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# Paragon® Drive Backup™ 10 Server

Evaluator's Guide

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## Product Concept

### General Info

**Drive Backup 10 Server** is positioned as the company's top-level disaster recovery and system migration solution for physical and virtual Windows® environments. Aimed at small and mid-sized companies, it combines all of Paragon's latest patented technologies and expertise to deliver:

- ✓ Comprehensive protection for a company's intellectual property
- ✓ All facilities to meet strict Recovery Time Objectives
- ✓ Significant capital cost savings
- ✓ Enhanced IT productivity

### Optional Components

Used alone, the product is an efficient tool for protecting stand-alone servers and workstations. But most of its potential is uncovered when it's boosted with the exclusive optional add-ons:

- ✓ **Paragon Infrastructure Package** to help IT administrators effectively manage complex IT environments consisting of multiple, non-collocated servers and workstations, that comes with:
  - **Paragon Remote Management (PRM™) 2.0** – is a special solution for centralized administration and maintenance of computer parks. It enables to remotely assign various tasks to a single computer (or groups of computers), and to verify that particular tasks have been a success.
  - **Paragon Infrastructure Module** includes Paragon PXE Server (DHCP and TFTP servers) to remotely boot a PXE compatible computer with no operating system installed, and handy tools to build a custom WinPE 2.1 or Linux based bootable image to configure the network and mount network shares, set a program script execution, as well as add any required files. This image then can be recorded to a CD/DVD/Blu-ray disc to make client machines boot directly or remotely through the PXE capabilities and carry out operations completely in the unattended mode.
- ✓ **Exchange Granular Recovery** – is a plug-in for Microsoft Outlook 2003/2007 that enables to get transparent access to backup mail databases of MS Exchange Server 2007 through the standard facilities of MS Outlook for easy and fast data recovery at a granular level.

Moreover Paragon Software offers several **Technician Licenses** for Drive Backup 10 Server. The Technician License is a valuable cost-effective software option for system administrators, technicians, and IT consultants who maintain small, mid-sized, or large corporate environments. It allows the use of Paragon software on desktops, workstations and servers regardless of the network size or architecture.

## Primary Audience

The product's target company is a small or mid-sized business, so its target market:

- ✓ IT personnel maintaining this type of business
- ✓ IT Experts

## Key Differentiators

The key differentiators of the product are:

### Optionally available

- ✓ **Infrastructure Package** for a centralized administration and maintenance of computer parks; optimization of IT infrastructure dealing with complex environments.
- ✓ **Exchange Granular Recovery** for easy and fast data recovery at a granular level from MS Exchange EDB files.
- ✓ **Technician License** for technical service providers supporting diverse clients; IT professionals managing small groups of co-located servers within a company, or large distributed groups of servers in multiple locations.

### Directly available

- ✓ **Support for the latest operating systems from Microsoft** (including Windows 7 and Windows Server 2008 R2).
- ✓ **Complete infrastructure for establishing a self-acting data protection system** that is fully compliant with the set-and-forget backup policy.
- ✓ **Virtualization** (P2V) for the system migration, protection, and evaluation. The product supports major virtual machines (MS Virtual PC, MS Virtual Server, MS Hyper-V, VMware Workstation, VMware Fusion, and VMware ESX Server), and helps to recover the startup ability after unsuccessful virtualization with a 3rd party tool.
- ✓ **No hardware dependency** with the next generation of Paragon Adaptive Restore™; this technology guarantees a Win2K+ system will boot on different computer hardware (P2P) by automatically injecting the required drivers and other actions crucial for this type of migration.
- ✓ **Differential and incremental backups, and exclusive file complements** allows different data time-stamps with no duplication, and minimizes backup storage requirements.
- ✓ **An advanced system of filters** automates the process of building up backup contents by excluding irrelevant data.
- ✓ **Restore at a granular level** minimizes downtime if there's no need to restore an entire image; you choose only the files you want.
- ✓ **Comprehensive recovery environments** based on DOS, Linux, and WinPE 2.1 are available on CD/DVD/Blu-ray, thumb drives, or Backup Capsule to quickly get the system

back on track when it fails to boot. They also can help to retrieve valuable information from damaged hard disks.

- ✓ **Support of all the latest hardware**, including all SCSI, IDE and SATA RAID controllers, Blu-ray drives, USB 1.x/2.0 and IEEE 1394 (FireWire) devices, PC card storages, and many more...
- ✓ **Support for GPT** (GUID Partition Table) disks
- ✓ **Support for Apple Boot Camp configurations**

## Supported Platforms

Virtual Machines	Operating Systems	File Systems	Hard Drives and Removable Media
MS Virtual PC	Windows 7 (32/64-bit)	NTFS (v1.2, v3.0, v3.1)	Parallel ATA (IDE) HDD
MS Virtual Server	Windows Vista (32/64-bit)	FAT16	Serial ATA (SATA) HDD
MS Hyper-V	Windows XP Professional (32/64-bit)	FAT32	External SATA (eSATA) HDD
VMware Workstation	Windows XP Home	Linux Ext2FS	SCSI HDD
VMware Fusion	Windows 2000 Professional SP4	Linux Ext3FS	All levels of SCSI, IDE and SATA RAID controllers
VMware ESX Server	Windows Server 2000 Family SP4	Linux Ext4FS	RAID support (hardware and software)
	Windows Server 2003 Family	Linux Swap	CD-R/RW
	Windows Server 2003 x64 Edition	Apple HFS+	DVD-R/RW
	Windows Small Business Server 2003 Family	Other file systems (in the sector-by-sector mode)	DVD+R/RW
	Windows Small Business Server 2008 Family		DVD+/-R (DL)
	Windows Storage Server 2003		BD-R
	Windows Server 2008 Family (32/64 Bit)		BD-RE

(32/64 Bit)	
Windows Server 2008 R2	USB 1.x/2.0 and IEEE 1394 (FireWire) devices
	PC card storage devices

## Evaluation Approach

Taking into account that Drive Backup 10 Server is a complex solution, which can be boosted with several optional add-ons, we'll consider the product from two angles – with and without them, thus additionally showing up benefits of each particular add-on.

## Getting Started

### Recommended Target Environment

**Drive Backup 10 Server** can operate smoothly on different computer configurations. Below you can find the product minimal system requirements:

- ✓ CPU: Intel Pentium or compatible, 300 MHz or higher processor
- ✓ RAM: At least 128 MB (256 MB or greater recommended)
- ✓ Disk space: 120 Mb
- ✓ Internet Explorer 5.0 or higher

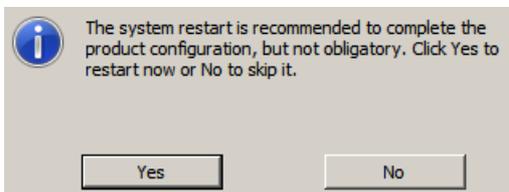
### Installation

The setup utility has the standard user interface and set of installation steps. There are only several minor points we'd like you to focus on:

- ✓ You need to accept Paragon License Agreement. Otherwise you won't be able to proceed with the installation.



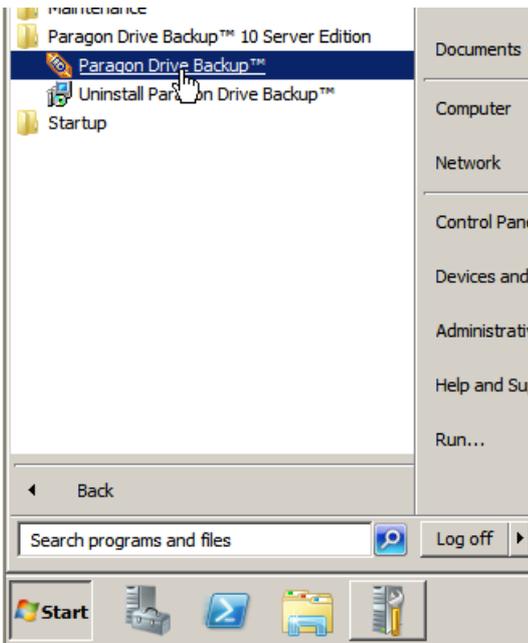
- ✓ You need to restart the system once the installation procedure is completed to activate a system driver that will enable to process locked partitions/hard disks online (highly recommended).



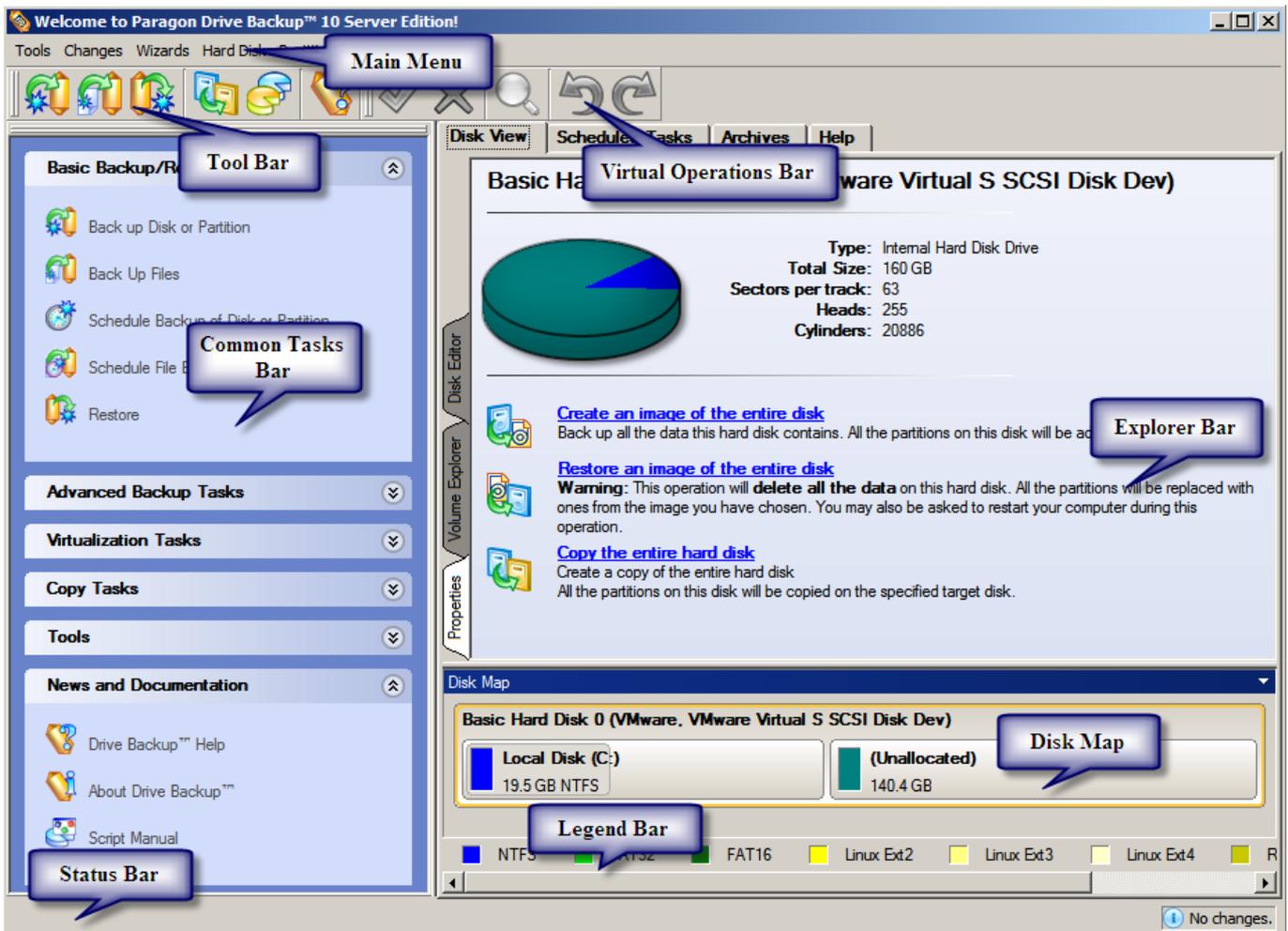
### First Start

To start the program under Windows, please click the Windows Start button and then select:

**All Programs > Paragon Drive Backup™ 10 Server Edition > Paragon Drive Backup™.**



The first component that will be displayed is called the Launcher. In general it enables to run wizards and utilities, to specify program settings, to visualize the operating environment and the hard disk configuration, to launch the help system or to go to the program's home page.



**Note!** To know more on the subject, please consult the product's help system.

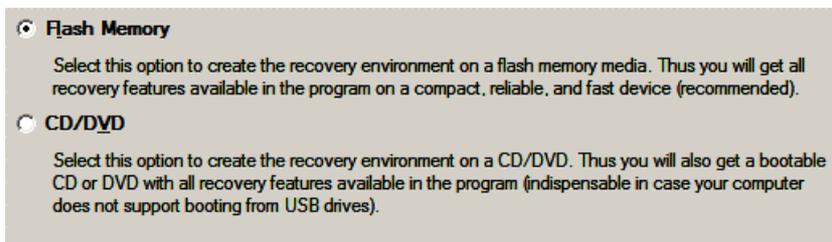
## Building Recovery Media

Recovery Media Builder can help you accomplish the following operations:

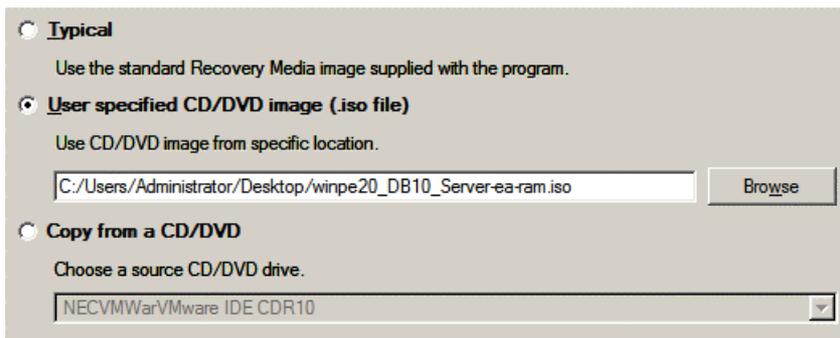
- ✓ Prepare the Linux/DOS recovery environment (included in the installation package) on external media (CD, DVD, or flash memory) to boot and run utilities under Linux or PTS DOS, and that way to get access to a hard disk for maintenance or recovery purposes (strongly recommended);
- ✓ Prepare a custom Linux/DOS recovery environment by adding additional data to the standard image;
- ✓ Prepare a bootable recovery environment from any ISO image, including the product's WinPE 2.1 image (strongly recommended);
- ✓ Create from the master CD the Linux/DOS or WinPE recovery environment on a CD/DVD disc, or flash memory.

Below you can find how to build the product's WinPE 2.1 based recovery environment on a thumb drive:

1. Plug in a thumb drive of at least 250 MBs in size. Please note all data on that drive will be deleted.
2. In the Main Menu: select **Tools > Recovery Media Builder...**
3. On the welcome page, click **Next**.
4. Select the **Flash Memory** option.

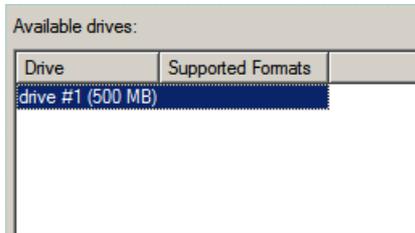


5. Select the **User specified CD/DVD image (.iso file)** option, then browse for an ISO image of the WinPE 2.1 recovery environment or manually type in a full path to it. By selecting the **Typical** option you can build the Linux/DOS recovery environment, which we highly recommend you to do as well.

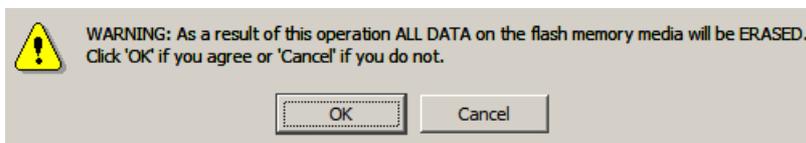


**Note!** You can get an ISO image of the WinPE 2.1 recovery environment through the company's web service.

6. Select the required thumb drive from the list of flash memory devices available in the system at the moment (if several).



7. You will have to confirm the operation.



## Functionality Overview

**Drive Backup 10 Server** is very rich in functionality, even if considering new features only. So we'll just mention about all new features and then consider in details the most interesting and beneficial to the user.

### New Features

**Drive Backup 10 Server** tends to succeed the market niches of Drive Backup 9 Server and Drive Backup 9 Enterprise Server, so these are the products we will compare it with.

Features	Benefits
 <a href="#">PRM 2.0</a>	A special solution for a centralized administration and maintenance of computer systems (available with Infrastructure Package only)
 <a href="#">Infrastructure Module</a>	Includes Paragon PXE Server and tools to build customized boot images to boost efficiency in managing complex IT environments (available with Infrastructure Package only)
 <a href="#">Exchange Granular Recovery</a>	A plug-in for Microsoft Outlook 2003/2007 that enables to get transparent access to backup mail databases of MS Exchange Server 2007 through the standard facilities of MS Outlook for easy and fast data recovery at a granular level
<b>Support for Windows 7 and Windows Server 2008 R2</b>	Accomplish any operation under Windows 7 and Windows Server 2008 R2
<a href="#">P2P Adjust OS</a>	Migrate a Win2K+ physical system to a different hardware platform (P2P) with the next generation of Paragon Adaptive Restore™
<b>P2V Copy</b>	Migrate a Win2K+ physical system to a virtual environment
<a href="#">P2V Restore</a>	Restore a Win2K+ physical system that was backed up with a Paragon disaster recovery tool to a virtual environment
<b>P2V Adjust OS</b>	Recover the startup ability after unsuccessful virtualization with a 3rd party tool
<b>Support for major virtual machines</b>	MS Virtual PC, MS Virtual Server, MS Hyper-V, VMware Workstation, VMware Fusion, and VMware ESX Server
<b>Smart Driver Injector</b>	Make the process of adding new drivers for P2V and P2P operations smooth and easy
<a href="#">Smart Backup Wizard</a>	Back up exactly what you need, with the best backup technique automatically chosen according to the type of data you wish to protect
<a href="#">Backup to an FTP server</a>	Provides a new level of system and data protection with immediate offsite backup
<a href="#">Selective Restore</a>	Easily extract files and folders from a backup image through the Restore Wizard without the need to restore an entire image

<a href="#">Scheduling for the File backup</a>	Set up a timetable for any file-based backup operation, thus providing a new level of flexibility
<b>Boot Corrector for WinPE</b>	Fix most system boot problems not only in the Linux and PTS DOS bootable recovery environments, but WinPE 2.1 as well
<b>The latest Linux kernel</b>	Enjoy support of a wider range of hardware configurations, including the brand-new Intel ICH10 chipset
<b>WinPE 2.1 recovery environment</b>	Enjoy support of a wider range of hardware configurations with the option to add drivers for specific hardware on-the-fly
<b>Update</b> More flexibility for online data processing techniques	An easier configuration for both Paragon Hot Processing and Microsoft Volume Shadow Copy Service (MS VSS)
<b>Update</b> Better support for 64-bit platforms	Your computer will automatically be rebooted to one of three special boot-up modes to complete operations which cannot be accomplished under 64-bit Windows
<b>Update</b> Advanced system of filters	Automate the process of building up contents of future backup images by excluding irrelevant data such as movies, music, etc.
<b>Update</b> Better support for GUID Partition Table (GPT)	Back up and restore not only single GPT volumes but entire disks, including the option of resize during the restore operation
<b>Update</b> Better support for Apple Boot Camp	Not only back up and restore this kind of configuration, but copy single volumes or entire disks with resize
<b>Update</b> Better support for Linux ExtFS	From Ext2FS to the new Ext4FS

## Points of Interest

### Automatic Regular System Imaging

#### *For stand-alone systems*

##### Preamble

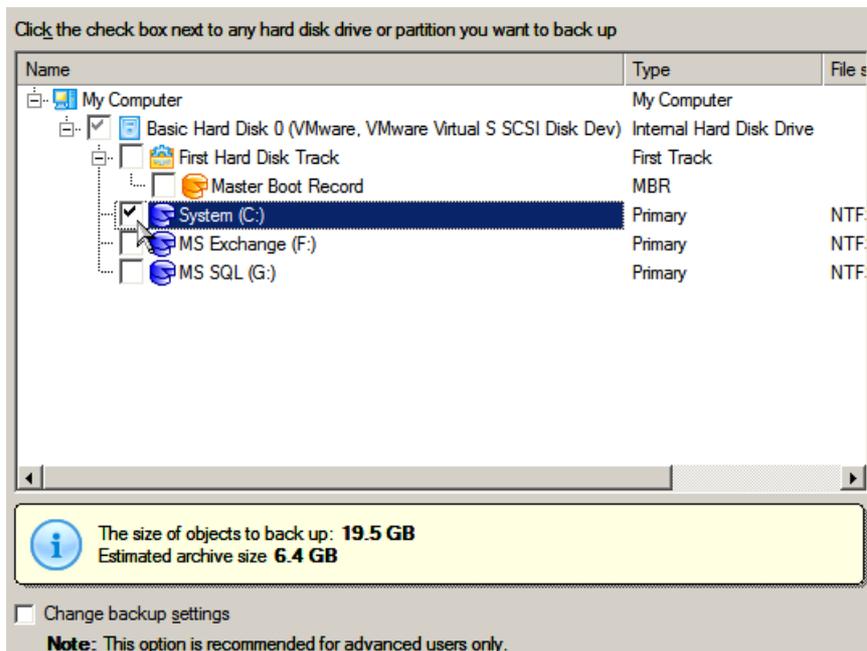
One of the servers under your responsibility runs MS Windows Server 2008 with several enterprise level applications like MS Exchange, MS SQL, etc. You don't worry about these applications, for they are regularly backed up by some specialized tools. What you do worry about is the OS – you know pretty well that if a disaster strikes, re-installation of Windows, its updates, and all software will be an extremely time-consuming operation involving huge downtime, which your company cannot afford.

**Cyclic Backup Wizard** is your choice. It helps you establish a self-acting data protection system that is fully compliant with the set-and-forget backup policy. So whenever Windows fails, you'll be able to get it back on track in minutes, thus contributing to the business continuity.

### Workflow

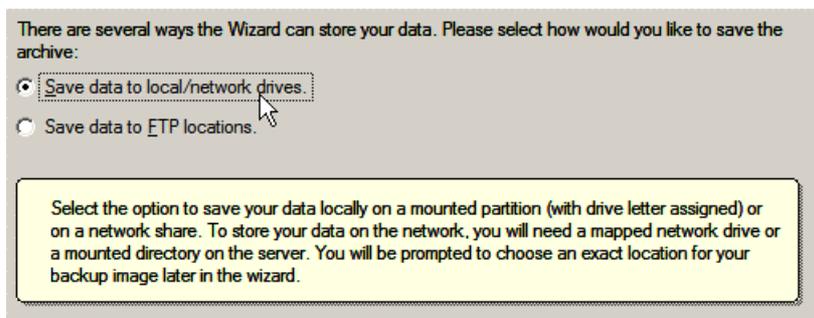
To let Cyclic Backup Wizard protect a Win2K+ system on a regular basis completely in the automatic mode, please do the following:

1. Select in the Main Menu: **Wizards > Backup Utilities > Cyclic Backup...**
2. On the welcome page, click **Next**.
3. Mark a checkbox opposite a system partition.

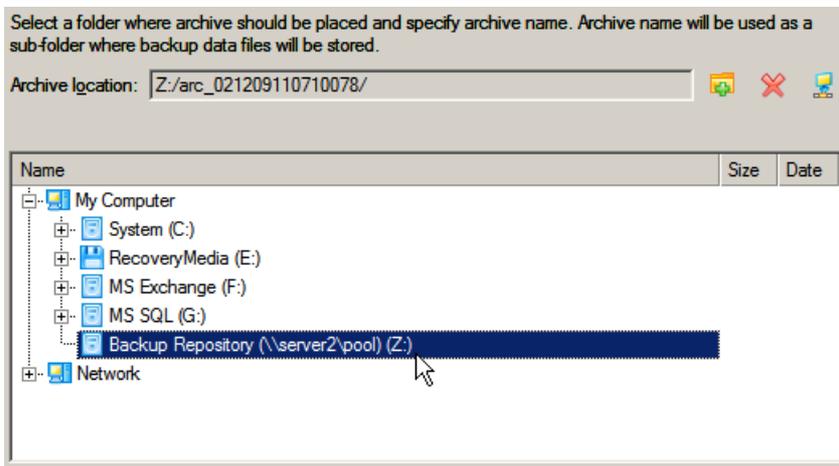
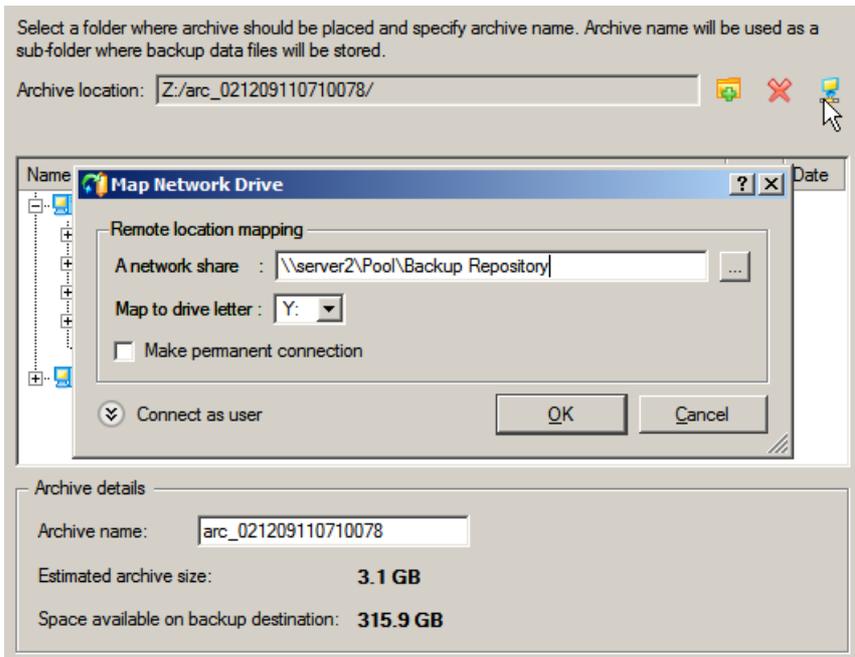


**Note!** The current version of the program enables to make a cyclic backup of only one partition at a time.

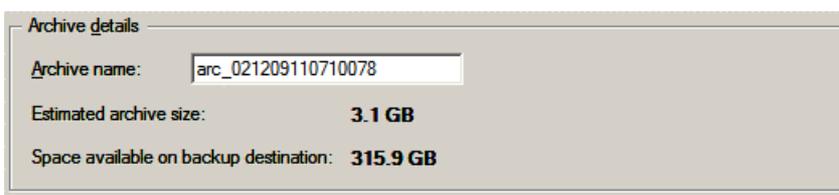
4. Select a mounted/un-mounted partition, the backup capsule, a network share, or an FTP server to place backup images to. We're for network to stand a better chance of success in case of a hard disk failure, so we need to additionally map it.



**Note!** The number of available options depends on the system configuration.

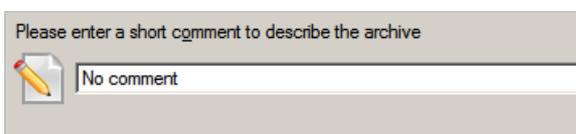


5. Edit the archive name if necessary.



**Note!** Please take into account values of the parameters **Estimated archive size** and **Space available on backup destination** - if the archive size exceeds the available space, another drive needs to be selected.

6. Add comments to the backup describing its contents.



7. Set a timetable.

Please specify how and when would you like to perform the task:

 **Daily**

Shutdown system after backup

Generate unique names for scheduled backups

Run the task on:

12/02/2009 at 12:00 AM

Every

1 day(s)

Do not run the task after:

12/02/2009

[Specify user name and password.](#)

**Note!** To run the task in the log-off mode, please specify administering login info by following the appropriate link in the left lower corner of the page.

8. Choose the required operation mode.

There are several types of the cyclic backup the Wizard can perform. Please choose the one you would like to carry out:

Cyclic Backup Type

Basic type  
Every image made during the operation will be created as a complete base image.

Differential type  
Every first image will be made as a complete base image, all the others will be differentiated from it. A differential backup only contains changes in the partition's contents with respect to a complete image.

- **Base type.** Every image created during the operation will be made as a full archive.
- **Differential type.** Every first image will be made as a full (base) archive and all the others will be differentiated from it. This operation requires much less space, thus considerably saving your system resources (recommended).

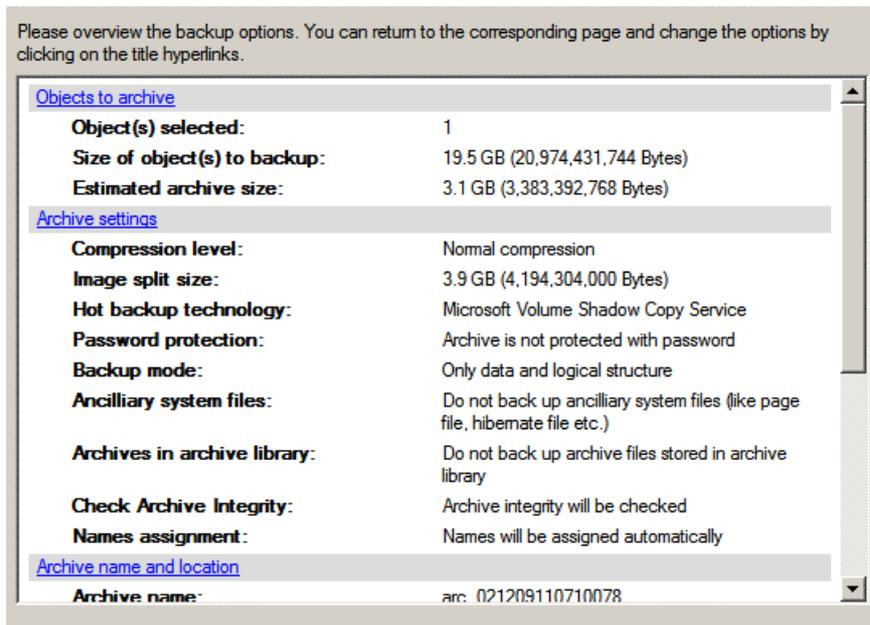
By setting the **Maximum disk space to store images** and the **Maximum number of images to store** parameters you may define when the operation will be cycled. That means that on exceeding these two parameters the oldest archives will be automatically overwritten (if choosing the Differential type only differentials will be overwritten).

Maximum disk space to store images: 100000 MB.

Maximum number of images to store: 4

 Select the option to make the first backup image as a complete base archive and all the next only differentiated from it. This method will let you considerably save your system resources. On exceeding the *Maximum disk space to store images* parameter or/and the *Maximum number of backup images to store* parameter, the oldest differential images **will be automatically overwritten**.

- Review all parameters of the operation and modify them if necessary. Complete the wizard.



The operation will run according to the set timetable.

### *For complex environments*

#### Preamble

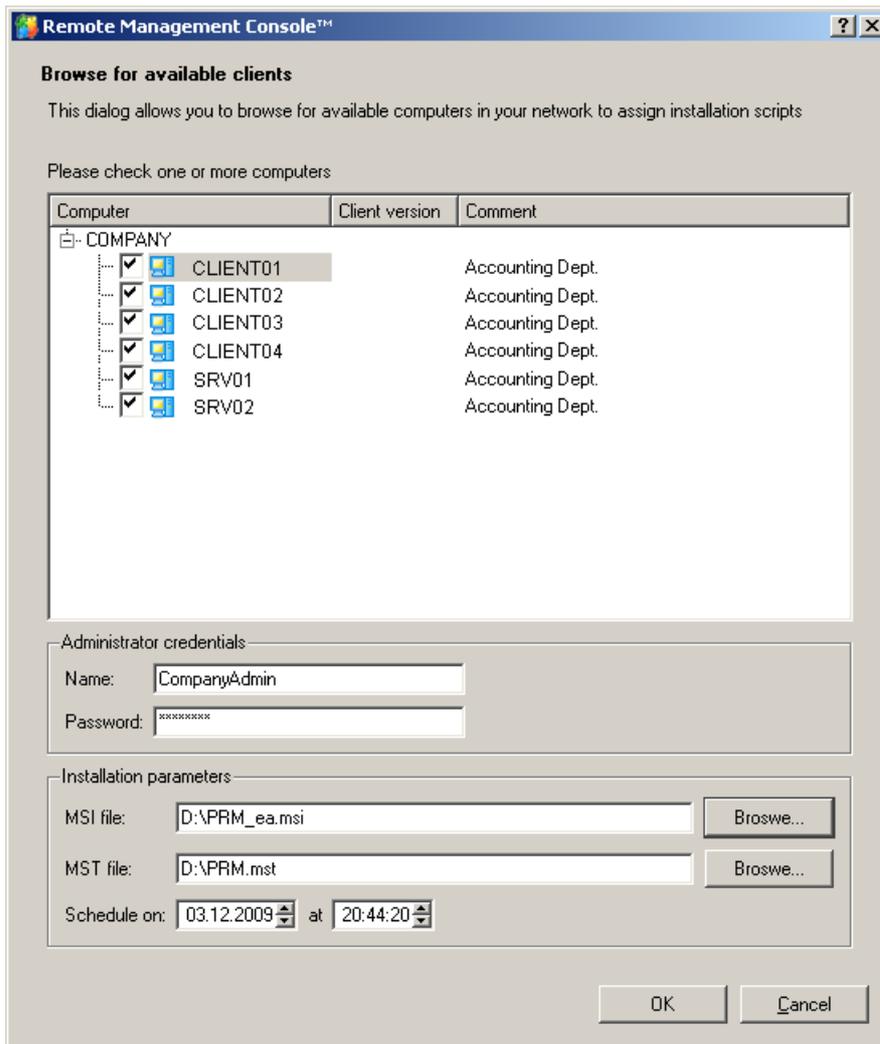
Thanks to the optional **PRM 2.0** included in Paragon Infrastructure Package, the cyclic backup functionality can be used not only locally on a single machine, but be applied to protect all servers and workstations of your company over the network from one single location.

#### Workflow

To use the cyclic backup functionality to protect computers over the net with PRM, please do the following:

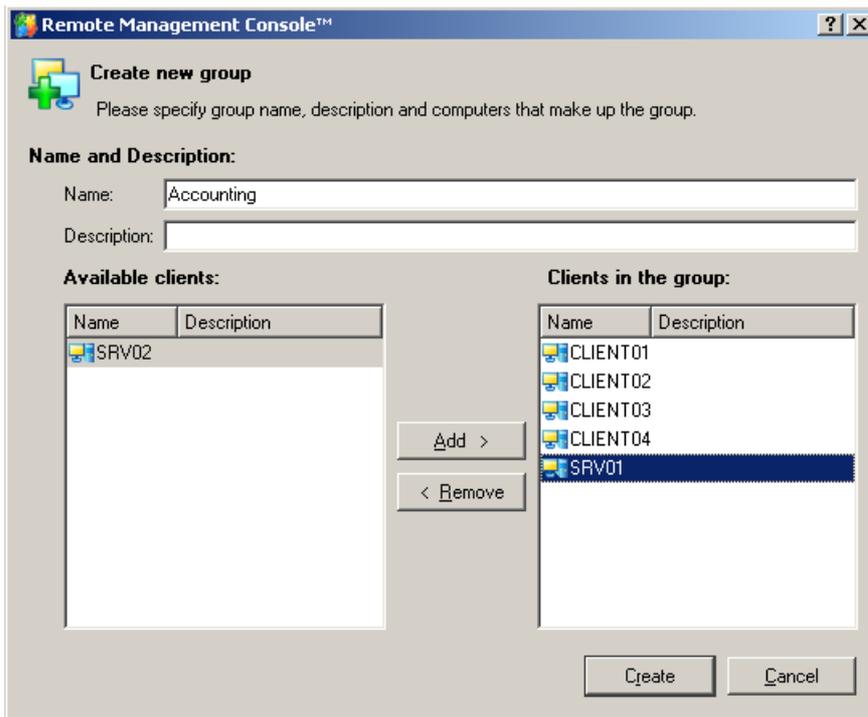
**Note!** We won't go into details on the whole operation procedure here, for there are step-by-step guides on the subject in documentation that comes with PRM.

- Get PRM ready to use.
- Connect the required client machines directly from the PRM Console.

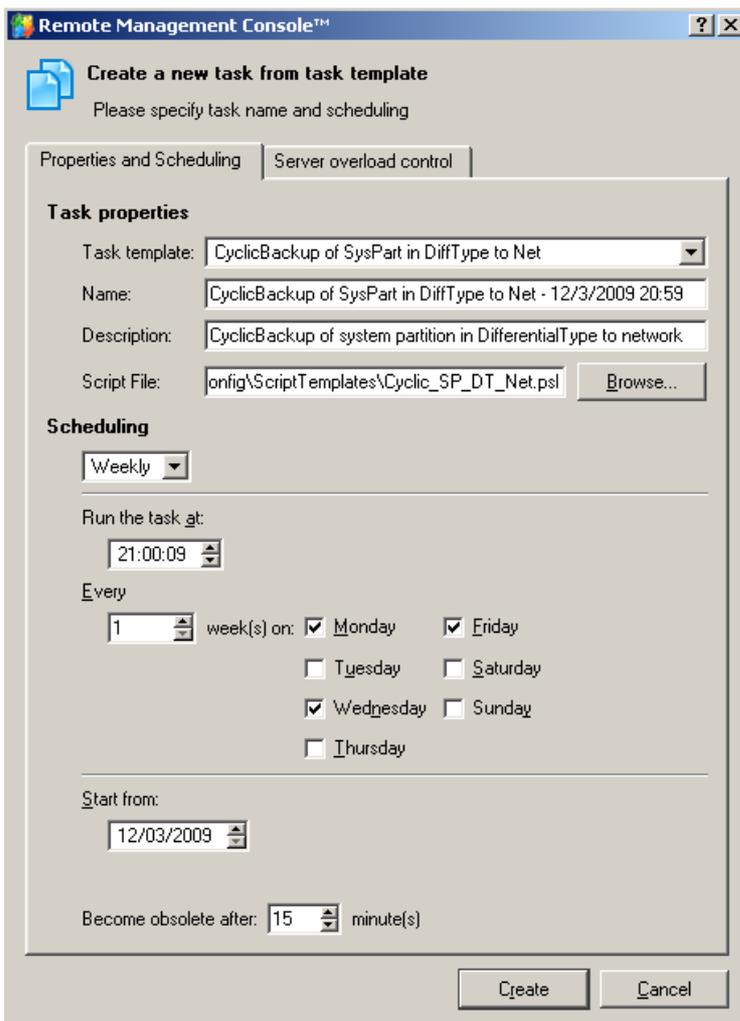


**Note!** All installation steps will be automatically logged to PRM Storage as a separate file for each PRM Client. Thus in case of a failure, you can find out the reasons and tackle the problem.

3. Group them all together.

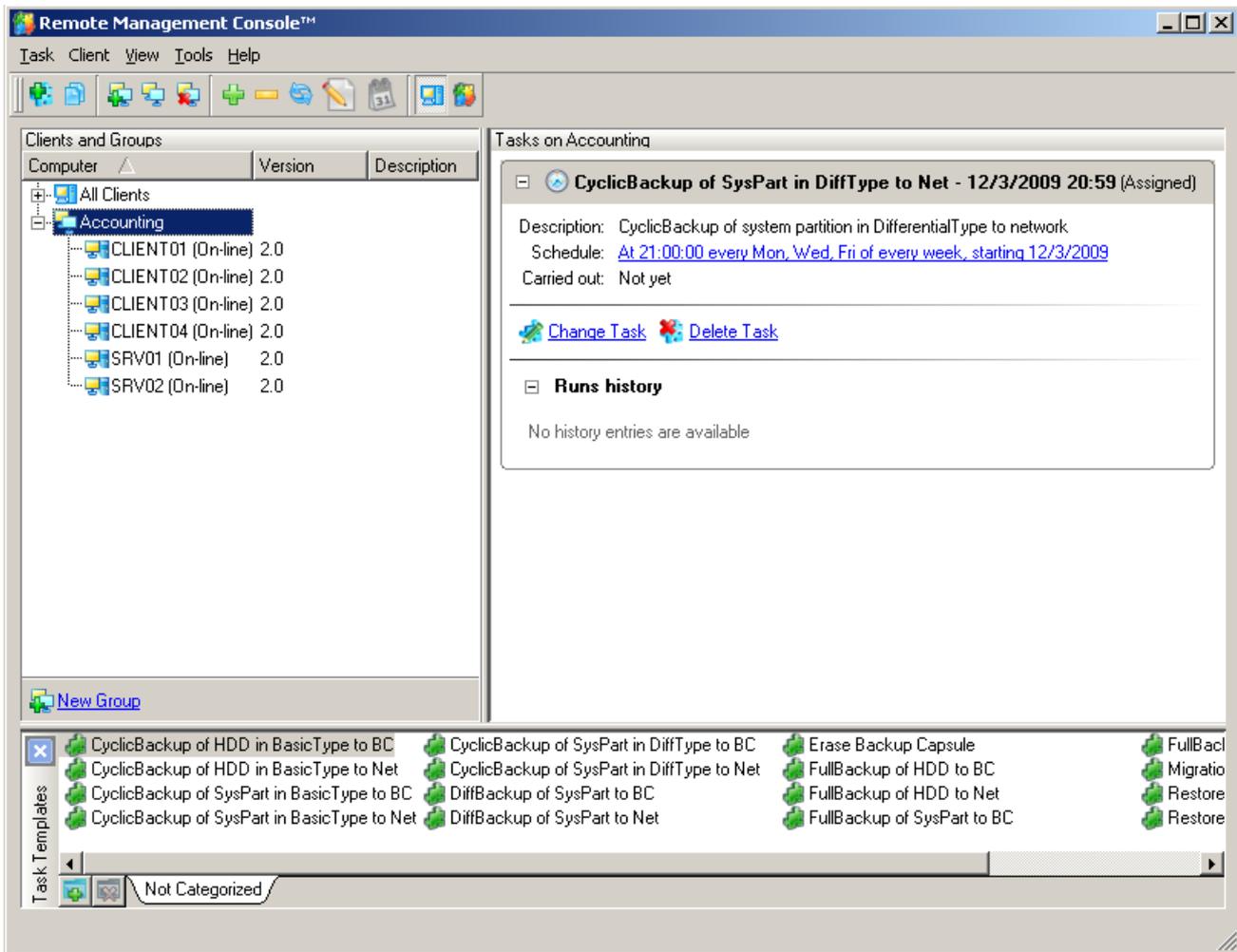


4. Assign a task to the created group by using the most suitable task template. In our case it's **Cyclic Backup of SysPart in Diff Type to Net**.



**Note!** You can modify the operation script according to your needs with Windows Notepad.

The operation will run according to the set timetable on all client machines that join the created group. You can monitor the process through the PRM Console.



## Regular File Backup with Smart Backup

### Preamble

It's not always reasonable to regularly back up entire workstations, for it involves additional costs on the backup storage. Of course, this type of backup is relevant and should have been done initially. But what really needs protection on a regular basis are employee's documents.

**Smart Backup Wizard** helps back up exactly what is needed, and with the best backup technique automatically chosen according to the type of protected data.

### Workflow

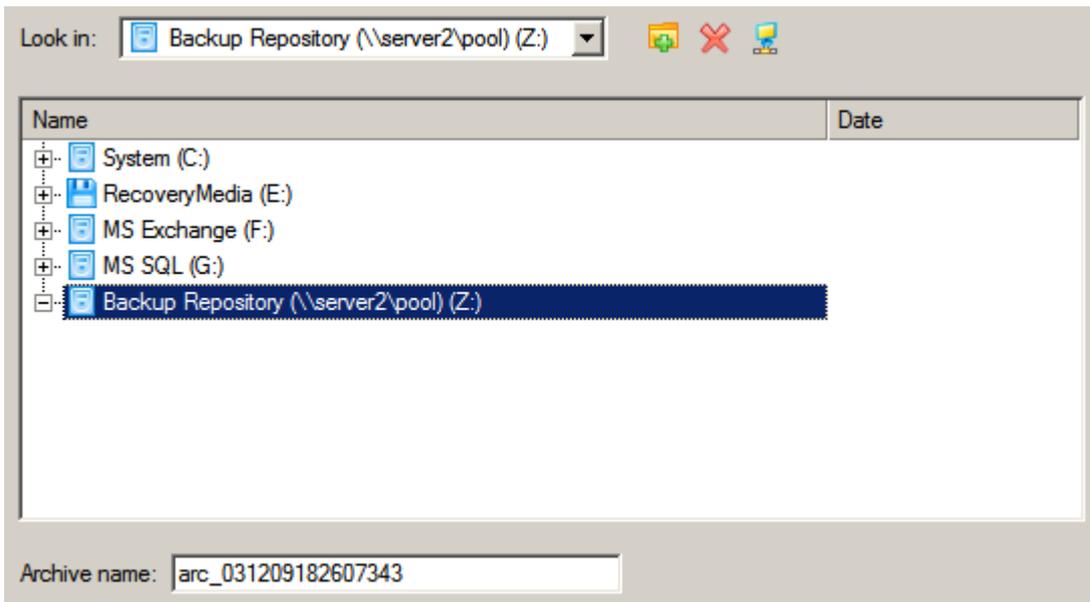
To let Smart Backup Wizard help you regularly back up all employee's documents to the company's backup storage, please do the following:

1. Click the **Smart Backup** item of the Wizards menu.
2. On the welcome page, click **Next**.

- Click on the section you find answering to your task. In our case it's all office documents stored in the My Documents folder.



- Depending on your choice you'll either need to specify more exactly the object of operation and then choose location for the resulted backup (relevant for **Disk or Partitions** or **Other Files and Folders**), or just choose location for the resulted backup (just what we've got in our case). You can also edit the archive name at this step if necessary.



- Add comments to the backup describing its contents.



- Select the appropriate option to schedule the backup and then set a time table.

Please select how to perform the backup:

Back up now  
 Schedule backup  
 Generate script

Select the option to perform the backup operation later according to a schedule.

Please specify how and when would you like to perform the task:

 Weekly

Shutdown system after backup  
 Generate unique names for scheduled backups

Run the task on:

12/02/2009 at 12:00 AM

Every

1 week(s) on:
  Monday  Friday  
 Tuesday  Saturday  
 Wednesday  Sunday  
 Thursday

Do not run the task after:  
 12/02/2009

7. Review all parameters of the operation and modify them if necessary. Complete the wizard.

The operation will run according to the set timetable.

## Regular Backup to FTP

### Preamble

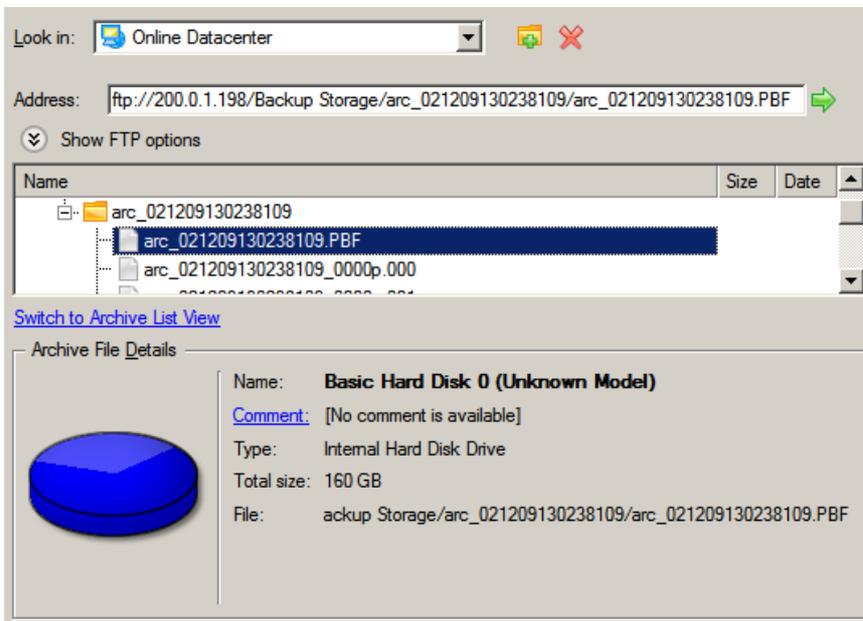
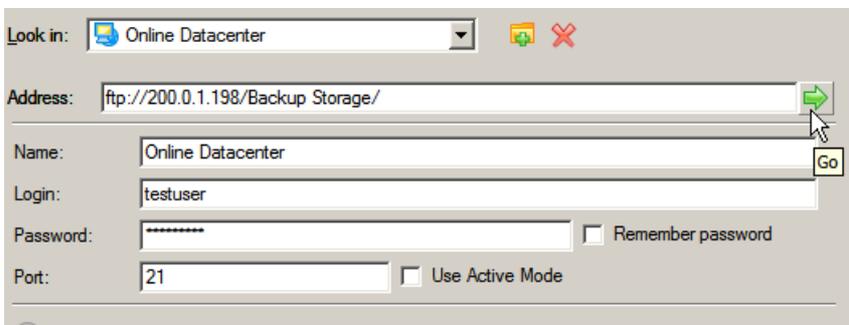
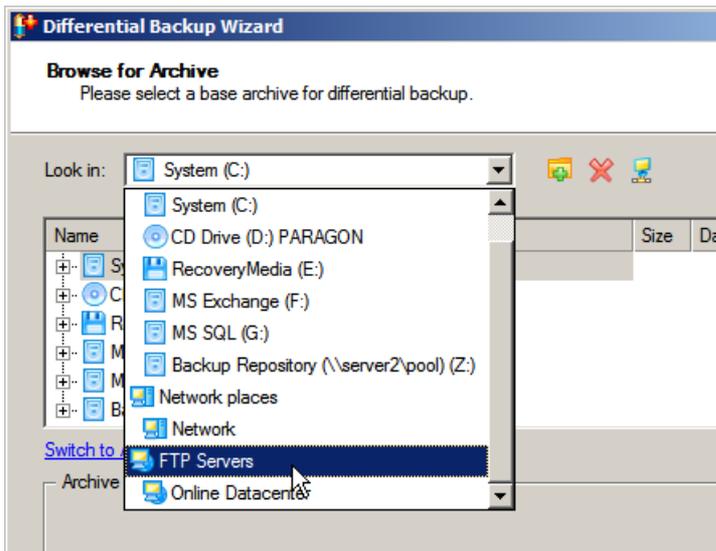
Many small companies are short of the IT budget, so they can't afford to maintain their own backup server. The only way out for them is to use online datacenters.

**Drive Backup 10 Server** offers all the necessary tools to help this kind of customers out. So IT personnel can take an image of the required machine, put that image on a drive and move that drive to the datacenter and then just update that image by creating differentials over FTP. Of course, it does take some time, but for some customers it's the only option to guarantee protection for their intellectual property.

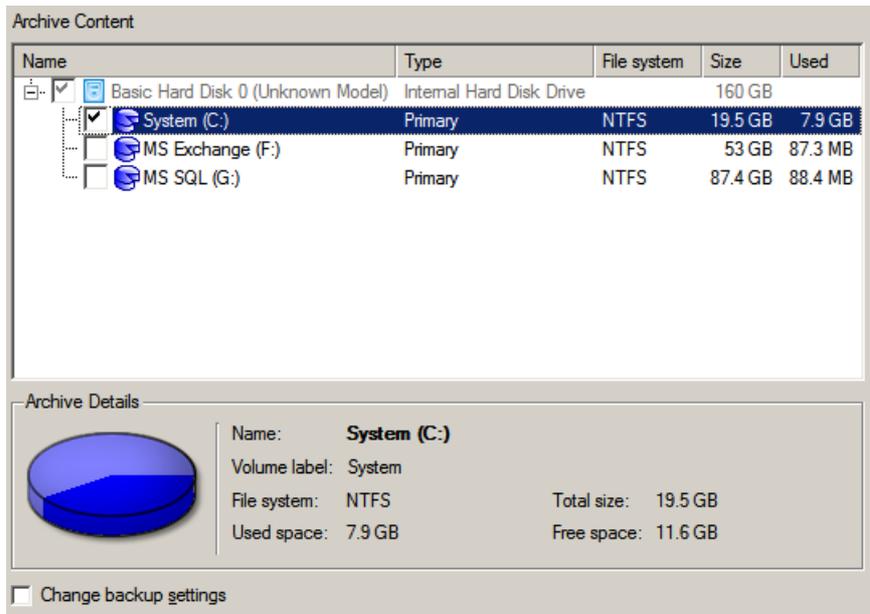
### Workflow

To make differential updates to a full backup image stored on an FTP server, please do the following:

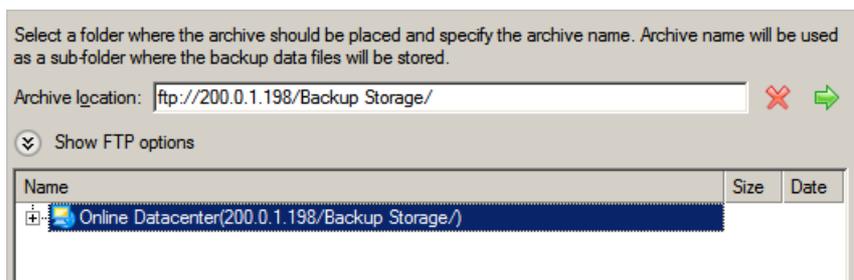
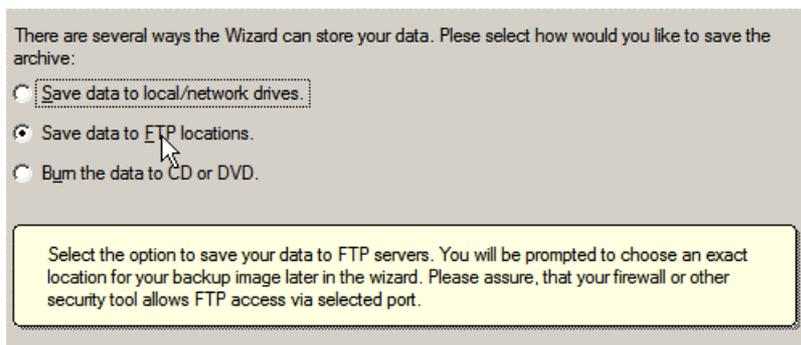
1. Select in the Main Menu: **Wizards > Advanced > Differential Backup...**
2. On the welcome page, click **Next**.
3. Specify the required full (base) archive. In our case it's the image moved to an online datacenter, so we need to set up the required FTP server and browse it for our image.



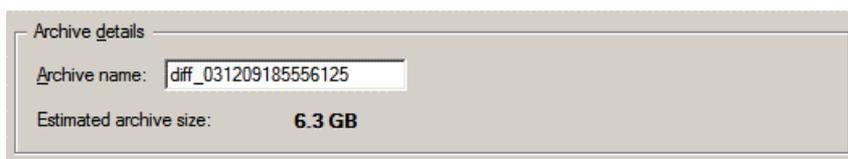
4. The Archive Content page displays detailed information on the archive's contents. In addition, there is the possibility to modify backup settings.



5. Select where you want to place future differentials. In our case it's the same online datacenter.



6. Edit the archive name if necessary.



7. Add comments to the backup describing its contents.



8. Select the appropriate option to schedule the backup and then set a time table.

Please select how to perform the backup:

Back up now  
 Schedule backup  
 Generate script

Select the option to perform the backup operation later according to a schedule.

Please specify how and when would you like to perform the task:

Shutdown system after backup  
 Generate unique names for scheduled backups

Run the task on:

12/02/2009 at 12:00 AM

Every

1 week(s) on:
  Monday  Friday  
 Tuesday  Saturday  
 Wednesday  Sunday  
 Thursday

Do not run the task after: 12/02/2009

8. Review all parameters of the operation and modify them if necessary. Complete the wizard.

The operation will run according to the set timetable.

## Data Restore at a Granular Level

### Selective restore

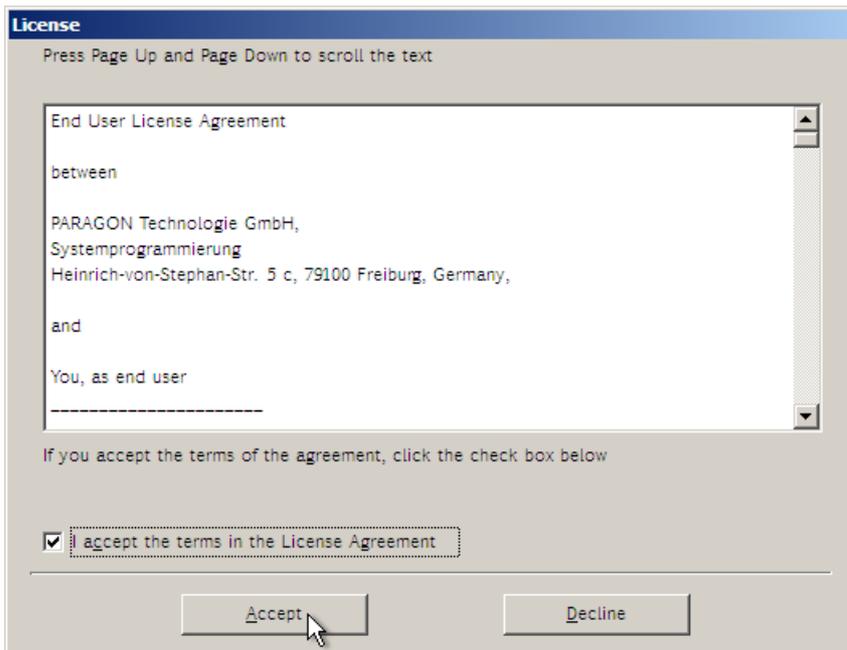
#### Preamble

An employee has accidentally damaged an important document. Restoring the whole backup because of one file is long and irritating – with **Drive Backup 10 Server** you can extract data from backup images selectively, thus considerably saving your time and time of those employees.

#### Workflow

To restore separate files and folders from a backup image, please do the following:

1. Start up the required machine from the WinPE recovery media.
2. When done, read the agreement and then mark the appropriate checkbox to accept.

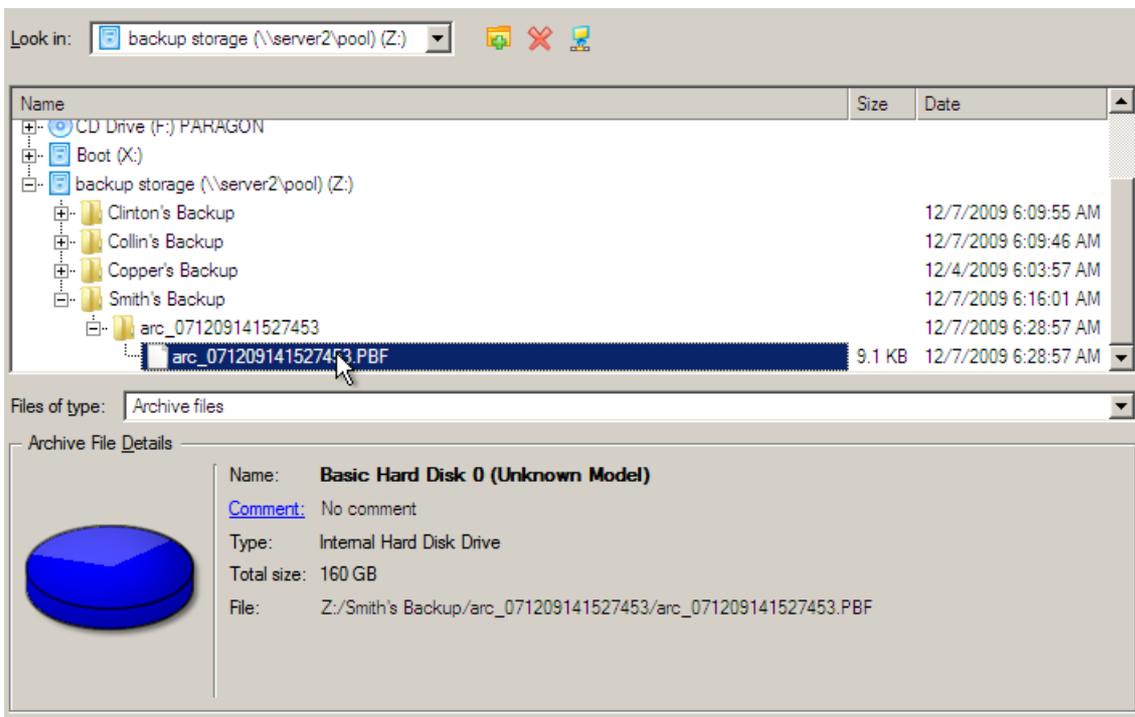
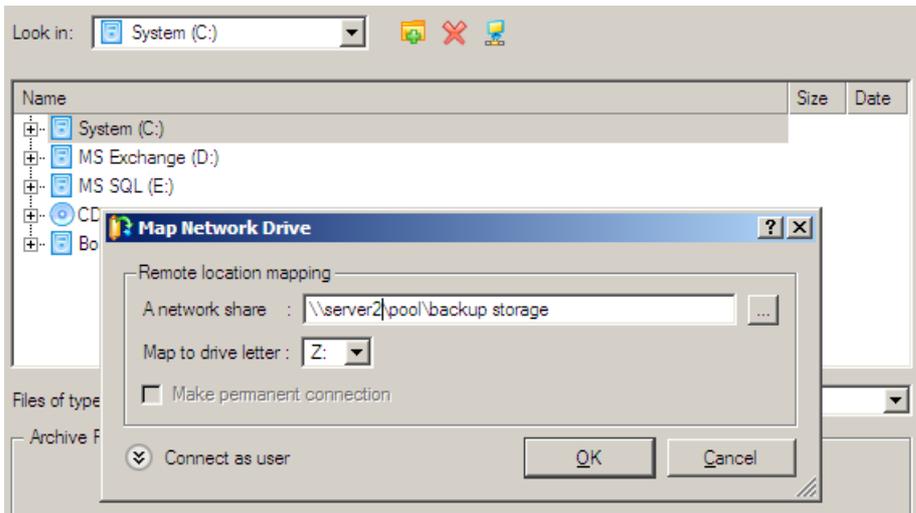


**Note!** If you do not agree with any conditions stated there, you won't be able to use the program.

3. Once you accept the agreement, you will see the Universal Application Launcher. Select **Restore Wizard**.

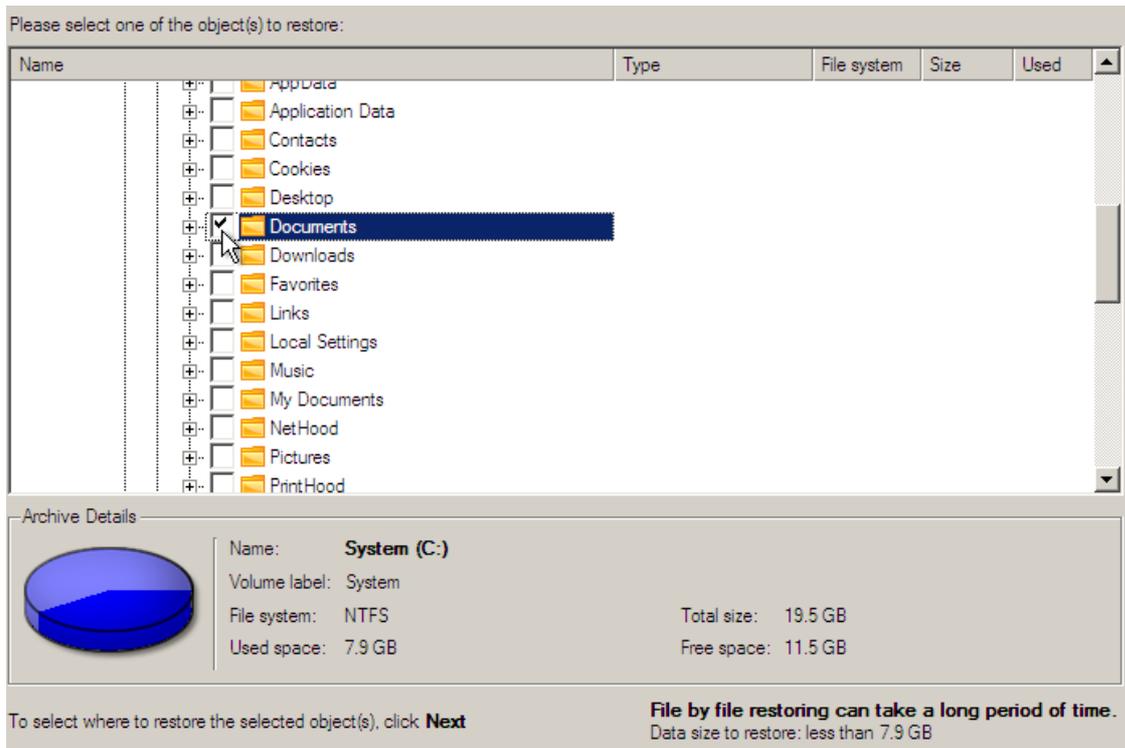


4. On the welcome page, click **Next**.
5. Choose the required archive in the browser-like window. In our case it's stored on a network share, so we need to additionally map it.

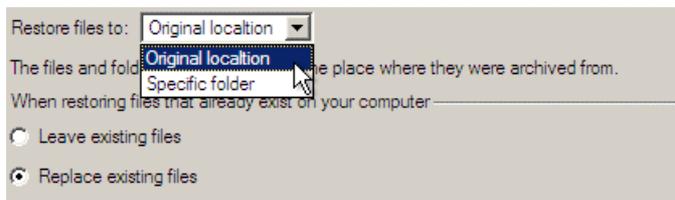


The Archive File Details section will display a short description of the selected image.

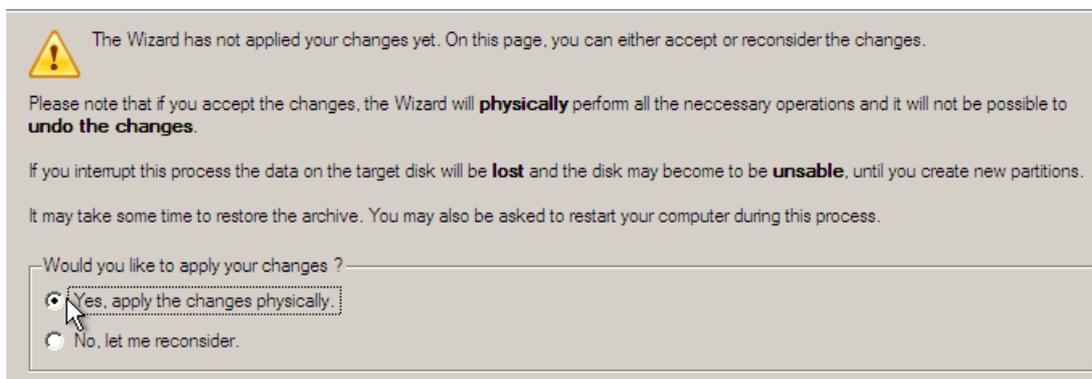
- Specify what you need to extract from the backup by marking checkboxes next to the required data items. At the right lower corner of the window you can see the resulted amount of the selected data.



- Specify the way the selected data will be restored. In our case we'd rather restore contents of the backup to its original location with replacing existing files as well.



- Review all parameters of the operation and modify them if necessary.
- Confirm the operation by selecting the appropriate option.



- In the Progress window you can see in real-time a detailed report on all actions carried out by the program.
- After completing the operation close the wizard and then reboot the computer.

**Note!** This operation can also be accomplished under Windows.

## Granular data export from EDB files

### Preamble

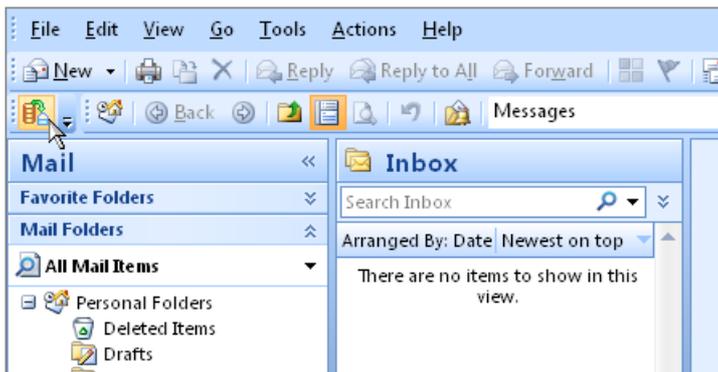
The selective restore functionality used together with the optional **Exchange Granular Recovery** can significantly ease the job of an MS Exchange 2007 administrator in finding and restoring email items (a single mailbox, folder, message, contacts item, note, etc.) from mail databases (EDB files).

### Workflow

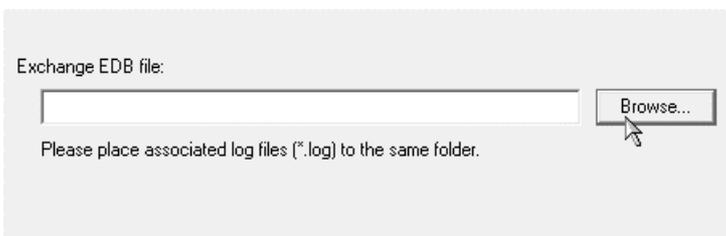
**Note!** We won't go into details on the whole operation procedure here, for there are step-by-step guides on the subject in the reviewer's guide for Exchange Granular Recovery.

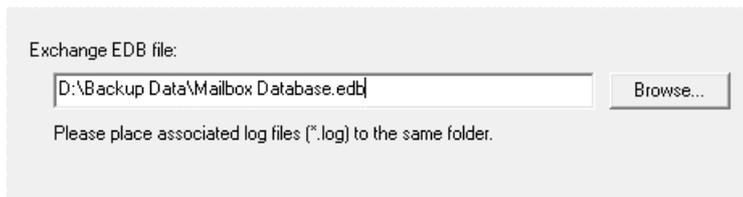
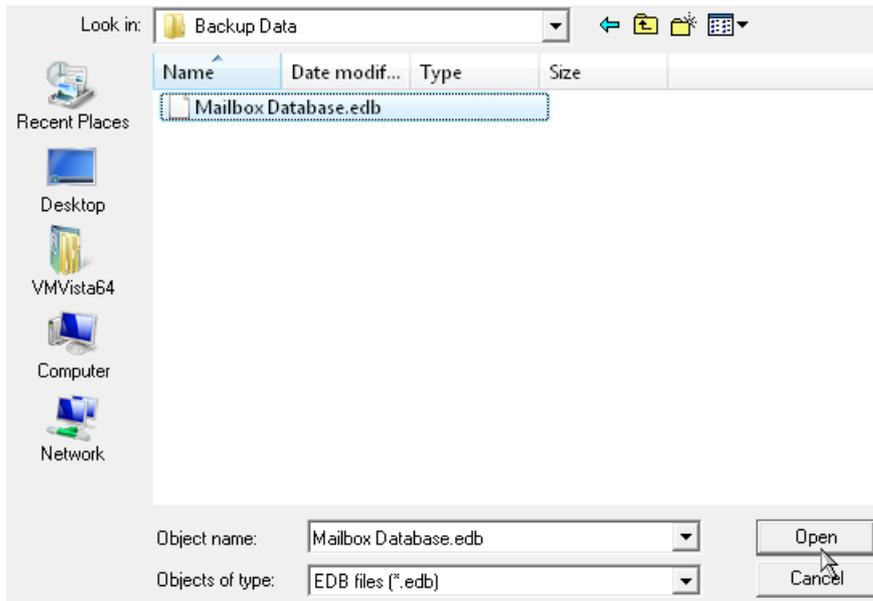
To restore email items from Exchange mail databases, please do the following:

1. Extract the required EDB file and its logs (if necessary) to a separate folder with Restore Wizard (please see the [previous scenario](#)).
2. Open it in MS Outlook 2003/2007 with the installed Exchange Granular Recovery.
  - ✓ Click on the **Add an Exchange Database Archive** icon found in the MS Outlook toolbar.



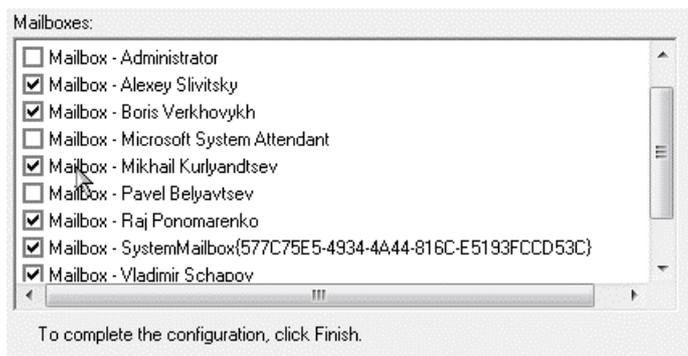
- ✓ Browse for a folder containing the extracted EDB file and logs or set a full path to it manually.





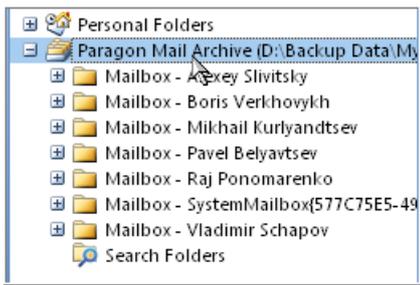
**Note!** Processing a EDB file with logs is rather a time-consuming operation, as our program has to play back all logs to open the mail database correctly, i.e. with all the latest changes reflected. Anyway everything depends on the number of processed files and the system performance.

- ✓ If you've got to do with a private store, you can select a mailbox you want to work with by marking a checkbox next to it. You're also free to select several mailboxes. If working with a public store (a "Public Folders" database) – this option will be unavailable.



**Note!** One MS Exchange message store may contain hundreds of mailboxes. The program enables to select mailboxes to be shown in MS Outlook, so you can improve usability and cut the system resources.

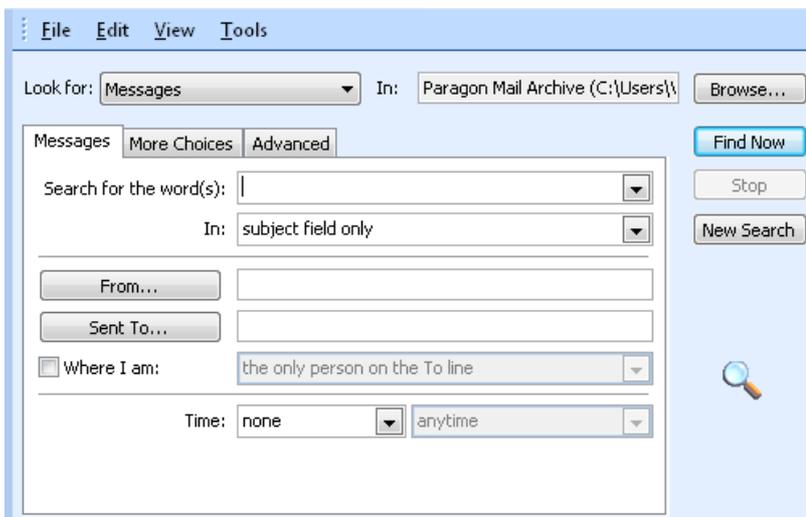
- ✓ Click **Finish** to complete the wizard.
- ✓ As a result you'll get a new mail folder called **Paragon Mail Archive**.



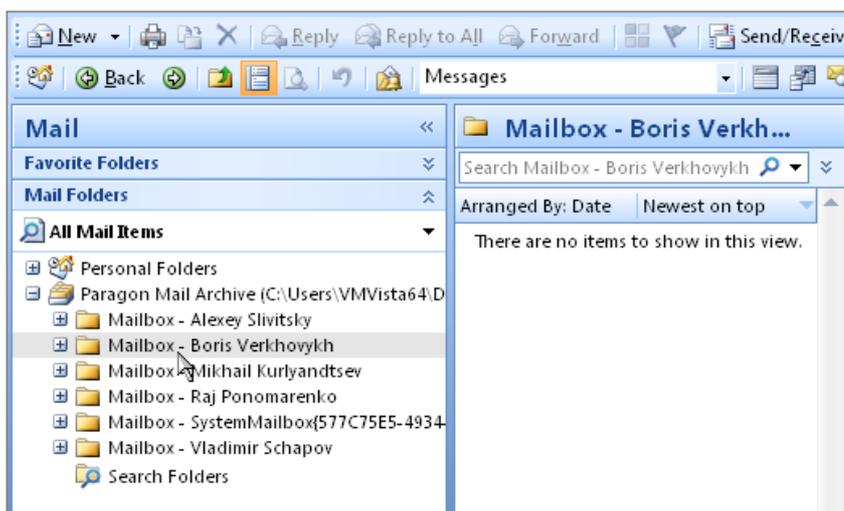
**Note!** A EDB file can be opened in the read-only mode so you won't be able to save any changes back to it.

- Find the required email items with the built-in facilities of MS Outlook. The program enables to use all search and preview capabilities of MS Outlook when working with EDB files:

✓ Advanced Find (Ctrl+Shift+F);



✓ Instant Search (Ctrl+E).



- Export them to any location, including a local PST file, or an MS Exchange mailbox, again with the built-in facilities of MS Outlook. The program enables to export email items from EDB files just the way it's done with ordinary MS Outlook mailboxes, so you can export

data to the active MS Exchange Server, or a standard PST, or even a file of the desired extension (HTM, MSG, TXT, etc.).

**Note!** To know more on the subject, please consult documentation that comes with MS Outlook.

## System Restore

### *Restore to different hardware (P2P)*

#### Preamble

You've failed to find an exact replacement for the damaged RAID controller of one of your Windows servers. It's a real tragedy, since you know pretty well that the Windows family operating systems are notorious for their excessive sensibility to hardware, especially when it turns to replacement of such a crucial device as HDD controller or motherboard – actually Windows will most likely fail to boot as a result of this operation. Don't give up – **Drive Backup 10 Server** comes with the next generation of the Paragon Adaptive Restore™ technology that guarantees a Win2K+ system will boot on a different hardware platform (P2P).

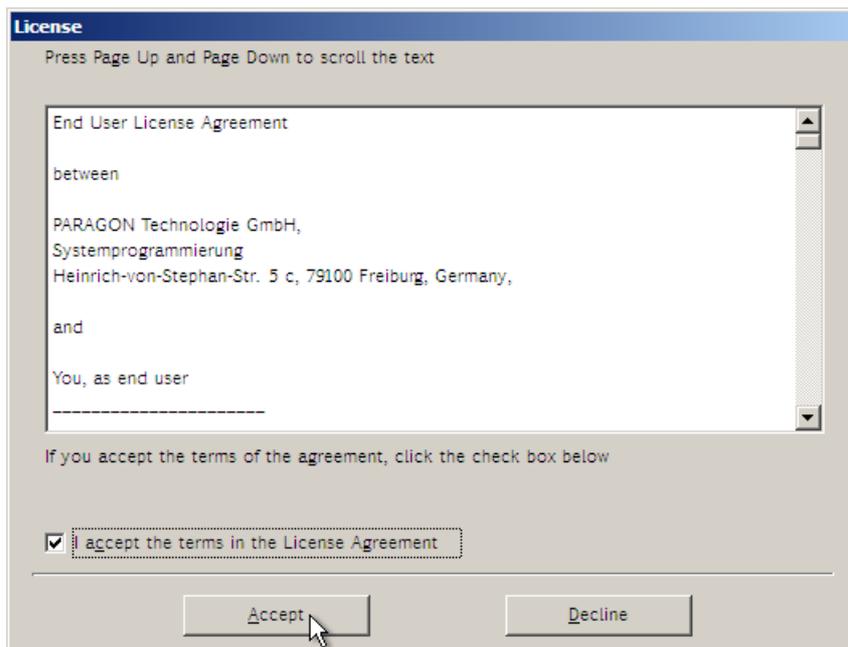
#### Workflow

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.
- ✓ The OS is unrolled on the new computer, not in a backup image.

To recover bootability after changing hardware on a Win2K+ system, please do the following:

1. Start up the required machine from the WinPE recovery media.
2. When done, read the agreement and then mark the appropriate checkbox to accept.

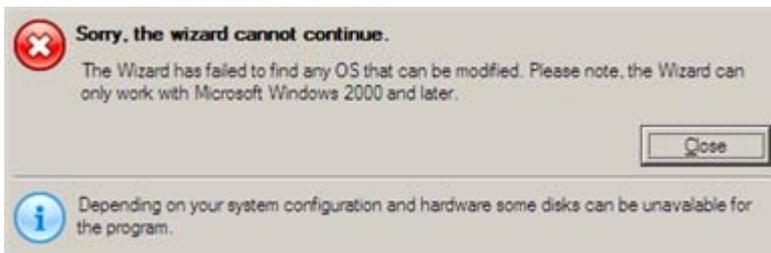


**Note!** If you do not agree with any conditions stated there, you won't be able to use the program.

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

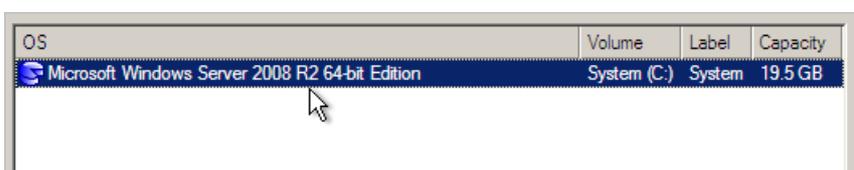


The WinPE 2.1 based recovery environment offers excellent hardware support. However in case it doesn't have a driver for your disk controller, your hard disks will be unavailable.



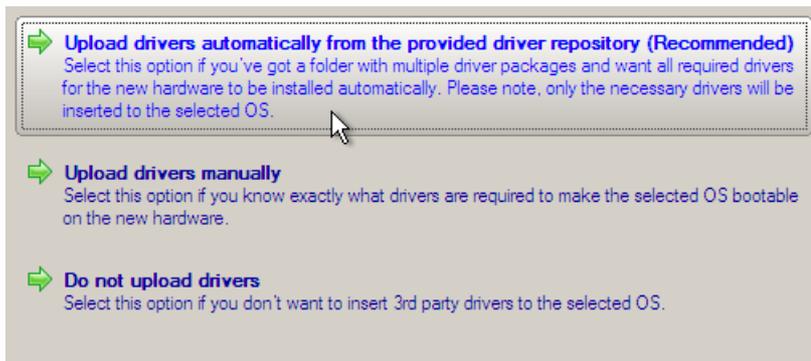
Anyway you've got the option to add specific drivers by clicking **Add Drivers** from the main menu.

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



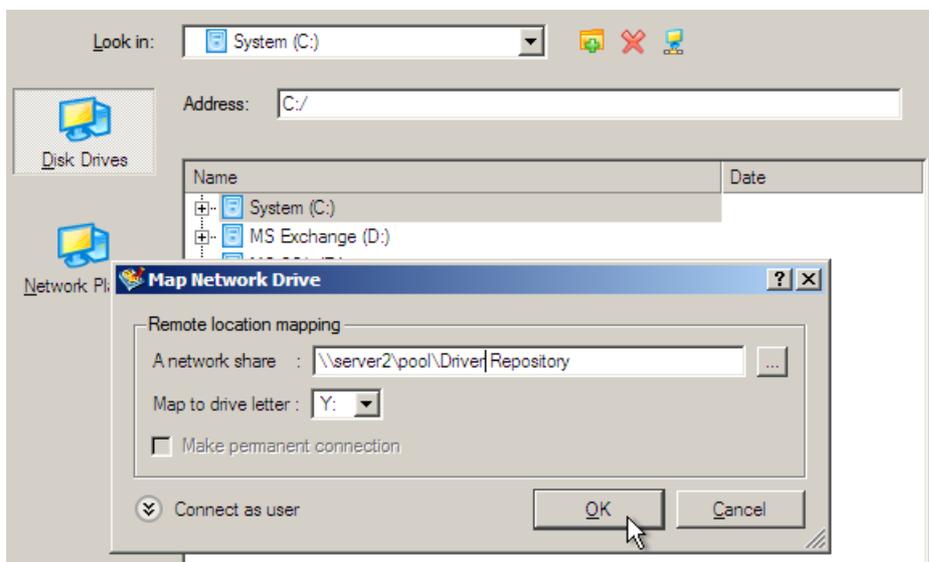
**Note!** The wizard can only work with Microsoft Windows 2000 and later operating systems.

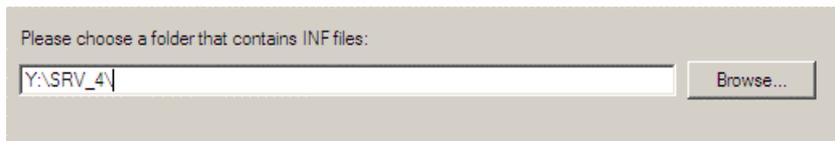
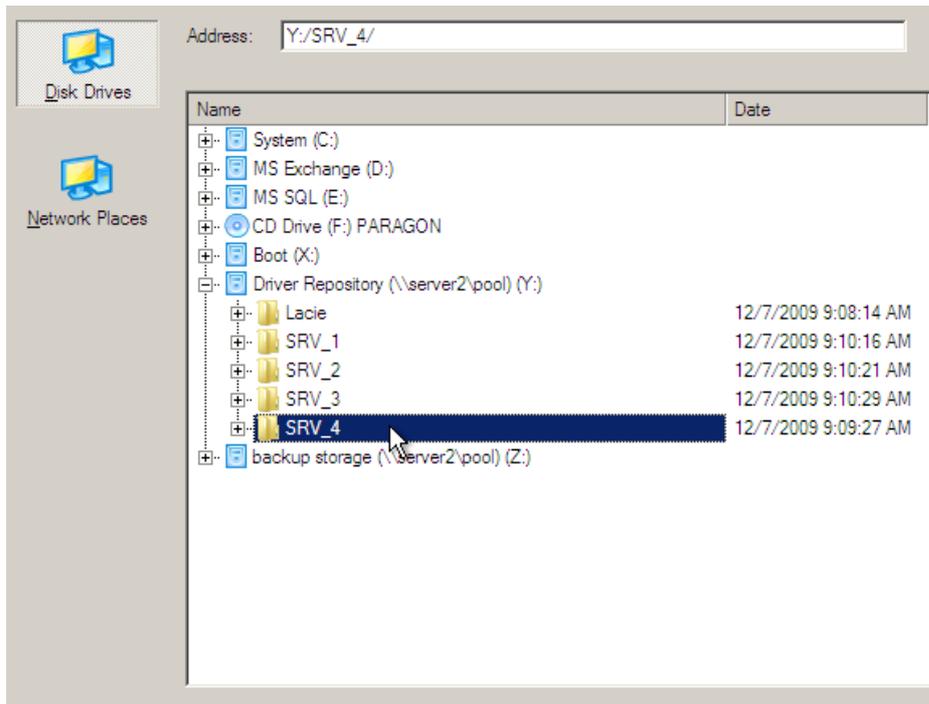
6. Choose whether you're going to add drivers for the new hardware to the selected operating system or not and the way it's to be done. Actually you've got three options:
- ✓ **Upload drivers automatically from the provided driver repository.** Generally together with new hardware you get its drivers 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 3<sup>rd</sup> party drivers.



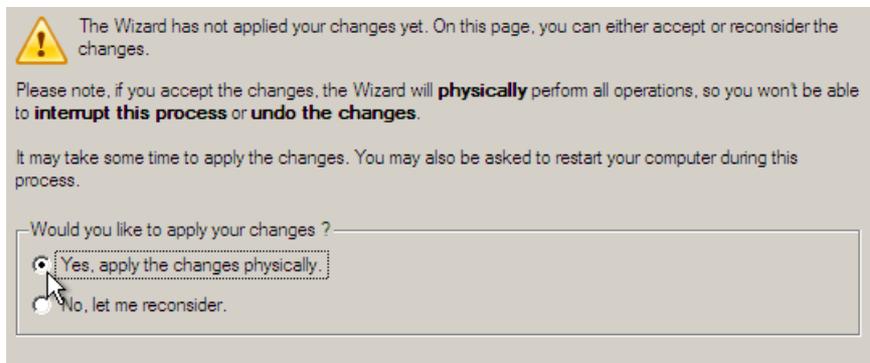
We prefer the wizard to decide what drivers are to be installed.

7. Browse for a folder with drivers for the new hardware or type in a full path to it manually. In our case it's located on a network share, so we need to additionally map it.





8. Apply the changes by confirming the operation.



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

### *Bare-metal recovery through PXE*

#### Preamble

Thanks to the optional **Infrastructure Module** that includes Paragon PXE Server (DHCP and TFTP servers), system administrators can significantly increase efficiency in managing complex IT environments by creating special bootable images with the main program, pre-configured network, mapped network shares, and operation scripts to start up certain client machines from CD/DVD or through PXE even with a failed OS for maintenance or disaster recovery purposes.

#### Workflow

**Note!** We won't go into details on the whole operation procedure here, for there are step-by-step guides on the subject in documentation that comes with Infrastructure Module.

To show its benefits, let's consider the following situation – Windows OS of a typical workstation has been corrupted. You can significantly ease the recovery process, if you:

1. **Make a standard backup** for this type of workstations (please see the [backup scenarios](#)).
2. **Prepare a customized PXE boot image** with the main program, pre-configured network, a mapped network share to the company's backup server, and a restore script to automate the operation.

**Note!** A PXE image can be prepared either with Boot Media Builder or the WinPE customization package.

**Create a new boot media configuration**

**Load an existing boot media configuration:**

**Use a custom CD/DVD image**

**Add files**

**Connect to the network automatically after booting:**

Network Properties

Network adapter to use:

**Obtain an IP address from a DHCP server**

**Scan LAN adapters**

**Specify an address**

IP address:

Subnet mask:

DNS:

**Connect to the network manually after booting**

**No network support (only available if neither Multicast nor Unicast are enabled)**

**Mount a network backup storage:**

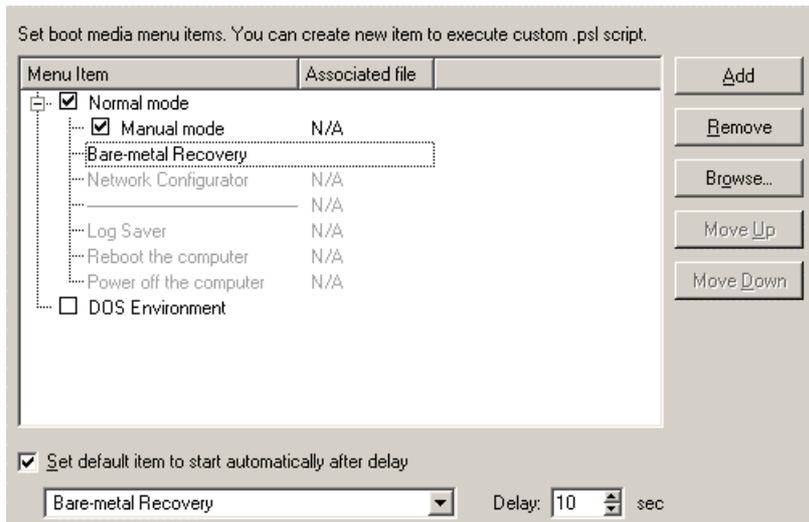
Authentication

User:

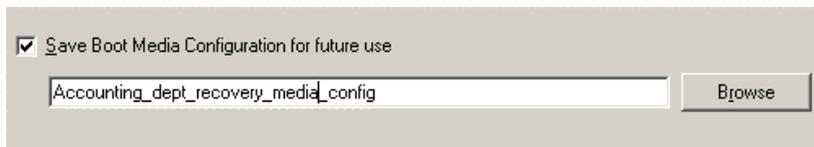
Password:

**Mount a backup storage manually after booting**

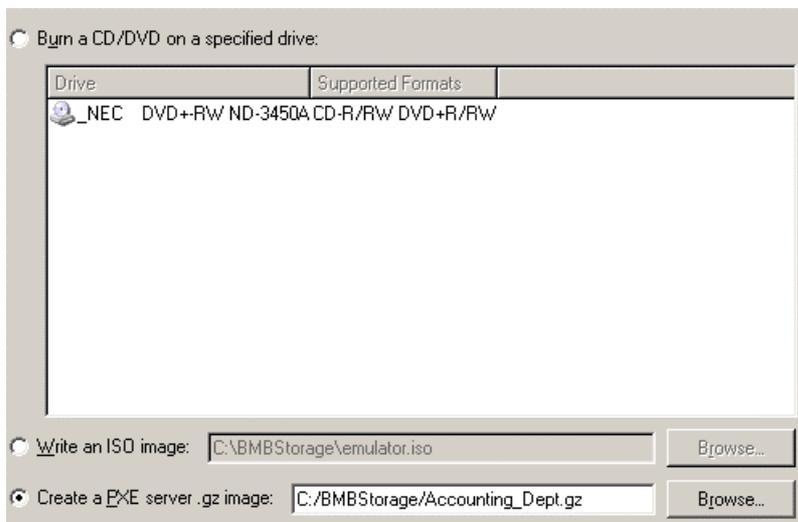
**Do not mount a backup storage**



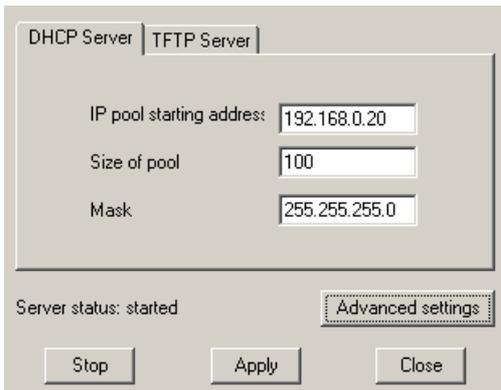
**Note!** Shaded items of the menu are not allowed to customize.



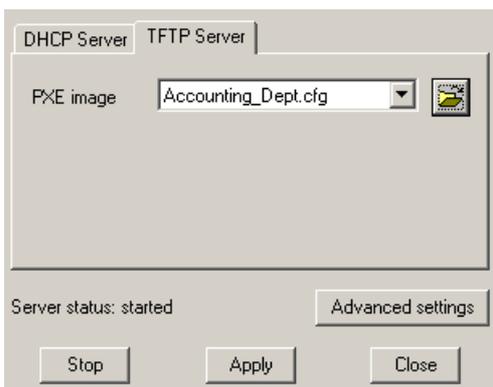
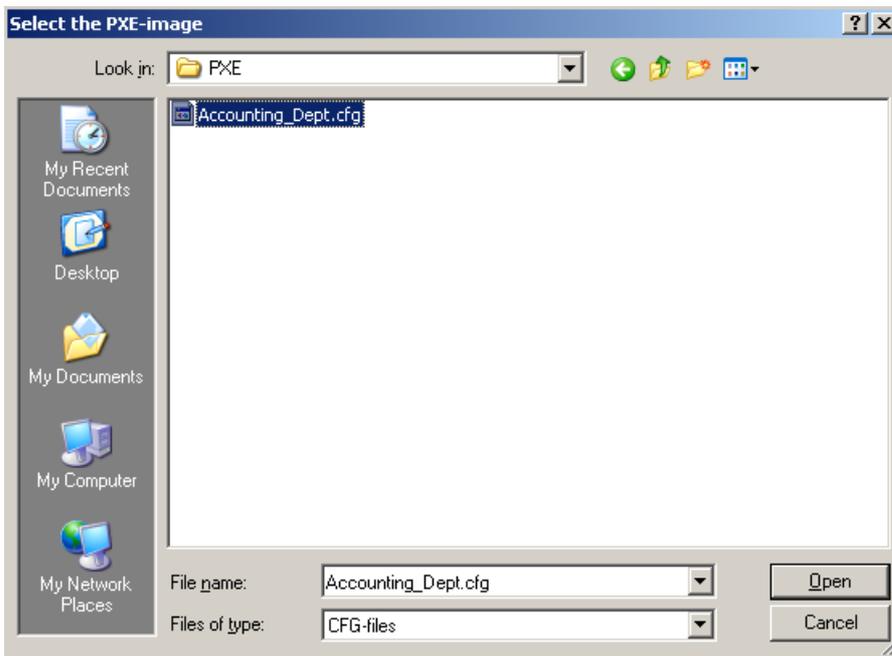
**Note!** By default, the wizard offers to save the current boot media configuration to avoid double work next time you're going to create new media.



- 3. Configure Paragon PXE Server.** It can help you remotely boot a PXE compatible computer with no operating system installed. This procedure implies that a networked client PC is able to enter a network, acquire a network address from a DHCP server and subsequently, download from a TFTP server a NBP (Network Bootstrap Program) to set itself up, thus saving from the need of bootable media.



**Note!** You can start/stop PXE Server by clicking the appropriate button. If you click **Apply** when the service is active, it will lead to its restart with new parameters (if any).



**Note!** Click **Advanced Settings** to modify additional parameters for TFTP or to monitor to operation statistics.

When done, you just boot the required client machine through PXE and its system recovery will be accomplish automatically.

```
CLIENT MAC ADDR: 00 0C 29 D4 AB 5B  GUID: 564D44C3-AA00-8F1D-AF93-64AC39D4AB5B
CLIENT IP: 192.168.0.20  MASK: 255.255.255.0  DHCP IP: 192.168.0.1
```

```
PXELINUX 3.11 0x44521ff7 Copyright (C) 1994-2005 H. Peter Anvin
UNDI data segment at: 0009C7F0
UNDI data segment size: 24D0
UNDI code segment at: 0009ECC0
UNDI code segment size: 0A0D
PXE entry point found (we hope) at 9ECC:0106
My IP address seems to be C0A80014 192.168.0.20
ip=192.168.0.20:192.168.0.1:0.0.0.0:255.255.255.0
TFTP prefix: /
Trying to load: pxelinux.cfg/01-00-0c-29-d4-ab-5b
Trying to load: pxelinux.cfg/C0A80014
Trying to load: pxelinux.cfg/C0A8001
Trying to load: pxelinux.cfg/C0A800
Trying to load: pxelinux.cfg/C0A80
Trying to load: pxelinux.cfg/C0A8
Trying to load: pxelinux.cfg/C0A
Trying to load: pxelinux.cfg/C0
Trying to load: pxelinux.cfg/C
Trying to load: pxelinux.cfg/default
Loading bzImage.....
Loading Accounting_Dept.gz....._
```

**Note!** Client computers must be PXE compatible in order to use PXE Server.

## System Virtualization (P2V)

### Preamble

You're a chief system administrator working for a mid-sized company. You've got a task to offer and implement a reliable disaster recovery plan. The most efficient disaster recovery plan is now closely associated with the system virtualization. By creating virtual clones of existing workstations and servers, you can provide for better business continuity, as in this case you don't need to wait for replacement of any failed hardware, you can just launch a virtual clone of the required system on any available computer.

### Workflow

**Drive Backup 10 Server** offers two options how you can migrate a physical Win2K+ system to a virtual environment:

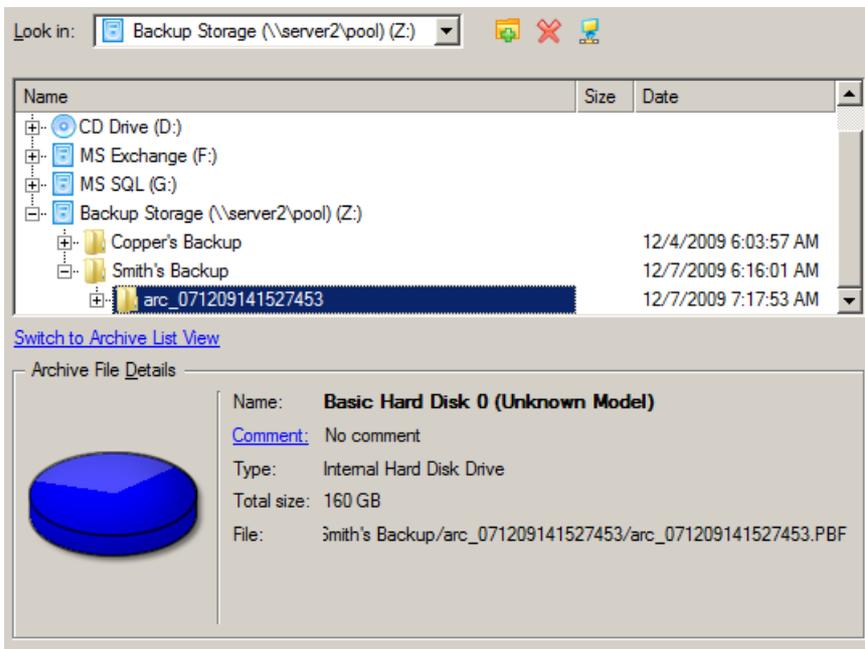
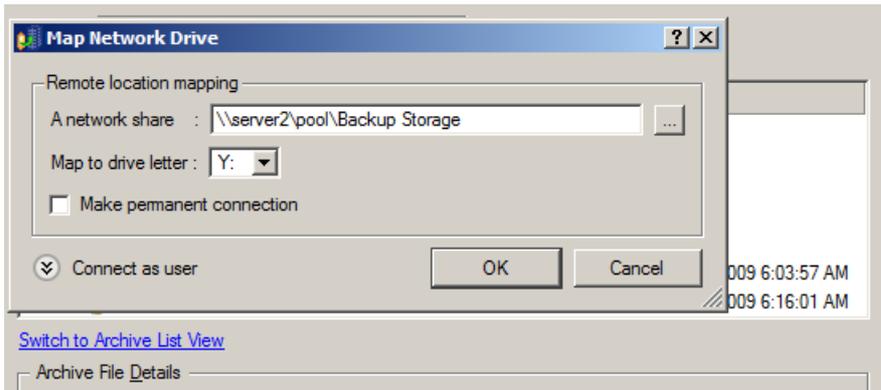
- ✓ Online migration without rebooting OS and interrupting its work;
- ✓ Migration from a previously created backup image made with a Paragon disaster recovery tool (we pick this one as the most suitable for our task).

**Note!** We won't go into details on the whole operation procedure here, for there are step-by-step guides on the subject in the reviewer's guide for Virtualization Manager.

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

1. Select in the Main Menu: **Wizards > Virtualization > P2V Restore...**
2. On the welcome page, click **Next**.

- Browse for the required backup image. In our case it's stored on a network share, so we need to additionally map it.



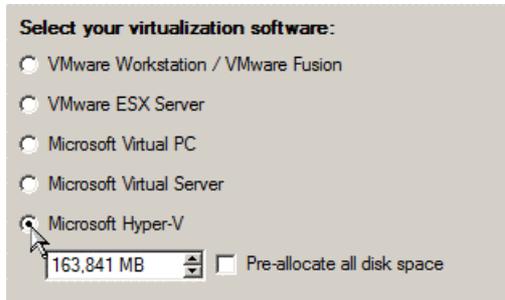
The Archive File Details section will display a short description of the selected image.

- 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). Our task implies virtualization of the entire system.

Name	Type	File system	Size	Used
Basic Hard Disk 0 (Unknown Model)	Internal Hard Disk Drive		160 GB	
System (C:)	Primary	NTFS	19.5 GB	7.9 GB
MS Exchange (D:)	Primary	NTFS	53 GB	87.3 MB
MS SQL (E:)	Primary	NTFS	87.4 GB	88.4 MB

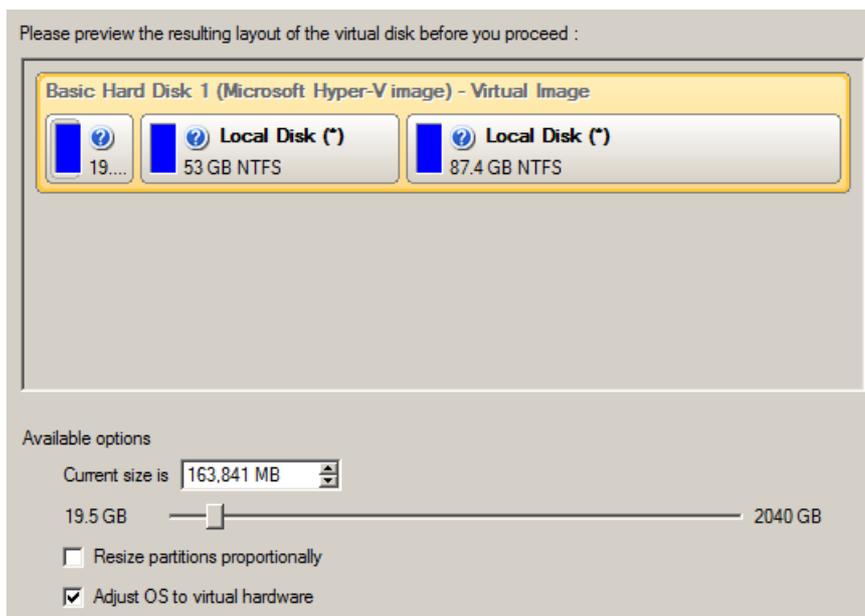
**Note!** When having to do with a hard disk backup, it's pretty enough to select the system partition only to make Windows start up in a virtual environment. However that doesn't guarantee all applications will work, as they can be installed on the other partitions of the disk.

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



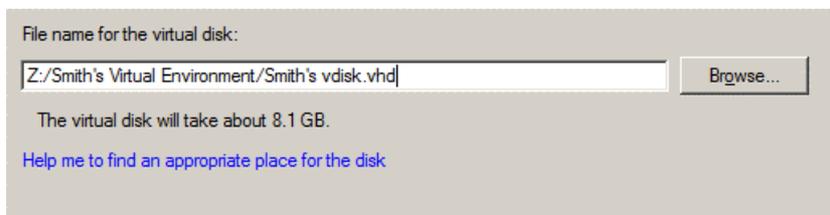
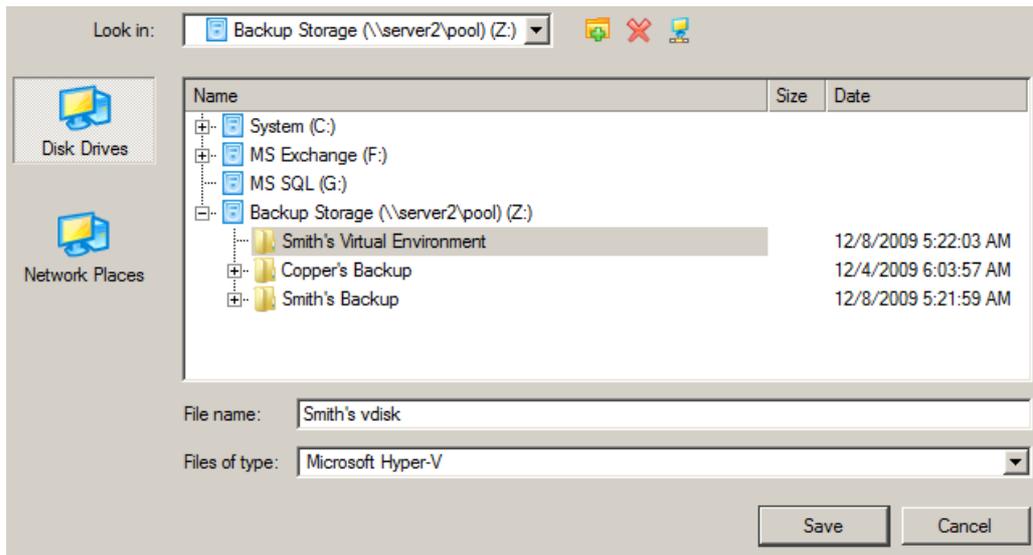
**Note!** Not all vendors may be available to choose. If the capacity of the selected object exceeds the maximum capacity for a certain virtual disk, its vendor will be shadowed.

6. Depending on what you've chosen on the previous page, you will need to set a number of additional parameters. In our case it is:
  - ✓ **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.



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

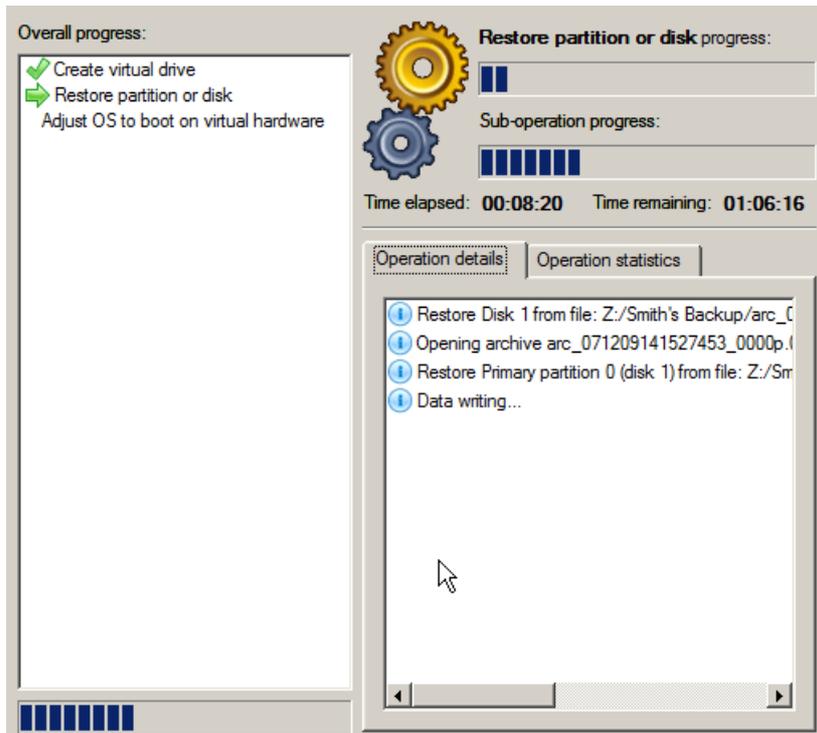
7. Set a file name for the resulted virtual disk and its location. Besides you can also provide a path to the integration package of your virtualization software.



**Note!** 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 the system won't boot after the operation.

8. Complete the wizard and then apply the changes by confirming the operation.





As a result of this operation we've got a virtual disk containing the required physical system, which can be connected to a virtual machine at any time. The system has been virtualized.

#### Known issues

1. You need to close the program to unlock the virtual disk. Otherwise you won't be able to connect it to a virtual machine.
2. You should install integration services (e.g. VMware Tools) on the virtual system yourself. We only guarantee its smooth startup.
3. 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.
4. 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.
5. 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.

6. 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.
7. 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.

**Note!** For more information please consult the reviewer's guide for Virtualization Manager.

## Conclusion

With **Drive Backup 10 Server** Paragon Software offers a small or mid-sized company all cutting edge technologies in disaster recovery and system migration of stand-alone physical and virtual Windows® environments. Moreover when boosted with the available add-ons and the Technician License, this solution becomes even more attractive for mid-sized companies with complex IT environments consisting of multiple, non-located servers and workstations.

Drive Backup 10 Server includes every facility to establish comprehensive protection for a company's intellectual property, meet strict Recovery Time Objectives, cut capital costs, and increase IT productivity. It can boast exclusive functionality and high flexibility. And it's really affordable.