *Partition ID* the user should take the following steps:

1. Select a partition on the Disk Map.

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

- Select in the Main menu: *Partition* > *Modify* > *Change Partition ID…*
- On the Explorer bar: click on the current *partition ID*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Change Partition ID…*

3. Define the ID of the partition with the *Change Partition ID* dialog:



- **Predefined ID**. Select from the pull-down list ID values for various file systems.
- **Enter ID manually**. The textual field contains a hexadecimal presentation of the Partition ID. Generally, the Partition ID should be presented as 1-2 digits hexadecimal number; only hexadecimal digits {0..9, A..F} are allowed to be used.

4. The operation will be performed immediately after confirmation.

Change Serial Number of a Partition

FAT16, FAT32, HPFS and NTFS file systems include the *Serial Number* parameter. The partition's Serial Number is saved in the *boot sector*; its value is generated while formatting a partition.

The program enables to modify the partition's Serial Number on formatted FAT16, FAT32, HPFS and NTFS partitions without re-formatting.

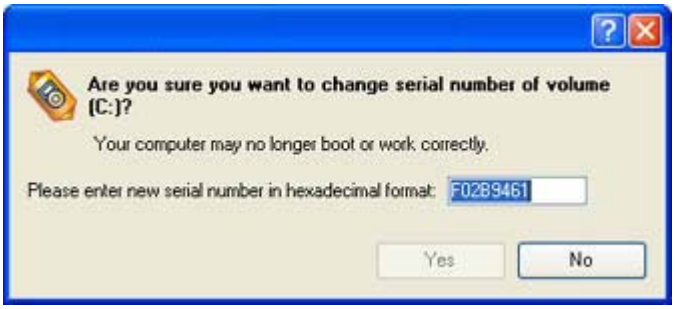
In order to start the operation the user should take the following steps:

1. Select a partition on the Disk Map.

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

- Select in the Main menu: *Partition* > *Modify* > *Change Serial Number*.
- On the Explorer bar: click on the current *serial number*.

3. Define the parameter value with the *Change Partition Serial Number* dialog.



New serial number. The user can enter the new *Serial Number* value in this textual field. The Serial Number should contain 8 hexadecimal figures (0..9 or A..F). The operation cannot be accomplished until the user enters all 8 symbols.

4. The operation will be performed immediately after confirmation.

Change Boot Size

Major file systems use initial sectors of a partition to store the bootable code of an operating system. This area of a partition is generally known as the *Bootable Area*, or the *Boot Sector* (actually it takes up several sectors).

The program provides the ability to modify the *Bootable Area* size of the FAT formatted partitions without destroying data.

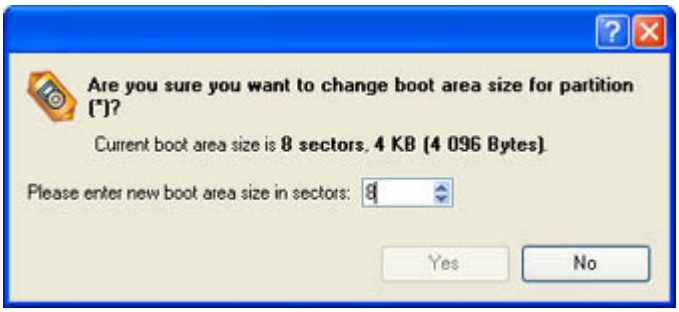
In order to start the operation the user should take the following steps:

1. Select a FAT partition on the Disk Map.

2. Call the *Change Boot Size* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Modify* > *Change Boot Size*…
- On the Explorer bar: click on the current *sectors per boot* value.

3. Define parameters of the operation with the *Change Boot Size* dialog.



Sectors per boot. Specify a new Boot Size value.

4. The operation will be performed immediately after confirmation.

Change Root Size

The maximum capacity of the *Root Directory* is an essential parameter of old FAT12 and FAT16 file systems.

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

1. Select a FAT partition on the Disk Map.

2. Call the *Change Root Size* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Modify* > *Change Root Size*…
- On the Explorer bar: click on the current *root entries* value.

3. Define parameters of the operation with the *Change Root Size* dialog.

Root entries. Specify a new Root Directory Size value.

4. The operation will be performed immediately after confirmation.

Hard Disk Management

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

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.

Change Primary Slot

Operating systems use the following partitions enumeration:

In Linux:
In Linux, every partition has a special symbolic name that encodes a hard disk containing a partition, and a partition itself. Partitions are addressed and accessed by using their symbolic names. Symbolic names are automatically generated by Linux in accordance with the order of hard disks in BIOS and the order of partition records in the *Partition Table*. The modification of primary partitions enumeration can lead to the changing of paths to some important resources.

In DOS:
The last versions of MS-DOS use a rather sophisticated algorithm for drive letters assignment. A drive letter, which is assigned to a partition, depends on the order of records in the *Partition Table*. The modification of primary partitions enumeration affects the drive letters assignment. In early versions of MS-DOS, it can even lead to the unavailability of a partition. In any case, the user may want to change the enumeration of primary partitions.

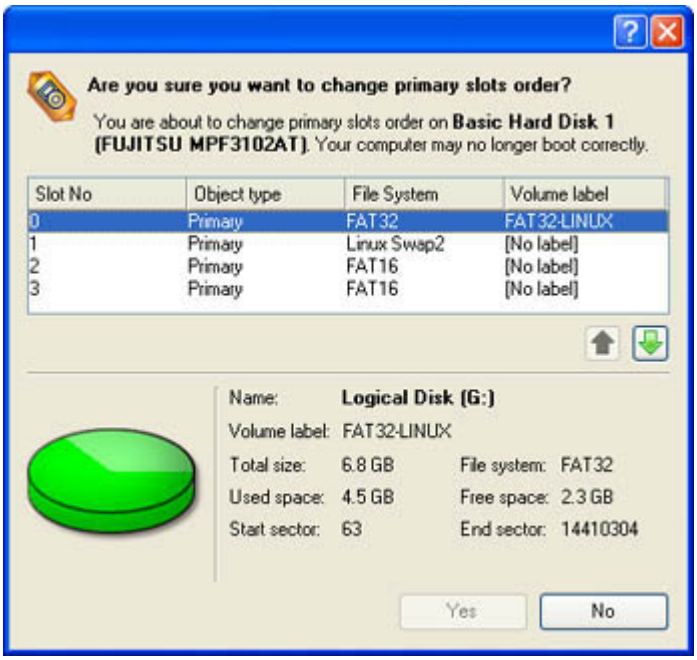
The program provides the ability to change the enumeration of primary partitions. This feature allows the user to fix problems concerning the inappropriate order of partitions.

In order to modify the enumeration of partitions the user should take the following steps:

1. Select a hard disk on the Disk Map.

2. Call the *Change Primary Slot* dialog to define appropriate settings. There are several ways to do it:

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



3. The dialog displays the actual enumeration of Primary Partitions in the *Partition Table* (it exhibits the order of appropriate records, which refer to primary partitions in the primary part of the *Partition Table* referencing records. The top part of the dialog displays the enumeration order of partitions with the parameters that can help to distinguish partitions:
- Slot
- Volume
- Partition type
- File system
- Partition size
- Volume label

There are two buttons on the right of the list of primary partitions, which allow the user to move the selected partition up and down within the primary part of the *Partition Table*.

4. The operation will be performed immediately after confirmation.

Copy Tasks

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

Copy Hard Disk

The program provides the ability to clone hard disks of any file system. During the hard disk copying process, the program moves controlling records of used *partitioning scheme*, the *bootstrap code* and on-disk partitions. This operation cannot be substituted by simply copying all on-disk partitions.

The operation can be accomplished with the *Copy Hard Disk Wizard*. The wizard is so well designed that the user simply needs to follow its easy instructions to make an exact copy of the disk.

Starting

There are several ways to start the *Copy Hard Disk Wizard*:

- In the Main menu: select Wizards > Copy Hard Disk…
- On the Common Tasks bar: click the Copy Hard Disk item of the Wizards menu.
- In the Toolbar: click the Copy Hard Disk button.
- Select a disk on the Disk map and click the Copy Hard Disk item 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.

Settings

The Copy Hard Disk 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 to copy**. Select a hard disk you want to copy
- **Copy parameters**. The Copy Hard Disk Wizard allows the user to specify the following options:

- **Copy options**. This section enables to switch between two options:
HDD raw copy (allows to copy a hard disk in the sector-by-sector mode to successfully process unknown file systems).
Partition raw copy (allows to copy a partition in the sector-by-sector mode to successfully process unknown file systems).
Perform incremental copy (once the complete copy of a hard disk is created, it can be used as a base for the incremental copy. Mark the option to make the program perform the exact bit-wise comparison of the previous data (saved in the parental copy) with the current data (that is actually the hard disk itself). After that only most recent information will be processed. It considerably decreases the amount of data written).
- **Resize options**. This section enables to switch between two options:
Remove free blocks between partitions. If this option is activated, the program does not keep blocks of free space between partitions on the targeted hard disk.
Copy data and resize partitions proportionally. If this option is activated, the program proportionally changes the size of partitions keeping their relative order intact. The option can be useful when upgrading the hard disk to a larger one.
- **Verification options**. This section allows the user to define whether the Surface test and/or the Writing Verification test will be accomplished during the operation.

Results

Depending on the user's choice the Copy Hard Disk Wizard:

- starts the operation
- reconsiders it

After the operation is completed the user receives a fully functional duplicate of the existing hard disk.

Copy Partition

The copying of partitions can be used either for cloning *sample* partitions or for making backup copies of working partitions.

The user can duplicate partitions to protect oneself from downtime in case of a system malfunction. The partition can be copied back to the original place within a few minutes or can be used simply for copying separate files.

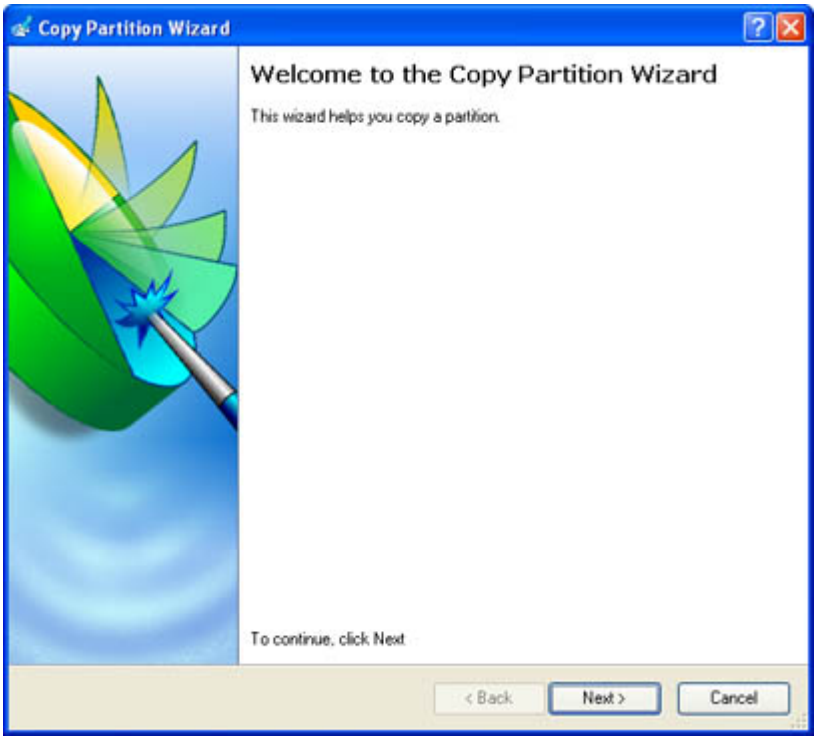
The program duplicates all usable partition data including files, the exact structure of directories and file system *metadata*: location of files, security information, access quotas and so on. The program allows to copy partitions only to blocks of free space.

Starting

There are several ways to start the *Copy Partition Wizard*:

- In the Main menu: select Wizards > Copy Partition…
- On the Common Tasks bar: click the Copy Partition item of the Wizards menu.
- In the Toolbar: click the Copy Partition button.
- Select a disk on the Disk map and click the Copy Partition item 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.

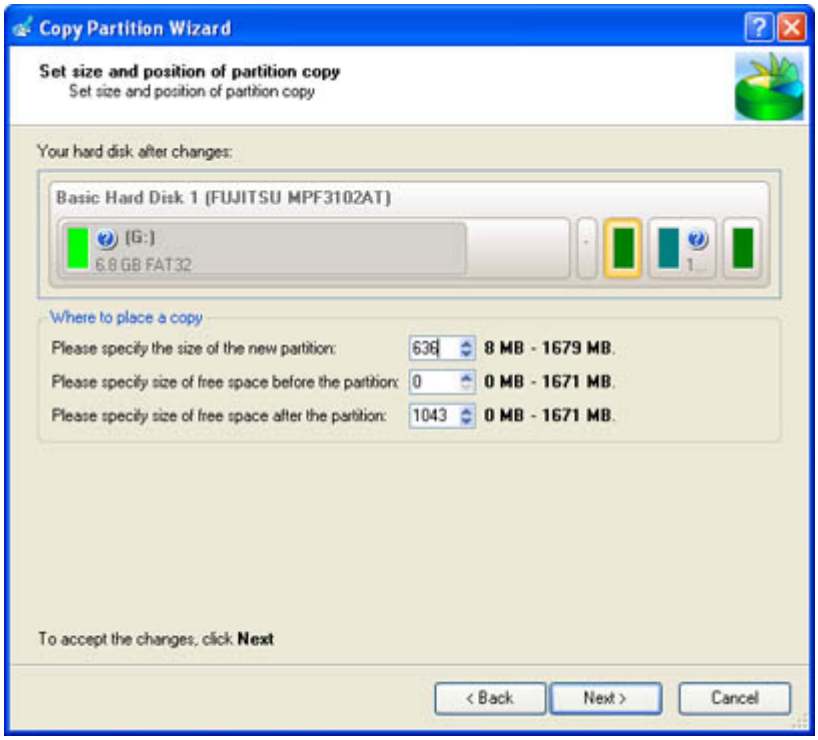


Settings

The Copy Partition 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 partition to copy**. Select a partition you want to copy
- **Destination disk**. Select a hard disk with free space enough for performing the copy partition operation
- **Copy parameters**. The Copy Partition Wizard allows the user to specify the following options:

  - **Copy the partition with resize**. This option gives the possibility to copy the partition to a block of free space, which is smaller than the partition itself.
  - **Partition size**. Define the size (in Mb) of the copied partition.
  - **Free space before**. Define the position (in Mb) of the copied partition relative to the beginning of the available range of disk space.
  - **Free space after**. Define the amount of trailing free space (in Mb) at the end of the available range of disk space.



Results

Depending on the user's choice the Copy Partition Wizard:

- starts the operation
- reconsiders it

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

Boot Management

Our program enables to easily manage several operating systems on one computer with the help of the Boot Manager Setup Wizard. Among the key features of the wizard the following should be mentioned:

- Up to 16 operating systems on one PC;
- Secure adding/removing of the BootManager startup record to/from the MBR;
- *Auto Boot* option to automatically start up the previously chosen OS after a cerain time period;
- Hiding of any primary partition except seleted at the moment.

The wizard is so well designed that the user simply needs to follow its easy instructions to properly configure the startup process.

Starting

There are several ways to start the *Boot Manager Setup Wizard*:

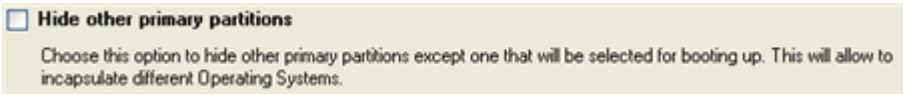
- In the Main menu: select Tools > Boot Manager…
- On the Common Tasks bar: click the Boot Manager Wizard item of the Wizards menu.

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

Settings

The *Boot Manager Setup Wizard* allows the user to configure the settings and then start the operation in accordance with the entered parameters. Here the user should set the following parameters:

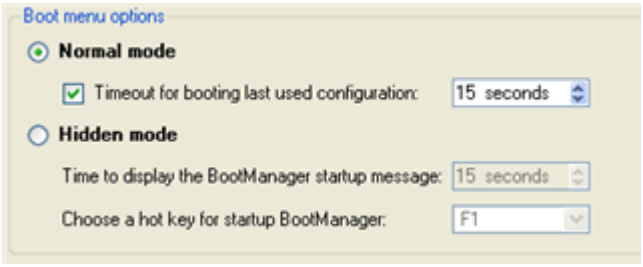
- **Hiding other primary partitions**. By marking this option the program will automatically assign the hidden flag to all primary partitions of the hard disk(s) except the one selected to boot. This will help to avoid any problems when dealing with different operating systems or different versions of one and the same OS, as they will be unaware of each other.



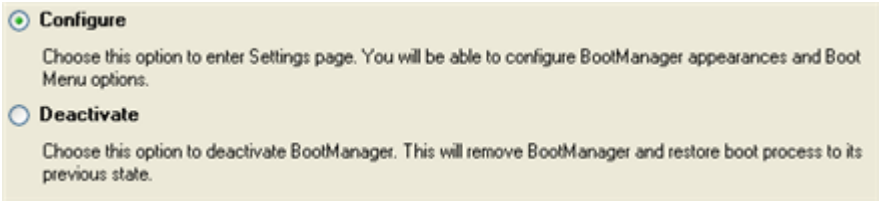
- **Boot menu options**. In this section the user can switch between the following modes:

  - *Normal mode*. Choose this mode to display the boot menu every time the computer starts up and define a timeout on the expiry of which the program will automatically select the previously chosen item of the menu.

  - *Hidden mode*. Choose this mode not to display the boot menu until pressing a hot key. For this mode the user should define a *hot key* used to enable the Boot Manager and a *time period* in seconds the startup message will be displayed.



- **Deactivating/Configuring the Boot Manager**. These two options will only be available once the wizard has been completed and launched again. Select the **Deactivate** option to remove the Boot Manager from the MBR (Master Boot Record) or **Configure** to modify the previously set parameters of the startup process.



Results

After the Boot Manager Setup Wizard is completed the program updates the original record in the MBR to get control of the booting process and to be able to display the boot menu.

The operation will be performed immediately after confirmation. No virtual mode is available.

Creating Dual Boot Systems

Release of Windows Vista has given a new impetus to the problem of establishing a dual boot system. In this connection we decided to consider two the most frequently used situations a rank and file user may face, i.e. Windows Vista + Windows XP and Windows XP + Windows Vista. Please note that for reasons of better security and system independence these operating systems will be installed on different partitions. That is why we need to hide the first system partition before installation of the second OS.

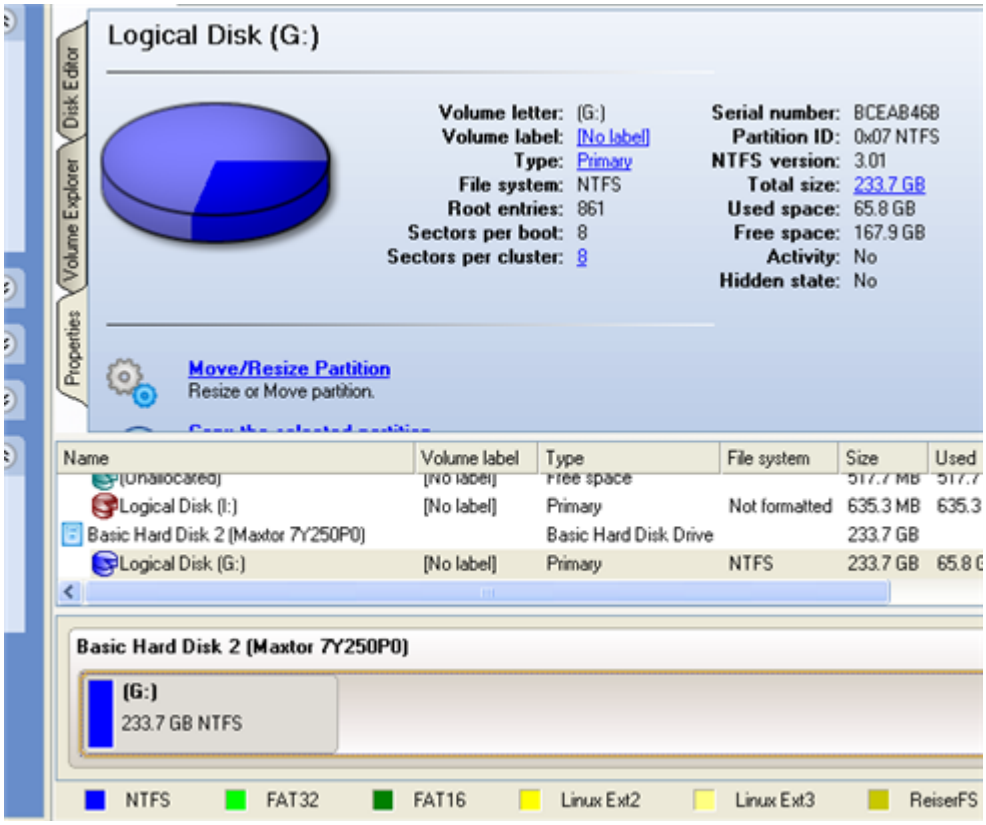
Windows Vista + Windows XP

Suppose you have got Windows Vista coming with your brand new computer. Everything is great except one thing – your favourite applications simply reject to work correctly on it. Software updates are expected to release in the near future, but you cannot wait any more. Thus the best way out is to leave Windows Vista intact and install the time-proved Windows XP.

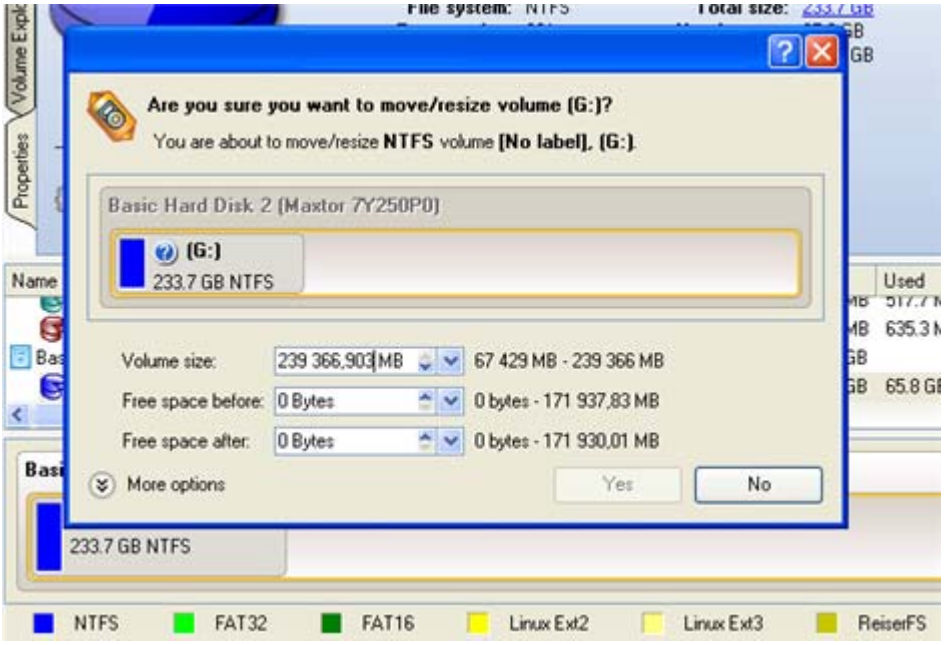
Most likely you have only one hard disk with only one partition (the only partition is always system). To install the second operating system you need to repartition your drive first, as it requires a separate primary partition. If this the case, the following scenario is just what you need:

This scenario implies that operating systems will be installed on different partitions to provide better security and system independence.

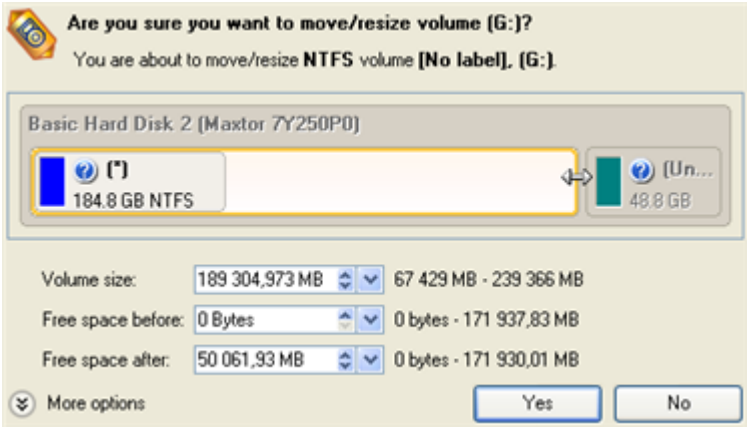
1. In the main window of Partition Manager **select your hard disk on the Disk Map** to make a block of free space on it;



2. **Release some free space (not less than 10 GB to install Windows XP) from the partition**. To do that, please call the context menu for the selected partition (right click of the mouse button) and launch the Move/Resize dialog;



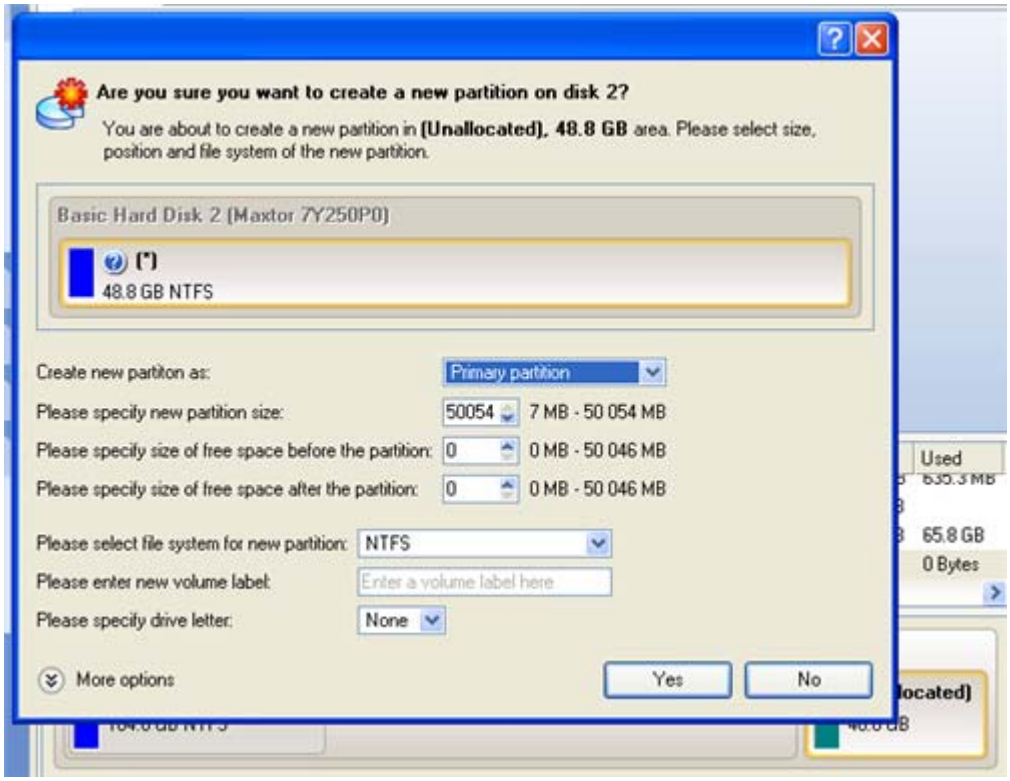
3. In the opened dialog **shift the edge of the partition to the left** by the *drag-and-drop* technique. While doing this, free space from the partition will be released (displayed in aqua-green). You can also do it manually by entering the exact size of free space. Click the *Yes* button to continue;



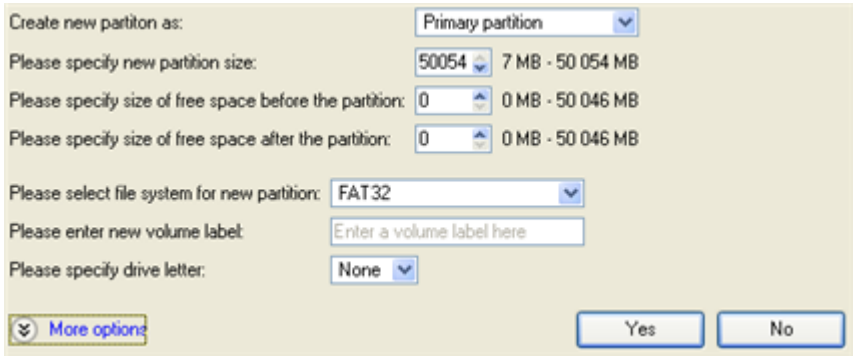
The Move/Resize dialog offers a number of additional parameters that can also be of help. However here we pay attention on the most relevant to fulfill our task.

4. Now the user has a block of free space sufficient in size to hold a new partition;

5. **Create a new partition to install Windows XP**. To do that, please call the context menu for a newly created block of free space (right click of the mouse button) and launch the Create Partition dialog;



6. **Define parameters of the future partiton**. By all means it has to be primary and since we are going to install Windows XP, the most preferable file systems are NTFS and FAT32. Click the *Yes* button to continue;



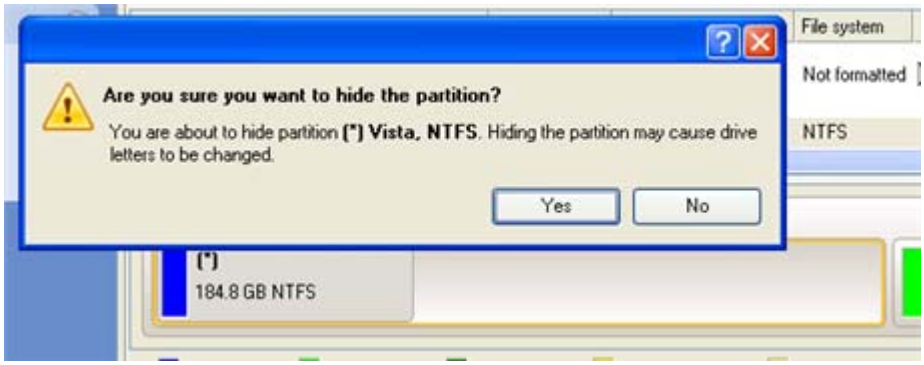
The Create Partiton dialog offers a number of additional parameters that can also be of help. However here we pay attention on the most relevant to fulfill our task.

7. As a resul of the operation we have got a newly created FAT32 partition just enough in size to comfortably work with Windows XP;

8. **Hide the Windows Vista partition** to avoid writing any data on it during the Windows XP installation, as it is the best way to provide system independence. To do that, please call the context

menu for it (right click of the mouse button) and launch the Hide Partition dialog. Click the *Yes* button to continue;

Hiding of the system partition will make OS non-bootable, what is quite normal.



9. **Apply all introduced changes**. By default, Partition Manager works in the virtual mode of execution, so you have to confirm all operations to let the program accomplish them. To do that, just click the *Apply* button on the Virtual Operations Bar;

To perform the pending operations the program will need to restart the system into a special mode of execution.

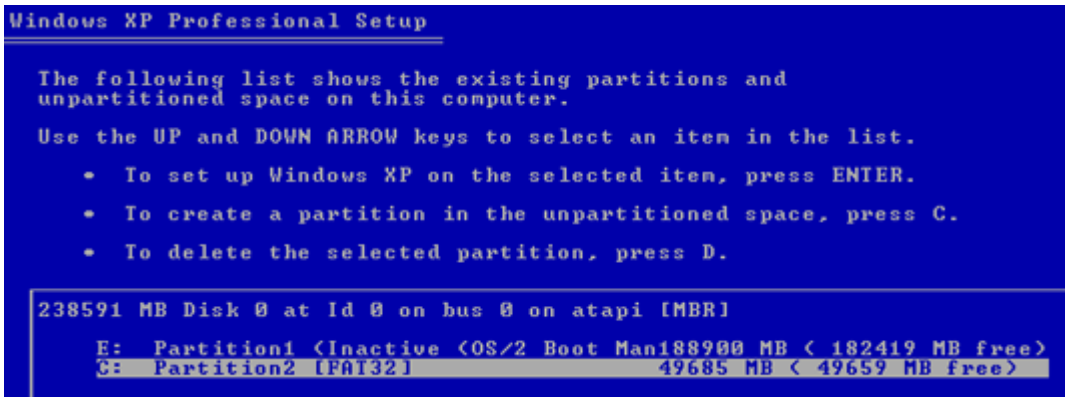
After all the operations are completed you will not be able to restart the system, what is quite normal. Nevertheless if you do try it, the following error will occur:

```
STOP: c000021a {Fatal System Error}
The initial session process or system process terminated unexpectedly with a sta
tus of 0x00000000 (0xc0000034 0x0010037c).
The system has been shut down.
```

All the mentioned above operations can be accomplished with the help of the Linux/DOS Recovery CD.

10. **Install Windows XP on the newly created partition**. We won't go into details as for its installation, as you can find all the necessary information in documentation that comes with the product. However to avoid any problems, we consider it necessary to draw your attention on the following issues:
- You need a bootable distributive CD of Windows XP to install it;
- To automatically start your computer from this CD, make sure the on-board BIOS is set up to *boot from CD first* or press *F12* during startup to select a bootable device;

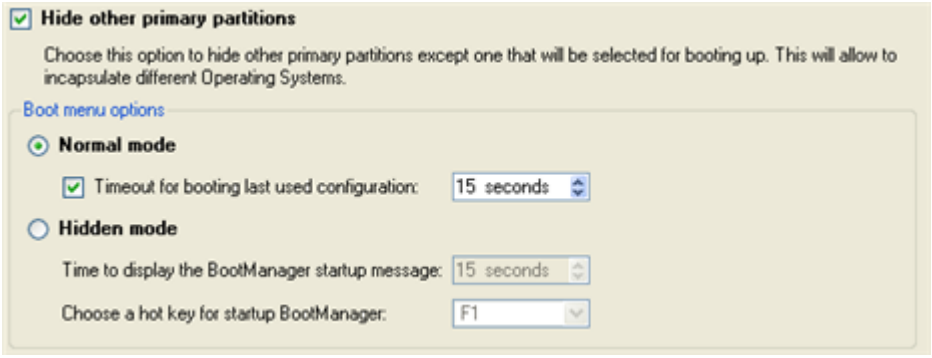
- Do not forget to select the newly created partition as destination.



Installation of Windows XP will make Windows Vista non-bootable.

11. **Launch the Boot Manager Setup wizard**. As your Windows Vista is non-bootable any more, you need to install Partition Manager 2009 once again, but this time in Windows XP to activate Boot Manager.
12. To launch the Boot Manager Setup wizard, please click the **Boot Manager Wizard** item of the Wizards menu;

13. **Set up the Boot Manager wizard**. The most relevant option here is the possibility to hide other primary partitions except the one selected to boot and it is by all means should be activated to make Windows Vista and Windows XP unaware of each other. The rest of the parameters offered by default will do in our case, so just complete the wizard and it will automatically find the two operating systems and update the MBR.



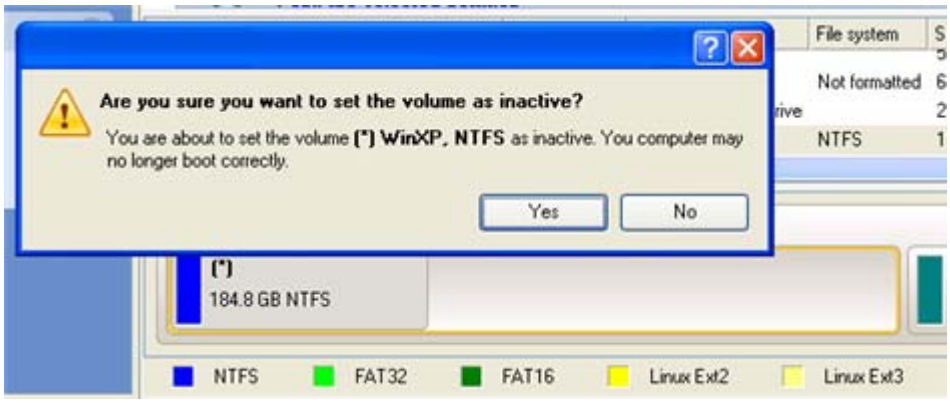
14. **Now restart the computer to make sure you have got a dual boot system**.

Windows XP + Windows Vista

If you've got Windows XP and are willing to try the latest Windows Vista but not sure your favorite applications will flawlessly work on it, the best way out is to leave the time-proved Windows XP intact and install Windows Vista for studying purposes.

As this very situation is very close to the previous one, please use the Windows Vista + Windows XP scenario but taking into consideration a number of peculiarities:

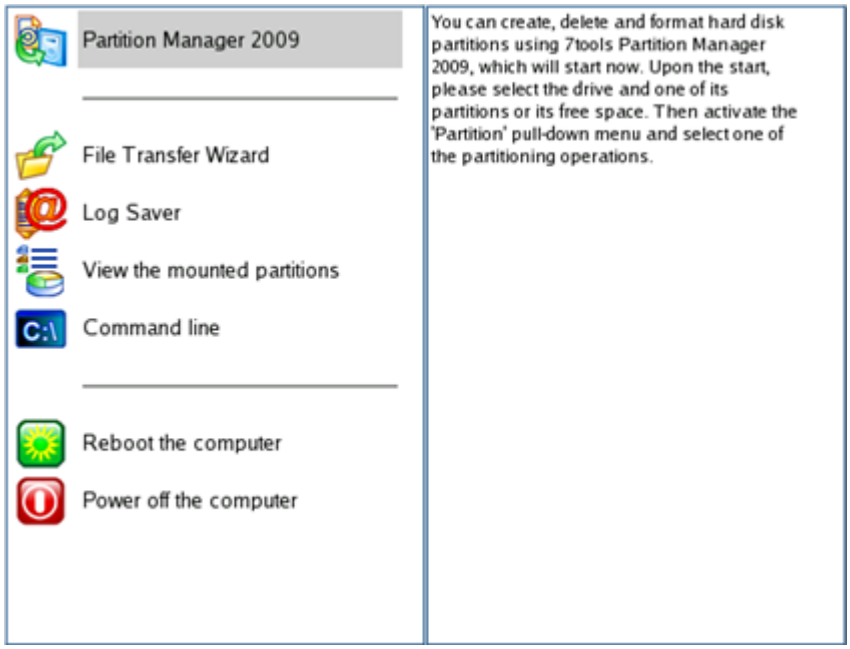
1. Besides hiding of the system partition before installation of the second OS **you need to make it inactive** as well. To do that, please call the context menu for it (right click of the mouse button) and launch the corresponding dialog. Click the *Yes* button to continue;



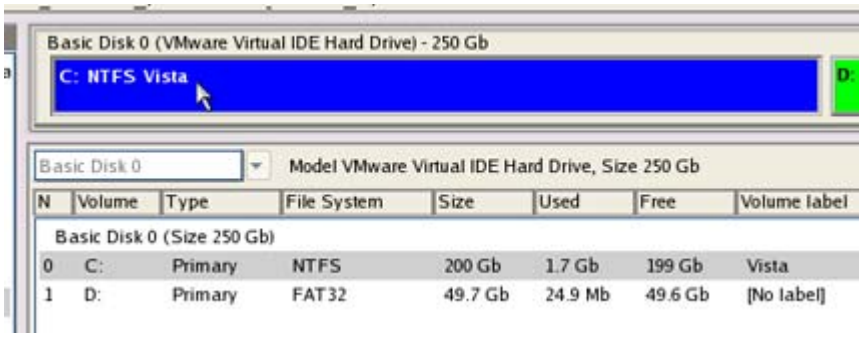
Reviving the System Partition

In case you are not able or not willing to complete the mentioned above scenarios, but have already reached the point when all changes are apllied and everything is ready to install the second OS, simply do the following to make your system bootable once again:

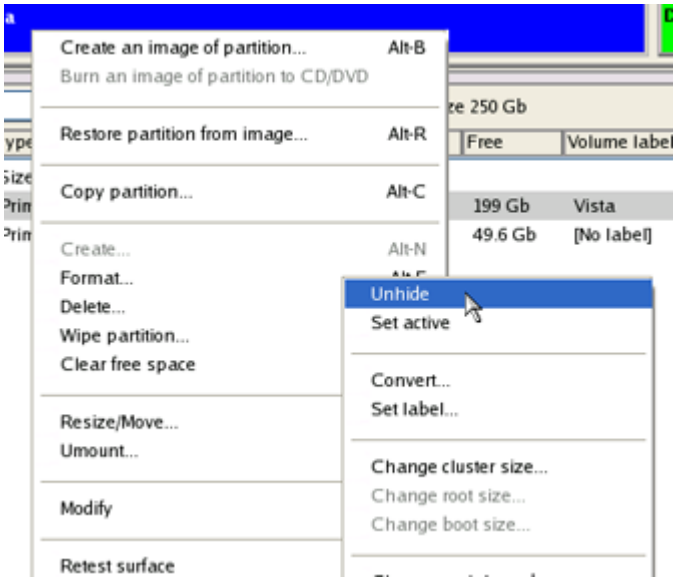
1. **Insert 7Tools Linux/DOS Recovery CD** (the BIOS must be enabled to boot the system from the CD/DVD device).
2. **Restart** the computer.
3. Select the **Partition Manager 2009** item of the main menu.



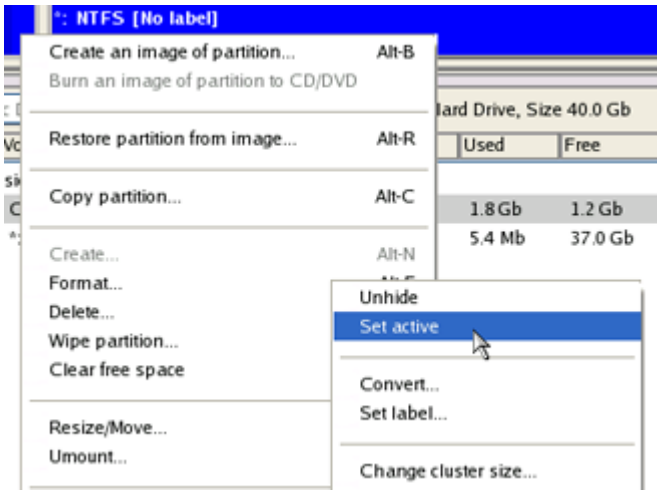
4. In the main window of Partition Manager **select your non-bootable Windows partition on the Disk Map**;



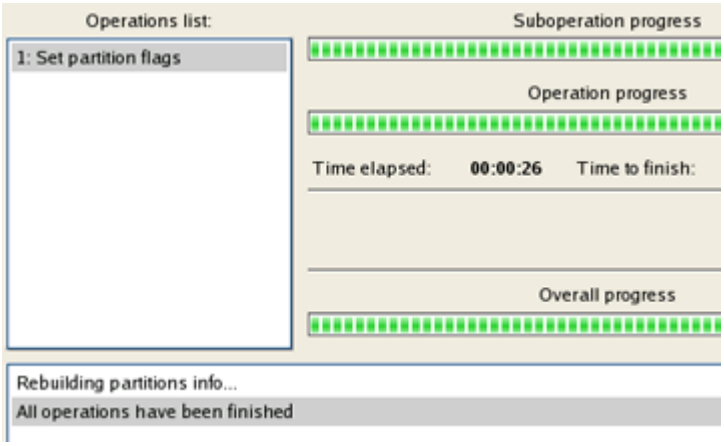
5. **Unhide the partition** by calling the context menu for it (right click of the mouse button) and then selecting **Unhide**;



6. Only for the Windows XP + Windows Vista scenario you need to make the system partition active as well by calling the context menu for it (right click of the mouse button) and then selecting **Set Active**;



7. You will be notified after the operations are completed.



8. **Restart the computer**.

As a result your Windows becomes bootable once again.

Build Recovery Media

The program provides the possibility to prepare a set of recovery tools on external media (CD, DVD or floppy disks). The tool set can be of assistance in case of operating system corruption, which means that the user is able to boot the computer even when the operating system is not able to do so. Creation of such recovery tools is performed with the *Recovery Media Wizard*.

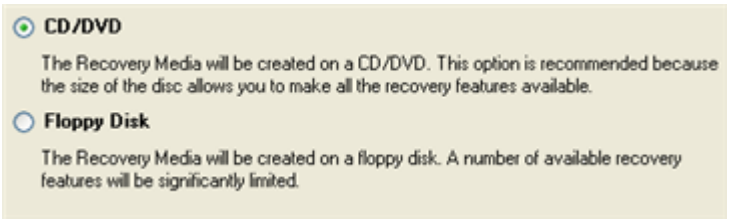
Starting

To start the *Recovery Media Wizard* the user needs to select the *Recovery Media Builder* item of the Wizards menu on the Common Tasks bar. Then the Welcome page of the wizard is displayed.

Settings

The Recovery Media Wizard allows the user to configure the settings and start the operation in accordance with the entered parameters. In our case we set the parameters of the future recovery tool by defining:

- **Type of the recovery media the user is creating**. The recovery tools can be placed either on a CD/DVD disc or on a floppy disk.



- **Contents of the recovery set**. The recovery tools can include the standard Recovery Media image (included in the installation package) or software defined by the user. In the last case the user can record a prepared image by setting the path to the image file on the disk.

- **A recording device**. The appropriate external media (CD/DVD or a floppy disk) needs to 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 the user erasing its contents. When the user confirms the operation, the program deletes the re-writable disc's contents and begins the recording process.

Results

The Recovery Media Wizard starts the operation after completing the settings mentioned above. As a result, the user receives recovery media, which can be used in most emergencies.

When purchasing the program online, Recovery Media is available as ISO-image files. The Recovery Media Builder can then write these files onto physical CD/DVDs.

Extra Functionality

This chapter describes the supplementary functionality available in the program.

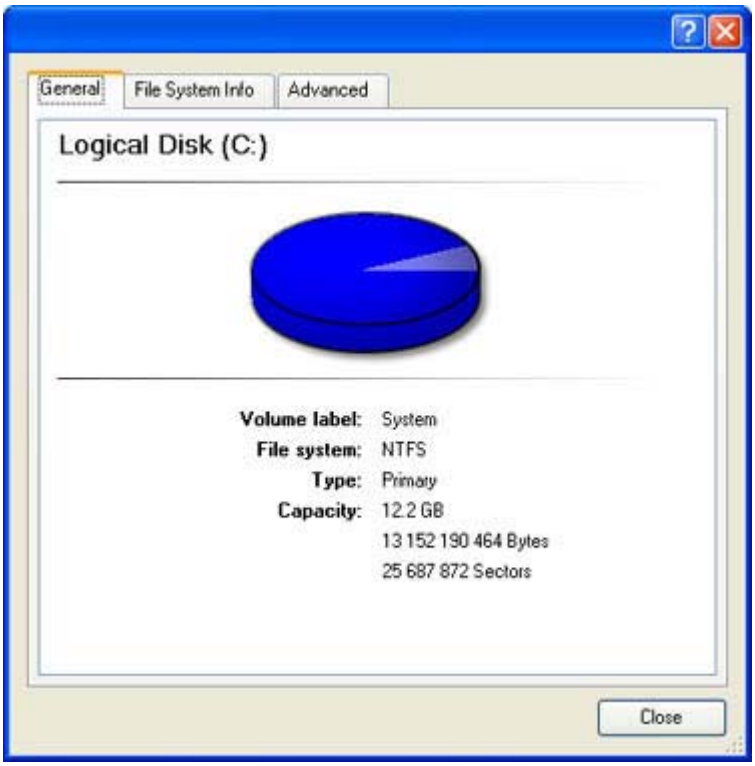
View Partition/Hard Disk Properties

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 or on the List of Partitions, then select the menu item: *Properties*...

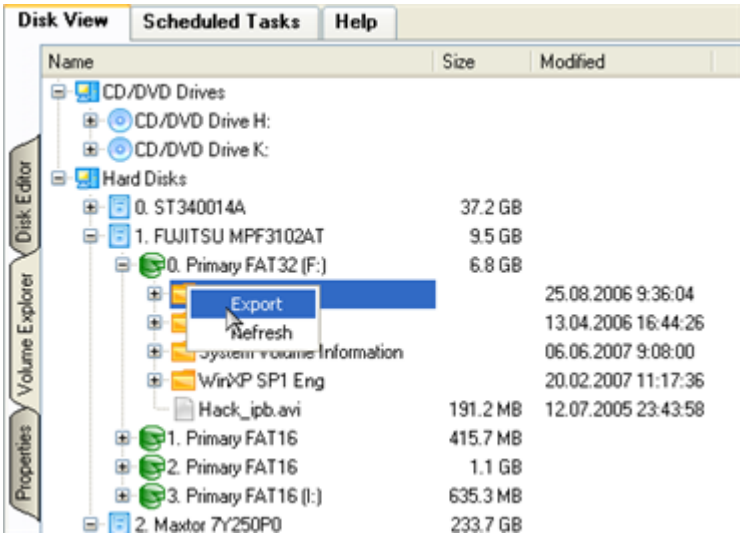


3. The provided information is grouped according to its properties, thus select the required tab and get the information you need.

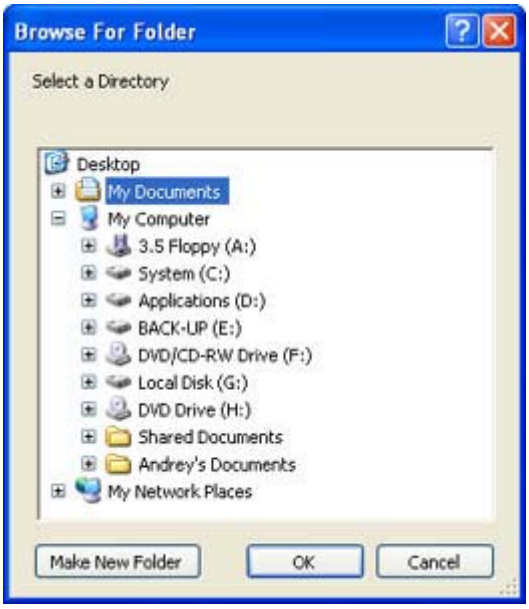
Volume Explorer

Volume Explorer is a special tool providing the ability to browse and export contents of the local mounted/unmounted volumes formatted to FAT16, FAT32, NTFS, Ext2FS, Ext3FS, ReiserFS file systems. Besides it allows the user to access 7Tools backups as regular folders to explorer their contents or to retrieve certain files.

To launch the Volume Explorer the user should click **Disk View** tab in the Explorer Bar and then choose **Volume Explorer**:



Call the popup menu for the selected file/folder (right click of the mouse button) to export it to some other location (local or network drive, etc.).



Mount Partition

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

Assign Drive Letter

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

1. Select a partition on the Disk Map.

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 or on the List of Partitions, 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.

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 or on the List of Partitions, 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.

Partition Defragmentation

Defragmentation is the process of rewriting parts of a file to contiguous sectors on a hard disk to increase the speed of access and retrieval. When files are updated, the computer tends to save these updates on the largest continuous space on the hard disk, which is often on a different sector than the other parts of the file. When files are thus fragmented, the computer must search the hard disk each time the file is opened to find all of the file's parts, which slows down response time.

The program provides the necessary tool for the defragmentation of NTFS and FAT partitions.

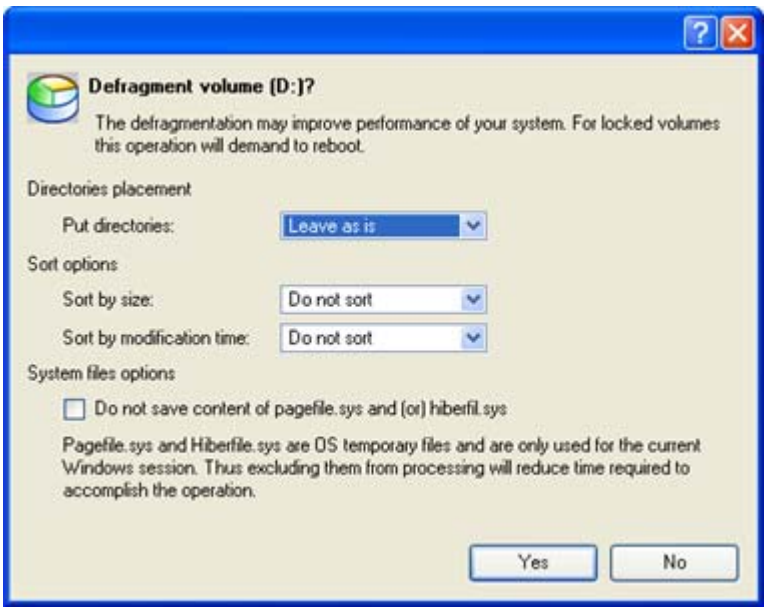
In order to start the operation the user should take the following steps:

1. Select a partition on the Disk Map.

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

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

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



- **Directories Placement**. From the pull-down list select the way how to sort directories.
- **Sort by size**. Sort files according to their size.
- **Sort by time**. Sort files according to the last time of update.
- **Skip auxiliary files**. Mark the option to ignore contents of the PAGEFILE.SYS and HIBERFIL.SYS system files. These files are used temporarily in the operating system.

4. The operation will be performed immediately after confirmation.

MFT Defragmentation

The MFT (Master File Table) is an NTFS system file that contains in-depth information on files, including size, time and date stamps, permissions, and data contents. In the course of time the MFT file can also be fragmented, thus slowing down the speed at which data is accessed.

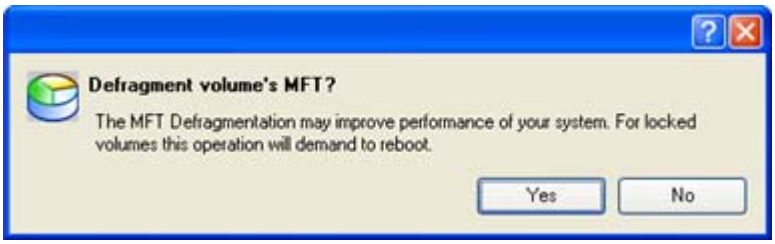
The program offers its users a special tool to defragment the MFT file.

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

1. Select an NTFS partition on the Disk Map.

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

- Select in the Main menu: *Partition* > Modify > *Defragment MFT*…
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Defragment MFT*...



3. The operation will be performed immediately after confirmation.

Downgrade NTFS Version

The program provides the ability to decrease version of existed NTFS partitions. This feature can be particularly useful when, for instance, dealing with different versions of the Windows NT family operating systems.

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

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

2. Call the *Downgrade NTFS Version* dialog to define appropriate settings. There are several ways to do it:

- Select in the Main menu: *Partition* > *Modify* > *Downgrade NTFS Version*...
- On the Explorer bar: click on the current *NTFS version*.
- Call the popup menu for the selected partition (right click of the mouse button) on the Disk Map or on the List of Partitions, then select the menu item: *Downgrade NTFS Version*...

3. Define parameters of the operation with the *Downgrade NTFS Version* dialog.

Select new NTFS version. The program enables to select the required NTFS version from the pull-down list of available versions.

4. The operation will be performed immediately after confirmation.

Test Surface

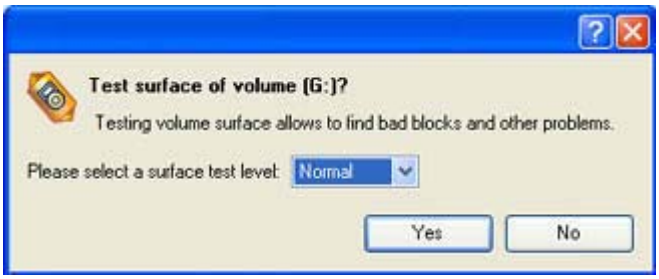
The program allows performing additional surface tests on existing partitions and blocks of free space.

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 or on the List of Partitions, 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.

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.

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 or on the List of Partitions, then select the menu item: *Check File System Integrity*.

3. The operation will be performed immediately after confirmation.

Edit/View Sectors

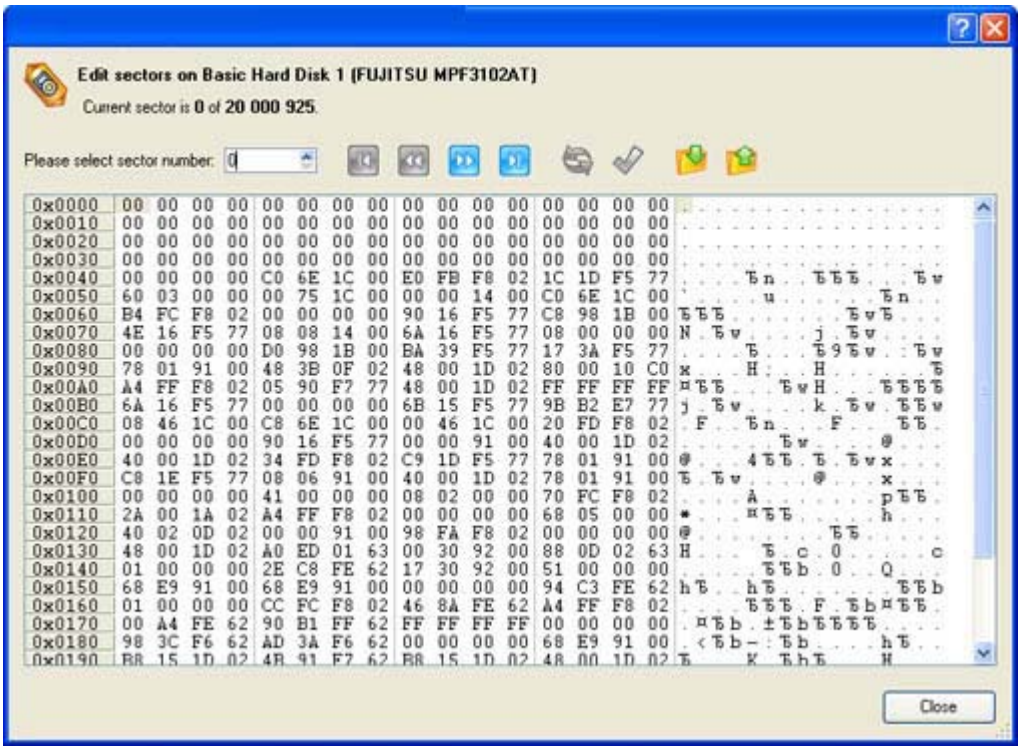
With the built-in *Edit/View Sectors* tool the program enables to view/edit sectors on existing partitions/hard disks providing the possibility to directly access and modify sectors, save and restore sectors from specified files, navigate through the system metadata, etc.

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:

- Click the **Disk View** tab and then choose *Disk Editor*.
- 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 or on the List of Partitions, then select the menu item: *Edit/View Sectors*.



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

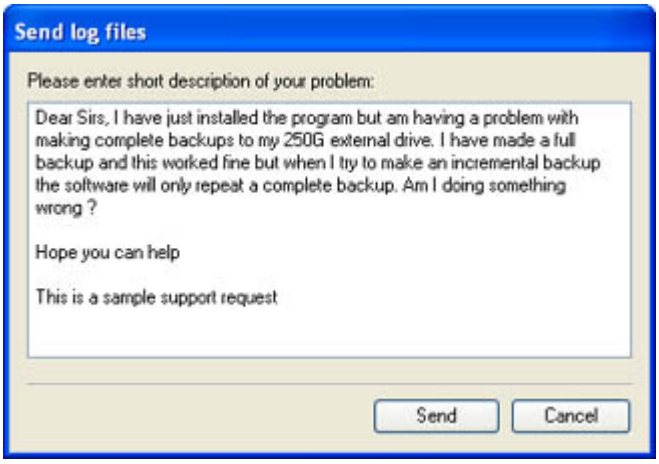
Send Log Files

The program allows the user to simplify the procedure of sending support requests to the 7Tools 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.



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 7Tools Support Team.

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.

Glossary

Active Partition is a partition from which an x86-based computer starts up. The active partition must be a primary partition on a basic disk. If you use Windows exclusively, the active partition can be the same as the system volume.

In the *DOS partitioning scheme*, only primary partitions can be active due to limitations of the standard bootstrap.

The term **backup** originates from the time when the best way to protect valuable information was to store it in form of archives on external media. It's become now a general notion to mean making duplications of data for protection purposes.

Bootable Archive is created by adding a special bootable section when backing up the data to CD/DVDs. Thus you will be able to restore the data from these archives without having to run the program, but by simply booting from these CD/DVDs.

Cluster is the smallest amount of disk space that can be allocated to hold a file. All file systems used by Windows organize hard disks based on clusters, which consist of one or more contiguous sectors. The smaller the cluster size, the more efficiently a disk stores information. If no cluster size is specified during formatting, Windows picks defaults based on the size of the volume. These defaults are selected to reduce the amount of space that is lost and the amount of fragmentation on the volume. A cluster is also called an allocation unit.

Extended Partition is a partition type you create only on a basic MBR (Master Boot Record) disk. Extended partition is used if you want to create more than four volumes on a disk, since it may contain multiple logical drives.

File System Metadata. The servicing structures of a file system, which contain information about allocating files and directories, security information etc, are named the *file system metadata*. It is invisible for users and regular applications because its accidental modification usually makes a partition unusable.

Hard Disk Geometry. Traditionally, the usable space of a hard disk is logically divided into cylinders, cylinders are divided into tracks (or heads), and tracks are divided into sectors.

The triad of values {[Sectors-per-Track], [Tracks-per-Cylinder], [Amount-of-Cylinders]} is usually named the *Hard Disk Geometry* or *C/H/S geometry*.

Tracks and cylinders are enumerated from "0", while sectors are enumerated from "1". These disk parameters play an essential role in the *DOS Partitioning scheme*.

Modern hardware uses an advanced scheme for the linear addressing of sectors, which assumes that all on-disk sectors are continuously enumerated from "0". To allow backward compatibility with older standards, modern hard disks can additionally emulate the C/H/S geometry.

Hidden Partition. The concept of a "hidden" partition was introduced in the IBM OS/2 Boot Manager. By default, an operating system does not mount a hidden partition, thus preventing access to its contents.

A method of hiding a partition consists in changing the partition ID value saved in the Partition Table. This is achieved by XOR-ing the partition ID with a 0x10 hexadecimal value.

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.

MBR & 1st track of the hard disk is the 0th sector of the disk. MBR (Master Boot Record) contains important information about the disk layout:
- The used partitioning scheme;
- The starting records of the Partition Table;
- The standard bootstrap code (or the initial code of boot managers, disk overlay software or boot viruses).

Generally, the 0th sector is used for similar purposes in all existing partitioning schemes.

The MBR capacity is not sufficient to contain sophisticated boot programs. That's why the on-boot software is allowed to use the entire 0th track of the disk. For example, boot managing utilities such as LILO, GRUB and Paragon Boot Manager are located in the 0th track.

Partition ID (or **File system ID**) is a file system identifier that is placed in the partition. It is used to quickly detect partitions of supported types. A number of operating systems completely rely on it to distinguish supported partitions.

Partition ID is saved in appropriate entries of the *Partition Table* and takes only 1 byte of space.

Partition Label (or **Volume Label**) is a small textual field (up to 11 characters) that is located in the partition's boot sector. This value is used for notification purposes only. It is detectable by any partitioning tool including the DOS FDISK utility.

Modern operating systems save it within a file system, e.g. as a special hidden file. Thus it is able to contain a relatively large amount of text in multiple languages.

Partitioning Scheme is a set of rules, constraints and format of the on-disk structures to keep information on partitions located on a hard disk.

There are known several partitioning schemes. The most popular of them 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 *Logical Disks Model* (LDM) that originates from the UNIX mainframe systems. Veritas Executive accommodates a 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 earlier versions of Windows do not support DDM. In addition, most hard disk utilities do not support it as well.

Recovery Media is a CD/DVD disc, a USB flash card or even a floppy disk from which you can boot for maintenance or recovery purposes.

Root Directory is the top-level directory of a formatted logical drive to include other files and directories. In modern file systems (Ext2/Ext3, NTFS and even FAT32) it does not differ from other directories. This is not the case for old FAT12 and FAT16 file systems.

Serial Number. In the DOS partitioning scheme, every hard disk and every partition has a 32-bit serial number represented by an 8-figure hexadecimal value. It is stored in the MBR and its value is assigned when the MBR sector is initialized by Microsoft standard disk managing tools, such as Windows Disk Administrator and the FDISK utility.

In fact, a hard disk's serial number is not important for most operating systems and software. It is known that Windows NT, 2000 and XP store its value in the database of assigned drive letters.

A partition's serial number is stored in its boot sector (in FAT16, FAT32 and NFTS file systems). Its value is assigned when the partition is formatted. It does not play an important role for most operating systems and software as well.