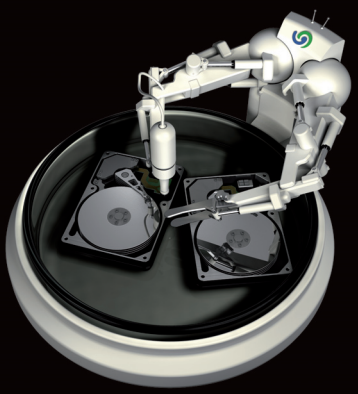
User's Guide



O&O DiskImage 3

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Rev. 2008-10-31

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Table of Contents

Welcome to O&O DiskImage!

Thank you for choosing O&O DiskImage!

This is something you probably know all to well: how suddenly important data can be lost as a result of a system crash or viral attack. O&O DiskImage is the ideal tool for quickly and easily taking the trouble out of such inconveniences! O&O DiskImage enables the convenient duplication or archiving of entire operating systems and individual partitions. It even supports dynamic drives and RAID systems.

Create image files of your drives on a regular basis and you'll be fully protected against data loss!

You can customize the imaging methods to suit your own individual needs. Even a 1:1 image of your system or user-defined images are possible. O&O DiskImage features many other options for creating and restoring images exactly the way you'd like. As a result of the special O&O DiskImage program settings, a substantial amount of computer performance is saved, allowing you to continue working on your PC parallel to the imaging!

The following chapters will explain how you can get started and obtain the optimum usage from O&O DiskImage.

We hope you enjoy our product and that it saves you valuable time, both at work and at home!

Your O&O Software GmbH Team
www.oo-software.com

Note:
Please note that regular upgrades to the program may result in the content of the printed User's Guide differing somewhat from information received via Online Support.

New Features in Version 3

We have improved many features in the new O&O DiskImage 3 and designed the user interface to be even more user-friendly. We've also developed a Job Assistant that lets you run jobs automatically and on a regular basis. Once the settings are determined, you no longer have to give any thought to running the program functions you desire. Here are all the latest innovations at a glance:

- The new Job Assistant lets you perform a number of functions, among them, creating time-scheduled jobs
- Reporting (Job/Parameter/Timing)
- New user interface with ribbon bar
- Scripting ability – only for Server and Workstation Editions
- Supports Windows 2008 Server - only for the Server Edition
- Integration in the O&O EMC2 is supported by both the Server and Workstation Editions for application in a network

Important features at a glance

- Native support of Windows x64 versions
- Utilizes the speed advantages of multi-core and multiprocessors
- High compression levels with minimum CPU demand
- Burn images to CD/DVD
- Supports all common removable data storage media
- Checks image files and drives for damage
- Native support of dynamic drives
- Secure encryption of your data (AES with up to 256-bit)
- Images can be used as virtual drives
- Checksum function for checking and distinguishing sums of images and originals
- Windows PE Version: Also starts without an operating system
- Make direct copies of drives

System Requirements

Operating System:

	Professional Edition	Workstation Edition	Server Edition
Windows Vista	yes	yes	yes
Windows XP	yes	yes	yes
Windows 2000 Professional	yes	yes	yes
Windows 2000 Server	no	no	yes
Windows 2003 Server	no	no	yes
Windows 2008 Server	no	no	yes

Starting from Windows XP/Windows 2003 Server, 64-Bit as well as 32-Bit systems are supported.

Hardware:
To install under Windows there must be at least 256MB of RAM available. A minimum of 512 MB is required under Win PE.

For starting O&O DiskImage under Windows PE, you should also compare the hardware requirements of your Windows Vista operating system:

O&O DiskImage 1-2:
www.microsoft.com/uk/windows/products/windowsvista/editions/homebasic/default.mspx

O&O DiskImage 3:
www.microsoft.com/windowsserver2008/en/us/system-requirements.aspx

Administrative Permissions
In order to install and register O&O DiskImage you must be a member of a local administrator group or possess an equivalent level of permissions. If you are a domain administrator, then you ordinarily possess the adequate level of administrative permissions.

Installation

Installing O&O DiskImage is very straight forward. Simply follow the instructions set out below:

1. Start the computer on which you would like to install O&O DiskImage.
2. Log on as a local administrator or user with equivalent privileges.
3. Start the installation file (SETUP.EXE) from O&O DiskImage, which you have either downloaded from our server or have on your personal CD ROM.
4. After the set-up program has been successfully initialized, please follow the on-screen instructions to complete the installation.
5. You will be given the option of making O&O DiskImage available to just you or to all users.
6. When prompted, restart your computer.

Entering the License Key

Note:
In order to activate the product after installation or to gain access to the Full Version at a later time, you must possess a valid license key. This license key is also called a registration code, serial number or product ID.

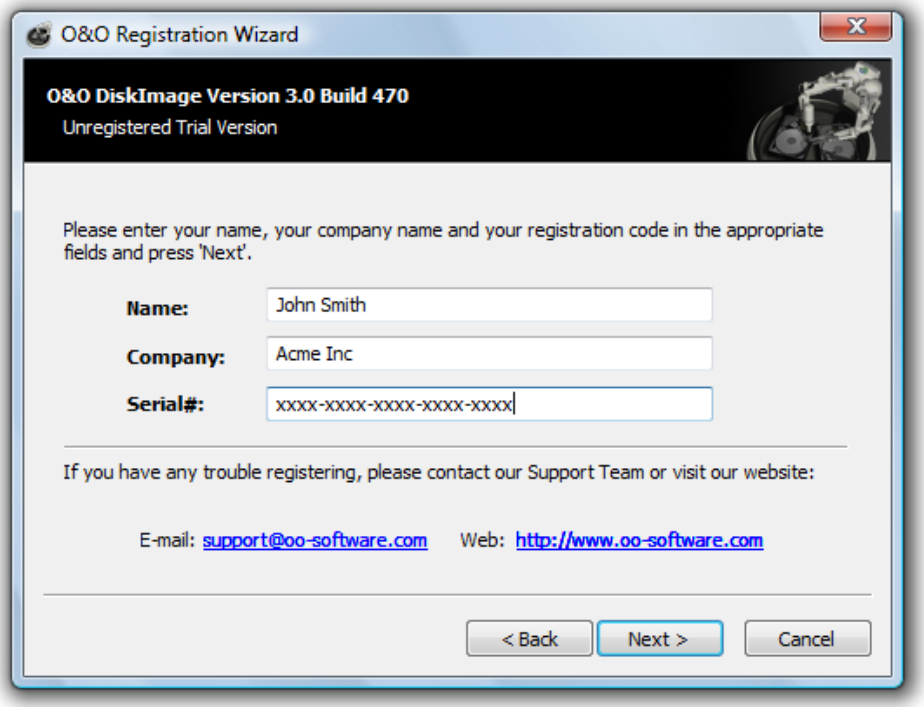
If you do not enter a valid license key, you can still use O&O DiskImage as a fully functional trial version for up to a maximum of 30 days. Should you have any questions, please contact our Support Team.

The dialogue for registration always appears automatically at the start to guide you if you are using an unregistered version or have entered the registration code incorrectly.

The registration wizard allows for a simple registration process. When you select the option **Enter Registration Code**, a dialog box will appear where you can enter the registration code you received when purchasing the software. Please make sure that you do not confuse the letter "O" with zeros or enter any empty spaces where they don't belong.

Press **Next** to save the registration data or **Cancel** to leave the dialog window without saving the data.

Should you run into any problems when entering your registration code, please contact our Support Team.



Registration Wizard: Entering the License Key

Note about Licensing
You can test O&O DiskImage for 30 days free of charge and with no obligation. The remaining trial period will be displayed each time you start the program.

If you would like to implement O&O DiskImage in your company or as a technician for your customers, then please contact our resellers or distributors. They can find you the right license to fit your needs!

Completing Registration
When you have correctly entered the license code you will receive confirmation in the dialog window. You can now register online and benefit from many advantages, such as technical support and free upgrades. To do so, simply click on **Register Product Online!** To close the assistant simply click on Close.

Important:
It is not possible to restore a system partition with the trial version. To do so you need the full version with the bootable O&O DiskImage CD.

Updates for O&O DiskImage

If you want to update O&O DiskImage to a newer version, you'll need the license key. Please follow the following directions:

1. First uninstall the previous version of O&O DiskImage.
2. Start the O&O DiskImage installation.
3. Complete the O&O DiskImage installation in the normal way.

Once finished, the new version is fully installed.

Uninstallation

To remove O&O DiskImage from your PC, please follow the instructions below:

1. Open the Control Panel in the Windows start menu and select "**Add or Remove Programs**".
2. Please select O&O DiskImage from the list of installed software programs and then click on the **Add/Remove** button.
3. Confirm the uninstallation of O&O DiskImage. Once uninstallation is complete you will receive a confirmation message, and you must restart your computer.

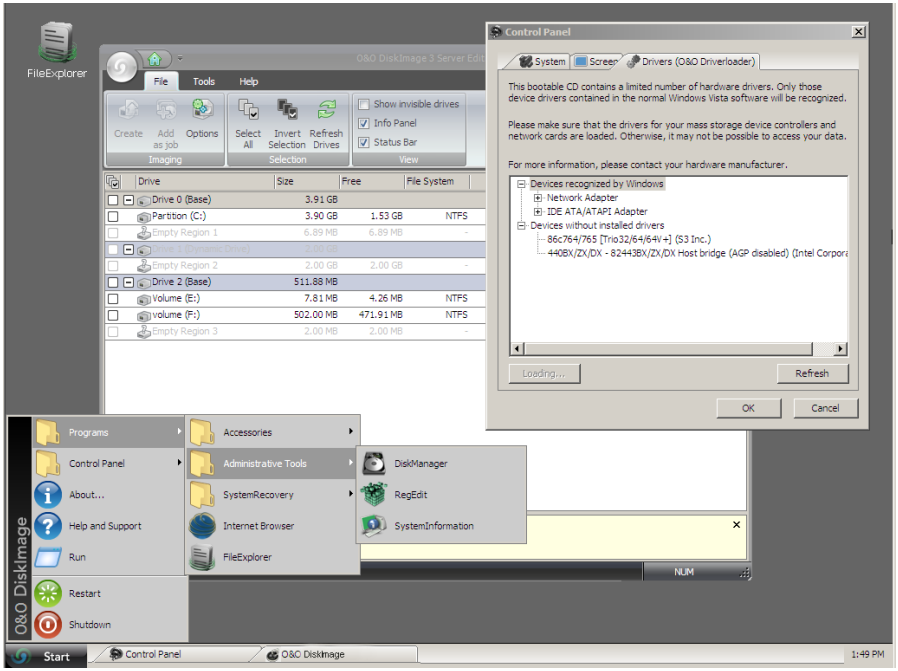
Using the Win PE Version (Start CD)

No installation is necessary for the Windows PE Version of O&O DiskImage. O&O DiskImage starts directly from CD. You will need this Start CD when, for example, you wish to restore your system partition.

Note:
If you're working with the Start CD (under Windows PE), you have to connect external drives before starting the computer. Otherwise, they will not be recognized by the system.

1. Please ensure that your system can be booted from the CD. The appropriate settings can be created in BIOS. You can obtain further information on this from your Mother board manufacturer.
2. Put the O&O DiskImage Start CD in your computer's CD/DVD drive.
3. Restart the computer.
4. Follow the instructions at the start of the CD. A window containing the system settings will then appear.
5. Select a language and region.
6. At the next stage you can load drivers for those devices where no drivers under Windows PE were initially found.
7. O&O DiskImage will start after confirmation of the license regulation.

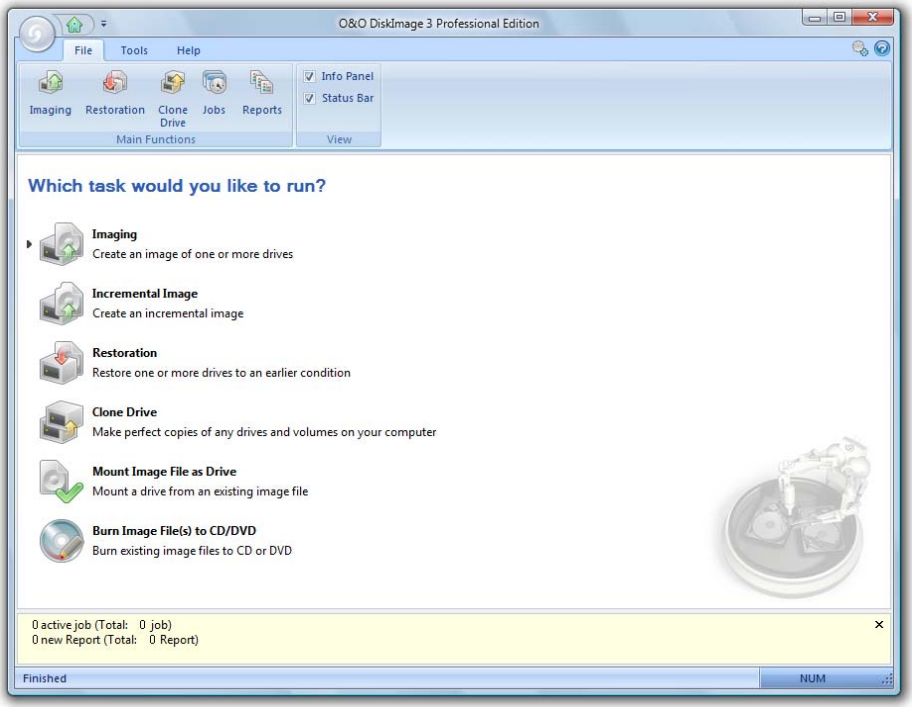
Note:
If you have mounted an additional driver under Windows PE, a notification with a request to restart the computer may appear under certain circumstances. This notification will be automatically displayed by Windows PE, but is irrelevant when starting from a CD. You should therefore reject the request and follow the further instructions in the dialogue box.



Using the Start CD from O&O DiskImage

Introduction

In this section we will explain to you how, after successfully installing O&O DiskImage, you can take images of drives and transfer them back to your computer. Start O&O DiskImage either from an icon on the Desktop or under **Start/Programs/O&O Software/O&O DiskImage**. You can receive online help by simply clicking on **Help** or by pressing **F1**. Please note that regular upgrades to the program may result in the content of the printed User's Guide differing somewhat from information received via Online Support.



Start Page of O&O DiskImage

General Terms and Definitions

Drive/Partition
A drive is a reserved area of the hard disk. Multiple drives can be found on a hard disk. In the following text, the term "drive" will be used to depict (single) partitions as well as logical drives in expanded partitions.

Drives are used, for example, to separate documents from programs. A division in two partitions has become generally accepted.

- Drive C: for operating systems and programs
- Drive D: for documents, e.g. photos, Office documents, music, etc.

This makes it easier to image data using data imaging products such as O&O DiskImage.

Image
An image is a "copy" of your drive or partition. This "copy" contains all information taken from the original. A special feature of an image is that the file format is especially compressed and takes up much less disk space than the original. The more often you create images of your drive, the less you need worry about data loss. Should data on the original drive be lost or damaged, you can restore your last image with all its data onto your computer. With just a few clicks of the mouse, you can recover the original status of your drive before the last imaging.

Image File
An image can be made up of many image files (*omg). For instance, if the storage medium you wish to put the image on is not large enough, you can split the image onto different storage media. You can also manually set the number of MB per storage volume. When you wish to split an image onto several storage volumes, a new image file is created on each volume that forms part of one image. It is vital that the volumes (CD/DVD) are numbered in case you wish to recover a drive with the image or use it as a base image for an incremental imaging.

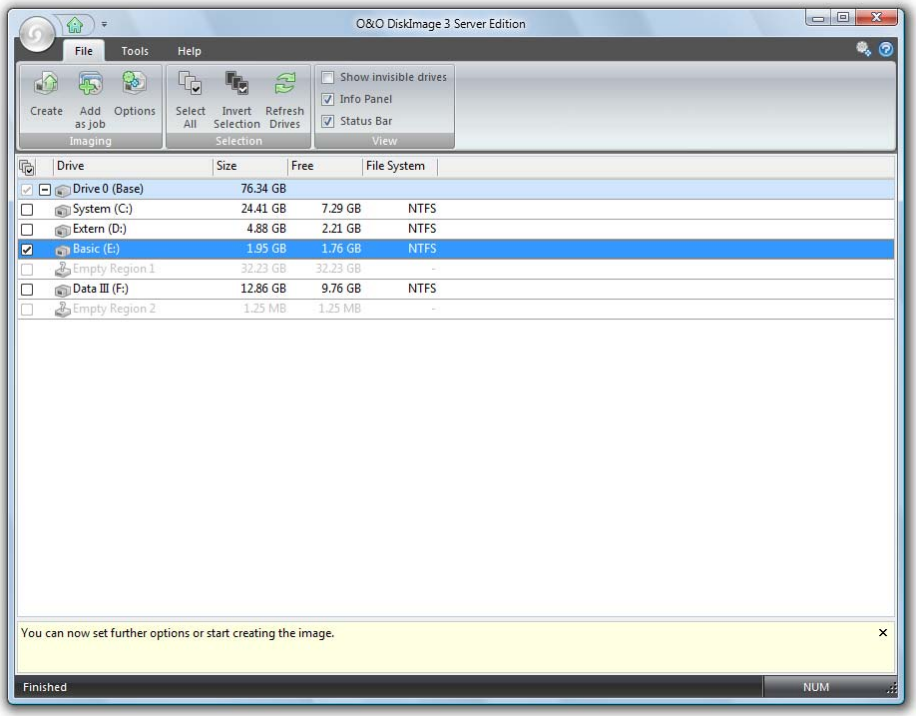
Base Image
A Base Image is an image of your drive that can be created using all imaging methods. It serves as a basis for the creation of an incremental image. An incremental image can also be applied as a base image. In order to create or restore an incremental image, you will require the entire base image as well as all subsequent incremental images. An exception to this occurs when the option **Use Checksums to administer unchanged data** under **Imaging Options/Advanced** is selected. In this case, only the last incremental image is required for creating a new incremental image. This option is set by default.

Incremental Image
An incremental image can be created using the Incremental Imaging Method (see also Imaging Options/Imaging Methods). In this way, only changes to the base image are saved. A base image has to have been made previously from the drive you now wish to image incrementally (see Base Image). This method saves you time and computer load, as the image is generally smaller and contains only recent changes. Should you have built up a number of incremental images, you can combine them to form a new Base image.

Create an Image of your drive

To create an image of one or more drives, please follow the instructions below:

1. In the start screen or file menu, click on **Imaging**. The program window for creating images will appear.



Program Window for Creating an image

2. Select the drive for imaging by ticking the box next to it.
3. You can create advanced settings for your image under **Options**.

Note:
Additional setting options, i.e. Imaging Methods, will be described in the chapter "Imaging Options".

4. Click on **Create**, once you have completed the additional optional settings.
5. Enter the target path of the drive on which you want to save the image. You can either accept the suggested default path or select another location. Under **Program Settings**, you can also select individual default paths.

6. The image is automatically named after the date of creation. You can, however, enter a name manually. All information from the image will be saved and can later be accessed through Image Information.
7. Select **Start**. The image file will now be created.

Note:
If a storage volume is not large enough to fully store an image, you will be prompted to select a new target path.

Note:
Should not all connected drives be displayed, above **Selection** click on **Refresh Drives**.

Creating out an Incremental Image

An incremental image is recommended when you have already made several images of your drive. When creating an incremental image, only an image of the changes to the base image is made.

To create an incremental image, you must have first created a Base Image of the respective drive. As a base image you can use either a "complete" image created using the methods "Used Sector Imaging", "Forensic Imaging" or "Direct Forensic Imaging ", or a previously created incremental image. The last option is only possible when the option **Use Checksums to administer unchanged data** was selected when creating the last incremental image. This option is a default setting. Should **Use Checksums to administer unchanged data** not have been selected, the complete image along with all previous incremental images will be required for accessing, as part of the imaging process.

Follow the instructions below:
1. Please make sure that the drive containing the base image is connected to your computer.
2. Click on **Incremental Image** in the start screen of O&O DiskImage.
3. A pop-up window will open where you can select your base image. You can find all details of the Image under **Image Information** and the related **Drive Information**.
4. Click then on **Create**.
5. You can either select the suggested drive for creating the incremental image or select a new target path. For greater clarity, it's advisable to store the base image and its respective incremental image file on the same drive. You may, however, use any drive you wish.
6. The image is automatically named after the creation date. You can however enter a name manually. All information from the image will be saved, which you can later access through **Image Information**.
7. Now click on **Open** and then on **Start**. An incremental image will be created from the base image. The Imaging Method of the original "complete" image, e.g. Used Sector Imaging, remains the same and cannot be amended.

Cloning a Drive

This function enables you to make a cloned image of an entire drive with all the saved data, and without having to create image files. The drive is then saved on a selected storage volume as a proper drive without compression. The advantage of a clone as opposed to the creation of an image is that there is no detour through the image file. You can directly access the clone of the drive without having to restore the drive itself. You do, however, require much more disk space for a clone as you do for an image.

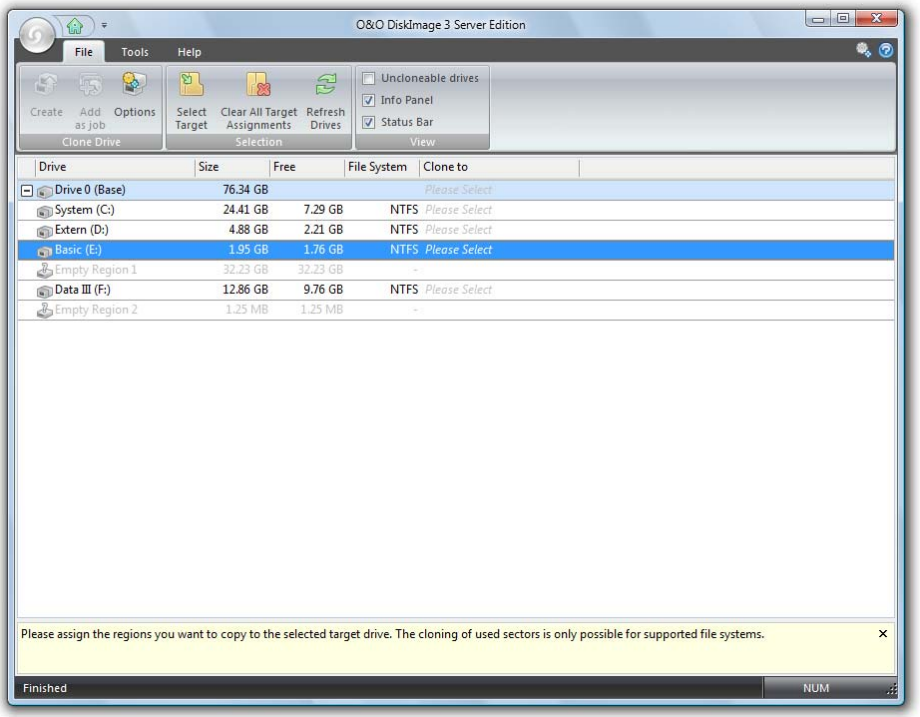
Important:
When cloning your Drive (Source Drive), the selected target drive, i.e. the place chosen for the clone to be stored, will be overwritten. All data stored on it will be deleted and replaced by the clone! You should therefore save the cloned image on, for example, an external hard disk chosen for this purpose.

Note:
When making a cloned image of the drive, you should adjust the features of the target drive for future application. Make sure, for example, that the system partitions of the cloned image will be able to boot.

Note:
Additional options for cloning the image may be selected under Cloning Options. See chapter "Cloning Options".

1. Select **Clone Drive** from the start page.
2. Select from the list the drive you wish to copy.
3. Select a location for the clone in the column **Clone to**.
4. Click on **Create** and confirm your entry.

You can also "reverse" your clone in exactly the same fashion.

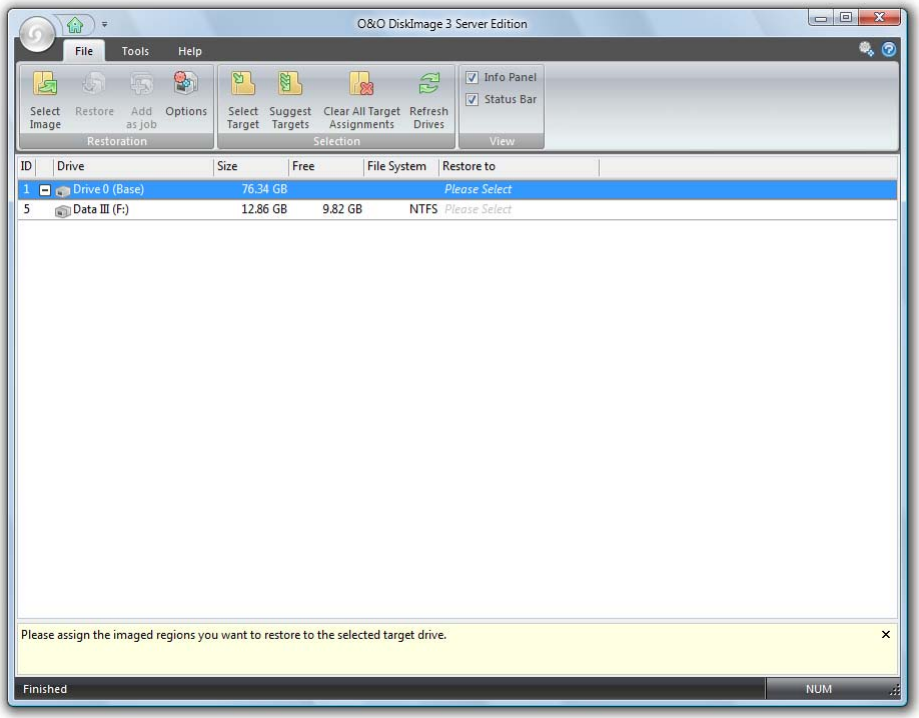


Program Window for cloning a drive

Image Restoration

If you wish to transfer an existing image to your computer, click on **Restoration** on the homepage or in the file menu.

You can access all information on your newly created image in **Image Information** and display the related **Drive Information**. You can also apply further settings under **Options**.



Program Window for Restoring an image

Important:
During restoration, the image overwrites your selected drive with the data of the drive contained within the image. All data on the target drive is thereby lost and replaced by that of the image.

Note:
If you split your image onto various storage volumes, all such storage volumes will be required for a restoration. If you have opted to make incremental images, all images - the original base image and all subsequent incremental images - will be required.

Note:
When you wish to restore a system drive, you must use the O&O DiskImage Start CD and start the restoration from there.

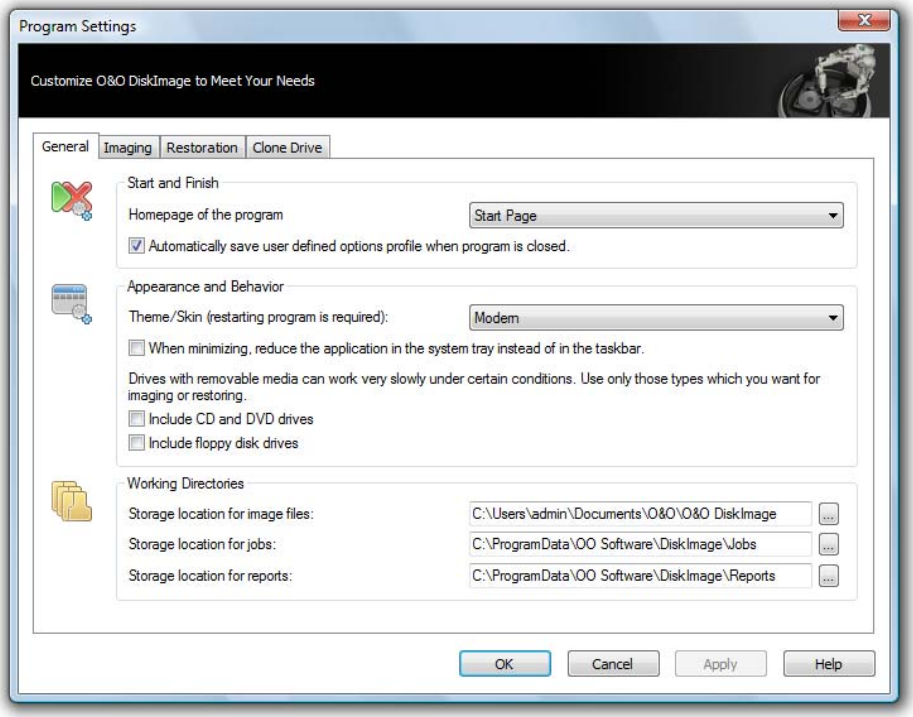
Note:
Should the target drive selected not be displayed, above **Selection**, left click **Refresh Drives**. If you're working with the Boot CD (under Windows PE as well), you'll have to connect external drives before starting the computer, otherwise they will not be recognized by the system.

To restore an image, please follow the instructions below:

1. Please make sure that the drive containing the image is connected to your computer.
2. Under **File** click on **Select Image**.
3. A window appears with the drive and image file. (*.omg). Should the image file presented not match the one required, browse through your drives and enter the path to the image file.
4. Select **Open**.
5. Now click on either **Select Target** or **Suggest Target**.
6. Select a target drive for the image file. You can either replace an existing drive or create a new drive, for example, in an empty sector.
7. Now click on **Restore**.
8. Click on **Start** in the program window. The image file will now be transferred to the computer.

Program Settings in General

Under **Program Settings** in the top right of the ribbon bar, you can customize O&O DiskImage to suit your own requirements. Here it's possible to determine, for example, whether created settings should be saved and applied as preferred settings when you start the program the next time.



Program Settings

Change Default Settings

Under **General** you have the possibility to determine the program page that will be displayed at the start of O&O DiskImage. For example, you could ensure that the "Imaging" page immediately appears as the start page or that the latest settings for creating images should be saved. An additional example would be selecting "Incremental Imaging" as an imaging method, which would then function as a default setting at the next start of the program.

Customize User Interface

Under **Appearance and Behavior** you can adjust the display of the user interface. There is a choice between **Modern**(default) or **Classic**.

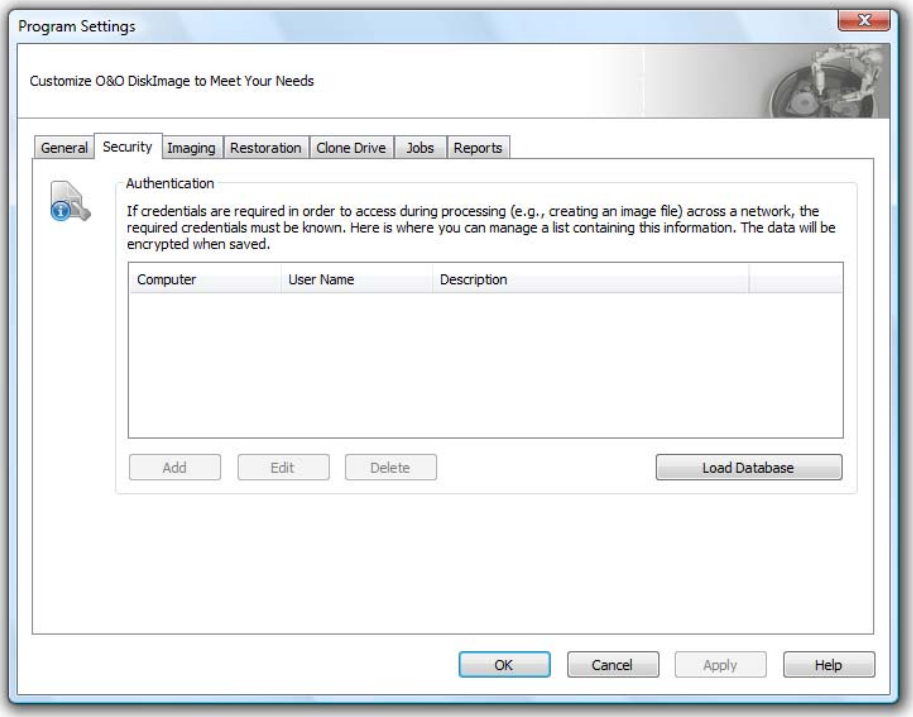
Accessing Removable Storage Volumes
Under **Appearance and Behavior** you can decide if a drive with removable storage volumes should be accessed while creating images or during restoration. As these removable volumes tend to work very slowly under certain conditions, it is advisable to use only those types which you would want for imaging or restoring.

Default Settings for Storage Locations

Under **Program settings/General/Working Directories** you can determine and edit the directory in which the image should be saved by default. The path entered (target path) will be saved and applied to every imaging by default.

The storage location for jobs and reports can be similarly determined.

Settings for image operations across a network

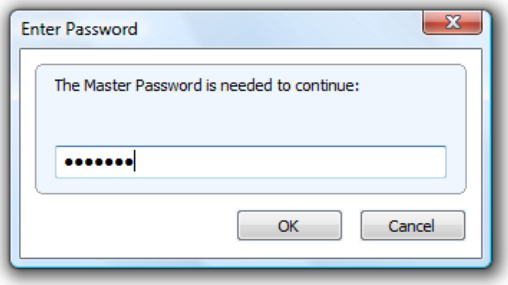


Programm Settings - Security

In order to run image operations on or from network computers, such as saving or restoring images, you must first be authenticated in the network. Authentication is necessary to control the access permissions to certain network computers or folders.

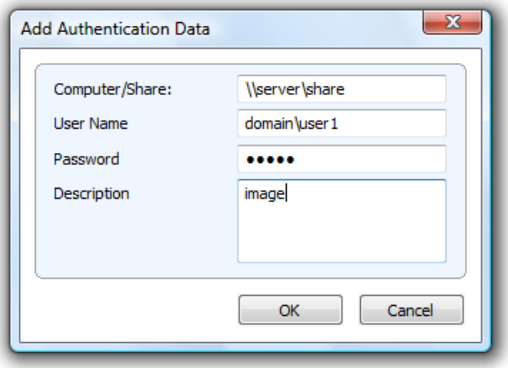
Enter the following settings under **Program Settings/Security**:

1. If you have not yet created a database, click on **Create Database**.
2. Enter a password of your choice and confirm your entry. This password will be encrypted. The key for this password will be composed of a public and a private part, to ensure that this password file can only be opened and read by you or the O&O DiskImage service.



Enter password

3. Then, click on **Add** in the authentication dialogue.
4. Enter the path, where you want to store the image, or from where they should be loaded from under **Computer/Sharing**: \\Computername\Folder or Domain\Folder\User1. Alternatively, you can also just enter the computer name, if all shared folders of this computer are to be opened by the designated user account.



Add authentication data

5. When entering the user name, you must enter a qualified name from a user's account. For example, the domain account of the corresponding domain has to be entered and recorded, such as domain\user1 or User1@domain. Please note that the user you login as must possess appropriate permissions for the target computer/directory. You can check for them under **Properties** in the corresponding target directory under **Security**.
6. Now enter the network password of the user or of the user account.
7. You can also add a description of the authentication data.
8. After completing authentication, you can set the new "network path" as the saved location when creating the next image and also restore images from that location.

Image Specific Program Settings

Under **Imaging** in the Program Settings you can make image specific settings.

You also have the option of displaying those drives not visible in the program window, e.g. “Microsoft reserved partitions” under GPT Drives, OEM BIOS Partitions with DELL and IBM or the System Area (1MB) on basic storage volumes.

Under the option **Automatically check image file for errors after creation** you can determine if image files should be checked for errors immediately after they are created.

This option is also available when restoring an image, whereby the image file is checked for errors prior to being restored.

Introduction

This chapter will show you which operations you can perform with a created image. The various imaging operations can be found under Tools in the ribbon bar.

Selection of the Image Operation

Mount Image File as a Drive

You can have your created image file displayed in Explorer as a virtual drive. This allows you to copy files or directories from the image file onto existing hard disks. Making changes to the image file such as deleting or adding files, however, is not possible.

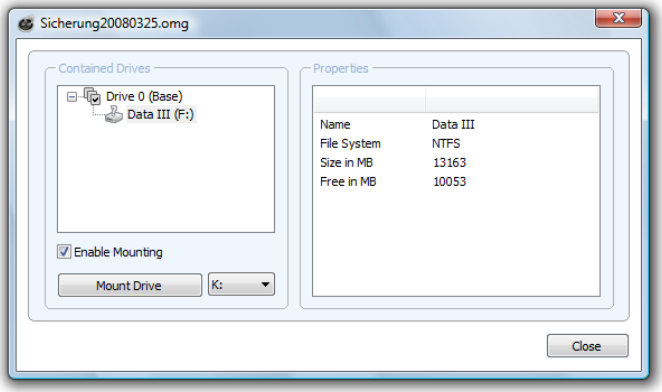


Image File as a Drive

1. Open the option **Mount Drive** in the ribbon bar
2. Then select the original drive (e.g. F:) and further select the image file you want from the program window
3. Check **Enable Mounting**

4. Select any drive name from the list of drives (e.g. K), then click on **Mount Drive**. If the mounting process was successful, you will see the image displayed as Drive (K:) in Windows Explorer.

Please note that you may only access sectors containing image files. Refreshing can take a few moments.

Note:
A notification to restart your computer may appear by the initial mounting of an image file under Windows 2000. Cancel this in order to mount the image as a drive.

Technical Limitations

Refreshing under Windows:
If you are working over a remote desktop connection, you must restart your computer to display the newly created drive

Mounting Images larger than 2TB:
The mounting of imaged partitions and drives larger than 2TB under Windows 2000 and Windows XP (32 Bit) is not supported.

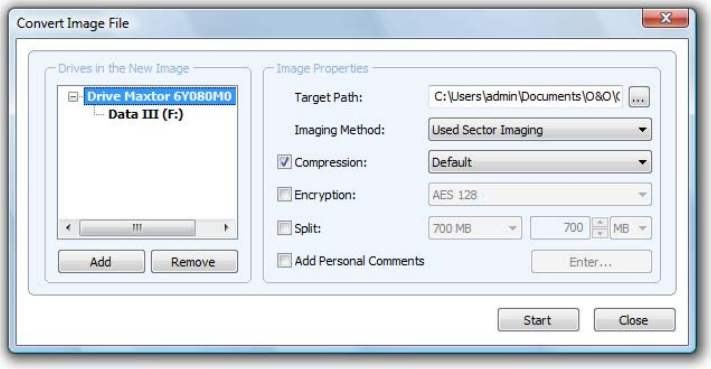
For forensic purposes only:
Initializing an entire hard disk as a virtual drive can lead to problems of recognition for the virtual storage volume, if the imaged hard disk contains one of the following:
- a damaged partition table
- partitioning process not supported by your operating system (e.g. GPT)
- a RAID System component, where only one physical hard disk was imaged
- a dynamic drive
- encrypted hard disk

Unmount Drive

If you wish to remove a mounted drive with the image file, click under **Tools** on **Unmount Drive,** and remove the drive in the program window.

Convert Image File

The tool **Convert Image File** allows you to change the properties and content of existing images. It creates a copy of the selected file, meaning the original image file remains intact.



Converting Image File

Under **Add** you can select drives for imaging from the corresponding image. This enables separate image files to be merged together. Simply add the drive from the list. Only image files of similar types can be merged together, either forensic, direct forensic or used sector images.

Merge Incremental Images

If you have created several incremental images, you can merge them to form a new base image. The newly created base image is now a "complete" image. Previous incremental images can then be deleted after the merge has been completed

1. Make sure all the drives with the base image and incremental images are available to the computer.
2. In the menu list under **Tools** click on **Merge Incremental Images**.
3. A program window will appear where you can select and merge the existing incremental image files.

Note:
Only incremental image files with the same base image may be merged together. By clicking **Image Information** and the corresponding **Drive Information,** you will be able to view all details regarding the image.

Validate Image File

Under **Tools** is a function called **Validate Image File**. This function checks the structural integrity of an image file. It determines whether the logical structure is intact. Damage can be caused by virus attacks or defective hardware. In addition, encrypted and/or compressed images will be checked to determine if decryption or decompression is possible without error.

Reasons for an abortive validation:

- Encryption and decryption are not functioning
- Compression and decompression are not functioning (Windows API/System interfaces)
- The user has changed the image file
- Image has been changed by a program driver (e.g. anti-virus software)
- Image is stored on a defective volume

Note:
To make sure your image is created or restored without error, keep the validation process running until the imaging or restoration is completed. If you choose to "Skip" or "Abort", there's no guarantee that your image will be created or restored intactly.

Check for Drive Errors

Under **Tools,** the function **Check Drive** carries out an intensive analysis of the file system and data storage interface, protecting against any possible loss of data.

CheckDisk is an assistant that leads you step-by-step through the examination of your drives. Simply follow the instructions in the dialogue window and select your drive.

In the next stage the analysis is carried out. You can monitor progress by means of a progress bar where all the program status messages are listed.

Save Images onto CD/DVD

To save your image to CD/DVD, it is necessary to have first created an image, as described in the section entitled **Creating an Image**. The image file(s) must be stored on an internal or external drive. Only then will it be possible to save your image file(s) (*.omg) to CD/DVD. Images cannot be saved directly on CD/DVD without having first been saved on an external or internal drive.

1. Under **Imaging Options/Image File/File Size** limit the image files to the size of your blank CD/DVD. The image will then be split into multiple image files. The splitting of the image file at a later time is also possible, (See "Converting Image File"). It is recommended, however, that you split the image file when it is being created.
2. Go back to the O&O DiskImage start page and then click on **Burn Image File(s) to CD/DVD.**
3. Follow the instructions in the dialogue window.

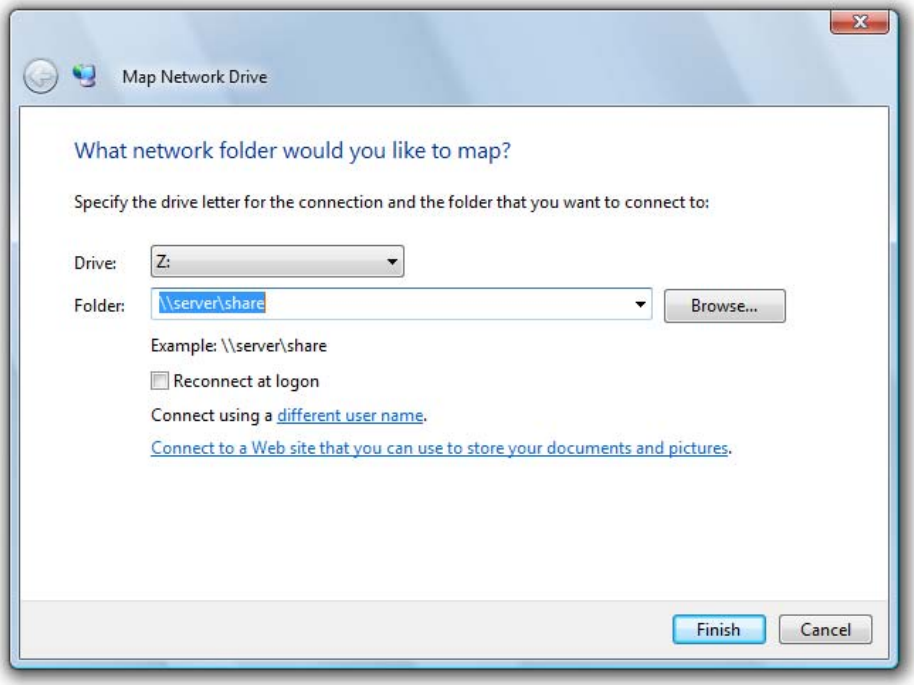
Note:
Only image files (*.omg) or ISOs created using O&O DiskImage can be saved onto CD/DVD.

Note:
When renaming individual parts of the image, it is recommended to keep the "number portion" of the filename (the number in parentheses) so that you can trace the order of the files, and avoid problems when restoring the images at a later time.

Map/Disconnect Network Drive

Under **Tools** in the ribbon bar, you can select the setting **Map Network Drive** in order to access drives in a network. This enables you, for example, to restore images from this location, or to save images there.

The setting **Disconnect Network Drive** enables you to end the connection.



Map Network Drive

Job Assistant

To keep you from having to set a program function manually every time you use it, O&O DiskImage provides you with special time scheduling and job planning features that will run your applications automatically.

By using these features, you can determine the exact moment, and any additional parameters, for setting a time scheduled action.

This will allow you to edit, deactivate or even delete jobs.

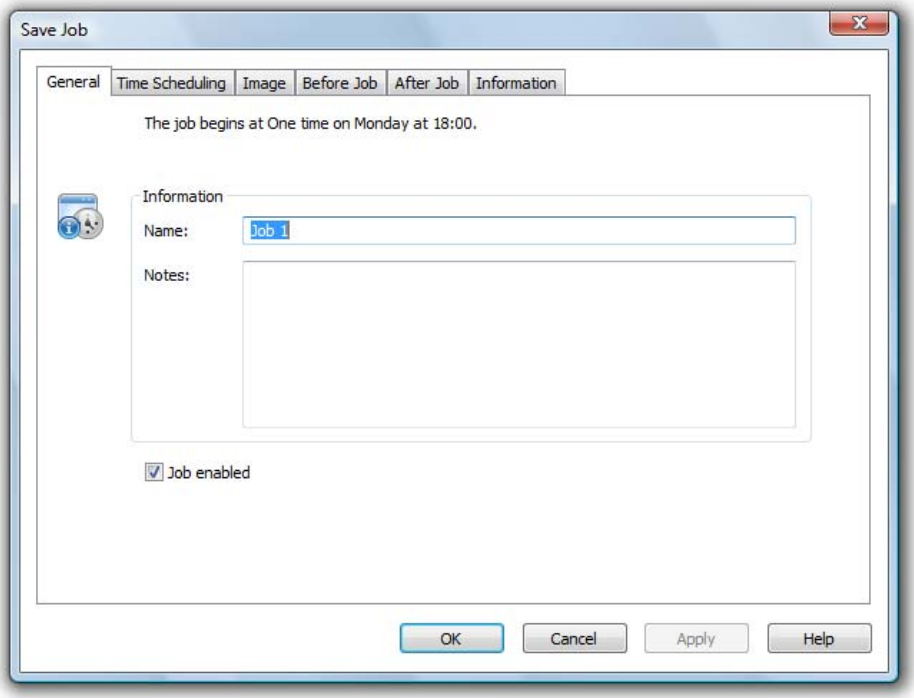
Creating a Job – General Information

Before setting up a job, you'll have to select the corresponding activity.

1. Once the startpage is opened, click on the activity desired, for example **Imaging**, **Clone Drive** or **Restoration**.
2. Put in place all the settings that are necessary for the job. Select, for example, an imaging for particular drives or select additional settings from among the various options on the program page. Your settings will then be saved and applied to the subsequent job.
3. Now click on **Add Job** and enter a name in the Job Assistant for this particular job. This will be later used for preparing the report and serve as information regarding the activity this job will run. The name of the job has only symbolic meaning and can also be already applied to other jobs.

In the field **Notes** you may enter text that can provide a few details about the job.

Enable Job
If you don't wish to carry out the job for the time being, but don't want to delete it, you can choose to disable it. The job will thereby remain dormant until it is once again enabled.



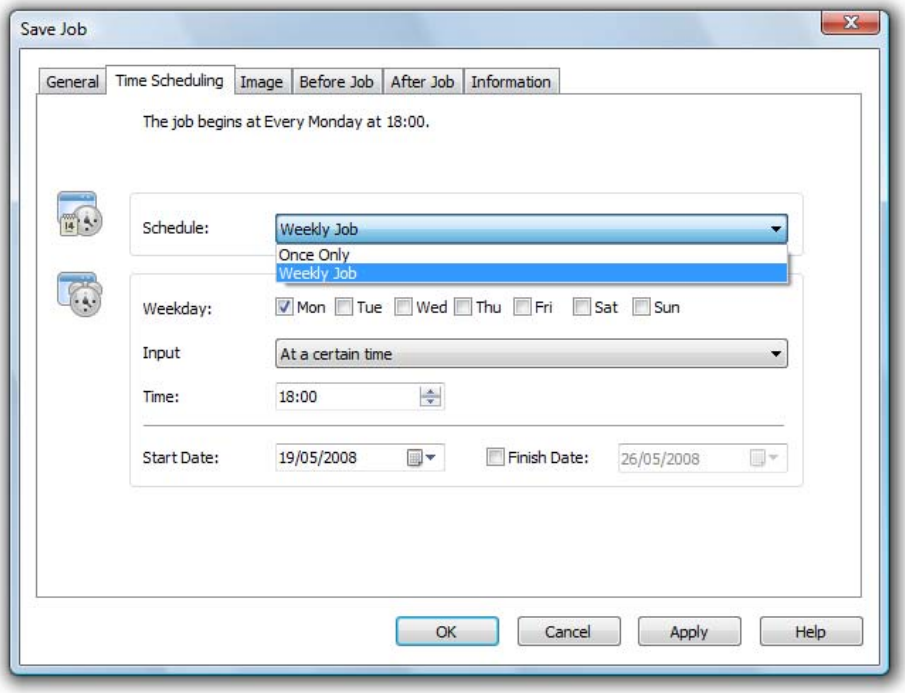
Job Assistant General Information

Plan a Schedule

Under **Time Scheduling** in the Job Assistant, you can determine the exact moment when the job should be carried out. You can decide to have the job performed one time only or repeatedly. The options for how this should be done will change according to the way you select to run the job.

Once Only:
- Choose the starting date
- Time
- After User Logon

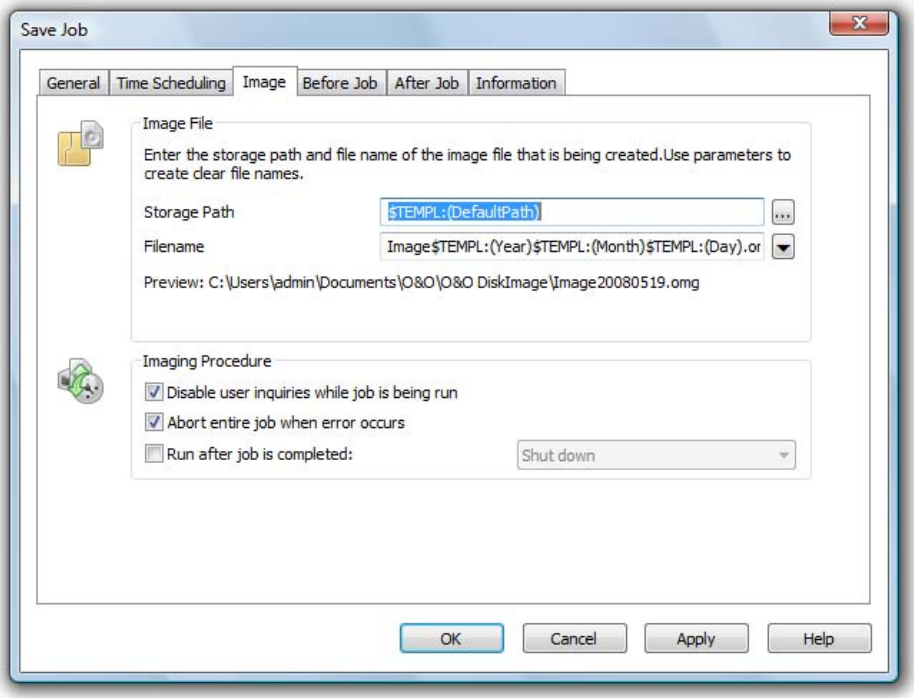
Weekly Job:
- It's possible to select the day of the week, the date and time
- Length of intervals, for example, every five weeks



Job Assistant Time Scheduling

Settings for a Job

You can set additional options for your job in the third tab (**Image**) of the Job Assistant. The choice of settings is based on your selected activity. For an imaging activity, you could, for example, enter a storage location and a name for the image.



Job Assistant: Imaging

Disable User Inquiries while job is being run
User Inquiries are questions that can arise during the normal course of carrying out a job. The job will thereby be interrupted because the user either has to make a decision or additional information is required for continuing.

There might, for instance, be a confirmation dialogue if there's already a file name being used for the image.

Should this interactive option be turned off, in a worst case scenario there will be no confirmation dialogue while the job is being run and it will be aborted by default and logged as an error.

Abort entire job when an error occurs
Abort entire job when an error occurs.

Run after job is completed
Here you can choose between **Restart**, **Shut Down** und **Log out**. If you don't select any activity, the computer will return to its condition prior to making the image and remains, as a rule, simply operational.

Characteristics of an Imaging Job

Storage Path
The target path to the storage location of the image will be applied to the program settings by default. You may, however, select or enter a new path manually.

Apply dynamically generated file names
For a file name, the terms "Image" and the dynamically mounted parameters "year", "month", and "day", will be used by default. In addition, you can select from a list of alternative parameters. If you're making, for example, a number of images on a single day, it's advisable to include the "time" in the file name. Otherwise, files with the same name would emerge and that could lead to the imaging process being aborted.

Note:
If you're using O&O DiskImage on a computer in a network, the data from the computer will be automatically read and file names will be dynamically generated. You could, for example, add the "Computer Name" to the image name for use in a network.

Run commands before and after a job

Running out commands before and/or after a job can allow you to stop certain Windows services and then start them again afterwards. If you're using O&O DiskImage on a Microsoft Exchange or SQL-Server, you could stop these services beforehand, create the image and then have them automatically start again once the imaging is done. You no longer need to create a script to do this.

Before Job
If you select this option, the commands entered in the text field will be run before the job begins. You can also import existing command files so that their contents will be shown in the text field. Just click on **Import and replace** and select the file in the dialog (.BAT, .CMD or .TXT). Confirm your selection with **OK**.

After Job
If you select this option, the commands entered in the text field will be run when the job is completed. Entry and application is similar to the command instructions in "Before Job".

Note:
Please make sure that all commands exist and are able be run on the target computer. All commands will be run under the SYSTEM User and his permissions.

Job information

The precise settings of a job are listed under **Information** in the Job Assistant. This display is for information purposes only. You will not be able to edit the settings from there.

Editing jobs

Edit jobs
To edit a job, select **Jobs** in the file menu on the startpage of O&O DiskImage.

You can edit a job by making a check on your selection in the job list. Then click on **Edit**. The Job Assistant will then appear with the settings of the job. Make the desired changes in the properties and confirm the changes with **OK**. If you decide not to apply the changes, then click on **Cancel**.

Delete jobs
To delete a job, select **Jobs** in the file menu on the startpage of O&O DiskImage.
Mark the job you wish to delete with a check and then click on **Delete**.

Apply jobs
To apply a job, select **Jobs** in the file menu on the startpage of O&O DiskImage. Using the **Apply** function, you'll be able to apply the job to other drives. The selected activity, e.g. Imaging, Clone Drive or Restoration, with the corresponding settings, e.g. the imaging method, will remain the same.

Run jobs
To carry out a job, select **Jobs** in the file menu on the startpage of O&O DiskImage.
Start will begin the selected activity after a security question is answered.

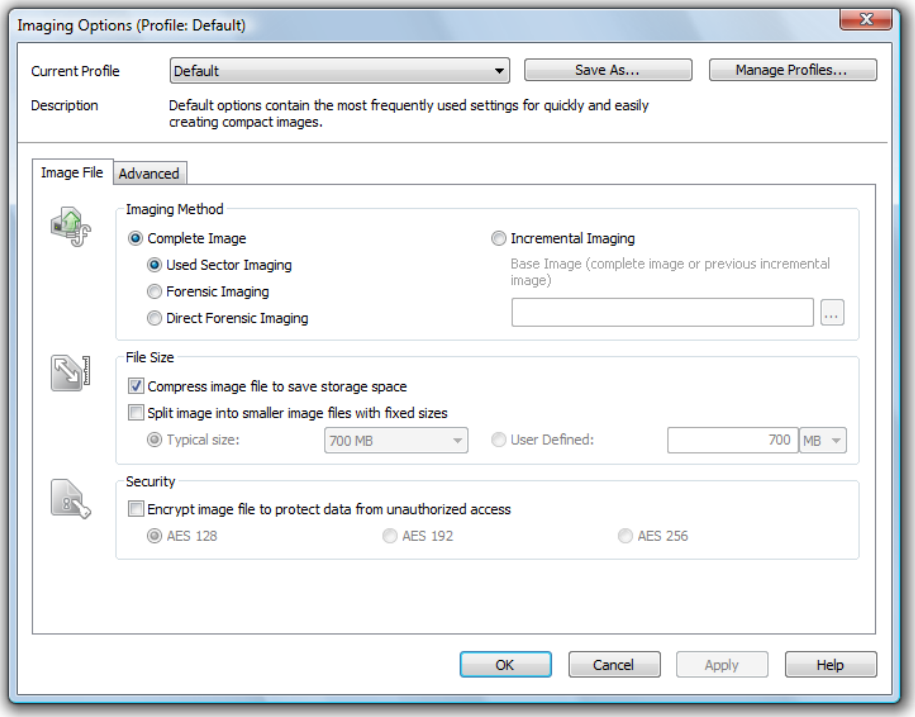
Export jobs
To export a job, select **Jobs** in the file menu on the startpage of O&O DiskImage. Mark the job selected in the job list and then select **Export**. Save the job file (*.xml) on an external storage volume so that it can be applied again to another computer (see "Import jobs").

Import jobs
To import a job, select **Jobs** in the file menu on the startpage of O&O DiskImage und select the function **Import**. Select the desired job in the dialogue window. This will then be added to the Job List.

You can then transfer the created job from one computer to another without having to make new settings for the job.

Introduction

Under the menu heading Imaging, you can implement additional settings for your image by clicking on Options. All image files will then be created by using these settings by default.



Imaging Options

Selecting Imaging Methods

Under **Options/Image File**, you can determine which **Imaging Method** should be applied as standard to every new image. In most cases, the default option **Used Sector Imaging** is recommended.

Used Sector Imaging
Using this imaging method will limit the imaging process to only used sectors on a drive. With this method, you can save time, system resources, and disk space. This method is the default imaging method.

Incremental Imaging
The incremental imaging method will create an image that only contains the changes made to a base image or a previous incremental image. If you would like to create an incremental image, it is necessary to first select at least one image file as your base image. A previously created incremental image can also be used as a base image. More information on this can be found in the section entitled "Getting Started/Creating an Incremental Image".

Forsensic Imaging
The imaging method is especially useful when creating images of non-supported files systems or when, for example, you would like to recover deleted data from a source drive with special data recovery software. With this method, an exact sector-level copy of the source drive is made. By saving all sectors of a partition or drive, the unoccupied and deleted portions of file systems can be imaged in their entirety. Of course, such a complete image also includes portions of data that have been damaged by software malfunctions.

Direct Forensic Imaging
The direct forensic image method, though similar to the forensic imaging method mentioned above, is able to carry out a very special function. As before, this method creates a complete image of the source drive. The difference, however, is that data are read through low-level system interface. When encryption software is in use on a system, for example, this makes it possible to create an image that includes encrypted and hidden files.

Determine the size of an image file

An image can be split into multiple image files. If a storage volume lacks the needed space to contain a full image of your selected drives, you will automatically be requested to enter another target location. It is also possible to manually set the maximum size of an image file before creating the image. If the image being created is larger than the entered file size, an additional image file will be created.

This function is especially useful when you plan to burn your image onto a CD/DVD at a later time. Sometimes a CD/DVD is not large enough to contain the entire image file. For this reason, it is recommended to limit image files to the size of the blank CD/DVD onto which you will be writing your images.

The image file can also be split at a later time using the "**Convert Image File**" function. It is, however, recommended to split images at the time they are created to avoid any confusion that may arise

- Under **Options/Image File/Split** you can determine the size and limit the amount of image files. Image sizes can be set to match the MB/GB values of the storage media.

Set Compression Level

Under **Options/Image File** you can find **Compress image**, which will let you save storage space.

Note:
Compression increases the time required to create an image file. However, the file then requires less disk space on the storage volume.

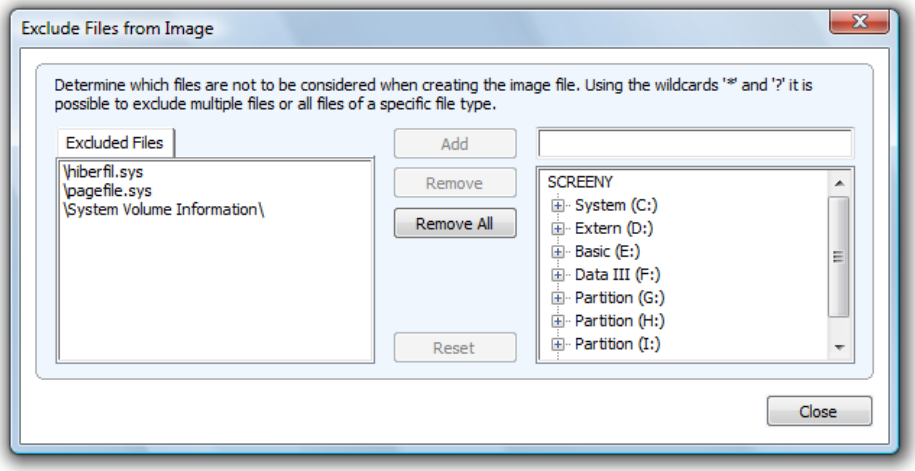
Encrypting Data

Encryption based on the AES Algorithm is possible up to 256 Bit. This provides your image with optimal protection against attacks by third parties.

1. You can select the encryption grade for your files under **Options/Image File/Security**.
2. You will then be asked to enter a password at the **Create Image** stage.

Exclude Files from an Image

Note:
Several minutes may be needed for excluding files, depending on the amount of data on the hard disk.



Exclude files from an Image

When using the imaging method **Used Sector Imaging** you have the option of excluding data from the image or compression. Please follow these instructions for excluding data:

1. Mark the drive you wish to image with a tick.
2. Make sure you have selected the method **Used Sector Imaging** under **Imaging Options.**
3. In the program window **Imaging Options** click on **Advanced** and open the dialogue to Exclude Files.

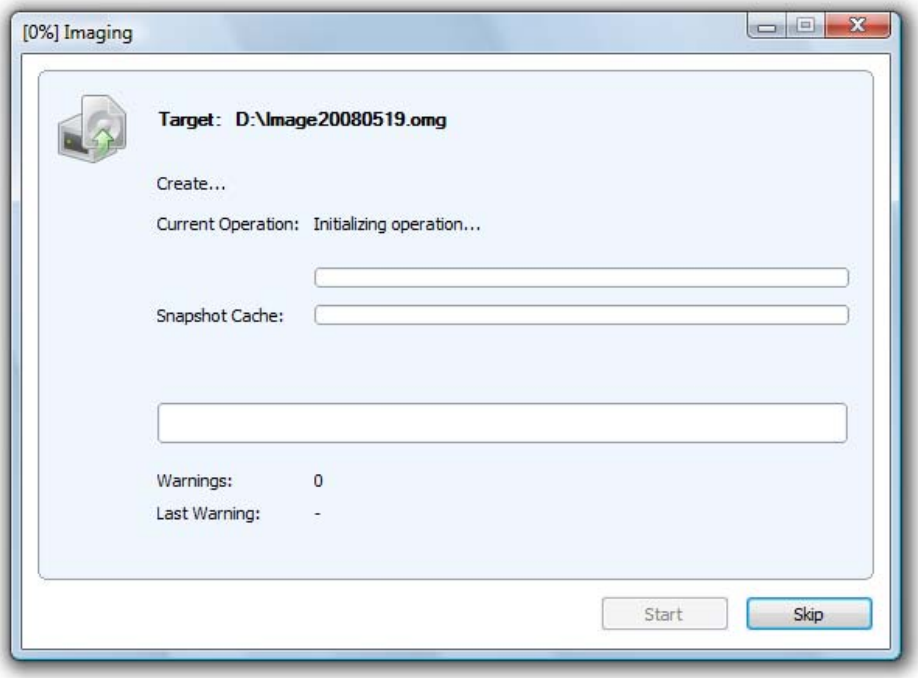
4. In the right hand window select the files and directories you wish to exclude from the imaging and confirm this with **Add**. Only the data on your selected drives will be excluded.
5. You can close the window after your settings are made. The changes you made will then be applied.

Exclude Data from Compression

Data that are already compressed, e.g.*.rar or *.zip files, will not be further compressed during the imaging process and, for this reason, may be excluded from the compression process. To exclude data from compression, please follow the procedure laid down in Exclude Files from an Image.

Lock a Drive

You can lock the drive you wish to image during the imaging process. This prevents any changes being made to the drive during creation of an image. The drive will also not be displayed in Explorer and all applications on it will be closed. The drive is not locked by default.



Cache Status Display (here an empty Cache)

Note:
It is not possible to lock a system partition.

To lock a drive, activate it under **Options/ Advanced**

If you leave a drive unlocked during an imaging, for instance, because you want to continue working on the drive, the original status will be "cached", i.e. stored in the working memory buffer. The working memory buffer is however restricted. You can see how much is available in the Cache Status Display.

Warning:
Should you exceed the available working memory, the original data sectors will no longer be saved and included in the image. This makes the image inconsistent and may render it unusable. In this case, you should, after imaging, mount the image (Mount the image as a drive) and check its accuracy.

Note:
To maintain the maximum available working memory buffer, please close or stop all writing applications on the source drive before and during the procedure. Example: running a defragmentation.

Ignoring Bad Sectors

Should an error occur, you can determine under **Imaging Options/Advanced** whether the read process should be aborted or continued. If continued, the bad sector will be saved in the image as an unused sector. The remaining data that are still readable will be present in the image.

Data Comparison with Checksums

Unaltered data resulting from incremental images is saved using checksums by default. These files are fractionally larger. It is sufficient when, at the next incremental imaging, you use a previous incremental image (with checksums) as the base image. This function is activated by default. If you save all images to a single directory, you might consider deactivating this function. Your images will then take up less space on disk.

- Make sure the setting, **Use Checksums to manage unchanged data**, is enabled under **Imaging Options/ Advanced**.

Creating an Image Profile

Under **Imaging Options** you can reset the current imaging setting to **Default** or select an existing profile.

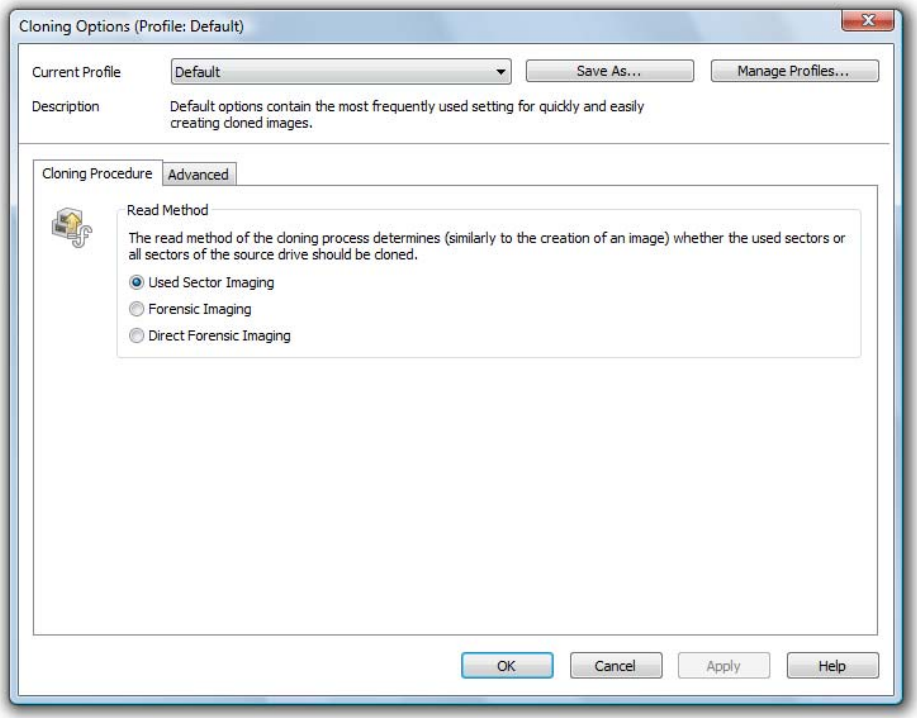
Under **Current Profile** you can select a preset Multimedia or Archive profile. The Multimedia profile automatically excludes already compressed music and video data (i.e. *.avi, *.mp3, *.mpeg) from the compression. The Archive Profile excludes other compressed data such as *.zip or *.rar.
If you would like to save your user-defined settings, please follow these instructions:

1. Activate your settings under **Imaging Options**
2. Select under Imaging Options **Save As**
3. Give your newly created profile a name in the dialogue window and confirm

Under **Manage Profiles** it is possible to make changes to current profiles or delete those that are no longer needed.

General Cloning Options

Under **Clone Drive/File/Options**, you can apply settings for the copy process.



Settings for the Cloning Process

Set a Cloning Method

As with creating an image, you can also individually set a cloning method (read method) for the cloning process. The cloning methods are constructed in a way similar to the Imaging Methods.
You can choose between the "Used Sector", "Forensic" or "Direct Forensic" methods. You can read more about this topic under "Imaging Options/Imaging Methods".

Lock a Drive

During the cloning process you can lock the drive from where you wish to clone an image. This prevents interim changes to the drive being made during creation. The drive will no longer be displayed in Explorer and all applications will be closed. The drive is not locked by default.

- To lock a drive, enable it under **Cloning Options/Advanced/Read Procedure**.
- If you leave a drive unlocked during an imaging, because, for instance, you want to continue working on the drive, the original status will be "cached", i.e. stored in the working memory buffer. The cache is, however, restricted. You can see how much is available in the Cache Status Display.

Warning:
Should you exceed the available working memory, the current changes will be written directly to the target drive. This makes the image inconsistent and may render it unusable.

Note:
To avoid overloading the cache, close or stop all write procedures on the source drive, for example, running a defragmentation.

Ignore Bad Sectors

Should an error occur, you can determine under **Cloning Options/Advanced** whether the read process should be aborted or continued. If continued, the bad sector will be saved in the image as an unused sector. The remaining data that are still readable will be present in the clone.

Write over Unused Sectors

Under **Cloning Options/Advanced**, you can select **Zero Unused Sectors** should you wish to overwrite unused sectors with zeros. Data that were once saved there will now be permanently deleted. After overwriting, not even special data recovery software will be able to restore these deleted data.

Write Directly to Storage Volume

With the option **Write Directly to Storage Volume** under **Cloning Options/Advanced**, you can determine whether a restoration should be written directly to the storage volume, bypassing the file system driver. This function especially concerns encrypted storage volumes. When they are forensically imaged, these can only and may only be restored with this option.

Set a Copy Profile

Under **Cloning Options/Current Profile** you can either reset the image settings to **Default** or select a previously set Profile.

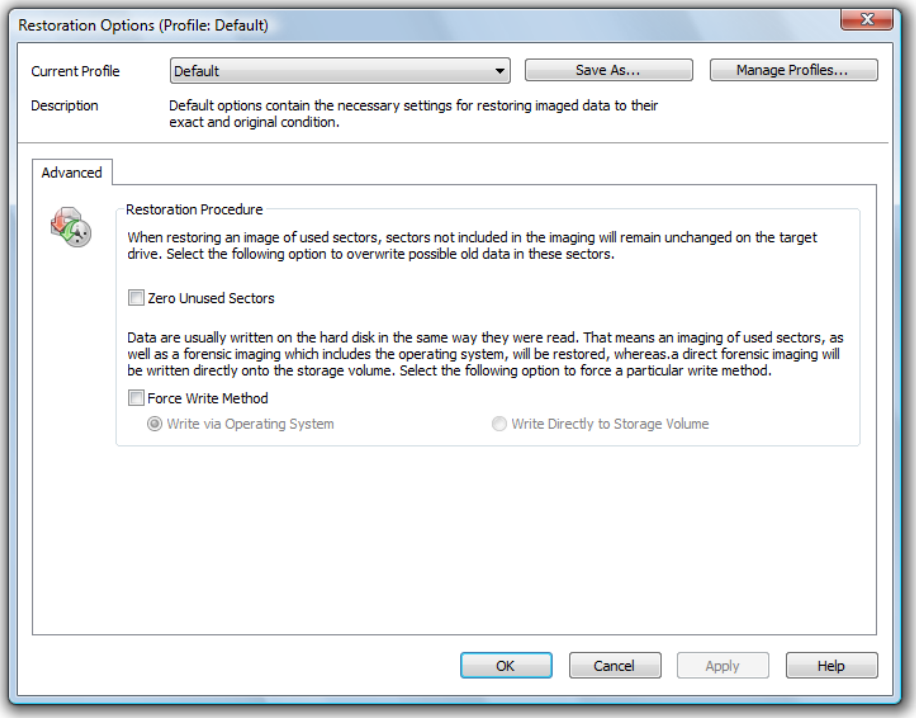
Under Current Profile, you can choose between Default and User-Defined. Should you wish to save your customized settings when cloning, please follow the instructions below:

1. Create your Settings under **Cloning Options**
2. Select **Save As** under **Cloning Options**
3. Give your new Profile a name in the pop-up window

Using **Profile Management** you can change or delete existing Profiles

Introduction

Under **Options** in the menu header **Restoration**, you can determine the settings for restoring data images.



Restoration Options

Write over Unused Sectors

Zero Unused Sectors: Data once stored in these sectors are permanently deleted and cannot be restored with special data recovery software.

Write directly to Storage Volume

With the option **Write Directly to Storage Volume**, you can decide whether the restoration should run directly onto the data storage volume (e.g. direct forensic restoration). It is recommended to keep the setting on **Default**.

Creating a Restoration Profile

Under **Restoration Options** you can return the current settings for an imaging back to their default settings or select an already created profile.

Under **Current Profile** you can choose between **Default** und **User-Defined**.
If you want to save your User-Defined settings, then do the following:

1. Activate your setting under **Restoration Options**
2. Select **Save as**
3. Give your newly created profile a name in the dialogue window and confirm

Under **Manage Profiles** you can change or delete an existing Profile.

When and how often should I make images?

We recommend imaging on a regular basis (at least once a month). The more regularly it's performed, the more up-to-date the data contained within those images will be. As a guiding rule, you should always image an intact system.

Which drives should I image?

You should generally image all drives, meaning the system drive (Windows), primarily Drive C, and all remaining data drives where private and business data, e.g. customer data, photo collections or music are stored.

Where should I store my image?

Don't save the image on the same hard disk where the imaged drive is located. It should be ideally stored on an external hard disk or a CD/DVD.

I just bought myself a new computer. If I take a complete image of my old computer, can I restore it to my new one?

Restoring data drives is not a problem. We do not recommend a complete restoration (incl. operating system) onto another computer with different hardware, as this can lead to a system crash.

Do I have unlimited use of all functions with the trial version?

The trial version is fully functional and has no restrictions. You should note, however, that restoring a system partition is only possible with the bootable O&O DiskImage CD, included when you purchase the product.

When do I need the bootable CD from O&O DiskImage?

For restoring the system partition and when your operating system will no longer start.

How do I save an image to CD/DVD?

- You must create an image file(s) and save it to your hard disk before you can write it to CD/DVD.

- When creating the image, under **Imaging Options/File Size/Split**, you should restrict the maximum image file size to the size of the intended removable medium where it will be saved.
- Should the image exceed the selected maximum file size, it will be split into several image files.
- You can then burn the image files to CD/DVD.
- Simply click on **Tools** on the start page, then on **Burn Image File(s)** to CD/DVD and follow the instructions.

What do I do when my image is too big for a CD/DVD?

- If the Image you already saved to your hard disk is too big for the blank CD/DVD, you can, of course, still split the image file.
- Under **Tools**, open up **Convert Image File**.
- Select the Image you wish to change by using **Add**.
- Then select **Split** and enter the required maximum file size of the individual parts.
- During conversion, one copy of the Image will be made while the original remains un changed.

I have split the image and saved it on various storage volumes (CD/DVD).

I want to:
- **restore this image**
- **display drives from the image**
- **use the image as a base image for incremental imaging purposes**
- **merge Incremental images**
- **convert the image file**

Before you go ahead with any of the above named steps, we strongly advise you to save all parts of the Image in a folder on your hard disk. Please ensure the folder is not on the drive where you wish to restore the Image. Once you have done this, you can complete the steps outlined above by simply following the instructions in the corresponding chapters of the User's Guide.

Can I continue working during the imaging process?

You can continue working and making changes without any problem.

Space on the working memory buffer is, however, restricted. You can see how much is available in the Cache Status Display. See Chapter „Lock a Drive".

Can I still change the image retrospectively?

Under **Tools** you can find the function **Convert Image File**. This enables you to change certain properties and contents of the image retrospectively. See Chapter "Convert Image File".

I have created an image of several drives. Can I extract the image from just one of those drives and store it separately?

- Under **Tools** select **Convert Image File**.
- Select the image using **Add** and then select the drive you wish to separately image.
- Click **Open** and select a drive.
- After confirming with **OK**, click **Start**.
- A new image will now be created. The old image remains unaltered

What is the difference between a clone and an image?

Using the "Clone Drive" function, you can make a 1:1 copy of a drive including all its stored data, without producing any image files. In this way, the drive will be stored directly as a "real" drive, without compression, on a given storage volume. The advantage of a clone as opposed to an image is that the detour through an image file is avoided. You can directly access the drive's clone without having to restore the drive itself. You do, however, require a lot more storage space for a clone than for an image.

Important:
When cloning your Drive (Source Drive), the selected target drive will be overwritten. You should therefore save your copy on an external hard disk, either in an unused region or overwrite a previously selected drive purely for this purpose.

Why are temporary files created?

If you leave a drive unlocked during an imaging because, for instance, you want to continue working on that drive, the original status will be "cached", i.e. stored in the working memory buffer. "Temporary files" are created in the process. Space on the working memory buffer is, however, very limited. You can see how much is available in the Cache Status Display.

What is the advantage of an incremental image?

An incremental image normally has a smaller data volume as a base image. In addition, you can ascertain the differences, more precisely, the changes made since the base image was created.

My incremental image is not smaller than my base image. What is the reason for this?

This can occur if you have, for example, defragmented your computer in the meantime. The newly structured file segments will then be recognized as "changes" and imaged as new files.

What does "Drive cannot be locked" mean? Does this affect the data imaging?

Because of the constantly running system processes, your system partitions cannot normally be locked. You get this notification even when you want to image a data drive and this is directly integrated into the system processes. The notification doesn't generally have an effect on the imaging process; this is still able to be run without a problem. To be totally sure, shut down all running system applications, e.g. defragmentation or cloning processes, before imaging.

While imaging, O&O DiskImage reports that the target volume is too small although the source drive is smaller than the target volume. What is the reason for this?

Make sure you haven't selected the entire hard disk as your source. Example:

You have a hard disk with 100GB that is divided into two partitions:
a) System partition (20GB)
b) Data partition (80GB)

While trying to save the system partitions on an external 40GB hard disk, O&O DiskImage reports that the target volume is too small.

By just making a check, you can select the system partitions as your only source, and not the entire hard disk.

Technical Support

To receive more information about O&O DiskImage, please visit our website, www.oo-software.com, and get the latest information about product developments and support. Also included on our website are regularly updated FAQs and Knowledge Bases that address the most common problems and questions regarding our products.

All registered customers receive installation and product support free of charge for the first 90 days after registration. When contacting our support department, please do not forget to have your registration code ready.

In addition, it may be helpful to read our frequently asked questions (FAQ) section of our website before you contact our support department. It is always possible that your specific question or problem may have already been addressed.

Authorized Resellers

For answers to all questions regarding the licensing and purchase of our software products, our authorized reseller partners in over 30 countries stand ready to assist you. Their names and addresses may be found at our website under the 'Purchase' heading. We would also be more than happy to assist you in finding the partner closest to you.

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Online Registration

What are the advantages of online registration at O&O?

Online registration gives you the benefit of having your customer data kept safely on our files, which means we can provide you with even better service. This comes in very handy if, for example, you're unable to find the access code to your product. With online registration, a new one can be issued quickly and easily. The access code is needed for making Updates or reinstalling the O&O programs on your computer if it needs to be set-up again.

Further advantages will let you:

- Be supplied with the latest information about our products
- Make free updates on new versions of purchased items (minor updates)
- Upgrade to a new version at a special discount price (major update)
- Obtain support from our Customer Service
- And much, much more...

How does online registration work?

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