RESCUE KIT™ 9.0 PROFESSIONAL

USER MANUAL

CONTENTS

INTRODUCTION

Paragon Rescue Kit™ 9.0 is an integrated set of powerful tools that is specially designed to tackle most of the problems you might face while using PC. Its primary objective is to provide all the necessary facilities to get the system back on track when it fails to boot or at least to retrieve valuable data from the failed hard disk. But that is not all the product can be used for. With Rescue Kit 9.0 you can easily recover an accidentally deleted partition, clean user passwords for Windows NT/2000/XP/Vista/2003, securely utilize an outdated hard disk, etc.

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

PRODUCT COMPONENTS

In order to cope with different tasks, the product contains several components:

❑ **Linux/DOS based Recovery CD** is a multi-platform bootable media that enables to run utilities under Linux or PTS DOS, and that way to get access to your hard disk for maintenance or recovery purposes. Both platforms have their strong sides, for instance Linux can boast support of FireWire (i.e. IEEE1394) or USB devices. It enables to burn CD/DVD disks. However there can be some difficulties with detecting new hardware. DOS in its turn has no problems of that kind but is limited in features.

❑ **WinPE based Recovery CD**. Especially for keen followers of Windows, our product also offers a WinPE based bootable media. Unlike Linux/DOS Recovery CD it can boast an excellent hardware support and a Windows XP like environment. However its functionality is limited while system requirements are much tougher.

FEATURES OVERVIEW

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

KEY FEATURES

Let us list some of the key features:

❑ **A handy launcher** to easily find and run the required tasks.

❑ **Boot Corrector** to fix most of the system boot problems that can be a result of a human factor, program error or a boot virus activity.

It is only available for the Linux/DOS recovery environment.

❑ **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. Providing access to Paragon backups as regular folders, it may also help to replace corrupted data from a previously created image in case of an operating system failure.

❑ **Registry Editor** to view and modify settings of any Windows System Registry in the offline mode, i.e. when your operating system has not been started up. It is organized just the way Windows built-in editor is, so you can feel comfortable with it.

It is only available for the Linux/DOS recovery environment.

❑ **Password Cleaner** to clean user passwords for Windows NT/2000/XP/Vista/2003. With its help you can easily change any user password, including Administrator's to a blank one, thus providing the possibility to freely log in to your operating system. Even if your password has been encrypted with the Syskey utility, you can still clean it up.

It is only available for the Linux/DOS recovery environment.

❑ **Undelete Partitions Wizard** to recover an accidentally deleted partition.

❑ **Wipe Wizard** to successfully destroy all on-disk information including the standard bootstrap code and other system service structures or only any remnants of deleted files/directories left on disk without affecting the used data.

❑ **Network Configuration Wizard** to establish a network connection under Linux to work with shared resources of the net.

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 UFSD™** technology to browse partitions of any file system including hidden and unmounted, modify and copy files and folders, etc.

❑ **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, Server 2008, Mac OS X and Linux.

SUPPORTED FILE SYSTEMS

Paragon Rescue Kit 9.0 provides support of major file systems presented on the market today:

❑ Full read/write access to FAT16/FAT32 partitions under Linux and PTS DOS.

❑ Full read/write access to NTFS under Linux and PTS DOS. Compressed NTFS files are also supported.

❑ Full read/write access to Ext2FS/Ext3FS partitions under Windows and PTS DOS.

- ❑ Support of Linux Swap under Windows and PTS DOS.

- ❑ Limited read/write access to Apple HFS+ partitions.

Unfortunately, support of non-Roman characters for the HFS+ file system is unavailable at the moment. The company is about to implement it in the nearest future.

SUPPORTED MEDIA

- ❑ Support of both MBR and GPT hard disks (up to 1,5 TB tested)

- ❑ IDE, SCSI and SATA hard disks

- ❑ CD-R, CD-RW, DVD-R, DVD+R, DVD-RW, DVD+RW, DVD-R, DVD+R double layer and also Blu-ray discs

- ❑ FireWire (i.e. IEEE1394), USB 1.0, USB 2.0 hard disks, ZIP® and Jazz® disks

- ❑ PC card storage devices (MBR and GPT flash memory, etc.)

GETTING STARTED

In this chapter you will find all the information necessary to get the product ready to use.

CONTACTING PARAGON TECHNOLOGY GMBH

If you have any questions about the company products, please do not hesitate to contact Paragon Technology GmbH.

Service	Contact
Visit Paragon GmbH web site	www.paragon-software.com
Registration & updates web-service	kb.paragon-software.com
Knowledge Base & Technical Support	kb.paragon-software.com
Pre-sale information	sales@paragon-software.com

SYSTEM REQUIREMENTS

LINUX/DOS BASED RECOVERY CD

To use the Paragon Linux/DOS Recovery CD on your computer (it doesn't matter what operating system is installed), make sure that it meets the following minimum system requirements:

- ❑ IBM AT compatible computer with i486 or higher CPU

- ❑ 256 MB of RAM

- ❑ SVGA-compatible monitor

- ❑ Mouse (recommended)

- ❑ On-board BIOS supports booting from CD first

There may be additional requirements if you want to use advanced features:

- ❑ Network card is required to send/retrieve data to/from a network computer

- ❑ Recordable CD/DVD drive is needed to burn data to compact disks

- ❑ You can also use removable USB disks to save/retrieve data. The program supports USB Drives 1.0, 2.0.

WINPE BASED RECOVERY CD

To use the WinPE based Recovery CD on your computer, (it doesn't matter what operating system is installed), make sure that it meets the following minimum system requirements:

- ❑ Intel Pentium CPU or its equivalent, with 300 MHz processor clock speed

- ❑ At least 384 MB of RAM (512+ is recommended)

- ❑ SVGA video adapter and monitor

- ❑ Mouse

BOOTING FROM THE LINUX/DOS RECOVERY CD

The Linux/DOS Recovery CD can be used to boot your computer into Linux or PTS DOS to get access to your hard disk for maintenance or recovery purposes. On the disk you can also find the PTS DOS safe mode, which may help in a number of non-standard situations such as interfering hardware settings or serious problems on the hardware level. In this case, only basic files and drivers (such as hard disk drivers, a monitor driver, and a keyboard driver) will be loaded.

STARTUP PROCEDURE

To start working with the Linux/DOS Recovery CD, please take the following steps:

1. Insert the Linux/DOS Recovery CD into a CD/DVD drive;

2. Reboot the computer;

3. Launch a boot mode you need (Normal, Safe, Low-Graphics Safe) in the Boot menu.

By default the Normal Mode will be automatically initiated after a 10 second idle period.
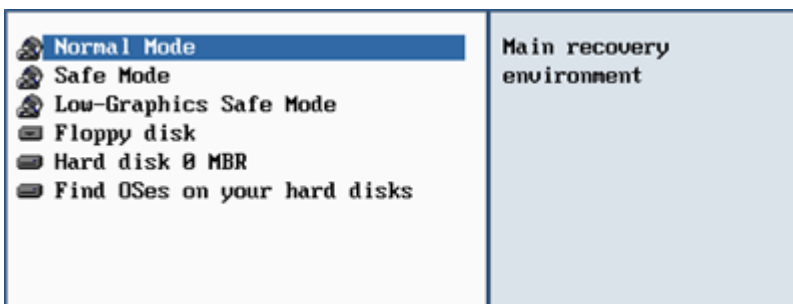
4. Click on the required operation to start. Hints on the selected at the moment item will help you make the right choice;

5. Consult the help system by pressing the Help button to know more on the subject.

To automatically boot from the Recovery CD make sure the on-board BIOS is set up to boot from CD first.

BOOT MENU

After you have inserted the Recovery CD into a CD/DVD drive and restarted the computer, the Boot menu appears.

```
🐾 Normal Mode              Main recovery
🐾 Safe Mode                environment
🐾 Low-Graphics Safe Mode
💾 Floppy disk
💾 Hard disk 0 MBR
💾 Find OSes on your hard disks
```

The Boot menu contains the following commands:

❑ **Normal Mode**. Boot into the Linux normal mode. This mode uses the full set of drivers (recommended).

❑ **Safe Mode**. Boot into the PTS DOS mode. This mode can be used as an alternative of the Linux normal mode if it fails to work properly.

❑ **Low-Graphics Safe Mode**. Boot into the PTS DOS safe mode. In this case, only the minimal set of drivers will be included, like hard disk, monitor, and keyboard drivers. This mode has simple graphics and a simple menu.

❑ **Floppy Disk**. Reboot the computer from a system floppy disk.

❑ **Hard Disk 0**. Boot from the primary hard disk.

❑ **Find OS(s) on your hard disks**. The program will scan hard disks of your computer to find any bootable operating system.

To move within the menu, please use the arrow keys of the computer keyboard.


To automatically boot from the Recovery CD make sure the on-board BIOS is set up to boot from CD first.

While working with the Recovery CD you might experience some inconvenience caused by possible video artifacts. It is just a result of changing video modes and in no way will affect the program functionality. If this is the case, please wait a bit and everything will be OK.

NORMAL MODE

When the Normal mode is selected, the Linux launch menu appears:
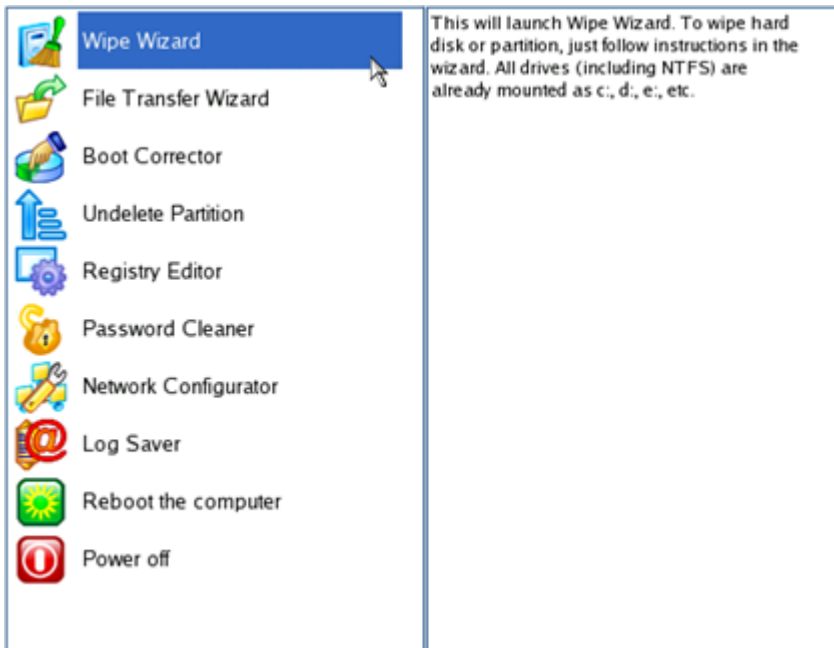
- ❑ **Wipe Wizard** (enables to destroy all on-disk information or only remnants of deleted files/directories);

- ❑ **File Transfer Wizard** (allows coping files/folders to another disk or a partition as well as recording them to CD/DVD);

- ❑ **Boot Corrector** (helps to correct the Windows System Registry without Windows being loaded);

- ❑ **Undelete Partition** (enables to recover an accidentally deleted partition);

- ❑ **Registry Editor** (helps to view and modify settings of any Windows System Registry in the offline mode);

- ❑ **Password Cleaner** (allows cleaning user passwords for Windows NT/2000/XP/Vista/2003);

- ❑ **Network Configurator** (enables to establish a network connection under Linux);

> **If you are going to use network resources, first launch the Network Configuration Wizard to establish a network connection.**

- ❑ **Log Saver** (helps to collect and send the necessary log files to the Technical Support);

- ❑ **Command Line** (allows experienced users to execute any operation);

- ❑ **Reboot the computer**;

- ❑ **Power off the computer**.

To move within the menu, please use the arrow keys of the computer keyboard.

SAFE MODE

When the Safe mode is selected, the PTS DOS launch menu appears. It has nearly the same functionality as for the Normal mode except the **Network Configurator** and **Log Saver** commands. Besides due to certain limitations of the PTS DOS environment, there is no possibility to burn CD/DVD disks.

LOW GRAPHICS SAFE MODE

When the Low Graphics mode is selected, the PTS DOS launch menu appears. It has the same functionality and looks similar to the Safe mode but graphically simpler.
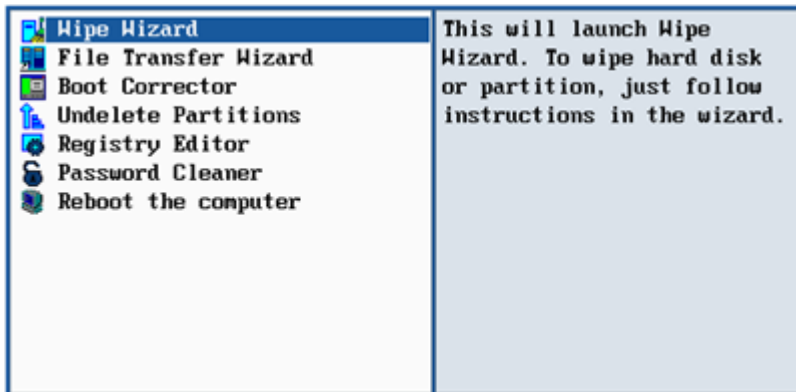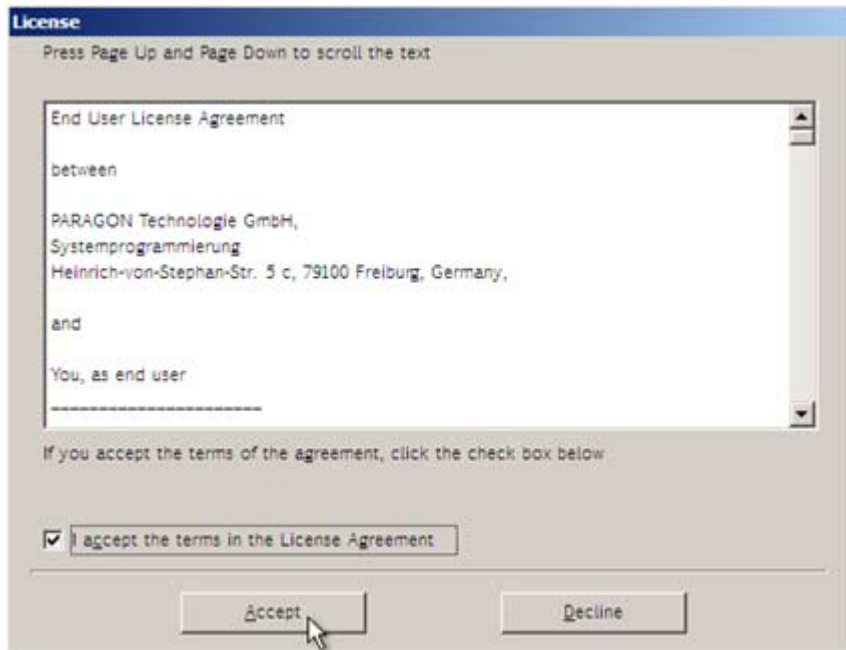

BOOTING FROM THE WINPE RECOVERY CD

The WinPE Recovery CD can be a real alternative to the Linux/DOS Recovery CD. It offers an excellent hardware support and a Windows XP like environment. However its functionality is limited while system requirements are much tougher.

STARTUP PROCEDURE

To start working with the WinPE Recovery CD, please take the following steps:

1. Insert the WinPE Recovery CD into a CD/DVD drive;

2. Reboot the computer;

3. After the disc has been loaded, you will see the License Agreement. 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;

> ⚠️ **To automatically boot from the Recovery CD make sure the on-board BIOS is set up to boot from CD first.**

4. Once you accept the agreement, you will see the Universal Application Launcher. In general it enables to run components of the product, load drivers for undefined hardware, establish a network connection or launch the help system.

5. Click on the required operation to start. Hints on the selected at the moment item will help you make the right choice.

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.
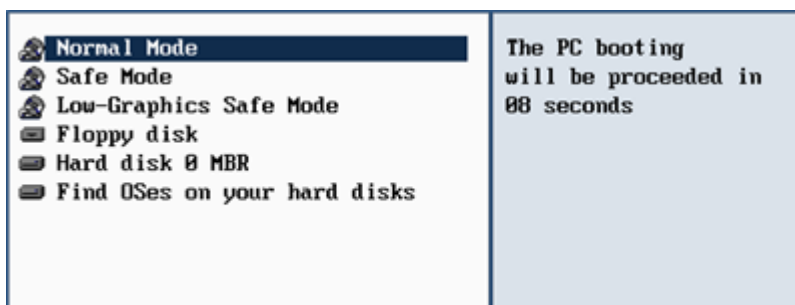
RECOVERY SCENARIOS

FIXING MBR AFTER A BOOT VIRUS ATTACK

Let's assume that the MBR (Master Boot Record) of your hard disk has been corrupted as a result of a boot virus attack, thus your system fails to boot.
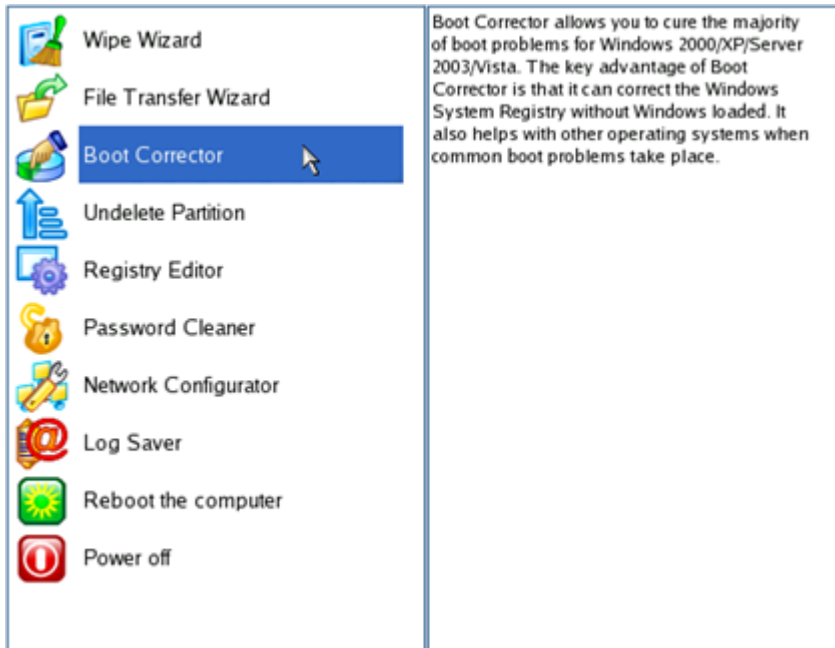
To fix the MBR of your hard disk, please do the following:

1. Insert Paragon Linux/DOS Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. In the boot menu select **Normal Mode** to use the Linux recovery environment (more preferable) or **Safe Mode** to use the PTS DOS recovery environment (in case you've got problems with Linux). Moreover you've got the option to boot into the **Low-Graphics Safe Mode** (PTS DOS safe mode) to cope with a serious hardware incompatibility. In this case, only the minimal set of drivers will be included, like hard disk, monitor, and keyboard drivers. This mode has simple graphics and a simple menu.

```
 Normal Mode                        The PC booting
 Safe Mode                          will be proceeded in
 Low-Graphics Safe Mode             08 seconds
 Floppy disk
 Hard disk 0 MBR
 Find OSes on your hard disks
```
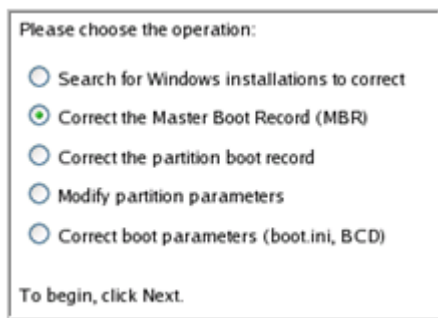
> **By default the Normal Mode will be automatically initiated after a 10 second idle period.**

4. In the Linux launch menu select Boot Corrector. You can find it in PTS DOS as well.
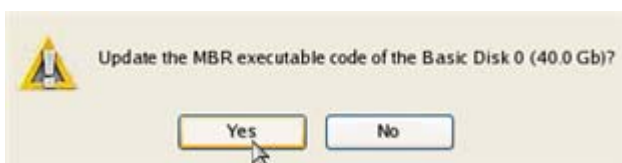
Wipe Wizard		Boot Corrector allows you to cure the majority of boot problems for Windows 2000/XP/Server 2003/Vista. The key advantage of Boot Corrector is that it can correct the Windows System Registry without Windows loaded. It also helps with other operating systems when common boot problems take place.
File Transfer Wizard		
Boot Corrector		
Undelete Partition		
Registry Editor		
Password Cleaner		
Network Configurator		
Log Saver		
Reboot the computer		
Power off		

5. On the Wizard's Welcome page, select the **Correct the Master Boot Record (MBR)** option.

Please choose the operation:

○ Search for Windows installations to correct

◉ Correct the Master Boot Record (MBR)

○ Correct the partition boot record

○ Modify partition parameters

○ Correct boot parameters (boot.ini, BCD)

To begin, click Next.

6. On the next page choose the required hard disk from the pull-down list (if several) and then select the **Update the MBR executable code** option.
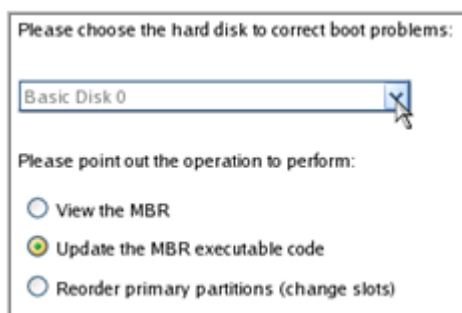
Please choose the hard disk to correct boot problems:

Basic Disk 0

Please point out the operation to perform:

○ View the MBR

◉ Update the MBR executable code

○ Reorder primary partitions (change slots)

7. Confirm the operation.

⚠ Update the MBR executable code of the Basic Disk 0 (40.0 Gb)?

[Yes] [No]

8. After the operation is completed click the Report button to see a well informative summary page. The program also enables to store the resulted report. To do that, just press the Save button and choose the exact location in the opened dialog.
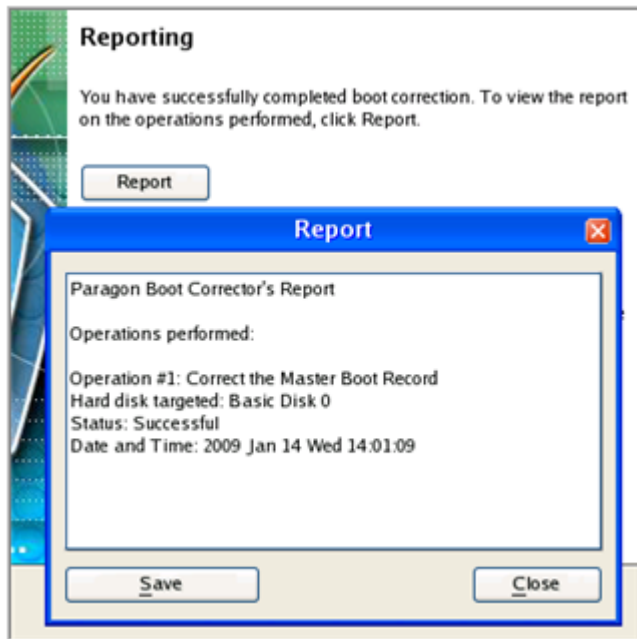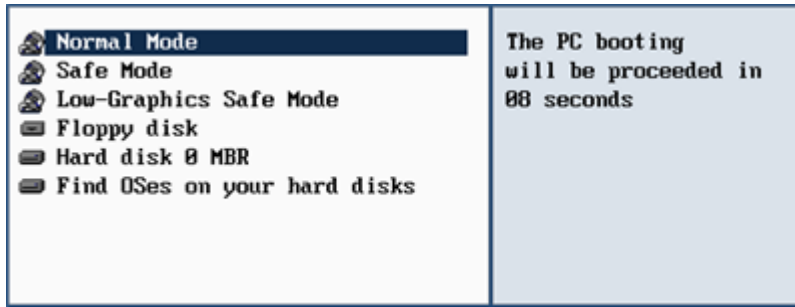

9. Click the Finish button to close Boot Corrector.

10. Eject the CD.

11. Reboot the computer.

FIXING WINDOWS STARTUP ABILITY

Let's assume that due to an unknown reason your Windows fails to complete the startup procedure. At first everything seems quite OK, you can see the standard startup messages on the screen, but at some moment it hangs up.
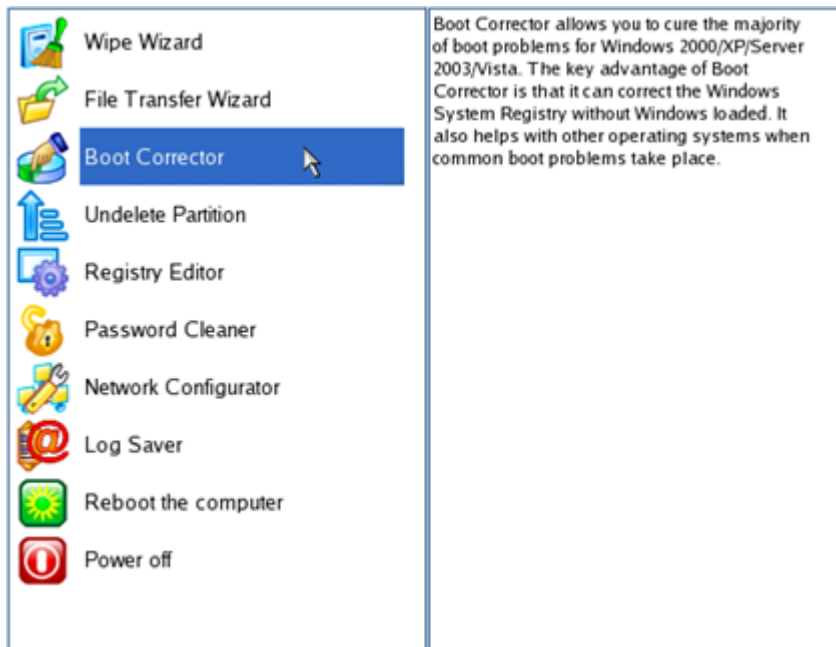
To fix your Windows startup ability, please do the following:

1. Insert Paragon Linux/DOS Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. In the boot menu select **Normal Mode** to use the Linux recovery environment (more preferable) or **Safe Mode** to use the PTS DOS recovery environment (in case you've got problems with Linux). Moreover you've got the option to boot into the **Low-Graphics Safe Mode** (PTS DOS safe mode) to cope with a serious hardware incompatibility. In this case, only the minimal set of drivers will be included, like hard disk, monitor, and keyboard drivers. This mode has simple graphics and a simple menu.
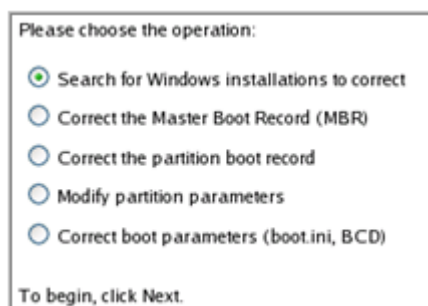
```
  Normal Mode                          The PC booting
  Safe Mode                            will be proceeded in
  Low-Graphics Safe Mode               08 seconds
  Floppy disk
  Hard disk 0 MBR
  Find OSes on your hard disks
```

By default the Normal Mode will be automatically initiated after a 10 second idle period.

---

4. In the Linux launch menu select Boot Corrector. You can find it in PTS DOS as well.

```
  Wipe Wizard                Boot Corrector allows you to cure the majority
                             of boot problems for Windows 2000/XP/Server
  File Transfer Wizard       2003/Vista. The key advantage of Boot
                             Corrector is that it can correct the Windows
  Boot Corrector             System Registry without Windows loaded. It
                             also helps with other operating systems when
  Undelete Partition         common boot problems take place.

  Registry Editor

  Password Cleaner

  Network Configurator

  Log Saver

  Reboot the computer

  Power off
```

5. On the Wizard's Welcome page, select the **Search for Windows installations to correct** option.

```
Please choose the operation:

  ⦿ Search for Windows installations to correct
  ○ Correct the Master Boot Record (MBR)
  ○ Correct the partition boot record
  ○ Modify partition parameters
  ○ Correct boot parameters (boot.ini, BCD)

To begin, click Next.
```

6. On the next page choose the required Windows installation from the list of found installations (if several), then select the **Edit the Boot.ini file** option. If you're not sure which installation you need, please use the Properties button to get more info on the selected item.

Correct Windows installations

Program has searched for valid Windows installations on your computer. The results of the search you can see below. Status S refers to a system partition (you can edit the Boot.ini file), B - a boot partition (you can correct the System Registry).

N	Partition	Status	System root	Type
1	Disk 0, Partition 0	S+B	WINDOWS	WinXP

For the highlighted Windows installation, please point out the operation to perform:

[Properties]

○ Correct drive letters in the System Registry
⦿ Edit the Boot.ini file
○ Correct the partition boot record
○ Adjust OS to boot on new hardware

To continue, click Next.

7. Examine the file – maybe that's where the problem is. If it contains a mistake, correct it by using the appropriate buttons.
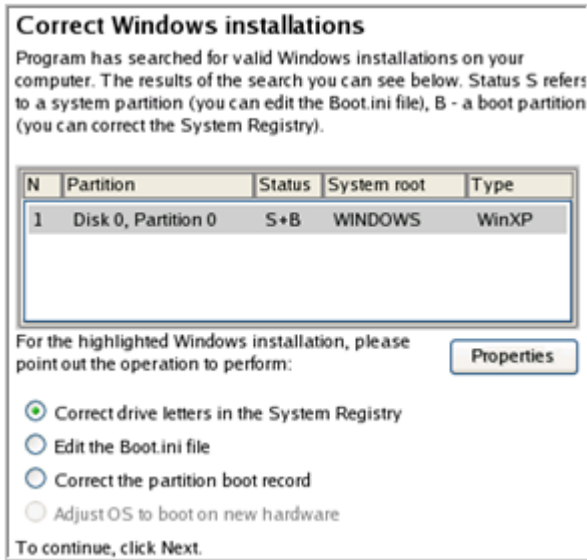
Edit the Boot.ini file on Hard Disk 0, Partition 0

```
[boot loader]
timeout=10
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Paragon VMWare Windows XP Partition 01" /fastdetect /t
```
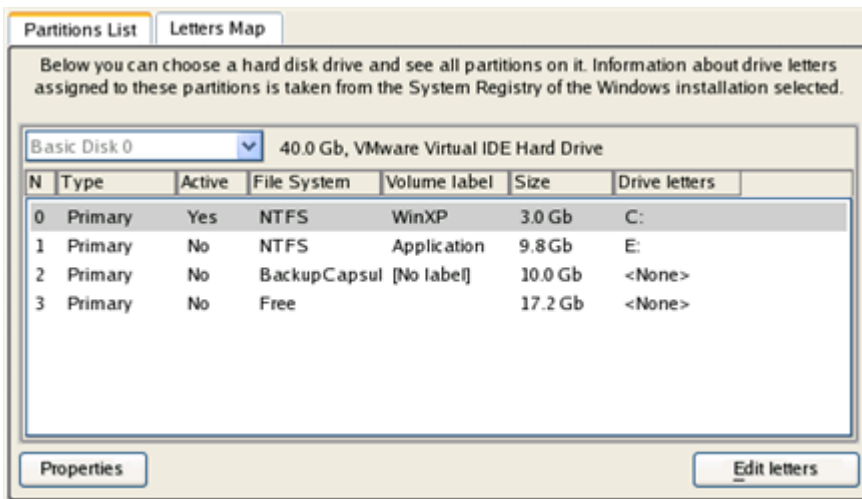
| Copy | Insert | Add | Delete |
| Edit | Insert the sample | Add the sample | |

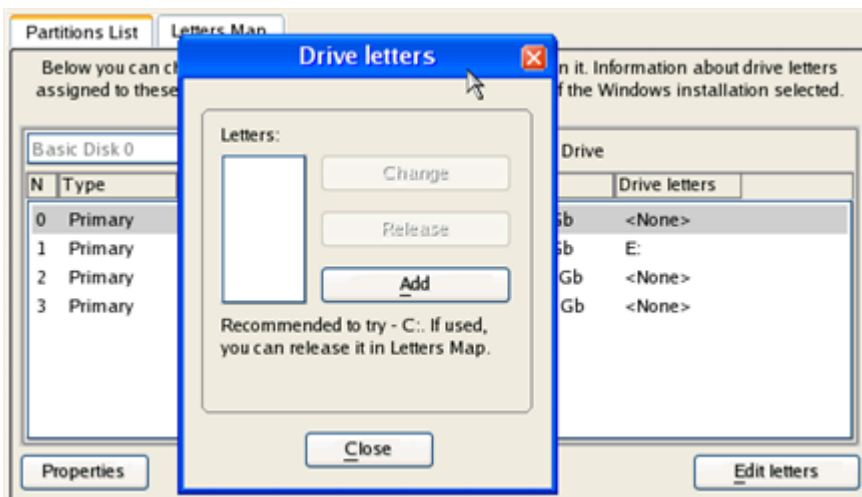**To know more on the structure of the Boot.ini file please consult the Glossary chapter.**

8. If the Boot.ini file does not contain any mistake, please return to the Correct Windows Installations page to correct drive letters in the Windows System Registry.

Correct Windows installations

Program has searched for valid Windows installations on your computer. The results of the search you can see below. Status S refers to a system partition (you can edit the Boot.ini file), B - a boot partition (you can correct the System Registry).

N	Partition	Status	System root	Type
1	Disk 0, Partition 0	S+B	WINDOWS	WinXP

For the highlighted Windows installation, please point out the operation to perform:

[Properties]

- ⦿ Correct drive letters in the System Registry
- ◯ Edit the Boot.ini file
- ◯ Correct the partition boot record
- ◯ Adjust OS to boot on new hardware

To continue, click Next.

9. On the next page choose a hard disk from the pull-down list (if several), then the required partition. If you're not sure which installation you need, please use the Properties button to get more info on the selected item.

Partitions List | **Letters Map**

Below you can choose a hard disk drive and see all partitions on it. Information about drive letters assigned to these partitions is taken from the System Registry of the Windows installation selected.

Basic Disk 0 | 40.0 Gb, VMware Virtual IDE Hard Drive

N	Type	Active	File System	Volume label	Size	Drive letters
0	Primary	Yes	NTFS	WinXP	3.0 Gb	C:
1	Primary	No	NTFS	Application	9.8 Gb	E:
2	Primary	No	BackupCapsul	[No label]	10.0 Gb	<None>
3	Primary	No	Free		17.2 Gb	<None>

[Properties] [Edit letters]

10. Click the Edit Letters button to correct an existing drive letter or assign a new one in the Windows System Registry.

Drive letters

Letters:

[Change]
[Release]
[Add]

Recommended to try - C:. If used, you can release it in Letters Map.

[Close]

11. Once you've assigned the appropriate drive letter, close the dialog, then click the Apply button.

12. Confirm the operation.

13. After the operation is completed click the Report button to see a well informative summary page. The program also enables to store the resulted report. To do that, just press the Save button and choose the exact location in the opened dialog.
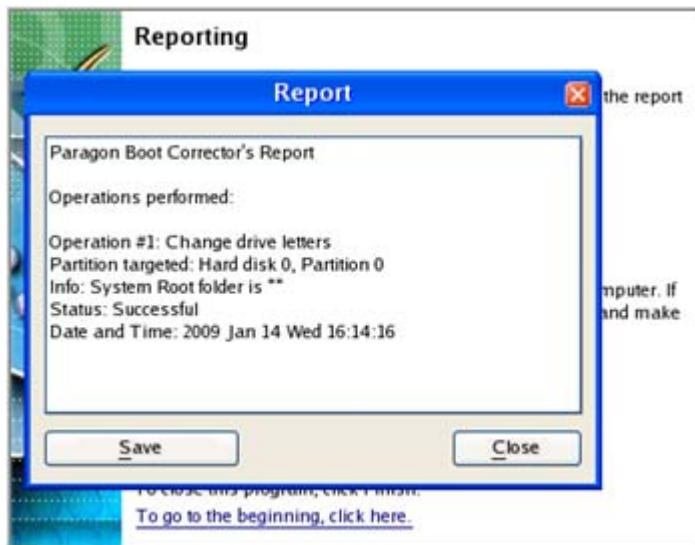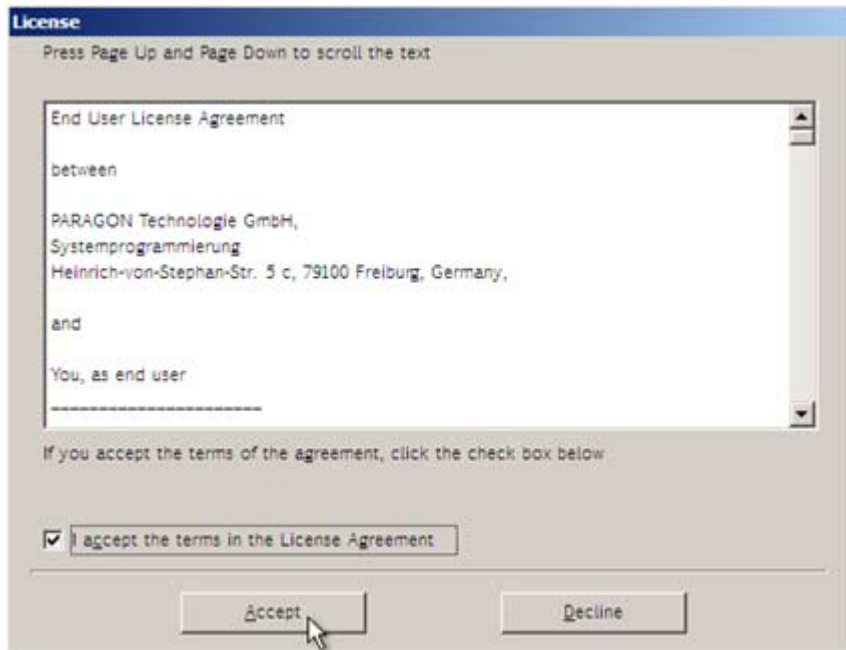

14. Click the Finish button to close Boot Corrector.

15. Eject the CD.

16. Reboot the computer.

RECOVERING AN ACCIDENTALLY DELETED PARTITION

Nobody is secure against such a ridiculous situation as an accidental partition deletion. It doesn't matter who or what is to blame in this case. What really matters is the way to get everything back on track. Our program enables to find and recover any deleted partition, as long as other partitions have not been created, moved or exceeded the disk space occupied by that partition. That is why this function is only available for blocks of the free space.

To recover an accidentally deleted partition, please do the following:

1. Insert Paragon WinPE Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. After the disc 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.**

---

4. Once you accept the agreement, you will see the Universal Application Launcher. Select Undelete Partitions.
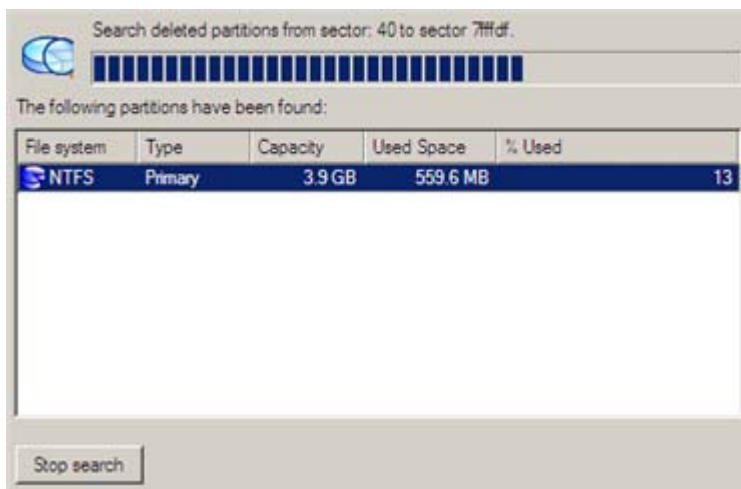

5. On the Wizard's Welcome page, click the Next button.

6. From a tree-like list choose a hard disk (if several) and then the required free block to scan for lost partitions.

Click the check box next to any hard disk drive or free block you want to examine

Name	Type	Siz
⊟ 🖳 My Computer	My Computer	
⊞ ☐ 🖬 Basic Hard Disk 0 (VMware Virtual IDE Hard Drive)	Basic Hard Disk Drive	4(
⊟ ☑ 🖬 Basic Hard Disk 1 (VMware Virtual IDE Hard Drive)	Basic Hard Disk Drive	3.!
└ ☑ 🌀 (Unallocated)	Free space	3.!

The summary size of fragment(s) to analyze is 3.9 GB.

☐ I want to choose file system filter and search criteria

Note: This option is recommended for advanced users only.

To begin search, click **Next**

> **If you don't have any free blocks on your hard disk, you won't be able to use this function.**
>
> **You can manually specify certain file system types to look for by marking the appropriate checkbox at the bottom of the page.**

---

7. Start the search process by clicking the Next button. By default, the program searches records of any deleted partition ever existed on the selected block of free space. So you can get several partitions to choose from.

Search deleted partitions from sector: 40 to sector 7fffdf.

The following partitions have been found:

File system	Type	Capacity	Used Space	% Used
🌀 NTFS	Primary	3.9 GB	559.6 MB	13

Stop search

Most likely the required partition will be found first. If so, you may abort the search operation by pressing the Stop search button.

8. Mark a checkbox opposite the required partition. If you're not sure which partition you need, please use the More Info… button.
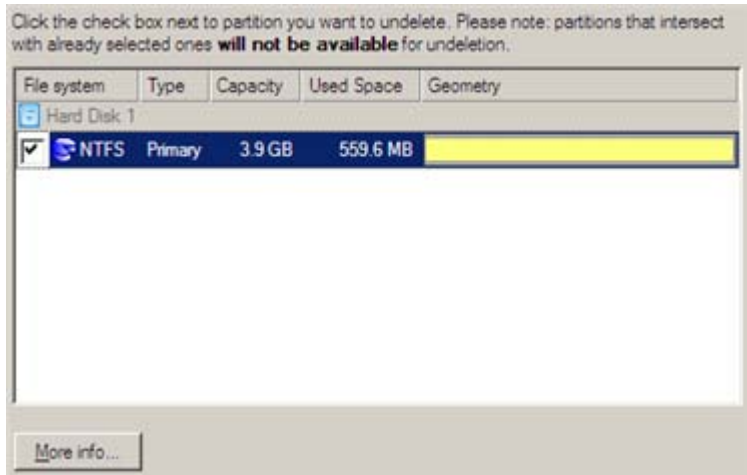
9. Confirm the operation.
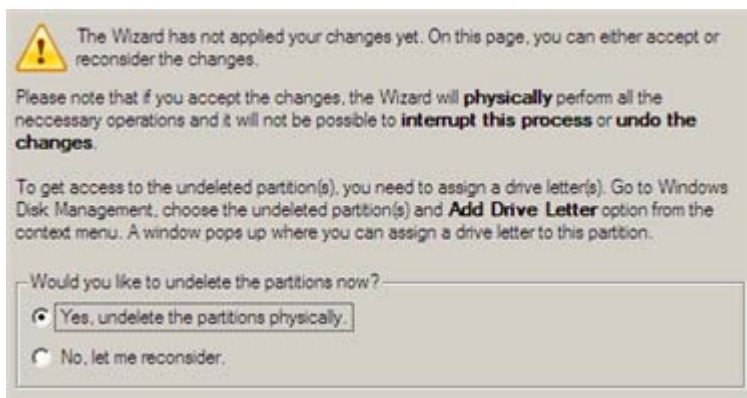
10. After the operation is completed, close the wizard by pressing the appropriate button.

11. Eject the CD.
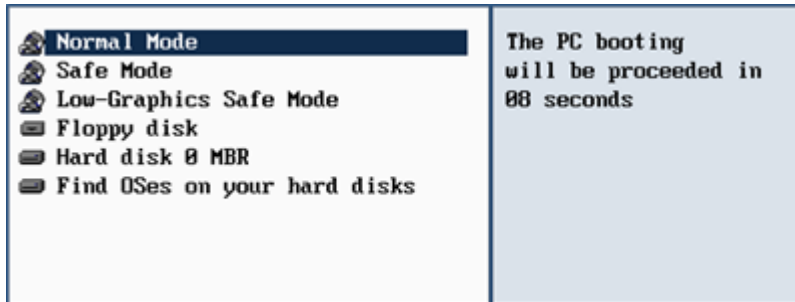
12. Reboot the computer.

This operation can also be accomplished with the Linux/DOS recovery environment.

COPYING OF DATA FROM THE CORRUPTED SYSTEM DISK TO ANOTHER HARD DISK

To retrieve valuable information from your hard disk and copy it to another hard disk when the system fails to boot, please do the following:

1. Connect the second hard disk to the computer.

2. Insert Paragon Linux/DOS Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

3. Restart the computer.

4. In the boot menu select **Normal Mode** to use the Linux recovery environment (more preferable) or **Safe Mode** to use the PTS DOS recovery environment (in case you've got problems with Linux). Moreover

you've got the option to boot into the **Low-Graphics Safe Mode** (PTS DOS safe mode) to cope with a serious hardware incompatibility. In this case, only the minimal set of drivers will be included, like hard disk, monitor, and keyboard drivers. This mode has simple graphics and a simple menu.

By default the Normal Mode will be automatically initiated after a 10 second idle period.
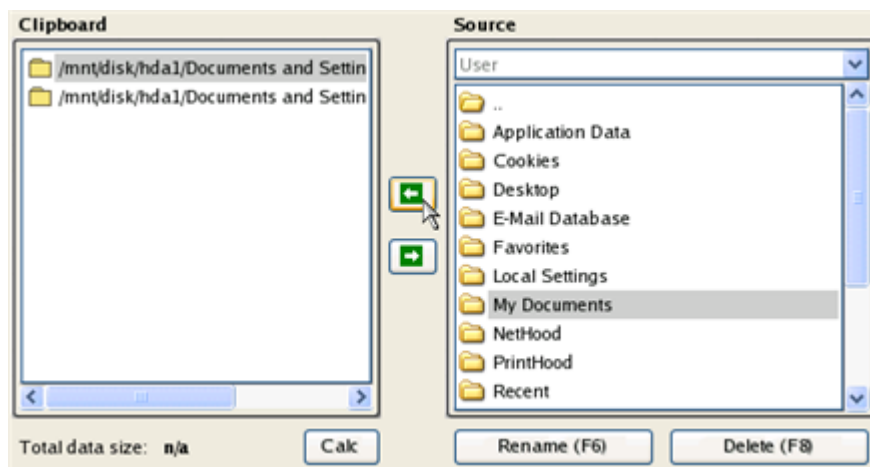
5. In the Linux launch menu select the File Transfer Wizard. You can find the same wizard in PTS DOS as well.
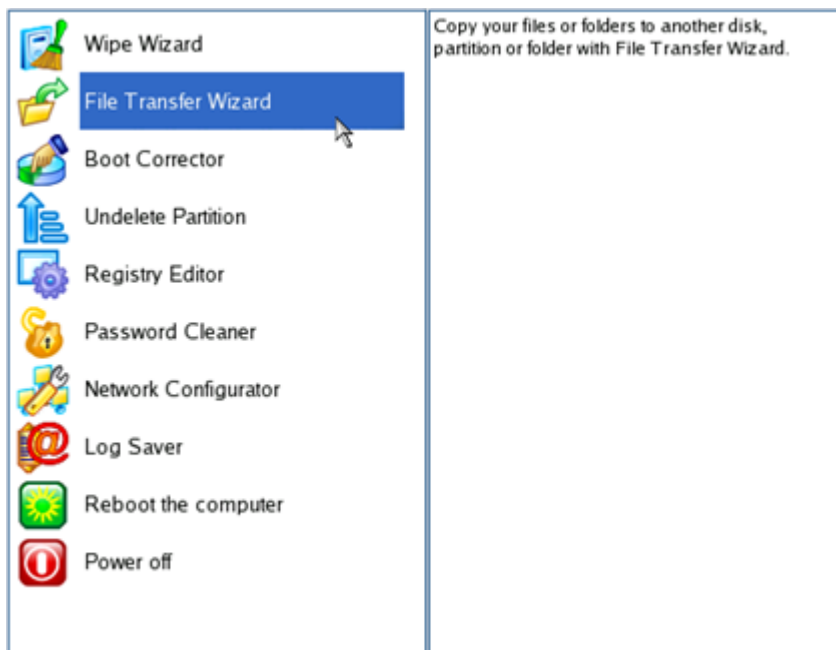
6. On the Wizard's Welcome page, click the Next button.

7. Select a disk where the files you need are stored from the pull-down list in the right pane of the page.
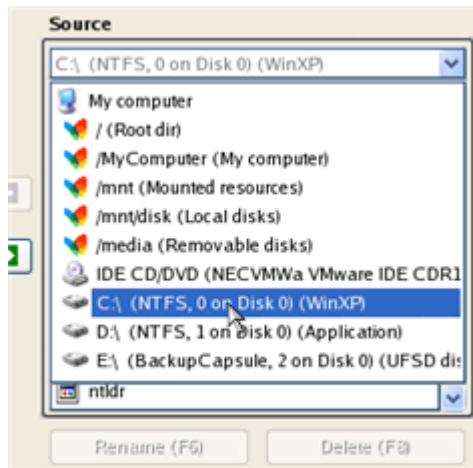
8. Select files you want to copy and place them to Clipboard by pressing the left arrow-button.

Click the Calc button to estimate the resulted data size.

9. On the Select Destination Type, choose the way the data will be stored. Select the **Save data to any local drive or a network share** item.
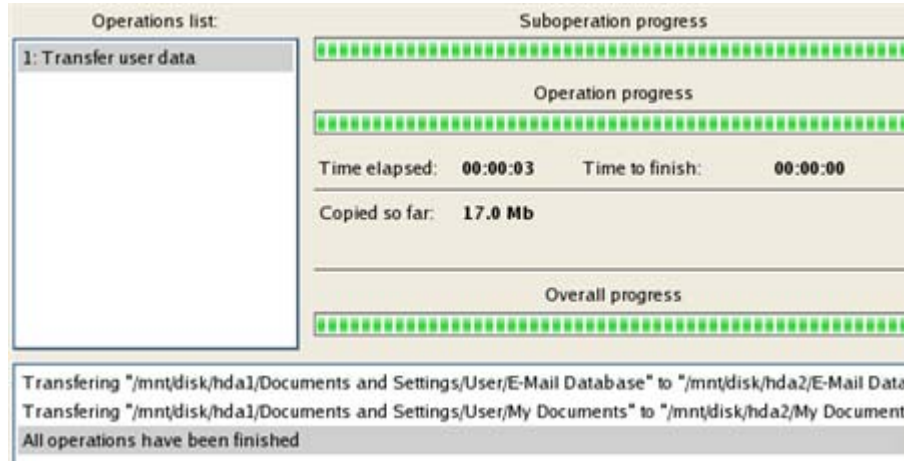

10. On the Select Destination Path page, select a hard disk to copy the data to by pressing the standard browse button [...].
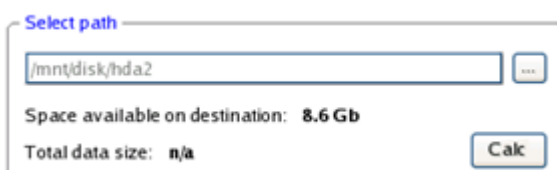
11. On the Transfer Summary page check all parameters of the operation. Click the Next button to accomplish the operation.

12. In the Progress window you can see in real-time a detailed report on all actions carried out by the program.

13. After the operation is completed, close the wizard by pressing the appropriate button.

14. Eject the CD.

15. Turn off the computer.

> **This operation can also be accomplished with the WinPE recovery environment.**

BURNING OF DATA FROM THE CORRUPTED SYSTEM DISK TO CD/DVD

To retrieve valuable information from your hard disk and burn it to CD/DVD when the system fails to boot, please do the following:

1. Insert Paragon Linux/DOS Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. In the boot menu select **Normal Mode** to use the Linux recovery environment, since it's the only mode that enables to burn CD/DVD discs.
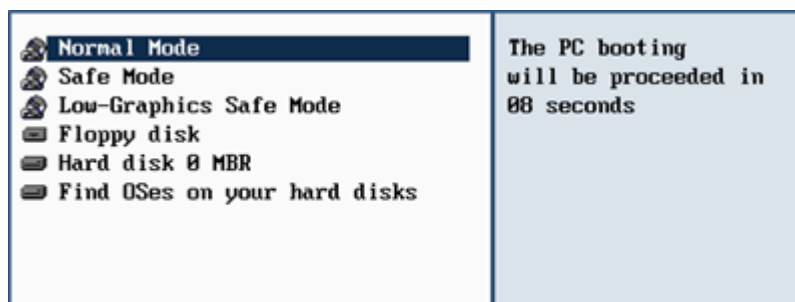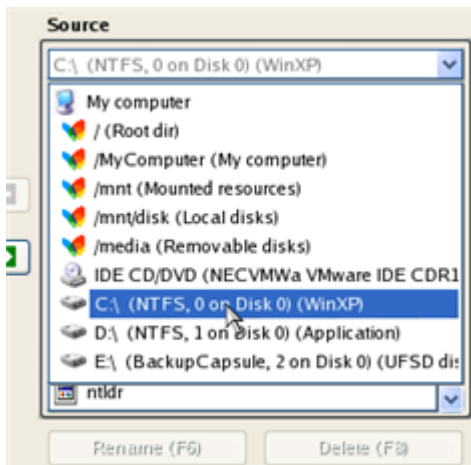
> ⚠ **By default the Normal Mode will be automatically initiated after a 10 second idle period.**
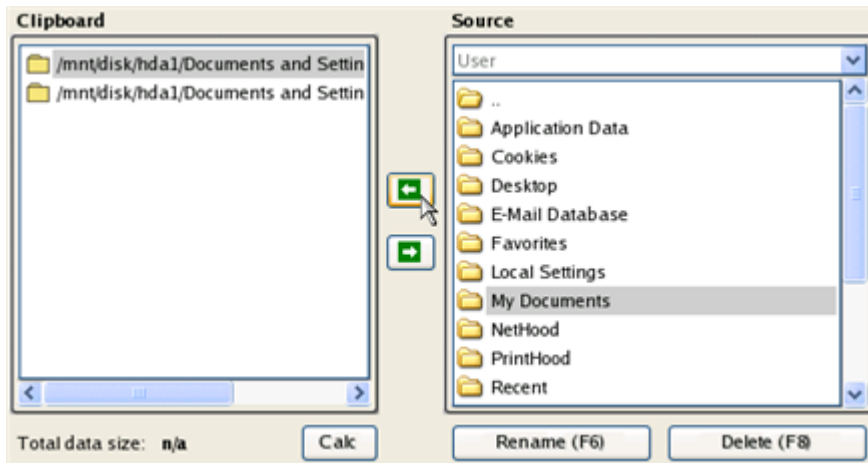
4. In the Linux launch menu select the File Transfer Wizard.
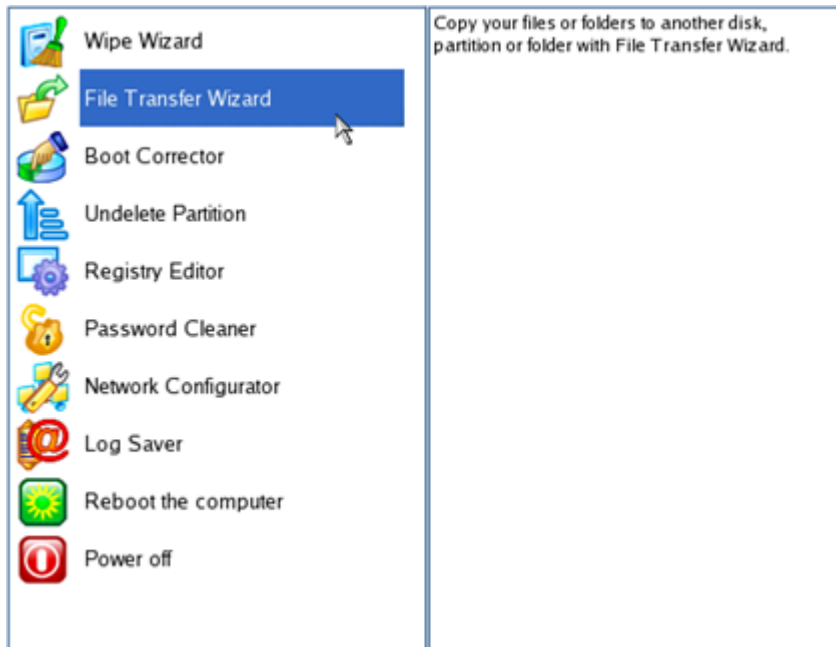
5. On the Wizard's Welcome page, click the Next button.

6. Select a disk where the files you need are stored from the pull-down list in the right pane of the page.

7. Select files you want to copy and place them to Clipboard by pressing the left arrow-button.
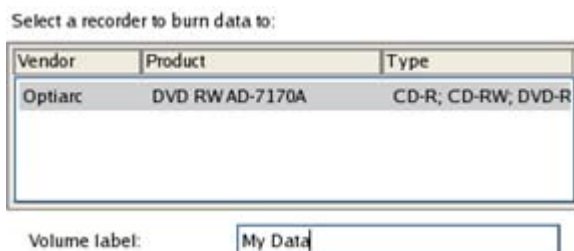
Click the Calc button to estimate the resulted data size.

8. On the Select Destination Type, choose the way the data will be stored. Select the **Burn data to CD/DVD** item.

9. On the Choose a Recorder page, select a recorder from the list of available devices and then set a volume label by entering it in the appropriate field.

10. On the Transfer Summary page check all parameters of the operation. Click the Next button to accomplish the operation.

11. In the Progress window you can see in real-time a detailed report on all actions carried out by the program.

Operations list:	Suboperation progress	
1: Transfer user data		
	Operation progress	
	Time elapsed: **00:00:07** Time to finish: **00:00:16**	
	Copied so far: **5.0 Mb**	
	To copy: **12.0 Mb**	
	Overall progress	

Creating compilation image...
Used burner: DVD RW AD-7170A   Vendor: Optiarc
Session opening...
Data burning...
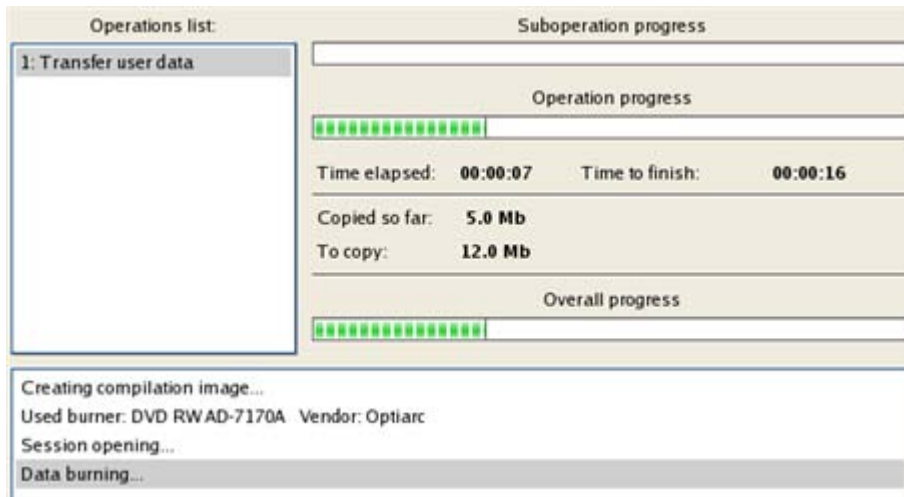
12. After the operation is completed, close the wizard by pressing the appropriate button.
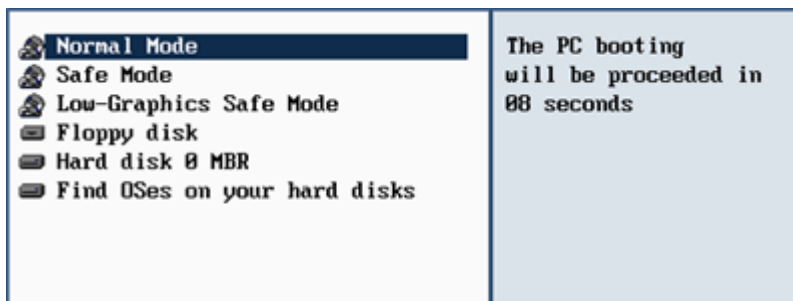
13. Eject the CD.

14. Turn off the computer.

This operation can also be accomplished with the WinPE recovery environment.

COPYING OF DATA FROM THE CORRUPTED SYSTEM DISK TO A NETWORK SHARE

To retrieve valuable information from your hard disk and copy it to a network share when the system fails to boot, please do the following:

1. Insert Paragon Linux/DOS Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. In the boot menu select **Normal Mode** to use the Linux recovery environment, since it's the only mode that provides a network support.

Normal Mode	The PC booting
Safe Mode	will be proceeded in
Low-Graphics Safe Mode	08 seconds
Floppy disk	
Hard disk 0 MBR	
Find OSes on your hard disks	

By default the Normal Mode will be automatically initiated after a 10 second idle period.

4. In the Linux launch menu select **Network Configurator** to establish a network connection.
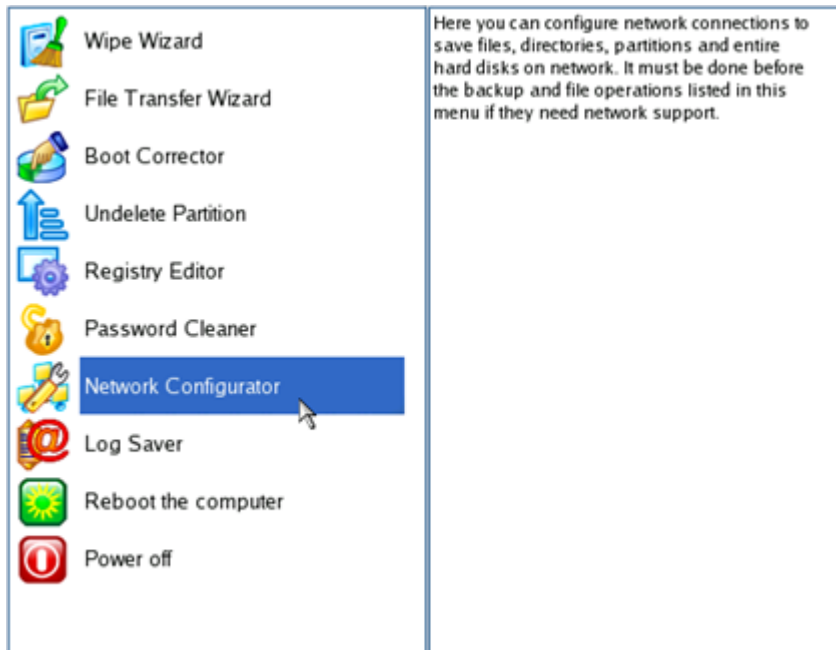
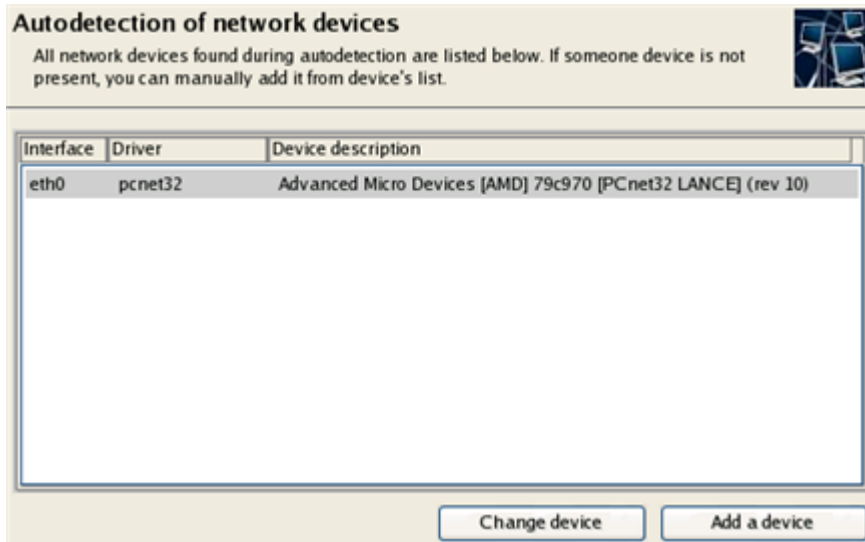5. On the Wizard's Welcome page, click the Next button.

6. On the Load Config File page, click the Next button. By default, the wizard saves all network settings in the netconf.ini file located on the Linux 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.
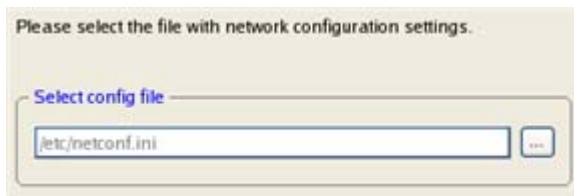
7. On the next page the wizard automatically attempts to detect all available network devices and then displays them (if any) in form of a list. On every found device there's information about its interface and used driver as well as a brief description. You can manually add a network device in case it hasn't been found automatically by clicking the Add a device button and selecting a device you need from the list. Do not forget to check it by clicking the Probe button.

Autodetection of network devices

All network devices found during autodetection are listed below. If someone device is not present, you can manually add it from device's list.

| Interface	Driver	Device description
eth0	pcnet32	Advanced Micro Devices [AMD] 79c970 [PCnet32 LANCE] (rev 10)

Change device   Add a device

8. On the Settings for Interface page you need to properly set up the selected network device. If your local network has a DHCP, you can just leave everything as is, otherwise manually type in an IP address, a network mask, default gateway, etc.

General

⦿ Obtain an IP address automatically
○ Use the following IP address

IP address:	1	0	0	0
Network mask:	255	0	0	0
Default gateway:	1	0	0	0
DNS servers:				Add
				Remove
☐ Wins server:	1	0	0	0

☑ **Network will be restarted on this check select**
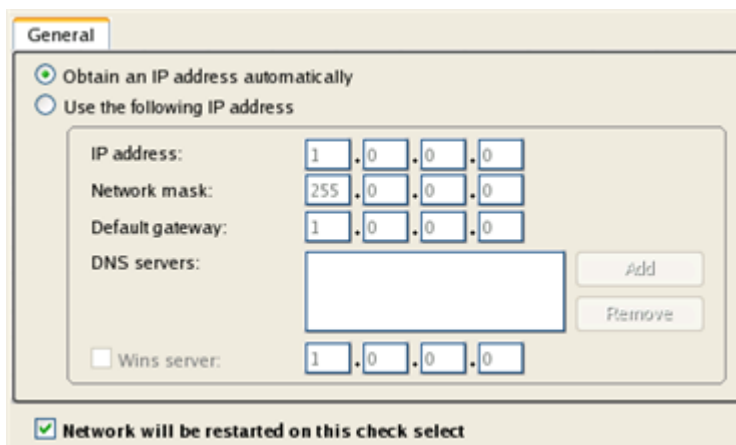
9. On the Configure Network Connections page, click the Add button and provide all the necessary information to map a network share in the opened dialog. Click the Unmount button to delete an existing network connection if necessary.

List of network resources:

Mount settings

Network path:	//server2/pool	...
Mount point:	/mnt/net	...
Username:	guest	
Password:		

Ok   Cancel

Add

To continue, click Next.

10. On the next page, save the netconf.ini file if necessary and click the Finish button to complete the wizard.

11. In the Linux launch menu select the File Transfer Wizard.
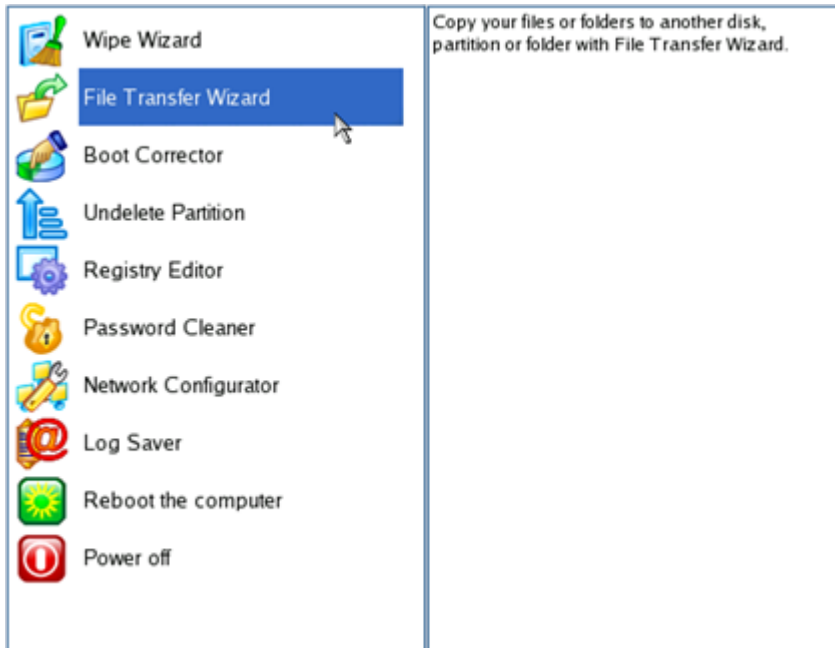
12. On the Wizard's Welcome page, click the Next button.

13. Select a disk where the files you need are stored from the pull-down list in the right pane of the page.
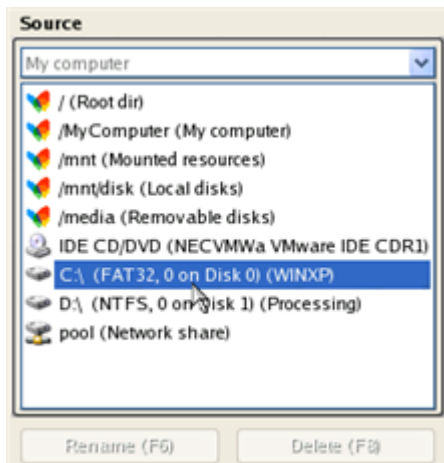
14. Select files you want to copy and place them to Clipboard by pressing the left arrow-button.
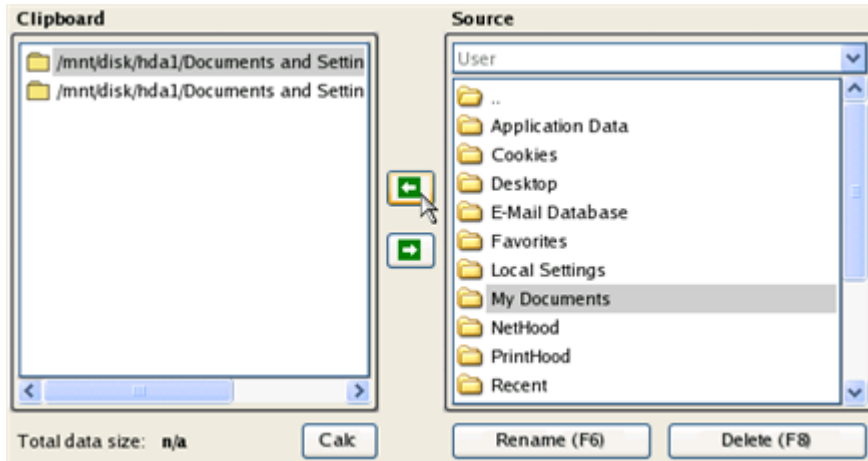
Click the Calc button to estimate the resulted data size.

15. On the Select Destination Type, choose the way the data will be stored. Select the **Save data to any local drive or a network share** item.

16. On the Select Destination Path page, select the previously mapped network share to copy the data to by pressing the standard browse button [...].

17. On the Transfer Summary page check all parameters of the operation. Click the Next button to accomplish the operation.

18. In the Progress window you can see in real-time a detailed report on all actions carried out by the program.
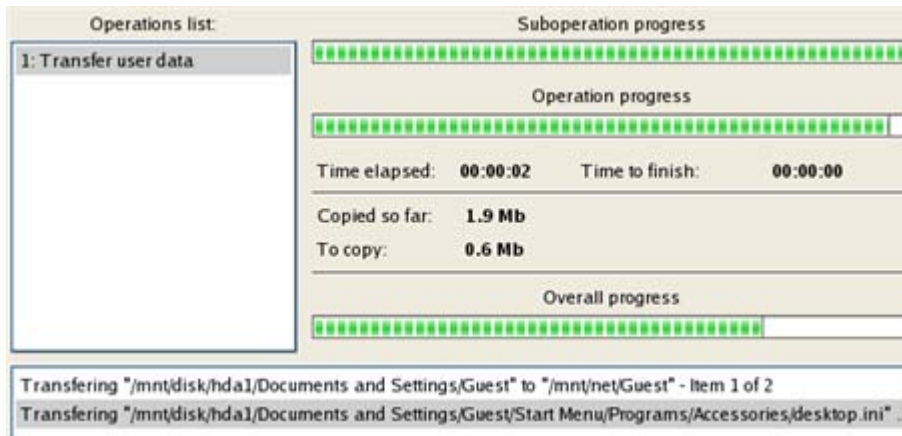
19. After the operation is completed, close the wizard by pressing the appropriate button.

20. Eject the CD.

21. Turn off the computer.

 This operation can also be accomplished with the WinPE recovery environment.

CLEANING USER PASSWORDS FOR WINDOWS

Let's assume that after a busy business trip you've come home and realized that you've completely forgotten your Windows user password. That's no great tragedy any more.

To clean a user password of the required Windows installation, please do the following:

1. Insert Paragon Linux/DOS Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. In the boot menu select **Normal Mode** to use the Linux recovery environment (more preferable) or **Safe Mode** to use the PTS DOS recovery environment (in case you've got problems with Linux). Moreover you've got the option to boot into the **Low-Graphics Safe Mode** (PTS DOS safe mode) to cope with a serious hardware incompatibility. In this case, only the minimal set of drivers will be included, like hard disk, monitor, and keyboard drivers. This mode has simple graphics and a simple menu.

> **By default the Normal Mode will be automatically initiated after a 10 second idle period.**

4. In the Linux launch menu select Password Cleaner. You can find the same wizard in PTS DOS as well.
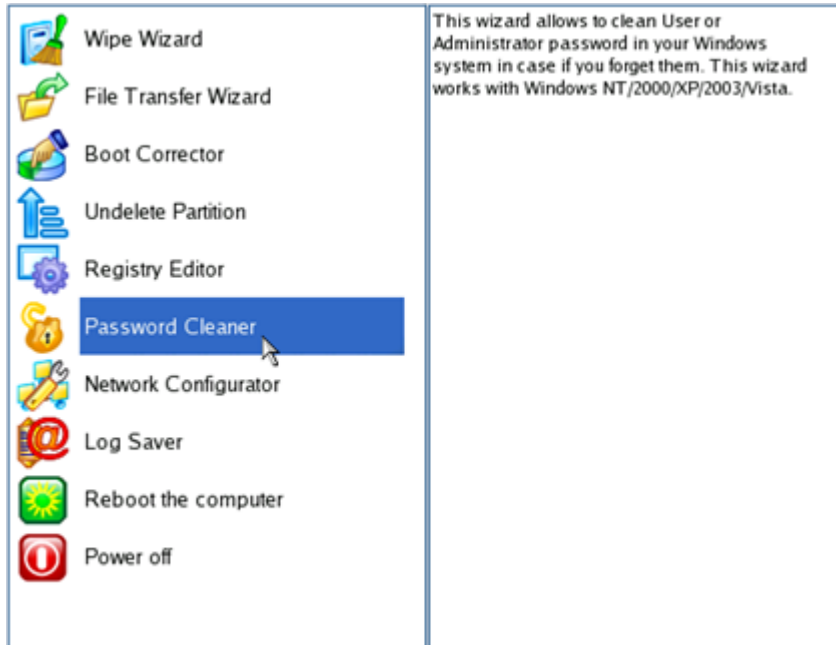
5. On the Wizard's Welcome page, click the Next button.

6. On the next page choose the required Windows installation from the list of found installations (if several). If you're not sure which installation you need, please use the Properties button to get more info on the selected item.
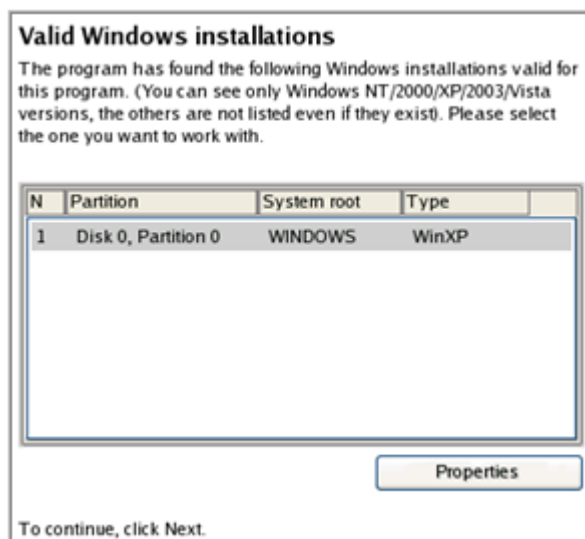
7. On the next page you can see a list of all users of the selected Windows installation. Select the user, which password you'd like to make blank, then click the Clean button to accomplish the operation. Or just click the Clean All button to clean all user passwords at once.

Clean passwords

You can see the list of users in your system. Please select the user whose password you would like to clean and press the 'Clean' button. You can also clean passwords of all users at once if you press the 'Clean All' button.

User	Password status
Administrator	<Original>
Guest	<Original>
HelpAssistant	<BLANK>
SUPPORT_388945a0	<Original>
User	<BLANK>

[Clean]   [**Clean All**]

To continue, click Next.

8. After the operation is completed, close the wizard by pressing the appropriate button.

9. Eject the CD.

10. Reboot the computer.

HARD DISK UTILIZATION

To irreversibly destroy all on-disk information without any possibility to recover and that way providing the maximum level of security, please do the following:

1. Insert Paragon WinPE Recovery CD (the BIOS must be enabled to boot the system from the CD/DVD device).

2. Restart the computer.

3. After the disc has been loaded, read the agreement and then mark the appropriate checkbox to accept.

License

Press Page Up and Page Down to scroll the text

End User License Agreement

between

PARAGON Technologie GmbH,
Systemprogrammierung
Heinrich-von-Stephan-Str. 5 c, 79100 Freiburg, Germany,

and

You, as end user

If you accept the terms of the agreement, click the check box below

☑ I accept the terms in the License Agreement

[Accept]   [Decline]
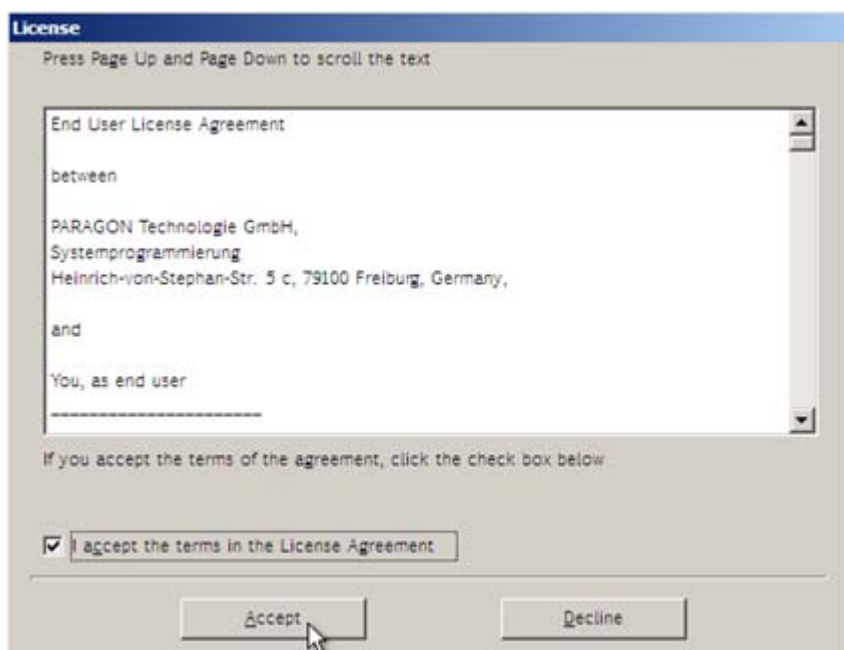
> **If you do not agree with any conditions stated there, you won't be able to use the program.**

4. Once you accept the agreement, you will see the Universal Application Launcher. Select the Wipe Wizard.

5. On the Wizard's Welcome page, click the Next button.
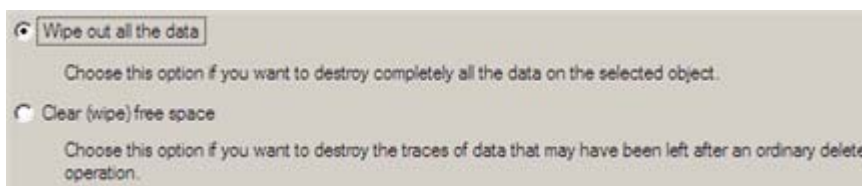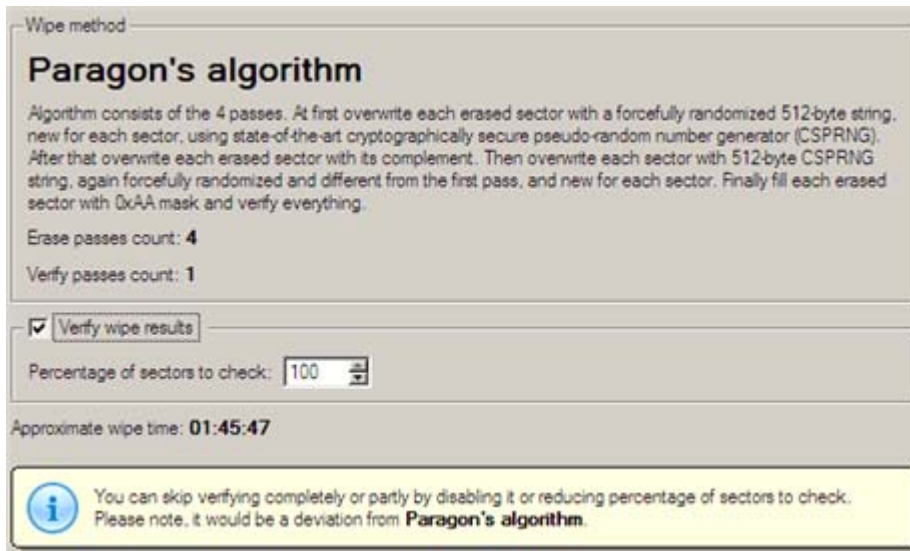
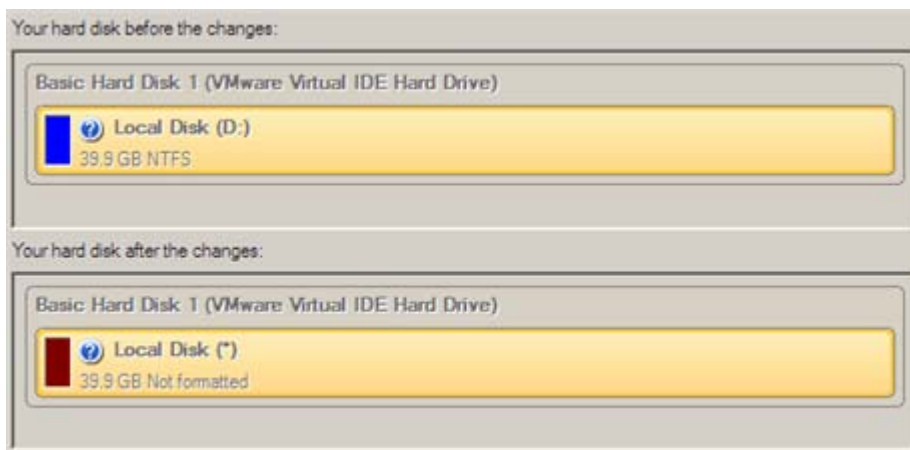6. Select a hard disk, the data of which you want to wipe out.
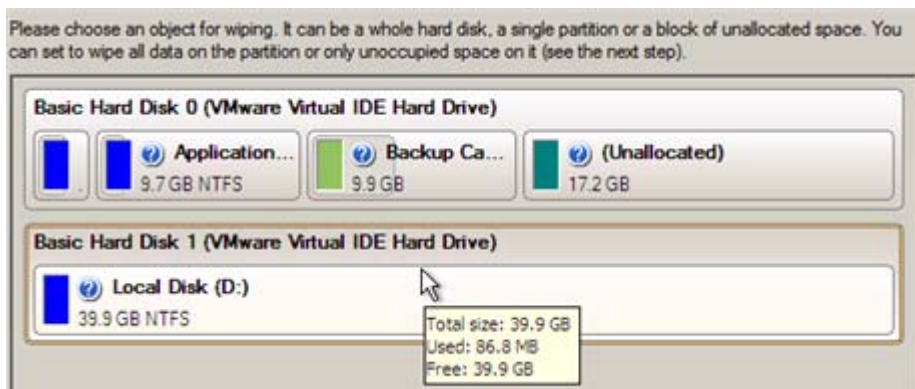
7. On the Wipe Mode page, select the wipe out all the data to irreversible destroy all on-disk information.

8. The next page of the wizard enables to get detailed information on the Paragon's wipe algorithm used for the irreversible data destruction. Besides you can choose here whether to carry out residual data verification or not specifying the percentage of sectors to check and estimate the time required to accomplish the operation.

Wipe method

Paragon's algorithm

Algorithm consists of the 4 passes. At first overwrite each erased sector with a forcefully randomized 512-byte string, new for each sector, using state-of-the-art cryptographically secure pseudo-random number generator (CSPRNG). After that overwrite each erased sector with its complement. Then overwrite each sector with 512-byte CSPRNG string, again forcefully randomized and different from the first pass, and new for each sector. Finally fill each erased sector with 0xAA mask and verify everything.

Erase passes count: **4**

Verify passes count: **1**

☑ Verify wipe results

Percentage of sectors to check: [100]

Approximate wipe time: **01:45:47**

ⓘ You can skip verifying completely or partly by disabling it or reducing percentage of sectors to check. Please note, it would be a deviation from **Paragon's algorithm**.

---

9. Review all parameters of the operation and modify them if necessary.

Your hard disk before the changes:

Basic Hard Disk 1 (VMware Virtual IDE Hard Drive)

Local Disk (D:)
39.9 GB NTFS

Your hard disk after the changes:

Basic Hard Disk 1 (VMware Virtual IDE Hard Drive)

Local Disk (*)
39.9 GB Not formatted

---

10. Complete the wizard to accomplish the operation.

⚠ **This operation can also be accomplished with the Linux/DOS recovery environment.**

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.

Boot.ini is a textual configuration file for NTLDR (a specific boot management tool in Windows NT/2000/XP/Server 2003). Apart from other parameters this file contains references to the Windows system partition, thus its corruption will certainly lead to the Windows startup failure.

Below you can see an example of the Boot.ini file:

```
[boot loader]
timeout=30
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
[operating systems]
multi(0)disk(1)rdisk(0)partition(1)\WINDOWS="windows XP Professional" /fastdetect
multi(0)disk(0)rdisk(0)partition(2)\WINNT="windows 2000 Professional" /fastdetect
```

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.