

O&O software

# O&O DiskImage 10

## Professional / Workstation / Server Edition

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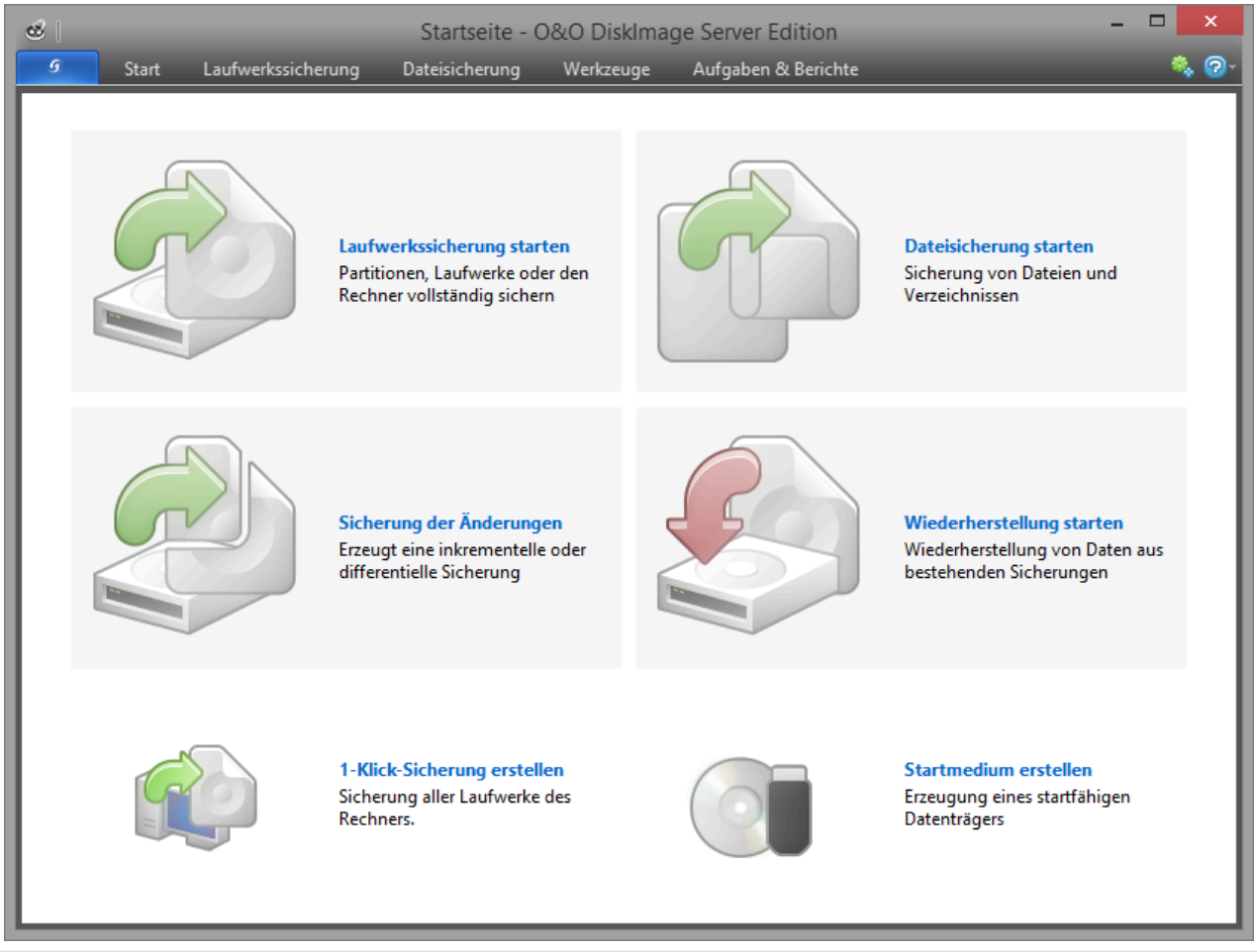
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# Introduction

O&O DiskImage 10 creates images of entire computers and of individual drives, including dynamic drives and RAID systems, backs up files and folders, restores them, clones drives and restores a system on different hardware. This manual describes the Professional Edition, the Workstation Edition and the Server Edition of version 10.

### Earlier version

This is the manual of O&O DiskImage 10. It is no longer updated. The manual of the current version is available at manuals.oo-software.com/oodiskimage/prosrv/.



## What you can do

- **Image computers and drives** – the entire computer with one click, individual drives, or only the changes since the last image. See Back up computers and drives.
- **Back up files** – individual files and folders in a file backup. See Quick start and File backup options.
- **Restore** drives, the entire computer or individual files, also on different hardware with M.I.R. See Restore drives and files and Restore on different hardware.
- **Clone drives** – 1:1 copies of disks or drives, for example to replace a disk. See Clone drives.
- **Start without Windows** from a boot medium. See Start from a bootable medium.
- **Automate** imaging and backups with jobs, or control them with command files. See Jobs and Script interface.

## Where to start

| You want to | Start here |
|---|---|
| Install and activate the program | Install, register and uninstall |
| Get to know the main functions | Quick start |
| Check which edition you need | Editions |
| Solve a problem | Troubleshooting and FAQ |

## License

O&O DiskImage is commercial software. You can try it during the trial period; continued use requires a valid license. See Support and more from O&O.

# Editions

O&O DiskImage is available for both desktop PCs and servers.In addition, there are specially-priced volume license packages (Combi Packs) available. For further information, please contact our sales team: sales@oo-software.com or an O&O Partner.

The Professional Edition is intended for imaging a desktop computer or individual drives. It cannot be used on a server operating system and has no network capabilities.

The Workstation Edition contains interfaces for running O&O DiskImage across a network in conjunction with O&O Enterprise Management Console 2. It can only be used on desktop computers.

The Server Edition contains interfaces for running O&O DiskImage across a network in conjunction with O&O Enterprise Management Console. It can be used on both servers and desktop computers.

## Additional properties of the Workstation and Server Editions

You can run the following network functions when using O&O DiskImage Workstation and Server Editions in conjunction with O&O Enterprise Management Console:

- Images of the entire business network
- Manage your computers in sites
- Define settings for sites
- Plan a schedule for the automatic imaging of computers or sites across a network, with just a few clicks of the mouse
- Automatic remote installation of O&O DiskImage on network computers
- Execute Windows commands (batches) before and after the running of a job across a network

The O&O Enterprise Management Console is included in delivery if you have purchased licenses as part of the volume license program. We will happily advise you on applying O&O Enterprise Management Console in your company.

## Network capability

You can run the following network functions when using O&O DiskImage Workstation and Server Editions in conjunction with O&O Enterprise Management Console:

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# System requirements

- The system requirement of each operating system has to be fulfilled
- 30 MB free hard disk space
- Supports 32 and 64-bit operating systems
- Windows® Vista till Windows® 10 (all editions):

| |
|---|
| |
| Windows® 10 |
| Windows® 8/8.1 |
| Windows® 7 |
| Windows® Vista® |
| Windows® Server 2003 |
| Windows® Server 2008 |
| Windows® Server 2008 R2 |
| Windows® Server 2012 |
| Windows® Server 2012 R2 |

** Note:** A minimum of 1 GB RAM is required for booting with an O&O DiskImage bootable medium.

:::note

When using O&O DiskImage, please make sure that the disk drivers needed by your operating system are all the most current versions available. If you're unsure about this, refresh the driver(s).

:::

**Access 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. Domain administrators normally already possess these permissions.

# Install, register and uninstall

Installing O&O DiskImage is very straight forward. Please follow the steps below:

1. Start the computer on which you would like to install O&O DiskImage.
2. Login as local administrator or as a user possessing comparable permissions.
3. Start the installation file for O&O DiskImage, which you have either downloaded from our Server or have on your personal CD ROM.
4. After the setup program has been successfully initialized, please follow the installation dialog.
5. When prompted, restart your computer.

:::note

Please make sure that no other backup or imaging software is installed on your computer when installing or working with O&O DiskImage. This can lead to complications with the filter driver, especially when different software is working simultaneously on multiple drives.

:::

## Enter the license

:::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.

:::

The dialog 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.

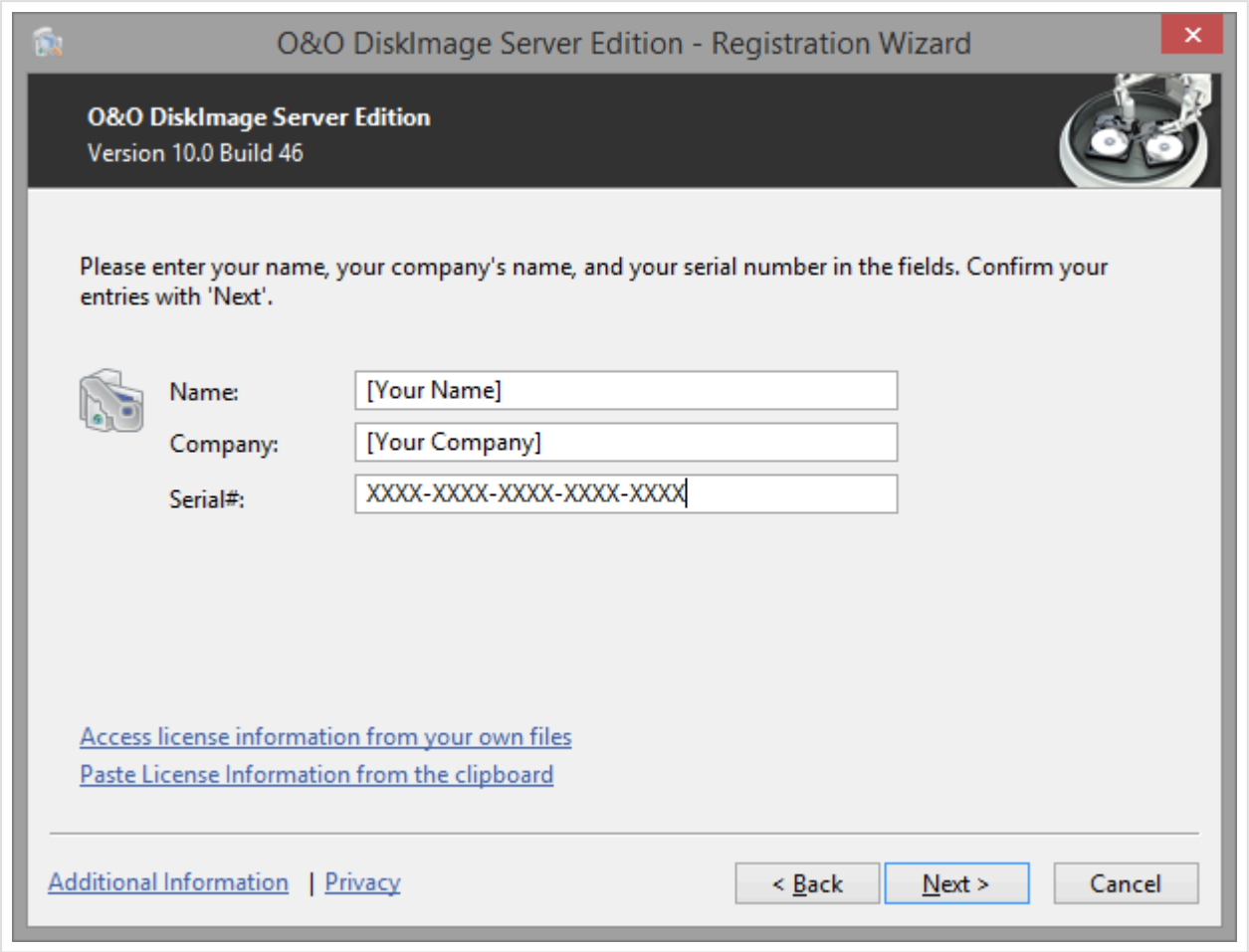
The registration wizard allows for a simple registration process.

When you select the option **I want to enter my license**, a dialog box will appear where you can enter the registration code you received when purchasing the software.

- If you have purchased the **download version** of the software, please enter the license information ("Name", "Company" and License key), just as they are written in the confirmation E-Mail you received.
- If you have purchased the **box version** of the software, please enter the license key as it is written on the license card included. In addition, please enter your name and if needed your company.

1. Please make sure that you do not confuse the digit “1” with “I” or enter any empty spaces where they don’t belong.
2. Press **Next** to save the registration data or **Cancel** to leave the dialog window without saving the data.
3. When you have correctly entered the license code you will receive a confirmation in the dialog window.

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




## Information about licensing

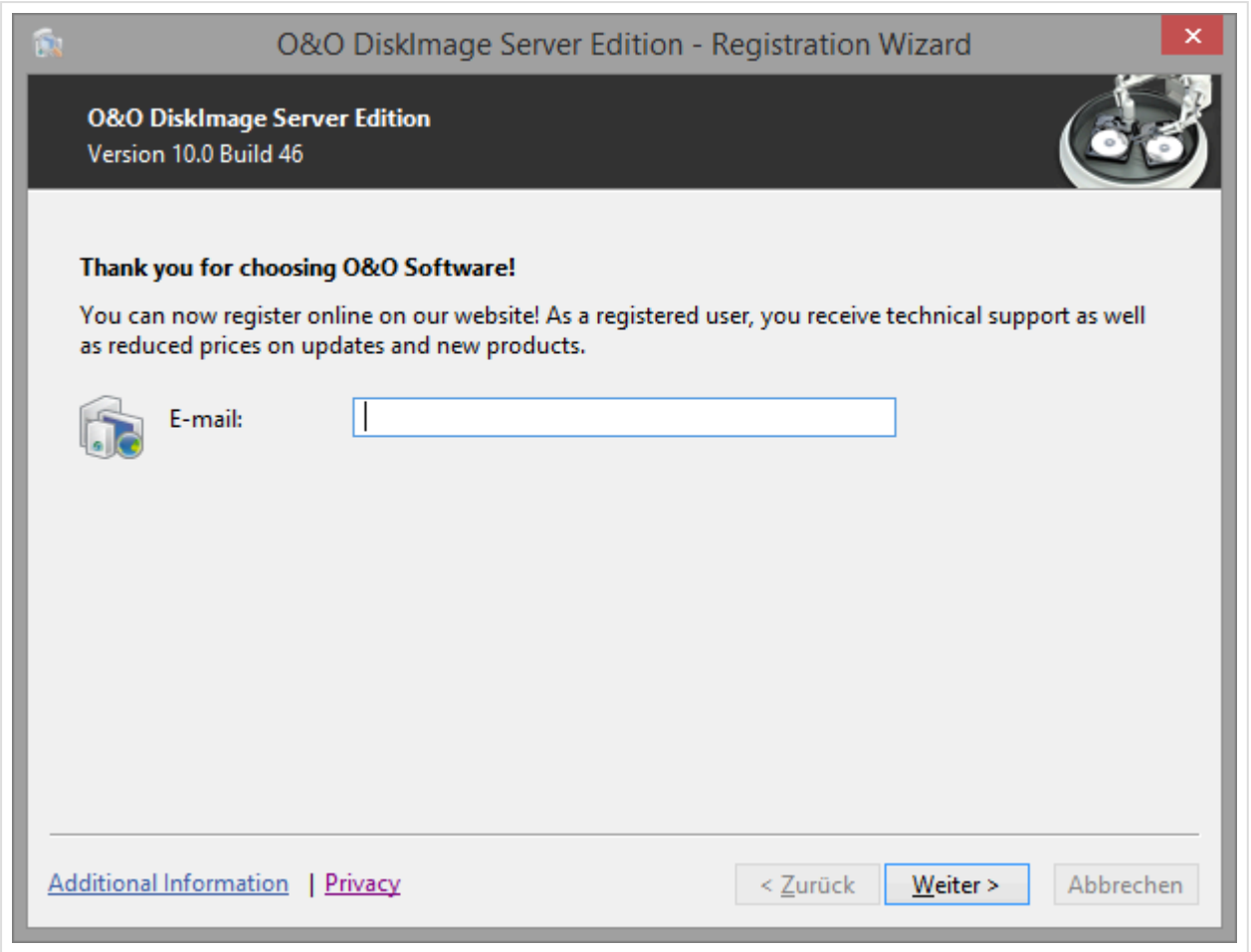
You can test O&O DiskImage for 30 days free of charge and with no obligation. The remaining trial period will be displayed each time you start the program.

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.

## Online registration

To register O&O DiskImage online, you'll need the license key you received when you purchased the program.

To register online, start O&O DiskImage. The questions related to online registration always appear at the start, provided you haven’t registered online.




## What are the advantages of online registration?

Online registration gives you the benefit of having your customer data kept safely in our files, which means we can provide you with even better service. If, for example, you accidentally lose your license key, we can quickly resend it to you without any problem. The license key is needed for using the full version of a program, getting updates, and for reinstalling the program when you make a new setup of your computer.

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

## How do I register online?

If O&O DiskImage was purchased on our Online Shop, you've automatically registered with us. If O&O DiskImage purchased at a retailer, you will be asked if you want to register while entering the license information. You then have the option of either registering immediately or at another time. All you'll need is a functioning Internet connection and a valid license key.

You may also complete the registration form right here: http://www.oo-software.com/en/register

Just return the completed online form by clicking “Send” and you’ll be eligible to take full advantage of our O&O Customer Service.

## Updates

O&O DiskImage automatically checks if your program version is a current one or if a newer version is available.

:::tip

Under **Help/About O&O DiskImage** you can see your license data and the number of your program version.

:::

So-called "Minor Updates" (Version 5.0 to 5.1, 5.2, etc.), where smaller changes in the program have been made, are free. "Major-Updates", such as from version 5 to 6, must generally be purchased.

:::warning

If you are using Laplink DiskImage from a network and performing a major update, you will need to copy the password file if you want to use the automatic authentication. After a full installation and the restart, you will need to place the password file in the DiskImage default folder. After restarting, the password management has to be started and the password has to be entered for the password file. As a result, the required initializations will be run and automatic authentication can continue to be possible.

:::

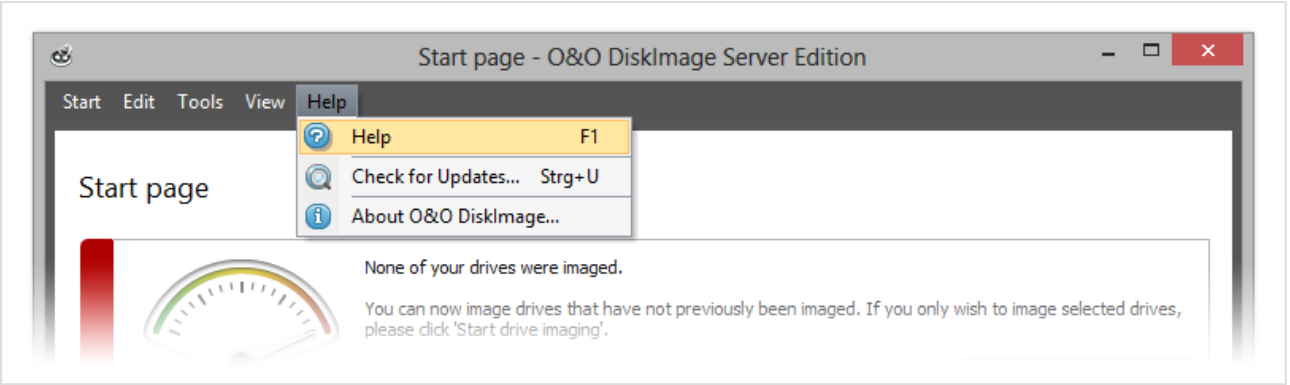
## Uninstall

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

1. Open the **Control Panel** from the **Start menu** and select **Software**.
2. Select **O&O DiskImage** from the list of installed software programs and then click **Change**.
3. In the InstallShield Wizard click **Next**.
4. In the next dialog select the option **Remove program.**
5. Select **Remove the O&O DiskImage user data**, if you want to remove this together with the uninstallation.
6. Confirm the uninstallation of O&O DiskImage with **Remove**. You'll receive a confirmation notice when uninstallation is completed.
7. After a successful uninstallation, you'll need to restart the computer when prompted in order to apply all settings.

## Program help

You can either access the program help via the Menu bar**/Help** or by pushing F1.


Start page - O&O DiskImage Server Edition
Start
Edit
Tools
View
Help
Help F1
Check for Updates... Strg+U
About O&O DiskImage...
Start page
None of your drives were imaged.
You can now image drives that have not previously been imaged. If you only wish to image selected drives, please click 'Start drive imaging'.

# Features at a glance

O&O DiskImage is a reliable and affordable solution for protecting your private or professional data. O&O DiskImage provides you with everything you'll need to protect your data just like an IT specialist: it lets you image and restore entire Server systems as well as individual files.

## Functions

### Start a job by connecting a device

Users who wish to save their data to an external storage medium can take advantage of the integrated plug-and-play functionality which backs up and synchronizes selected files and folders automatically. To optimize the memory requirements, the user can specify the maximum number of backups that should be saved so that old ones are automatically replaced by new images. To offer increased data security the program also clearly displays those drives that have not yet been imaged or backed up so that the user can bring their security up-to-date.

Selected files and folders are automatically backed up and synchronized.

### Direct creation of VHDs

O&O DiskImage can also directly create a virtual hard disk (VHD). Until now users had to first create an image and then convert it. In the new version, this intermediate process is no longer required.

### Simplified wizard for creating and modifying jobs

We have directly addressed this problem and integrated a built-in wizard that accompanies a user step by step through the creation of an automatic data backup. This significantly easier to use backup functionality enables even novice users to create a reliable and fast backup of their data immediately.

## Management functions

The management function provides several options for adapting O&O DiskImage to meet your individual requirements and automate activities.

### Express view

The Express View shows a very compact user interface with the main functions of the programs. You can use the Express view for creating and mounting images as well as for restoring drives. Individual functions of the Express view can also be manually disabled so that another user won't be able to use a particular feature.

## Run scheduled activities

O&O DiskImage lets you setup a schedule for running activities. Thanks to a helpful Wizard, you can, for example, setup to have your data imaged automatically on a regular basis according to a schedule. Further settings for scheduling:

- Manage, change, manually start saved jobs according to a schedule
- Automatically create images of hard disks, drives (Partitions/Volumes)
- Automatic creation of incremental images
- Automatic checking of images
- Automatic creation of differential images

## Report management and notification

- Detailed reports with complete description of processes.
- List of the selected parameter/settings
- Email notification via SMTP (Simple Mail Transfer Protocol, without SSL encryption) following job processing

## Work across a network

O&O DiskImage gives you the option of saving images on network drives. The only thing this requires is Network authentication. A detailed explanation of authentication can be found in the chapter Network authentication.

A special feature of O&O DiskImage Workstation and Server Editions is their interface with the O&O Enterprise Management Console. You can install and plan your jobs for O&O DiskImage from one central location within the network.

## Scripting ability

The O&O DiskImage Command Interpreter makes it possible to manage disks, partitions, or volumes and images using command files (XML documents). O&O DiskImage can thereby reanact all the scenarios it displays either directly or indirectly. . An overview of all commands and their possible uses can be found as a PDF document on the O&O website or requested from our Support.

:::note

This function is only available for the **Workstation and Server Edition**.

:::

## Manage computer identity

With O&O DiskImage, you can change the identity of a computer to avoid authentication problems, e.g. two computers with the same computer identity. This might be helpful when rolling out a system image onto multiple computers across a network.

- Change the computer name of an operating system that has not been started
- Change the SID, Security ID, of anoperating system that has not been started
- M.I.R. (Machine Independent Restoration) Adaption to different hardware (from an operating system that has not been started)

### Supports the most current technologies

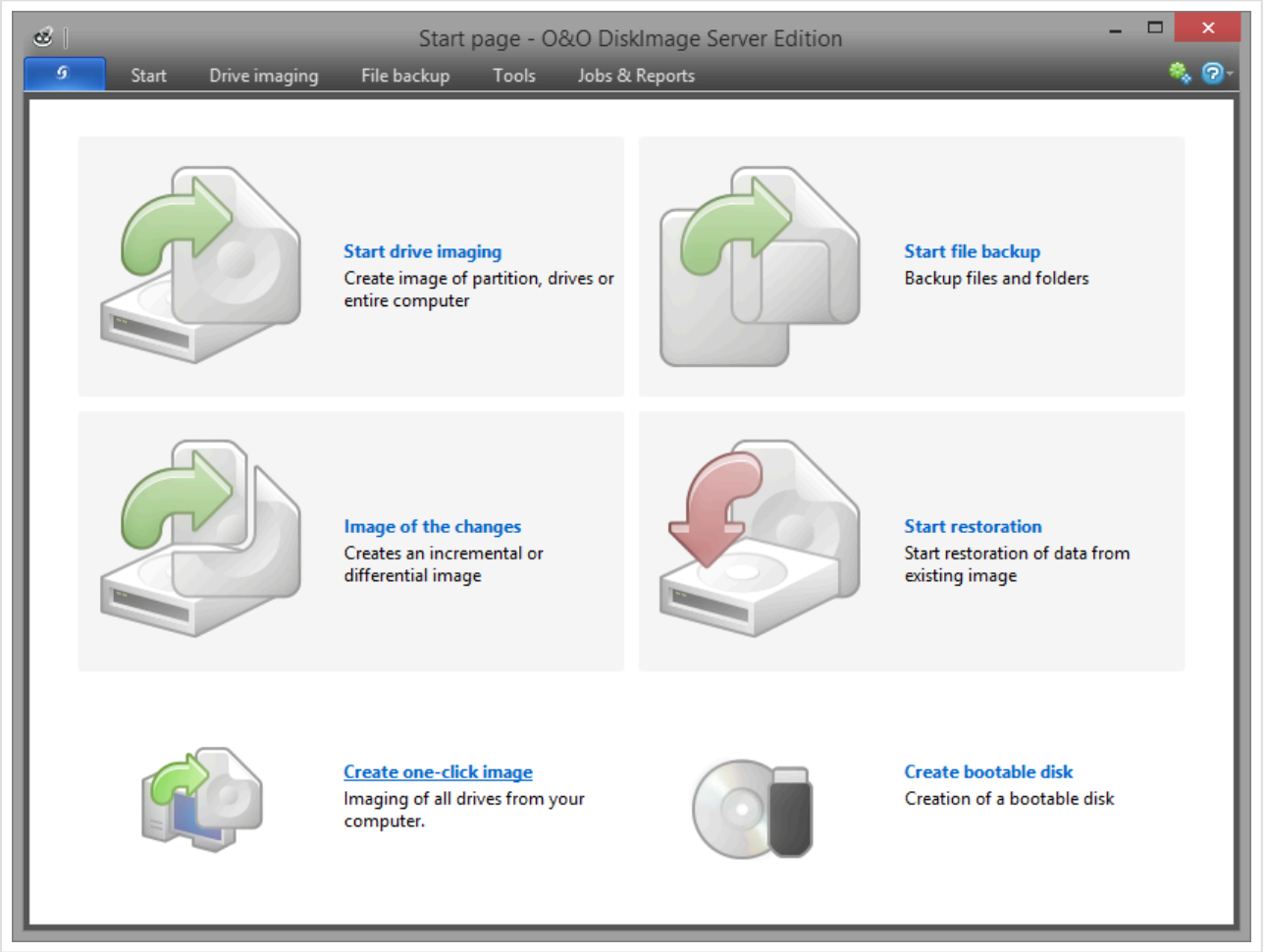
O&O Software remains what it has always been; a trailblazer when it comes to information technology. All current Windows systems and 64-bit versions are fully-supported so creating and restoring images can be done as quickly as possible.

## User interface

- Function-oriented user guidance requires fewer interactions for reaching your target
- Default and customized option profile for completing various, recurring jobs faster
- Windows Explorer extension for directly loading imaging files or removing loaded drives
- Minimize the user interface onto a TrayIcon in the info area of the start page
- Graphical, interactive drive overview: overview of the hard disk allocation, free and used space, and the size of individual partitions.
- Autark Tray application supplies information about service activities and job status.
- Status display of elapsed time and expected duration of an activity

# Quick start

In this section we will explain how, after successfully installing O&O DiskImage, you can take images of drives or your entire computer and restore them back to your computer.




**Start O&O DiskImage**

- Start O&O DiskImage vie the Desktop shortcut or via the Windows menu **Start/All Programs/O&O Software/O&O DiskImage/O&O DiskImage**.
- For the simplified view select **O&O DiskImage Express**(Express View).
- **O&O DiskImage Tray** starts the TrayIcon, which is shown in the info area in the task bar and informs you on the activity status of O&O DiskImage.

You can access the program help by clicking on **Help** in the menu bar in the tab Help or by pushing **F1**.

## Create images

Creating images on a regular basis is your only protection against data loss. Working daily on your computer causes it to collect ever larger amounts of data. If your last image was created some time ago, it does not include your most current files.

We strongly advise you to prevent data loss and protect yourself with just a few clicks: 1. Click **Create one-click image**. 2. Then check the target path entered for the image. We recommend saving the image on an external drive, e.g. USB hard drive. 3. Click **Start** to continue with the imaging process. The process might take some time depending on the size of the drive.

:::note

An image of all the listed drives will be created using default settings (Image of used sectors).

:::

:::tip

You can create a job for automatically imaging your drives on a regular basis. See chapter Scheduled functions.

:::

:::tip

If you want to create an image of your entire computer, you can also use One-click imaging.

:::

## Image the entire computer

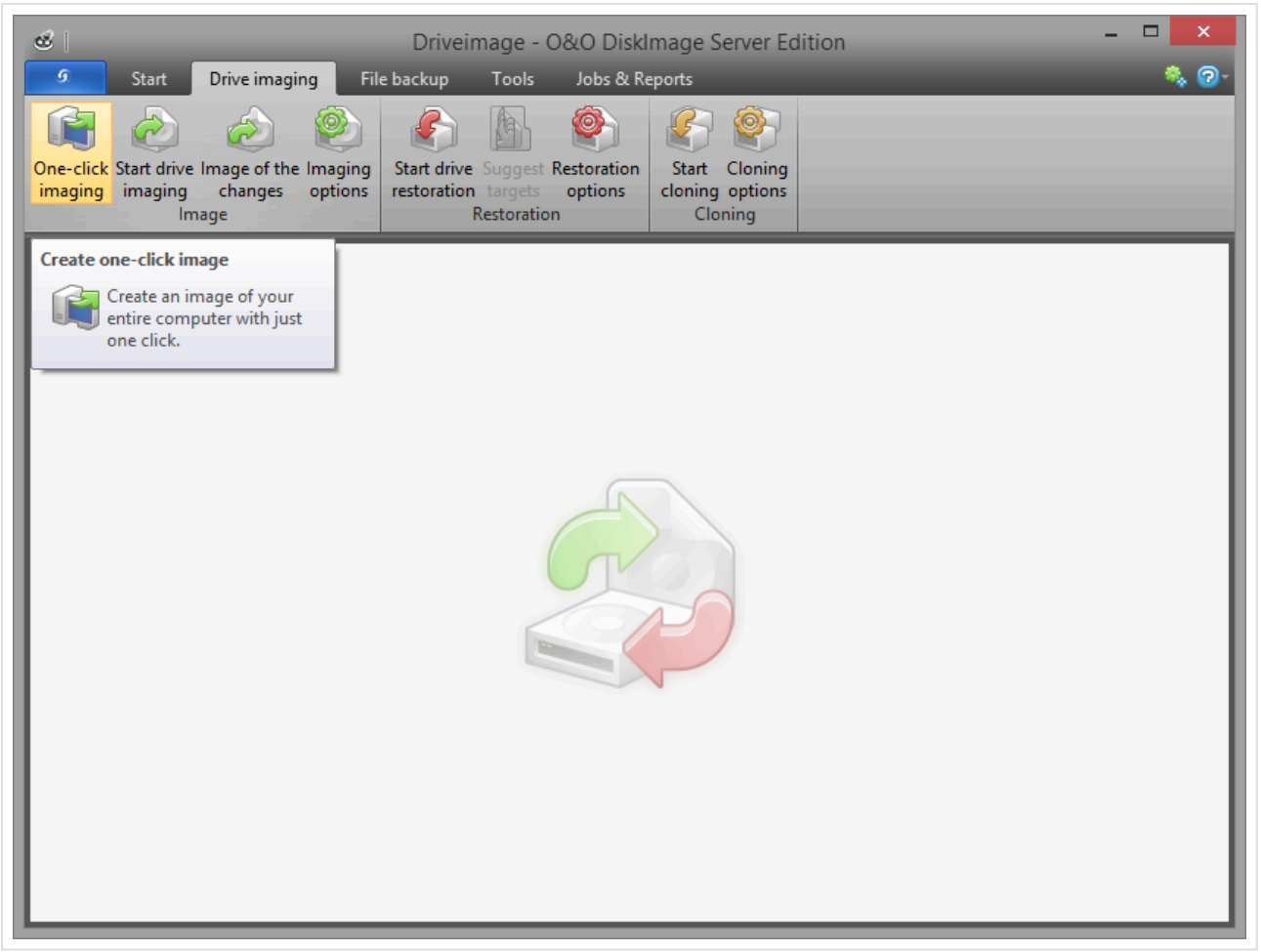
One-click imaging is the fastest and easiest way to create a complete image of all your data and settings. One-click imaging is especially useful if you are using O&O DiskImage for the first time, or have not yet created an image of your computer. Your entire computer including the system partition can be imaged with just one click. The compression method (LZNT1) and the imaging method (imaging used sectors) are set as default.

:::note

We recommend using an external storage medium, e.g. a USB hard disk or a network drive, as target folder for One-click imaging.

:::

1. Start O&O DiskImage and select **Drive imaging** on the Start page.
2. Now click the symbol **Create one-click image** in the activity bar.
3. Check to make sure the target path is set to your desired storage location. The [...] button allows you to navigate to any folder.
4. The image is automatically named after the creation date. You can however enter a name manually.
5. Click **Start** to begin the imaging process. The imaging process can take some time depending on the size of the hard disk(s).




## Image individual drives

O&O DiskImage will let you image individual drives (partitions/volumes). This enables you to image system and data drives separately from each other. In case of data loss, it then only becomes necessary to restore the data drive. You don't need to restore your entire computer.

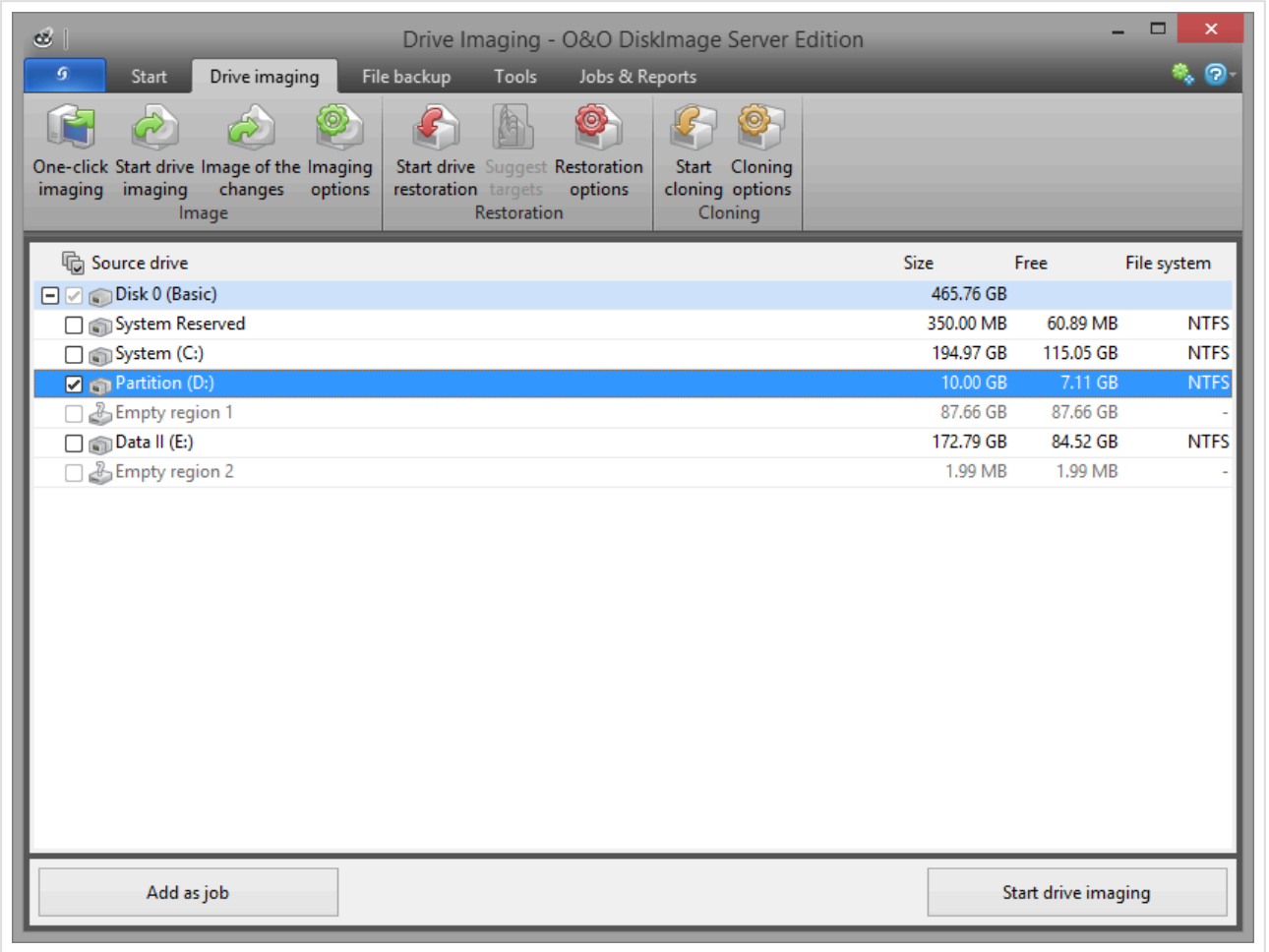
To create an image of one or more drives, please follow the instructions below:

1. In the start page select **Drive imaging**.
2. Select one or more drives from the drive list. Enable the check next to the drive you want to select.
3. Optionally, you can specify further settings under **Imaging options** or add the selected activity as **Job.**
4. To start the imaging process click on **Start drive imaging**.
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 there is not enough space to store the entire image, you will be prompted to enter a new target path during the imaging process.

:::



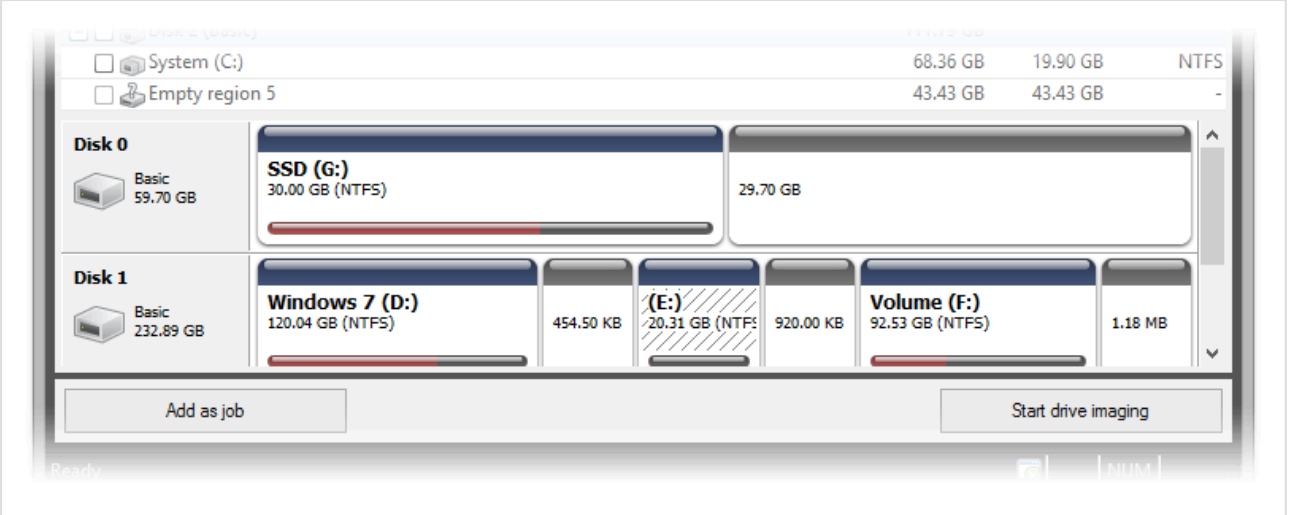

1 -Drive list: Source drive 2 - Add a job 3 - Start imaging

## DiskView

The interactive graphical display gives you an overview of all the hard disks. You'll be able to see both free and used space, as well as the size of the partitions.

You can select a drive for imaging by double-clicking it.

Among other things, the DiskView of O&O DiskImage displays all empty sectors. These empty areas occur due to the alignment of the partitions or volumes.




# Back up individual files and folders

Do you want to backup individual folders or files instead of an entire drive? You can now do so with a file backup. Files are backed up directly during file backup. Compared to imaging a drive, file backup only includes the file information. No drive information is saved.

1. On the start page of O&O DiskImage click **File backup.**
2. Navigate to the folder you want to backup.
3. Check the box next to those folders you want to backup. Multiple selections are also possible. You can also select an entire drive. All files located on the drive will be imaged.
4. Then click the symbol **Start file backup.**
5. If you don't want to use the default target path shown in the following dialog, please enter a new target.
6. Click **Start** to continue with the file backup.
7. A compressed file will then be created with the file extension OBK (*.obk).

**Selection criteria**

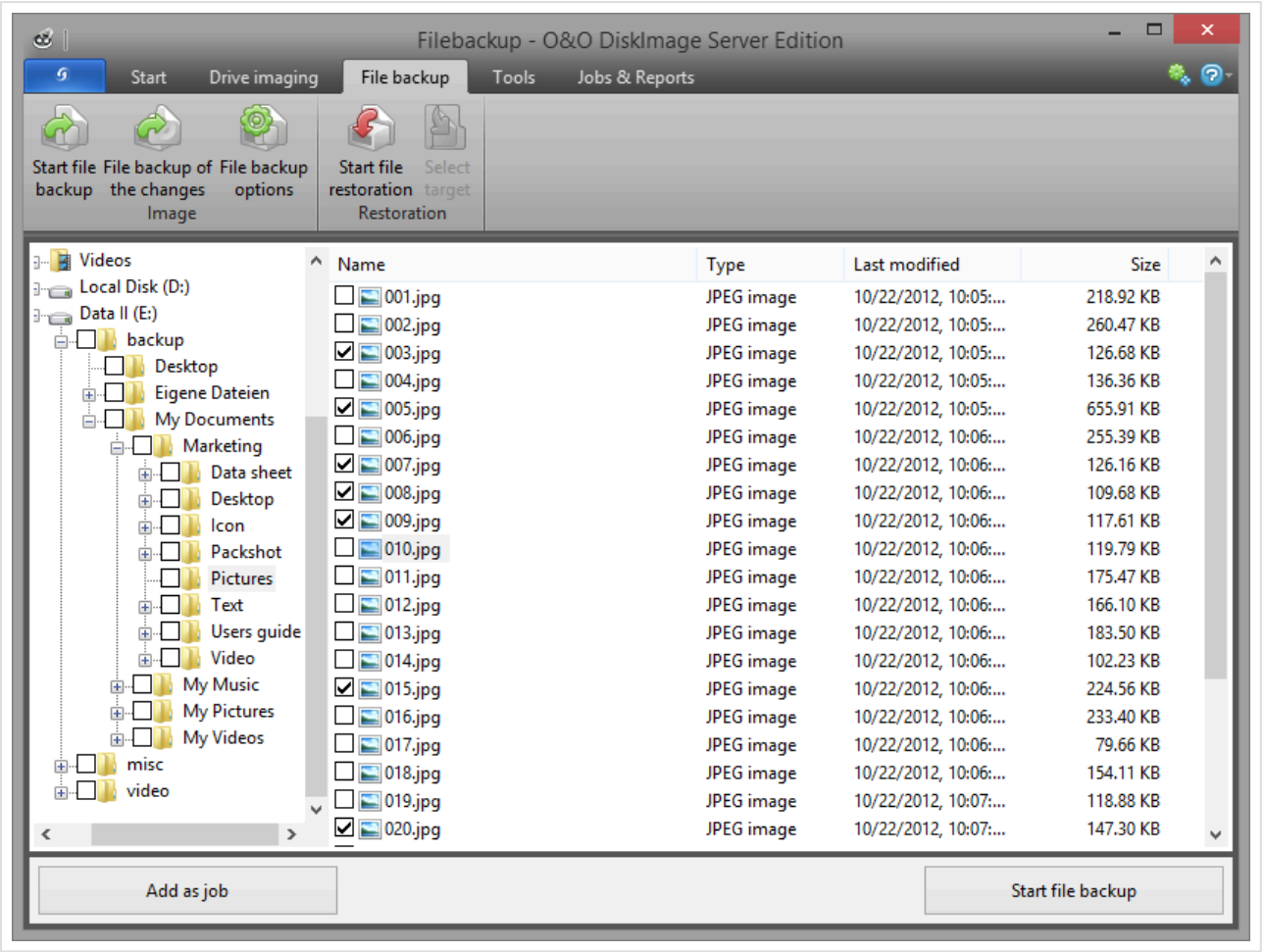
Before starting file backup, there's an option for selecting files or file types in the folder that you want to have included or excluded from the backup.

In the dialog, click Criteria and specify the settings you want.

:::tip

You can specify further settings by clicking the icon File backup options. If you want to repeat the file backup at a later time, you can create a job for it. To do this, click the icon Add as job.

:::




## Restore the entire computer

In order to restore your entire computer or system partition, you need to start O&O DiskImage from a bootable medium under Windows PE. Please proceed as described in chapter Start directly from bootable disk .

:::tip

For the restoration of an image onto a computer with hardware different than the source computer, please consult the notes in chapter **Machine independent restoration (M.I.R.)**.

:::

1. Start O&O DiskImage directly from the bootable medium.
2. Select **Drive restoration** in the start page of O&O DiskImage.
3. Click **Select image** in the form field or navigate to the storage location of the image in the browser button.
4. Select the image containing the system partition i.e. all drives of your computer and click **Open.**
5. All drives included in the image will be shown in the drive list.
6. Check the drives you want to restore from the image. If you want to restore your entire computer, check all drives.

7. Then select the target drive or disk that should be overwritten with data from the image.*
8. Click the Start drive restoration symbol to start the restoration process.
9. After restoration is successful, you can restart your computer.

***Note:** Keep in mind when selecting the target drive that in Windows PE as of Windows Vista, drive letters are different: Drive C: (normaly containing the non-active operating system) will be assigned another letter (for example D).

## Restore drives

To restore one or more drives from an image, proceed as follows:

1. If you want to restore one or more drives from an existing image, click **Drive restoration** on the O&O DiskImage start page.
2. Select the image you want to restore in the DropDown list of **Select image**. If the proposed images (*.obk) are not the ones you want to restore, check your drives and enter the path to the image file.
3. Select the image file (*.omg or *.vhd) from the browser and click on **Open**.
4. All drives contained in the image will then be displayed.
5. Click the drive that you want to restore ("play back").
6. Then, select the target drive for restoration by checking the box next to it. You can either replace an existing drive or create a new one: for example, in an empty sector.
7. Optionally, you can specify further settings for the restoration under **Restoration options**.
8. Whenever you have specified all settings, click on **Start drive restoration** to start the restoration.

:::warning

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

:::

:::note

If your image is split among various disks, all these disks will be required for a restoration. If you have created an incremental image, all images - from the last complete image to the last incremental image - will be needed.

:::

:::note

If you have a imaged an entire hard disk and the restoration is run on a different hard disks, then the new hard disk must possess at least as much space capacity as the source hard disk.

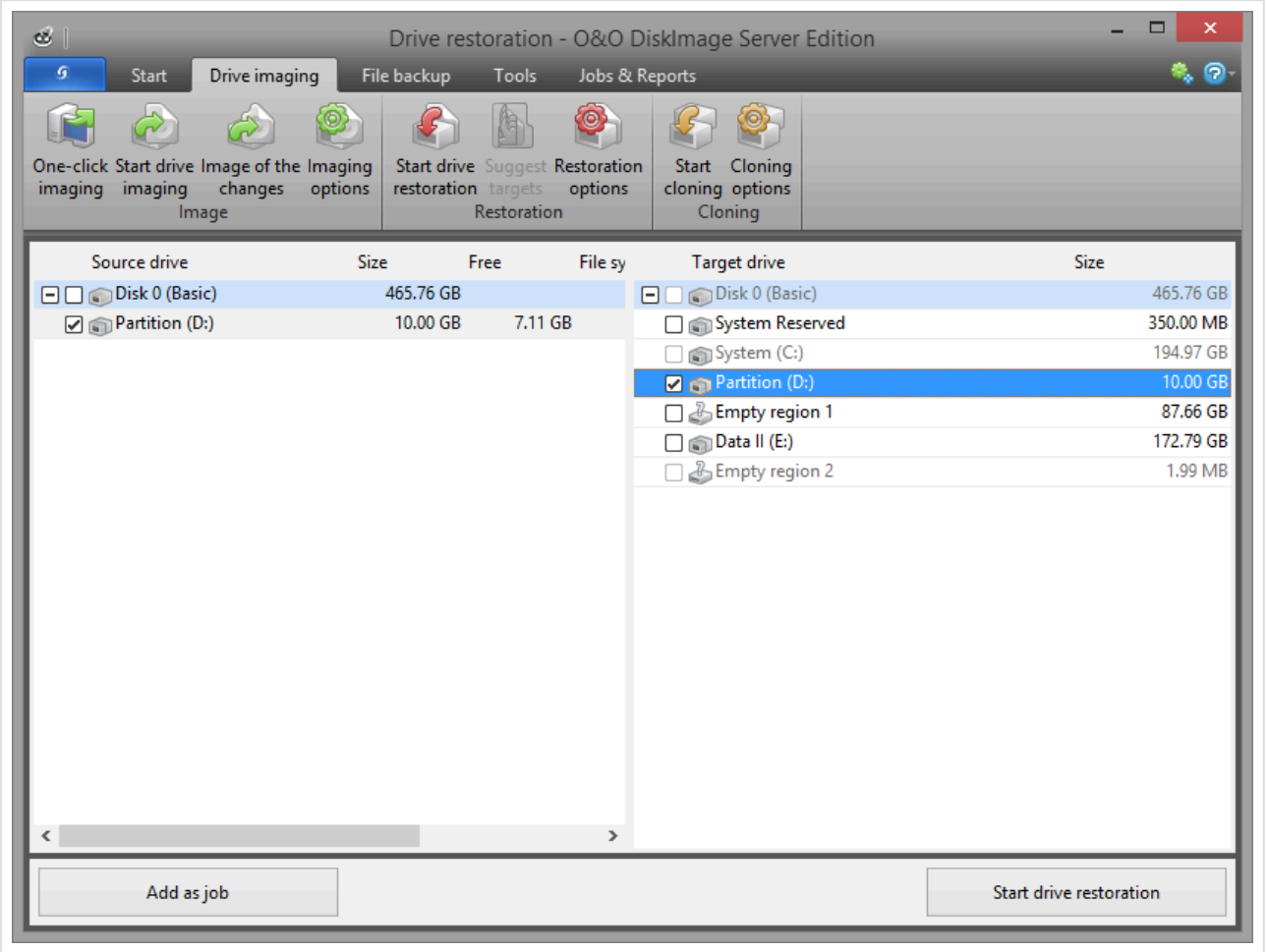
:::

:::note

If you want to restore an entire system or system partition, you'll need to start your computer with the O&O DiskImage bootable medium and perform the restoration from there, seeStart directly from the bootable disk. If

you should run a restoration of the system partition to different hardware, read chapter: Restoration on different hardware.

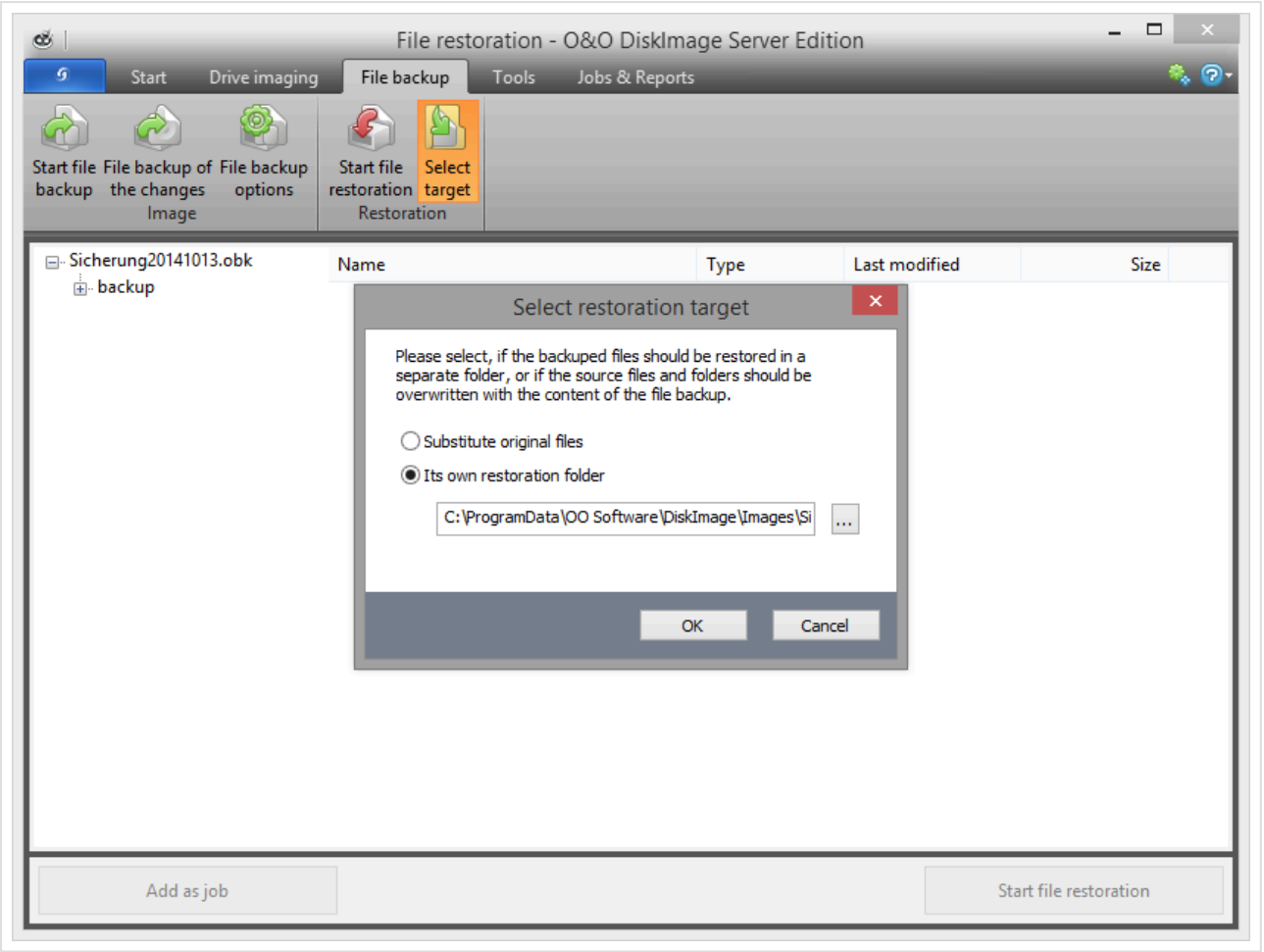
:::




## Restore individual files and folders

If you want to restore files or folders from already existing images, proceed as follows. The first thing to do is make sure you are able to access the image (*.obk).

1. In the Quick Access bar click **File restoration**.
2. Select the image you want to restore in the DropDown list of **Select image**. If the proposed images (*.obk) are not the ones you want to restore, check your drives and enter the path to the image file.
3. Now click the symbol **Select target folder**.
4. You can now restore data from the image in a new folder, or replace current data with that from the image.
5. Once you've done that, start restoration.




# Image the changes only

If you only want to store the changes since the last image, you can create an **Image of the change**.

To create an image of the changes, you need to have created at least one complete image of the drives or folders involved.

## Differential/incremental imaging

As a base image you can use either the complete image created using the “Used sector imaging”, “Forensic imaging” or “Direct forensic imaging”, or by using a previously created incremental image/differential image.

Follow the instructions below:

1. Please make sure that the drive containing the base image is connected to your computer.
2. Start O&O DiskImage and select **Image of the changes** on the start page.
3. Select your base image in the explorer window and click **Open**.
4. Now you can either select the recommended target folder for saving the image, or enter a new target path. For the sake of clarity, we recommend saving the base image and any subsequent images in one folder.

The image is automatically named after the creation date. You can however enter a name manually.

5. Now click **More options** (if you want to specify further settings) or on **Start** to initiate the imaging process.

:::note

When creating an image of the changes, O&O DiskImage compares each sector of the existing image with the corresponding sector of the (source) disk being imaged. This might require more time than a complete image. The image of the changes, however, takes up much less space than a complete image.

:::

:::note

The option **Compare data with checksums** is set by default. The last incremental image is all you'll need as a base image for creating a new incremental image.<![CDATA[ If ]]>**Use checksums to administer unchanged data** is not set, you will need the last base image and all the incremental images previously created, because all of them must be accessed for creating the new image.

:::

### Backup changes in a file

A complete image or a previously created image of the changes can be used as base image.

Follow the instructions below:

1. Please make sure that the drive containing the base image is connected to your computer.
2. Start O&O DiskImage and select **Start File backup** on the start page. Now select **File backup of the changes**.
3. Select your base image in the explorer window and click **Open**.
4. Now you can either select the recommended target folder for saving the image or enter a new target path. For the sake of clarity, we recommend saving the base image and its subsequent images in one folder. The image is automatically named after the creation date. You can however enter a name manually.
5. Now click **More options** (if you want to specify further settings) or **Start** to initiate the imaging process.

## Clone drives

Entire storage volumes or individual drives can be cloned, which in turn can be used instead of the originals. This function allows you to clone a drive and all its saved data without creating image files. The source disks/drives will be reproduced without any changes.

Please keep in mind that a clone requires much more free space than an image.

Unlike images, there are **no** incremental or differential clones possible for reducing the data volume of successive "Clone drives"clones. In addition, a clone **cannot** be compressed or encrypted compared to an image.

1. Select **Clone drive** in the Quickaccess bar.
2. Select the drive which you want to clone by enabling the check next to each drive or the entire disk.

3. You can set additional settings for cloning under Cloning options.
4. You can then specify the target drive. Simply enable the check next to the drive or the disk.
5. In the following dialog under **Advanced**, you can specify whether certain functions should be executed when cloning is completed. These functions are disabled by default.
6. Once you've enabled all your settings, click **Start cloning,** to begin the cloning process.
7. You can also “recopy” your clone in exactly the same fashion - to put it back on your computer/drive.

:::warning

When cloning your drive (source drive), the selected target drive, will be overwritten. All data stored on it will be deleted and replaced by the clone! You should therefore save the clone on something like an external hard disk chosen for this purpose.

:::

:::note

When cloning a drive, you should adjust the properties of the target drive for future application. Make sure, for example, that the system partitions of the clone will also be able to boot.

:::

:::note

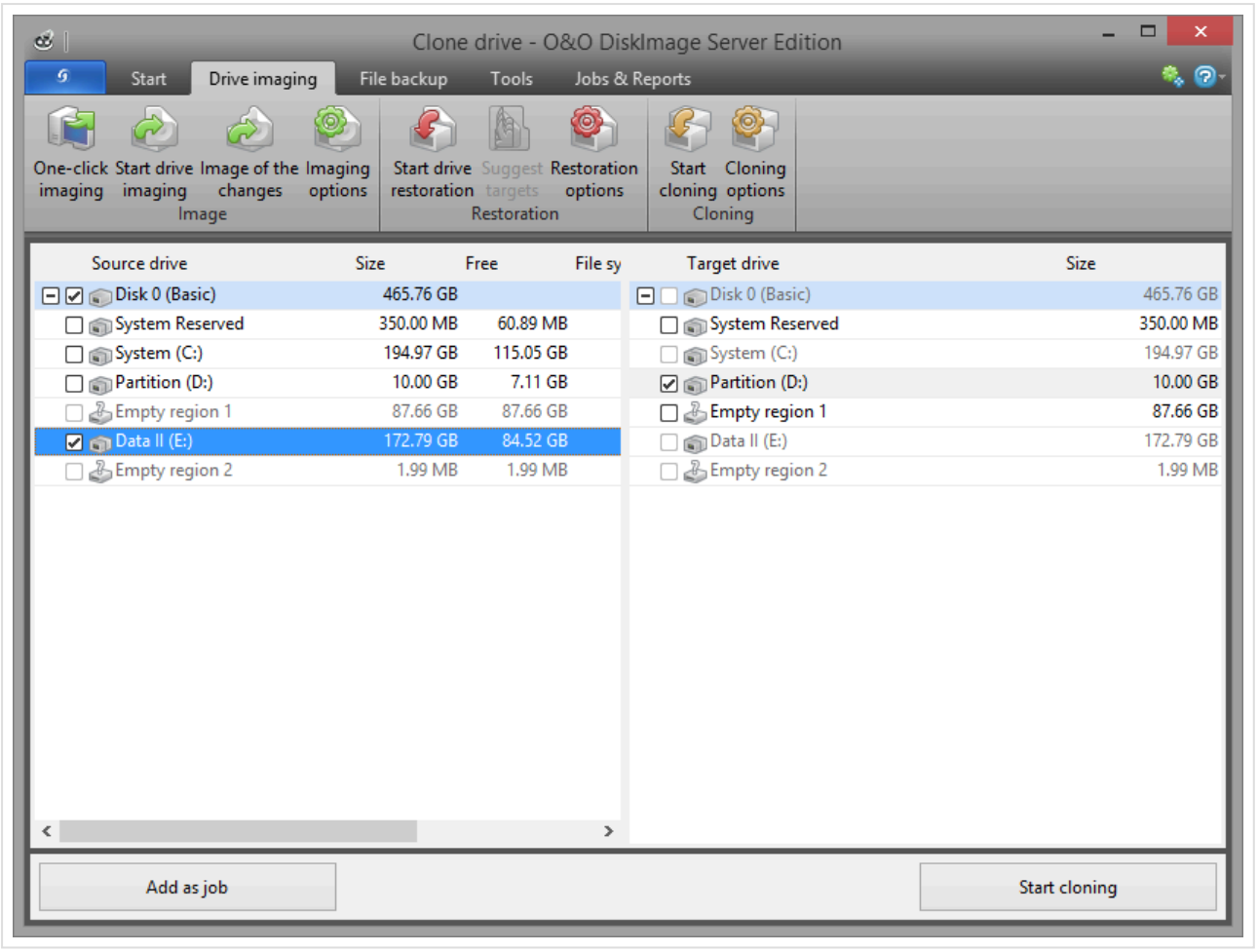
If you're using a second hard disk as a target, O&O DiskImage will change its signature. This will guarantee that there are no two hard disks with the same signature connected to your computer. There might otherwise be complications during cloning or even a possible system crash. With simple hard disk structures (basic disk), all partitions in the operating system will be recognized by a link from hard disk signature and partition offset. During cloning, the registry entries of the drive letters, including the letters, will be adapted to the target system.

:::

:::note

If you want to restore the clone of a system partition onto a PC with different hardware, please bear in mind the notes in chapter Restoring on different hardware (M.I.R.).

:::


Clone drive - O&O DiskImage Server Edition
Start
Drive imaging
File backup
Tools
Jobs & Reports
One-click imaging
Start drive imaging
Image of the changes
Imaging options
Image
Start drive restoration
Suggest targets
Restoration options
Restoration
Start cloning
Cloning options
Cloning
Source drive
Size
Free
File sy
Disk 0 (Basic) 465.76 GB
System Reserved 350.00 MB 60.89 MB
System (C:) 194.97 GB 115.05 GB
Partition (D:) 10.00 GB 7.11 GB
Empty region 1 87.66 GB 87.66 GB
Data II (E:) 172.79 GB 84.52 GB
Empty region 2 1.99 MB 1.99 MB
Target drive
Size
Disk 0 (Basic) 465.76 GB
System Reserved 350.00 MB
System (C:) 194.97 GB
Partition (D:) 10.00 GB
Empty region 1 87.66 GB
Data II (E:) 172.79 GB
Empty region 2 1.99 MB
Add as job
Start cloning

# Express view

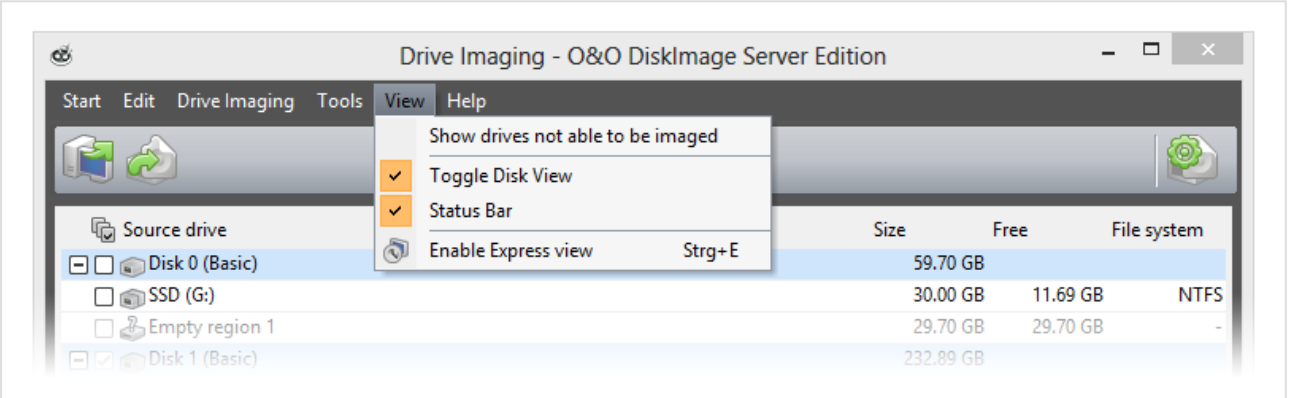
You can change the O&O DiskImage interface according to your own preference. You have a choice of different views for each task.

**Show drives that cannot be imaged:** all sectors of hard disk will be shown - even those that cannot be imaged.

**Show disk view:** a graphical view of the hard disk and the individual partitions will be displayed.

**Status bar:** displays the current status of a job.

**Express view:** Displays only the main features of O&O DiskImage.



# Back up computers and drives

With O&O DiskImage, you'll be able to create reliable images of entire systems, individual drives, and files or folders while you're working on your computer. The Snapshot function with integrated buffer memory ensures that the imaged data is remains exactly as it was when the image started to be created: changes to the data caused by usage or the user do not affect the image while it's being created. This ensures consistent images of systems without any interruptions.

Once you have an image,you can use it to quickly restore the data and installed programs from desktops and servers whenever trouble strikes- thanks to the O&O DiskImage bootable medium (BareMetal Technology) and without any previous installation.

* Imaging and restoring server systems is only possible with the O&O DiskImage Server Edition.

## One-click imaging

The one-click imaging is the fastest and easiest way to create a complete image of your computer including all data and settings. One-click imaging is especially useful if you are using O&O DiskImage for the first time, or have not yet created an image of your computer.

## Imaging complete disks

You can create an image of one or more disks, e.g. hard disks. When this happens, all drives found on these disks will be automatically imaged.The following disk types are supported by O&O DiskImage:

- Imaging MBR disks
- Imaging GPT disks
- Imaging dynamical disks

## Imaging single drives

You are not only able to image entire hard disks, but also individual drives. This incorporates the hard disk layout. You can create images of the following drive types using O&O DiskImage:

- Imaging individual partitions and volumes.
- Imaging primary, extended and logical partitions.
- Imaging simple, spanned, mirrored volumes.
- Imaging the system areas
- Imaging the Master boot records (MBR)
- Imaging the system partitions (e.g. Microsoft reserved partition)

- Imaging of encrypted partitions, volumes or hard disks (e.g. SafeGuard easy of Ultimaco, TrueCrypt or Mircrosoft Bitlocker)
- Storing of a combination from the above mentioned objects (various hard disks, partitions, volumes or similar in an image)

## Different imaging methods

Different imaging methods allow the image to be adjusted for different purposes. You get a space saving image if you select the setting "Only used sectors". If you want to rescue data from a damaged hard disk, we recommend a forensic image - all sectors are imaged exactly according to their structure. This enables a later data rescue using special software such as O&O DiskRecovery without affecting the original disk.

- Image the used sectors of drives (partitions/volumes) - unencrypted data is included in the image.
- Complete image of all sectors of the object to be imaged (forensic image)
- Direct forensic image - encrypted data is also included in the image.

After a base imaging, you can create subsequent images as incremental or differential for storing only the changes:

- Incremental image - saves changes between previous images and the current disk.
- Differential image - saves changes between the very first image and the current status of the disk.

## Save image

After creating the image, you can save it on all Windows recognized disks. You only need to enter the network path before starting the imaging process. The following destinations can be used to store the images:

- Local drives
- External USB or firewire hard disks
- Drive/Folder in the network
- Storing images as ISO files to burn them later

## Integrated burn function

Besides the burn function, O&O DiskImage supports CD/DVDs, Blue-Ray Disks and HD/DVDs. You also create ISO files from your images.

:::note

Before being able to burn an image (*.omg) onto an optical disk, you'll need to buffer it. It is not possible to burn a drive while an image of it is being created.

:::

## Edit image file

The following editing options are available:

- Combine complete images of different disks onto one image file
- Combine incremental/differential images
- Manual and automatic splitting of images
- Extract objects from images
- Change the encryption and/or compression method of an image
- Change the size of the image by splitting or combining individual images

## Compress image

You can compress an image to save even more disk space. Besides LZNT1- you can also compress an image in BZIP2.

## Encryption

You can encrypt the image using the AES algorithm (128, 192, 256 Bit)so that only those authorized may access it.

## Exclude files

If you want to exclude certain files from the imaging process, you can specify O&O DiskImage, to exclude them during the imaging process (Wildcards not possible for the exclusion).

## Process virtual hard disks (VHD)

To simplify working with Microsoft Virtual PCs (VPC), you can now convert images into virtual drives (VHD). The converted image can be included as a virtual drive in the VPC, without having to install O&O DiskImage there. Images (OMG) can also be created or restored directly from virtual drives (VHD) of VPCs.

## Mount image as virtual drive

- Mount image as virtual drive/hard disk.
- Unmount virtual drive/hard disk

## Check image

To make sure that you image was created correctly or can be restored without errors, you can validate your image file. You can also check the disk to be image before the process is run with the Check disk function.

## Email notification on the progress of the activity

The notification feature is an option that will keep you informed about the status of a task such as the running of a job. You'll also be notified immediately about errors so that you can identify and resolve them faster.

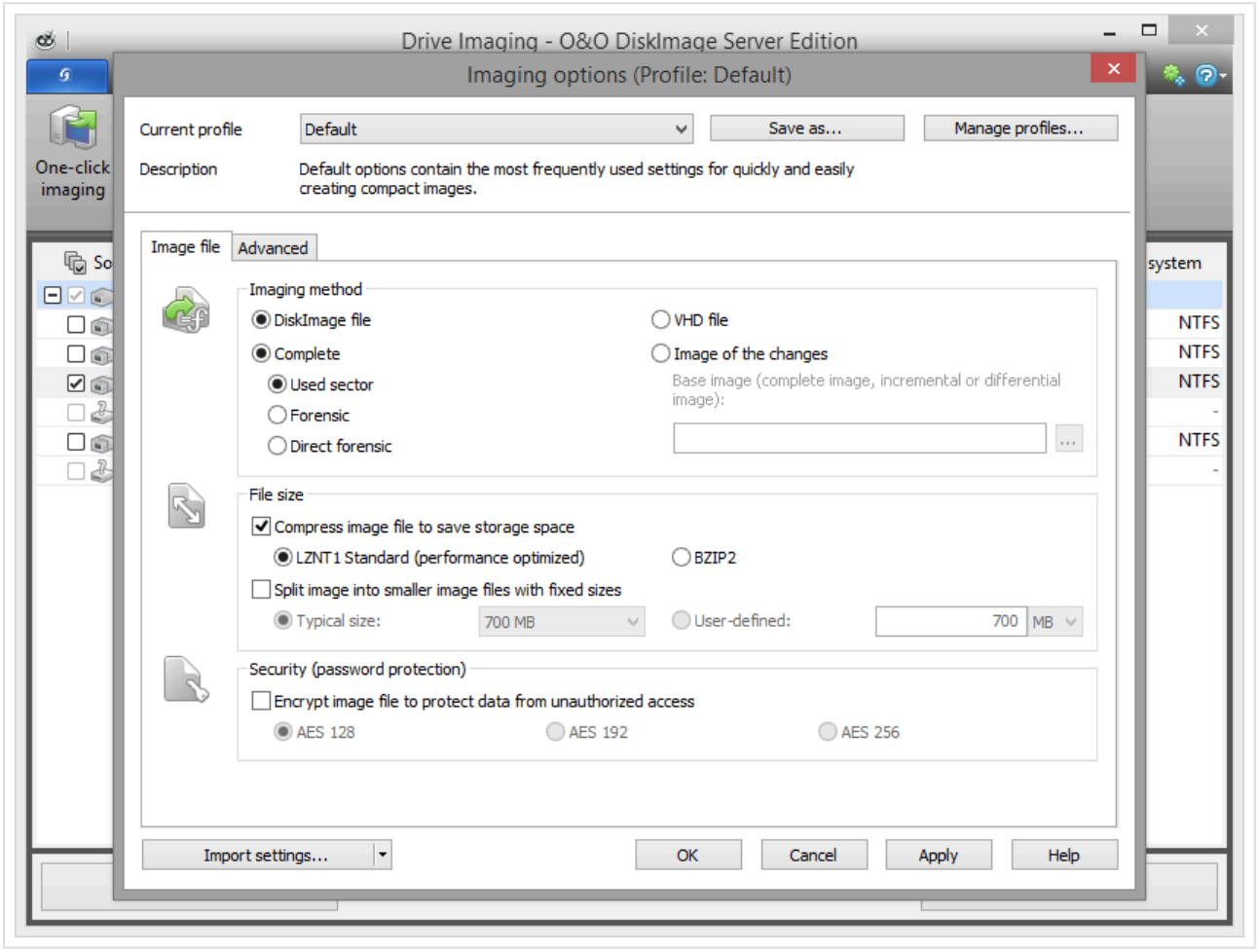
## File backup

O&O DiskImage makes it possible to backup and restore single files and folders. O&O DiskImage creates an image file (*.obk) of the selected folders and files during a file backup. If you need the files and folders from the image, you can use or unpack the image file with the help of O&O DiskImage or a decompression program, such as WinZip. You don't necessarily need O&O DiskImage to unpack the OBK file.

Compared to a drive image, the file backup does not store the drive information. The advantage of a regular "Backup " of your files is that the backup takes up much less time. In addition, you can create a job to schedule regular backups. Regular backups ensure that your file backups are constantly updated and thus secure.

# Imaging options

Under the menu heading Drive imaging, you can specify settings and set them as default for every new image by clicking **Drive imaging/Imaging options**.




## Select the imaging method

Under **Drive imaging/Imaging options/Image file** you can specify which imaging method should be applied as standard to every new image. In most cases, the default option **Used sector** is recommended.

### Used sector imaging

Using this imaging method will limit the imaging process to only used sectors on a drive. This method will let you save time, computer performance, and disk space. Used sector imaging is set in the program by default.

## Image of the changes

If you only want to save changes made since the last imaging, select **Image of the changes** as method under Imaging options. This will allow you to create an image that saves only those changes that have occurred since the last base image.

While creating an image of the changes, O&O DiskImage compares each sector of the existing image with the corresponding sector of the disk(source)being imaged. This might require more time than a complete image. An image of the changes, however, takes up much less space than a complete image.

:::note

If you want to create an image of the changes, you must have created at least one complete image of each drive that can then serve as a base image. Afterwards, the image of the changes you've created can also serve as a new base image.

:::

:::note

The option **Use checksums to administer unchanged data** is always set by default. The last incremental/differential image created is enough to serve as the base image when creating an **Image of the changes**. If **Use checksums to administer unchanged data** is not set, you will need the last base image and all existing incremental images because these must be accessed as part of the imaging process.

:::

## Forensic imaging

This imaging method is especially useful when creating images of non-supported file systems or when, for example, you would like to recover deleted data from a source drive using 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.

## Direct forensic

:::note

Please note that direct forensic imaging of an active operating system is only possible if our snapshot driver is installed. It will otherwise not be possible to create a consistent image.

:::

Direct forensic imaging is a special case. The difference, however, lies in data being read over deep system interfaces. As with regular forensic imaging, a complete copy of a source drive will be created. This makes it possible to, among other things, image an encrypted hard disk using encryption software.

Please note that direct forensic imaging is intended for imaging encrypted disks using encrypted data. This data remains encrypted even after the image is restored. If the source drive being used is an encrypted drive, only sector-based restoration is possible. The file-based restoration or browsing of such an image is not possible. In addition, spanned volumes (stripped/spanned) are also excluded from this, since the logical link here between

the regions is taken over by the operating system. Direct forensic imaging makes no sense if the drives are not encrypted. Here we recommend forensic imaging because all sectors of the drive, including the sectors marked as free, will be included in the image.

## Specify the size of an image file

An image can be split into multiple image files. If a disk doesn't have enough 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, additional image files 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. We recommend your limiting 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 **Drive imaging/Imaging options/File size/Split image into smaller files with fixed sizes** you can specify the size of individual image files.

## Encryption

Your data can be securely encrypted using the recognized AES method. This permits O&O DiskImage to provide your image with an extremely high level of security with a key length of up to 256 bits.

- You can select the encryption level for your files under **Drive imaging/Imaging options/Image file/Security**.
- If you then start the imaging process (**Drive imagings**), enter a password when being prompted.

A belated encryption of the image is possible under Convert image file.

## Compress the image

Under **Drive imaging/Imaging options/Image file** you find the settings **Compress image file to save storage space**. You can choose from the LZNT1 Standard or theBZIP2 process.

**LZNT1:**This is a compression type based on the Lempel-Ziv algorithm, which is laid out on a real time application. Speed is preferred over the rate of data compression.

**BZIP2:** is a block type compression process. Compression rate is preferred over velocity.

You can also compress the image after creation under **Convert image file** in the Tools menu.

:::note

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

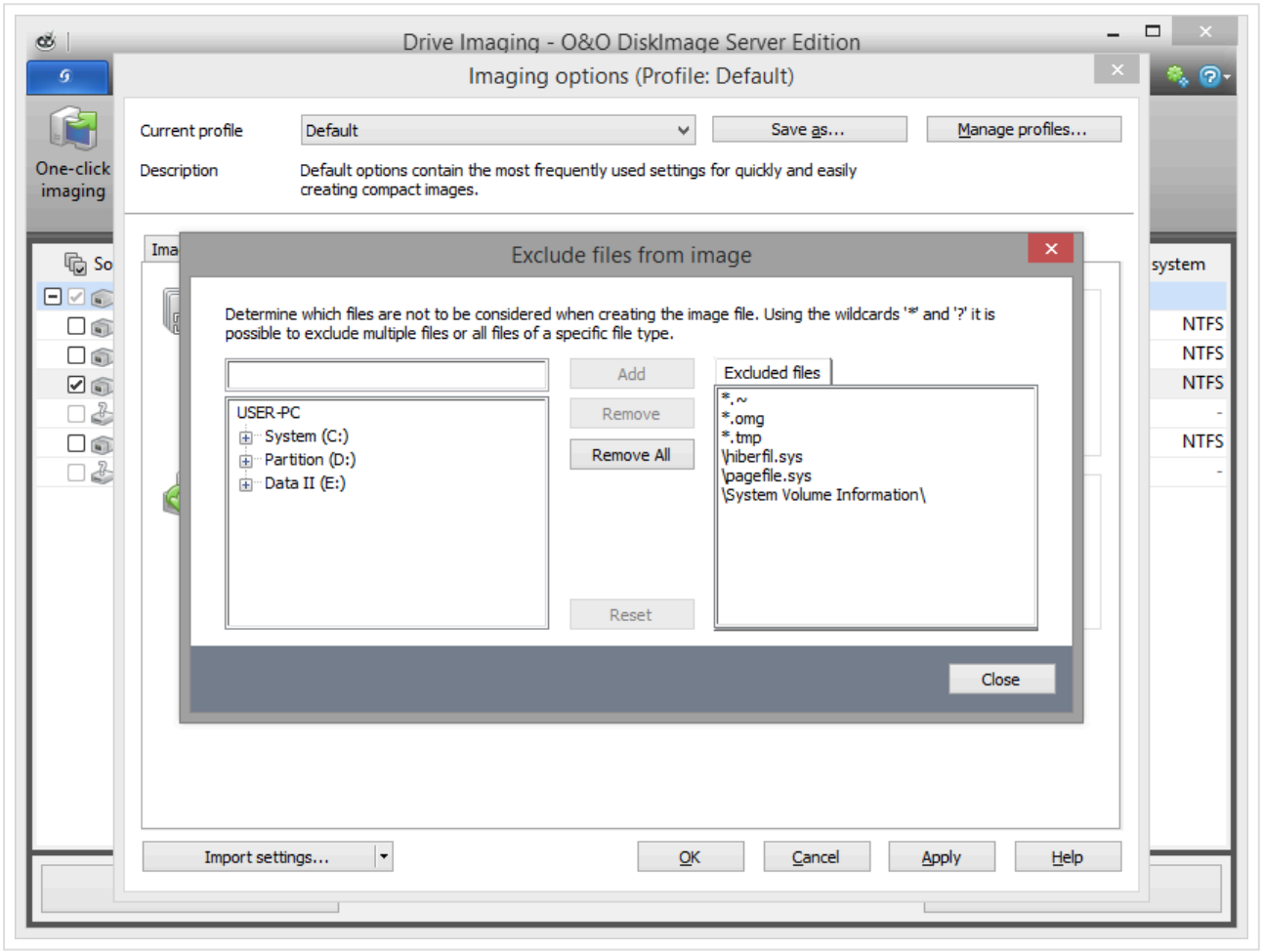
:::

## Exclude files from an image

:::note

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

:::




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. Enable the check next to the drive to be imaged under **Drive imaging**.
2. Make sure you have selected the method **Complete/only used sectors** under **Imaging options**.
3. In the **Imaging options** click on **Advanced** and open the dialogue to exclude files in **Exclude from imaging**.
4. In the right hand window select the files and folders 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 is already compressed, e.g. *.rar or *.zip files, will not be compressed any further during the imaging process and so may be excluded from compression. 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 while the image is being created. 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, under **Drive imaging/Imaging options/Advanced** select **Imaging procedure/Lock drive during imaging**.

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 working memory buffer space is, however, limited. You can see how much space is available by looking at the memory buffer display.

:::note

It is not possible to lock a system partition. If you want to prevent temporary files from being written onto a particular drive, enter the entry NoSnapshotTmpFiles in the Registry. More information can be found in the chapter Explanation of registry entries.

:::

**Please note**: If you exceed the available working memory, 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, after imaging, you should mount the image (Mount the image as a drive) and check its accuracy.

:::note

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

:::

## Ignore bad sectors

You can specify under **Drive imaging/Imaging options/Advanced** whether the read process should be aborted or continued in case of error. If continued, the bad sector will be saved in the image as an unused sector. The remaining data that is still readable will then be available in the image.

- Enable the check for **Ignore and automatically skip bad sectors while reading**.

## Data comparison with checksums

Unchanged data resulting from incremental images is saved using checksums by default. Such a file will be slightly larger. That's why it's enough, when creating the next incremental image, to use an existing incremental image (with checksums) as the base image. This function is activated by default. If you save all images in a single folder, you can deactivate this function. Your images will then take up less space on disk.

- Please make sure that the function **Use checksums to administer unchanged data** under **Drive imaging/Imaging options/Advanced** is enabled.

## Use profiles for drive imaging

Under **Drive imaging/Imaging options/Current profile** you can reset current settings to **Default**, or select an already existing profile.

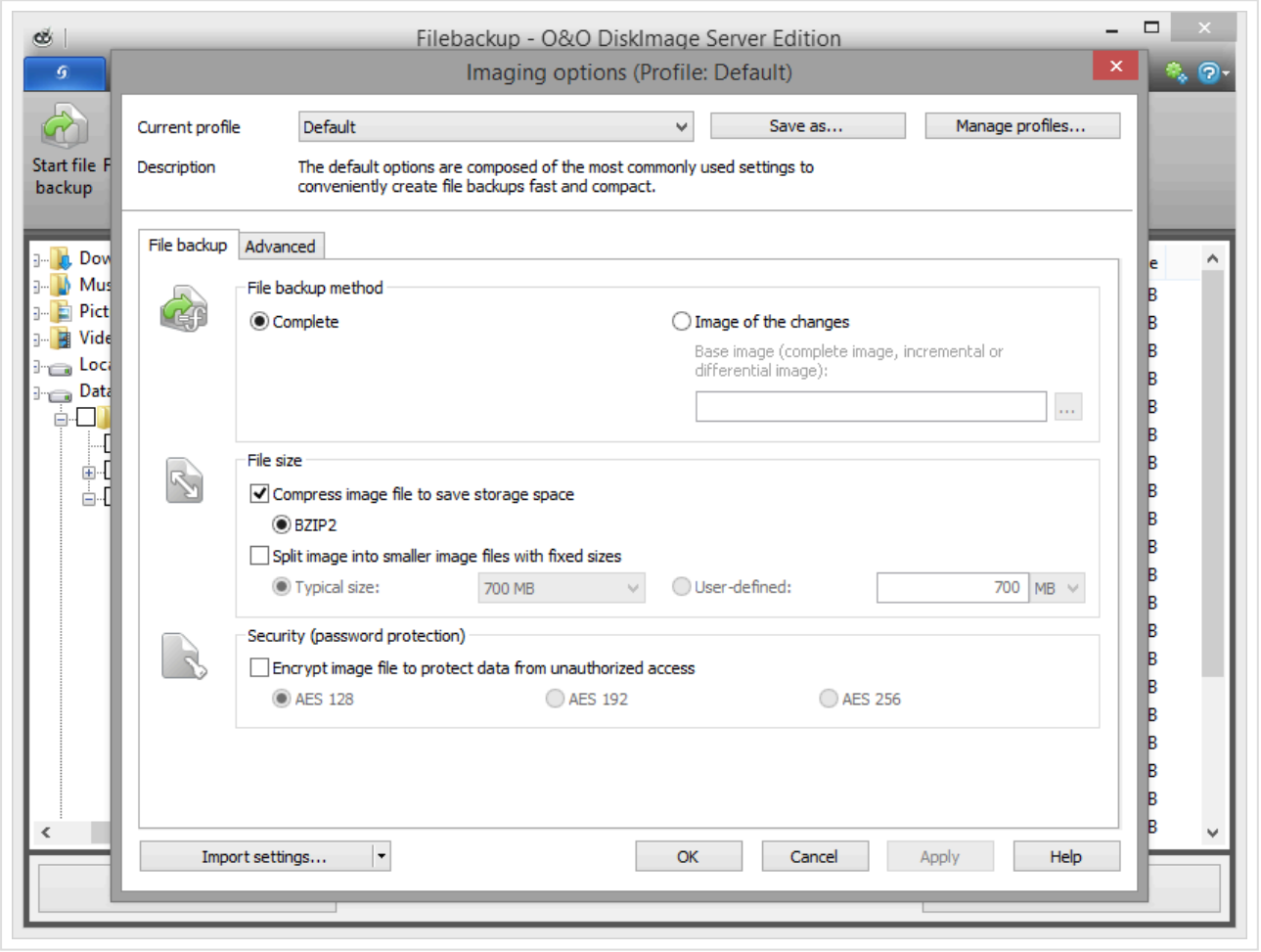
Under **Current profile** you can select a preset Multimedia or Archive profile. The Multimedia profile automatically excludes already compressed music and video data (i.e. *.avi, *.mp3, *.mpeg) from the compression. The Archive Profile excludes other compressed data such as *.zip or *.rar.

If you would like to save your user-defined settings, please follow these instructions:

1. Enable your settings under **Drive imaging/Imaging options**.
2. Select under **Save as...**.
3. Give your newly created profile a name in the dialog window and confirm.
4. Under **Manage profiles** you can change or delete an existing profile.

# File backup options

Under **File backup /File backup options** you can specify further settings that should be applied by default for the current or every new backup.




## Encrypt a file backup

Your data can be securely encrypted using the recognized AES method . This permits O&O DiskImage to support extremely high security levels with a key length of up to 256 bits.

- You can select the level of encryption for your files under **File backup/File backup options/Security**.
- If you then start the imaging process (**Start file backup**), enter a password when being prompted.

You also have the option of encrypting the image after it's been created under Convert image file.

## Imaging method for file backups

Under **File backup/File backup options/File backup /File backup method** you can specify which method should be preset for every file backup.

The options are:

- Complete
- Image of the changes

For normal use, we recommend the **Complete** method which is already set by default.

If you've already made one or more back ups of a folder or individual files, you can select the method **Image of the changes**. Only changes made since the last base image will be saved.

When creating an image of the changes, O&O DiskImage compares the data of the existing image with corresponding data from the current folder. That's why this backup method might require more time than the creation of a complete image. On the other hand, an image of the changes normally requires much less disk space than a complete image.

## Advanced settings

You can specify further settings under **Advanced** in the File backup options .

**Lock drive while imaging**

While processing a file backup, you can lock the drive where the folders/files being backed up are located. This prevents any changes from being made to the drive while the backup is being created. The drive will no longer be displayed in Explorer and all applications will be closed. The drive is not locked by default. If the drive is not locked, changes will be buffered either in the snapshot cache (if installed) or over the volume shadow copy service of Windows so that these changed won't influence the backup.

**Use check sums to administer unchanged data (for incremental file backup)**

Unchanged data is saved by default using checksums by the method **Image of the changes**. The file is slightly larger. It's therefore enough if you enter an existing image of the changes as source image for the next **Image of the changes**(with checksums). This function is enabled by default. If you save all images in a single folder, you can also disable this function. Your images will then take up less space on the disk.

- Make sure that the option**Use checksums to administer unchanged data** under **File backup/File backup options/Advanced** is enabled.

## Regulate the size of a file backup

A file backup can be split into multiple backup files. If one disk is not enough for storing a complete backup, you will automatically be asked to indicate a different storage location. It is also possible to manually set the maximum size of an file before. If the image being created is larger than the entered file size, additional image files 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. We recommend limiting 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 **File backup/File backup options/File size/Split image into smaller image files with fixed sizes** you can specify the size of individual image files.

## Profiles for file backups

Under **File backup/File backup options/Current profile** you can reset the current settings to **default** for the image or select a wide ranging user-defined profile.

If you would like to save your user-defined settings, please follow these instructions:

1. Enable your settings under **Drive imaging/Imaging options**.
2. Select under Imaging options **Save as...**.
3. Give your newly created profile a name in the dialogue window and confirm.
4. Under **Manage profiles** you can change or delete an existing profile.

# Restore drives and files

Restoring your data is as easy as creating an image. If you want to restore data drives, you only need to start O&O DiskImage under Windows.

You will, however, need the O&O DiskImage bootable medium for restoring an entire computer or system partition. If you buy the product online, an ISO file for creating a bootable medium CD/DVD/USB Stick, etc.) will be sent to you along with additional information.O&O DiskImage starts directly from the bootable medium without any previous installation. Additional integrated system recovery tools also give you the chance to restore the original system and identify mistakes.

## Restoring entire disks

O&O DiskImage can also assist you when installing/configuring new acquired computers. After configuring your computer, create an image of your entire system and do this for as many computers as you have Windows licenses:

- Restoration of an entire storage volume
- Restoration to or as MBR disks
- Restoration to or as GPT disks
- Restoration to or as dynamic disks

## Restoring individual drives

O&O DiskImage enables you to restore individual drives from existing images. It doesn't matter how many drives were included in one image. The following drive types can be restored from an image:

- Single drives (Partitions/volumes)
- Primary, extended and logical partitions
- Simple, spanned, mirrored volumes
- System areas
- Master boot record (MBR)
- Create system partitions (e.g. Microsoft reserved partition)
- Exclusive restoration of the Master boot records (MBR)
- Restore a combination of the above mentioned objects (various hard disks, partitions, volumes or similar) in one image

## Mount drives from images

You can also quickly and easily restore single files from an image. Mount drives from images as virtual drives. Doing this will allow you to copy files and folders from the image onto existing drives. Making changes to the image, however, such as deleting or adding files, is not possible.

## Modifications for restoration

Several settings can be configured for restoration.You can adapt the restoration to meet your requirements according to your intended purpose.

- Bare Metal restoration, including bootable disk for Windows PE.
- Restoration of multi boot systems
- Restoration of encrypted partitions, hard disks from a direct forensic image
- Image restoration with damaged or missing parts, e.g. due to disk loss or disk errors
- Restoration of damaged images if the structural integrity of the image is ok, e.g. due to purposeful destruction or disk errors.
- Direct restoration of a Microsoft Virtual PC Disk (VHD)
- M.I.R. (Machine Independent Restoring) Adapting to different hardware

## Bootable disks

The bootable disk contains Windows PE with all the default drivers necessary for running O&O DiskImage without installation and without a Windows operating system. This enables you to, for instance, perform a system restoration that would otherwise not be possible.

- Bootable disk for using O&O DiskImage without prior installation includes effective system recovery programs from O&O BlueCon
- Interface - O&O Tasktray, Start menu, and program shortcuts are based on Windows
- Load drivers for hardware that is not immediately recognized, e.g. hard disk controllers or network card drivers
- O&O FileExplorer for file and folder management (create, delete, copy, move folders and/or files)
- O&O SRP-Manager to manage existing system restore points (Only for Windows XP)
- O&O RegEditor to display and change the Windows system registry
- O&O DiskManager for the management of your hard disk(s)

## Machine Independent Restoration (M.I.R.)

Machine Independent Restoration technology (M.I.R.) provides the option of restoring an image that contains a system partition onto a computer with a different hardware. This means that a restoration of a system image or

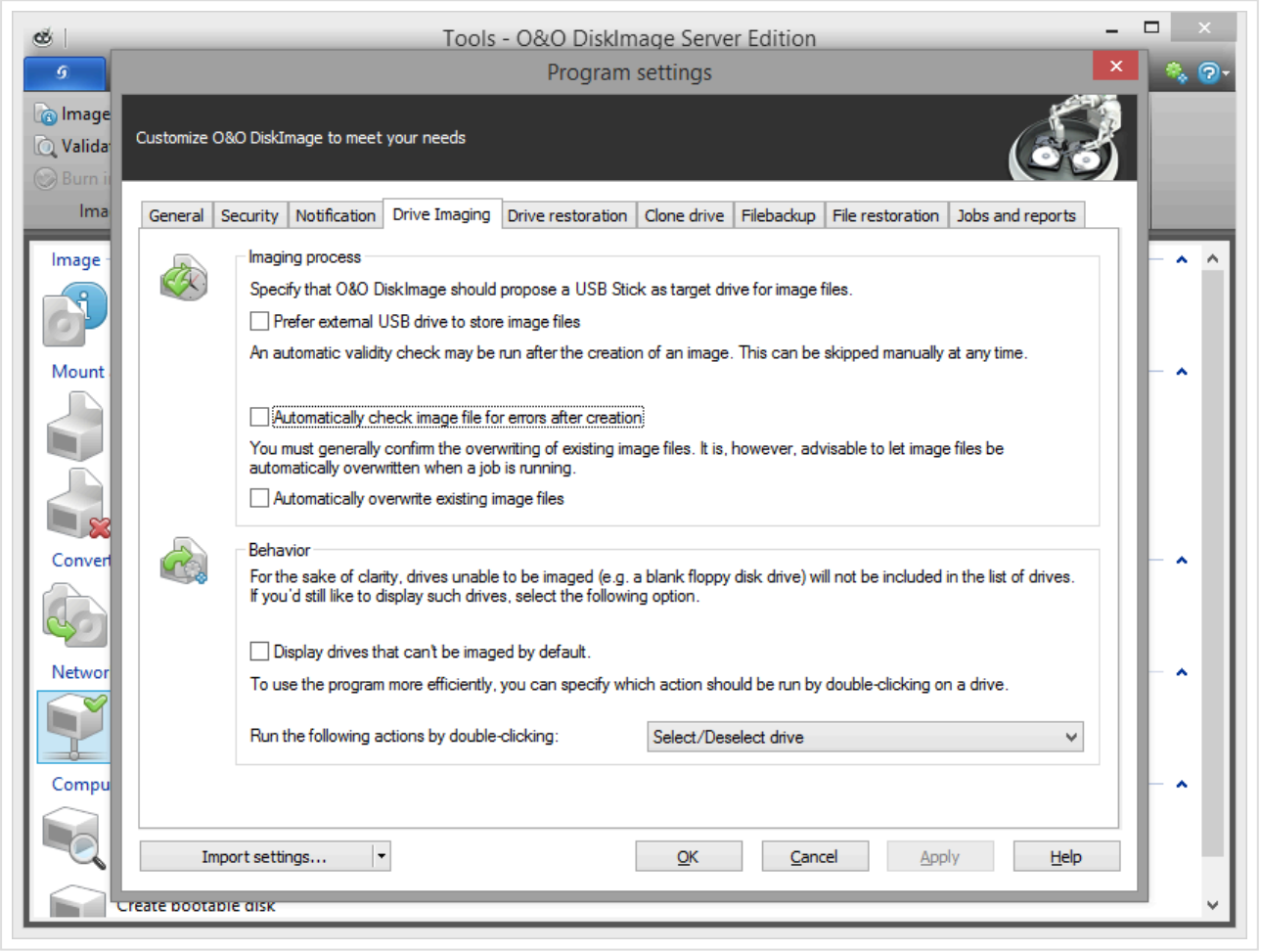
clone can be carried out not only on devices with identical hardware, but on those where, for example, the motherboard or processor has been replaced.

## Adapt size of the target drive for restoration and cloning

If the target for restoration or cloning is an empty area, the user can adapt the size of the target drive to the actual data volume of the source drive. When, for example, the drive being imaged has 5 GB but the data on it is only taking up half its space, a smaller drive of maybe 3 GB can be entered as a target during restoration.

# Restoration options

Under **Drive restoration/Restoration options** you can specify additional settings for the restoration of drives from an image.




## Create a restoration profile

Under **Drive restoration/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** and **User-defined**.

If you want to save your user-defined settings, do the following:

1. Enable your settings under Restoration Options
2. Select **Save as**

3. Give your newly created profile a name in the dialog window and confirm.

Under **Manage profiles** you can change or delete an existing profile.

## Force the writing method

Under **Drive restoration/Restoration options/Advanced** you can force a writing method. "Write to drive" is the default writing method used during restoration of images created with the "Used sector" or "Forensic" methods. "Write directly to disk" is the only writing method used during "Direct Forensic" cloning. You can, however, force a user-defined writing method.

- Enable **Force writing method** and select the respective method.

Using the option **Write to drive**, data will be written to the drive with help from the operating system, and not from the offset to the disk.

With the option **Write directly to disk**, you can decide whether a restoration should be written directly to a disk, bypassing the file system driver. This function applies especially to encrypted disks and is required for restoring any disks that have been imaged using the direct forensic method.

## Overwrite unused sectors

Under Drive **restoration/Restoration** options you can overwrite unused sectors explicitly with zeros: Data that has been stored in these areas cannot be restored - not even with specialized data recovery software.

# Clone drives

Cloning allows you to make 1:1 copies of entire disks or individual drives that can be used instead of the originals. This function provides you with clones of disks or individual drives, including information about the hard disk layout with all the data saved on it. Clones do, however, require a lot more storage space than an image.

Unlike images, there are **no** incremental or differential clones possible for reducing the data volume of successive clones. In addition, a clone **cannot** be compressed or encrypted like an image.

## Cloning entire disks

You can create a clone from one or more drives, e.g. hard disk. This will clone all drives located on a hard disks. The following hard disk layouts are supported by O&O DiskImage:

- Cloning a hard disk
- Cloning to or as MBR hard disk
- Cloning to or as GPT hard disk
- Cloning to or as dynamic hard disk

## Cloning single drives

You are also able to clone single drives and not only complete hard disks. This incorporates the hard disk layout. The following cloning options are supported by O&O DiskImage:

- Cloning single partitions/volumes
- Cloning of primary, extended, and logical partitions
- Cloning simple, spanned, mirrored volumes
- Cloning the system areas
- Cloning the Master boot records (MBR)
- Exclusive cloning of the Master boot records (MBR)
- Storing of a combination from the above mentioned objects (various hard disks, partitions, volumes or similar in an image)

## Modifications for cloning

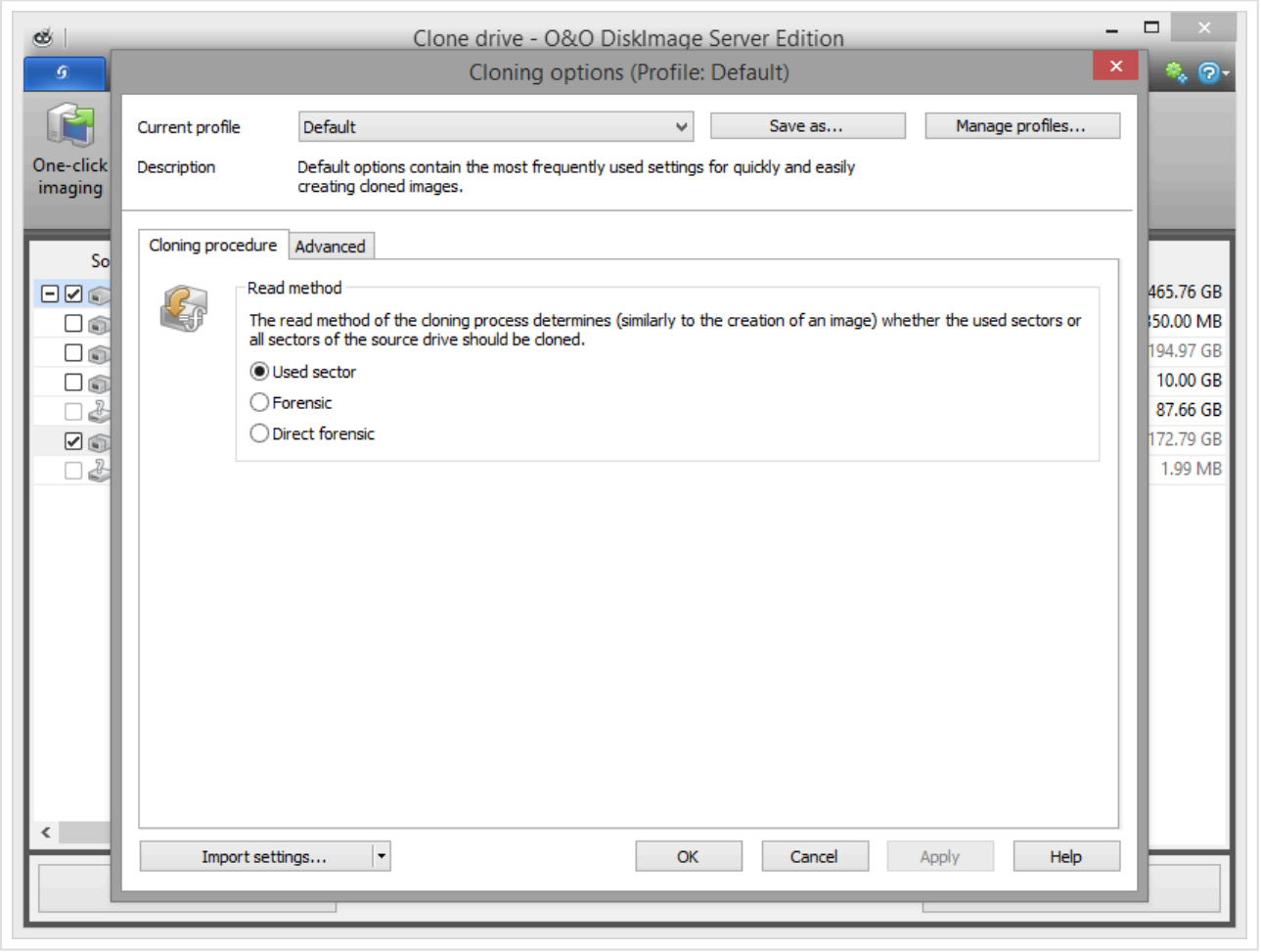
You can make various adaptations for cloning . Some of these are configured automatically or you can set them yourself. The following adaptations can be set:

- Buffer the original data before a change (Snapshot)

- Automatic conversion of the free areas to an extended partition if the areas are larger than the partition being cloned and no extended partition exists.
- MIR (Machine Independent Restoration), adjust to the different hardware of the clone.

# Cloning options

Under **Clone drive/Cloning options** you can specify further settings to clone drives. To specify the settings, you need to open the Cloning options window.




## Set the read method

Under **Clone drive/Cloning options**, you can set your individual read method just as you can when creating an image. (Cloning method). The cloning methods are constructed in a way similar to the imaging methods.

It's possible to choose from “Used sector”, “Forensic” or “Direct forensic” methods. You can read more about this under Select imaging method.

## Lock a drive

You can lock the drive you want to clone during the cloning process. 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.

1. To lock a drive, enable it under **Clone drive/Cloning options /Advanced/Read procedure**
2. If you leave a drive unlocked during cloning, 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 working memory buffer is however restricted. You can see how much is available in the Memory buffer display.

:::note

Locking a system partition is not possible. If you want to prevent temporary files from being written on a particular drive, make the entry NoSnapshotTmpFiles in the registry. More information can be found in the chapter Explanation of registry entries.

:::

**Please note:** 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 memory buffer, close or stop all write procedures on the source drive, for example, running a defragmentation.

:::

## Ignore bad sectors

You can specify under Clone **drive/Cloning options/Advanced** whether the read process should be aborted or continued in case of error. If continued, the bad sector will be saved in the copy as an unused sector. The remaining data that are still readable will be present in the image.

## Overwrite unused sectors

You can specify that unused sectors of the source drive be overwritten with zeros under **Clone drive/Cloning options/Advanced/Clear unused sectors from old data**. By enabling this function, you will not be able to restore data of the empty areas from the drive clone.

This function will be run during the next clone activity of the selected drive.

:::tip

If you delete data normally under Windows, it still remains intact on the hard disk. The data will no longer be accessed by the operating system and remains invisible for the user. The space is declared as free area by Windows. This data can still be restored using special software. To make sure that nobody can restore data

from the drive clone, enable the function **Clear unused sectors from old data**. After overwriting, not even specialized data recovery software will be able to restore this deleted data.

:::

## Force the writing method

Under **Clone drive/Cloning options/Advanced** you can force the writing method. "Write to drive" is the default writing method used for the "Used sector" and "Forensic" cloning methods . "Write directly to disk" is the only writing method used during "Direct Forensic" cloning. You can, however, force a user-defined writing method.

- Enable **Force writing method** and select the respective method.

Using the option **Write to drive**, data will be written to the drive with help from the operating system, and not from the offset to the disk.

With the option **Write directly to disk**, you can decide whether a restoration should be written directly to a disk, bypassing the file system driver. This function applies especially to encrypted disks and is required for restoring any disks that have been imaged using the direct forensic method.

## Create a profile for cloning

Under **Clone drive/Cloning options**, you can reset the default settings for cloning or select an existing profile.

Under **Current profile** you can choose between **Default** or **User-defined**. If you wish to save your user-defined settings for cloning, please follow the instructions below:

- Select **Save as** and enter a name for the new profile.
- Under **Manage profiles** you can change or delete an existing profile.

# Restore on different hardware

Until now, you were only able to restore a system partition onto a computer having hardware identical to the source computer. The same goes for the restoration of clones. The most frequent application scenarios have therefore been limited to the creation of images and restoration of these on the same computers

O&O DiskImage now offers you the option of restoring an image, even the system partition, onto a computer with different hardware using the M.I.R. function(Machine Independent Restoration). You can also clone a computer with different hardware.

Enable M.I.R. if you've made changes to the hardware after imaging and these changes affect the functionality of the Windows operating system being started. M.I.R. is also necessary if you want to transfer an already existing computer configuration onto a new computer.

M.I.R. can therefore be used or enabled in the following cases:

- Restoration of an image onto a computer with different hardware or cloning/duplication of a computer.
- With the help of a bootable disk, M.I.R. can be used for exchanging damaged or malfunctioning drivers of an existing system.
- Migration of physical computers onto virtual machines or virtual machines on physical computers.

:::note

When duplicating a source system, i.e. duplicating installed Microsoft Windows operating system versions and programs, we recommend changing the computer name and SID to avoid future problems when using the configured computer within the network.

:::

# Restore automatically with M.I.R.

M.I.R. of O&O DiskImage is available to you when restoring system partitions from an image or when cloning. Meant is the direct selection of the system partition or the indirect selection, e.g. the entire disk including the system partition.

Whenever you want to restore or clone, simply enable the M.I.R. function before the restoration or cloning process is completed.The automatic adaptation will do the rest.

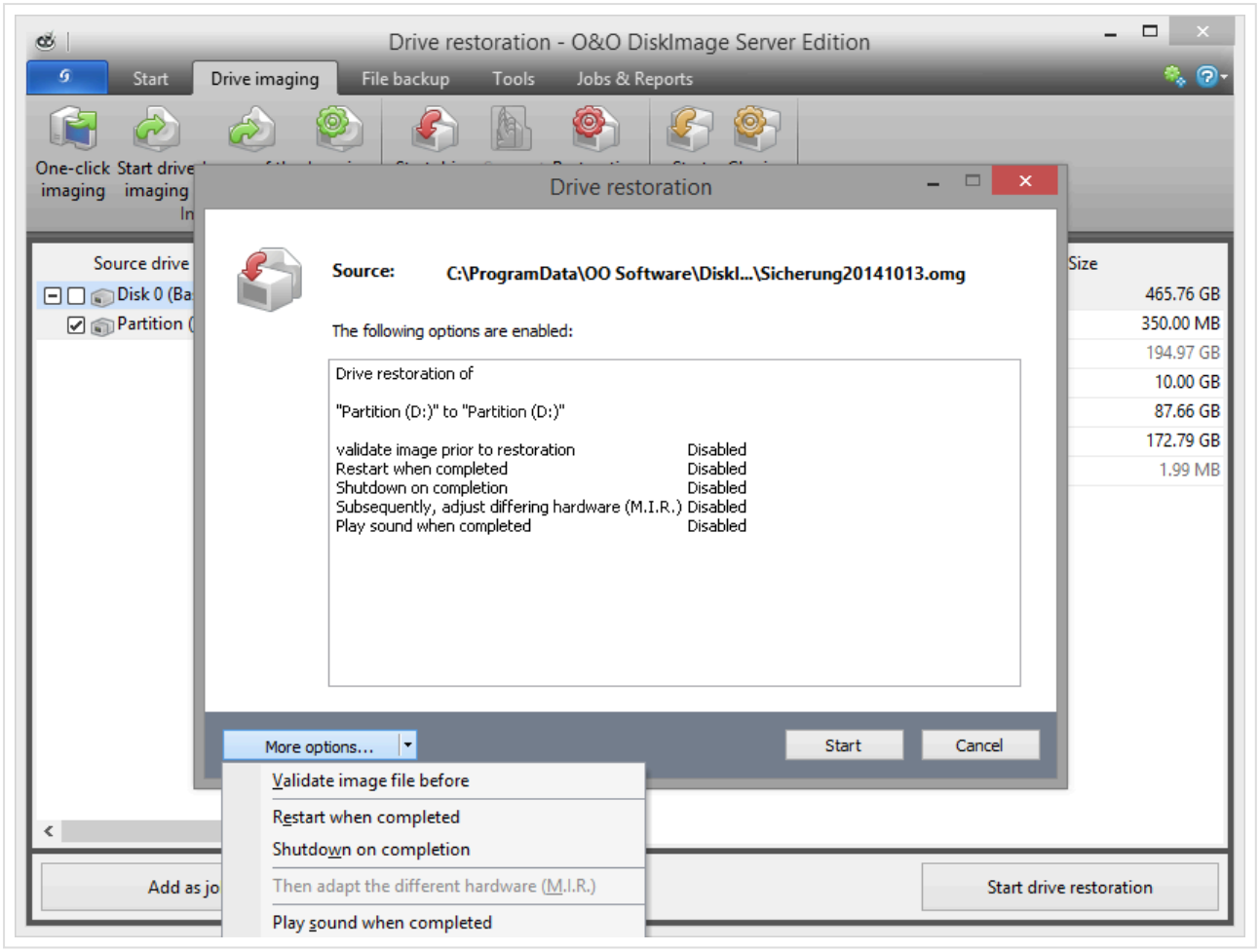
For restoration on different hardware proceed as follows: The example here describes restoration from an image:

1. To restore an entire system or a system partition, you'll need to start your computer with an O&O DiskImage bootable medium and perform the restoration from there. To boot from CD proceed as described in chapter Start directly from bootable disk.
2. On the start page of O&O DiskImage click **Drive restoration.**
3. O&O DiskImage, by default, will always go the place where the last image was saved. If the image file presented is not the one you want, browse through your drives and enter the path to the image file.
4. Select the image file in the browser and click **Open**.
5. All drives contained in the image will then be displayed.
6. Click the drive that you want to restore ("play back").
7. Then select the target drive for restoration by checking the box next to it. You can either replace an existing drive or create a new one: for example, in an empty sector.
8. Once you have specified all the settings, click **Start drive restoration** to begin the restoration.
9. Under Additional options, enable the setting **Adapt to different hardware afterwards** in the restoration or cloning dialog.
10. You can then follow the other dialog prompts and restart your computer once restoration is successful.

:::warning

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

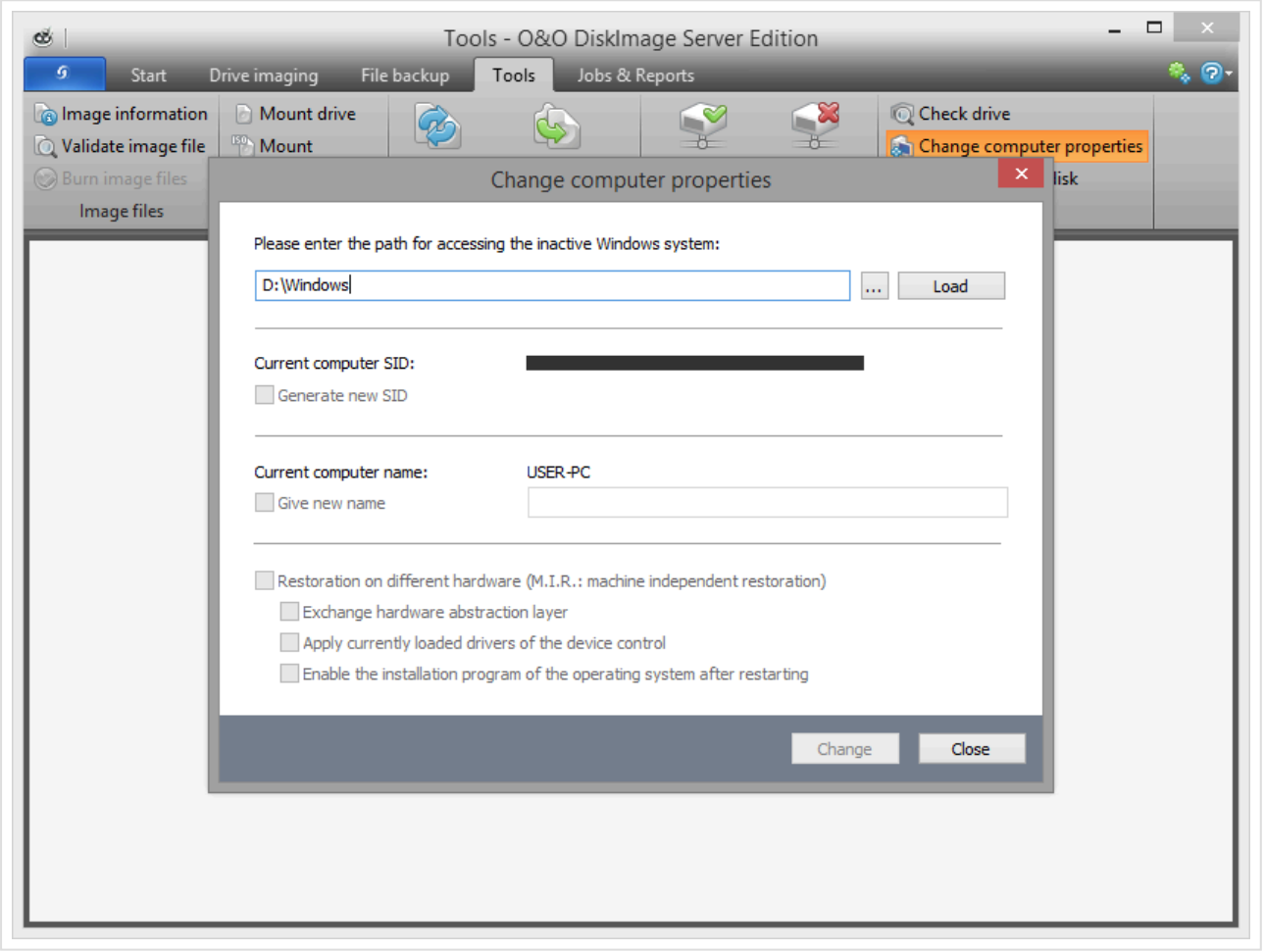
:::


Drive restoration - O&O DiskImage Server Edition
Start
Drive imaging
File backup
Tools
Jobs & Reports
One-click imaging
Start drive imaging
Drive restoration
Source:
C:\ProgramData\OO Software\Diskl...\Sicherung20141013.omg
The following options are enabled:
Drive restoration of
"Partition (D:)" to "Partition (D:)"
validate image prior to restoration Disabled
Restart when completed Disabled
Shutdown on completion Disabled
Subsequently, adjust differing hardware (M.I.R.) Disabled
Play sound when completed Disabled
More options...
Start
Cancel
Validate image file before
Restart when completed
Shutdown on completion
Then adapt the different hardware (M.I.R.)
Play sound when completed
Source drive
Size
Disk 0 (Ba
Partition (
465.76 GB
350.00 MB
194.97 GB
10.00 GB
87.66 GB
172.79 GB
1.99 MB
Add as jo
Start drive restoration

# Adapt manually

You can make manual adaptation to the changed hardware following restoration orcloning.

- To do this, run a restoration or cloning of the system partition or the entire computer.
- After successful restoration, please open the O&O DiskImage dialog to change the computer properties **Tools/Change computer identity**.




The adaptations made by M.I.R can be divided into three activities which can be enabled/disabled when selecting **Restoration on different hardware** (machine independent restoration).

Exchange hardware abstraction layer (HAL)

Windows operating systems must be compatible with a variety of hardware platforms. This portability is achieved through a special layer within the operating system that is responsible for the management and control of hardware, architecture and machine-dependent devices, such as the I/O interfaces, Interrupt Controller and multi processor communication mechanisms. This layer is commonly installed on and aligned to the current hardware on an installed and running Windows. If the hardware is exchanged, it becomes

necessary to align the layer accordingly in order to ensure smooth and continued functionality of the operating system and the programs installed.

**Apply currently loaded drivers of the device control**

Drivers are an interface between the I/O-Manager and the corresponding hardware. They are not accessed directly, but over the hardware abstraction layer. After replacement, the corresponding driver of new hardware has got to be installed in order to make sure it can work properly with this layer.

**Enable the installation program of the operating system after restarting**

This activity tells the Windows operating system that the internal setup should be run to complete the information at the next start. The Windows operating system will then be able to automatically adapt itself after incomplete changes, and complete the registration of the new hardware.

# Restrictions of M.I.R.

Under certain circumstances, it's possible that the restored or duplicated system does not start or is malfunctioning. The following constellations may lead to malfunctions:

- No hard disk was selected as target, only part of a hard disk (partition/volume/empty area).
- While creating the layout on the target, "delete layout" was not selected. This option makes it possible to create partitions/volumes on a different Offset.
- You did not select a hard disk as source but rather individual partitions/volumes and are missing the partitions/volumes containing the needed boot information.
- You are trying to boot from a hard disk connected to controllers that were not initialized by Windows at the time of booting, e.g. booting from a hard disk connected to the computer via a USB controller (not a USB stick).

:::note

If error messages appear during booting, you will get instructions on how to proceed in chapter Assistance when error messages occur during booting.

:::

:::note

To make sure a restored system or clone is bootable, it's important to create an image of the entire system hard disk and then restore/clone it completely.

:::

# Start from a bootable medium

If you start O&O DiskImage directly from bootable disks such as CD, DVD or a USB stick, you will have access to all available functions .

The bootable disk contains Windows PE and can be used, for example, to restore an entire computer or a system partition, if an image has already been created. You can use the bootable disk with O&O DiskImage even if your Windows is incapable of booting as a result of software error.

**Starting from CD/DVD**

1. Make sure that your system is able to be started from a CD. You can configure the necessary settings in BIOS. Further information can be obtained from your motherboard manufacturer.
2. Insert the O&O DiskImage Start CD in your computer’s CD/DVD drive.
3. Restart the computer. Follow the instructions at the start of the CD.
4. The system settings will subsequently appear in the window. Select a language and region.
5. At the next stage you can load drivers for those devices where no drivers under Windows PE were initially found, see also chapter "Load Drivers".
6. O&O DiskImage will start after confirmation of the license regulation.

**Start from USB stick**

To boot from an USB stick, you normally have to change the boot sequence in the boot menu of your computer. Alternatively, you can also configure the necessary settings in BIOS. Further information can be obtained from your motherboard manufacturer.

1. Open the boot menu while the computer is booting.
2. You can change the sequence in the menu by placing the USB entry (removable devices) at the beginning.
3. After that, your computer will recognize your USB stick as boot medium, and will start the program from there.

:::note

The sequence in the boot menu is normally only valid for the current computer status. This step might have to be repeated the next time your computer is booted.

:::

:::tip

If you purchased O&O DiskImage electronically, you will find more information on the creation of bootable disk here: Create boot medium.

:::

:::note

If you want to restore on different hardware, you should also consider the notes in chapter Machine Independent Restoration (M.I.R.).

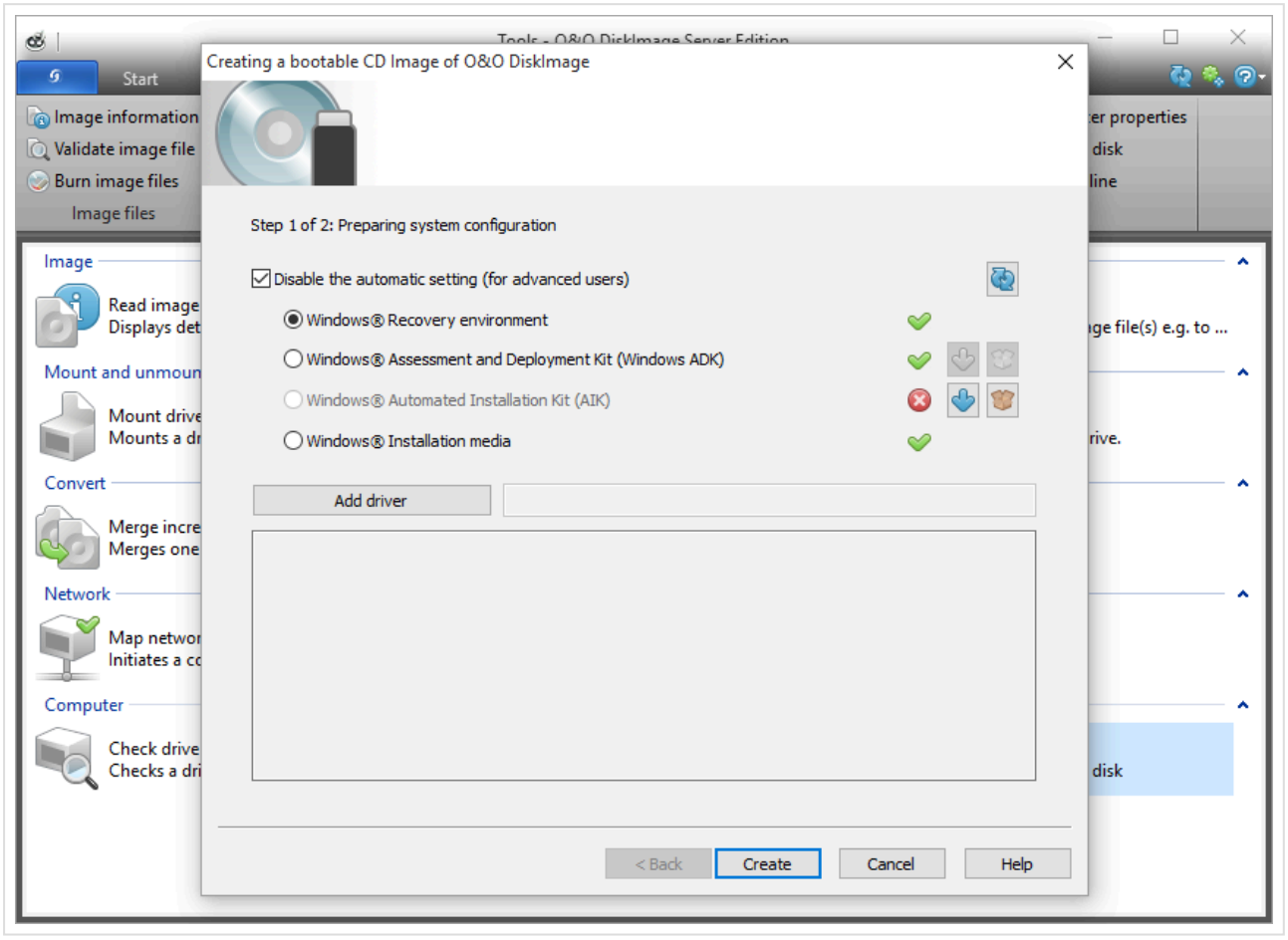
:::

:::note

The Start CD, needed for running O&O DiskImage without an operating system and for restoring system partitions, is not included n the O&O DiskImage Special Edition.

:::

# Create a boot medium




The bootable disk is created based on the operating system you are using. This means that if you have a 64-bit system, a 64-bit boot disk will be created. Using a 64-bit boot disk you'll be able, among other things, to restore images of GPT hard disks under UEFI/EFI systems.

Creating a bootable disk with O&O DiskImage is possible by going to the menu item **Tools** -> **Create bootable disk**. This feature detects those options available for creating a bootable disk within the system. It will then copy all the files that are required for doing this. To begin the process, click **Create**. Once this step is successfully completed, click **Next** to reach the second page of the wizard.

The current options available for creating will be identified with a green check. Those options not available, because their components are either not installed or not recognized, will be displayed in red.

When enabled, automatic prioritization guarantees that the best option for creating will be selected automatically. Select "Disable the automatic setting" if you wish to use another option. Once this is done, the various options available for creating will be displayed for selection.



Open the respective Microsoft Download page for the ADK or AIK. The Windows ADK/AIK is rather large, taking up between 1.7 – 3.4 GB. The download can therefore take up to a few hours, depending on download speed.



Open the respective installation file (ADK/AIK) and start it.

The program will first try creating a bootable disk using the Windows® recovery environment. When this isn't possible, it will use the "Windows Assessment and Deployment Kit (ADK) for Windows®". The Kit contains a combination of tools that can be used for personalizing, evaluating, and preparing Windows operating systems for use on new computers. Microsoft® has made the Kit available for download under http://www.microsoft.com/en-us/download/details.aspx?id=30652 . As an alternative, you can also use the "Windows® Automated Installation Kit (AIK) for Windows®" to create a bootable disk. "Windows® Automated Installation Kit (AIK) for Windows® 7" can be helpful when installing, customizing, and preparing operating systems from the Microsoft Windows® 7 and Windows Server® 2008 R2 families. It can be downloaded from Microsoft® under http://www.microsoft.com/en-us/download/details.aspx?id=5753.

As a last option, you can use the Windows® installation disk to create a bootable disk. If this option is selected, the Windows®installation disk itself will need to be directly inserted.

**Individual driver integration when creating a boot medium** You can specify a driver directory so that every driver accepted by the operating system for the boot device is included in the boot media and run automatically when you boot from it. You can integrate drivers into the boot medium for all types of devices, even ones not PnP compatible.

**Individual driver integration when using a boot medium** You can specify a driver directory so that every driver accepted by the offline operating system is included in the operating system and run automatically when you boot up. You can integrate drivers into the boot medium for all types of devices, even ones not PnP compatible, for example graphics cards or network cards.

The next step will involve using the data detected to create a bootable disk. You have the option to burn the CD image onto a CD/DVD or copy it onto a USB stick. Select the CD/DVD burner or USB drive you want. You also have the option of saving the CD image as an ISO file for later use. This will require your entering a file name as well as a path. To complete creation, click "Create".

## Boot medium with O&O BuildPE

You can also run O&O DiskImage without installation directly from a bootable medium. The boot medium is based on Windows PE and can be used for, among other things, restoring your entire computer or the system partition provided you have created a corresponding image.

The “Create bootable disk” option can be found under Tools when you open the program.

Although we strongly recommend the option under Tools, some users may still prefer O&O BuildPE for creating a boot CD or USB-stick. Once you have the special O&O BuildPE link, you’ll need a blank disk (CD-R, DVD, Blu-ray Disc or USB-Stick) and the needed hardware (burner for CD-R/DVD or Blu-ray).

You can learn more about creating a bootable medium with O&O BuildPE by visiting our website: http://www.oo-software.com/home/en/support/faq/oobuildpe/

If you're unsure, just contact our Support. We'll be happy to help you further. Remember to keep your license information handy: support@oo-software.com.

# Load drivers

If a device such as a hard disk or network card is not automatically recognized when using the bootable medium under Windows PE, a necessary controller driver (e.g., RAID controllers) might be missing.

You can start loading a new driver immediately after inserting the Start CD using the dialog **O&O System settings** and the tab **Drivers**.

Please follow these instructions for loading a new driver:

1. Open the tab **Drivers** in the dialog **O&O System settings** as described above. All recognized Windows devices as well as all devices missing installed drivers will be displayed.
2. Select the device for which you want to load a driver.
3. Click **Load.**
4. Select the desired driver such as one on a connected hard disk, USB Stick or CD*.
5. In the dialog, select **Open** to install the driver.
6. You'll then see a program message informing you about the status of the installation.

*** Note:** You can remove the Start CD from the drive in order to insert a driver CD from a manufacturer.

:::note

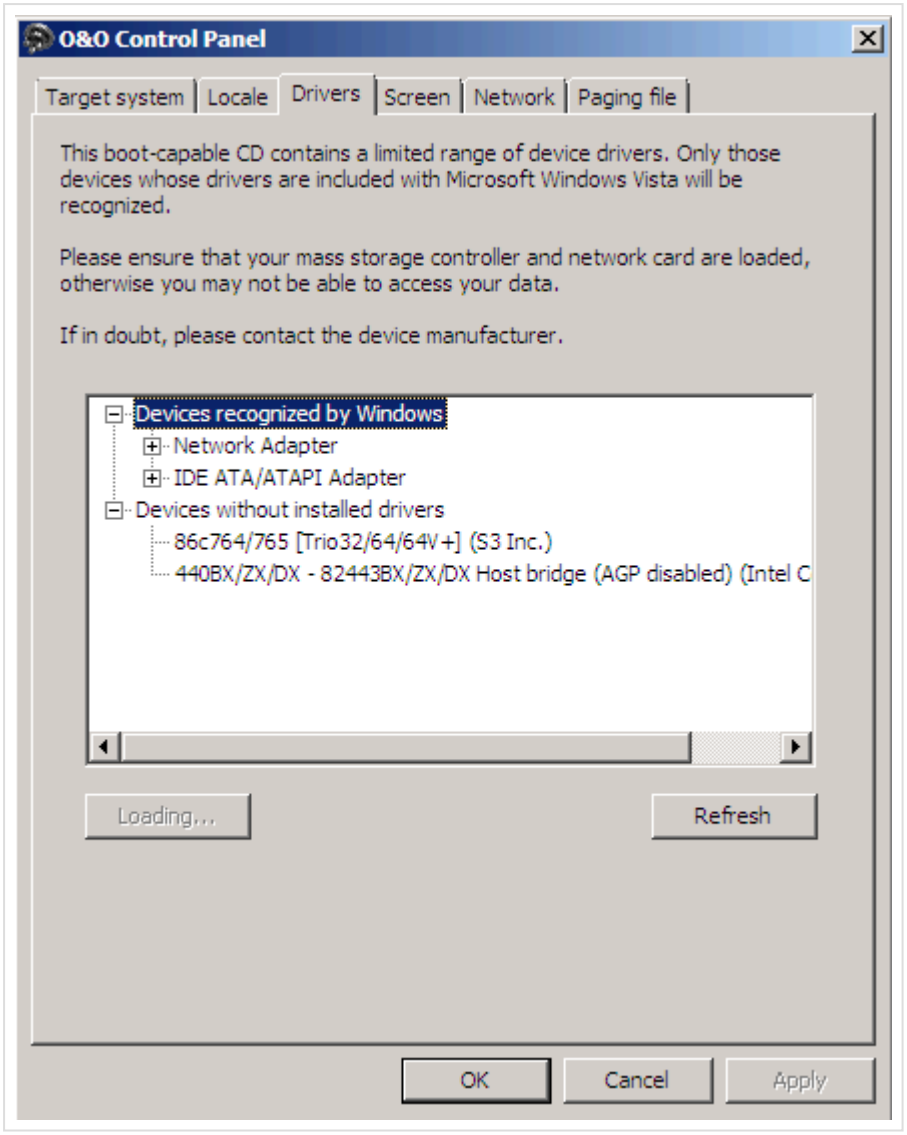
Under certain circumstances, you may receive a notice requiring you to restart if you have loaded an additional driver under Windows PE. This message is automatically generated by Windows PE but is irrelevant when starting from a CD. Simply reject the request and follow the further instructions in the pop-up window.

:::

:::note

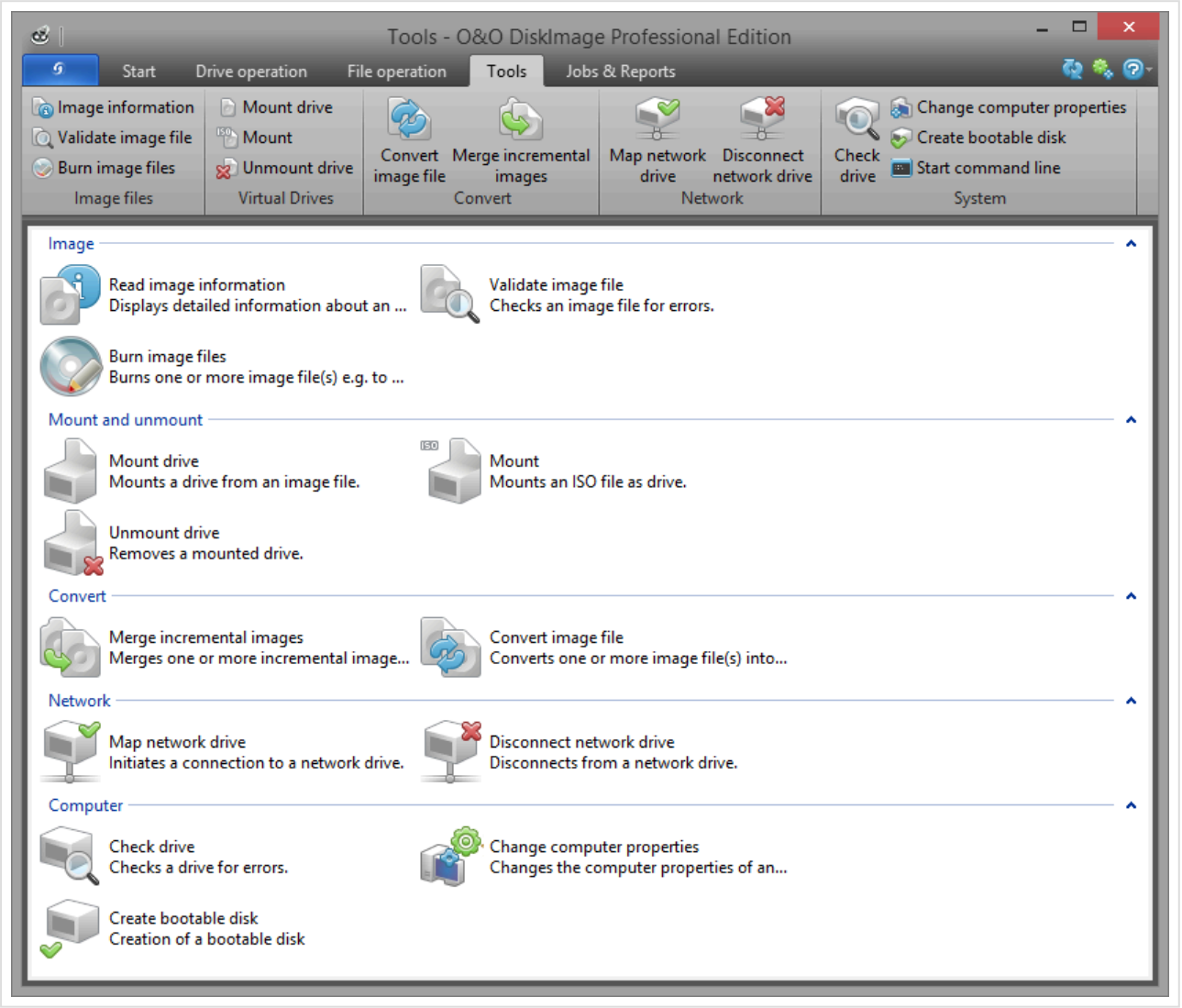
Encrypted drives are not supported under Windows PE

:::


O&O Control Panel
Target system
Locale
Drivers
Screen
Network
Paging file
This boot-capable CD contains a limited range of device drivers. Only those devices whose drivers are included with Microsoft Windows Vista will be recognized.
Please ensure that your mass storage controller and network card are loaded, otherwise you may not be able to access your data.
If in doubt, please contact the device manufacturer.
Devices recognized by Windows
Network Adapter
IDE ATA/ATAPI Adapter
Devices without installed drivers
86c764/765 [Trio32/64/64V+] (S3 Inc.)
440BX/ZX/DX - 82443BX/ZX/DX Host bridge (AGP disabled) (Intel C
Loading...
Refresh
OK
Cancel
Apply

# Tools

The tools menu includes options for processing images and further activities.

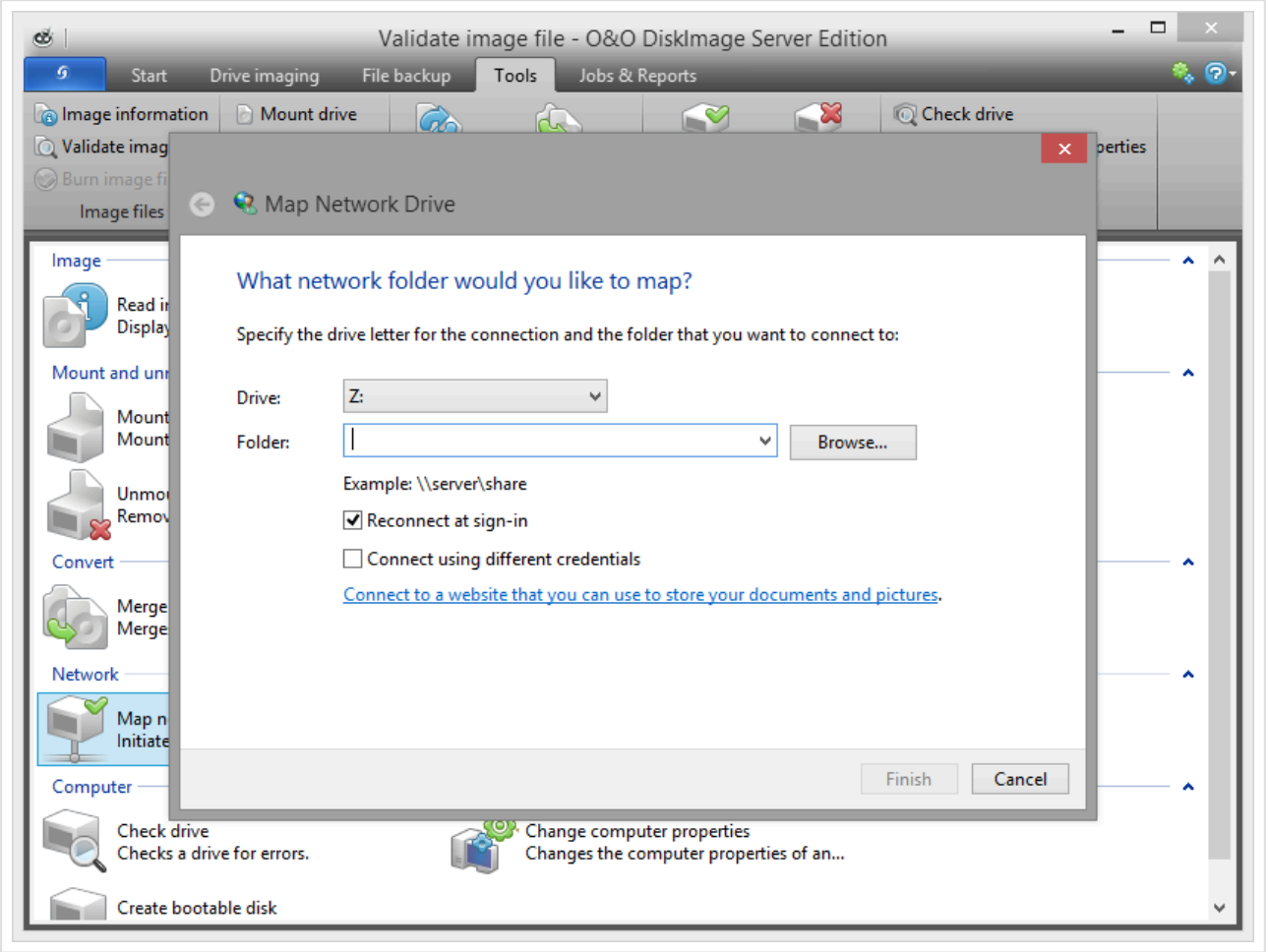



## Read image information

Select Read image information to access information on existing image files (*.omg/*.obk). After you've selected an image file in the browser window, you'll see information such as the imaging method, date of creation and image contents displayed.

# Map or disconnect a network drive

Under Tools in the ribbon bar, you can select the setting **Map network drive**.Under **Disconnect network drive** the connection can be interrupted.




Map network drive

:::note

Network authentication is needed for accessing network drives when images are saved on or restored from them. Read more about it in the chapter Authentication within the network.

:::

# Convert and combine images

The tool **Convert image file** allows you to change the properties and content of existing images (OMG) or a virtual hard disk (VHD). It creates a copy of the image file (OMG) or virtual hard disk (VHD), so that the original image remains intact.

Further settings like compression, encryption or splitting images into several image files with a certain size are possible. Please note the restrictions that apply to Handling virtual hard disks (VHD).

## Merge images

In Tools under **Convert image file/Add** you can select the drives for merging.

This enables separate image files to be merged together. Only image files of similar types can be merged: that means only forensic, direct forensic or used sector images can be combined.

- Simply add the drive from the list.

## Handling virtual hard disks (VHD)

To simplify working with Microsoft Virtual PCs (VPC), you can now convert image files into virtual drives (VHD). The converted image can be integrated as a virtual drive in the VPC, without having to install O&O DiskImage there. In a similar way, images (OMG) can be created of virtual hard disks (VHD).

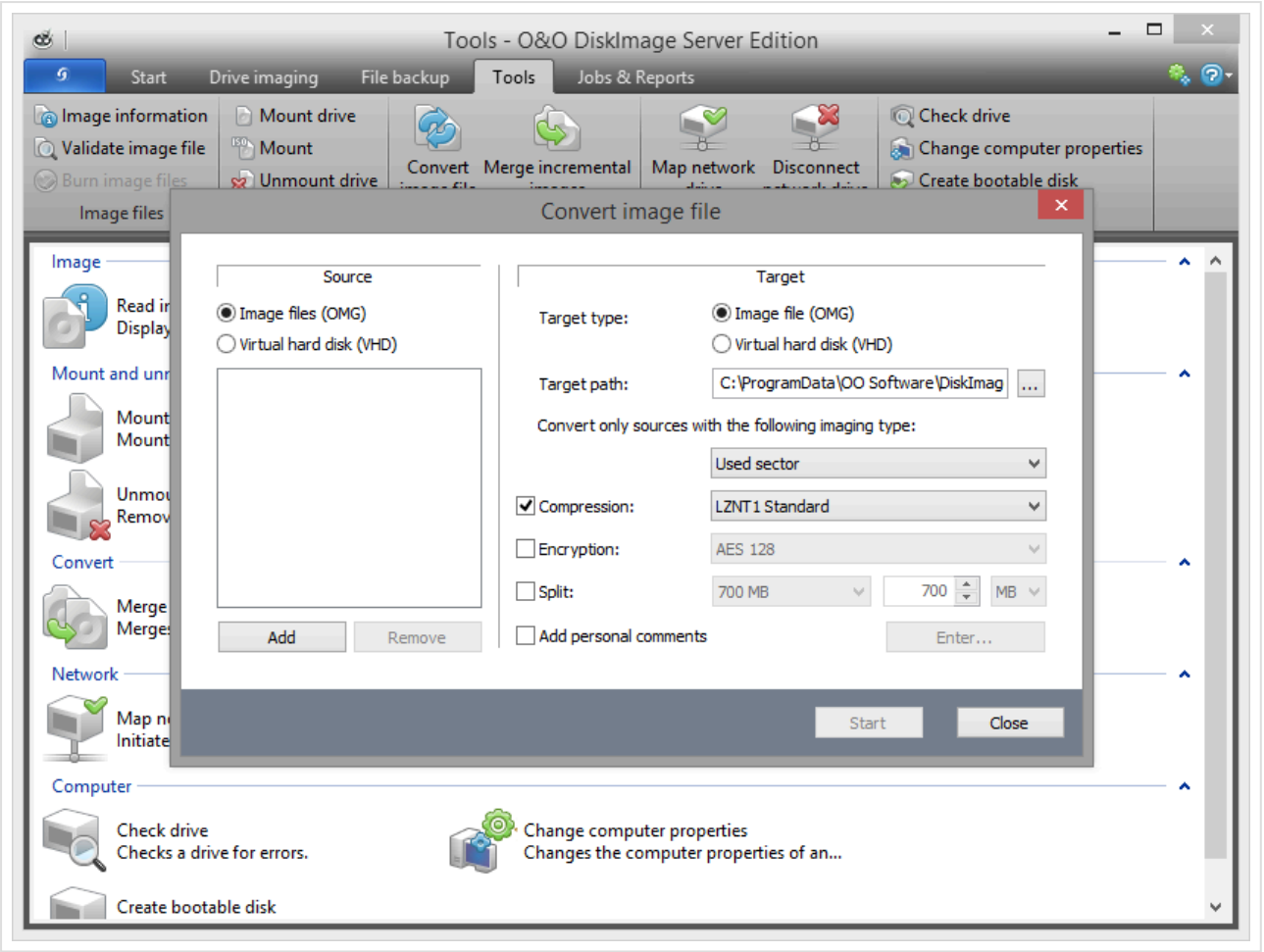
1. To convert an image to a virtual drive file (VHD), click **Convert image file** in the Tools menu.
2. Select **Image file (OMG)** as source in the Convert image file dialog and attach the desired image file.
3. Enter **Virtual hard disk (VHD)** as target and click **Start**.

You can also convert virtual hard disks (VHD) into an image file (OMG).

:::note

The following options **cannot** be selected for a VHD: Compression, Encryption, and Split. In addition, only the following imaging methods are available "Only used sectors" or "Forensic".

:::




## Combine incremental images

If you have already created several incremental images, you can combine them to form a new base image. The newly created base image is now a "complete" image. Older images that contained only changes can be deleted once the combining has been completed.

1. Make sure your computer will be able to access all drives where the base and incremental images are located.
2. In the menu bar under **Tools** click **Merge incremental images**.
3. A program window will appear where you can select and merge the existing image files.

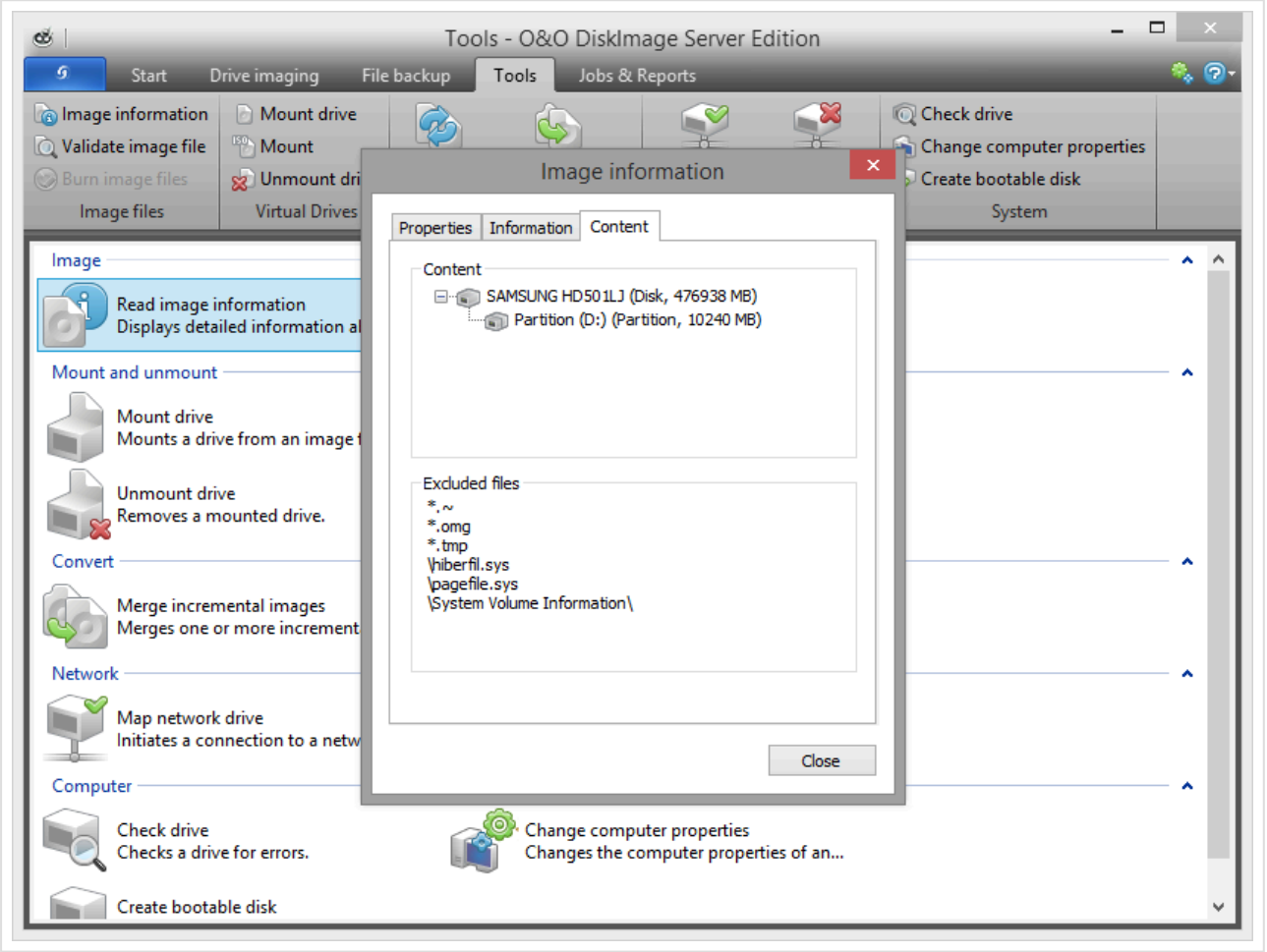
:::note

Only consecutive image files (Image of the changes) with the same base image may be merged. By clicking **Image information** and the corresponding **Drive information** you will find all details about the image(s).

:::

# Read and check image files

Select **Read image information** to access information on existing image files (*.omg/*.obk). After you've selected an image file in the browser window, you'll see information such as the imaging method, date of creation and image contents displayed.




## Check an image file for errors

Under **Tools** is a function called **Check image file for errors**. 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:

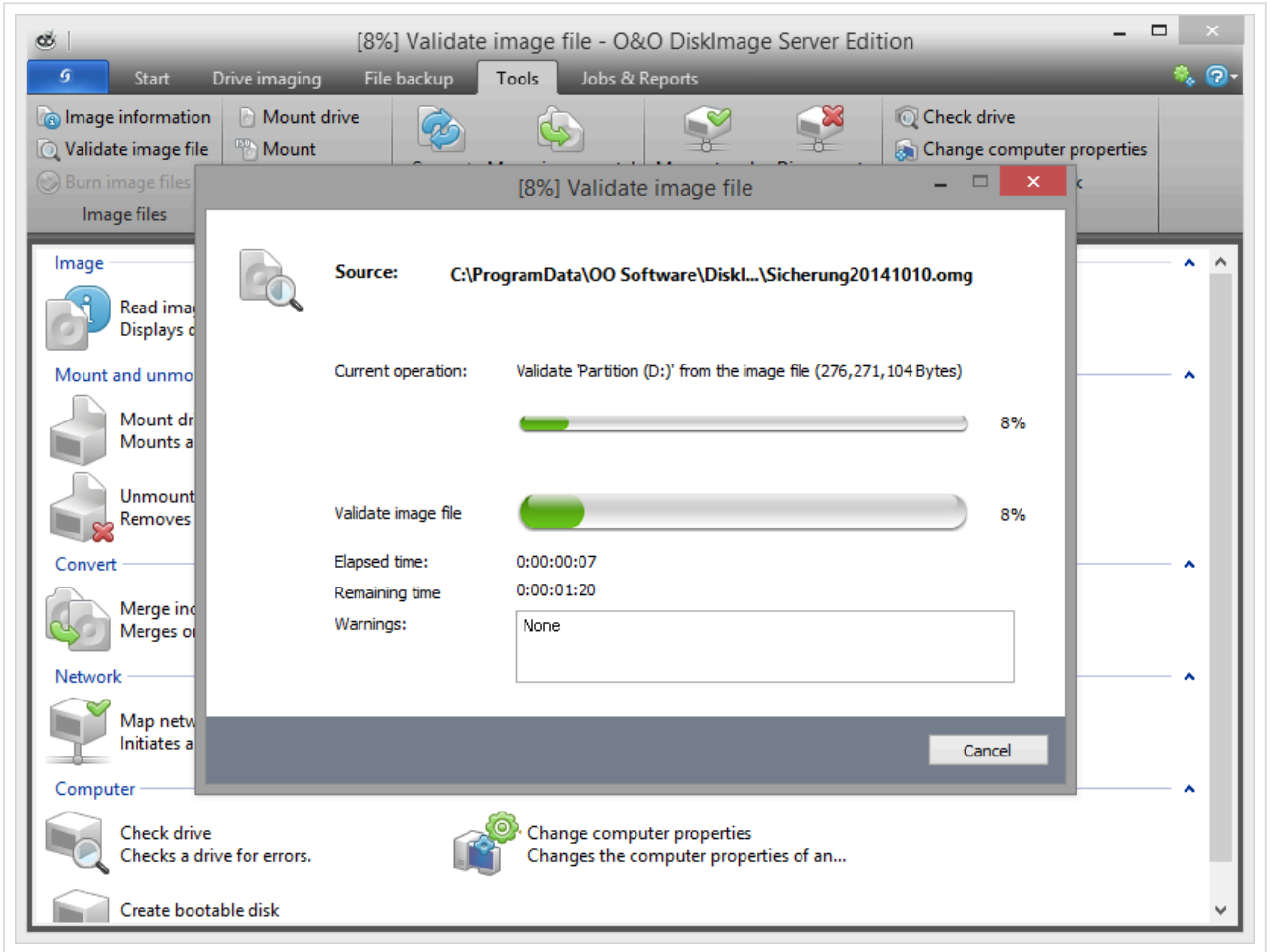
- Encryption and decryption are not functioning

- 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 intact.

:::



# Burn images to CD, DVD or Blu-ray

With the O&O DiskImage Writer (Burn Wizard) you can burn your image on CD/DVD/Blu-ray Disk (BD), create ISO files, burn ISO files and delete rewritable disks.




## Burn image files on CD/DVD/Blu-ray

To save your image to CD/DVD/Blu-ray, you need to first create an image and save it on an internal or external drive*. Only then will it be possible to burn your image files (*.omg) or your virtual hard disk (*.vhd) to CD/DVD. It is **not** possible to store an image or a virtual drive directly, i.e. without buffering it, on CD/DVD/Blu-ray.

Before starting the burn process, make sure that you have inserted an empty disk in the optical drive.

1. Under **Tools** click **Burn imaging file(s)**.
2. Select the job **Burn image file(s)** in the O&O DiskImage Writer.
3. Select your image file with **Add**. Depending on the size of the image file you can select one or more files.
4. Then, click **Next** and follow the instructions in the dialog. Please also pay attention to the notices that appear.
5. If one disk is not enough to hold your entire image, you can burn your image files one after another.

*** Note for the creation of images:** After selecting your drives for imaging, limit the image files to the size of your blank CD/DVD/Blu-ray under**Drive imaging/Imaging options/Image file/File size**. The image file will then be divided into several parts during the imaging process. The splitting of the image file at a later time is also possible, (See “Converting image file”).

:::note

When renaming individual parts of the image, it is recommended to keep the "number portion" of the file name (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.

:::

:::tip

In addition to CD/DVDs, the program also supports Blu-ray Disks.

:::

## Create ISO file

1. Under **Tools** click **Burn image file(s)**.
2. To create an ISO file, select **Next** in the O&O DiskImage Writer and then **Create an ISO file.**
3. Then select the files via **Add** in the Windows-Explorer.
4. Before following the dialogue further, check the path for saving the source file and pay attention to the occasional notes that appear.

## Burn ISO file

1. Under **Tools** click **Burn image file(s)**.
2. To burn an ISO file on CD/DVD, select **Next** in the O&O DiskImage Writer and then **Burn an ISO file.**
3. Then select the files via **Add** in the Windows-Explorer.
4. Before following the dialogue further, check the path for saving the source file and pay attention to the occasional notes that appear.

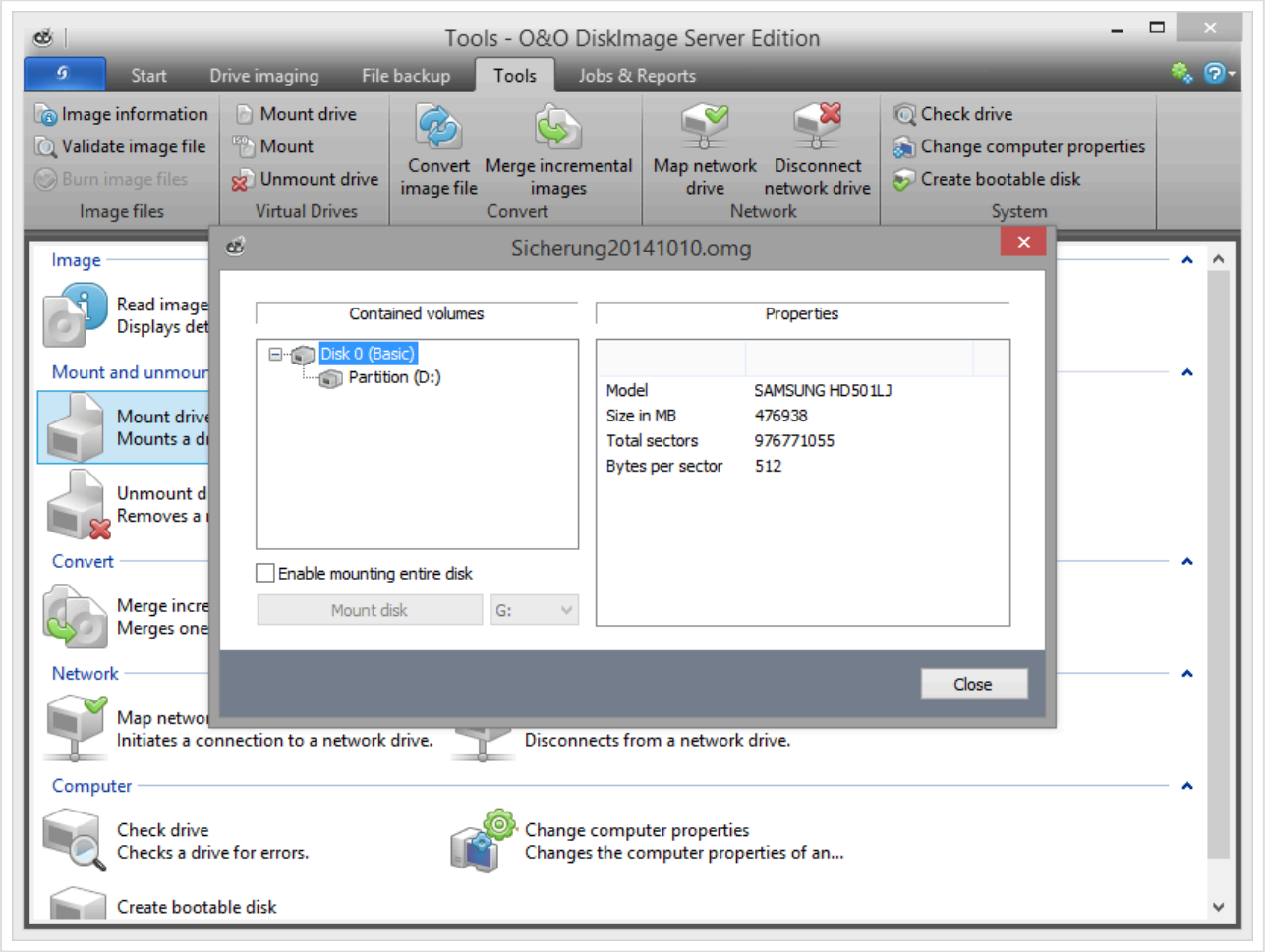
## Delete rewritable disk

O&O DiskImage can help you delete rewritable disks.

- To delete a rewritable disk, under Tools/Burn image files select Delete rewritable disk in the O&ODiskImage Writer and follow the prompts in the dialog.

# Virtual drives

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




1. Open **Tools** in the menu bar and select the option **Mount drive from image file**.
2. In the dialog window, select the image file (*.omg)from which you want to mount the drive. If you are not sure, you can look up the details of the image under **Image information**.
3. After selecting the image file, all drives included in the image will be listed in the program window.
4. Select the displayed drive from the image.
5. Afterwards, you can select any name from the drive list (e.g. G:) for the drive from the image.
6. Then, click **Mount drive**. The virtual drive from the image will then be visible as a regular drive in the Windows Explorer.

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

:::note

Please keep in mind that drives can only be mounted from an image if the image is available locally. You cannot mount a drive from an image located in the network.

:::

Enable mounting disk:

If you create an image of one or more partitions/volumes, the image contains additional information about the disk (or hard disk) along with the imaged data. This information will concern the hard disk's structure as well as its corresponding system areas such as the master boot record, possibly existing extended boot records, the LDM (logical disk management) database or the GUID partition table. With the function **Enable mounting disk**, you can load this information or use it for acquainting the hard disk to the operating system based on the disk's original information. We recommend using this function when you want to restore deleted or destroyed data from a forensic image.

:::note

Creating a virtual disk out of an entire hard disk can result in recognition problems for the virtual disk when the following applies to the hard disk being imaged: - defective or invalid partition tables - partitioning process not supported by your operating system (e.g. GPT) - dynamic hard disks containing volumes that are spanned, striped, mirrored or RAID5 when not all the hard disks being used were imaged - encrypted hard disk

:::

**Technical limitations** - Windows refresh problem: if you're working with a remote desktop connection, a new login will be needed for displaying the mounted drives. - Mounting images larger than 2TB is not supported by Windows XP (32-bit).

:::note

After restarting from Windows, the virtual drive is removed automatically from the drive list.

:::

## Mount an ISO file as a drive

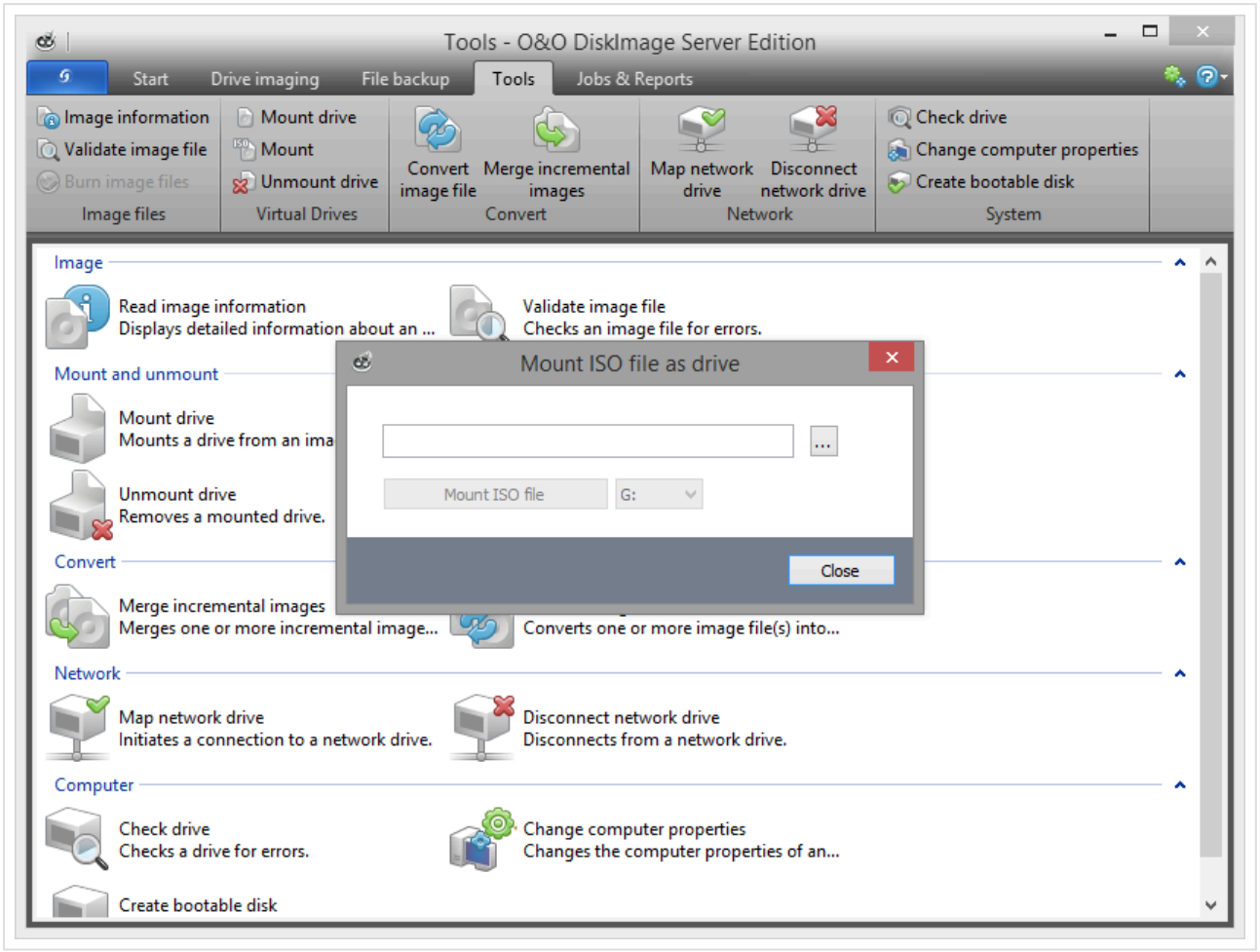
If you have saved data as an ISO file, you can mount this ISO file as drive and view the files it contains. This allows you to copy individual files and folders from the ISO file onto existing drives. It is, however, not possible to make changes (such as deleting or adding files) to the virtual hard disk mounted from the ISO file.

1. Open **Tools** in the menu bar and select the option **Mount ISO file as drive.**
2. Select the ISO file (*.iso), whose content you want to mount as a drive.
3. After selecting the ISO file, click **Mount ISO file.** If you want to label it with a certain letter, you can select another letter from the list.
4. Refreshing can take a few moments.
5. The virtual drive from the ISO file will then be visible as a regular drive in the Windows Explorer.

:::tip

If you want the virtual drive to also be visible in the O&O DiskImage drive list, make sure to check **Include CD and DVD drives** under **Program settings/General** and click **Show drives not able to be imaged** under **View**.

:::




:::note

After restarting from Windows, the virtual drive is removed automatically from the drive list.

:::

# Computer identity and drive check

You can change the identity of your computer to avoid authentication problems whenever the same computer identity is already being used within a network. This can be helpful whenever a system image is being rolled out onto several computers across a network, meaning a fully installed and configured Windows computer is transferred onto the drives of another computer.

Although this method does save time and effort compared to other kinds of duplication, there is a problem arising with each cloned system having the identical computer SID. This influences the security in working group environments. In addition, the security of transfer media might be inhibited in networks with many computer SIDs.

To avoid this problem, O&O DiskImage provides an option for changing the computer identity.

:::note

The SID can only be changed when you run O&O DiskImage from the bootable medium (Start CD) and not during normal Windows operation.

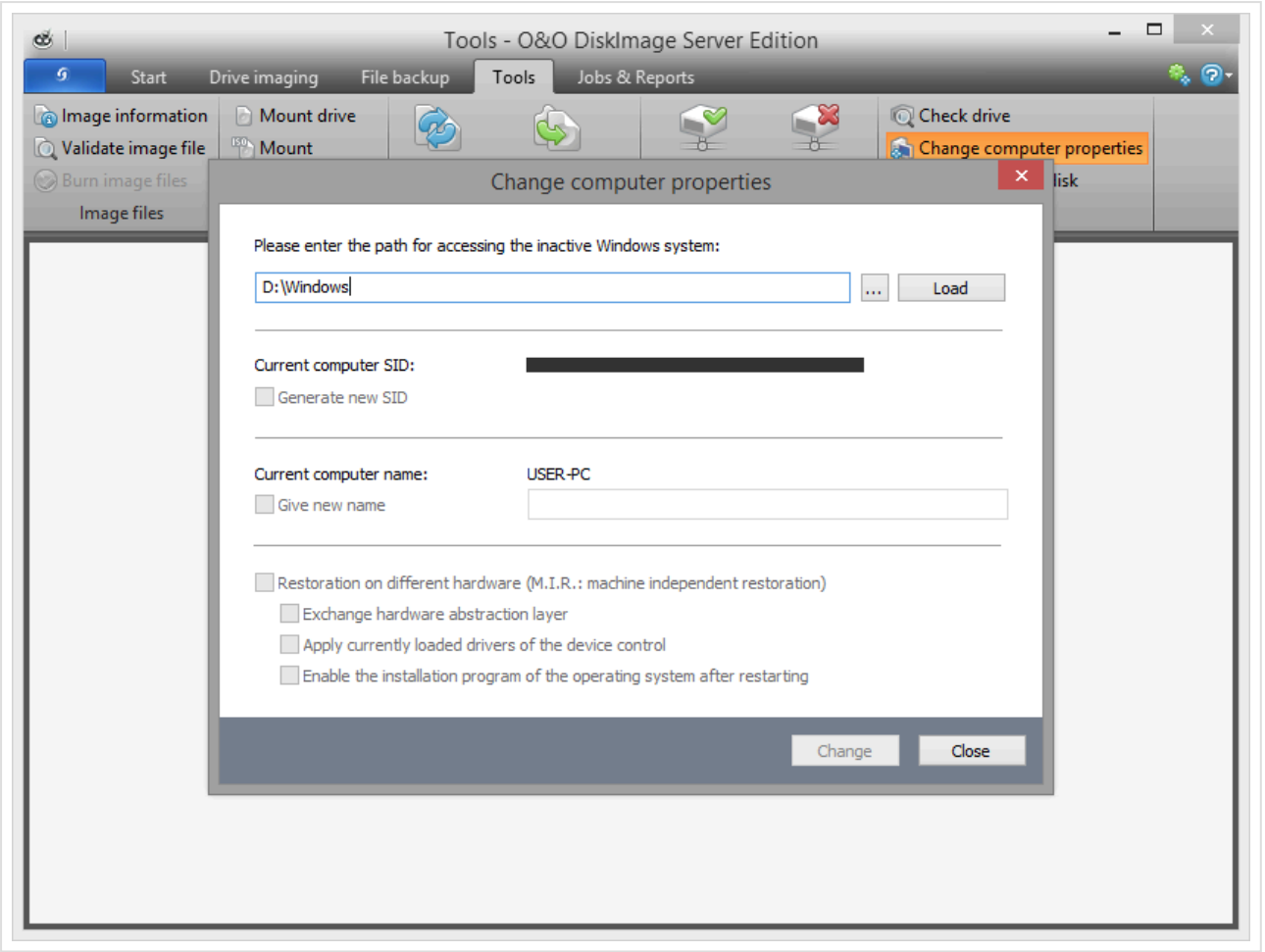
:::

:::note

If an error occurs while changing the current computer SID, we recommend resetting the registration structures SECURITY and SAM.

:::

1. Under **Tools** click **Change computer identity**.
2. Load the computer's non-active Windows system.The active system is the Windows PE being run on the bootable medium.This means that the non-active Windows system is the one not being booted by the hard disk.The path to the non-active Windows system is normally C:Windows.
3. You should then enter a computer name for your computer (Give new name). **Change** saves your settings and the computer identity after you have changed them. **Close** cancels the dialog without applying any changes.




## Check for drive errors

Under Tools the function **Check drive for errors** runs an intensive analysis of the file system and data storage interface to protect you against any possible loss of data.

The Wizard (CheckDisk) will guide you step by step through the process of checking your drives. Simply follow the instructions in the dialog window and select your drive.

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

# Jobs

The Job Assistant provides options for scheduling program functions to be run automatically. You can, for example, plan to have your data drives imaged once a week.

- You will be forwarded to the corresponding activity window for your selected job via **Start/Jobs & reports**, which lists all jobs and reports created in O&O DiskImage. With a double click you can see the corresponding report or edit the job.
- You can create a new job schedule by clicking the **Add as job** symbol after selecting the drive or a folder in the activity window.

:::note

In order to execute jobs on a regular basis, the starting conditions (e.g., source drive, images, or target drives) have to be the same. If you make changes to a drive's name, the storage location of the image, or on the layout of a target drive, the job may no longer be executed successfully. **Example:** If you've created a job for incremental imaging, you need to enter where you saved all the previous images serving as a basis for the new incremental image. If you've moved the "base image" to another storage location, you'll need to enter the new storage location in the Job Assistant: otherwise the new path will not be found and the job cannot be run successfully.

:::

:::note

The tabs for Scheduling and Notification are not available in the Job Assistant when starting from the O&O DIskImage bootable medium.

:::

# Create a job

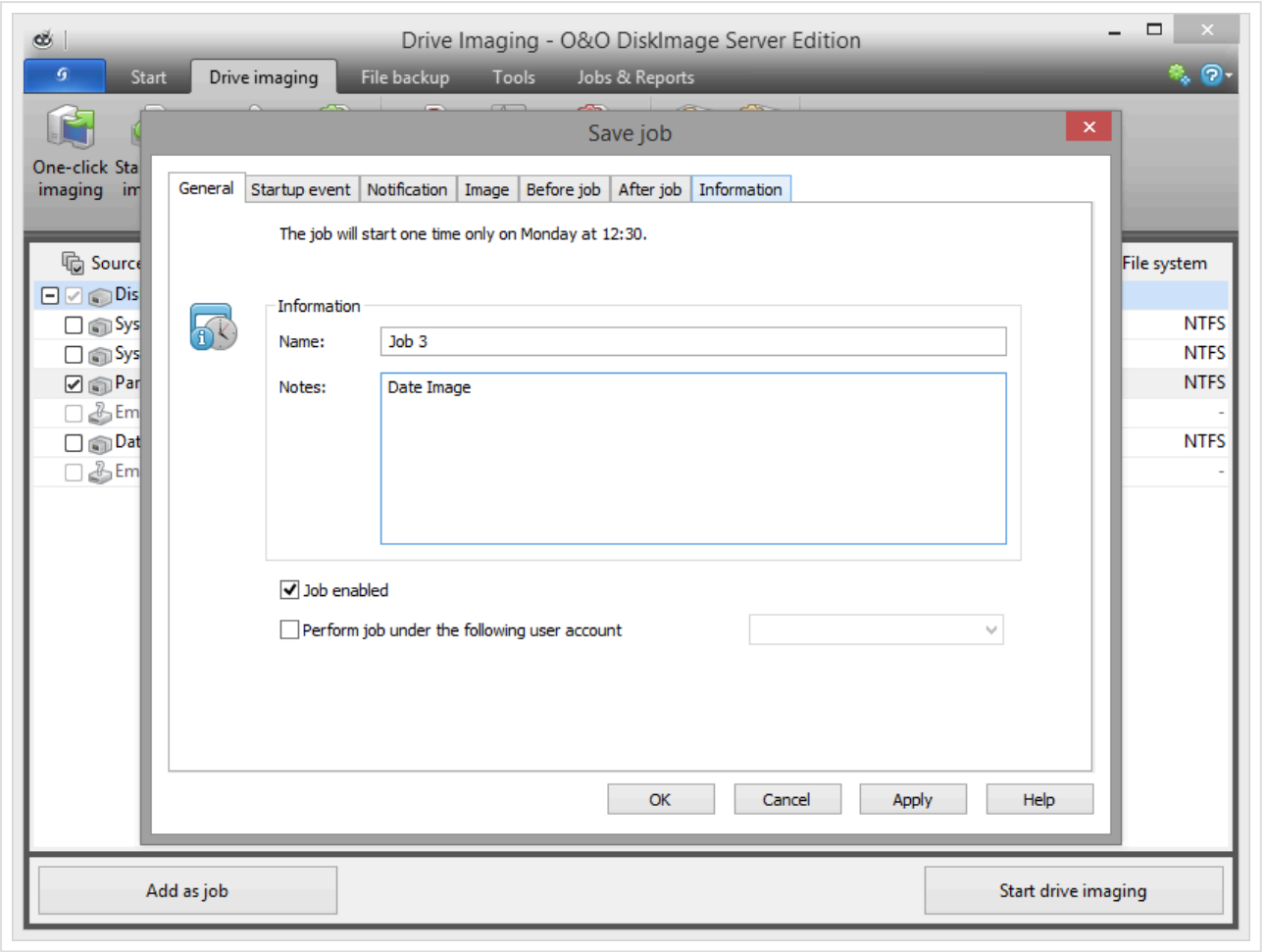
Before setting up a job, you'll have to select an activity.

1. On the start page, click the activity you want to perform, e.g. **Drive imaging**, or **File backup**.
2. Select a drive or, in case of a file backup, a folder.
3. Click Options if you want to specify certain settings for a job, such as the imaging method, encryption, or compression. Your settings will then be saved and applied to the subsequent job.
4. Now click the symbol **Add as job**.
5. Enter the name of your job in the dialog. It will later be used for the creation of the report and serve as reference. The name of the job has only symbolic meaning and may already be applied to other jobs.
6. Specify further settings such as scheduling, notification, imaging, etc.

In the field **Notes** you may enter text for providing a few details about the job.

**Job enabled**

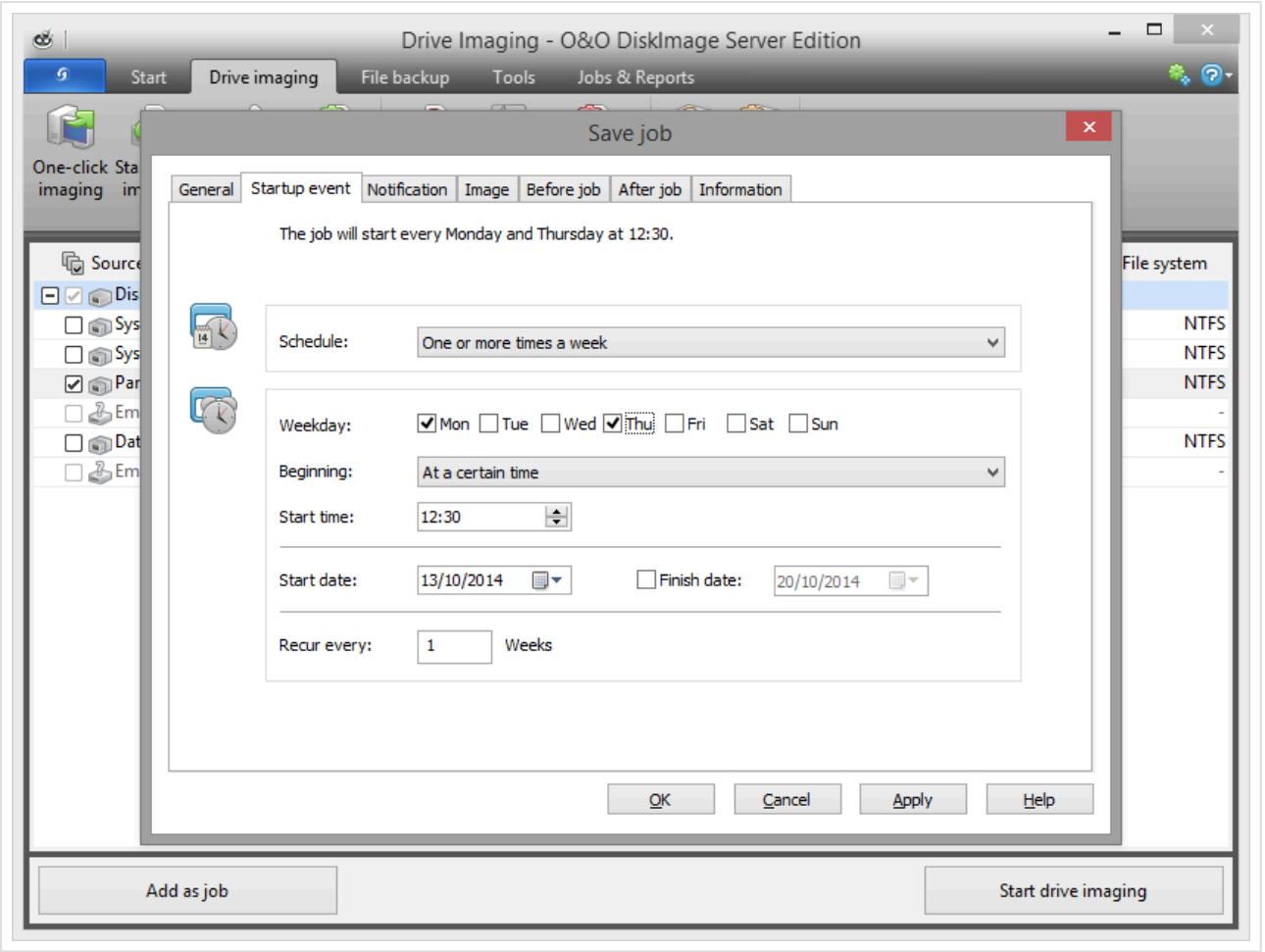
If you don't wish to run a job for a short period of time but don't want to delete it altogether, you may disable it. The job will then not be run until you enable it once again.




When creating a job, a recognized user can be selected in the security settings. When the task is executed it will be listed under that users account. This applies both to saving the image as well as preliminary work and editing. This enables the use of commands in preliminary work and editing, but these require authentification information and access to a network.

## Scheduling

Under Scheduling in the Job assistant, you can specify the exact moment when a job should be run. A job can be performed one time only or repeatedly. The options for execution (date, day of the week) will change along with the corresponding selection.




- Time

For weekly execution:

- Selection of weekday, date, and time
- Selection of the start and finish dates for the interval. The job will be performed, for example, five weeks in a row, once a week.

## Notification

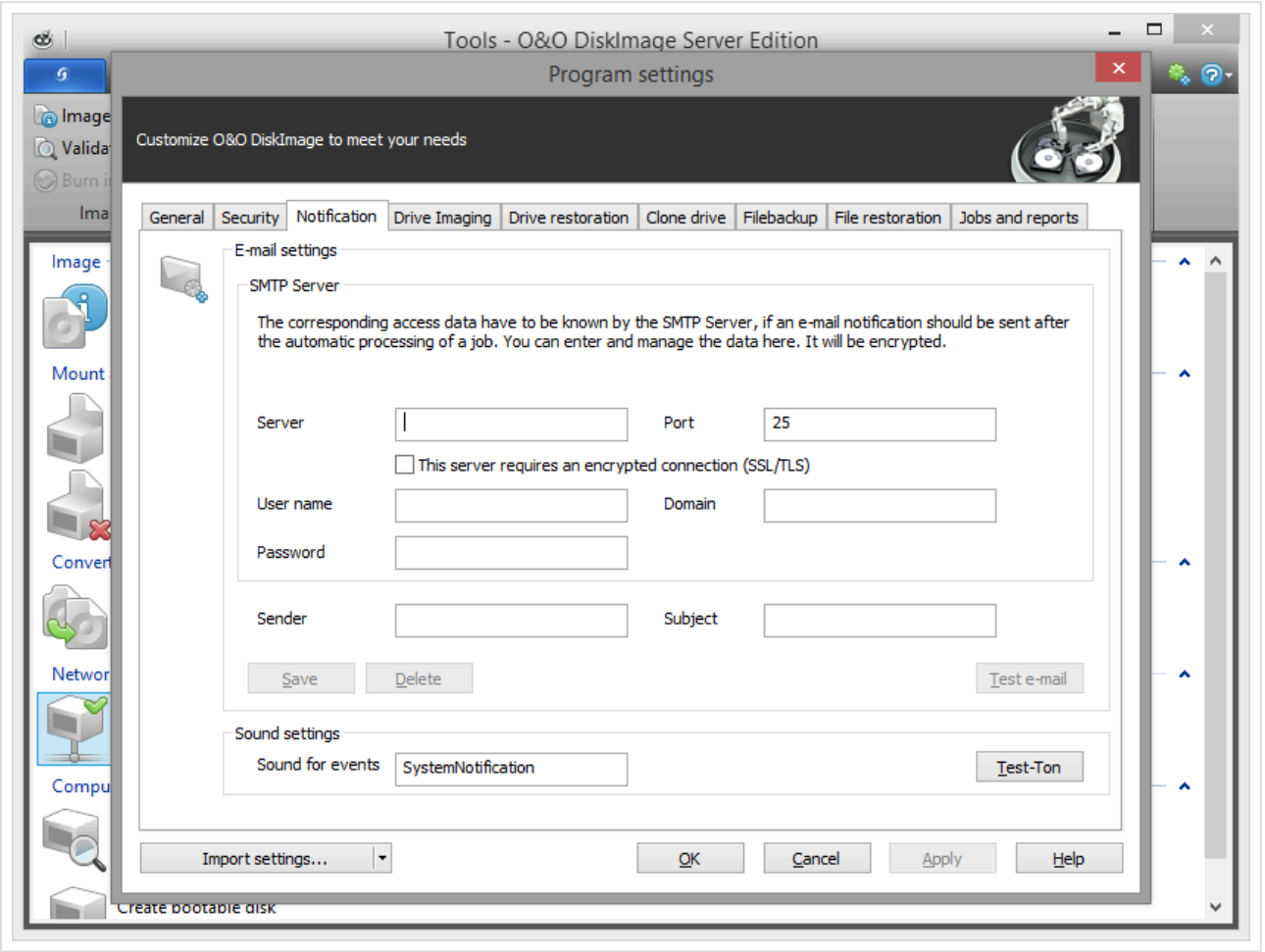
In the **Job assistant** under **Notification**, you can arrange to be notified by email about the running of tasks during events.

- If you want to be notified about the running of a job, select an event and enter your email address in the field for recipient.

:::note

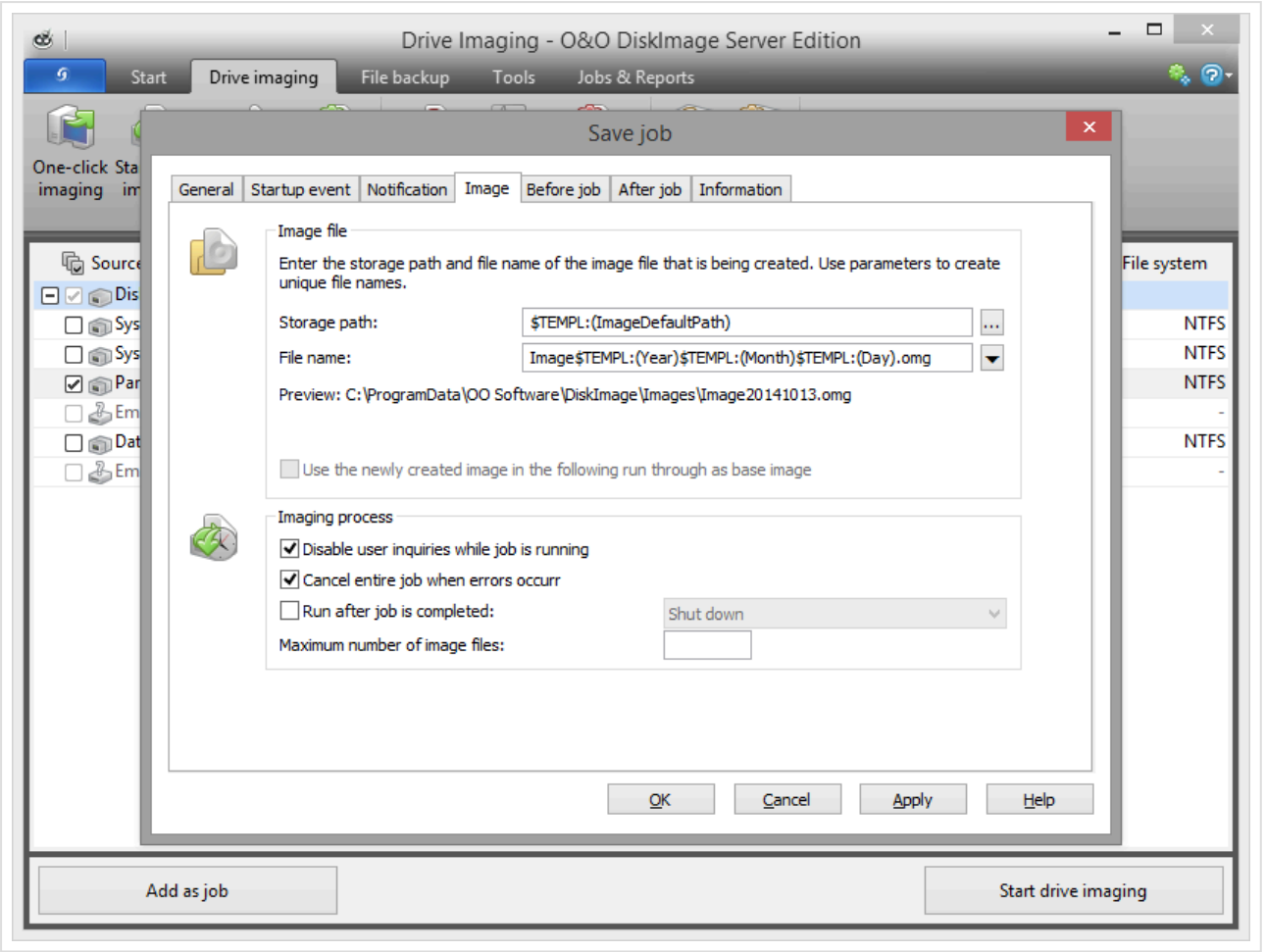
In order for your entry to be successfully processed, you'll have to set the sender data of your email server in **Program settings** under **Notification**.

:::




## Settings for a job

You can set additional options for your job in the fourth tab (**Image**) of the Job Wizard. 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

## Disable user inquiries while job is running

User inquiries are questions that can arise during the normal course of running a job or while the scripts are being processed.

If in doubt, you will need to confirm questions, e.g. with a security check if the name of the image already exists. The job will thereby be interrupted because the user either has to make a decision or additional information is required for continuing. You can setup some user queries with special parameters: for this please consult the script documentation.

User queries are currently made only if the user interface of O&O DiskImage is open.

User queries will not be filed until the user interface is closed during job execution, or if you have enabled the option **Disable user inquiries while job is being run**. Should this interactive option be turned off, in a worst case scenario there will be no confirmation dialog 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

The job will be aborted whenever an error occurs.

### Run after job is completed

Here you can choose between **Restart** and **Shut Down**. If you don't select anything, the computer will return to its condition prior to imaging. It will usually just remain on.

### Characteristics of an imaging job

**Storage path**

The target path to the storage location of the image will be applied from 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

Carrying out commands before and/or after a job can allow you to stop certain Windows services and then restart 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 carried out 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** select the file in the dialog (.BAT, .CMD or .TXT). Confirm with **OK**.

:::note

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

:::

**After Job**

If you select this option, the commands entered in the text field will be carried out 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 carried out on the target computer. All commands will be carried out under the SYSTEM User and his permissions.

:::

## Job information

The exact settings of a job are listed under **Information** in the Job assistant. The view provides information only; you will not be able to make any changes there.

# Job for incremental or differential images

In order to create a differential or incremental imaging job, you'll need a complete or base image that was previously created. This complete image will serve as a base for creating differential/ incremental imaging jobs. The first image after the complete image is always a differential image. Incremental images can be based on a differential or other incremental images.

1. Select **Start drive imaging** from the O&O DiskImage Start Page.
2. Click top right on **Imaging Options** and activate **Image of the changes** then select the base image. Now close the options Window.
3. Now click on **Add as job**.
4. Enter the name and the schedule for the image in the job dialogue.
5. Under Imaging you can either use the standard path or manually enter another storage location for the image.

The option **Use created image as base image for the following execution** is enabled by default. Incremental images will always be created based on the last image of changes. As a result of this, the data volume of the incremental image will end up being very small. All previous cumulative images and the last complete image will be needed for restoration. We recommend saving the complete image as well as any successive image of the changes in one folder.

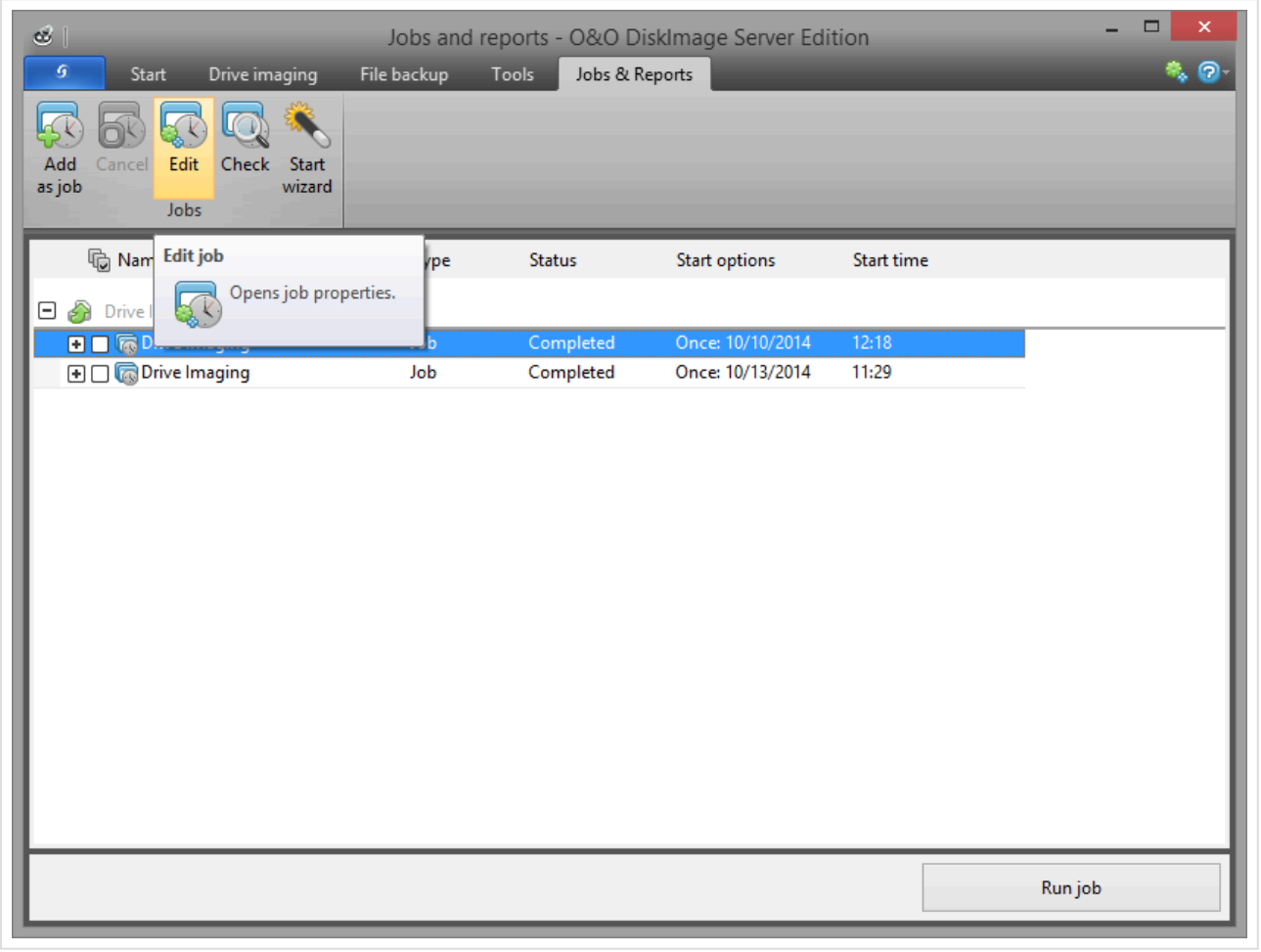
If this is not possible, the default check has to be removed from **Disable user inquires while task is running**. The process is only partially automatic because every time an imaging is performed, all earlier images will be requested. If these are not entered, the job will be aborted as a result of error.

The selection check for **Use created image as base for the following execution** is enabled by default. If you disable it, all further images will be created as differential ones using the last complete image for their base. Restoration will then require the last differential image along with the complete. Incremental images that were created in the meantime will no longer be needed. The data volume of these differential images is correspondingly larger than a series of incremental images.

# Edit jobs

1. To edit a job select **Jobs and reports** in the start page of O&O DiskImage.
2. You can change a job by selecting it in the job list and then clicking the symbol **Edit**.
3. The Job assistant will then appear with the settings of the job.
4. Make the desired changes in the properties and confirm the changes with **OK**.
5. If you decide not to apply the changes, click **Cancel**.

For certain tasks, e.g. deleting or importing/exporting one or more jobs, you have to select the desired jobs in the list. Afterwards, you can run desired tasks on all selected jobs.




Edit jobs

## Check job

To check if the settings for a job are valid, i.e., to check if its contents and syntax can be executed on a local system, select Jobs and reports in the file menu on the Start page of O&O DiskImage. Then select the job you want to check and click on Check job.

## Delete job

To delete a job select Jobs in the start page of O&O DiskImage. Mark the job you wish to delete with a check and then click on Delete.

## Run jobs

To run a job select Jobs and reports in the start page of O&O DiskImage. Start will begin the selected activity after a security question is answered.

## Export jobs

To export a job, select Jobs and reports on the start page 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 used again on another computer (see “Import jobs”).

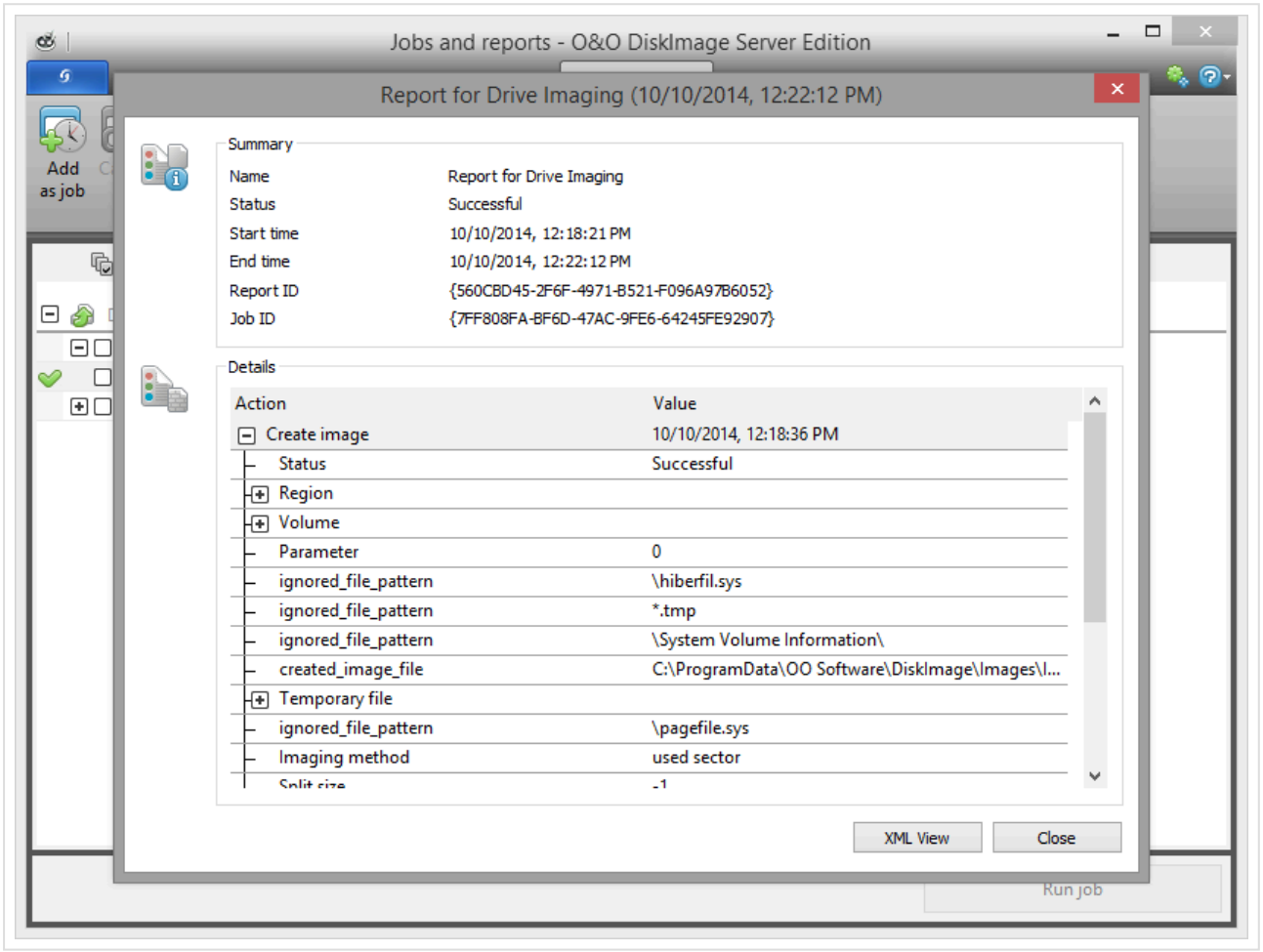
## Import jobs

To import a job, select Jobs and reports on the start page of O&O DiskImage and select the function Import jobs. Select the desired job in the dialog 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.

# Reports

A status report will be created for every action performed by O&O DiskImage. It can be accessed as a XML document from the start page of O&O DiskImage under **Jobs and reports**.

In the report you will find all information about the progress of an installation or a job.



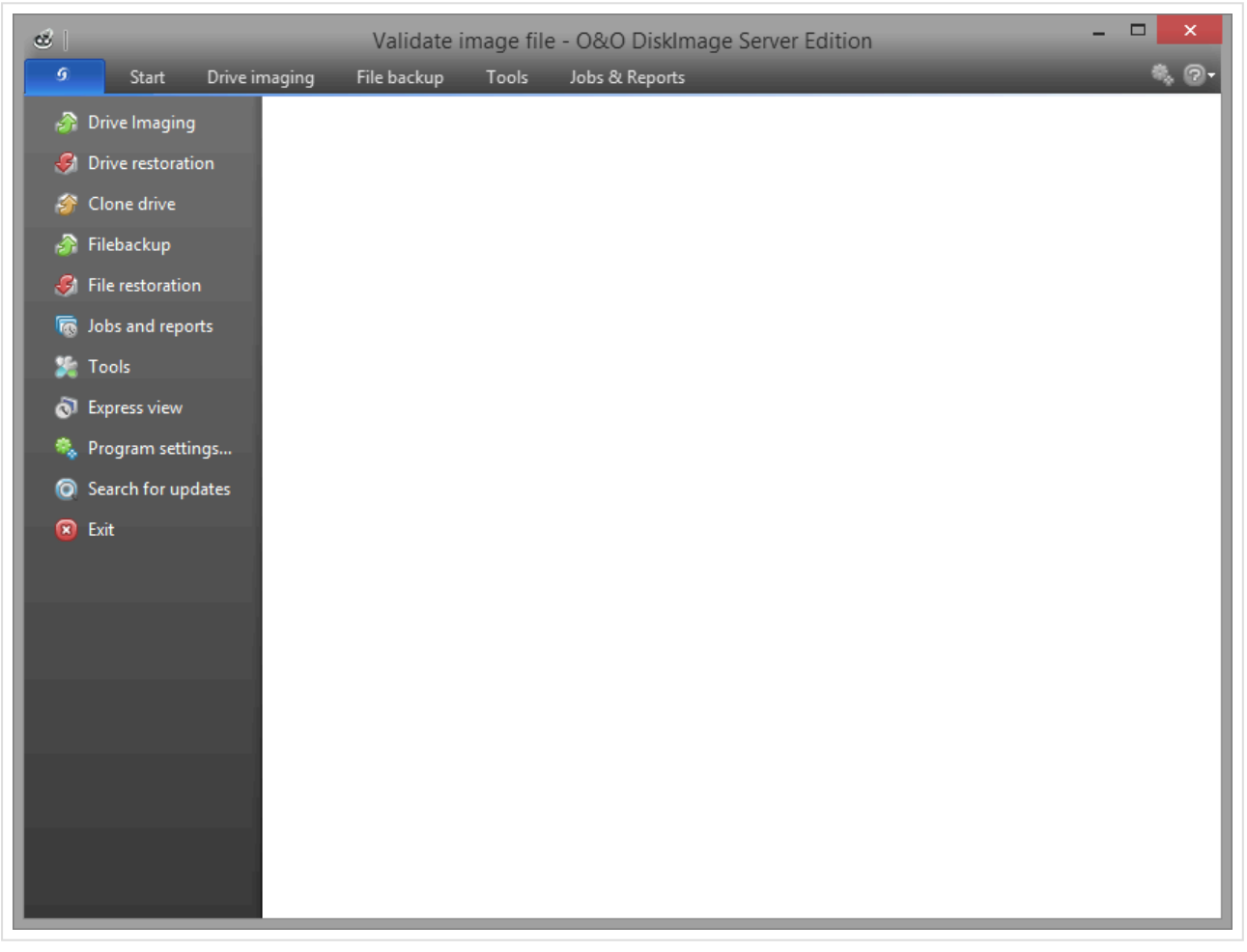
# Program settings

You can adapt O&O DiskImage to your needs in the start menu via **Start/Program settings**. 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.

:::note

The tabs for General, Security, and Email notification are not available in the Program Settings when starting directly from the O&O DiskImage bootable medium.

:::




## General

Under **General** in the **Program settings** you have the possibility to determine the program page that will be displayed at the start of O&O DiskImage. You can, for example, specify that the "Imaging" page appears

whenever you start the program.

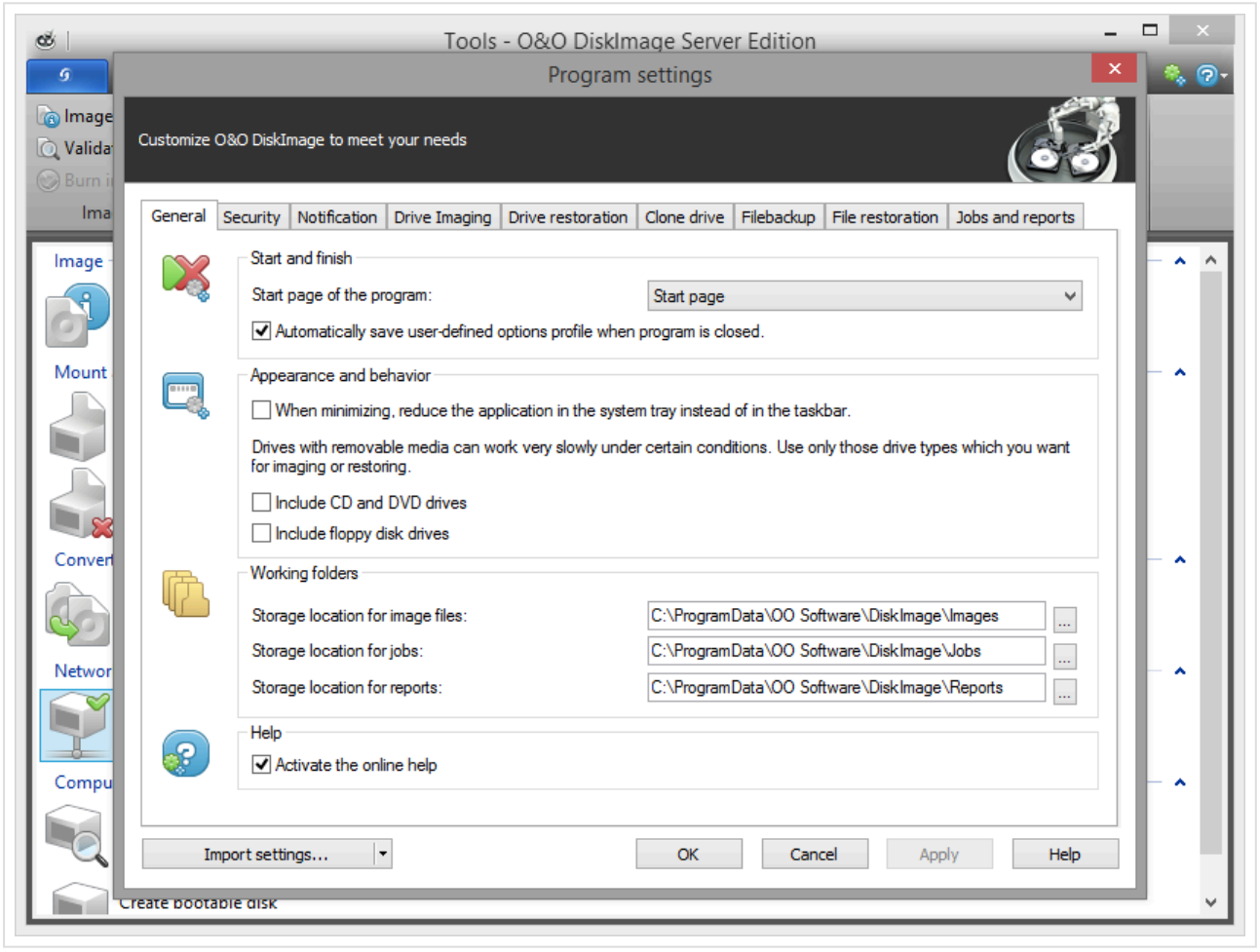
**Access removable drives**

Under **Appearance and behavior** you can decide whether removable drives should be accessed when 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 folders** you can determine and edit the folder 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 specified.



# Default settings

## Drive imaging

Under **Drive imaging** in the **Program settings** you can set specific settings for imaging.

**Prefer external USB drive to store image files** If you enable this function, external USB drives will be preferred as the target drives for storing images.

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

When you enable **Overwrite existing image files**, the prompting for overwriting image files with the same name will be suppressed during the creation of new images. This function is very useful when, for example, you're imaging data a number of times daily, and the image is automatically being named after the Day/Month/Year.

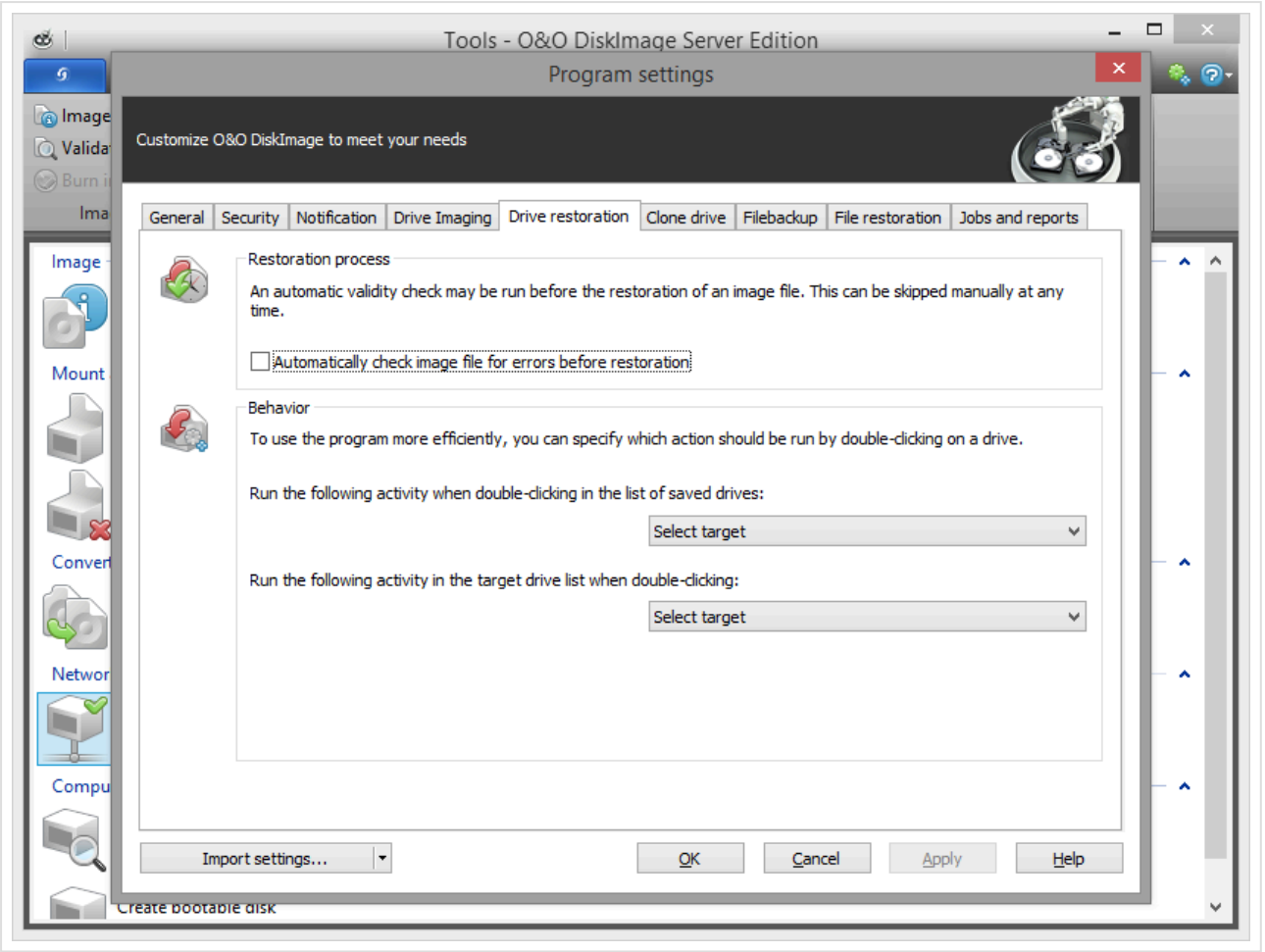
Under **Behavior** you can hide or un-hide drives that cannot be imaged by default in the user interface. Drives that cannot be imaged are for example: empty card reader or disk drives, the "Microsoft reserved partition" in GPT drives, OEM-BIOS-partitions in DELL and IBM or the system area in basic disks.

## Drive restoration

You can specify the default settings for restoration behavior under **Drive restoration** in the **Program settings**.

Under **Drive restoration** you can enable a validity check before the restoration of an image.

In addition, under **Behavior** you can specify which activity should be run when double-clicking a drive in the list.




## Drive cloning

If you're looking to change or enable the default settings for cloning, click **Clone drive** in **Program settings**

You can specify, if drives not able to be cloned by default e.g. a CD/DVD drive or empty disk drive should be shown in the activity window "Cloning".

Also, you can specify what should happen when you double-click on a drive in the activity window "Clone drive".

## File backup

Under **File backup** in the **Program settings** you can set specific settings for a backup.

**Prefer external USB drive to store image files** If you enable this function, external USB drives will be the preferred target for storing images.

Under the option **Check file backup automatically after its creation** you can determine if image files should be checked for errors immediately after they are created.

By selecting **Automatically overwrite existing image files**, the prompt asking if you want to overwrite an existing older image file with the same name will be suppressed. This function is very useful when, for example, you're imaging data a number of times daily, and the image is automatically being named after the Day/Month/Year.

Under **Behavior** you can adapt the program user guidance individually. In the DropDown menu, you can select what will happen when you double-click a file or folder.

## File restoration

Under **File restoration** in the **Program settings** you can change the default settings for behavior during restoration .

You can set the **Behavior** by double-clicking a drive in the activity window "File restoration".

## Jobs and reports

If you want to change or use the default settings for jobs and reports, click **Start/ Program settings** and then **Jobs and reports**.

**Reporting** Detailed reports can be created for all program activities. To save space, you can select the activities you need for reports. Running a job always creates a report.

**Behavior**

Under **Behavior** you can specify which activities to run, if you double-click on a job in the job list.

You can also set the behavior by double-clicking a report in the report list.

# Notification

To receive email notification about the running of a job, you'll have to enter the corresponding login data in the SMTP server. You will also need to enter the sender data.

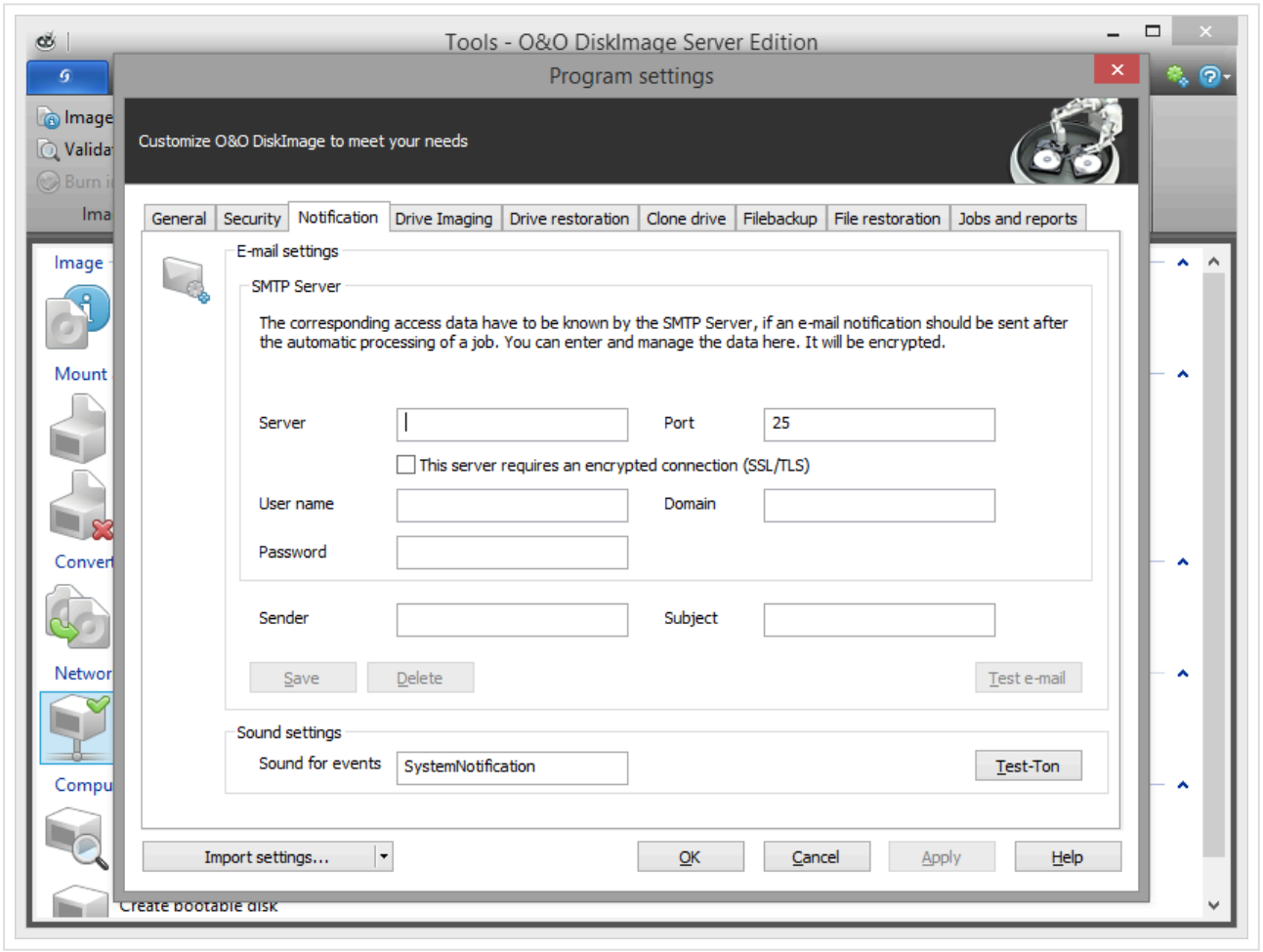
- Execute the relevant actions in **Program settings** under **Notification.**

You can only enter your Email address in the Job assistant after you've entered the required data completely.

:::tip

Your domain does not necessarily need to be entered in the field "Domain". You can also enter the name of your Email Server so that the EHLO or HELO including the mail server name can be run. The Email notification will then also work under a stricter setup Server.

:::




SMTP settings for notification

:::tip

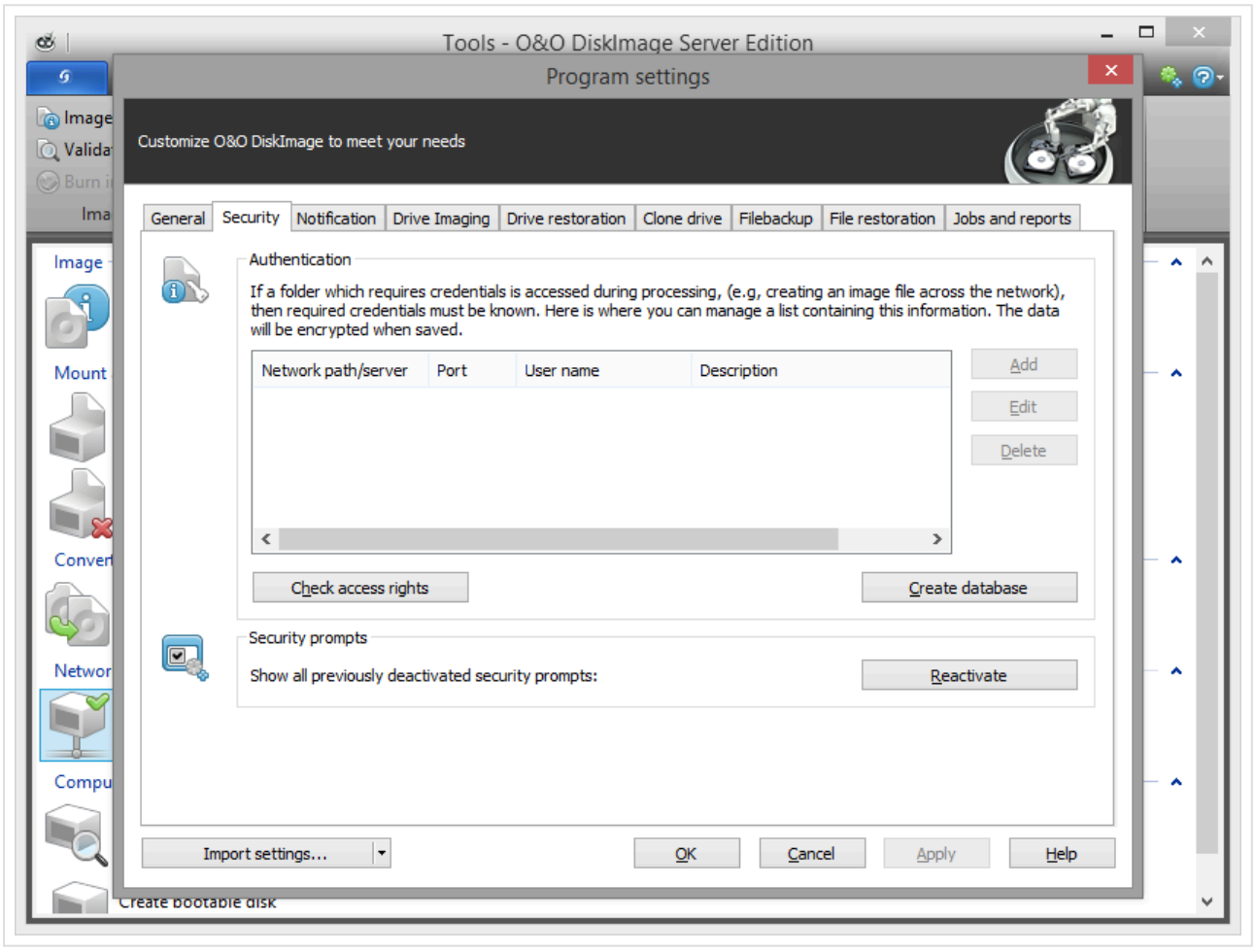
Try sending yourself a test email to make sure your entries are correct.

:::

# Network authentication

To login locally or to the network, e.g. to enable access to protected folders, you have to authenticate yourself. The authentication occurs through your user account. The user account is composed of the user name and the corresponding password, and can be coupled with additional permissions and sharing rights. It is possible to place the images on network drives while working with O&O DiskImage.

Please use the password manager of O&O DiskImage for automatic authentication.




## Reset security confirmations

Most of the security confirmations of O&O DiskImage can be deselected. Once disabled, they will be suppressed and no longer be displayed. If you want all the security confirmations to be displayed as they were when the program first started, under **Program settings/Security** click **Reactivate**.

## Explanation: Password management

Managing the password is a program feature which allows you to store authentication data and to manage it. These data is compresses in the password file, using the Advanced Encryption Standard-Algorithm (AES) and then stored. In addition, the order of the data sets is chosen at random.

A public and a private key are used to encrypt the password. The public key is set by default and can be changed in the registry under `HKEY_LOCAL_MACHINE\SOFTWARE\O&O\O&O DiskImage`. Please bear in mind that the key has to hold a value. An empty key will not be accepted. The private key is preset to a size of 64 Byte.

:::warning

Changes in the Registry may cause severe problems affecting the entire system and may cause the need to reinstall the complete operating system. Before making changes in the Windows Registry database, you should create an image of all the important data on your computer using O&O DiskImage.

:::

:::note

If you make changes in the Registry, it will require loading the database again. In the following chapter you'll find brief explanations of the registry entries.

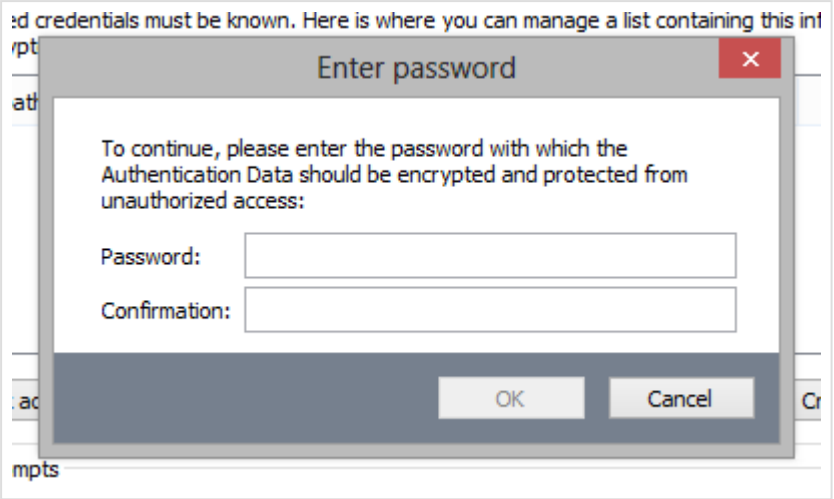
:::

## Network authentication

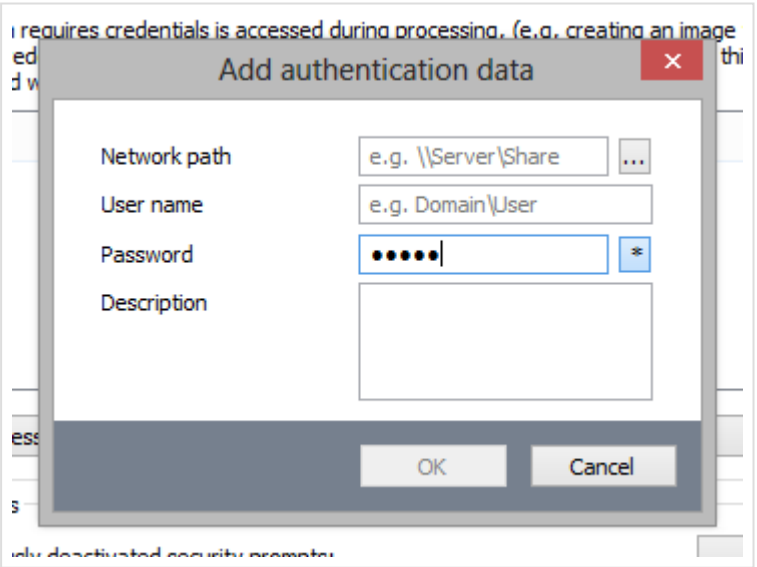
Enter the following settings under **Start/Program settings/Security**:

1. If you have not yet created a database, click **Create database**.
2. Enter any password you'd like and confirm your entry. This password will then be encrypted and filed. In order to encrypt the password, a new one will be generated that is composed of two parts: public (Public Key) and private (Private Key). This ensures that you are the only one who can open and read the password

file. The O&O DiskImage Service will have automatic access to this password as well.




3. Then click **Add** in the security dialog.
4. Under **Computer/Folder** enter the path under which the image is to be saved, or from where it is supposed to be loaded: Computer nameFolder name or Domain nameFolder nameUser name. Alternatively, you can enter the computer name only if all the sharing options can be opened by the selected user.
5. You have to enter a qualified name of a user account when entering the user name. For example, the corresponding domain for the specific domain account has to be entered and covered, e.g. domainuser1 or User1@domain.
6. Enter the network password of the user, or of his user account. Please keep in mind that the user under which you login has to hold access rights for the target or original folder. You can check for them under Properties in the corresponding target directory under Security.

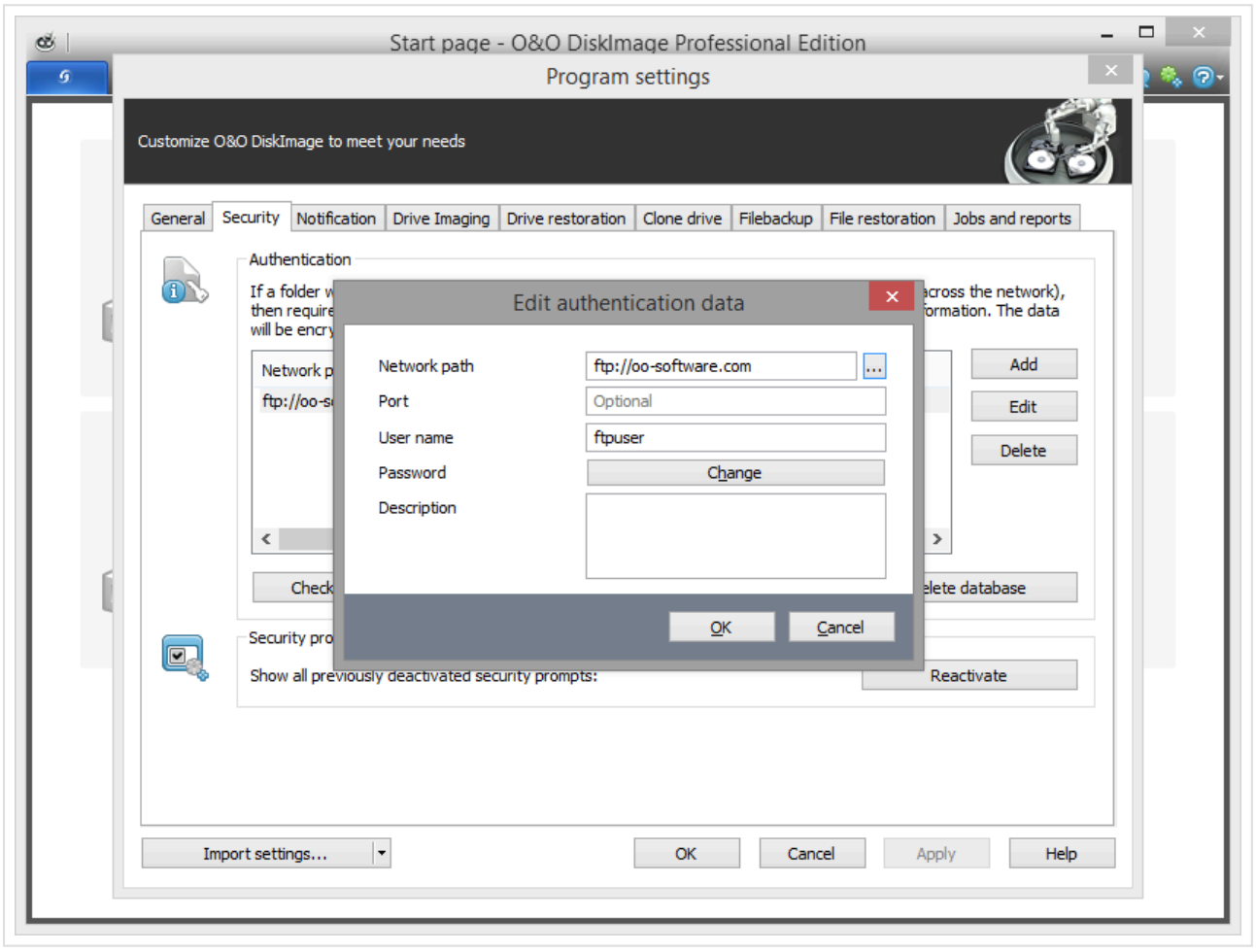



7. You can also add descriptions to the credentials.
8. After the authentication, you can, for instance, enter a new "network path" as saving location and also restore an image from there.

# Use FTP

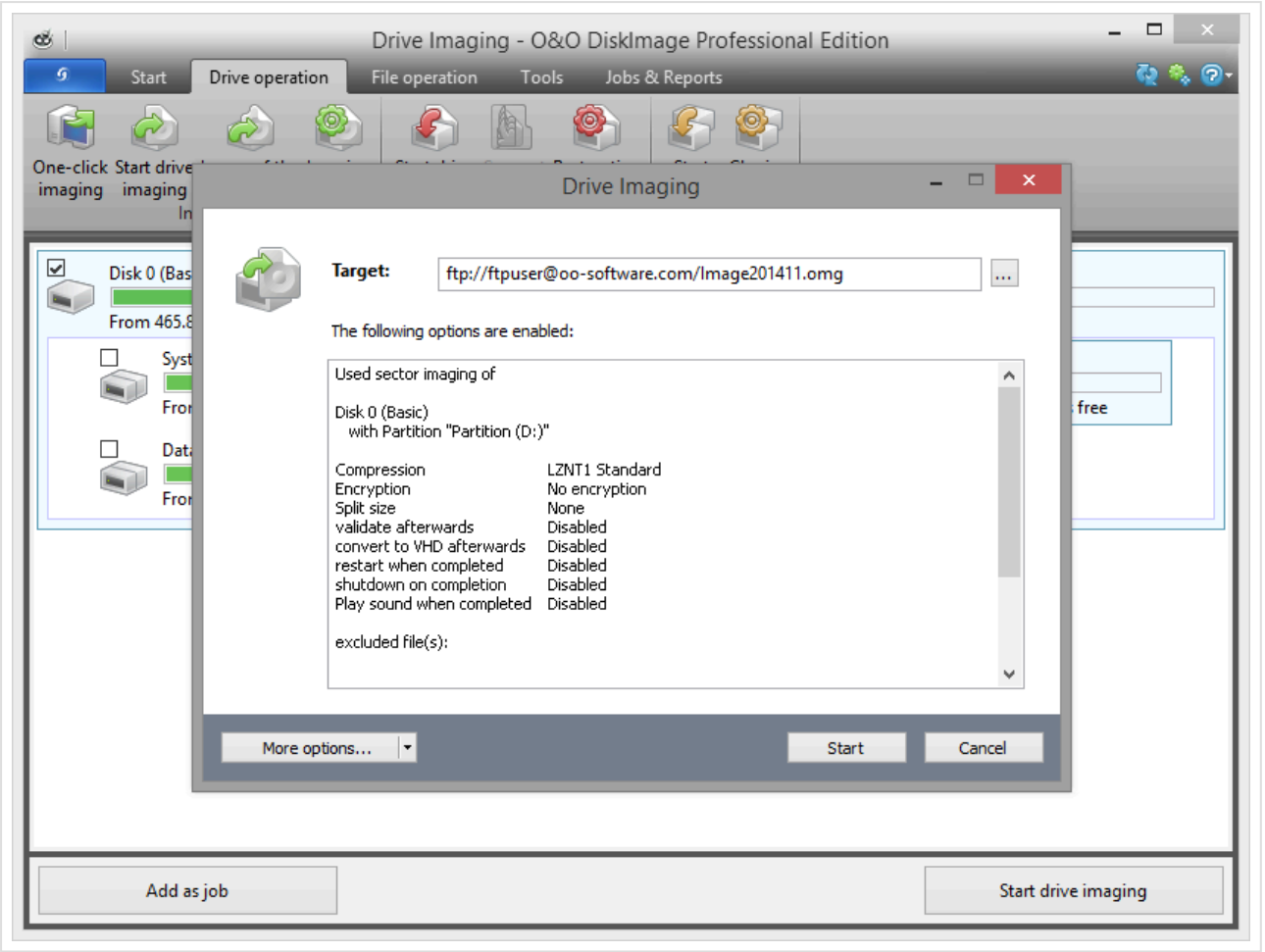
O&O DiskImage supports so-calles passive FTP.

In order to save your image on an FTP Server, you'll need to authenticate yourself in your FTP user account. The user account is essentially based on your FTP user name and the corresponding FTP password. It's important to label FTP access as "ftp://". Please note that the network path/server you set will be consulted while the authentication information is being detected, i.e., this string is the one being looked for.



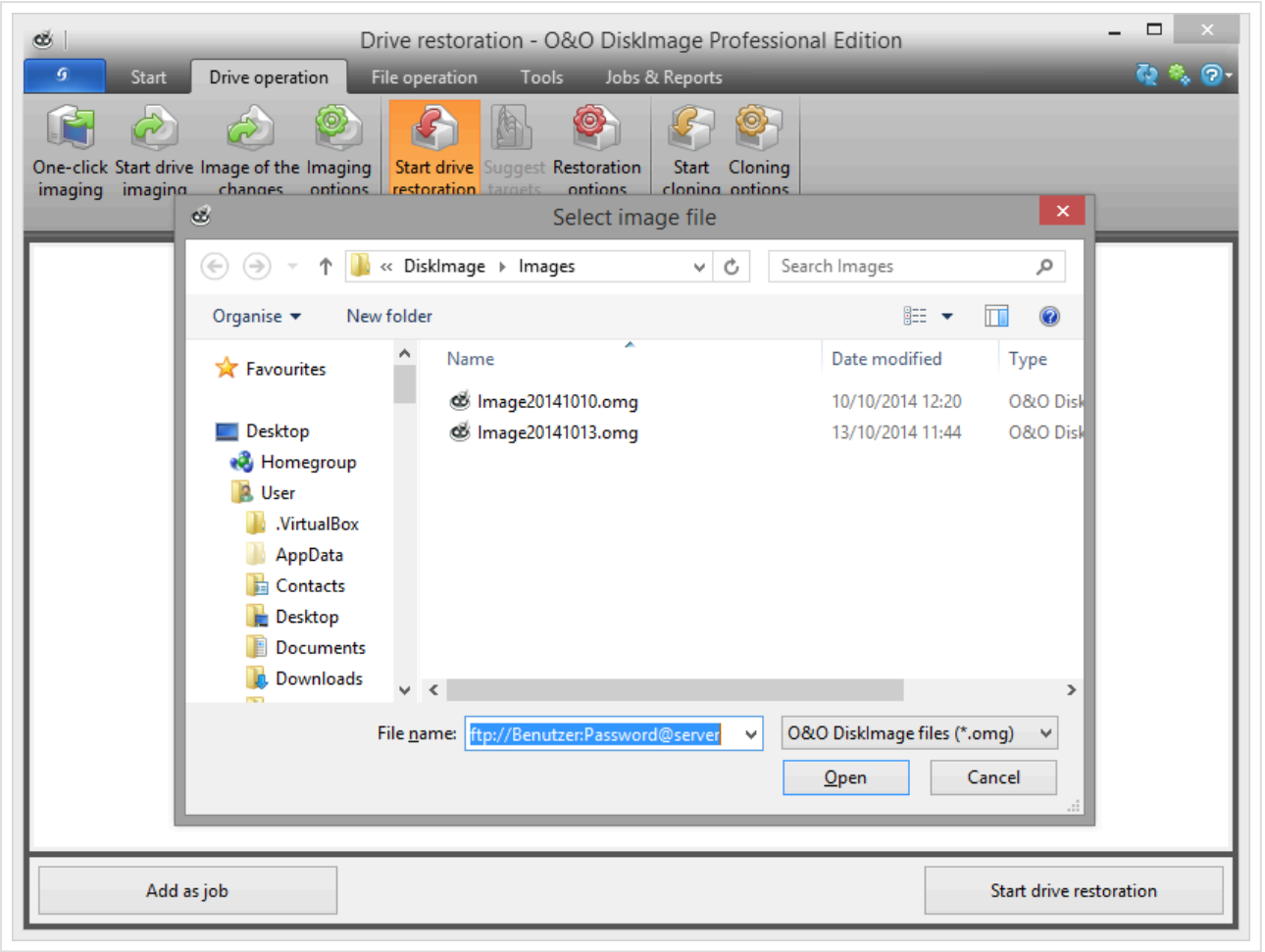

If all the data has been correctly gathered, a test of the authentication information should be successful.

During imaging, the program (O&O DiskImage) must be given the FTP user and the path.




This is always done in the format “ftp://user@server/path“. User and server are needed in order to assign the entry correctly in the authentication information.

**Image selection** The user and password must be entered if an image is being selected from an FTP server via a file selection dialog, e.g., by Open file.




Using “ftp://user:password@server/“ it‘s possible to scan the folder and select the image.

# Tray icon

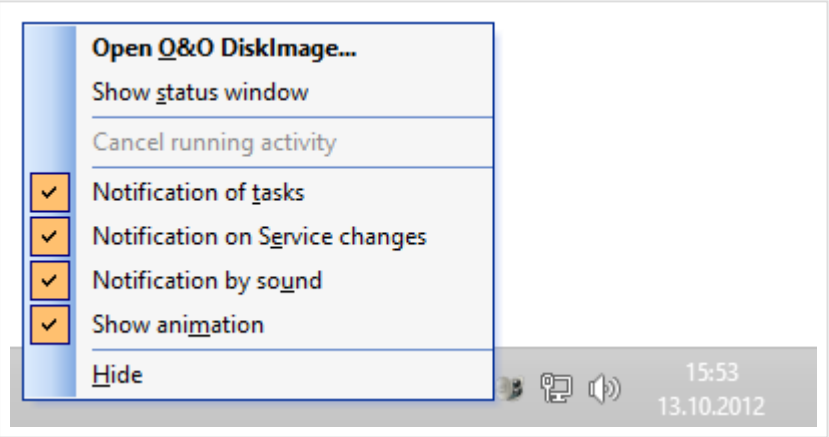
The O&O DiskImage Tray icon is displayed by default in the info area of the task tray following successful installation of O&O DiskImage. The tray icon will indicate whether O&O DiskImage is currently enabled. The icon will be animated while an action is being processed, otherwise, the tray icon will remain still.

Right-clicking the tray icon will show you various control options for O&O DiskImage. You'll be able to open the O&O DiskImage program interface, cancel a running action, hide the tray icon, or suspend the animation.

If you don't have administrator rights for this computer, you will not be able to start DiskImage. It will not be possible to click.

In addition, you'll be able to hide or show the progress of a job or changes in the service.

**Our suggestion:** If you'd like to have the tray icon permanently disabled (hidden), do so using the menu **Start/All programs/O&O Software/O&O DiskImage/O&O DiskImage Tray**. The same path can be used for reversing the process whenever you want the icon to be shown.



# Script interface

.

The O&O DiskImage Command Interpreter makes it possible to manage disks, partitions, or volumes and images with the assistance of command files (XML documents). All scenarios displayed by O&O DiskImage directly or indirectly can in this way be re-enacted.

:::note

The O&O DiskImage program prevents a large number of user activities that might unintentionally result in loss of data.It is strongly recommended to use the Command Interpreter with great caution, as it enables the user to directly control partitions, volumes, disks and images.

:::

Drive letters will not be automatically assigned by using the Command Interpreter. To be certain that a particular partition or volume has a drive letter; you will have to assign it one directly.You can either assign the drive a letter yourself, or have the next available drive letter assigned for you. Otherwise, the created storage volume will not be accessible or visible to certain programs such as Microsoft Explorer.

Use the command "oodi /s Path\File.xml", to access and run a command file. In addition, you can introduce and run the command file in the program over the program's "Import" feature.

As a default setting, DiskImage can end the command process and send an error code if the command file is defective.To continue running a command file even under these conditions, set the parameter "stop_at_error" on the value "false" or "no",.If there was no error, the value "0" will be sent as a confirmation of success.

Upper and lower case will not be considered when using labels and names i.e., there will be no difference between, for example, "command", "COMMAND" or "Command".

Single commands have to be enclosed in the element "DiskImage", "Job" or "DiskImageJob".

# Formatting legend

| Value | Meaning |
| --- | --- |
| Format | Description |
| Ellipsis (...) | Parameters which can be repeated several times in a command line |
| Between square brackets ([]) | Optional Elements |
| Curly brackets ({}) Separate options from each other with a pipe sign ( | ). Example:<br>{even |

# Conditions

In a command file, commands and/or parameters can be connected with conditions when needed to run or apply them.A condition is labelled with the string "CONDITION".The following operations can be used for getting a verification of validity:

- the values are equal- ("==")
- the values are unequal- („!=“)
- the left value is greater than the right value (">")
- the left value is smaller than the right value ("<")

A dynamic command file processing can be attained by evaluating the environment variables in conditions.

## Example

```
<command name="create partition">
```

```
<CONDITION> $ENV:(ImageStep)==2</CONDITION>
```

```
<drivenumber>0</drivenumber>
```

```
<!—target object is disk 0 -->
```

```
<remaining_range>true</remaining_range>
```

```
<!-- layout of a partition on the remaining range -->
```

```
<driveletter_to_set>D</driveletter_to_set>
```

```
<!—set drive letter D -->
```

```
<chs_alignment>yes</chs_alignment>
```

```
<!—alignment of the new partition on cylinder/head/sector -->
```

```
<NTFS>true</NTFS>
```

```
<!—create NTFS partition (fix partition type, fix file system for formatting) -->
```

```
<format>true</format>
```

```
<!—run formatting with fixed file system -->
```

```
</command>
```

In the above example, the command to create a partition will only be run if the value of the environment variable "ImageStep" is equal to the value "2".

# Environment and template parameters

The command interpreter has been extended with an option for validating environment variables and conditions.

A value included in the string "$ENV:()" is replaced at running time with the value of the environment variable.Similarly at running time, a set environment variable "image_name" with the value "C:\\Image20990226.omg" is replaced in the command file by using the string "$ENV:( image_name)" with the value "C:\\Image20990226.omg."

The following additional template parameters are available wildcards for use as replacements during the command file procedure.These parameters will be enclosed in the string "$TEMPL:()". The following fixed values are possible:

- ComputerName: the current name of the Computers
- UserName: the name of the current user, of the process
- DefaultPath: the standard path saved in/by the program
- Day: current date of the operating system
- Month: current month of the operating system
- Year: current year of the operating system
- Hour: current hour of the operating system
- Minute: current minute of the operating system
- Second: current second of the operating system
- Weekday: written day of the week
- WeekNumber: calendar week number

## Example

```
<command name="restore image">
```

```
<image_name>C:\Image$TEMPL:(Year)$TEMPL:(Month)$TEMPL:(Day).omg</image_name>
```

```
<!-- dynamic formation of the image name -->
```

```
<target_drivenumber>0</target_drivenumber>
```

```
<!—target object is disk 0 -->
```

```
<image_driveletter>C</image_driveletter>
```

```
<!—source object is the Volume/Partition with the drive letter C -->
```

```
<chs_alignment>yes</chs_alignment>
```

```
<!—alignment of the new partition on cylinder/head/sector -->
```

<set_bootable_partition_bootable>yes

```
</set_bootable_partition_bootable>
```

```
<!—in case the source object was bootable,set again to bootable -->
```

```
<append_on_target_drive>yes</append_on_target_drive>
```

<!—the partition being restored will be appended in the existing layout,

other partitions will not be overwritten -->

```
</command>
```

The file name in the example will become the running time, if the current date would be 26.02.2099, it would be changed into “20990226”.The image file called „image20990226.omg“ found in partition „C:\“ would be used for restoration.

# Commands

A command refers to a functioning part or special feature of the program. With the help of the relevant command, an operation such as “Creating an Image” can be implemented.An operation is specialized through parameters. These parameters are divided in optional, non-optional, and dependent parameters. Optional parameters are not required to be used; however, they do expand the program’s usefulness. Non-optional parameters must be set and filled with valid values. If the values of this parameter or the parameter itself are missing during the processing of the command, the command processing will be aborted. False or missing parameters will then be noted in the log file. Dependent parameters are parameters which are optional and used to particularize another parameter. Alone, they have no validity.

Examples of dependent parameters:

The parameter "begin" is, by itself, insignificant.Through the parameter "disk_number", however, the offset will be recognized on a hard disk.

Using the qualifier „command“, you can apply and control the following commands during the processing of the command interpreter.

Footnote: Presentation and Text Formatting are explained under "Formatting Legend".

# File-based backup functions

Creates a file-based backup using transferred criteria.

**Parameters**

- backup_type
- compression_type
- encryption_type
- checksum_type
- device_type
- backup_name
- backupset_id
- backupset_criteria
- [ password ]
- [ comments ]
- [ max_backup_size ]
- [ force_dismount | snapshot | vss ]
- [ ignored_read_errors ]
- [ ignore_invalid_free_size_appointment ]
- [ automatically_validate_backup ]
- [ automatically_overwrite_backup ]
- [ ignore_snapshot_cache_overflow ]
- [ automatically_convert_to_vhd ]
- [ backupset_name ]
- [ backupset_comments ]
- [ backupset_exclude ]

## create incremental backup

Creates an incremental file-based backup. A backup will be created that contains only the changed files from a selected existing backup.

**Parameters**

# restore backup

Restores files/data from a file-based backup.

**Parameters**

- device_type
- backup_name
- [ password ]
- [ target_path ]
- [ overwrite_target_data ]
- [ ignored_read_errors ]
- [ ignore_data_modification ]

:::note

If no target parameter (target_path)is indicated, the original data will be overwritten with data from the backup.

:::

# validate backup

This function checks the structural integrity of the backup file. It will examine whether the required logical structure is intact or undamaged. In addition, encrypted and/or compressed backups will be checked to determine whether decryption or decompression is possible without error.

**Parameters**

- device_type
- backup_name
- [ all_splits ]
- [ password ]
- [ ignore_data_modification ]

:::note

If no target parameter (target_path) is indicated, the original data will be overwritten with data from the backup.

:::

**Example**

```
<command name="validate backup">
```

```
<device_type>filesystem</device_type>
```

```
<backup_name>c:\OODI\Image20111005.obk</backup_name>
```

```
</command>
```

# Disk management functions

## assign drive letter

Assigns a drive letter to the selected drive or changes it.

**Parameters**

- driveletter_to_set
- { devicename | driveletter | drivenumber | serialnumber | begin }

:::note

Drive letters of current system volumes and the startup volume cannot be changed.

:::

A maximum of 26 letters are allowed for one computer. The drive letters A and B are reserved for floppy drives. These letters, however, may be assigned to removable media drives when the computer doesn't feature a floppy drive.

**Example**

```
<command name="assign drive letter">
```

```
<drivenumber>2</drivenumber>
```

```
<begin>32256</begin>
```

```
<driveletter_to_set>X</driveletter_to_set>
```

```
</command>
```

## checkdisk

Command that checks disks for problems. It also offers the option to correct recognized problems.

**Parameters**

- correct_errors
- verbose
- check_only_if_dirty

- locates_bad_sectors_recover_readable_information
- { devicename | driveletter | drivenumber | serialnumber | begin | system_volume | data_volumes}

:::note

This command can possibly require a large amount of time to run. The amount of time needed will depend on the number of files and folders, the size of the disk, the disk's performance and the available system resources, such as processor and memory.

:::

**Example**

```
<command name="checkdisk">
```

```
<driveletter>E</driveletter>
```

```
<correct_errors>no</correct_errors>
```

```
<verbose>yes</verbose>
```

```
<check_only_if_dirty>no</check_only_if_dirty>
```

<locates_bad_sectors_recover_readable_information>no

```
</locates_bad_sectors_recover_readable_information>
```

```
</command>
```

## clear disk

Removes all formatting from partitions and volumes on the selected storage volume.

**Parameters**

- { devicename | drivenumber | serialnumber}
- [ is_superfloppy ]

:::note

All drives will be deleted.

:::

**Example**

```
<command name="clear drive">
```

```
<drivenumber>1</drivenumber | serialnumber>
```

```
<is_superfloppy>no</is_superfloppy>
```

```
</command>
```

## create mirrored volume

Creates a mirrored volume.

**Parameter**

- size
- { devicename_one | drivenumber_one | serialnumber_one}
- { devicename_two | drivenumber_two | serialnumber_two}
- [ driveletter_to_set ]

:::note

The function for creating a mirrored volume is dependent on the operating systems that are currently installed and enabled.

:::

Two dynamic volumes are needed for creating a mirrored volume.

It is possible to mirror a simple available volume.

Mirrored volumes are error-tolerant and use RAID-1. Redundancy is assured through the creation of two identical copies of a volume.

It is not possible to extend mirrored volumes or to convert them into stripe set volumes.

Both copies (mirrors) of the mirrored volumes use the same drive letters.

You can install an operating system on a simple or mirrored dynamic volume only.Entries in the partition table must exist for this volume (i.e., that this was a system or start volume).

**Example**

```
<command name="create mirrored volume">
```

```
<drivenumber_one>2</drivenumber_one>
```

```
<drivenumber_two>3</drivenumber_two>
```

```
<size>8589934592</size>
```

```
<driveletter_to_set>M</driveletter_to_set>
```

```
</command>
```

## create RAID5 volume

Creates a RAID-5 volume with at least three selected dynamic volumes.

**Parameter**

- RAID5_column_size
- size
- { devicename | drivenumber | serialnumber} ...
- [ driveletter_to_set ]

:::note

Depending on current and enabled operating systems, a mirrored volume can be created.

:::

At least three dynamic volumes are required for creating a RAID-5 volume.

A RAID-5 volume helps you achieve error-tolerance.This will merely require an additional storage volume for the volume. If you’re using, for example, three 10 GB storage volumes to create a RAID-5 volume, the volume will contain a total of 20 GB. The remaining storage space of 10 GB will be used for parity.

RAID-5 volumes can neither be extended nor mirrored.

**Example**

```
<command name="create RAID5 volume">
```

```
<drivenumber>2</drivenumber>
```

```
<drivenumber>3</drivenumber>
```

```
<drivenumber>4</drivenumber>
```

```
<size>8589934592</size>
```

```
<RAID5_column_size>8589934592</RAID5_column_size>
```

```
<driveletter_to_set>R</driveletter_to_set>
```

```
</command>
```

## create simple volume

Creates a simple volume.

**Parameter**

- { devicename | drivenumber | serialnumber }
- { size | complete_region_size | remaining_range | part_of_disk_size }
- [ driveletter_to_set ]

:::note

You can create simple volumes on dynamic volumes only.

:::

Simple volumes are not error-tolerant.

You can install an operating system on a simple or mirrored dynamic volume only.Entries in the partition table must exist for this volume (i.e., that this was a system or start volume).

**Example**

```
<command name="create simple volume">
```

```
<drivenumber>2</drivenumber>
```

```
<size>5368709120</size>
```

```
<driveletter_to_set>S</driveletter_to_set>
```

```
</command>
```

## create spanned volume

Creates a spanned volume.

Parameter

- size
- { devicename | drivenumber | serialnumber }

- [ driveletter_to_set ]

:::note

You can create spanned volumes on dynamic volumes only.

:::

At least two dynamic volumes are needed for creating an spanned volume.

A spanned volume can be expanded for as many as 32 dynamic volumes.

It is not possible to mirror spanned volumes or to convert them into stripe set volumes.

Spanned volumes are not fault-tolerant.

**Example**

```
<command name="create spanned volume">
<size>5368709120</size>
<drivenumber>2</drivenumber>
<size>2684354560</size>
<drivenumber>3</drivenumber>
<size>2684354560</size>
<driveletter_to_set>S</driveletter_to_set>
</command>
```

## create striped volume

Creates a stripe set volume with at least two selected dynamic volumes.

**Parameter**

- size
- { devicename_one | drivenumber_one | serialnumber_one}
- { devicename_two | drivenumber_two | serialnumber_two}
- [ driveletter_to_set ]

:::note

At least two dynamic volumes are needed for creating a stripe set volume. A stripe set volume can be created for as many as 32 storage volumes.

:::

Stripe set volumes are not fault-tolerant, and can neither be extended nor mirrored.

**Example**

```
<command name="create striped volume">
```

```
<drivenumber_one>2</drivenumber_one>
```

```
<drivenumber_two>3</drivenumber_two>
```

```
<size>8589934592</size>
```

```
<driveletter_to_set>S</driveletter_to_set>
```

```
</command>
```

## create partition

Creates a partition on a basic disk.

**Parameters**

- { devicename | drivenumber | serialnumber | begin }
- { size | complete_region_size | remaining_range | part_of_disk_size }
- [ format ]
- { NTFS | FAT16 | FAT32 | huge | extended }
- [ label ]
- [ no_alignment | default_windows_alignment | chs_alignment ]
- [ driveletter_to_set ]

:::note

Primary partitions, extended partitions and logical drives can only be created on a basic disk.

:::

On volumes with an MBR (Master Boot Record), you can optionally create up to four partitions, or three primary partitions and one extended partition.

On volumes with a GPT (GUID-Partition Table), you can create up to 128 primary partitions

**Example**

```
<command name="create partition">
```

```
<drivenumber>1</drivenumber>
```

```
<begin>8595417600</begin>
```

```
<size>2147483648</size>
```

```
<huge>yes</huge>
```

<default_windows_alignment>yes

```
</default_windows_alignment>
```

```
</command>
```

## delete partition

Deletes the selected partitions on a basic disk.

**Parameter**

- { devicename | driveletter | drivenumber | serialnumber | begin }

:::note

**Important!** As a result of deleting a partition, all data on the deleted partition or logical drive will be lost

:::

:::warning

Deleted partitions or logical drives cannot be restored.

:::

You cannot delete the system volume, the start volume and any volumes upon which the active swap file or crash dump (memory dump) are found.

An extended partition can only be deleted when it is empty.

You must delete all logical drives in an extended partition before you can delete it

**Example**

```
<command name="delete partition">
```

```
<driveletter>G</driveletter>
```

```
</command>
```

## delete volume

Deletes the entire volume.

**Parameter**

- { devicename | driveletter | drivenumber | serialnumber | begin }

:::note

**Important!** Be very careful when deleting volumes.All data on the volume, as well as the volume itself, will be deleted when you delete a simple, spanned, mirrored or RAID-5 volume.

:::

:::warning

Deleted volumes cannot be restored.

:::

You cannot delete the system volume, the start volume and any volumes upon which the active swap file or crash dump (memory dump) are found.

**Example**

```
<command name="delete volume">
```

```
<driveletter>S</driveletter>
```

```
</command>
```

## disconnect network drive

Disconnects an existing connection between the computer and an available resource.

**Parameter**

- localname

:::note

This will attempt to break the connection to this resource with the highest priority; i.e., all links and uses of files and/or folders from this resource will become invalid.

:::

**Example**

```
<command name="disconnect network drive">
```

```
<localname>Z</localname>
```

```
</command>
```

## fill disk sectors

Overwrites sectors of a storage volume, a region area of a storage volume, a partition or a volume with a specific value.

**Parameters**

- { devicename | driveletter | drivenumber | serialnumber | begin | data_volumes}
- [ value_to_fill ]

:::note

**Important!** All data in this region will be permanently destroyed. If a region was selected that was linked with a partition or a volume, the data on that partition or volume will be destroyed. When a complete hard disk is selected, all objects and partitions/volumes with related data will be deleted and cannot be restored.

:::

**Example**

```
<command name="fill disk sectors">
```

```
<drivenumber>1</drivenumber>
```

```
<value_to_fill>0</value_to_fill>
```

```
</command>
```

```
<command name="fill disk sectors">
```

```
<driveletter>F</driveletter>
```

```
<value_to_fill>0</value_to_fill>
```

```
</command>
```

## format

Formats a disk for use under Windows.

**Parameter**

- quickformat
- enable_compression
- force_dismount
- { devicename | driveletter | drivenumber | serialnumber | begin }
- { NTFS | FAT16 | FAT32 }
- [ allocation_unit_size ]
- [ label ]

:::note

It is not possible to format current system or boot partitions.

:::

Compression will only be supported by NTFS volumes.

Quick formatting will remove all files from the disk; the disk will not, however, be checked for bad sectors.

**Example**

```
<command name="format">
```

```
<driveletter>G</driveletter>
```

```
<quickformat>yes</quickformat>
```

```
<enable_compression>no</enable_compression>
```

```
<force_dismount>yes</force_dismount>
```

```
<NTFS>yes</NTFS>
```

```
</command>
```

# grow partition

Extends the partition into the next, non-reserved storage space on the same disk. Beyond that, it must follow on the partition (i.e., feature a higher sector number).

**Parameters**

- { devicename | driveletter | drivenumber | serialnumber | begin }
- { size | remaining_range | part_of_disk_size }

:::note

If the previous partition was formatted with the NTFS file system, the file system will be so extended that the larger partition will be occupied.A loss of data does not occur.

:::

If the previous partition was formatted with a file system other than the NTFS, the command fails and no changes will be made to the partition.

It is not possible to extend the current system or boot partition.

**Example**

```
<command name="grow partition">
```

```
<driveletter>G</driveletter>
```

```
<size>52428800</size>
```

```
</command>
```

# grow volume

With the help of this command you can extend newly created storage space onto an available volume.The selected volume will be thereby extended into the following non-reserved storage space.A dynamic simple or spanned volume can be extended onto any available storage space on any dynamic volume.

**Parameter**

- size
- { devicename | driveletter | drivenumber | serialnumber | begin }

:::note

A volume can only be extended when the respective volume features no file system or was formatted with using NTFS.Volumes formatted with FAT or FAT32 cannot be extended.

:::

It is not possible to extend the current system or boot partition.

Simple or extended volumes that are not system or start volumes can be extended provided there is enough available storage space. Among these are volumes which were created as dynamic or basic, and then were converted into dynamic volumes.

It is not possible to extend stripe set or RAID-5 volumes.

It is possible to extend a simple volume onto multiple dynamic volumes.In this way they obtain a spanned volume.It is not possible to mirror spanned volumes or to convert them into stripe set volumes.

Should a spanned volume be extended, you cannot delete any part of it without deleting the entire spanned volume.

**Example**

```
<command name="grow partition">
```

```
<driveletter>J</driveletter>
```

```
<size>-52428800</size>
```

```
</command>
```

## initialized storage devices

Definition for identifying and displaying existing storage volumes.

**Parameter**

- { default_devices | all_devices | disk_devices | cddvd_devices | floppy_devices }

:::note

If a particular storage volume group was adjusted and enabled, drives from other disk groups will not be identified and accessible.

:::

**Example**

```
<command name="initialized storage devices">
```

```
<disk_devices>yes</disk_devices>
```

```
</command>
```

# initialize disk

Initializes a disk into a selected type of disk

Parameter

- { devicename | drivenumber | serialnumber}
- { basic_disk | gpt_disk | dynamic_disk }

:::note

Parameter "basic_disk":

:::

The disk must be blank in order for it to be converted into a dynamic volume. First secure the data, and then delete all partitions or volumes before converting it.

Parameter "dynamic_disk":

All partitions existing on the disk will be converted into simple volumes.

**Example**

```
<command name="initialize disk">
```

```
<drive_number>1</drive_number>
```

```
<basic_disk>yes</basic_disk>
```

```
</command>
```

# map network drive

Connects a computer with an available resource.

**Parameter**

- remotename
- [ localname ]
- [ username ]
- [ password ]

**Example**

```
<command name="map network drive">
```

```
<remotename>\\server\share</remotename>
```

```
<localname>Z</localname>
```

```
</command>
```

## rescan disks

Renewed detecting of an initialized drive.Among other reasons, you need this command to search for new disks which could be possibly added to the computer.

**Parameter**

(no parameter)

**Example**

```
<command name="rescan disks"></command>
```

## restart

Restarts the computer.

**Parameter**

(No parameters)

:::note

All data and documents not saved will be lost.

:::

**Example**

```
<command name="restart"></command>
```

## set partition active

With this command, partitions on basic disks will be marked as active. In this way, the Basic Input/Output System (BIOS) or the EFI (Extensible Firmware Interface) will be informed that the partition or volume is a valid system partition or system.

**Parameter**

- set_active

- { devicename | driveletter | drivenumber | serialnumber | begin }

:::note

A logical drive cannot be marked as an active partition.

:::

Only a partition on a MBR basic disk can be marked as active.

Only one active partition per storage volume is possible on a computer.

Changing or deleting an active partition may result in the computer no longer being able to start.

Partitions containing the boot and operating system files are labeled boot or system partitions by default.

The system partition must be a primary partition that is marked as active for starting. It must be located on the disk that the computer will access when it starts up. There is always only one active system partition on any one disk. Multiple basic disks with a corresponding active partition are possible. The computer will be booted, however, from only one disk. Should you wish to use another operating system, you will first have to label the corresponding system partition as active before restarting the computer.

The system partition can never be part of a stripe set volume, a spanned volume or a RAID-5 volume.

An existing dynamic volume cannot be marked as an active partition. You can, however, convert a basic disk containing the active partition into a dynamic volume. After a successful conversion of the volume, the partition will be a simple, active volume. If the active partition is not the current system or boot partition, it will become a simple volume and loses its entry in the partition table. Therefore, the partition cannot be enabled anymore.

**Example**

```
<command name="set partition active">
```

```
<drivenumber>1</drivenumber>
```

```
<begin>32256</begin>
```

```
<set_active>false</set_active>
```

```
</command>
```

## set volume label

Assign or transpose the drive name of a partition or volume.

**Parameter**

- label
- { devicename | driveletter | drivenumber | serialnumber | begin }

**Example**

```
<command name="set volumelabel">
```

```
<devicename>\Device\HarddiskVolume3</devicename>
```

```
<label>Datenpartition</label>
```

```
</command>
```

## shutdown

Shutdown the computer.

**Parameter**

(No parameters)

:::note

All data and documents not saved will be lost.

:::

**Example**

```
<command name="shutdown"></command>
```

# Functions for system properties

## activate setup

Enables the setup of the operating system after restart.

Parameter

- operating_system_path
- setup_type
- { unattended }

:::note

In order for the operating system to consider changes to the computer name, a restart is required.

:::

**Example**

<command name="activate setup">

<operating_system_path>"E:\WINDOWS"</operating_system_path>

<setup_type>mini_setup</setup_type>

<unattended>true</unattended>

</command>

## assume devices

Device management drivers that are currently loaded should be applied.

**Parameters**

operating_system_path

:::note

In order for the operating system to consider the changes to the computer name, a restart is required.

:::

**Example**

```
<command name="assume devices">
```

```
<operating_system_path>"E:\WINDOWS"</operating_system_path >
```

```
</command>
```

## change computer name

Change the computer name of the current operating system or the one forming the regular basis.

**Parameter**

- Computer_name
- { registry_information_path }

:::note

In order for the operating system to consider changes to the computer name, a restart is required.

:::

**Example**

<command name="change computer name"> <computer_name>MyComputer</computer_name></command>

## change computer sid

Change the SID of the current or the underlying operating system.

**Parameter**

- { registry_information_path }

:::note

In order for the operating system to consider changes to the computer name, a restart is required.

:::

**Example**

<command name="change computer sid"> <registry_information_path>"E:\WINDOWS\system32\config"</ registry_information_path ></command>

## replace hal

Replacement of the hardware abstraction layer.

**Parameter**

- { operating_system_path }

:::note

In order for the operating system to consider changes to the computer name, a restart is required.

:::

**Example**

```
<command name="replace hal">
```

```
<operating_system_path>"E:\WINDOWS"</operating_system_path>
```

```
</command>
```

# Sector-based imaging functions

## clone device

With this function you can clone a device and all its saved data without creating image files. The device will be saved directly and without compression on another device. A device can be a partition, a volume or an entire disk.

**Parameters**

clone_type

- { devicename | driveletter | drivenumber | | serialnumber | begin }
- { target_devicename | target_driveletter | target_drivenumber | target_serialnumber | target_begin }
- [ignored_file_pattern | ignored_file]
- [ driveletter_to_set ]
- [ force_dismount | snapshot | vss ]
- [ ignored_read_errors ]
- [ set_bootable_partition_bootable ]
- [ clear_target_drive | append_on_target_drive ]
- [ chs_alignment ]
- [ write_data_directly ]
- [ automatically_checkdisk ]
- [ overwrite_target_data ]
- [ ignore_snapshot_cache_overflow ]
- [automatically_convert_multi_disk_volumes]
- [automatically_create_target_drive_like_source_drive]
- [ fill_empty_blocks ]

:::note

**Important!** By using the parameter "clear_target_drive", all drives on the target drive will be deleted and overwritten with the data of the clone

:::

When cloning a hard disk with an MBR (Master Boot Record), the "serial number" of the target hard disk will be converted to the serial number contained in the MBR. Under certain conditions, this can lead to encrypted systems being identified as defective.

When cloning, it’s possible that the drive’s properties will not be automatically applied.Under the "used sector" cloning method, encrypted drives able to be read and displayed by the current operating system will be created on the target hard disk unencrypted. The option "direct forensic sector" must be selected to apply the drive’s properties.

**Example**

```
<command name="clone device">
<clone_type>used sector image</clone_type>
<ignored_read_errors>yes</ignored_read_errors>
<target_drivenumber>2</target_drivenumber>
<drivenumber>1</drivenumber>
</command>
<command name="clone device">
<clone_type>forensic sector image</clone_type>
<target_drive_number>2</target_drive_number>
<driveletter>E</driveletter>
<driveletter_to_set>I</driveletter_to_set>
<driveletter>F</driveletter>
</command>
```

## convert image

Converts an existing image file in which the following settings are possible:

- Change the compression or encryption of an existing image
- Merge images of the same kind to form a new image, also incremental image
- Split the image

- Extract certain partitions of the image and image them separately

**Parameters**

- compression_type
- encryption_type
- new_image_name
- new_device_type
- device_type
- image_name
- [ new_password ]
- [ password ]
- [ comments ]
- [ignore_data_modification ]
- [ max_image_size ]
- { image_object_id | image_driveletter | image_drivenumber | image_serialnumber | image_begin | all_sources }
- [ uncompressed_file ]
- [ automatically_validate_image ]
- [ automatically_overwrite_image ]
- [ ignore_data_modification ]
- [ target_image_type ]

:::note

The original image file remains intact and will not be modified. A new image file will be created with the selected settings.

:::

**Example**

```
<command name="convert image">
```

```
<encryption_type>AES 192</encryption_type>
```

```
<new_device_type>filesystem</new_device_type>
```

```
<new_image_name>c:\oodi\convert.omg</new_image_name>
```

```
<device_type>filesystem</device_type>
```

```
<image_name>C:\OODI\Image_I.omg</image_name>
<all_sources>yes</all_sources>
<new_password>password</new_password>
<max_image_size>750</max_image_size>
</command>
<command name="convert image">
<compression_type>LZNT1 standard</compression_type>
<new_device_type>filesystem</new_device_type>
<new_image_name>c:\oodi\convert2.omg</new_image_name>
<device_type>filesystem</device_type>
<image_name>C:\OODI\Image_I.omg</image_name>
<image_object_id>6</image_object_id>
<comments>extract volume I</comments>
<max_image_size>-1</max_image_size>
</command>
```

## create image

Creates an image of one or more drives of one or more hard disks.

**Parameters**

- image_type
- compression_type
- encryption_type

- checksum_type
- device_type
- image_name
- [ password ]
- [ comments ]
- [ max_image_size ]
- [ force_dismount | snapshot | vss]
- { devicename | driveletter | drivenumber | serialnumber | begin | system_volume | data_volumes }
- [ ignored_file_pattern | ignored_file ]
- [ uncompressed_file ]
- [ ignored_read_errors ]
- [ ignore_invalid_free_size_appointment ]
- [ automatically_validate_image ]
- [ automatically_overwrite_image ]
- [ target_image_type ]
- [ ignore_snapshot_cache_overflow ]
- [ automatically_convert_to_vhd ]

:::note

When the maximum file size of the target drive's file system is reached or the target drive is full, the image file will be automatically split unless there's a maximum size set for it.

:::

**Example**

```
<command name="create image">
```

```
<image_type>used sector</image_type>
```

```
<compression_type>LZNT1 standard</compression_type>
```

```
<device_type>filesystem</device_type>
```

```
<image_name>c:\OODI\image20071127.omg</image_name>
```

```
<ignored_read_errors>yes</ignored_read_errors>
```

```
<driveletter>E</driveletter>
```

```
<driveletter>F</driveletter>
<max_image_size>-1</max_image_size>
<ignored_file>\pagefile.sys</ignored_file>
<ignored_file>\hiberfil.sys</ignored_file>
</command>
<command name="create image">
<image_type>forensic sector</image_type>
<compression_type>LZNT1 standard</compression_type>
<encryption_type>AES 128</encryption_type>
<checksum_type>none</checksum_type>
<device_type>filesystem</device_type>
<image_name>c:\OODI\image20071128.omg</image_name>
<ignored_read_errors>yes</ignored_read_errors>
<drivenumber>1</drivenumber>
<password>PASSWORT</password>
<comments>complete forensic image</comments>
<max_image_size>-1</max_image_size>
<ignored_file>\pagefile.sys</ignored_file>
<ignored_file>\hiberfil.sys</ignored_file>
```

```
</command>
```

## create incremental

Creates an incremental image.An image will be created which contains only the changes made to a selected existing image.

**Parameters**

- device_type
- image_name
- compression_type
- encryption_type
- new_image_name
- new_device_type
- [ password ]
- [ new_password ]
- [ comments ]
- [ max_image_size ]
- [ force_dismount | snapshot | vss]
- [ hash_unchanged_data ]
- [ ignored_file_pattern | ignored_file ]
- [ignore_data_modification ]
- [ ignored_read_errors ]
- [ ignore_invalid_free_size_appointment ]
- [ automatically_validate_image ]
- [ automatically_overwrite_image ]
- [change_initial_condition ]
- [target_image_type ]
- [ ignore_snapshot_cache_overflow ]

:::note

If the parameter „hash_unchanged_data“ with „true“ or „yes“ is applied during the imaging process of the incremental image, this incremental image can be used as the base image for successive incremental images. You will otherwise require all previous images to create a new incremental image. The parameter "ignored_file" represents an extension to existing ignored files on the base image.

:::

**Example**

```
<command name="create incremental">
```

```
<device_type>filesystem</device_type>
```

```
<image_name>C:\OODI\Image_I.omg</image_name>
```

```
<compression_type>LZNT1 standard</compression_type>
```

```
<new_device_type>filesystem</new_device_type>
```

<new_image_name>c:\oodi\Increment_Image_I.omg

```
</new_image_name>
```

```
<hash_unchanged_data>yes</hash_unchanged_data>
```

```
<ignored_read_errors>yes</ignored_read_errors>
```

```
<max_image_size>-1</max_image_size>
```

```
<ignored_file>\pagefile.sys</ignored_file>
```

```
<ignored_file>\hiberfil.sys</ignored_file>
```

```
</command>
```

## dismount image

Unmounts a mounted image file as a virtual drive.

**Parameters**

- { devicename | driveletter | drivenumber | all_sources }

**Example**

```
<command name="dismount image">
```

```
<drivenumber>3</drivenumber>
```

```
</command>
```

## mount image

Mounts an image file as a virtual drive.

**Parameters**

- device_type
- image_name
- [ password ]
- { image_object_id | image_driveletter | image_drivenumber | image_begin | all_sources }
- [ driveletter_to_set ]

:::note

Changes such as adding or deleting files are not possible on image files. When mounting the image of an entire drive, it’s not possible to assign any drive letters.

:::

When mounting an entire hard disk, the original layout will be displayed, i.e., it will be identified by operating system partitions not contained in the image file. These drives, partitions/volumes are not formatted and cannot be accessed using, for example, Windows Explorers.

**Example**

```
<command name="mount image">
```

```
<device_type>filesystem</device_type>
```

```
<image_name>C:\OODI\Image_I.omg</image_name>
```

```
<image_object_id>1</image_object_id>
```

```
</command>
```

```
<command name="mount image">
```

```
<device_type>filesystem</device_type>
```

```
<image_name>C:\OODI\Image_I.omg</image_name>
```

```
<image_driveletter>F</image_driveletter>
```

```
<password>passwort</password>
```

```
<driveletter_to_set>I</driveletter_to_set>
```

```
</command>
```

## restore image

Restores data from an image file onto one or more drives.

**Parameters**

- device_type
- image_name
- [ password ]
- { target_devicename | target_driveletter | target_drivenumber | target_serialnumber | target_begin }
- [ driveletter_to_set ]
- { image_object_id | image_driveletter | image_drivenumber | image_begin }
- [ set_bootable_partition_bootable ]
- [ clear_target_drive ]
- [ fill_empty_blocks ]
- [ append_on_target_drive ]
- [ chs_alignment ]
- [ ignored_read_errors ]
- [ignore_data_modification ]
- [ write_data_directly ]
- [ overwrite_target_data ]
- [automatically_convert_multi_disk_volumes]
- [automatically_create_target_drive_like_source_drive]

:::note

**Important!** During the restoration process, the image will overwrite your target drive with the drive data saved on the image. All data saved on the target drive is thereby lost and replaced by that of the image. If the parameter "clear_target_drive" was set to true or yes, a confirmation dialogue about deleting the target volume system will not appear!

:::

If the source hard disk is still contained in the current system and the image will not be restored on it, the serial number of the target hard disk will be converted into the serial number of a hard disk with an MBR. Under certain conditions, this can lead to encrypted systems being identified as defective.

**Example**

```
<command name="restore image">
<device_type>filesystem</device_type>
<image_name>C:\OODI\Image_I.omg</image_name>
<target_drivenumber>2</target_drivenumber>
<image_drivenumber>1</image_drivenumber>
<clear_target_drive>yes</clear_target_drive>
</command>
<command name="restore image">
<device_type>filesystem</device_type>
<image_name>C:\OODI\Image_I.omg</image_name>
<target_driveletter>I</target_driveletter>
<image_object_id>8</image_object_id>
</command>
```

## validate image

This function checks the structural integrity of an image file. It will examine whether the required logical structure is intact or undamaged. In addition, encrypted and/or compressed images will be checked to determine if decryption or decompression is possible without error.

**Parameters**

- device_type

- image_name
- [all_splits]
- [ password ]
- [image_object_id]
- [ignore_data_modification ]

**Example**

```
<command name="validate image">
```

```
<device_type>filesystem</device_type>
```

```
<image_name>c:\OODI\image20071127.omg</image_name>
```

```
<all_splits>yes</all_splits>
```

```
</command>
```

# Command-specific parameters

.

## all_devices

Initializes and displays all drive types of system.

Valid values: "yes", "no", "true" and "false"

Example

```
<all_devices>yes</all_devices>
```

## all_sources

All (Source-) objects from an image should be included in the processing.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<all_sources>yes</all_sources>
```

## all_splits

All parts of an image should be used for the processing.

It can be specified during the check, whether the current part of the image should be checked.

Valid values: “yes”, “no”, “true” and “false”

**Example**

```
<all_splits>false</all_splits>
```

## allocation_unit_size

The selected cluster size when creating a file system on a drive. The size is specified in bytes.

**Example**

```
<allocation_unit_size>4096</allocation_unit_size>
```

## append_on_target_drive

Denotes that the selected object should be appended onto the storage volume. Existing partitions of the disk will not be affected by it.

Valid values: "yes" or "true"

**Example**

```
<append_on_target_drive>true</append_on_target_drive>
```

## automatically_create_target_drive_like_source_drive

The target layout is automatically created equally to the source layout. A restoration/cloning will not take place with the interpretations of the file systems.

Valid values: "yes", "no", "true" and "false"

Example

<automatically_create_target_drive_like_source_drive>true

```
</automatically_create_target_drive_like_source_drive>
```

## automatically_checkdisk

Mark if the default parameters should be run after processing the command chkdsk automatically.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<automatically_checkdisk>true</automatically_checkdisk>
```

## automatically_convert_multi_disk_volumes

Label that without prompting a volume, which was originally distributed on several hard disks, should be the target of a partition when allocating on an empty space of the basic disk. Valid values: "yes", "no", "true" and "false"

Example

```
<automatically_convert_multi_disk_volumes>true</automatically_convert_multi_disk_volumes
```

## automatically_convert_to_vhd

Label indicating whether, the image should be converted into a "Virtual Hard disk Image" with the same nameafter the command has been processed.Valid values: "yes", "no", "true" and "false"

**Example**

```
<automatically_convert_to_vhd>true</automatically_convert_to_vhd>
```

## automatically_overwrite_backup

Label indicating whether the existing imaging file should be deleted without asking beforehand.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<automatically_overwrite_backup>true</automatically_overwrite_backup>
```

## automatically_overwrite_image

Label indicating whether the existing imaging file should be deleted without asking beforehand.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<automatically_overwrite_image>true</automatically_overwrite_image>
```

## automatically_validate_image

Denotes whether the image file should be checked automatically after the processing of the command.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<automatically_validate_image>true</automatically_validate_image>
```

## automatically_validate_backup

Denotes whether the image file should be checked automatically after the processing of the command.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<automatically_validate_backup>true</automatically_validate_backup>
```

## backup_name

Defines the name of the image file including path.

**Example**

```
<backup_name>C:\Image20111006.obk</backup_name>
```

## backup_type

Labels the type of backup, the desired backup method for data-based backup.

extended ZIP file backup: creation of backup file that displays a ZIP format extension.

**Example**

```
<backup_type>extended ZIP file backup</backup_type>
```

## backupset_comments

A backupset is a resume of criteria used to describe the files/folders being backed up. This parameter will help you include comments within the backupset.

**Example**

```
<backupset_comments>backup personal files</backupset_comments>
```

## backupset_id

This parameter displays an ID with which a backupset can be clearly identified. This parameter is currently not being used and should be filled with "0".

**Example**

```
<backupset_id>{00000000-0000-0000-0000-000000000000}</backupset_id>
```

## backupset_name

The name of a backupset for easier classification and display.

**Example**

```
<backupset_name>my documents</backupset_name>
```

## backupset_exclude

A backupset is a resume of criteria used to describe the files/folders being backed up.This parameter is for excluding a data volume determined by a criterion. It describes files or folders using path and/or filename details. The established wildcards "*" and "?"are also permitted here.

**Example**

```
<backupset_exclude>*.tmp</backupset_exclude>
```

## backupset_criteria

A backupset is a resume of criteria used to describe the files/folders being backed up. This parameter is a criterion for creating a file-based backup. This criterion describes files or folders using path and/or filename details. The established wildcards "*" and "?"are also permitted here.

**Example**

```
<backupset_criteria>C:\Documents and Settings\My Documents\</backupset_criteria>
```

## basic_disk

Initialization of a disk as a "basic disk".

Valid values: "yes", "no", "true" and "false"

**Example**

```
<basic_disk>yes</basic_disk>
```

## begin

Definition of a position at the beginning of a disk.

**Example**

```
<drivenumber>1</drivenumber>
```

```
<begin>32256</begin>
```

## cddvd_devices

Only CD/DVDs should be initialized and prepared for display.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<cddvd_devices>yes</cddvd_devices>
```

## change_initial_condition

Label indicating that the original values should be adapted dynamically to a command in order to repeat that command.While creating an incremental image file it is possible to set an image file created with the help of template parameter as base image for the sucessive processing.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<change_initial_condition>yes</change_initial_condition>
```

## check_only_if_dirty

Checks a drive only when it is labeled as defective or will check only its defective regions.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<check_only_if_dirty>no</check_only_if_dirty>
```

## checksum_type

| Value | Meaning |
|---|---|
| none | No checksum procedure selected |
| MD5 | checksum procedure using the MD5 algorithm |
| SHA1 | checksum procedure using the SHA1algorithm |
| SHA2 256 | checksum procedure using the SHA2 256 algorithm |
| SHA2 512 | checksum procedure using the SHA2 512 algorithm |
| CRC32 | checksum procedure using the CRC32 algorithm |

**Example**

```
<checksum_type>MD5</checksum_type>
```

## chs_alignment

Specifies the alignment on partitions. This parameter will force the alignment on cylinders (cylinder/head/sector).

Valid values: "yes", "no", "true" and "false"

**Example**

```
<chs_alignment>true</chs_alignment>
```

## clear_target_drive

Automatic deletion of the target disk. All existing partitions/volumes will be deleted.

:::note

**Important!** This parameter disables the confirmation dialogue and automatically deletes all drives!

:::

Valid values: "yes", "no", "true" and "false"

**Example**

```
<clear_target_drive>yes</clear_target_drive>
```

## clone_type

Label indicating the clone type.

| Value | Meaning |
|---|---|
| used sector | cloning of the used sectors |
| forensic sector | forensic cloning of all sections of a drive |
| direct forensic sector | direct forensic cloning of all sectors of a drive |

**Example**

```
<clone_type>used sector</clone_type>
```

## comments

You can use this parameter to add comments to the image.

**Example**

```
<comments>This is a sample for creating incremental images... </comments>
```

## complete_region_size

The complete region should be used for processing. When creating a partition, the complete size of the region will be used as the basis for the partition.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<complete_region_size>true</complete_region_size>
```

## compression_type

Label indicating the compression type.

| Value | Meaning |
|---|---|
| none | No compression selected |
| LZNT1 standard | LZNT 1 standard compression |
| LZNT1 maximum | LZNT 1 maximum, stronger compression - considerably more time required |
| BZIP2 1K | BZIP2 compression with block size of 100000 Bytes |
| BZIP2 4K | BZIP2 compression with block size of 400000 Bytes |
| BZIP2 9K | BZIP2 compression with block size of 900000 Bytes |

**Example**

```
<compression_type>LZNT1 standard</compression_type>
```

## correct_errors

Detected errors should be corrected.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<correct_errors>no</correct_errors>
```

## data_volumes

Label indicating only non-system volumes or non-system partitions should be included for processing.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<data_volumes>yes</data_volumes>
```

## default_devices

The standard disks should be initialized and be ready display. The initialized standard disks include hard disks, CDROMs and DVDROMs.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<default_devices>yes</default_devices>
```

## default_windows_alignment

Specifies how partitions will be aligned. This parameter draws on the type of alignment from the operating system or the hard disk to align the partition.

Valid values: "yes", "no", "true" and "false"

**Example**

<default_windows_alignment>yes

```
</default_windows_alignment>
```

## device_name

The name of the selected drive/disk.

**Example**

```
<device_name>\Device\HarddiskVolume2</device_name>
```

## device_name_two

The name of a second device.

**Example**

```
<device_name_two>\Device\Ien\IenDeviceP1T0L0-e</device_name_two>
```

## device_type

Indicates the type or description of the target or source drive.

| Value | Meaning |
|---|---|
| filesystem | Standard – file system |

**Comment:**

Reserved for future versions. A value other than "filesystem" is currently invalid and will lead to error.

**Example**

```
<device_type>filesystem</device_type>
```

## disk_devices

Only hard disks should be initialized and prepared for display.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<disk_devices>yes</disk_devices>
```

## drivenumber

The number of the selected drive.

**Example**

```
<drivenumber>1</drivenumber>
```

## drive_number_one

The number of the first selected drive.

**Example**

```
<drivenumber_one>2</drivenumber_one>
```

## drive_number_two

The number of the second selected drive.

**Example**

```
<drive_number_two>2</drive_number_two>
```

## driveletter

The drive letter of the selected drive.

**Example**

```
<driveletter>C</driveletter>
```

## driveletter_to_set

The drive letter to be set.

**Example**

```
<driveletter_to_set>Y</driveletter_to_set>
```

## dynamic_disk

Initializing a disk as a „dynamic disk“.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<dynamic_disk>true</dynamic_disk>
```

## enable_compression

Files created on a new volume or partition will be compressed by default.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<enable_compression>yes</enable_compression>
```

## encryption_type

Label indicating the type of encryption.

| Value | Meaning |
|---|---|
| none | No encryption type selected |
| AES 128 | AES – encryption with 128 bit |
| AES 192 | AES – encryption with 192 bit |
| AES 256 | AES – encryption with 256 bit |

**Example**

```
<encryption_type>AES 192</encryption_type>
```

## extended

Creates an extended partition, i.e., a drive upon which a logical drive can be created.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<extended>yes</extended>
```

## FAT16

Indicates the partition and/or file system that will be created when you want to create a FAT16 drive and/or file system.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<FAT16>true</FAT16>
```

## FAT32

Indicates the partition and/or file system that will be created when you want to create a FAT 32 drive and/or file system.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<FAT32>yes</FAT32>
```

## fill_empty_blocks

Fills empty regions on the target drive with the value „0“.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<fill_empty_blocks>no</fill_empty_blocks>
```

## floppy_devices

Use this parameter when you only want to initialize floppy drives and prepare them for display.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<floppy_devices>true</floppy_devices>
```

## force_dismount

Forces the cancellation of the volume’s deployment when necessary. All files/handles opened to the volume will be closed.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<force_dismount>yes</force_dismount>
```

## format

Indicates whether or not the drive should be formatted after creation, and if the file system should be created.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<format>yes</format>
```

## gpt_disk

Initializes a disk as a „gpt disk“.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<gpt_disk>yes</gpt_disk>
```

## hash_unchanged_data

Indicates whether the unchanged data of an incremental image should be stored in the image as a hash-value (checksums). This increases the size of the incremental image but will accelerate data access for the next imaging procedure.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<hash_unchanged_data>no</hash_unchanged_data>
```

## huge

Indicates the drive that will be created, especially for labeling a large partition.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<huge>yes</huge>
```

## ignore_data_modification

Influences the behavior while restoring or validating images, if it was detected that data was changed within the image. If these parameters are not set with a negation, the handling will be cancelled. Otherwise, only the change will be recorded in the report and the process will continue.

Valid values: "yes", "no", "true" and "false"

:::note

If the data in the image is changed outside the program, they might contain errors and be rendered useless.

:::

**Example**

```
<ignore_data_modification>yes</ignore_data_modification>
```

## ignore_snapshot_cache_overflow

Label indicating whether a potential overflow of the cache should be considered as an error, and as a result, will be canceled.

Valid values: "yes", "no", "true" and "false"

:::note

Should you exceed the available cache space, the original data sectors will no longer be saved and included in the image. This makes the image inconsistent and may render it unusable.

:::

**Example**

```
<ignore_snapshot_cache_overflow>yes</ignore_snapshot_cache_overflow>
```

## ignore_invalid_free_size_appointment

Indicates whether an error occurring during the detection for free storage space on a drive should be ignored and the process continued.

Valid values: "yes", "no", "true" and "false"

:::note

When creating the image file, this parameter could lead to its being made invalid when nothing more can be written onto the target drive. It should be used mainly for allowing access to NAS drives that do not report free regions and are not able to be imaged.

:::

**Example**

```
<ignore_invalid_free_size_appointment>yes</ignore_invalid_free_size_appointment>
```

## ignored_file

Indicates files that should be excluded. Data from these files will not be applied to the image.

**Example**

```
<ignored_file>*.temp</ignored_file>
```

```
<ignored_file_pattern>*.~</ignored_file_pattern>
```

## ignored_read_errors

Possible read errors that occur should be ignored without a confirmation dialogue. These sectors will be skipped during the read procedure and noted in the log file.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<ignored_read_errors>yes</ignored_read_errors>
```

## image_begin

Defines a position at the beginning of a disk and indicates a region of the image file.

**Example**

```
<image_drivenumber>2</image_drivenumber>
```

```
<image_begin>1048576</image_begin>
```

## image_drivenumber

Defines the number of the selected disk from the image.

**Example**

```
<image_drivenumber>1</image_drivenumber>
```

## image_driveletter

Defines the drive letters of the selected drive from the image.

**Example**

```
<image_driveletter>D</image_driveletter>
```

## image_name

Defines the name of the image file including path.

**Example**

```
<image_name>C:\ImageFiles\Image20071127.omg</image_name>
```

## image_object_id

Defines the ID of the selected object from/in the image.

**Example**

```
<image_object_id>3</image_object_id>
```

## image_type

Label indicating the type of imaging, i.e., the selected imaging method.

| Value | Meaning |
| --- | --- |
| used sector | imaging of the used sectors |
| forensic sector | forensic imaging of all sectors of a drive |
| direct forensic sector | direct forensic imaging of all sectors of a drive |

**Example**

```
<image_type>used sector</image_type>
```

## is_superfloppy

Labels a storage volume as "superfloppy". Such a disk consists of one drive only and contains no system regions, i.e., no partition structure will be written on it.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<is_superfloppy>yes</is_superfloppy>
```

## label

Label of the selected drive based on the drive´s name.

**Example**

```
<label>System</label>
```

## localname

The local name of the resource.

**Example**

```
<localname>Z</localname>
```

## locates_bad_sectors_recover_readable_information

An investigation of bad sectors and the restoration of the readable data are requested.

Valid values: "yes", "no", "true" and "false"

**Example**

<locates_bad_sectors_recover_readable_information>yes

```
</locates_bad_sectors_recover_readable_information>
```

## max_backup_size

Fixes the maximal size of the image file in bytes. A division will be made when this level is almost reached.

:::note

The minimum value of a backup file is 1 megabyte, or 1048576 bytes. If a value lower than this amount is entered, the maximum size of the backup file will be set to 1 MB.

:::

**Example**

```
<max_backup_size>786432000</max_backup_size>
```

## new_comments

This parameter will let you add comments into the new image file.

**Example**

```
<new_comments>incremental image wg. Windowsupdate </new_comments>
```

## max_image_size

Fixes the maximal size of the image file in bytes. A division will be made when this level is almost reached.

:::note

The minimum value of an image file is 5 Megabyte, more exactly 5242880 bytes. If the value is smaller than this, the maximal size of the image file will set at 5 MB.

:::

**Example**

```
<max_image_size>786432000</max_image_size>
```

## new_device_type

Indicates the type or description of the new target drive.

| Value | Meaning |
| --- | --- |
| filesystem | Standard – file system |

**Comment:**

Reserved for future versions.A value other than "filesystem" is currently invalid and will lead to error.

**Example**

```
<new_device_type> filesystem </new_device_type>
```

## new_backup_name

Describes the name of the new backup file including path.

**Example**

```
<new_backup_name>C:\backup20111006_new.obk</new_backup_name>
```

## new_image_name

Describes the name of the new image file including path.

**Example**

```
<new_image_name>C:\Temp\Image20071031.omg</new_image_name>
```

## new_password

Define a password as a parameter for creation.

**Example**

```
<new_password>my new password</new_password>
```

## no_alignment

Specifies how partitions will be aligned.This parameter will use no type of alignment: the position will be considered as absolute.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<no_alignment>true</no_alignment>
```

## NTFS

Label indicating the partitions and/or the file system that will be created if you want to create an NTFS drive and/or data system.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<NTFS>true</NTFS>
```

## operating_system_path

Path to the folder where the installed operating system files can be found.

**Example**

<operating_system_path>E:\Windows</operating_system_path>

## overwrite_target_data

Automatic deletion of the target drive. All existing data on partitions/volumes will be deleted.

:::note

These parameters deactivate the confirmations and data on the target drive will be automatically deleted!

:::

Valid values: "yes", "no", "true" and "false"

## part_of_disk_size

Part of the selected size of the drive being created in relation to the size of the disk.

**Example**

```
<part_of_disk_size>1/3</part_of_disk_size>
```

## password

Marks a password as a parameter.

**Example**

```
<password>My_Passwort</password>
```

## quickformat

Runs a formatting with quick formatting.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<quickformat>no</quickformat>
```

## remotename

The name of the server and the shared resource.

**Example**

```
<remotename>\\WantedServer\SharedFolder </remotename>
```

## serialnumber

The serial number of the desired disk.

**Example**

```
<serialnumber>JK1101YAH6KWMZ</serialnumber>
```

## serialnumber_one

The serial number of the first desired disk.

**Example**

```
<serialnumber_one>2</serialnumber_one>
```

## serialnumber_two

The serial number of the second desired disk.

**Example**

```
<serialnumber_two>2</serialnumber_two>
```

## setup_type

Label indicating the type of installation being activated.

mini_setup: Minimum setup installation of the operating system

**Example**

<setup_type>mini_setup</setup_type>

## sequential_access

Sequential access to the image file is requested. This will mean an advantage in performance over non-sequential access, given that larger data regions can be included here.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<sequential_access>true</sequential_access>
```

## set_active

Labels whether "enable" or "disable" should be set for the selected drive.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<set_active>true</set_active>
```

## set_bootable_partition_bootable

Automatic setting of the bootable source partition as bootable. The confirmation dialogue will be disabled with this parameter.

Valid values: "yes", "no", "true" and "false"

**Example**

<set_bootable_partition_bootable>yes

```
</set_bootable_partition_bootable>
```

## size

The size of an object in bytes.

**Example**

```
<size>1073741824</size>
```

## snapshot

As an option to the parameter "force_dismount", the installed filter drivers will help log changes in data so that unchanged data can be included in the backup.

See also parameter "vss".

**Example**

```
<snapshot>true</snapshot>
```

## system_volume

Label indicating that only the system volume or system partition will be drawn into the processing.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<system_volume>yes</system_volume>
```

## target_begin

Defines a position at the beginning of a target disk.

**Example**

```
<target_drivenumber>1</target_drivenumber>
```

```
<target_begin>32256</target_begin>
```

## target_devicename

The name of the requested target drive/target disk.

**Example**

```
<target_device_name>\Device\HarddiskVolume6</target_device_name>
```

## target_drivenumber

Number of the target drive.

**Example**

```
<target_drivenumber>2</target_drivenumber>
```

## target_driveletter

Drive letter of the target drive.

**Example**

```
<target_driveletter>G</target_driveletter>
```

## target_image_type

Type of the image to be created.

o&o image - the goal is to create an image by O&O DiskImage.

vhd image - a virtual hard disk of the Microsoft Virtual PC should be the target.

**Example**

```
<target_image_type>o&o image</target_image_type>
```

## target_path

A target parameter where files/data should be written.

**Example**

```
<target_path>C:\New Folder\</target_path>
```

## target_serialnumber

Serial number of the target disk.

**Example**

```
<target_serialnumber>GTA0L2PBGJPSSF</target_serialnumber>
```

## uncompressed_file

Label indicating the files that should not be compressed.

**Example**

```
<uncompressed_file>*.zip</uncompressed_file>
```

## unattended

Label indicating an unattended installation, i.e., standard components will be installed and prompting questions avoided.Valid values: "yes", "no", "true" and "false"

**Example**

<unattended>yes</unattended>

## username

User name for identification of the person doing the requested operation.Such a user name can be extended through the name of a domain.

**Example**

```
<username>domain\HMuster</username>
```

## value_to_fill

Label indicating the value which will be used to fill (overwrite) an object. Possible are values from 0 to 9.

**Example**

```
<value_to_fill>0</value_to_fill>
```

## verbose

Display of extended information.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<verbose>true</verbose>
```

## vss

As an alternative to the parameter "force_dismount", the Microsoft VolumeShadowCopyService can log changes in data so that unchanged data is included in the backup.

See also parameter "snapshot".

Valid values: "yes", "no", "true" and "false"

**Example**

```
<vss>true</vss>
```

# write_data_directly

Data should be written directly on the drive, meaning without use of the file system driver.This is needed by an image file or cloning process of the type "direct forensic" for restoring an encrypted drive back to its original condition, or for cloning.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<write_data_directly>true</write_data_directly>
```

# Global parameters

## logfile

Creation of a log file to communicate the status of the processing.

**Example**

```
<logfile>C:\DiskImageLogfile.log</logfile>
```

## interaction

During the command processing, denotes if a confirmation dialogue is possible or if the processing should take place in the background. No processing in the background is default.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<interaction>no</interaction>
```

## stop_at_error

Denotes whether the processing of a command file should continue if an error occurs. No further processing is the default value, which means that the processing will be aborted when an error occurs.

Valid values: "yes", "no", "true" and "false"

**Example**

```
<stop_at_error>no</stop_at_error>
```

# Preset values of selected parameters

| Value | Meaning |
|---|---|
| **Parameter name** | **Default value** |
| append_on_target_drive | false/no |
| automatically_convert_multi_disk_volumes | false/no |
| automatically_convert_to_vhd | false/no |
| automatically_checkdisk | false/no |
| automatically_overwrite_image | false/no |
| automatically_validate_image | false/no |
| clear_target_drive | false/no |
| fill_empty_blocks | false/no |
| force_dismount | false/no |
| hash_unchanged_data | true/yes |
| ignore_data_modification | false/no |
| ignore_snapshot_cache_overflow | false/no |
| ignore_invalid_free_size_appointment | false/no |
| ignored_read_errors | false/no |
| overwrite_target_data | true/yes |
| set_active | false/no |
| set_bootable_partition_bootable | false/no |

# Examples of command files

.

## Create an image of the "C" drive

**Example 1:**

Create an image of the "C"drive.This image will be compressed and saved whereby sectors not being imaged (those sectors that have not changed since the base image was created) will be given a hash value to check for changes in the future.The image will be compressed and split into files that have a maximum size of 650 MByte each.Once it’s successfully created, the image will be automatically validated.

```
<DiskImageJob version="6.0">
```

```
<command name="initialized storage devices">
```

```
<disk_devices>YES</disk_devices>
```

```
</command>
```

```
<command name="create image">
```

```
<image_type>used sector</image_type>
```

```
<compression_type>LZNT1 standard</compression_type>
```

```
<device_type>filesystem</device_type>
```

```
<image_name>E:\image_20100128.xml</image_name>
```

```
<ignored_read_errors>YES</ignored_read_errors>
```

```
<driveletter>C</driveletter>
```

```
<comments>Image of the system drive</comments>
```

```
<max_image_size>650</max_image_size>
```

```
<automatically_validate_image>YES</automatically_validate_image>
```

```
<ignored_file_pattern>C:\MSOCache\*.*</ignored_file_pattern>
```

```
<ignored_file_pattern>\pagefile.sys</ignored_file_pattern>
```

```
<ignored_file_pattern>\hiberfil.sys</ignored_file_pattern>
```

```
<ignored_file_pattern>\System Volume Information\</ignored_file_pattern>
```

```
</command>
```

```
</DiskImageJob>
```

## Create an incremental image from the base image

**Example 2:**

Create an incremental image from the image "E:\image20100120.omg".This image will be compressed and saved whereby sectors not being imaged (those sectors that have not changed since the base image was created) will be given a hash value to check for changes in the future.The incremental image will be named according to the date when the image is created.The parameter "automatically_overwrite_image" is set to “NO“ so that an image with the same name may not be overwritten.

```
<DiskImageJob version="6.0">
```

```
<command name="initialized storage devices">
```

```
<disk_devices>YES</disk_devices>
```

```
</command>
```

```
<command name="create incremental">
```

```
<device_type>filesystem</device_type>
```

```
<image_name>E:\image20100120.omg</image_name>
```

```
<compression_type>LZNT1 standard</compression_type>
<new_device_type>filesystem</new_device_type>
<new_image_name>E:\image_$TEMPL:(Year)$TEMPL:(Month)$TEMPL:(Day)_inc.omg</new_image_name
<hash_unchanged_data>YES</hash_unchanged_data>
<ignored_read_errors>YES</ignored_read_errors>
<automatically_overwrite_image>NO</automatically_overwrite_image>
<max_image_size>-1</max_image_size>
<force_dismount>YES</force_dismount>
<automatically_validate_image>YES</automatically_validate_image>
<change_initial_condition>YES</change_initial_condition>
<ignored_file_pattern>\hiberfil.sys</ignored_file_pattern>
<ignored_file_pattern>*.tmp</ignored_file_pattern>
<ignored_file_pattern>*.omg</ignored_file_pattern>
<ignored_file_pattern>*.~</ignored_file_pattern>
<ignored_file_pattern>\System Volume Information\</ignored_file_pattern>
<ignored_file>\pagefile.sys</ignored_file>
</command>
</DiskImageJob>
```

# Delete a hard disk and create a partition

**Example 3:**

This example will supply a short illustration of the O&O DiskImage disk manager’s functionality.Hard disk "0" will first be deleted and then initialized as a Basic – MBR disk.After that, a 2 GByte partition will be created after position 32256 on the hard disk, aligned according to standard Windows disk alignment.

```
<DiskImageJob version="6.0">
<command name="initialized storage devices">
<disk_devices>YES</disk_devices>
</command>
<command name="clear drive">
<drivenumber>0</drivenumber>
<is_superfloppy>NO</is_superfloppy>
</command>
<command name="initialize disk">
<drivenumber>0</drivenumber>
<basic_disk>YES</basic_disk>
</command>
<command name="create partition">
<drivenumber>0</drivenumber>
<begin>32256</begin>
<size>2147483648</size>
```

```
<huge>YES</huge>
```

```
<default_windows_alignment>YES</default_windows_alignment>
```

```
</command>
```

```
</DiskImageJob>
```

## Create a file-based backup

**Example 4:**

A file-based backup of the file “Documents" will be created and saved on drive "Z". The backup’s name will be based on the current date at the time of creation.

```
<BackupJob version="6.0">
```

```
<interaction>NO</interaction>
```

```
<stop_at_error>YES</stop_at_error>
```

```
<command name="create backup">
```

```
<backup_type>extended ZIP file backup</backup_type>
```

```
<compression_type>BZIP2 4K</compression_type>
```

```
<device_type>filesystem</device_type>
```

```
<backup_name>Z:\backups\Image_$TEMPL:(Year)$TEMPL:(Month)$TEMPL:(Day).obk</backup_name>
```

```
<comments>automatisches backup via Skript</comments>
```

```
<backupset_id>{527FC970-C7BF-40C4-83BA-946CA5E62EBD}</backupset_id>
```

```
<backupset_name>BackupSet 20111006 Skript</backupset_name>
```

```
<backupset_criteria>C:\Users\Muster\Documents\</backupset_criteria>
```

```
</command>
```

```
</BackupJob>
```

# Glossary

To simplify working with O&O DiskImage, certain terms will be explained in the following chapters:

## 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 extended partitions and volumes.

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, for example, makes it easier to separate data and system images with O&O DiskImage.

## Image

An image is a "mirror" of your drive (partitions). This “copy” contains all information taken from the original. A special feature of an image is that the file format is specially 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 mouse clicks, you can recover the original status of your drive before the last imaging.

An image can be made up of multiple image files (*omg). For example if one disk is not sufficient to store the image and more are needed, e.g. CD/DVDs.

The term image is also used in a wide sense for file backups.

**Difference File backup and Drive image**

Files are backuped directly in the form of data. This type of image includes only file information, no drive information is imaged. The file format is OBK (*.obk).

A drive image stores all used or all sectors of a drive. This automatically also creates an image of the file system and all files and folders. The file format is OMG (*.omg).

## Image file

An image can be made up of one or more image files (*omg). If, for example, the disk where you want to save the image isn't large enough, you can split the image onto multiple disks. When you split your image onto several disks, a new image file will be created on each disk and together, these image files will be parts of one

entire image. It's important to number the disks (CD/DVD) in case you want to later restore a drive using the image, or use it as a base for an incremental imaging.

## File formats

O&O DiskImage creates its own file formats when imaging but is also able to process other file formats.

**File format OMG**

O&O DiskImage generates the file extension (*OMG)for the image files it creates when imaging your entire computer or single drives. This file type can be used for further activities by O&O DiskImage, such as restoration, validation or conversion.

**File format OBK**

While creating a file backup using O&O DiskImage, the files and folder are compressed and stored as OBK file (*.obk). An advantage of the OBK files are that you can also use and extract the data with a decompression program like WinZip. You don't necessarily need O&O DiskImage to extract these files. Encrypted file backups are the exception. They can only be processed with O&O DiskImage.

**File format VHD**

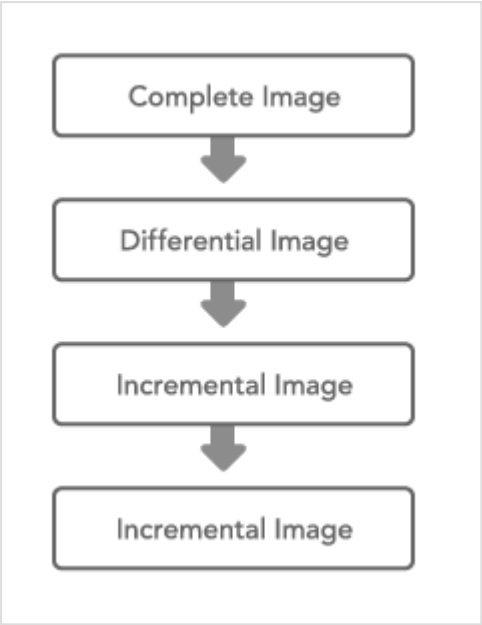
O&O DiskImage is able to create and edit file formats for virtual computers (VPC/VM-Ware). This allows you to also mount a drive from an image as a virtual drive in the VPC or your VM-Ware.

## Complete image

Using the Complete image method, the data selected for imaging will be imaged all over again and stored in a folder on the target disk. Complete images can be created using the "Used sector", "Forensic", or "Direct forensic" methods.

## Differentiation: Image of the changes

If you only want to image changes of your hard disk or drives, you will need to have created at least one complete image previously. Changes made can then be saved as differential and incremental images.




## Base image

A base image is an image that serves as a basis for any further image of the changes. Differential images require a complete image as a base image. Incremental images can usually be made using the last image of the changes as their base image. It's possible, for example, to use a differential image as a base image for an incremental image. In this way, an incremental image can also serve as base image for further incremental images. Also see picture in chapter Image of the changes.

## Incremental images

Incremental images only save the changes made since the last base image. As a rule, data is compared using checksums in O&O DiskImage, so that the incremental image does not require a complete image as base image. The last incremental or differential image is enough for doing this. To restore an incremental image, you need the last complete image as well as all the following images recording any changes.

## Differential images

Differential images compare present data with the last complete image and store only the changes. The first "successive" image after the complete image is always a differential image. To restore a differential image, you will need both the complete image and the differential image.

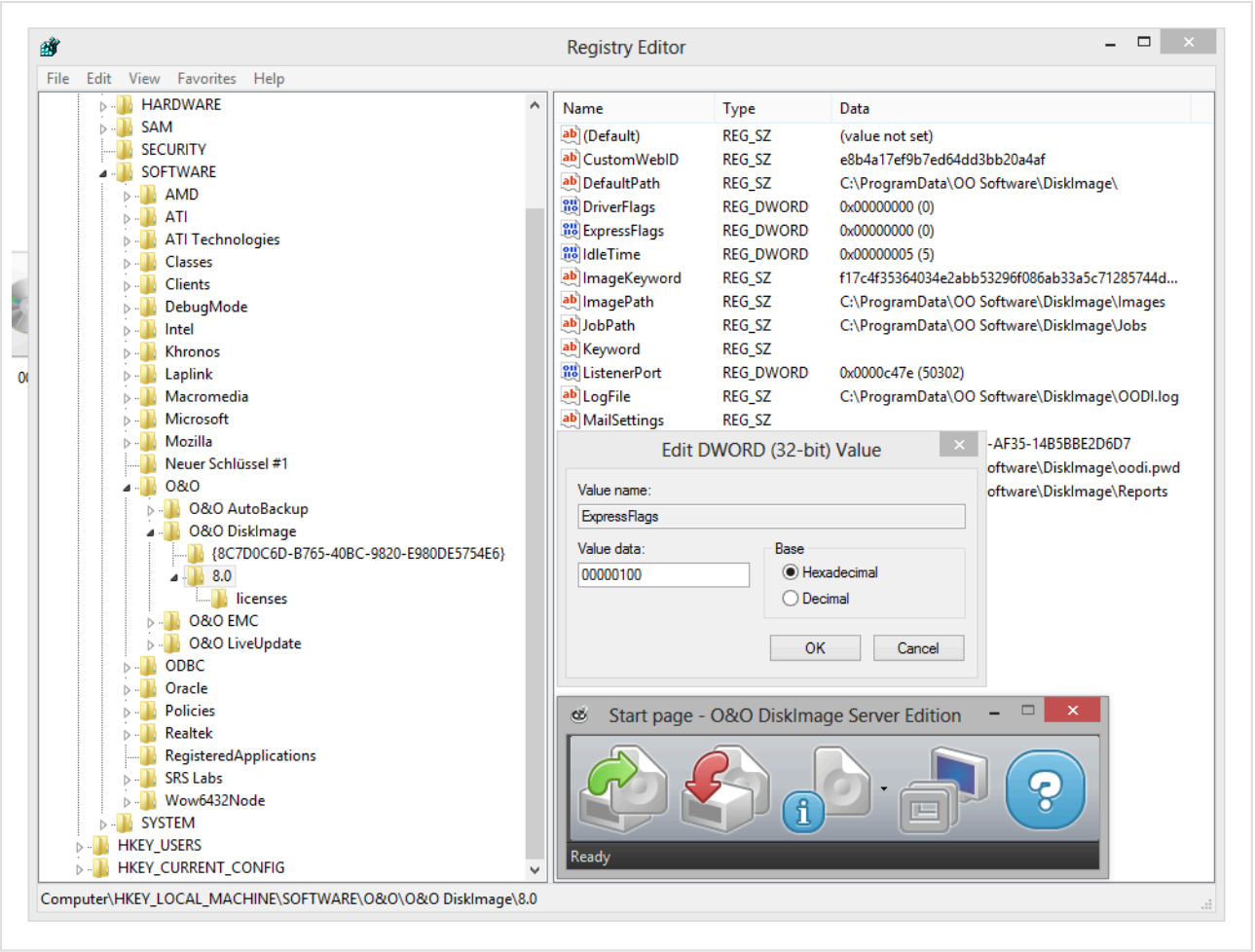
# Registry entries

In the Windows registry, under `HKEY_LOCAL_MACHINE\SOFTWARE\O&O\O&O DiskImage`, you can configure certain settings for O&O DiskImage. Please note that changes in the registry can influence the functionality of O&O DiskImage and such changes will continue to be applied after restarting the computer.

| |
|---|
| Name of the entry |
| ImagePath |
| JobPath |
| ReportPath |
| PwdFile |
| PublicKey |
| NoSnapshotTmpFiles |
| Version |
| ExpressFlags |

* Can also be controlled over the user interface. If you're not sure, make changes over the user interface. There you can find additional explanations and selection options.

** The format of image files was extended in O&O DiskImage 4. In addition to the imaged data, checksums are placed in the image so that an identity check can be carried out for data inside the image. Older versions of O&O DiskImage do not recognize this extended image format and would label the image as invalid. To help older versions of O&O DiskImage work with images created by a newer version, the new version can create an image using the "old" format.




# Allocating objects

When cloning or restoring an image, the source and target can be linked differently. Source is the name for a drive or disk that is being restored from an image or that has been used as the base for cloning.

**Terminology**

- **Disk:** A hard disk or disk in general that contains one or more drives.
- **Area:** An area on a disk. It may be empty, contain disk information (MBR, GPT, LDM) or belong to a drive.
- **Drive:** A partition or a volume that is found on one or more hard disks.

Source and target may be linked in the following combinations:

| |
|---|
| |
| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |
| 8. |
| 9. |

# Troubleshooting

## My incremental image is not smaller than my base image. Where does this file come from?

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?

As a result of system processes having to be in constant operation, it's not normally possible for system partitions to 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; it 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 cloning, O&O DiskImage reports that the target volume is too small although the source drive is smaller than the target disk. 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:

- System partition (20GB)
- Data partition (80GB)
- While trying to clone 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.

## What do I do if O&O DiskImage takes very long to start, or doesn't even start at all?

Please read the note about System requirements and make sure you're using the latest versions of your drivers.

## During restoration, O&O DiskImage created a new temporary file on my hard disk. Where does this file come from?

Before creating an image, O&O DiskImage normally deposits a number of metadata in a local file. This data is needed by O&O DiskImage in order to create the image. The file will be included in the imaging to assure consistency in the image. This file will normally be automatically removed during restoration.

Under certain circumstances, it's possible that another action of the operating system or the user will prevent this temporary file from being deleted. This will then result in the file remaining undeleted in the system. You can, however, delete this temporary file without any risk.

## Behavior when receiving error notices

Various error notices may appear while working with O&O DiskImage. These can either be displayed in dialogs or seen in reports.

| Error notice | Description |
|---|---|
| IDS_ERROR_LOGON_FAILURE Registration has failed on account of invalid user name or authentication information. | User name and/or password is false. Where required, consult your system administrator. |
| IDS_ERROR_ACCOUNT_RESTRICTION The authentication information entered is valid but restrictions on the user account have prevented a successful authentication. | Change the settings of the respective user account. It's possible that there is a restriction such as "read only" enabled there. |
| IDS_ERROR_INVALID_LOGON_HOURS The user account is subject to time limitations and is therefore not available for registration at this time. | Maximum login time has expired. Please login again. |
| IDS_ERROR_PASSWORD_EXPIRED The password for the user account has expired. | Your password has expired. Please enter a new password. |
| IDS_ERROR_ACCOUNT_DISABLED The account referred to is currently disabled and cannot be accessed for registration. | User account was disabled. When applicable, consult your system administrator. |
| IDS_ERROR_ACCOUNT_LOCKED_OUT The user account has been automatically blocked because too many invalid registration attempts have been made. | User account was blocked. Where required, consult your system administrator. |

**Internal error codes**

The internal error code (individually designed error code) is the last digit in the error code after the last period.

| Error notice | Description |
|---|---|
| 0x385 | Invalid job or script. |
| 0x387 | Unsupported task or incorrectly written job / script |
| 0x388 | Parameter is false or is not supported by the task. |
| 0x38A | An obligatory parameter is missing. |
| 0x70 | Invalid or damaged installation. |
| 0x7D1 | Unknown Host |
| 0x7D2 | Invalid Host Port |
| 0x6A6 | Invalid password file |
| x6A9 | Invalid keyword in parameter (registry) |
| 0x6AA | No password file registered |
| 0x6AA | A target folder is missing in the password file. |

**Windows errors / Microsoft error definitions (primary value)**

| Error notice | Description |
|---|---|
| C0000240 | Prompting was cancelled |
| C0000022 | Access denied: process requires access to an object to which access is being denied. |
| C0000033 | Object (path/file) is invalid, e.g. is especially marked. |
| C0000034 | Object (path/file) not found |
| C0000035 | Same object (path/file) already exists. |

# FAQ

## 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 even with differing hardware. However, system partitions can only be restored on differing hardware using the Start CD and the integrated M.I.R. You can read more about this in the chapter Settings for restoration on different hardware.

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

The trial version is not restricted – all program functions are fully operational.

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

You will need the Start CD, if you want to restore your entire computer or a system partition. The Start CD can also be used, if the operating system doesn't start up anymore.

## How do I save an image to CD/DVD?

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

2. When creating the image, under **Drive imaging/Imaging options/File size**, you should restrict the maximum image file size to the size of the intended removable medium where it will be saved.
3. Should the image exceed the selected maximum file size, it will be split into several image files.
4. You can then burn the image files to CD/DVD.
5. Select **Tools** on the start page, then on **Burn image file(s)** and follow the instructions.

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

1. 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.
2. Under **Tools**, open up **Convert image file**.
3. Select the Image you wish to change by using **Add**.
4. Merge incremental Images
5. During conversion, one copy of the Image will be made while the original remains unchanged.

I have split the image and saved it on various disks (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.

The working memory buffer is however restricted. You can see how much is available in the Memory buffer display. See Chapter "Lock a Drive".

## Can I change an existing image?

Under Tools you can find the function Convert Image File. This enables you to change certain properties and contents of an existing image.

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

Follow the instructions below:

1. Under **Tools** select Convert image file.
2. Select the image using **Add** and then select the drive you wish to separately image.
3. Click **Open** and select a drive. After confirming with OK, click Start.
4. After confirming with (**OK**) click **Start**.
5. 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. The storage volume /drive is saved directly without compression. The advantage of a clone as opposed to an image is that the detour through an image file is avoided. You can access the clone of a drive without having to restore the drive. You do, however, require a lot more storage space for a clone than for an image.

:::warning

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. The working memory buffer space is, however, limited. You can see how much space is available by looking at the memory buffer display.

## What is the advantage of an incremental image?

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

# Why are partitions that weren't imaged displayed when mounting an image in Explorer?

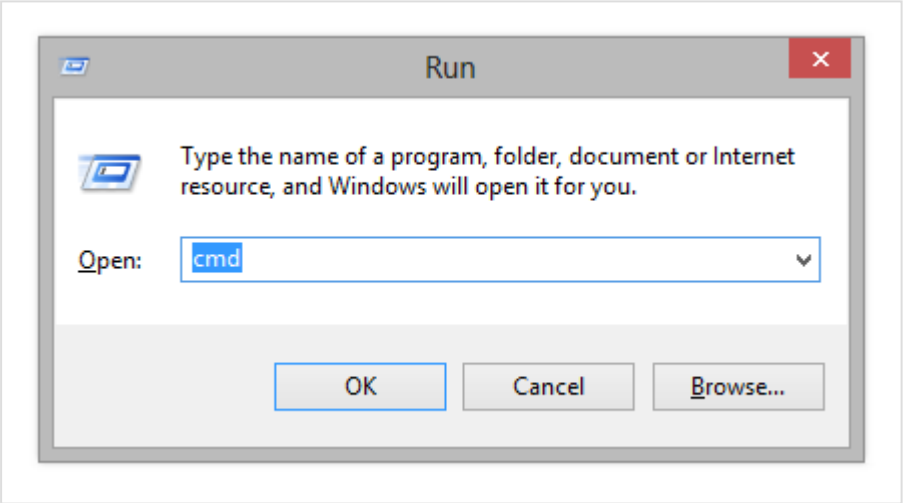
In addition to saving data from the partition being imaged, O&O DiskImage also needs to save information about the disk on which that partition was originally located. All of this is required for mounting an image, converting it into a virtual disk, or performing any future restoration. There will also be information included about partitions that were not imaged. When mounting an image, just as when using a virtual hard disk after conversion from an image, Microsoft Windows uses this information to recognize that there were originally multiple partitions on the disk, and attempts to integrate them into the system. Because information/data about these partitions is missing, it's not possible to assign them to any file system. As a result, partitions that weren't imaged will be displayed as RAW, i.e., non-formatted.

# Frequent questions on authentication

## Where do I find the domain and user name to use for authentication?

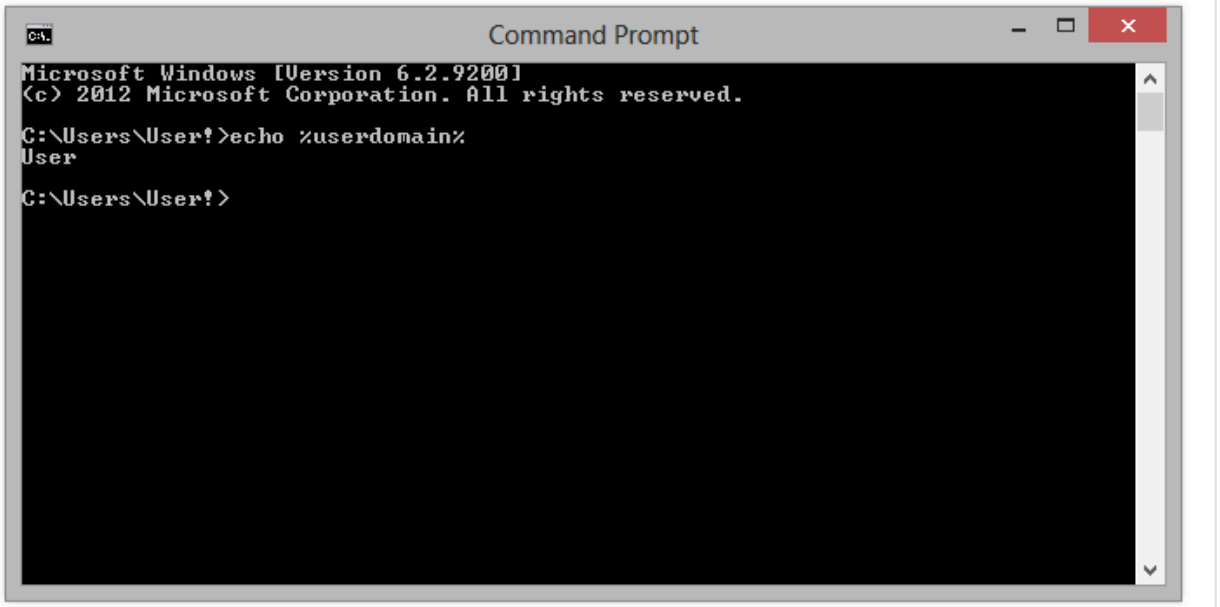
If you are not sure, please proceed as follows:

- Call the command line under **Run...** in the Start menu. Enter the command cmd in the dialogue.




- Enter the command: echo %userdomain%%username% into the command line and confirm your entry with Enter. If your computer is not signed on to a domain, your computer name will appear instead of the domain

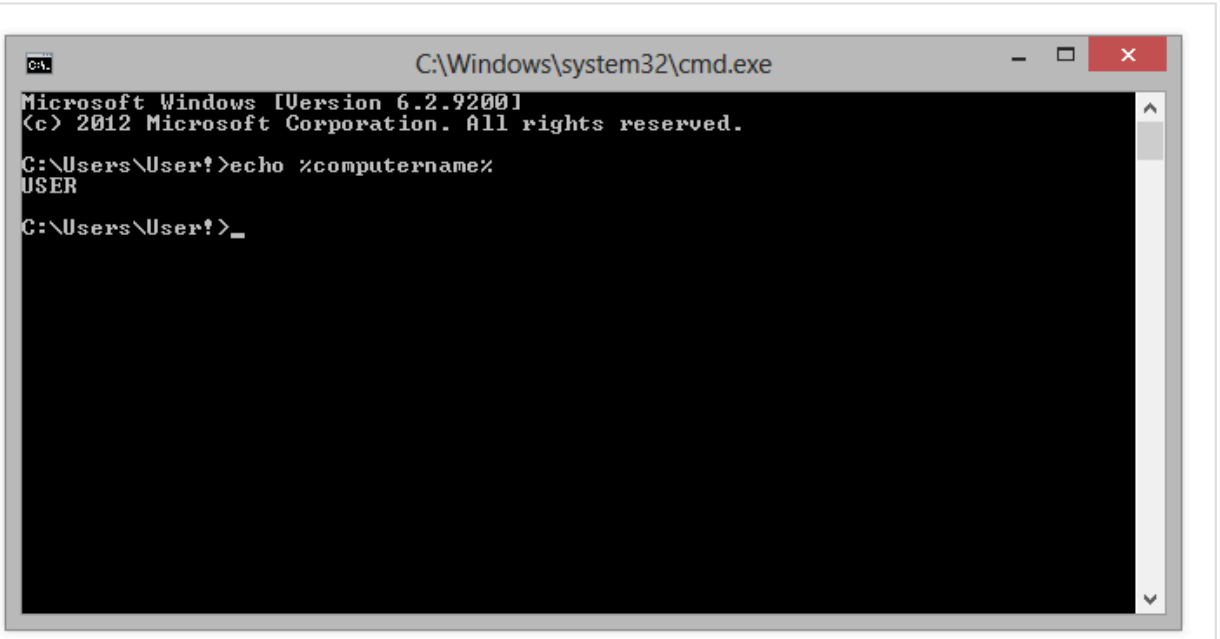
name.




## Where do I find the computer name for, running activities?

If you are not sure, please proceed as follows:

- Call the command line under **Run...** in the Start menu. Enter the command cmd in the dialogue.
- Enter the command: echo %computername% and confirm your entry with Enter.



## How can I check my access rights on the target computer or the target folder?

If you are not sure if your entries are correct, you can view them under **Program settings/Security** and recheck them.

Alternatively, you can check your access rights on the target computer in the properties of the corresponding target folder under "Security" in Windows Explorer.

- Click in the context menu of the folder on **Properties** and then **Security**. All users with access to the folders will be listed.

**Although I have already entered my authentication data for a network drive, I am asked once again for every activity.**

It is possible that you are requested to re-enter your authentication data for an activity like the restoration of an network drive image. The reason for this can be traced back to Windows. Certain dialogs, e.g. the browser dialog are not originally from O&O DiskImage but from Windows. Because Windows doesn't have access to your O&O DiskImage authentication data, it is necessary to re-enter the access data for the selected drive.

# Support and more from O&O

O&O Software support helps with questions and problems concerning O&O DiskImage 10.

## Contact support

Open O&O Software support. Include:

- The version and edition of O&O DiskImage and the Windows version.
- The report of the failed action.
- The type of source and destination.
- Whether the action was started manually or as a job.
- Whether the problem occurred in Windows or after starting from the boot medium.

See Reports for where to find the reports, and Troubleshooting for common problems and their solutions.

## Licensing and updates

O&O DiskImage is commercial software. You can try it during the trial period; continued use requires a valid license. Licensing, registration and updates are described under Install, license and uninstall. Product information on the current version is available on the O&O DiskImage product page.

## More O&O products

| Product | Purpose |
|---|---|
| **O&O Syspectr** | Remote monitoring and management of PCs and servers |
| **O&O Defrag** | Storage optimization for PCs and servers |
| **O&O DiskRecovery** | Recovery of deleted files and data from damaged file systems |
| **O&O ShutUp10** | Control of Windows privacy settings |
| **O&O SafeErase** | Secure, unrecoverable deletion of files and free space |

See all O&O products.