PARAGON Technologie GmbH, Systemprogrammierung

Heinrich-von-Stephan-Str. 5c ● 79100 Freiburg, Germany

Tel. +49 (0) 761 59018201 ● Fax +49 (0) 761 59018130

Internet www.paragon-software.com ● Email sales@paragon-software.com

Virtualization Manager™ 2010

User Manual

Contents

Introduction **4**

Features Overview **4**

Key Features **4**

Supported Technologies **5**

Supported Virtual Machines **6**

System Virtualization **7**

Windows Components **8**

Interface Overview **8**

General Layout 8

Main Menu 9

Tool Bar 12

Virtual Operations Bar 13

Common Tasks Bar 13

Disk Map 14

Explorer Bar 15

Partition List 17

Legend Bar 17

Status Bar 18

Settings Overview **18**

General Options 18

Partitioning Options 19

General Copy and Backup Options 20

Hot Processing Options 20

E-Mail Options 22

Operation Dependency Options 23

Virtual Mode Options 23

File System Conversion Options 24

Log Files Options 25

Typical Scenarios 26

System Migration and Virtualization Scenarios 26

Migrating system to another hard disk (Clone HDD) 26

Virtualizing the current system (P2V) 28

Virtualizing system from its backup image (P2V) 31

Making system bootable on virtual hardware (P2V Adjust OS) 35

Connecting a virtual disk (Connect VD) 36

Repartitioning a virtual disk 38

Exchanging data between physical and virtual environments 40

Copying data from a parent virtual disk to one of its snapshots 42

Migrating from one virtual environment to another (V2V) 42

Making system bootable on different hardware (P2P Adjust OS) 42

Migrating from a virtual environment to physical (V2P) 44

Migrating a Windows 7 vhd 45

Extra Scenarios for WinPE 45

Adding specific drivers 45

Configuring network 46

Saving log files 48

Connecting Virtual Disks to a Virtual Machine 48

Connecting virtual disks to an existing virtual machine 48

Connecting virtual disks to a new virtual machine 51

Introduction

More and more people today face the problem of smooth and cost saving system migration. It mostly has to do with constant hardware improvement. Traditional approach involving complete re-installation and re-setup of the operating system and all applications requires a lot of time and labor resources, few can afford. Moreover it doesn't guarantee all software will flawlessly work on a new hardware platform.

Paragon Virtualization Manager™ 2010 is an elegant solution that can help you accomplish the following tasks:

- Migrate a Win2K+ physical system to a virtual environment in the online mode (P2V);
- Migrate a Win2K+ physical system backed up with a Paragon disaster recovery tool to a virtual environment;
- Migrate a Win2K+ virtual system to a physical environment (V2P);
- Migrate from one virtual environment to another (V2V);
- Migrate a Win2K+ physical system to a different hardware platform (P2P);
- Connect a virtual disk as if it's an ordinary physical disk, thus opening up all functionality available for physical disks to virtual (Connect VD);
- Recover the startup ability after unsuccessful virtualization with a 3rd party tool;
- Recover the startup ability after unsuccessful system migration to a different hardware platform.

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

Our company is constantly releasing new versions and updates to its software, that's why images shown in this manual may be different from what you see on your screen.

Features Overview

This chapter dwells upon key benefits and technical highlights of the product.

Key Features

Let us list some of the key features:

- **P2V Copy** to migrate a Win2K+ physical system to a virtual environment in the online mode.
- **P2V Restore** to migrate a Win2K+ physical system backed up with a Paragon disaster recovery tool to a virtual environment.
- **Connect VD** to connect a virtual disk as if it's an ordinary physical disk, thus opening up all functionality available for physical disks to virtual.
- **P2V Adjust OS** to recover the startup ability after unsuccessful virtualization with a 3rd party tool.
- **P2P Adjust OS** to migrate a Win2K+ physical system to a different hardware platform.

- P2P Adjust OS to recover the startup ability after unsuccessful system migration to a different hardware platform.
- Support for major virtual machines - Microsoft Virtual PC, Microsoft Virtual Server, Microsoft Hyper-V, VMware Workstation, VMware Fusion, VMware ESX Server, Sun VirtualBox.
- **Smart Driver Injector** to make the process of adding new drivers smooth and easy.
- **Easy size setup for virtual disks** with the partition auto-resize option.
- **2 types of virtual drives for VMware** to create either an IDE or a SCSI disk.
- **Disk file split for VMware** to automatically cut the resulted virtual image to files of 2 GBs each.
- Partition/Hard disk copy to successfully transfer all on-disk information including standard bootstrap code and other system service structures, thus maintaining the operating system's working capability.
- File Transfer Wizard to make such operations as transferring of files/directories or burning of them to CD/DVD as easy and convenient as possible.
- **Merge Partitions Wizard** to consolidate the disk space, which originally belongs to two adjacent partitions (NTFS, FAT16/FAT32), into a single, larger partition.
- **Redistribute Free Space Wizard** to increase free space on one partition by up-taking the on-disk unallocated space and the unused space of other partitions.
- **Convert a file system** (FAT16/32, NTFS, Ext2/Ext3) without reformatting.
- **Modify file system parameters** (make active/inactive, hide/unhide, change serial number, partition ID, volume label, etc.).
- **Basic functions for initializing, partitioning and formatting hard disks** (create, format, delete). Instead of the standard Windows disk tools, the program supports all popular file systems.
- **Undelete Partitions Wizard** to recover an accidentally deleted partition.
- **27 defragmentation strategies** available to defragment FAT and NTFS file systems.
- **MFT defragmentation and shrinking** to improve performance of NTFS.
- **Scripting** to make the program create a script of any set of operations you need. Besides support of all operations available in the interactive mode, the unattended mode provides some additional features, such as conditional execution, subroutines, repeatable iterations, disk/partition properties analysis, errors management, etc.
- **Task scheduling** to automate routine operations. It can be particularly effective when you have to repeat a sequence of actions on a regular basis.

Scheduling is only available for the Windows installation of the program.

Supported Technologies

Along with using innovative technologies from outside, Paragon has developed a number of its own original technologies that make its products unique and attractive for customers:

- **Paragon Hot Copy™** technology to clone locked partitions and hard disks under Windows NT+ family operating systems providing both high operating efficiency as well as low hardware requirements.
- **Paragon Adaptive Restore™** technology to successfully migrate a Win2K+ physical system to a different hardware platform (P2P).
- **Paragon Power Shield™** technology to provide data consistency in case of a hardware malfunction, power outages or an operating system failure.
- **Paragon UFSD™** technology to browse partitions of any file system including hidden and unmounted, modify and copy files and folders, etc.
- **Paragon Hot Resize™** technology to enlarge NTFS partitions (system, locked) without rebooting Windows and interrupting its work.
- **Paragon Smart Partition™** technology to securely perform hard disk partitioning operations of any complexity.
- **Paragon VIM™** (Virtual Image Management) technology that enables Paragon products work with virtual disks as though they are physical hard disks.
- **Microsoft Volume Shadow Copy Service** (VSS) to provide the copy/backup infrastructure for the Microsoft Windows XP/Vista/7/Server 2003/2008 operating systems. It offers a reliable mechanism to create consistent point-in-time copies of data known as shadow copies. Developed by Microsoft in close cooperation with the leading copy/backup solution vendors on the market, it is based on a snapshot technology concept.
- **Microsoft Dynamic Disk** (simple, spanned, striped, mirrored, RAID-5) to offer more management flexibility without the partition limitation of basic disks. Dynamic storage can be particularly beneficial for large-scale businesses when dealing with many physical hard disks involving complex setup.
- **GUID Partition Table** (GPT). It is the next generation of a hard disk partitioning scheme developed to lift restrictions of the old MBR. GPT disks are now supported by Windows Vista/7, Server 2008, Mac OS X and Linux.

Supported Virtual Machines

Paragon Virtualization Manager™ 2010 provides support for major virtual machines presented on the market today:

- Microsoft Virtual PC;
- Microsoft Virtual Server;
- Microsoft Hyper-V;
- VMware Workstation;
- VMware Fusion;
- VMware ESX Server;
- Sun VirtualBox;

For Connect VD only

- MS Windows Vista/7 backup;
- Parallels Workstation;
- XenServer (.vhd only).

System Virtualization

With new powerful x86 computers, system virtualization has become extremely popular. It's a software technology that enables to run several virtual machines on one physical machine, providing resources of that single computer are shared across several environments. As a result one and the same physical computer can have multiple OSs and applications operating simultaneously, thus opening up enormous opportunities for both, business and home users, exactly:

- Avoid underutilization of up-to-date powerful computers;
- Increase flexibility of a physical infrastructure;
- Provide for increased availability of hardware and applications;
- Cut expenses on hardware and energy;
- Guarantee smooth and cost saving system migration;
- Enjoy working with old applications you can't launch on your current PC;
- Take advantage of having multiple operating systems on one Windows PC, including Linux, Mac OS X, etc.;
- Forget about hunting for replacement of the failed hardware, and many more…

Known Issues

1. You should install integration services (e.g. VMware Tools) on the virtual system yourself. We only guarantee its smooth startup.
2. At the startup, a virtual machine (e.g. VMware Workstation) might notify you that the used virtual disks are of old format and require update. You can update your disks, since this procedure involves change of a version only, nothing else. This is done on purpose not to lose compatibility with the older versions of VMware.
3. After transferring Microsoft Vista and later versions to a virtual disk, you will need to re-activate license of the system. It's normal behavior as these systems keep tracking any change of hardware. Re-activation is legally justified in this case, as you transfer your system to another PC.
4. If you prefer to create a SCSI HDD when converting to a virtual disk of VMware Workstation or VMware ESX Server, we pick a driver for the HDD controller just the way VMware does, i.e. according to the found OS:

    - Windows 2000/Windows XP – Buslogic;
    - Windows 2003 (all editions including WinXP x64) and later versions – LSI Logic.

    Thus if you will then connect the created virtual disk to a virtual machine with another type of the adapter, the system won't start up. Please use our P2P Adjust Wizard to install the required driver.

5. If you convert a partition/hard disk with Windows XP to a SCSI virtual disk of VMware Workstation or VMware ESX, it's required to add the VMware SCSI driver from outside, since Windows XP doesn't have it. To do that we try to find an installed version of VMware Workstation on your computer to extract the necessary driver. If failed to find, we will ask you to provide a path to the VMware Tools ISO image.

6. We can smoothly convert a hard disk with several operating systems. But according to Issue 4, when converting to a SCSI virtual disk of VMware Workstation or VMware ESX Server, for different versions of OS, different controller drivers will be installed. VMware however cannot emulate different hardware for each operating system of one virtual machine. To tackle this issue, please use our P2P Adjust Wizard to install the LSI Logic driver under Windows 2000/Windows XP, then select the LSI SCSI controller for your virtual machine.

Windows Components

In the given section you can find all the information necessary to successfully work with the Windows version of the product.

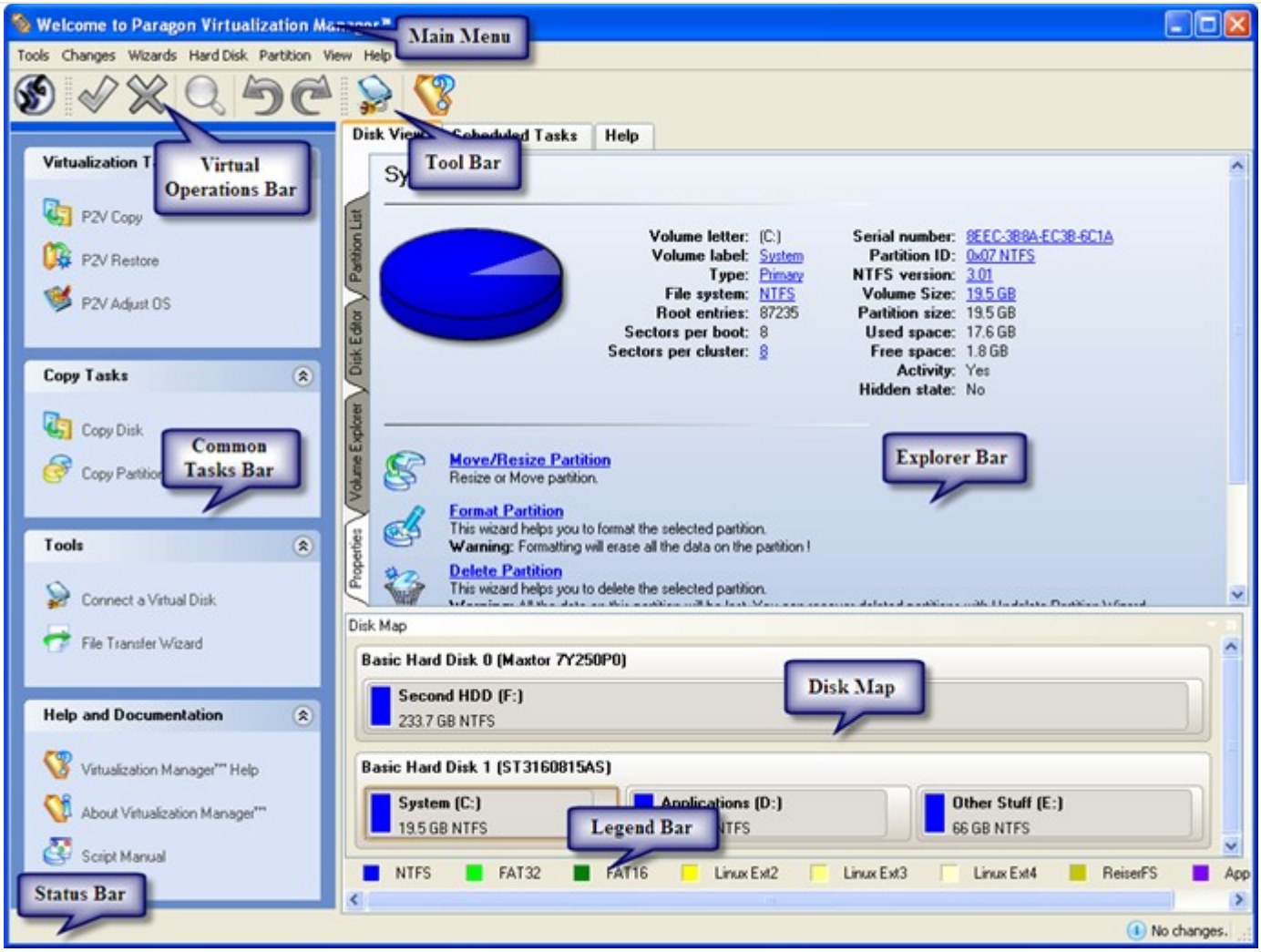
Interface Overview

This chapter introduces the graphical interface of the program. 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 you start the program, the first component that is displayed is called the Launcher. It enables to run wizards and dialogs, to specify program settings, to visualize the operating environment and the hard disk configuration.

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



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

A number of panels offer similar functionality with a synchronized layout. The program enables to conceal some of them 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	
View Logs…	View logs on the carried out operations
Send Log Files	Compress and send the log to the Paragon Support Team
File Transfer Wizard…	Transfer data from any media
Settings…	Edit the general settings of the program
Exit	Exit the program
Changes	
Generate Script…	Generate a script for the task
Save to Scheduler…	Schedule pending operations
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
Undelete Partitions…	Recover an accidentally deleted partition
Merge Partitions…	Merge adjacent partitions of NTFS, FAT or FAT32 file systems
Redistribute Free Space…	Redistribute available disk space of existed partitions
P2P Adjust OS…	Make your system bootable on different hardware
P2V Copy…	Migrate a Win2K+ physical system to a virtual environment in the online mode.
P2V Restore…	Migrate a Win2K+ physical system backed up with a Paragon disaster recovery tool to a virtual environment.

P2V Adjust…	Recover the startup ability after unsuccessful virtualization with a 3rd party tool
Copy Hard Disk…	Create a hard disk copy
Copy Partition…	Create a partition copy
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
Connect a Virtual Disk	Connect a virtual disk to work with it as if it's a physical disk
Properties…	Get in-depth information on the properties of selected hard disk
Partition	
Create Partition…	Create a partition
Format Partition…	Format a partition
Delete Partition…	Delete a partition
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 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
Change SID…	Change SID (Security Identifier) value of any found Windows installation

Make Partition Primary…	Make the selected partition Primary
Make Partition Logical…	Make the selected partition Logical
Defragment Partition…	Defragment data on the selected FAT or NTFS partition
Defragment MFT…	Defragment MFT (Master File Table) of the selected NTFS partition
Compact MFT…	Shrink 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	
Layouts	Manage the Launcher layout with several predefined profiles
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
Help	
Help	Open the Help system (you can also do it by pressing F1)
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

	Connect a virtual disk
	Open the Help system

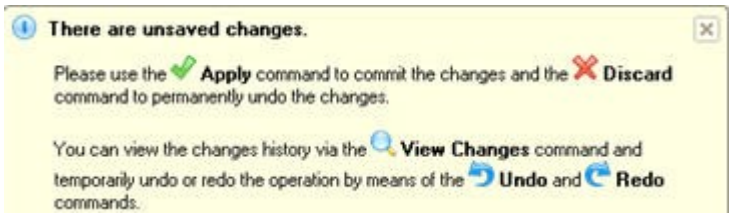
Virtual Operations Bar

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 execution.

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.

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

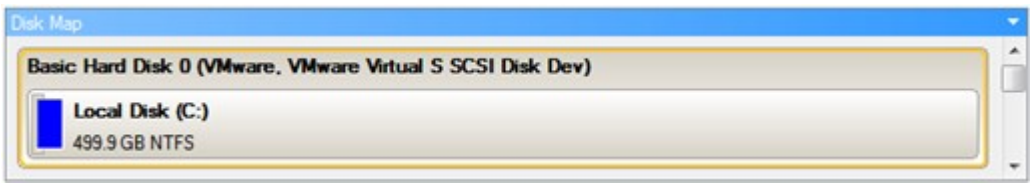
Virtualization Tasks

P2V Copy	Starting the P2V Copy Wizard to migrate a Win2K+ physical system to a virtual environment in the online mode.
P2V Restore	Starting the P2V Restore Wizard to migrate a Win2K+ physical system backed up with a Paragon disaster recovery tool to a virtual environment.
P2V Adjust OS	Starting the P2V Adjust OS Wizard to recover the startup ability after unsuccessful virtualization with a 3rd party tool.
Copy Tasks	
Copy Disk	Starting the Copy Hard Disk Wizard to copy a hard disk.
Copy Partition	Starting the Copy Partition Wizard to copy a partition.
Tools	
Connect a Virtual Disk	Starting the Connect a Virtual Disk dialog to connect a virtual disk to work with it as if it's a physical disk.
File Transfer Wizard	Starting the File Transfer Wizard to transfer data from any media. Besides it provides access to Paragon backups as regular folders to browse through their contents or copy required files.
News and Documentation	
Virtualization Manager™ Help	Launching the help system (you can also do it by pressing F1).
About Virtualization Manager™	Opening the page which contains information about the program. This page will be displayed in the Explorer Bar.
Script Manual	Opening a brief review on the Paragon Scripting Language.

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).

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.

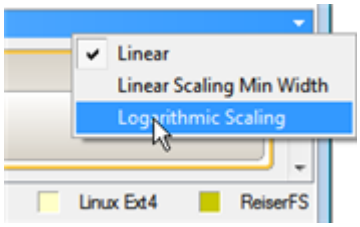
Small-sized bars display the following information about logical disks:

- 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. The program offers to choose from several types of the disk layout scaling. It's done especially to increase the program usability. For instance, if you've got a high capacity hard drive containing both very large (more than 100 GB) and rather small (less than 10 GB) partitions, you can select the logarithmic type to make all partitions readable, otherwise (selecting the linear type) you won't be able to see small partitions at all, but thing strips. On the other hand, if the proportional disk layout is critical for you, the linear type is exactly what you need.

Nevertheless there's a compromise solution – linear scaling with the minimal limit to small partitions. So if a partition is too small it will remain readable.

Just click on the arrow icon on the top right side of the Disk Map to select the desired scaling type.



Disk Map is synchronized with the Explorer Bar. Thus by selecting a disk on the Disk Map, the Explorer Bar will automatically display detailed information on it.

The drag-and-drop functionality is not available when the logarithmic type of the disk layout is selected.

Explorer Bar

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

- The help system;
- General information on the product including its name, version and a list of helpful links;
- Detailed information about disks selected on the Disk Map;
- List of scheduled operations;
- List of scripts;

- 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:

  - *Partition List* to get a clear-cut picture of the current state of the system hard disks/partitions;

  - *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.

You can switch between these components by clicking tabs on the left side of the Explorer Bar.

- **Scheduled Tasks**, which gives the user the possibility of browsing and editing scheduled operations and the program scripts.
- **Help**, which contains the program help and general information on the product.

You can access the desired information by clicking on the appropriate tab.

The Explorer Bar is a fully-functional embedded HTML browser, which offers the possibility to address, for example, the company's website to look through important technical notes or download the latest updates without having to close the program.

The program help is also HTML-oriented. You can read it 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

Partition List

The Partition List is another helpful tool that enables you 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.

Legend Bar

The Legend Bar explains the color scheme used for disk and partition presentation. You 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 Ext2/3/4,

- Linux ReiserFS,

- Apple HFS.

Status Bar

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

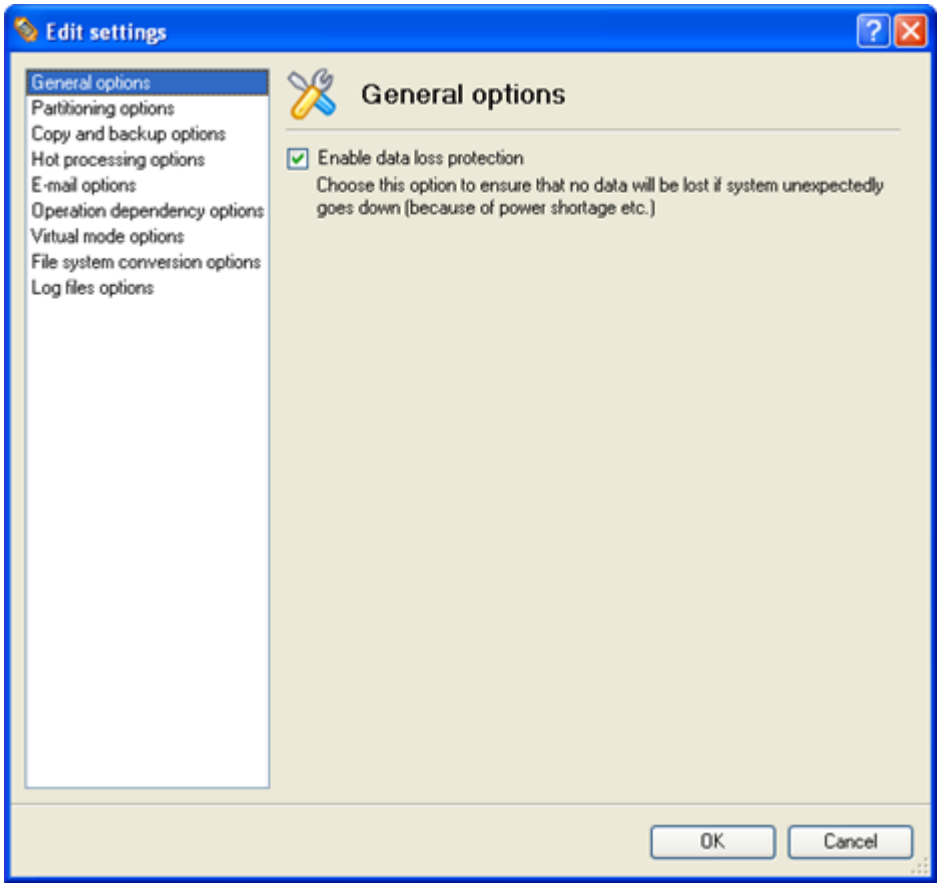
The user can hide (or show) the bar with the appropriate Main Menu item: View > Status Bar.

Settings Overview

The Settings dialog is available from the Main Menu: Tools > Settings. All the settings are grouped into several sections, which 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, you can open a set of options.

To get a detailed description to any setting, control, or field of the program just click the hint button and then the object you need.

General Options



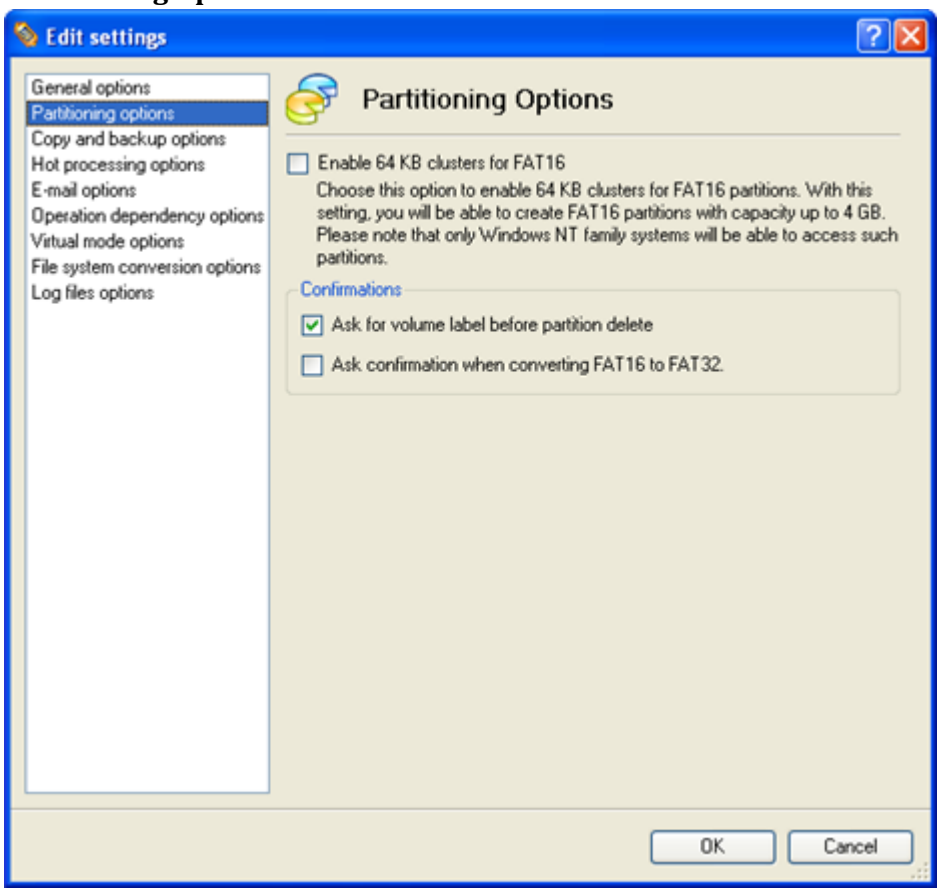
This section contains a set of general options that will be taken into account during any operation carried out with the program:

- **Enable data loss protection**. Mark the checkbox to make the program work in the fail-safe mode (also referred to as the data-loss protection mode), which ensures reliability for operations by maintaining a special journal. In

case of a hardware malfunction, power outage or an OS failure happened in the middle of a data-sensitive operation (resize, move, merge, redistribute, change cluster size, etc.), the program will ask to insert the bootable recovery media and automatically complete the interrupted operation, thus reviving the corrupted partition.

It is strongly recommended to enable this option.

Partitioning Options



This section contains a set of options that will be taken into account during partitioning operations:

- **Enable 64 KB cluster size for FAT16**. Mark the checkbox to enable 64KB clusters for FAT16 partitions. Thus you will be able to create FAT16 partitions up to 4GB in size

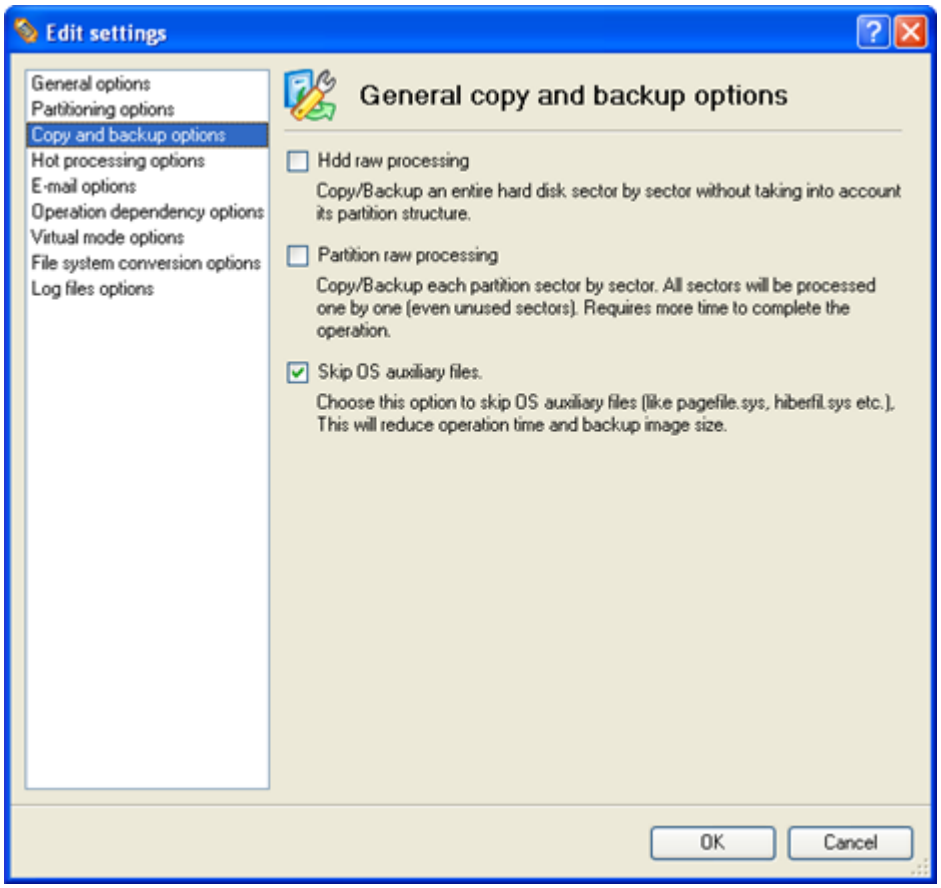
Due to the maximum cluster size of 32KB for Windows 95/98/ME or MS DOS, FAT16 partitions larger than 2GB are not reliably accessible under these operating systems.

- **Request confirmation before partition deletion**. Mark the checkbox to activate an additional security mechanism. Thus when going to delete a partition you will be automatically requested to enter its label.

- **Request confirmation when converting FAT16 to FAT32**. Mark the checkbox to automatically request confirmation before converting FAT16 to FAT32. There are a number of situations when this kind of conversion is the only way out to accomplish the operation. For instance, you are going to migrate your system to a larger hard disk with the proportional resize of existing partitions, what is very convenient. As a result you can get original FAT16 partitions go beyond the 4GB limit. Thus without conversion to FAT32, this operation will in no

way be possible to accomplish. The same goes for any copy hard disk/partition or restore hard disk/partition operation involving an extra upsizing.

General Copy and Backup Options



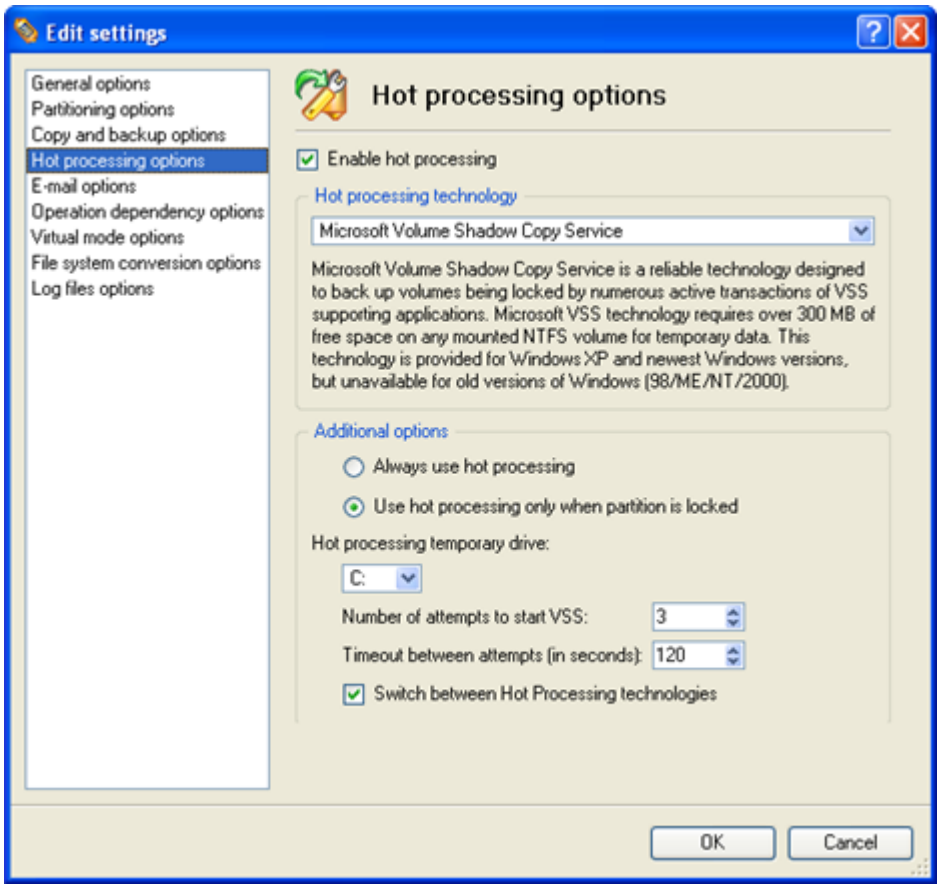
This section contains a set of options that will be taken into account during copy and backup operations:

- **HDD raw processing**. Mark the checkbox to copy/back up a hard disk in the sector-by-sector mode, thus ignoring its information structure (e.g. unallocated space or unused sectors of existing partitions will be processed as well). This can help to avoid problems with hidden data created by certain applications or the system administrator. However, it will take more time to accomplish the operation.

- **Partition raw processing**. Mark the checkbox 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.

- **Skip OS auxiliary files**. Mark the checkbox to skip OS auxiliary files (like pagefile.sys, hiberfil.sys, etc.), thus reducing the operation time and the resulted size of the backup image.

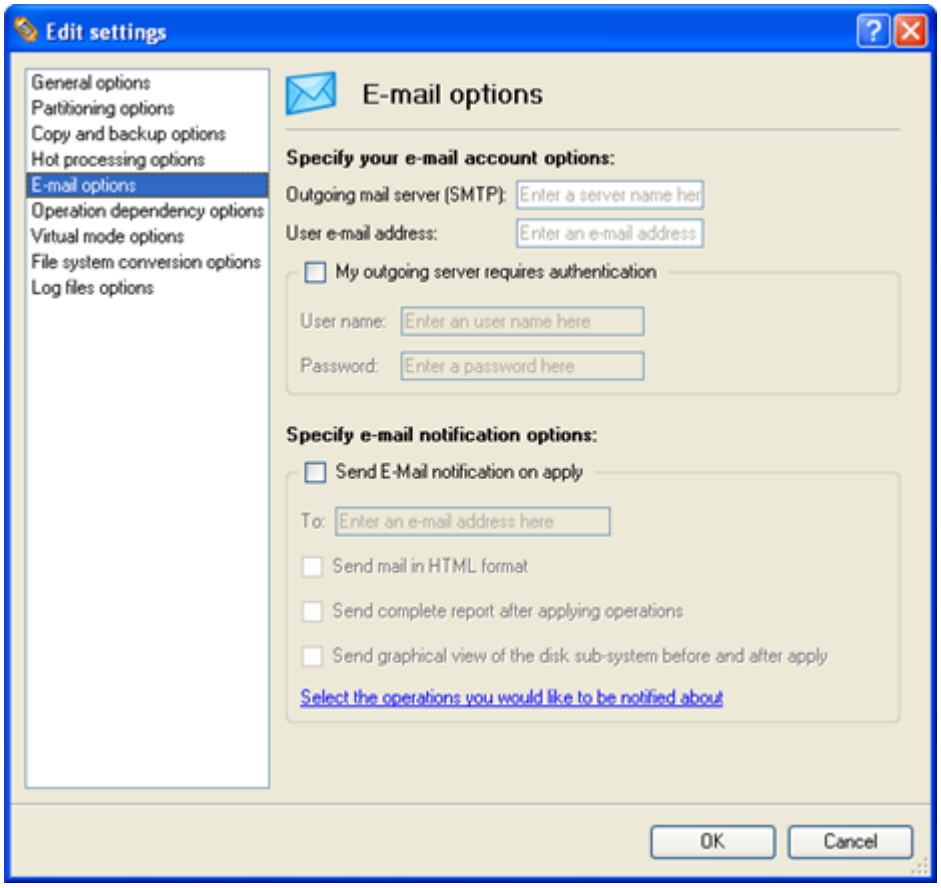
Hot Processing Options



In this section you may configure the hot processing mode:

- **Enable hot processing**. Mark the checkbox to enable the so called hot data processing mode that is specially designed to process data without restarting your operating system.
- **Hot processing technology**. From the pull-down list you can select the required hot processing technology.
- **Always use hot processing**. Select the option to process partitions without making them locked. Thus you will be able to keep working with them as usual.
- **Use hot processing only when partition is locked**. Select the option to use the hot processing only when partitions are locked and cannot be processed without restarting the computer. Please keep in mind, that once you start any operation on a partition in this mode, it will automatically be locked by the program, thus you won't be able to keep working with it as usual.
- **Hot processing temporary drive**. Here you can select a disk drive that will be used to store the temporary hot backup data (by default – C:).
- **Attempts to start VSS**. Here you can set how many attempts to start Microsoft VSS the program is to do before automatically rebooting the system and accomplishing the operation in a special boot-up mode.
- **Timeout between attempts (in seconds)**. Here you can set a time period between different attempts to start Microsoft VSS.
- **Switch between hot processing technologies**. Mark the checkbox to automatically switch between Paragon Hot Processing and Microsoft VSS if one of them is unavailable at the moment.

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:

- **Outgoing mail server (SMTP)**. To send messages by using the built-in mail client, it is necessary to have access to a computer running an SMTP (Simple Mail Transfer Protocol) server. All outgoing messages are first sent to the SMTP server, which in its turn delivers them to the required recipients. The address may be represented as a traditional Internet host name (e.g.: mail.com) or as an IP numeric address (e.g. xxx.xxx.xxx.xx).

- **User e-mail address**. Specify an e-mail address that has been assigned by the Internet Service Provider or organization's e-mail administrator.

- **My outgoing server requires authentication**. Activate the option to allow the program to make authentication on the server before sending messages.

  - User name. Enter the name that will be used to log in to the e-mail account.

  - Password. Enter the password that will be used to access the mail server.

- **Send e-mail notification on apply**. Specify an e-mail to send notifications on the carried out operations.

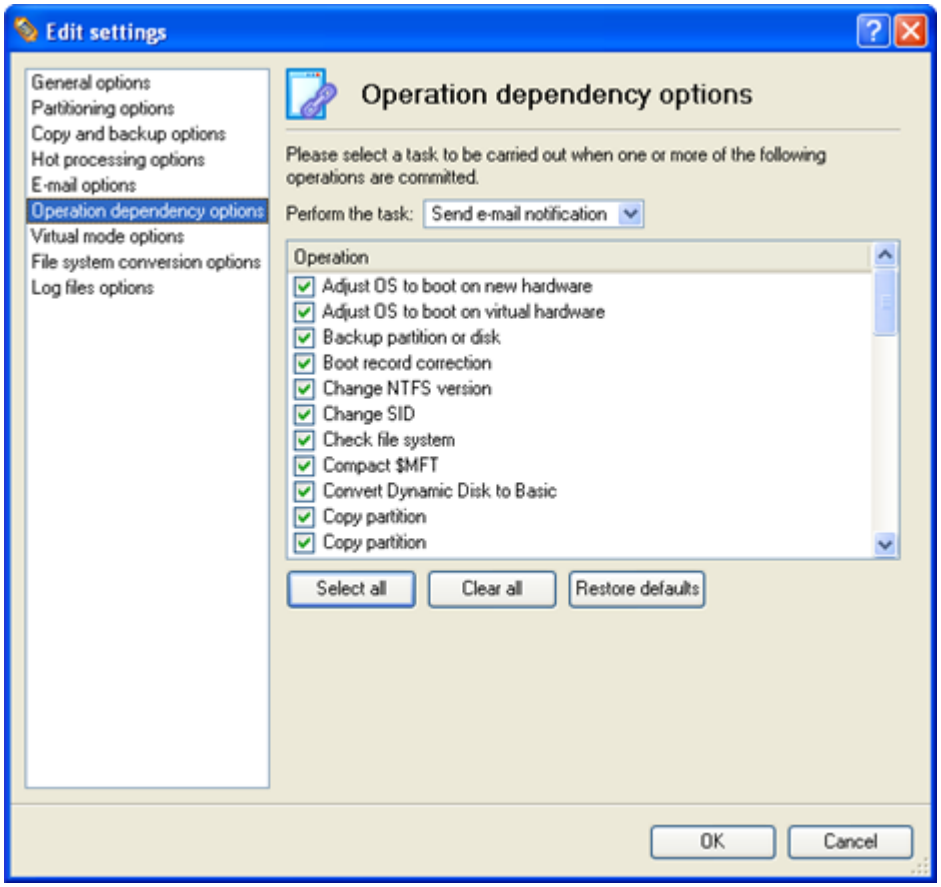
  - **Send mail in HTML format**. Activate the option to create messages in the HTML format instead of plain text.

  - **Send complete report after applying operations**. Activate the option to create an in-depth report on the carried out operations and send it after performing the last operation.

  - **Send graphical view of the disk sub-system before and after apply**. Activate the option to allow the program to attach two pictures of the disk layout made before and after the operation is completed.

By clicking the link at the bottom of the window you can jump to the Operation Dependency Options.

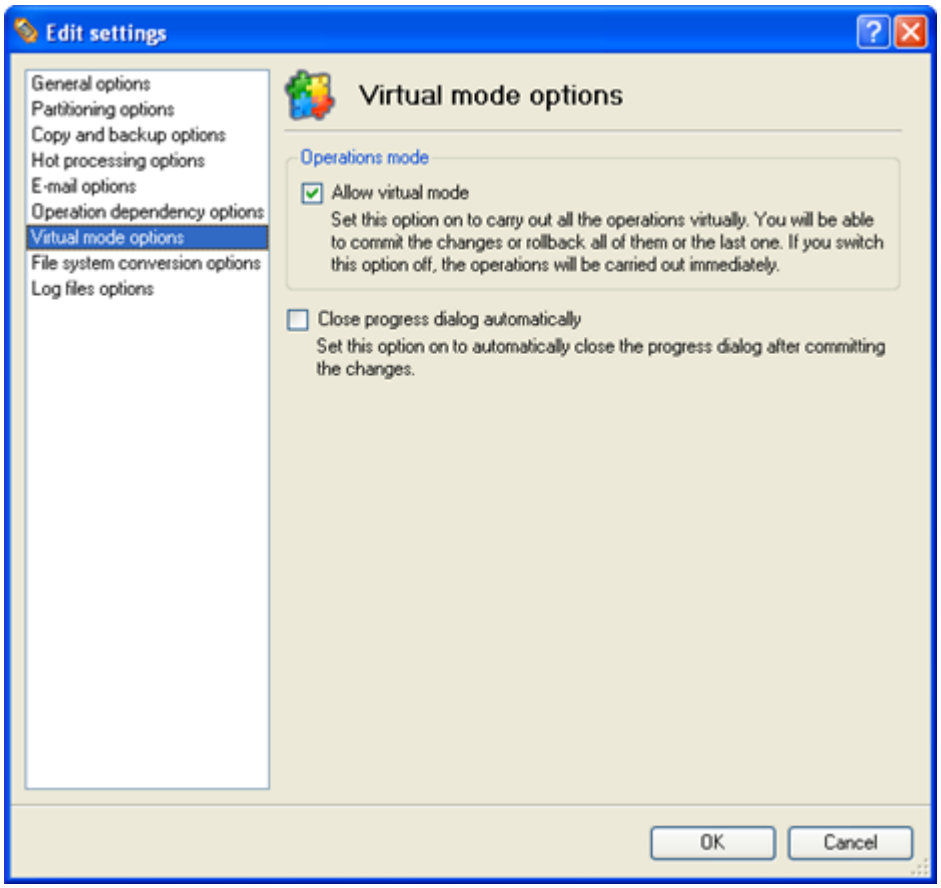
Operation Dependency Options



This section contains a set of options that will be taken into account when the Send e-mail notification on apply function is enabled. By marking/unmarking a checkbox opposite the required operation you can choose whether to receive an e-mail notification on its completion or not.

You won't be notified if an operation requires the system restart.

Virtual Mode Options



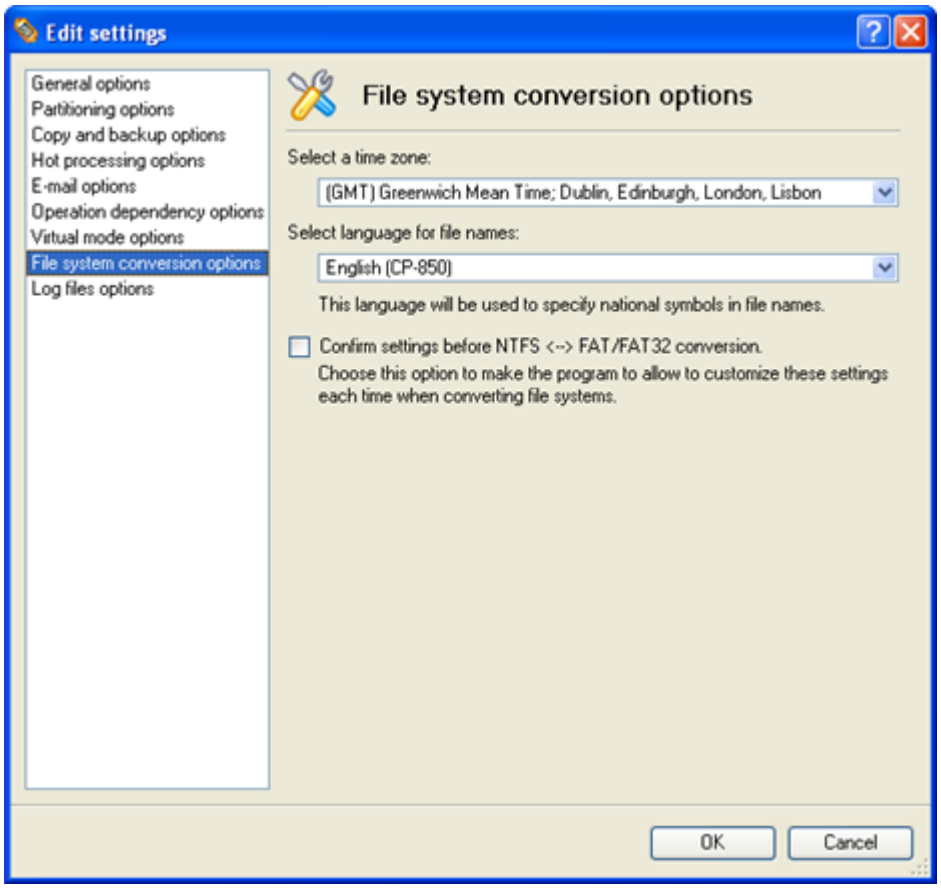
In this section you may configure the virtual mode:

- **Allow virtual mode**. Mark the checkbox to enable the virtual mode. It is an effective way of protection from any troubles, since no operation will be executed until confirmation, thus giving you a second chance to weigh all pros and cons of this or that particular operation.

We strongly recommend you to enable this mode.

- **Close progress dialog automatically**. Mark the checkbox to automatically close the progress dialog after accomplishing operations.

File System Conversion Options



This section contains a set of options that will be taken into account when converting FAT and NTFS file systems. By default, the program takes locale (regional) settings from the system. Problems might occur however because of different standards for file names and file time stamps (Created, Modified and Last Access Time) of NTFS and FATxx file systems.

To tackle problems of that kind you can manually set:

- **Time zone** to use during the convert operation. NTFS keeps file timestamps in GMT (Greenwich Mean Time) while FAT uses a fixed local date and time. The program takes proper account of these differences and enables to adjust timestamp values.

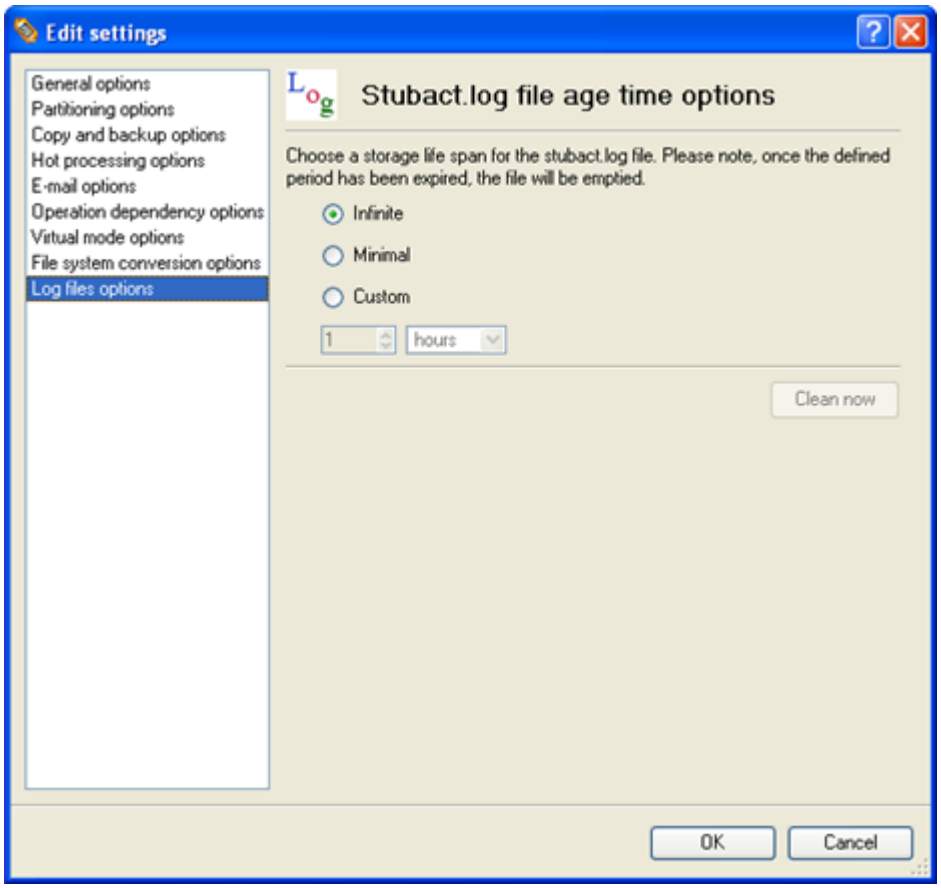
An incorrectly chosen time zone might lead to inability to launch certain software.

- **Language for file names** to use during the convert operation. NTFS stores file names in Unicode while FAT/FAT32 uses ANSI to save short file names (also called the DOS aliases). The codepage information is required for the correct conversion of non-English file names from Unicode to ANSI and vice versa.

An incorrectly chosen codepage will certainly result in corruption of non-English file names.

- **Request confirmation of settings before NTFS < - > FAT/FAT32 conversion**. Mark the checkbox to automatically display the local settings dialog to check and modify (if necessary) the default parameters before launching the convert file system operation.

Log Files Options



In this section you can specify a storage life span for the stubact.log file:

- **Infinite** not to empty the file ever;
- **Minimal** to have the file emptied all the time;
- **Custom** to set a certain storage life span for the file. Please note, once the defined period has been expired, the file will be emptied.

We strongly recommend you not to choose the Minimal option, as in case of having problems with the program, our Support Team won't be able to study operation logs, thus help you out.

Typical Scenarios

This chapter lists a number of the most frequently used scenarios that may be accomplished with the program. You can find here useful recommendations and descriptions of operations.

System Migration and Virtualization Scenarios

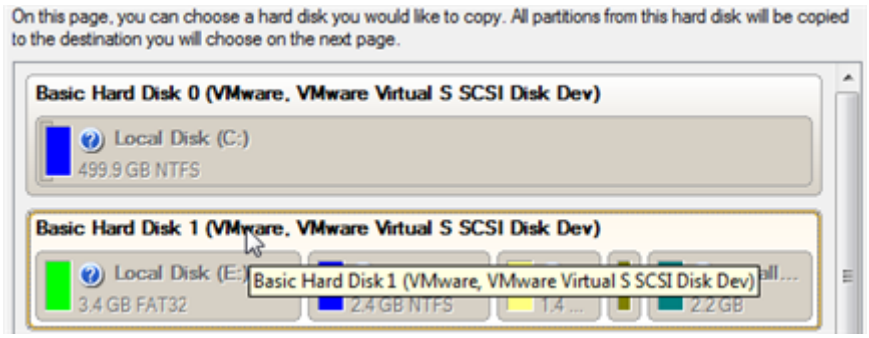
Migrating system to another hard disk (Clone HDD)

Let's assume that you've bought a new hard disk. It's faster and of much higher capacity than your current system disk, so it's quite natural you start thinking about system migration. We can help you do that.

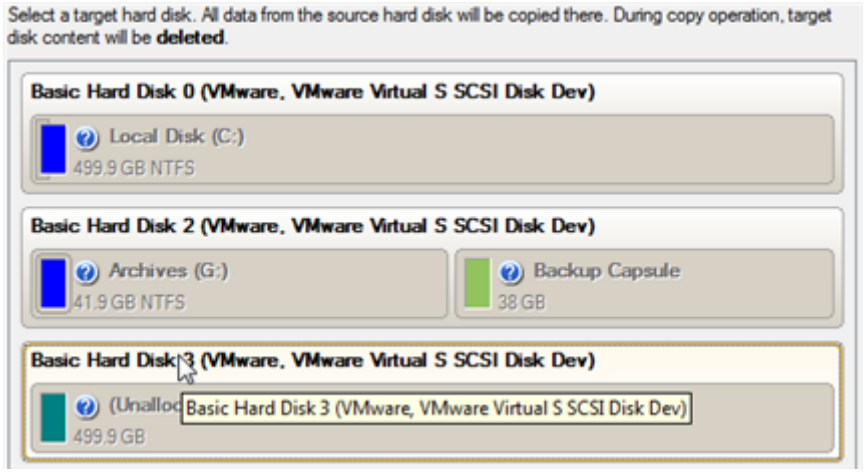
To migrate your system from one hard disk to another, please do the following:

1. Connect both source and destination disks to the computer.

2. Turn on the computer.
3. Click the **Copy Disk** item of the Wizards menu (any of the ways described earlier can also be used here).
4. On the Wizard's Welcome page, click the Next button.
5. On the Select Hard Disk to Copy page, select a source disk (a hard disk you want to copy).

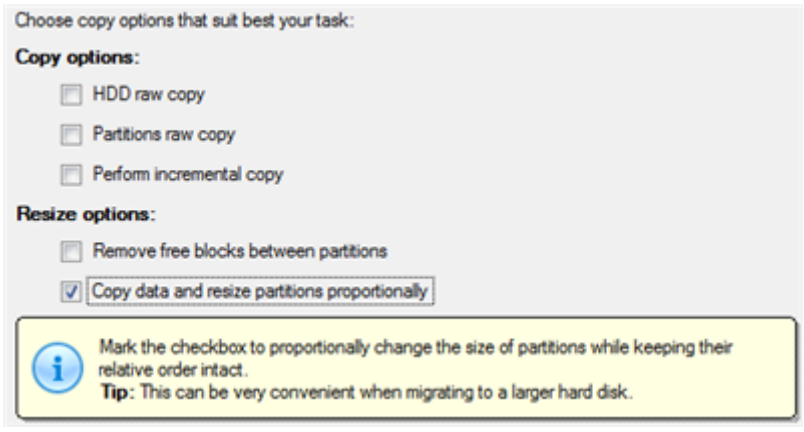


6. On the Select Target Hard Disk page, select a destination disk (a hard disk to copy contents of the source disk).

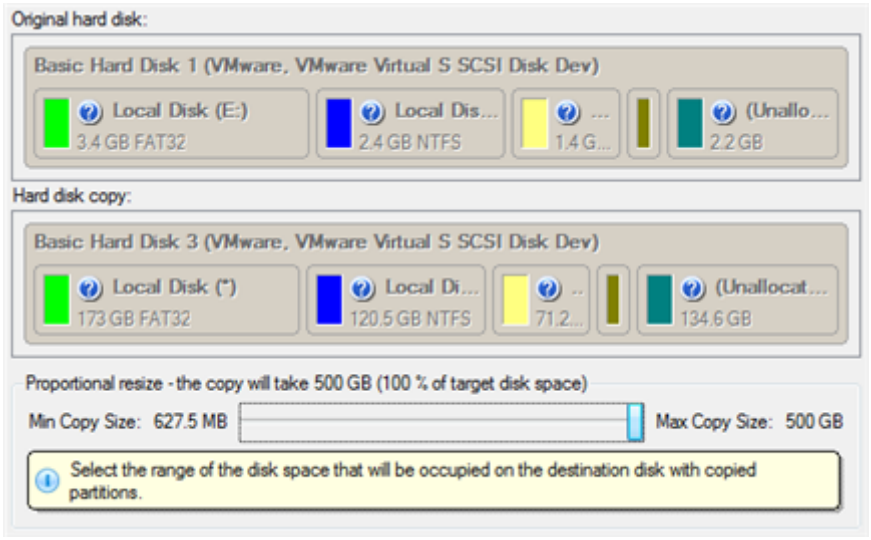


During the operation all contents of the destination disk will be deleted.

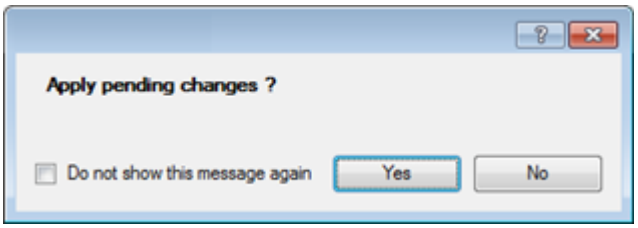
7. On the next page of the wizard, define the copy options. In our case we'd rather copy data with a proportional resize to occupy the entire disk. Besides we recommend you to enable the surface test to make sure your new hard disk is flawless.



8. On the Revise Copy Results page review all parameters of the operation.



9. Complete the wizard and then apply the pending changes.



10. When copying is completed, shut down the computer.
11. Disconnect (physically) the source hard disk.
12. Boot the computer from the destination hard disk.

To make a Win2K+ operating system bootable on different hardware, please additionally complete the P2P Adjust OS Wizard.

Virtualizing the current system (P2V)

Let's assume that you're about to migrate to a brand-new hardware platform with the latest operating system available for it. Your current system is quite obsolete, but you still need access to some of its software. You don't want to waste time re-installing the old software to the new system, and you do know for sure that the bulk of it won't work anyway. The best way out is to virtualize your old system.

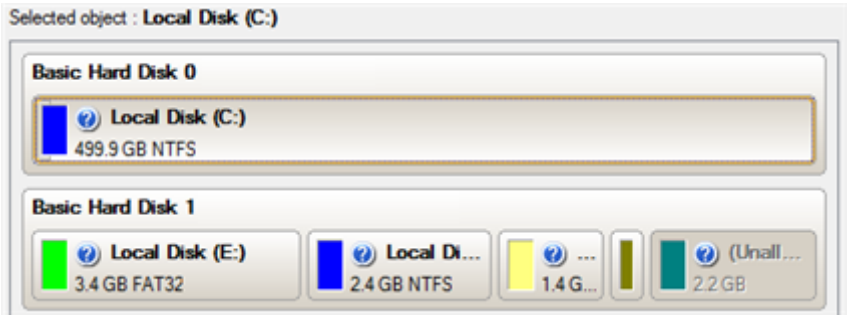
But before you start, please make sure the following conditions are met:

- Your hard disk has enough free space to store a virtual image of your Windows (depends on the system).
- You've got one of the supported virtualization software.

To make a virtual disk out of your current system, please do the following:

1. Click the **P2V Copy** item of the Wizards menu (any of the ways described earlier can also be used here).
2. On the Wizard's Welcome page, click the Next button.

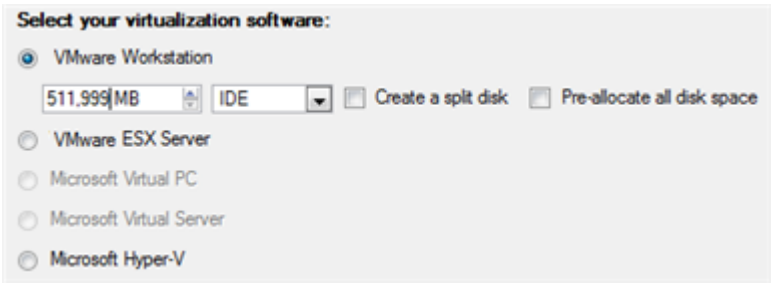
3. Select either an entire hard disk or only the system partition you want to make a virtual disk of.



It's pretty enough to select the system partition only to make your Windows start up in a virtual environment. However that doesn't guarantee all your applications will work, as they can be installed on the other partitions of the disk.

4. Choose your virtualization software vendor and a number of additional parameters, including.

   - **Type of the virtual disk**. You can either create an IDE or a SCSI virtual disk (relevant for VMware only);
   - **Create a split disk**. You can choose whether to automatically cut the resulted virtual image to files of 2 GBs or not (available for VMware only);
   - **Pre-allocate all disk space**. You can choose whether to pre-allocate all space of the future virtual disk, or do it dynamically;

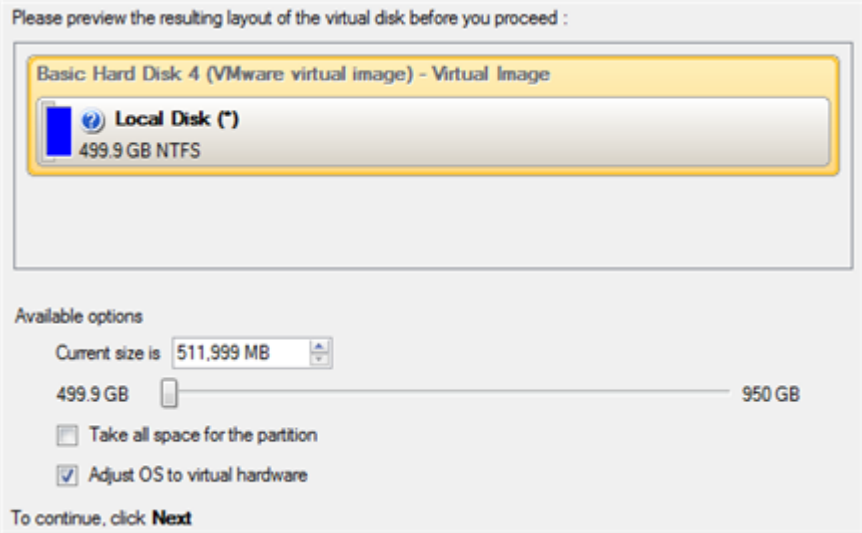


Not all vendors may be available to choose. If the capacity of the selected object exceeds the maximum capacity for a certain virtual disk, its vendor will be shadowed.

5. Depending on your choice the next page of the wizard enables to set the following parameters:

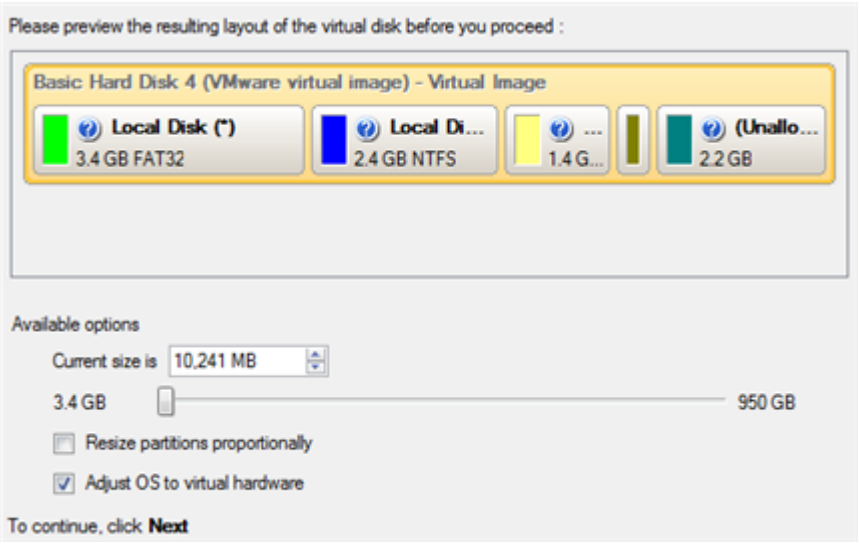
   For a separate partition

   - **Size of the virtual disk**. By default the program offers to create a virtual disk exactly the size of the selected object, which you can upsize however. Please note, you can only increase size of the resulted virtual disk;
   - **Take all space for the partition**. If you upsize the resulted virtual disk, you can choose whether to occupy the whole disk space by that partition or not;
   - **Adjust OS to virtual hardware** to make sure the operating system will be bootable after the operation.



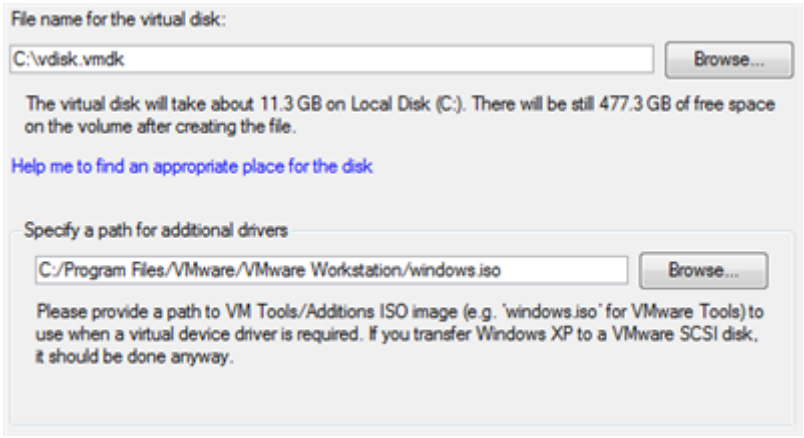
For a hard disk

- **Size of the virtual disk**. By default the program offers to create a virtual disk exactly the size of the selected object, which you can resize however.
- **Resize partitions proportionally**. If you upsize the resulted virtual disk, you can make the program proportionally change the size of partitions keeping their relative order intact.
- **Adjust OS to virtual hardware** to make sure the operating system will be bootable after the operation.



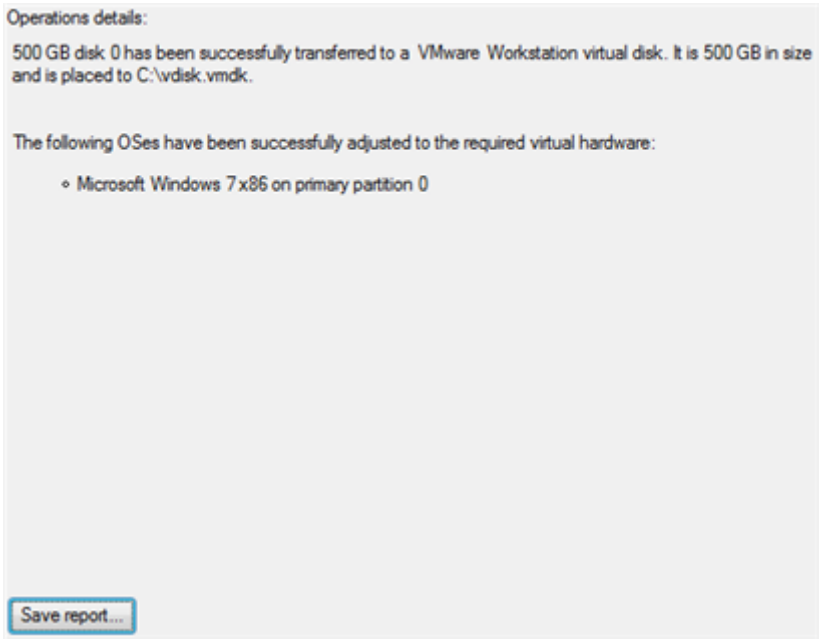
The maximum limit you can downsize the virtual disk is the capacity of its first partition.

6. On the next page of the wizard set a file name for the resulted virtual disk and its location. Besides you can also provide a path to the integration package of your virtualization software.



It's strongly recommended to provide a path to VM Tools/Additions ISO image if you transfer Windows XP to a VMware SCSI disk, otherwise your system won't boot after the operation.

7. The wizard will provide a detailed report on successful accomplishment of the operation. You can save it by clicking the appropriate button.



8. Now you can connect the resulted virtual disk to your virtual machine. Your system has been virtualized.

You need to close the program to unlock the virtual disk. Otherwise you won't be able to connect it to a virtual machine.

Virtualizing system from its backup image (P2V)

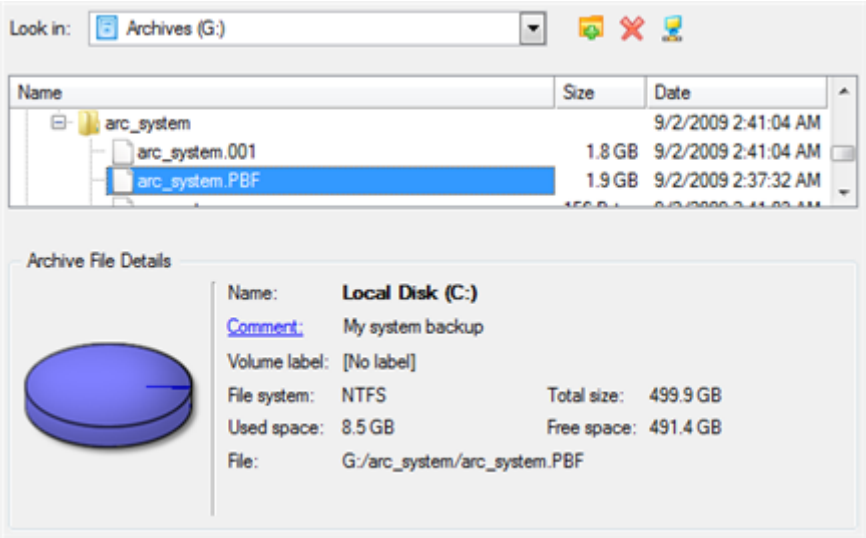
Let's assume that your system has been corrupted as a result of a hardware failure. You realize it's quite obsolete and it's next to impossible to replace the damaged hardware devices. Migration to a new hardware platform seems the best way out, if not for one thing – you still need access to your software, but you do know for sure that the bulk of it won't work on the new platform. Luckily you've got a backup image of your old system made with Paragon software – that's just enough for its virtualization.

But before you start, please make sure the following conditions are met:

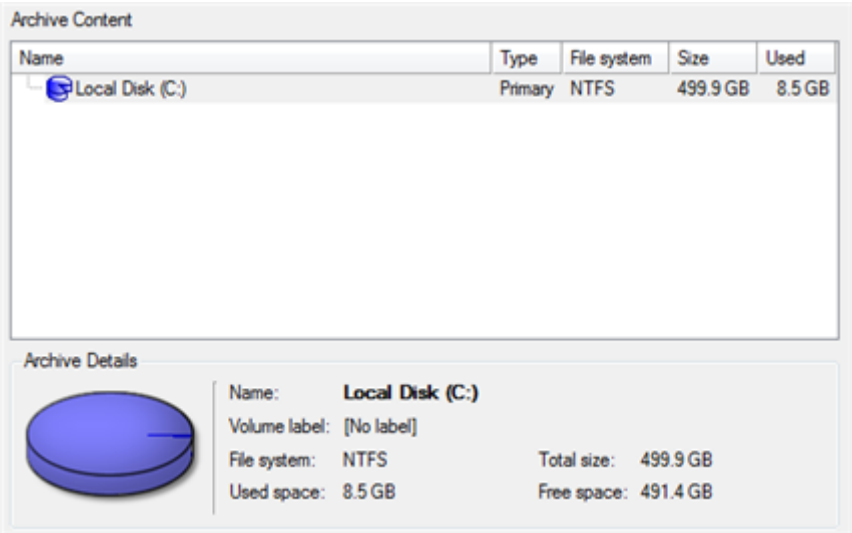
- You've got a backup image of your Windows.
- Your hard disk has enough free space to store a virtual image of your Windows (depends on the system).
- You've got one of the supported virtualization software.

To make a virtual disk out of your old system backed up with a Paragon disaster recovery tool, please do the following:

1. Click the **P2V Restore** item of the Wizards menu (any of the ways described earlier can also be used here).
2. On the Wizard's Welcome page, click the Next button.
3. Browse for the required backup image of your old system. The section below (i.e. Archive File Details) will also display a short description of the selected image.



4. On the next page specify exactly what you need to virtualize, only the system partition or the entire hard disk (in case you have to do with a hard disk backup image).

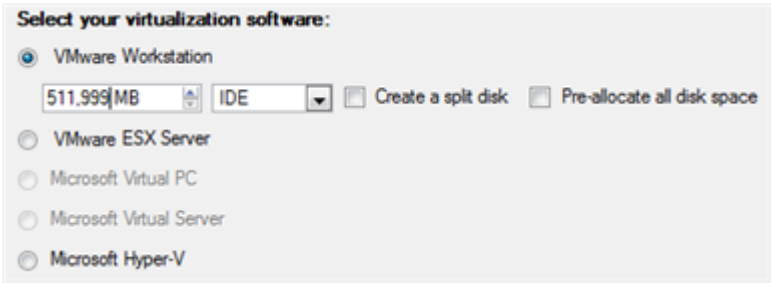


When having to do with a hard disk backup image, it's pretty enough to select the system partition only to make your Windows start up in a virtual environment. However that doesn't guarantee all your applications will work, as they can be installed on the other

partitions of the disk.

5. Choose your virtualization software vendor and a number of additional parameters, including.

   - **Type of the virtual disk**. You can either create an IDE or a SCSI virtual disk (relevant for VMware only);
   - **Create a split disk**. You can choose whether to automatically cut the resulted virtual image to files of 2 GBs or not (available for VMware only);
   - **Pre-allocate all disk space**. You can choose whether to pre-allocate all space of the future virtual disk, or do it dynamically;

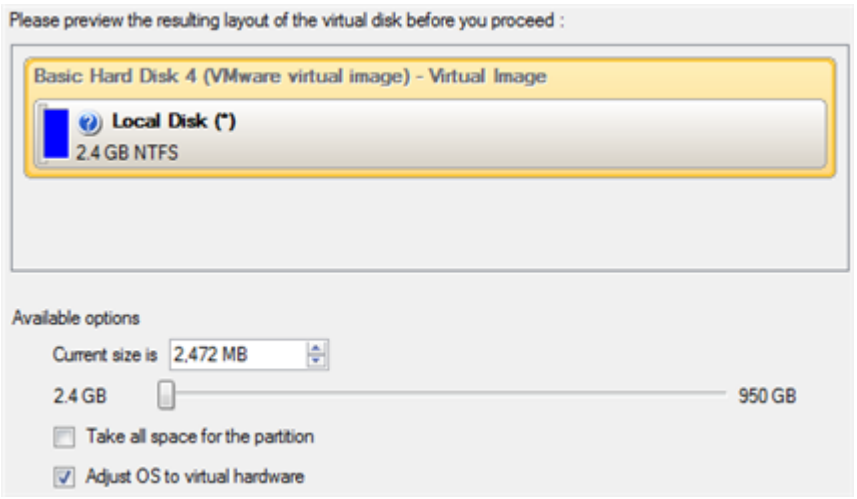


Not all vendors may be available to choose. If the capacity of the selected object exceeds the maximum capacity for a certain virtual disk, its vendor will be shadowed.

6. Depending on your choice the next page of the wizard enables to set the following parameters:

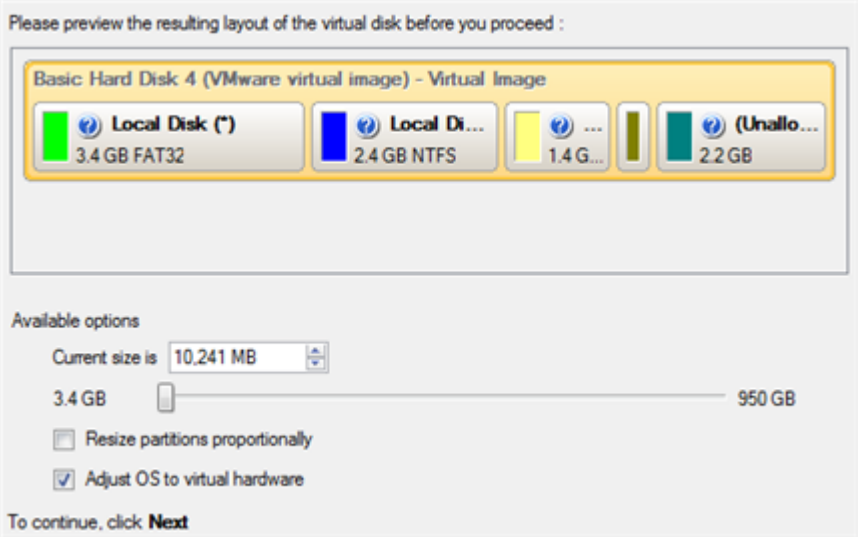
   For a separate partition

   - **Size of the virtual disk**. By default the program offers to create a virtual disk exactly the size of the selected object, which you can upsize however. Please note, you can only increase size of the resulted virtual disk;
   - **Take all space for the partition**. If you upsize the resulted virtual disk, you can choose whether to occupy the whole disk space by that partition or not;
   - **Adjust OS to virtual hardware** to make sure the operating system will be bootable after the operation.



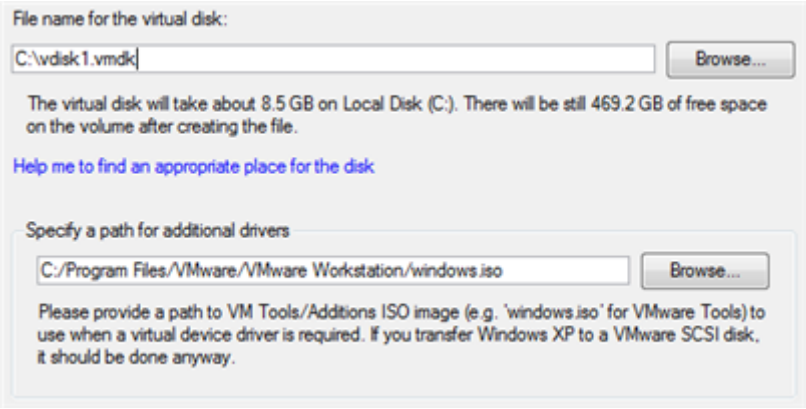
For a hard disk

- **Size of the virtual disk**. By default the program offers to create a virtual disk exactly the size of the selected object, which you can resize however.
- **Resize partitions proportionally**. If you upsize the resulted virtual disk, you can make the program proportionally change the size of partitions keeping their relative order intact.
- **Adjust OS to virtual hardware** to make sure the operating system will be bootable after the operation.



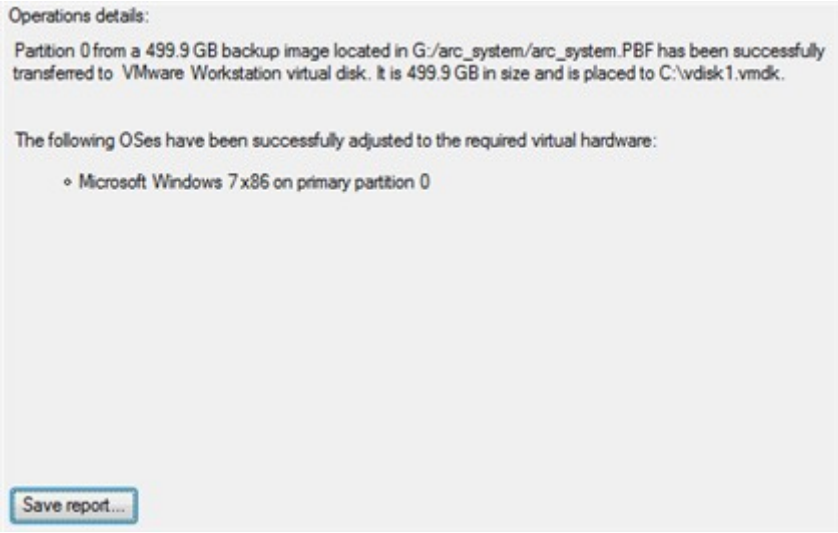
The maximum limit you can downsize the virtual disk is the capacity of its first partition.

7. On the next page of the wizard set a file name for the resulted virtual disk and its location. Besides you can also provide a path to the integration package of your virtualization software.



It's strongly recommended to provide a path to VM Tools/Additions ISO image if you transfer Windows XP to a VMware SCSI disk, otherwise your system won't boot after the operation.

8. The wizard will provide a detailed report on successful accomplishment of the operation. You can save it by clicking the appropriate button.



9. Now you can connect the resulted virtual disk to your virtual machine. Your old system has been virtualized from its backup image.

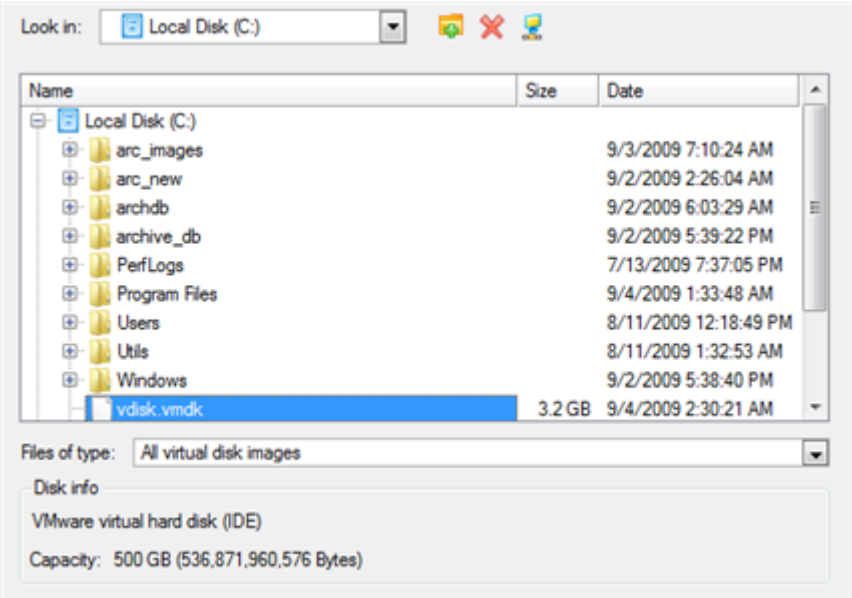
You need to close the program to unlock the virtual disk. Otherwise you won't be able to connect it to a virtual machine.

Making system bootable on virtual hardware (P2V Adjust OS)

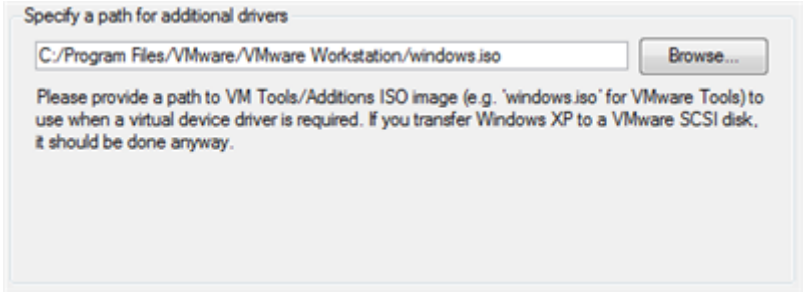
Let's assume you had to migrate to a new hardware platform. Willing to conserve your system, you decided to virtualize it with a 3rd party tool, but unsuccessfully - you got a virtual disk as a result of the operation, but the system was failing to start up. You had nothing to do but forget about your old system. With our program you've now got the option to make your virtualized system bootable.

To recover bootability after migrating your physical system to a virtual disk with a 3rd party tool, please do the following:

1. Click the **P2V Adjust OS** item of the Wizards menu (any of the ways described earlier can also be used here).
2. On the Wizard's Welcome page, click the Next button.
3. Browse for the required virtual disk.

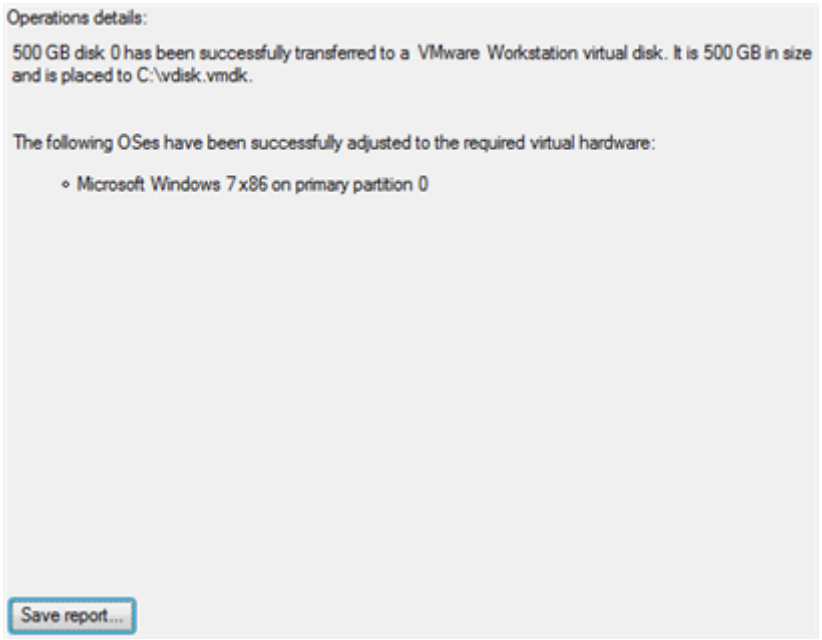


4. Provide a path to the integration package of your virtualization software.



It's strongly recommended to provide a path to VM Tools/Additions ISO image if you transfer Windows XP to a VMware SCSI disk, otherwise your system won't boot after the operation.

5. The wizard will provide a detailed report on successful accomplishment of the operation. You can save it by clicking the appropriate button.



Now your virtualized system is 100-percent bootable.

You need to close the program to unlock the virtual disk. Otherwise you won't be able to connect it to a virtual machine.

Connecting a virtual disk (Connect VD)

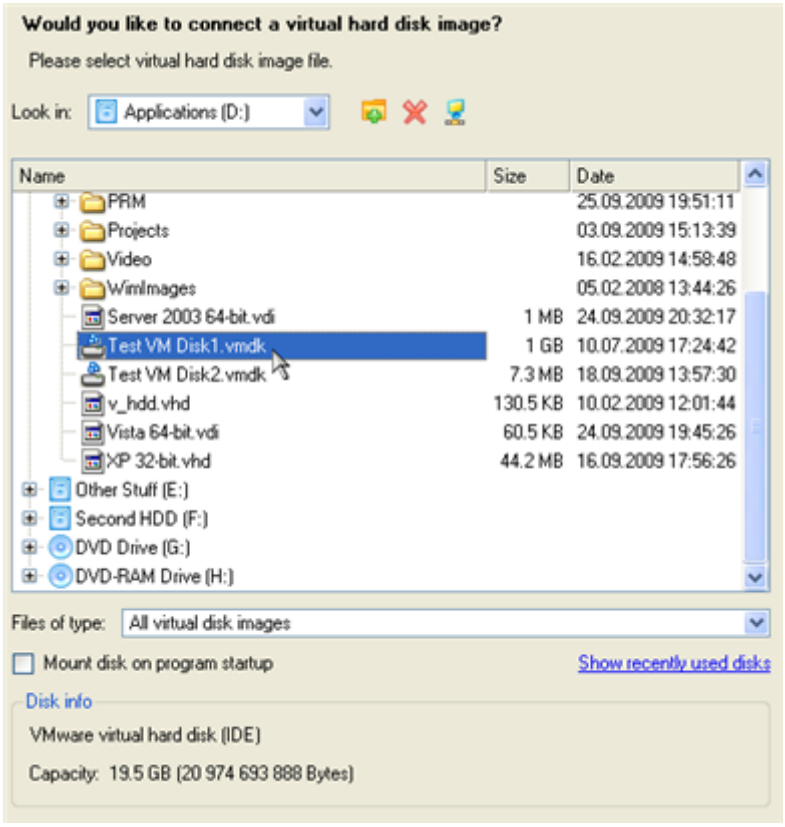
You've got the option to connect a virtual disk of one of the supported types directly to our program as if it's an ordinary physical disk, so opening up enormous possibilities:

- Exchange data between your physical environment and the virtual one through Volume Explorer (data import only) or File Transfer Wizard (data import and export). The way we offer is much easier and faster, as you don't need a VM shared folder, the network, or the slow-goer drag-and-drop;
- Import data from a parent virtual disk to one of its snapshots;

- Accomplish drive partitioning (create, format, delete, move, resize, etc.);
- Modify partition attributes (Active flag, Hidden flag, Volume Label, etc.);
- Clone a partition or an entire hard disk;
- Edit/View sectors, and many more.

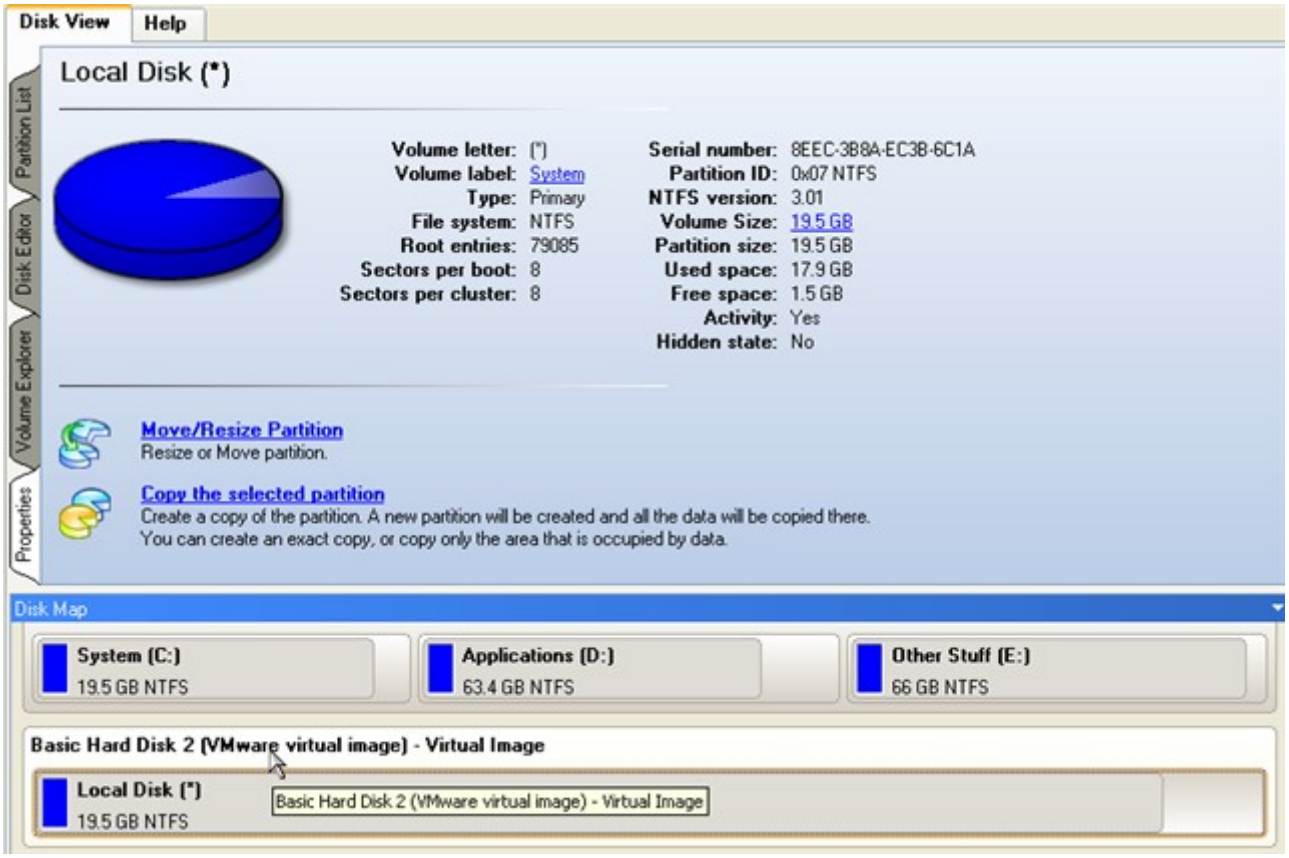
To connect a virtual disk (snapshot) to our program, please do the following:

1. Click the **Connect a Virtual Disk** item of the Hard Disk menu (any of the ways described earlier can also be used here).
2. In the opened dialog browse for the required virtual disk, then click Connect to accomplish the operation. You've also got the option to have this disk be connected automatically at every program startup by marking the appropriate checkbox.



Click the "Show recently used disks" link to select and connect one of the disks you've already worked with.

3. That's all. The selected virtual disk will be available on the disk map, as if it's an ordinary physical disk.



Limitations:

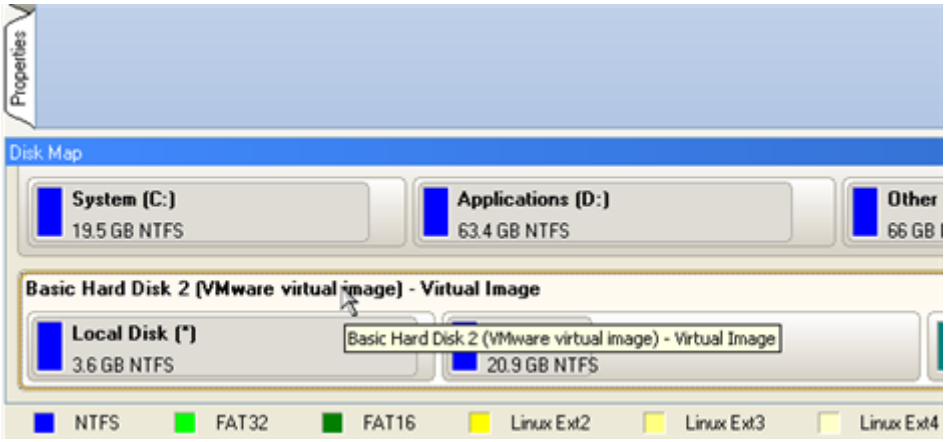
- A virtual disk opened for writing with a 3rd party tool (e.g. being used by a virtual machine) won't be connected, as asynchronous parallel writing to the disk file will most likely result in data corruption;
- A virtual disk opened for reading with a 3rd party tool (e.g. it's a parent VMware disk, which snapshot is being used by a virtual machine) will be opened for reading only with the corresponding notification;
- A double disk connection is prohibited.

Repartitioning a virtual disk

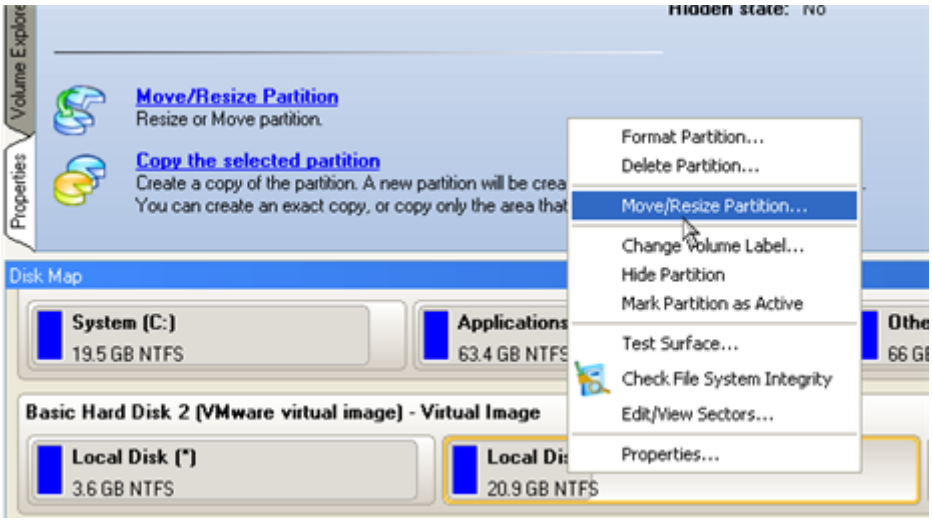
Let's assume you've got several partitions on a virtual disk. After installing a number of resource-consuming applications and system updates the system partition has started to suffer from the lack of free space. But an adjacent partition has a plenty of redundant space. That's just enough to make the system partition suffer no more.

To increase size of a system partition by taking unused space from an adjacent partition, please do the following:

1. Connect the required virtual disk to our program.
2. Select it on the disk map.

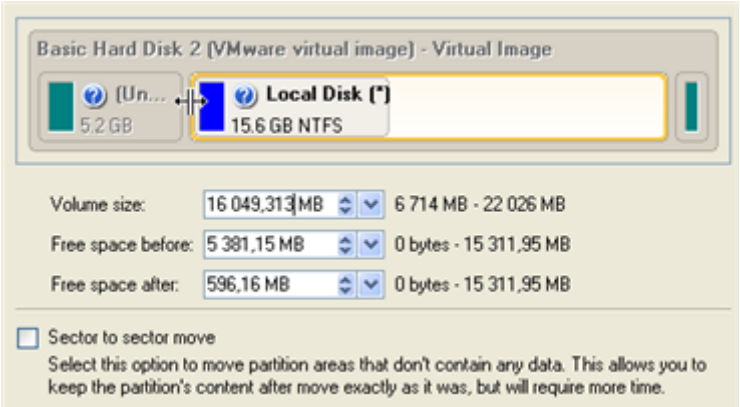


3. Right click on the space donor partition, then select **Move/Resize Partition…**

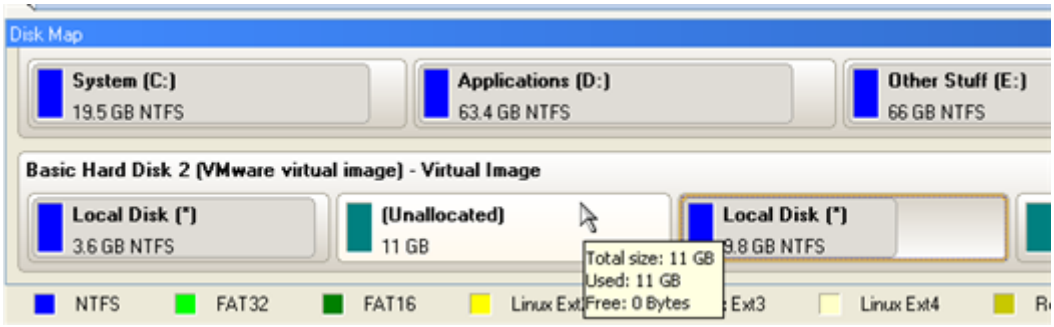


In case you've got more than two partitions on the disk, and the required space donor is not adjacent to the system partition, you can still use this scenario by consecutively redistributing free space between all partitions involved in the operation.

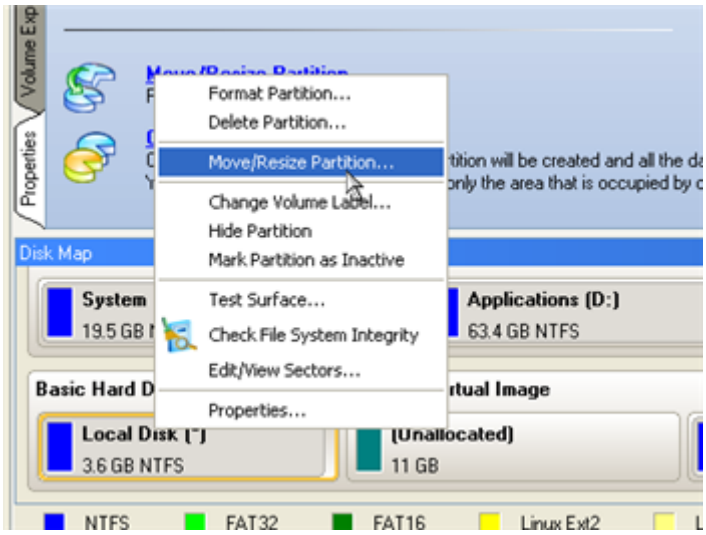
4. In the opened dialog drag-and-drop the left edge of the partition to the right to release the required amount of the free space (displayed in aqua-green). You can also do it manually by entering the exact size of free space.



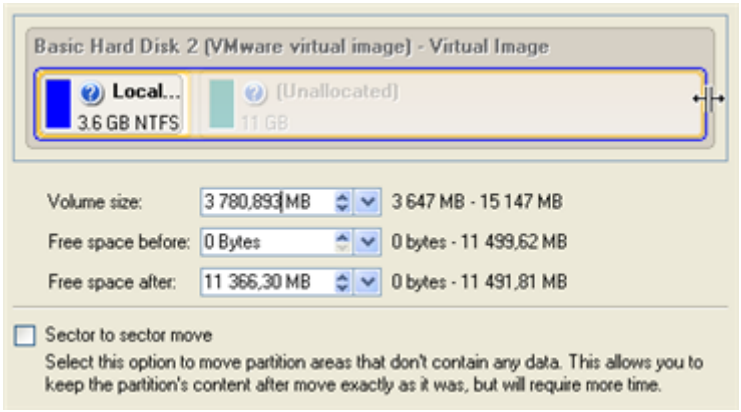
5. Now you've got a block of free space to add to the system partition.



6. Right click on the system partition, then select **Move/Resize Partition…**



7. In the opened dialog shift the right edge of the partition to the right end, thus increasing its size.



8. Apply all introduced changes. By default, the program 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.

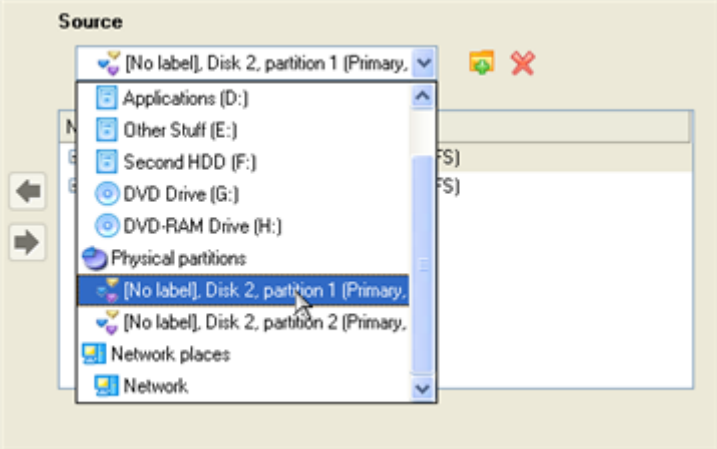
9. When done, either disconnect the virtual disk or close our program.

Exchanging data between physical and virtual environments

Let's assume you need to import a lot of data from one of your virtual disks. The best way out is to use our program, as it can help you do that without starting up the virtual environment and the other actions typical for this task.

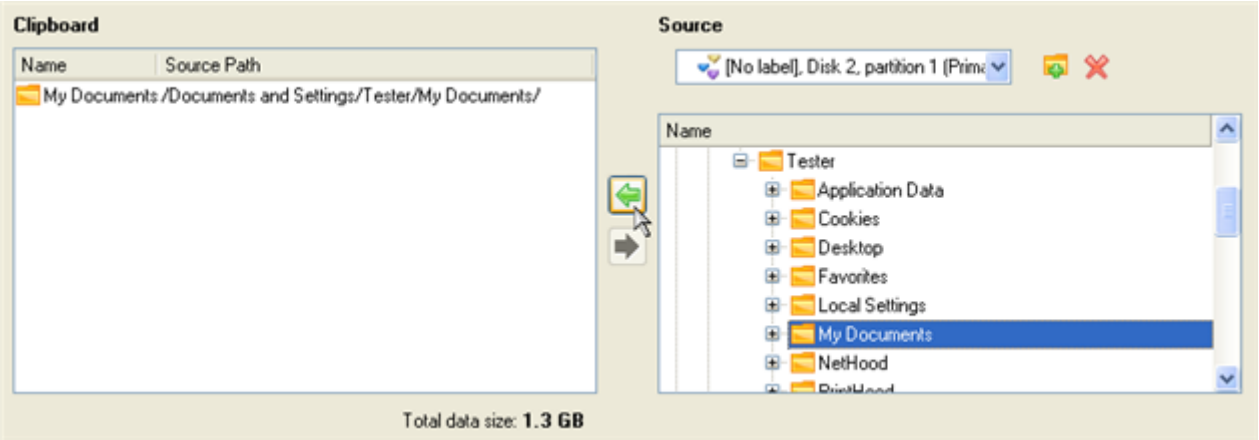
To import data from a virtual environment, please do the following:

1. Connect the required virtual disk to our program.
2. Select in the Main Menu: **Tools > File Transfer Wizard** (any of the ways described earlier can also be used here).
3. On the Wizard's Welcome page, click the Next button.
4. Select a disk where the required data is stored from the pull-down list in the right pane of the window. You can find it among physical partitions, as a connected virtual disk cannot have an assigned drive letter either.

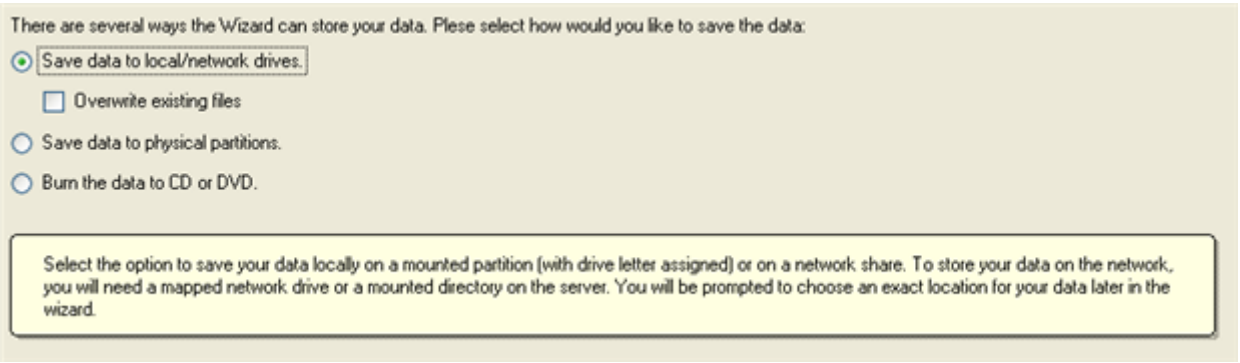


To easily find the disk you need, please use its volume label or sequence number as a check point.

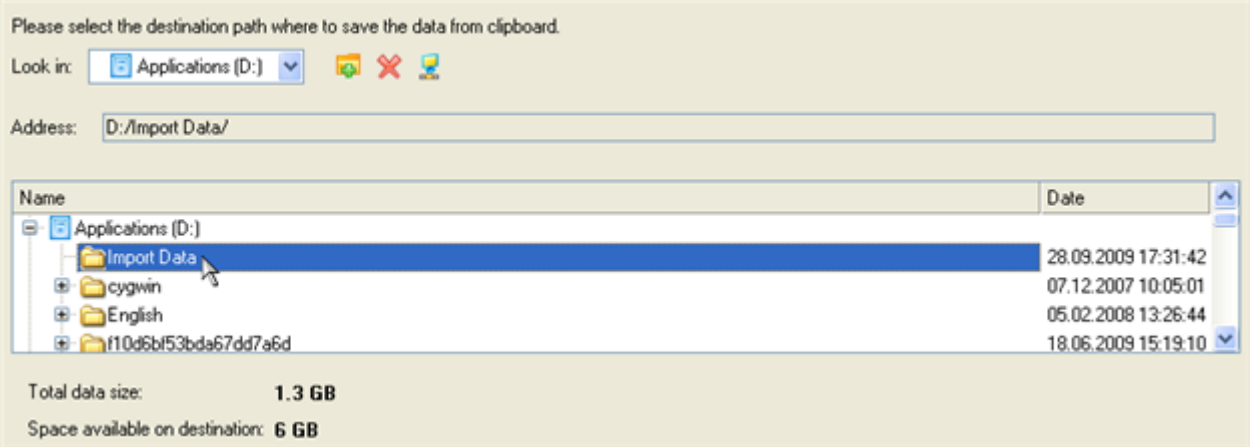
5. Select files you want to copy and place them to Clipboard by pressing the left arrow-button. Click **Next** to continue.



6. Select the **Save data to local/network drives** item. Click **Next** to continue.



7. Specify the exact place to copy the data to.



8. Finish the wizard to accomplish the operation.

Copying data from a parent virtual disk to one of its snapshots

Let's assume you've got a virtual machine with several snapshots. You need to copy some data from a parent image to one of its snapshots. You can't just roll back to the parent image, as you don't want to lose the latest data of the snapshot, so the best way out is to copy the required data from the parent image to the snapshot.

To copy data from a parent image to one of its snapshots, please do the following:

1. Connect the required snapshot disk to our program.
2. Connect its parent disk to our program. It'll be connected for reading only.
3. Copy the required data from the parent disk to the snapshot.
4. Disconnect the virtual disks or close the program.

Migrating from one virtual environment to another (V2V)

Let's assume you're willing to shift to another virtual machine (e.g. from a Microsoft Virtual PC to VMware Workstation). The only thing that holds you back from it is a lot of virtual disks for MS Virtual PC, which cannot be used with VMware Workstation. Don't worry, we can help you out.

Before you start, please make sure you've got enough free space to accomplish the operation.

To make a virtual disk of one vendor out of an existing virtual disk of another vendor, please do the following:

1. Connect the required virtual disk to our program.
2. Complete the P2V Copy Wizard.
3. As a result you'll get two virtual disks containing the same virtual environment, but of different vendors. You can now delete the original to release some free space.

Making system bootable on different hardware (P2P Adjust OS)

Let's assume you had to migrate to a new hardware platform. You just connected your system hard disk to the brand new PC and tried to start up the operating system - you do know for sure now that this operation had been doomed to failure from the very beginning. With our program you can easily tackle this naughty problem.

But before you start, please make sure the following conditions are met:

- You've got drivers for the new hardware ready to use, not zipped or in .exe files.
- Your OS is unrolled on the new computer, not in a backup image.

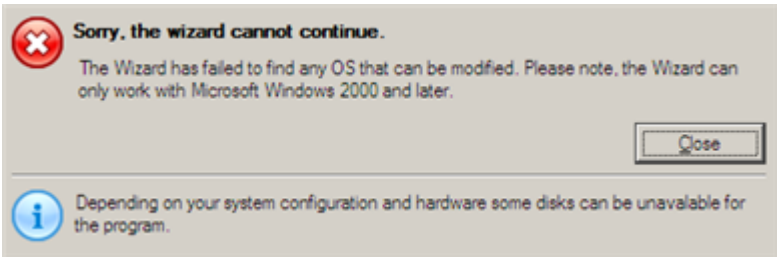
To recover bootability after migrating your physical system to different hardware, please do the following:

1. Start up the computer from our WinPE media.
2. Once it has been loaded, read the agreement and then mark the appropriate checkbox to accept.

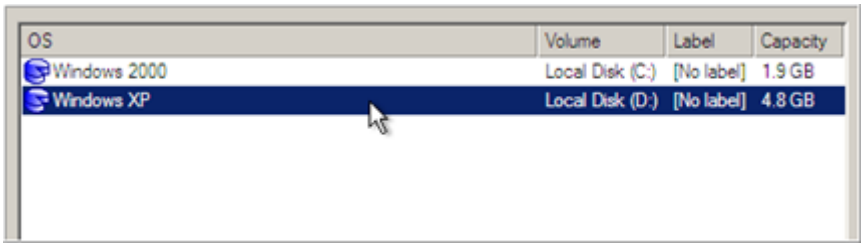
If you do not agree with any conditions stated there, you won't be able to use the program.

3. Once you accept the agreement, you will see the Universal Application Launcher. Launch **P2P Adjust OS Wizard**.

Our WinPE 2.1 based environment offers excellent hardware support. However in case it doesn't have a driver for your disk controller, your hard disks will be unavailable. Please consult the Adding specific drivers scenario to know how to tackle this issue.



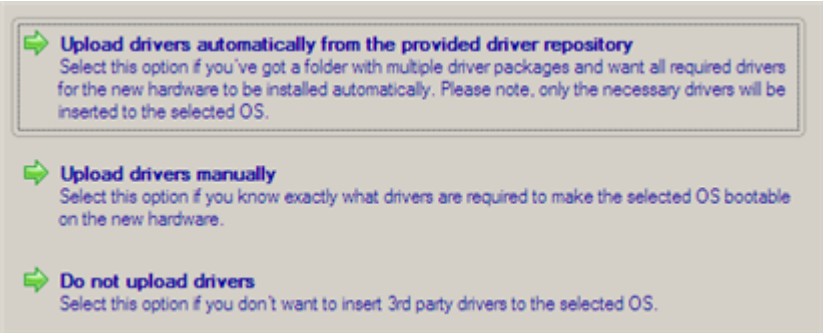
4. On the Wizard's Welcome page, click the Next button.
5. From the list of all found Windows based operating systems (if several) select one you need to adjust to your new hardware. If you're willing to adjust them all, just re-launch this wizard for each.



The wizard can only work with Microsoft Windows 2000 and later operating systems.

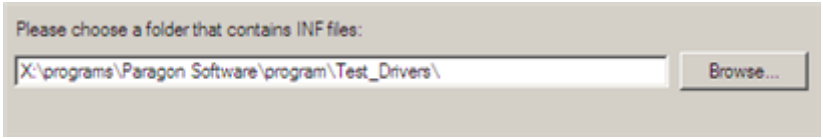
6. Choose whether you're going to add drivers for the new hardware to the selected operating system or not and the way it's to be done. Actually you've got three options:
   - **Upload drivers automatically from the provided driver repository**. Generally together with new hardware you get its drivers for different operating systems on removable media (mostly CD or DVD). By collecting all these drivers in one folder you can let the wizard automatically pick and install only those required for your OS (recommended);

- **Upload drivers manually**. If you know exactly what drivers your operating system is lacking to successfully start up, you can manually provide them for the wizard.
- **Do not upload drivers**. And finally you can just refuse providing 3rd party drivers.

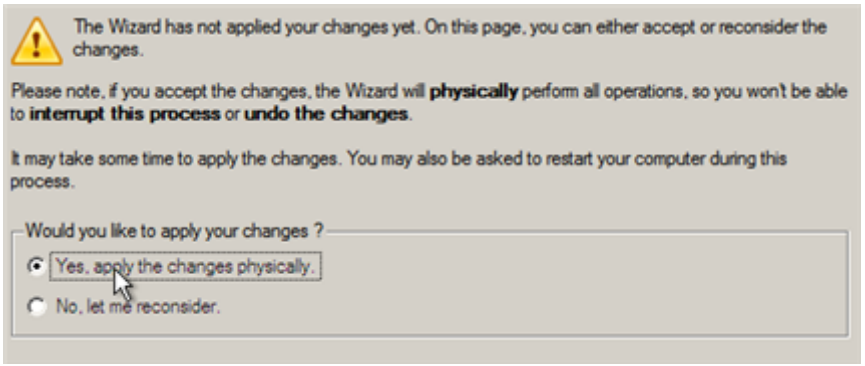


We prefer the wizard to decide what drivers are to be installed.

7. Browse for a folder with drivers for the new hardware or type in a full path to it manually.



8. Apply the changes by confirming the operation.



After the operation is completed your system will be bootable on the new hardware.

Migrating from a virtual environment to physical (V2P)

Let's assume your desktop PC was damaged a couple of months ago. Luckily you had had its system virtualized just before the tragedy. Having a laptop at the disposal, you kept working with the desktop system in a virtual environment for a while, while scanning the market for a replace. To cut it short, you've got a brand-new desktop PC just delivered to your door – it's time for a little V2P operation. Our program can help you do that.

But before you start, please make sure the following conditions are met:

- You've got drivers for the new hardware ready to use, not zipped or in .exe files.
- You've got access to the virtual disk from your desktop PC. You can have it locally, on external storage, or a network share.

To migrate from a virtual environment to physical, please do the following:

1. Start up the computer from our WinPE media.
2. Once it has been loaded, read the agreement and then mark the appropriate checkbox to accept.

If you do not agree with any conditions stated there, you won't be able to use the program.

3. Once you accept the agreement, you will see the Universal Application Launcher. Click **Full Scale Launcher**.
4. Connect the required virtual disk to our program.
5. Copy the connected virtual disk to your physical disk just the way it's done with physical disks.
6. Right click on the virtual disk, then select **Disconnect Virtual Disk**.
7. Complete the P2P Adjust OS Wizard.

Migrating a Windows 7 vhd

Let's assume you need to make your Windows 7 contained in a .vhd file start up on another computer. You've copied the virtual disk, added info on it to the BCD boot menu, then tried to start up the OS, but to no avail - your Windows goes BSOD with the 0x000007B error code. We can help you out with this naughty problem.

To make a .vhd image of Windows 7 start up on different hardware, please do the following:

1. Start up the computer from our WinPE media.
2. Once it has been loaded, read the agreement and then mark the appropriate checkbox to accept.

If you do not agree with any conditions stated there, you won't be able to use the program.

3. Once you accept the agreement, you will see the Universal Application Launcher. Click **Full Scale Launcher**.
4. Connect the required virtual disk to our program.
5. Complete the P2P Adjust OS Wizard.

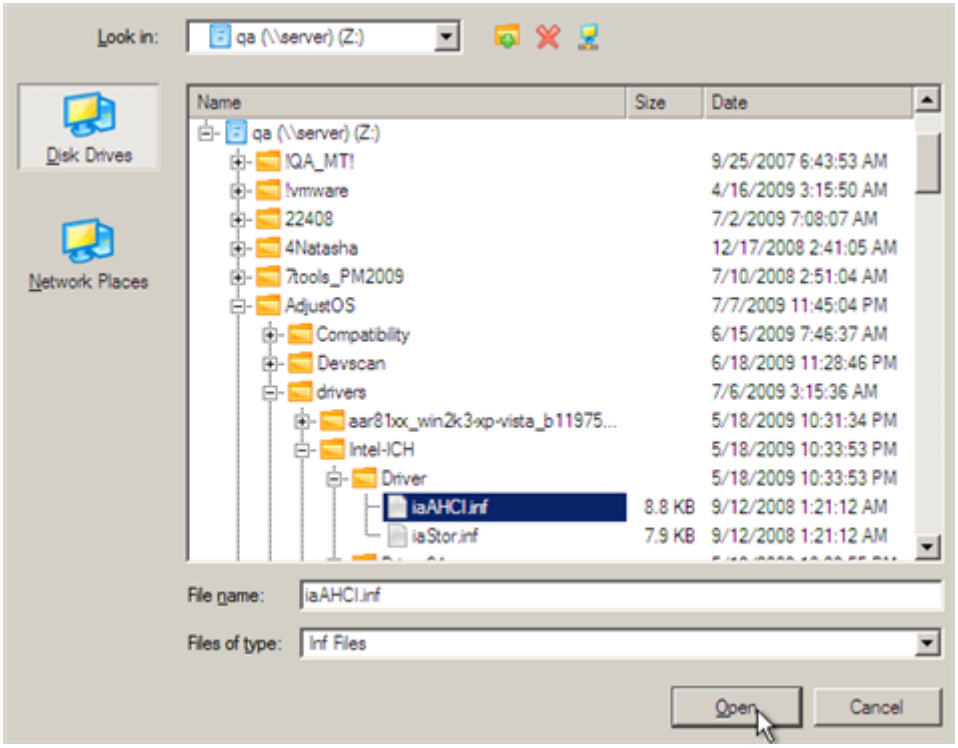
Extra Scenarios for WinPE

Adding specific drivers

Our WinPE 2.1 based environment offers excellent hardware support. Anyway you've got the option to add drivers for specific hardware with a handy dialog.

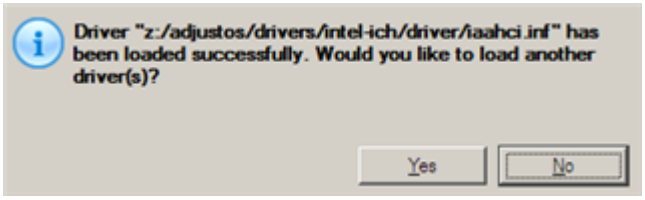
To add drivers for specific hardware, please do the following:

1. Once you accept the agreement, you will see the Universal Application Launcher. Click **Add Drivers**.
2. In the opened dialog browse for an .INF file of the required driver package located on a floppy disk, local disk, CD/DVD or a network share. Then click the **Open** button to initiate the operation



To know how to map a network share, please consult the Configuring network scenario.

3. You will be notified on the successful accomplishment of the operation. Click **Yes** to load another driver or **No** to close the dialog.



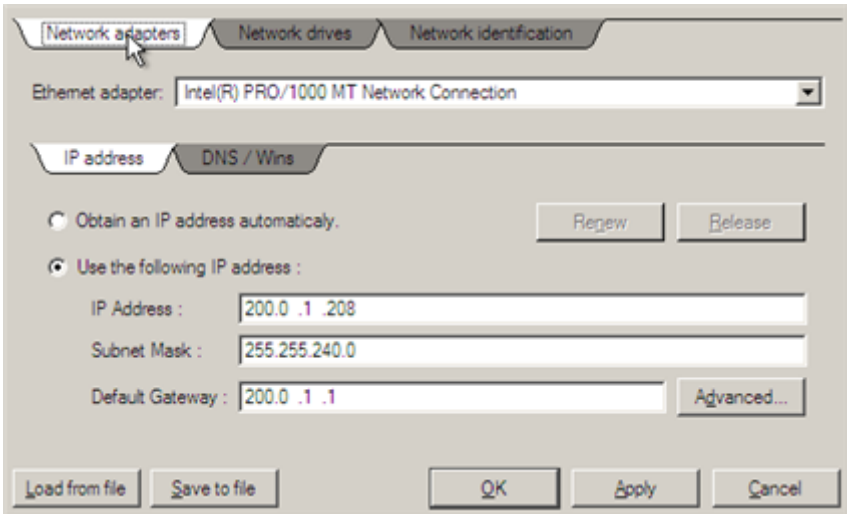
Our WinPE 2.1 environment is 32-based, thus you need to use 32-bit drivers for injection.

Configuring network

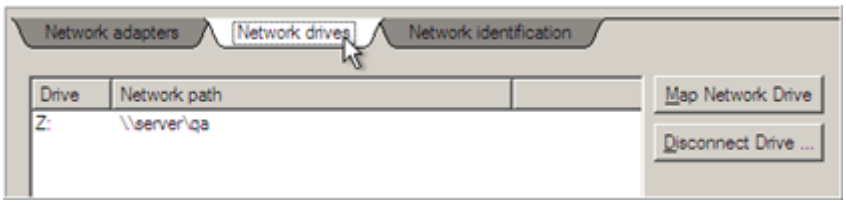
If your local network has a DHCP server, a network connection will be automatically configured once our WinPE recovery environment has been started up. Otherwise you will need to do it manually with a handy dialog by providing an IP address, a network mask, default gateway, etc. Besides with its help you can easily map network shares.

To manually set up a network connection and map a network share, please do the following:

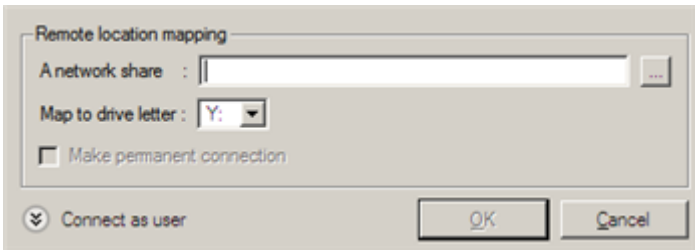
1. Once you accept the agreement, you will see the Universal Application Launcher. Click **Configure Network**.
2. In the opened dialog provide an IP address, a network mask, default gateway, etc. for your network device.



3. Click the **Network drivers** tab to map a network share.



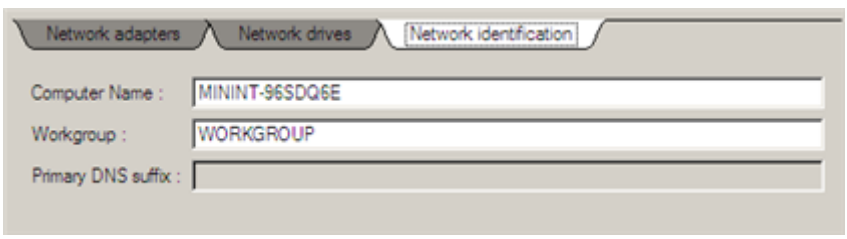
4. Click **Map Network Drive** and provide all the necessary information to map a network share in the opened dialog:



- Click the standard browse button [...] to browse for the required network share or manually enter a path to it;
- Define a letter from the pull-down list of available drive letters;
- Click the **Connect as user** button at the foot of the dialog page to specify a user name and password to access the selected network share if necessary.

By clicking **Disconnect Drive…** you can delete an existing network share if necessary.

5. Click the **Network identification** tab to change a network name of your computer (generated automatically) and a workgroup name.



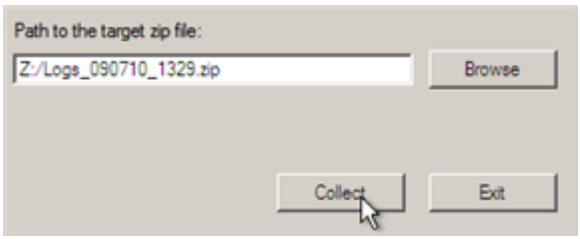
6. By default, the wizard saves all network settings in the netconf.ini file located on the WinPE RAM drive, thus it will only be available until you restart the computer. However, you can just once configure your network device and then save this file to some other destination, for instance a local drive, and this way avoid constant re-configuration, just by providing a path to it. So Click **Save to file** to save the netconfig.ini file to the required destination.

Saving log files

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

To prepare a log files package, please do the following:

1. Once you accept the agreement, you will see the Universal Application Launcher. Click **Log Saver**.
2. In the opened dialog browse for the required location of the log files package or manually provide a full path to it. Click **Collect** to initiate the operation.



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

Connecting Virtual Disks to a Virtual Machine

With our program you can only create virtual disks not virtual machines. Thus to work with your virtualized system, first you need to connect its virtual disk to a virtual machine. Actually you've got two options:

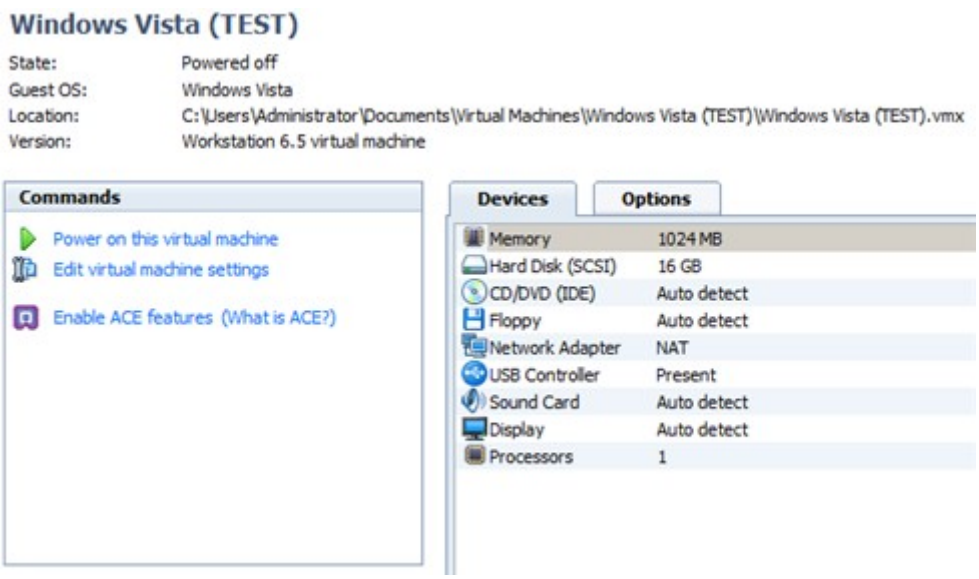
- Connect the virtual disk to an existing virtual machine;
- Connect the virtual disk to a new virtual machine.

Connecting virtual disks to an existing virtual machine

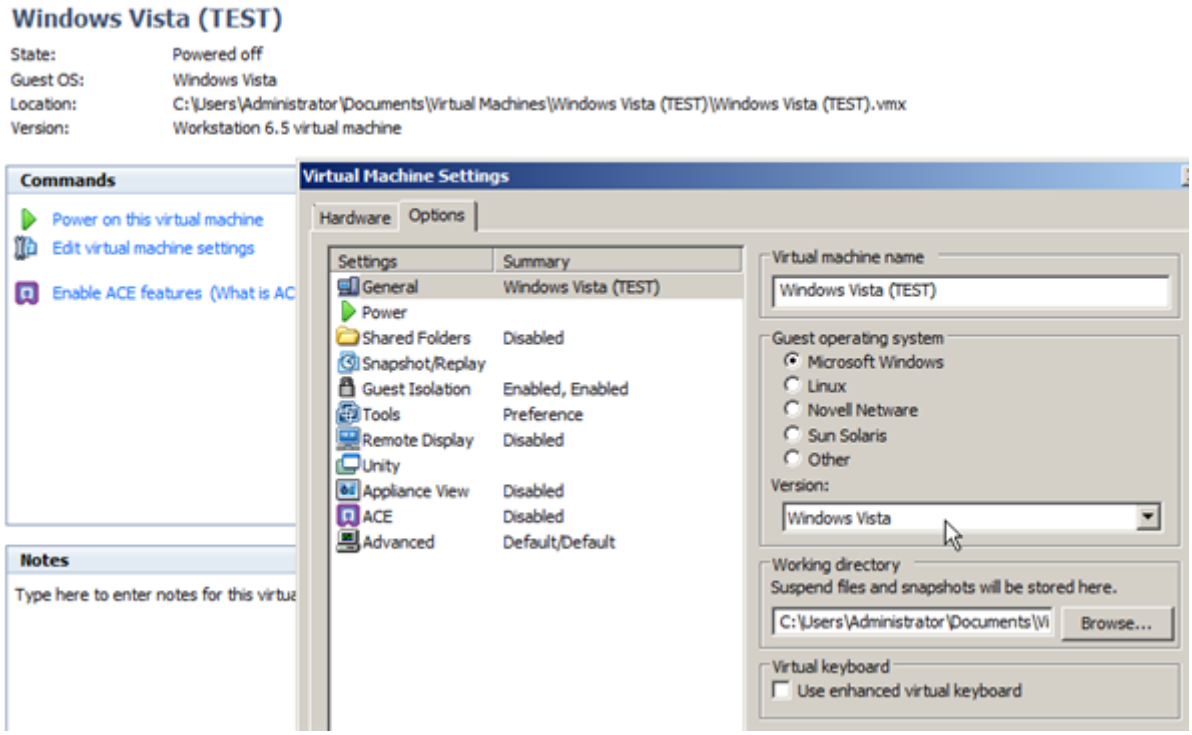
For VMware Workstation

To connect a VMware Workstation virtual disk to an existing virtual machine, please do the following:

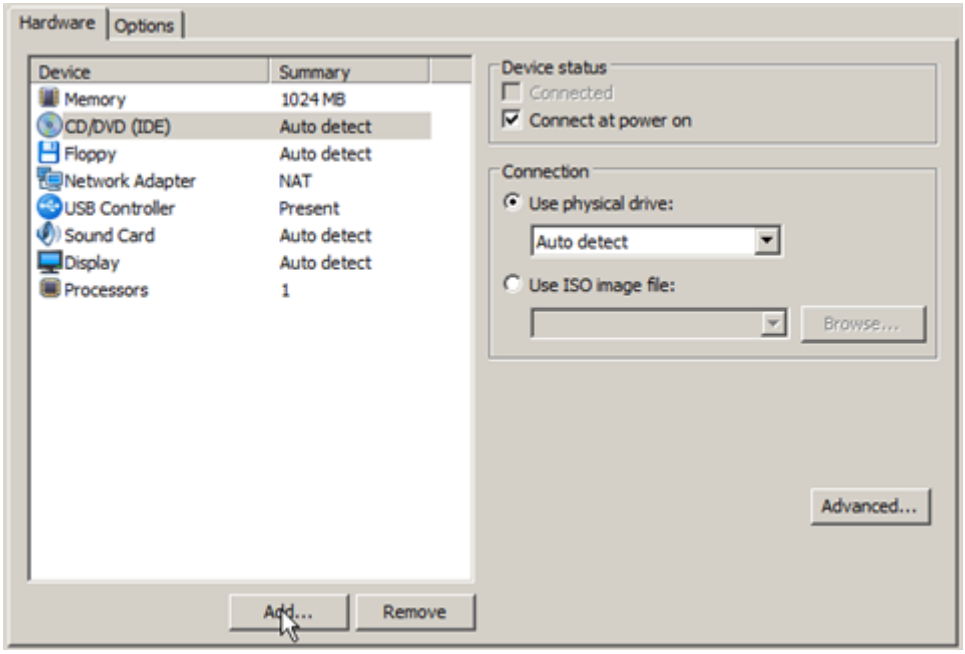
1. Open an existing VMware Workstation virtual machine.



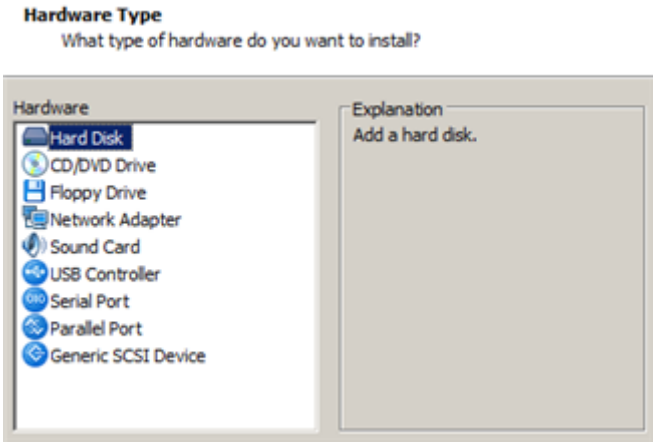
2. Please make sure its guest OS is the same as on your virtual disk, otherwise you may face hardware incompatibility problems.



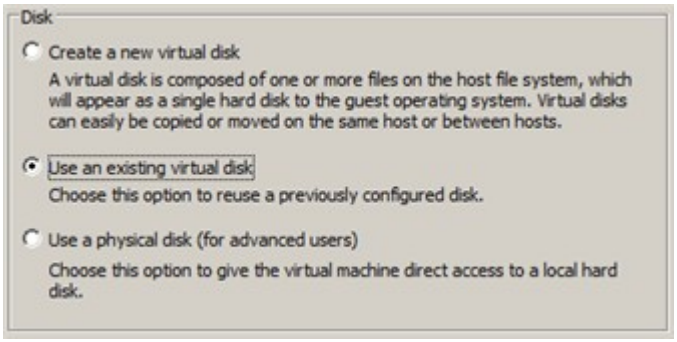
3. Click **Add…** to connect your virtual disk to the machine.



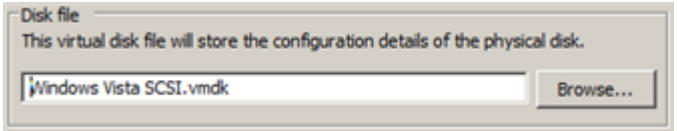
4. In the opened dialog select **Hard Disk** as the required hardware type to add.



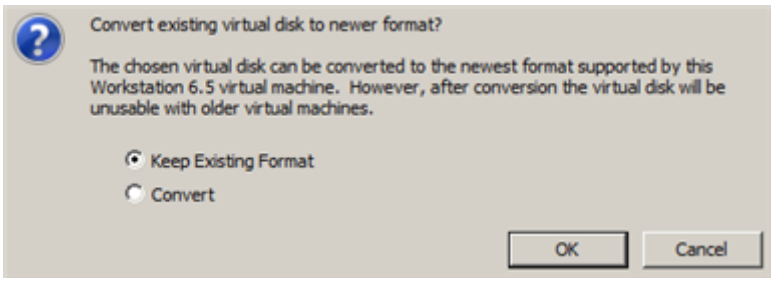
5. On the next page select **Use an existing virtual disk**.



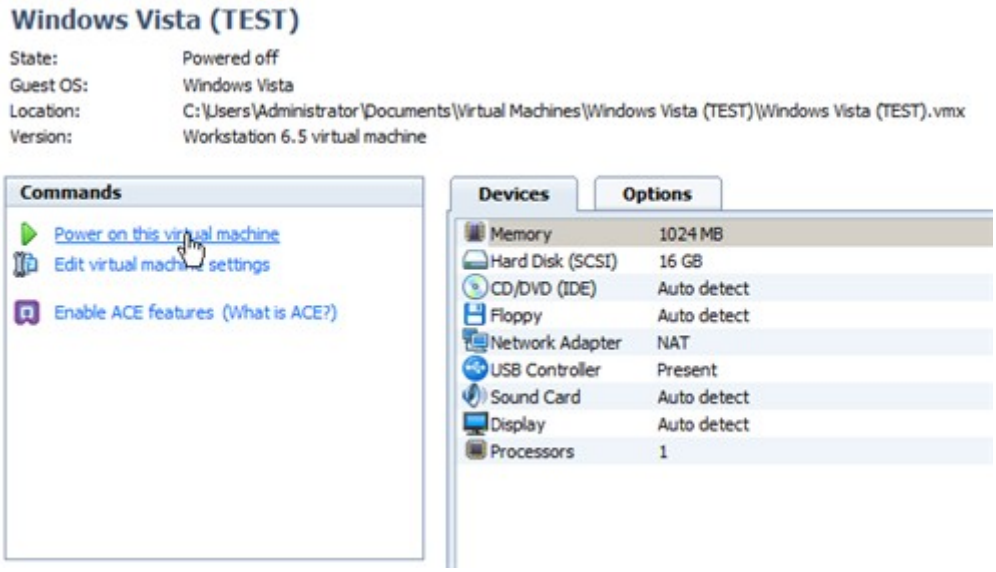
6. Browse for your virtual disk.



7. Click **Finish** to complete the operation. Most likely you will be asked to convert your virtual disk to a new format. You can update your disks, since this procedure involves change of a version only, nothing else. To know more on the subject please consult the Known Issues chapter.



8. That's all. You can now launch the virtual machine.

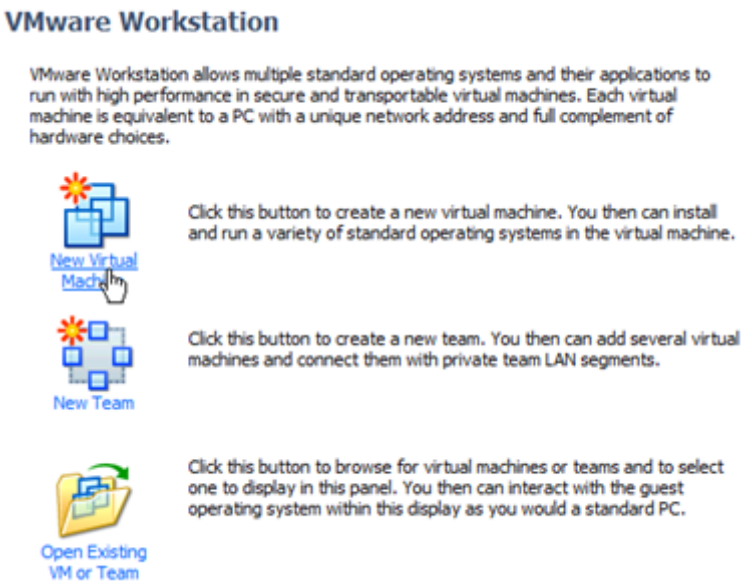


Connecting virtual disks to a new virtual machine

For VMware Workstation

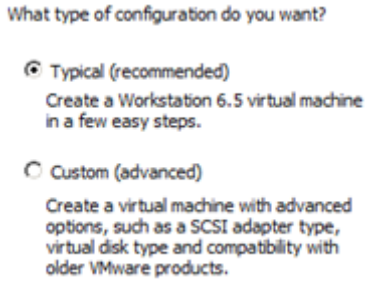
To connect a VMware Workstation virtual disk to a new virtual machine, please do the following:

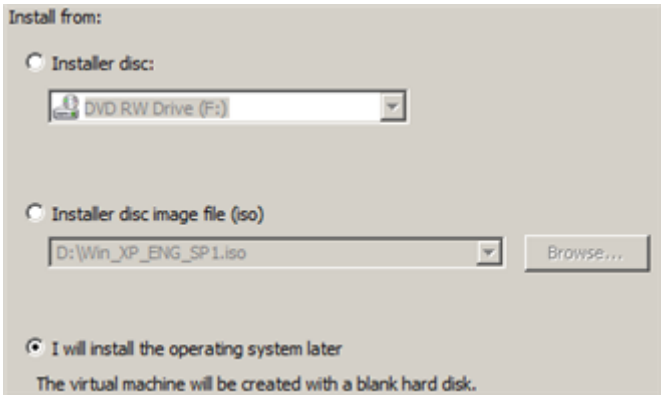
1. Click **New Virtual Machine**.



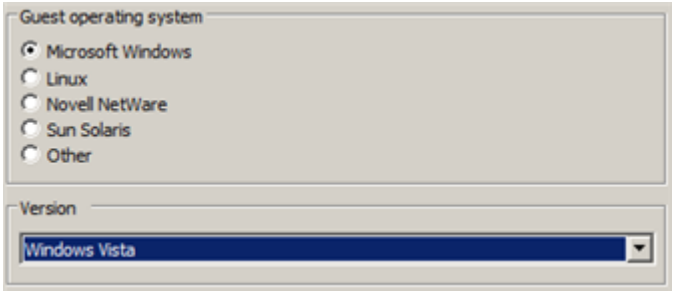
2. On the Wizard's Welcome page, click the Next button.

3. On the next page select **Typical**.

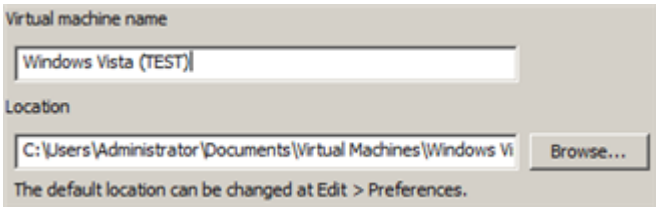




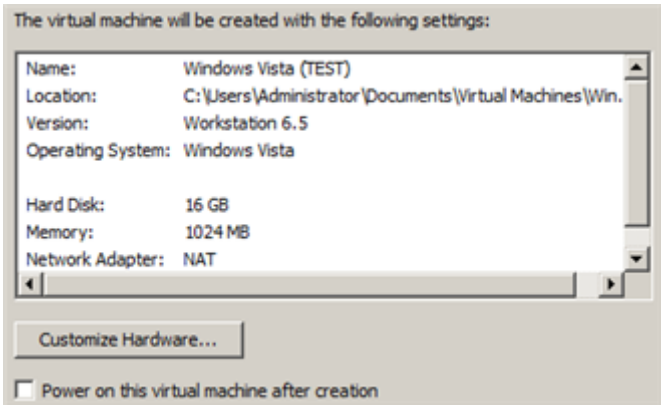
4. Select the required guest OS. Please make sure it’s the same as on your virtual disk, otherwise you may face hardware incompatibility problems.



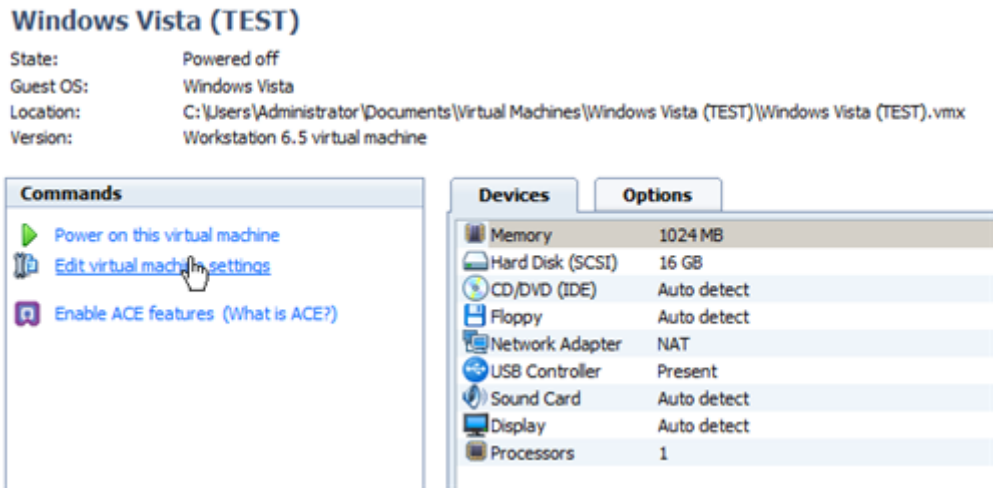
5. Provide a name and location for your virtual machine.



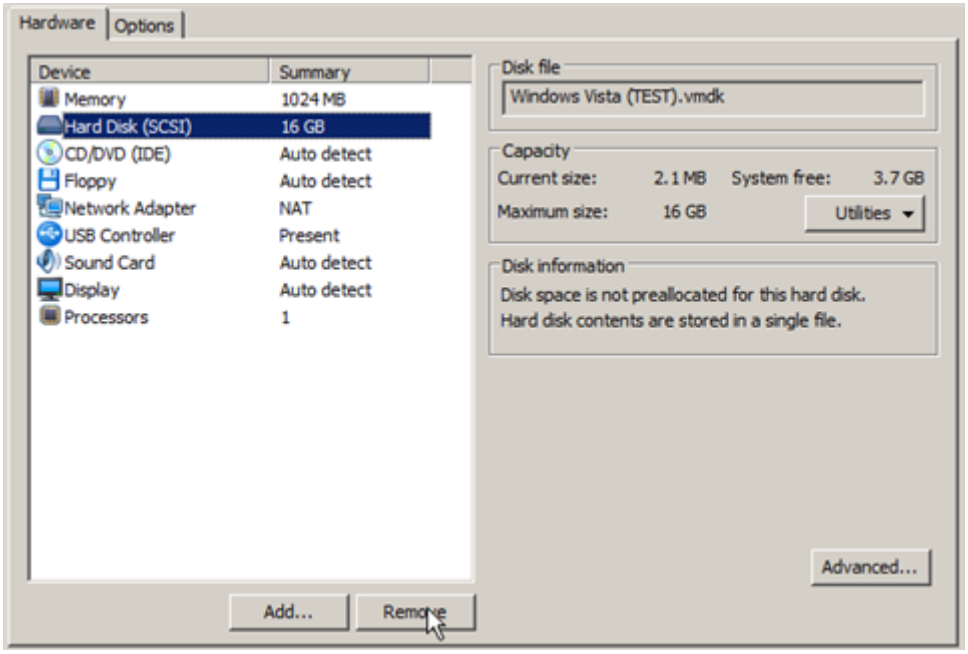
6. The wizard will offer you to create a virtual disk. As you cannot skip it, click **Next** to complete the operation.



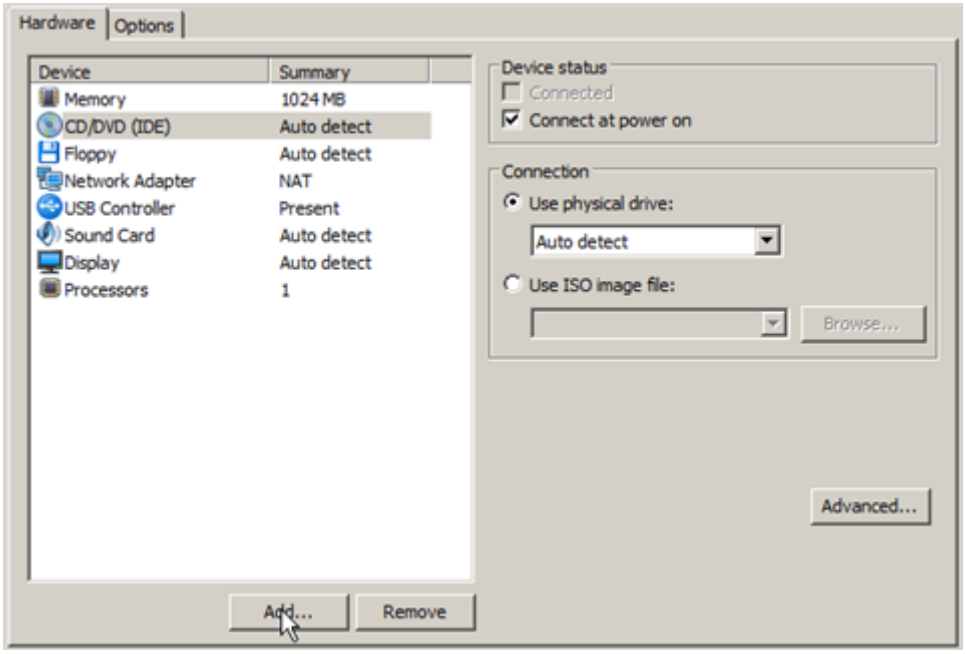
7. Edit settings of the newly created machine.



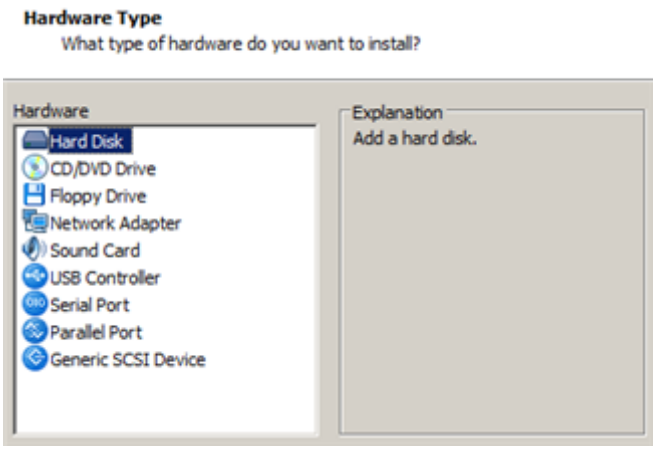
8. Select the default virtual disk and click **Remove** to delete.



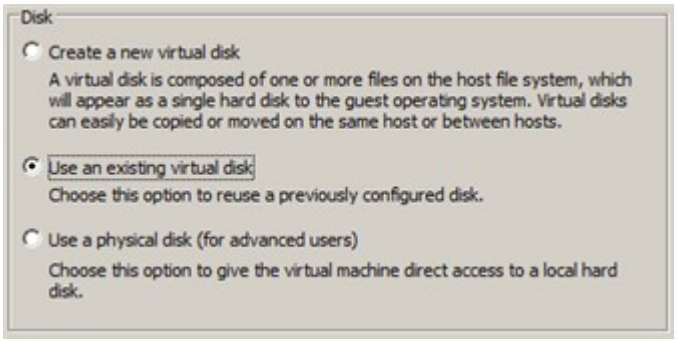
9. Click **Add…** to connect your virtual disk to the machine.



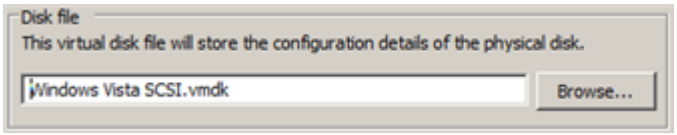
10. In the opened dialog select **Hard Disk** as the required hardware type to add.



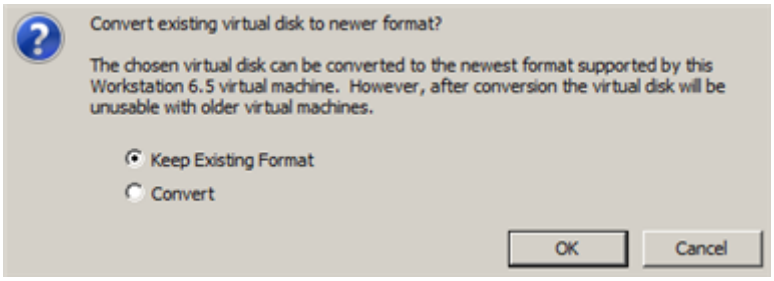
11. On the next page select **Use an existing virtual disk**.



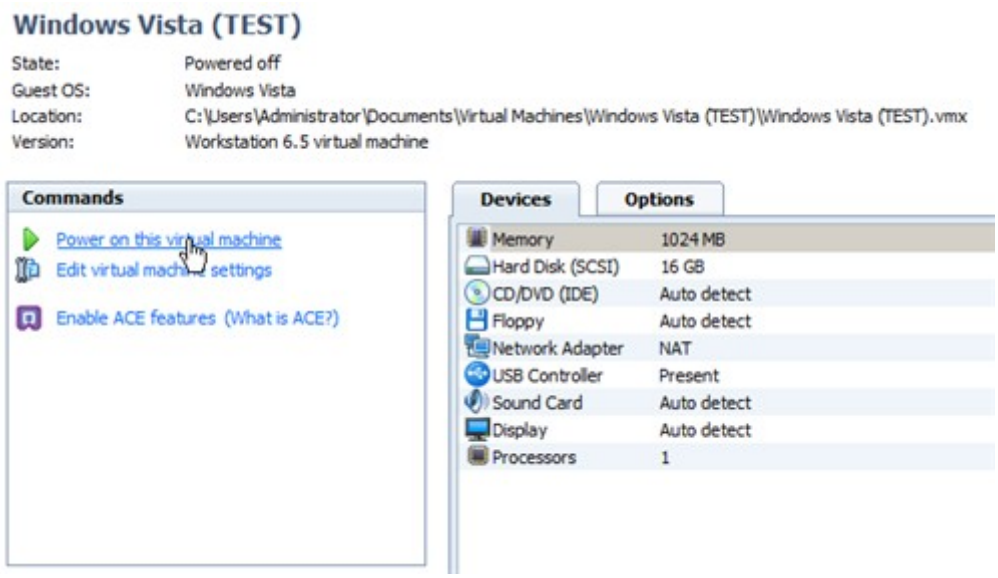
12. Browse for your virtual disk.



13. Click **Finish** to complete the operation. Most likely you will be asked to convert your virtual disk to a new format. You can update your disks, since this procedure involves change of a version only, nothing else. To know more on the subject please consult the Known Issues chapter.



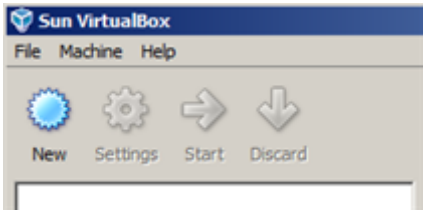
14. That's all. You can now launch the virtual machine.



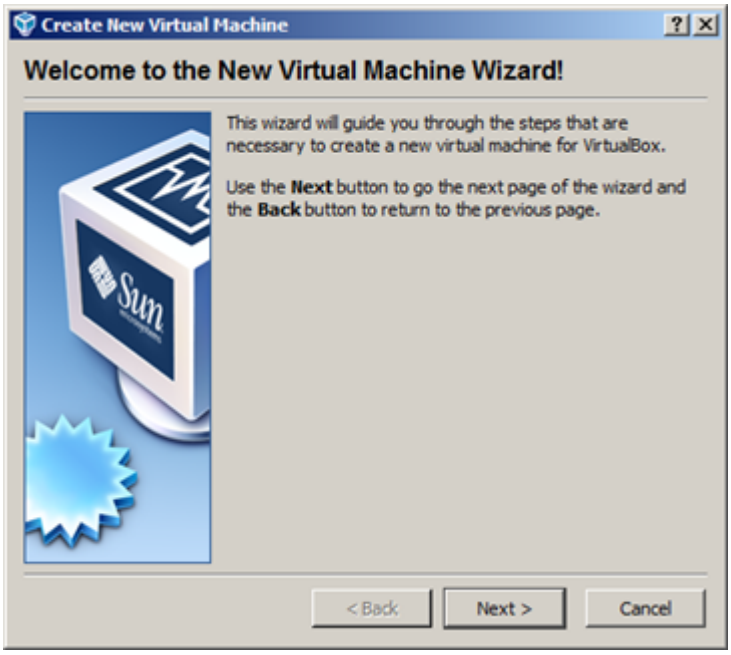
For Sun VirtualBox

To connect a Sun VirtualBox disk to a new virtual machine, please do the following:

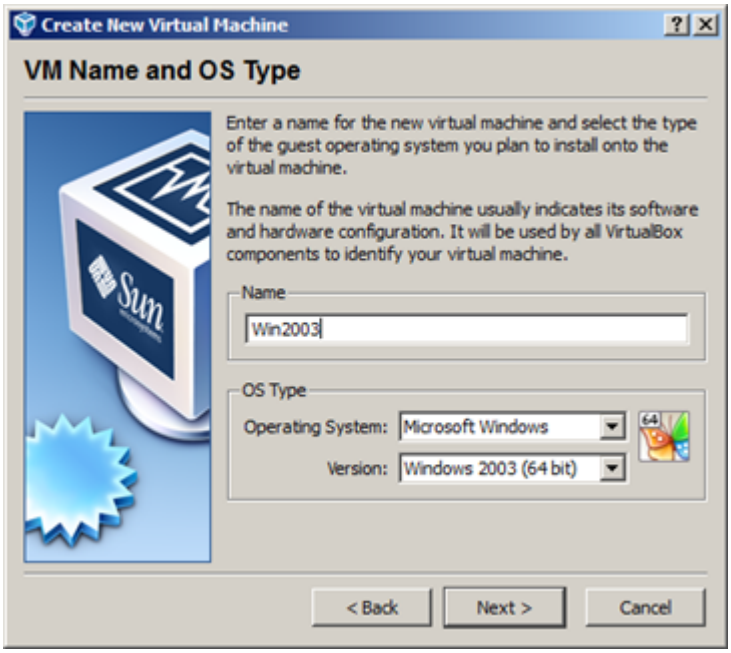
1. Click **New**.



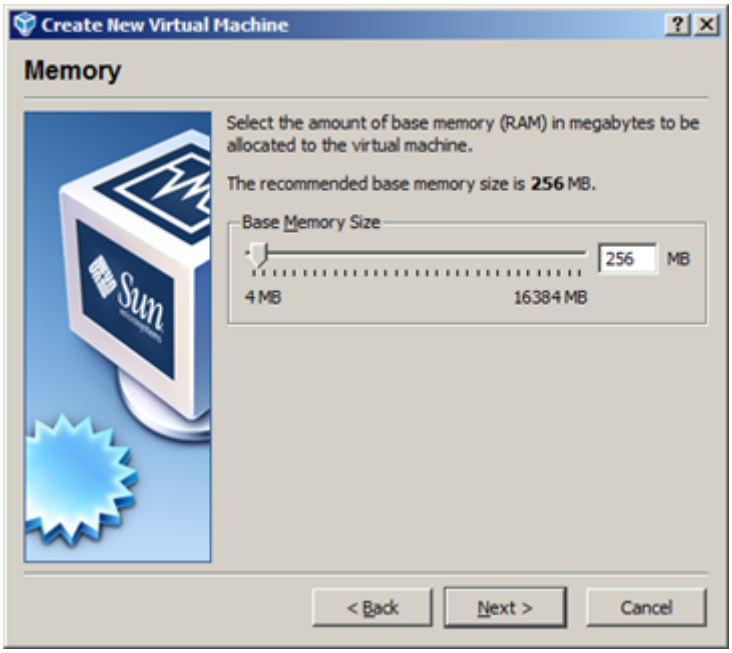
2. On the Wizard's Welcome page, click the **Next** button.



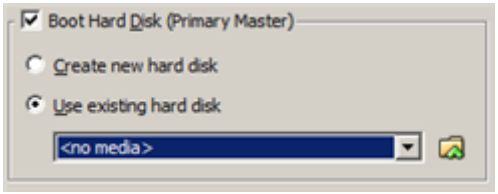
3. Select the required guest OS and enter its name. Please make sure it’s the same as on your virtual disk, otherwise you may face hardware incompatibility problems.



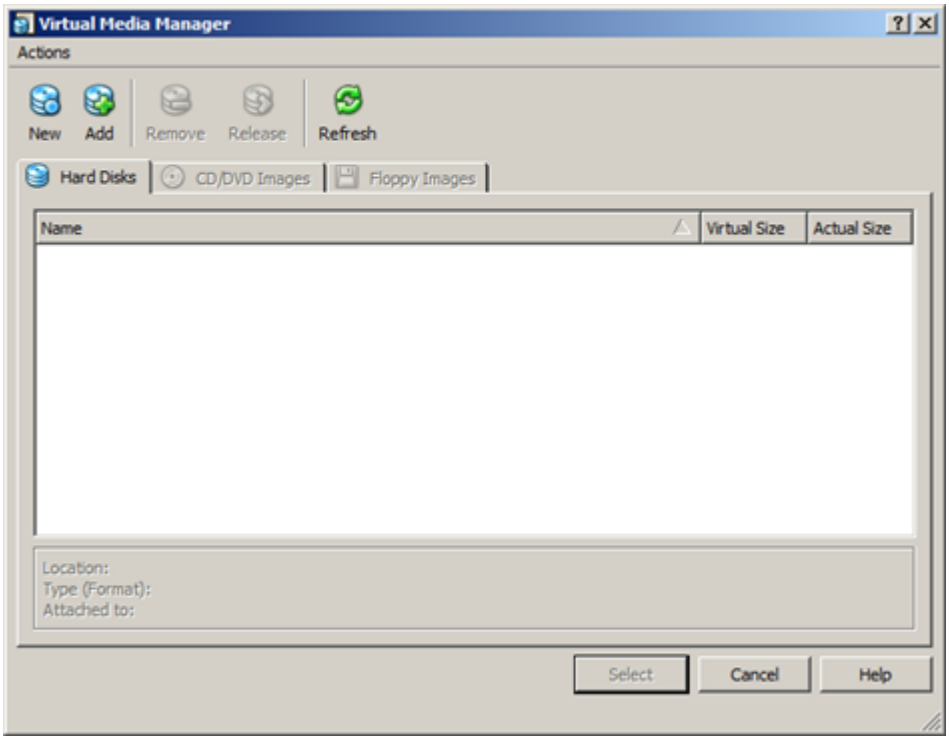
4. Specify an amount of RAM to allocate (512 MBs for Windows XP is recommended).



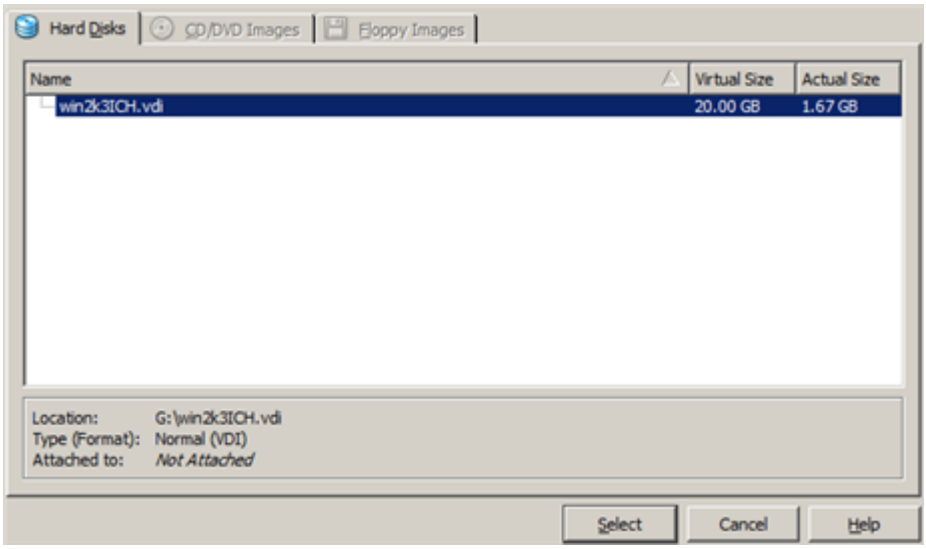
5. The wizard will offer you either to create a new virtual disk or choose an existing one. Click **Use existing hard disk**.



6. Click **Add** to browse for the required virtual disk.

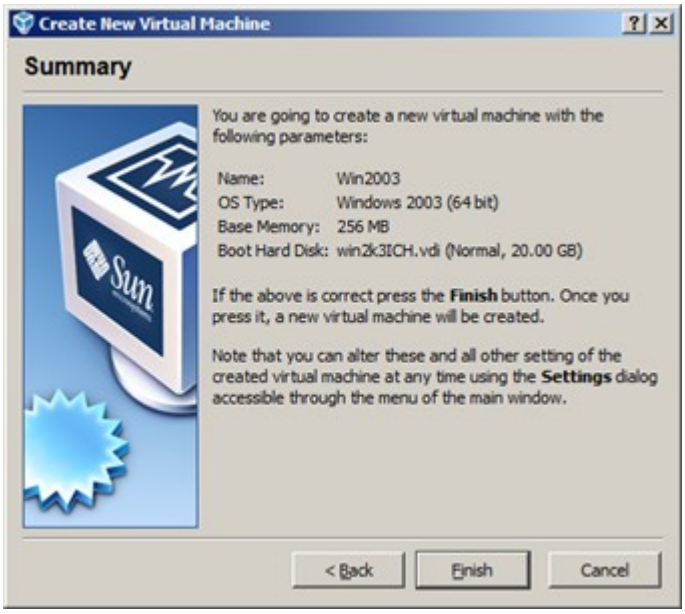


7. Click **Select** to mount it to the newly created virtual machine.

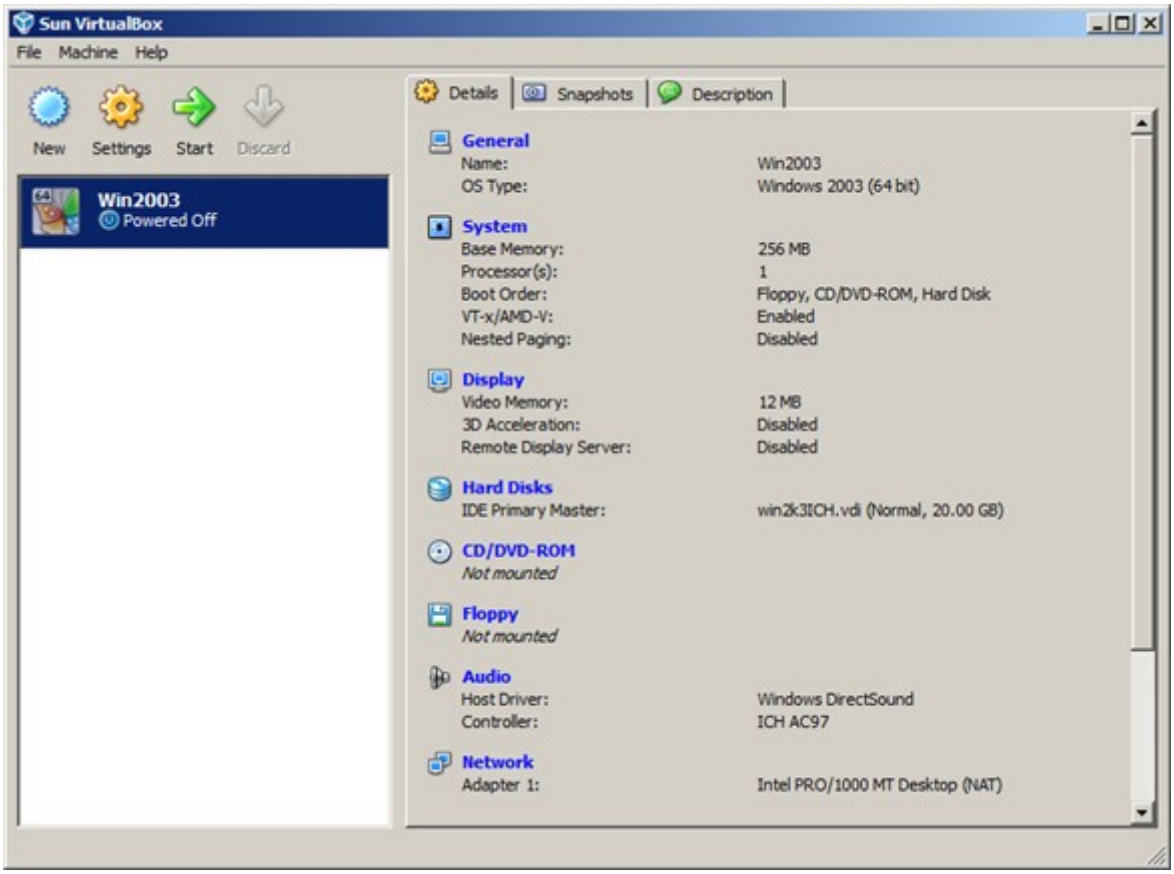


8. Click the **Next** button to continue.

9. Click **Finish** to complete the operation.

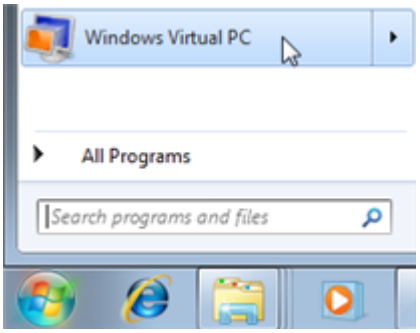


10. That’s all. You can now launch the virtual machine.

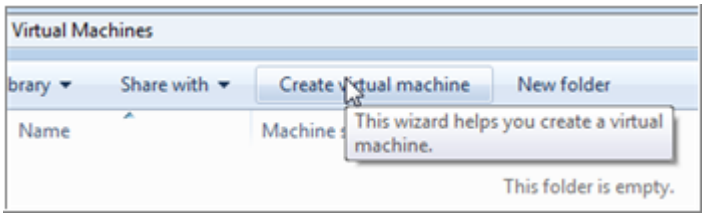


For Windows Virtual PC

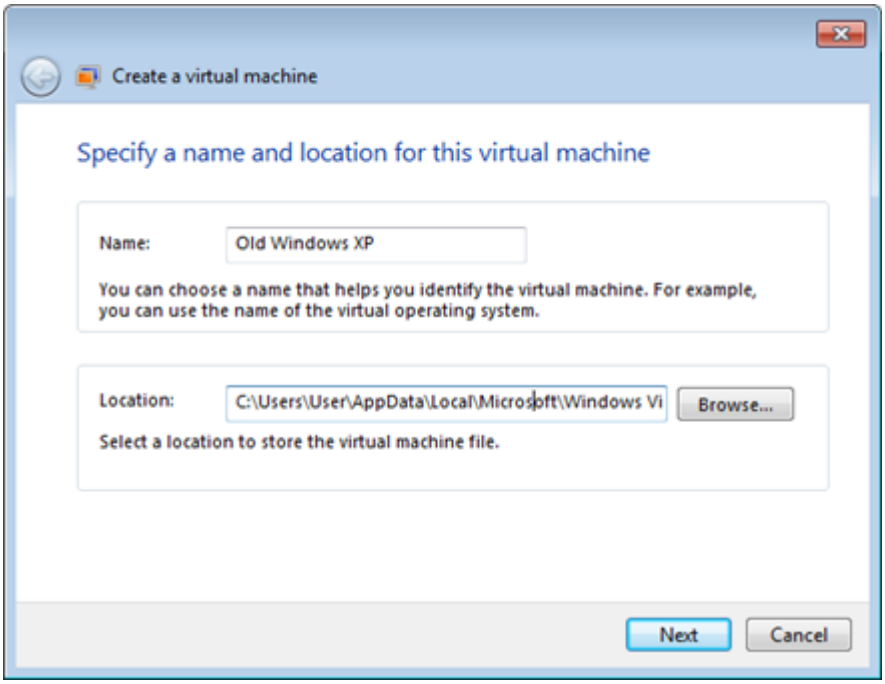
1. Click **Start**, and then select **Windows Virtual PC**.



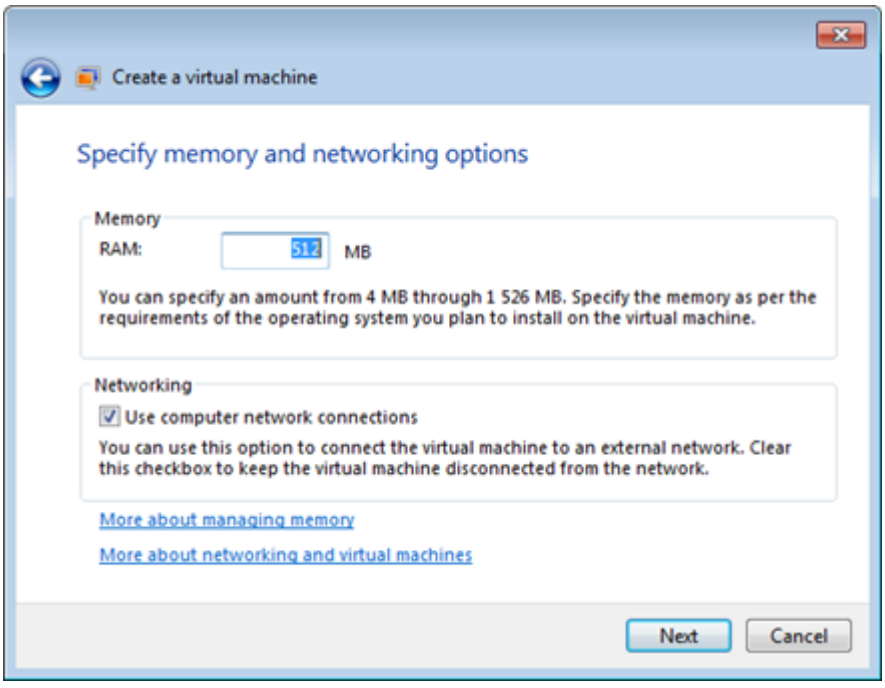
2. Click **Create virtual machine**.



3. Give a name to the new machine and modify the default location (if necessary).

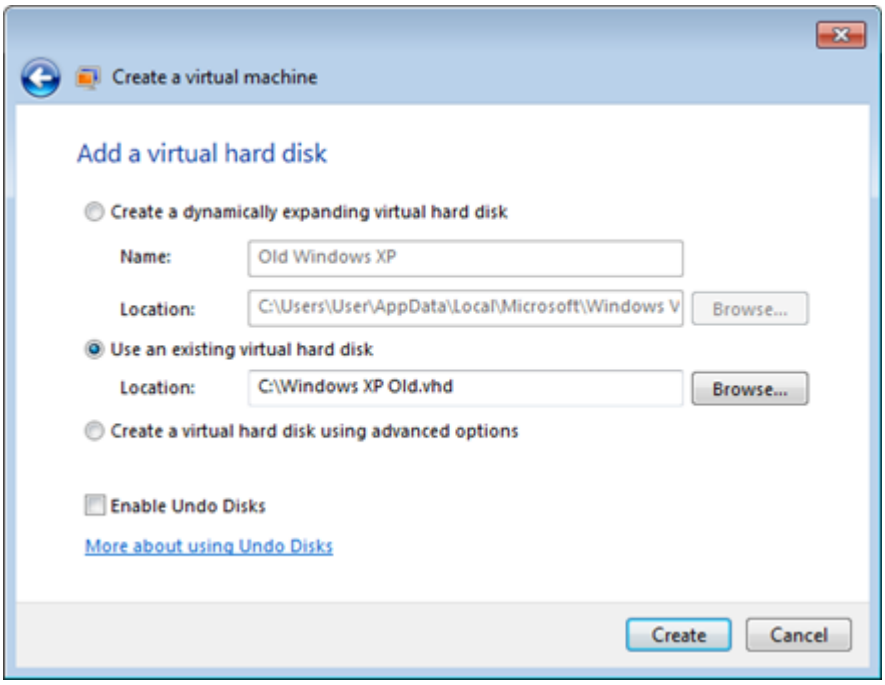


4. Specify an amount of RAM to allocate (512 MBs for Windows XP is recommended), then choose whether you need the network support or not by marking the appropriate checkbox.



To know more on the subject, please click the links on this page.

5. Select **Use an existing virtual hard disk**, then browse for the previously created virtual disk or manually type in a full path to it. Click **Create** to complete the operation.



6. Right click on the newly created virtual machine, then select **Open** to start up your Windows in a virtual environment.