O&O Software

Restoration onto different Hardware

Quick and easy system restore with O&O DiskImage

Table of contents

System restoration using boot media

Disks where you save your private and business data can be quickly imaged and restored in the event of a crash or hardware damage. Creating an image of your entire computer or the system partition is also very easy.

To restore an image of a Windows system, you'll need to start O&O DiskImage directly from a bootable medium *.

*Note
You'll need to create the boot medium yourself. You can choose whether to use a CD, DVD, or USB Stick as the medium. The only condition is that your PC can be booted. Instructions as well as further notes on starting from bootable media can be found in the O&O DiskImage User's Guide (PDF).

There are plenty of reasons to restore an operating system, among them:

- Windows reports serious errors or crashes regularly.
- Windows no longer starts.
- You want to set up your PC anew and transfer your operating system and all its settings.
- You want to transfer your operating system and all its settings to a new PC.

The boot media allows you to restore a system partition or hard disk containing a system partition. The prerequisite being that you've already created one or more images of the computer or system partition involved. It makes no difference whether a classic singleboot or a multiboot computer was imaged - O&O DiskImage supports both!

The operating system doesn't need to be running properly in order to start O&O DiskImage directly from a bootable medium. The boot medium includes a bootable Windows operating system (Windows PE), including all default drivers. If special hardware is not recognized, you can download additional drivers, e.g. for a controller or network cards with the help of an assistant.

The following chapters provide additional information and point to possible causes in the case of problems during restoration via a bootable medium.

Restoration onto different hardware

At one time, you could only restore an image containing the system partition to a PC with exactly the same hardware as the original pc. This is also valid for the restoration of clones.

The most frequent application scenarios had therefore been limited to the creation of images and restoration of these on the same computers

Thanks to its M.I.R. feature (Machine Independent Restoration), O&O DiskImage also offers the option of restoring an image (and the system partition) on a computer with different hardware. Cloning on a computer with different hardware is also possible.

Enable M.I.R. if the hardware configuration has been changed after an image was created and these changes effect the booting of the Windows operating system. M.I.R. is also needed if you want to transfer an already existing computer configuration onto a new computer.

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

- Restoration of an image onto a computer with different hardware or cloning/duplication of a computer.
- To exchange faulty or defective drivers of an existing system.
- Migration of physical computers onto virtual machines or, vice versa, virtual machines onto physical computers.

Note

When cloning a source system, which entails cloning installed versions of the Microsoft Windows operating system and its programs, we recommend changing the computer name and the computer SID. This will help avoid future problems when using the configured computer within a network.

Note

It's possible that drive letters will appear differently under Windows PE because Windows PE assigns letters independently. For this reason, the drive containing the operating system, normally indicated with the letter "C", will be displayed under Windows PE with the letter "D". This change is only visible locally under Windows PE. The drive letters will revert to their previous status once the operating system is again active.

Limitations when restoring onto different hardware

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

- The hard disk from which you are booting is connected to a controller that hasn't been initialized by Windows at the time of booting. For example, booting from a hard disk that is connected to the computer via a controller (not USB Stick).

Note

If error messages appear during booting, you will get instructions on how to proceed in the section Help with error messages displayed while booting.

Note

To make sure a restored system or clone is bootable, all the system's disks should be imaged/cloned and restored.

Automatic update

M.I.R. of O&O DiskImage is available when restoring system partitions from an image or clone. This can involve direct selection of the system partition or an indirect selection, e.g. the all disks including the system partition.

During restoration or creation of a clone, you only need to enable M.I.R. before the restoration or cloning process is completed. All other adaptations will be done automatically.

- To do this, enable the option Restore on different hardware when finished in the dialog for restoration or cloning.
- You can then follow the other dialog prompts and restart your computer after the successful restoration.
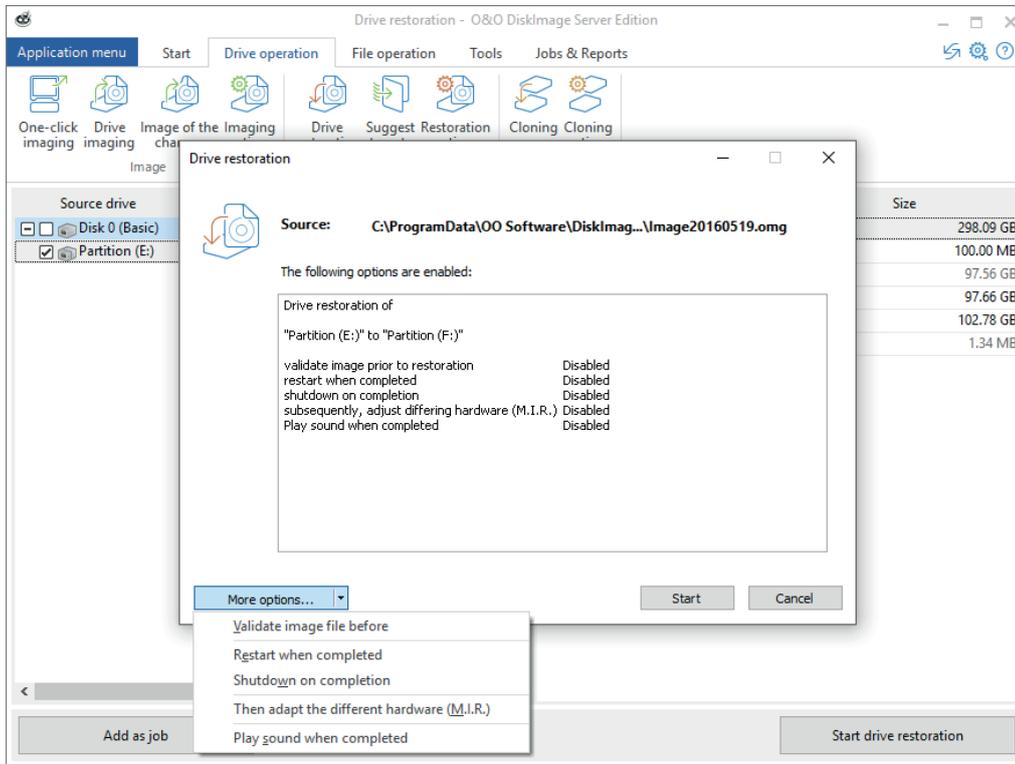
Enable automatic adaptation on changed hardware (M.I.R.)

Manual adaptation

Under certain circumstances you may have to carry out an adaption manually. Examples where this may be the case include:

- The M.I.R. feature Accidentally not activating the M.I.R. function when restoring/duplicating onto different hardware.
- Using different hardware (new Processor, new hard disk controller) in your PC.
- Using drivers that are defective or that were installed incorrectly.

O&O DiskImage can be used for making manual adaptations to the changed hardware upon completion of restoration or cloning.

- After successful restoration, open the O&O DiskImage dialog for changing the computer properties **Tools/Change computer identity**.
- The adaptations made by M.I.R can be divided into three activities that can enabled/disabled when selecting **Restoration on different hardware** (machine independent restoration).

Note

Drive letters can be changed when selecting a non-active Windows system: Drive C: (normally contained in the non-active Windows operating system) will be given a different drive letter, e.g. D: The non-active Windows system must also be "complete", meaning that a successful restoration/cloning must have taken place.
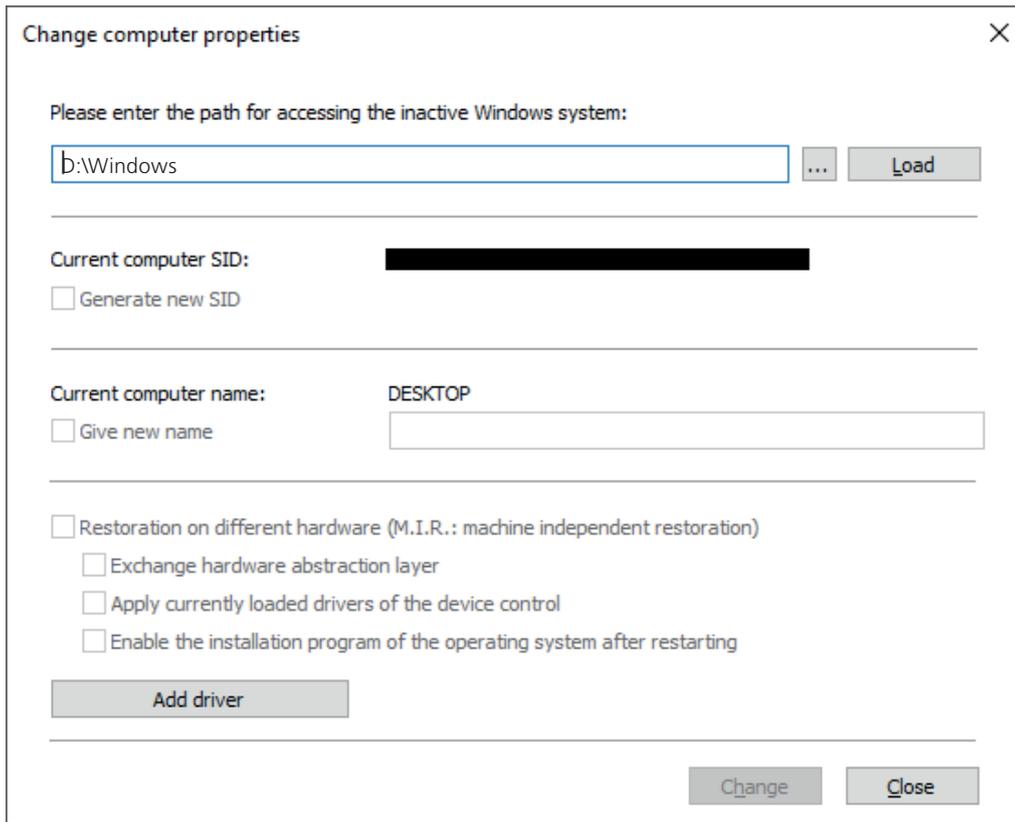
Change computer properties manually

Replace hardware abstraction layer (HAL)

Windows operating systems must be compatible with a variety of hardware platforms. This portability is achieved through a special layer that, depending on the hardware, encases the specific architectural and mechanical details such as the I/O interfaces, Interrupt Controller and multiprocessor communication mechanisms. This layer is commonly installed on and aligned to the current hardware on an installed and running Windows. Once the hardware is exchanged, it's necessary to align the layer accordingly so that smooth and continuous running of the operating system and its programs is guaranteed.

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 must be installed in order to make sure it will work properly with this layer.

Enable the setup of the operating system after restart

This action instructs the Windows operating system to run an internal setup at the next start which thereby enables it to gather all available information. Once completed, the operating system can then adapt automatically to partial modifications as well as permit you to register new hardware.

Add driver

It's easy to add drivers to your inactive operating system. By clicking the Add driver button, you'll be able to select a folder in which one or more driver files will be found. A search will then be started that will include all sub-folders. Every driver file will then be checked to see if it is compatible to the non-active operating system. This being the case, the driver will be copied into the driver folder of the non-active operating system and marked for starting

Note

From Windows 7 it is normally sufficient to to add from the chip set driver of the new device so that the operating system can start properly.

Assistance when error messages occur during booting

If your computer displays an error message when starting, the O&O DiskImage bootable medium can help you "avoid" the Windows operating system restore an image directly. You'll then be able to resolve any problems that arise and quickly get back to work.

The most commonly occurring error messages related to booting are listed as follows:

Error notice	Problem description	Cause	Problem solution
"Invalid Partition Table", "Error Loading Operating System" or "Missing Operating System".	After starting the computer the BIOS is started, and the BIOS information is shown. Then, one of the mentioned error messages is displayed on a black background.	The MBR (master boot record), which is located in the first sector of the hard disk is defect or cannot be read.	Boot your computer with the help of the O&O bootable medium. Then restore the MBR (the first system area) or the entire hard disk. Alternatively, you can start the Microsoft Recovery Console and run the command "fixmbr".
"A disk read error occured", "NTLDR is missing" or "NTLDR is compressed".	After starting the computer the BIOS is started, and the BIOS information is shown. Then an error message is displayed on a black background, very similar to the one shown when a MBR is defect or cannot be read.	The boot block, of the Windows boot sector code for the system partition, is defect or cannot be read.	Boot your computer with the help of the O&O bootable medium. Then, restore the system partitions or the entire hard disk of the image. Alternatively, you can start the Microsoft Recovery Console and run the command "fixboot".
"Windows could not start because of a computer disk hardware configuration Problem", "Could not read from selected boot disk", "Check boot path and disk hardware" or "invalid or missing file hal.dll"	After starting the computer the BIOS is started, and the BIOS information is shown. After a short Windows boot dialogue, one of the mentioned error messages is displayed on a black background.	The file "boot.ini" or the "BCD" is defect, or cannot be read, or the entries refer to a non-existent boot/ system partition.	Boot your computer with the help of the O&O bootable medium. Then, load the image and copy the file boot.ini or BCD (from Windows Vista on) from the boot/system partition onto the boot/ system partition of your computer. Alternatively, you can also restore the system partition, or the entire hard disk, or boot the Microsoft Recovery Console, and then run the command "bootcfg /rebuild".
"Windows could not start because the following file is missing or corrupt" or a blue screen with "STOP: 0xC0000135 {Unable to Locate Component}."	After starting the computer the BIOS is started, and the BIOS information is shown. Then, one of the mentioned error messages is displayed on a black background, very similar to the ones mentioned whenever a MBR is defect or cannot be read.	The system partition or the file system is defect.	Boot your computer with the help of the O&O bootable medium. Then, restore the system partitions or the entire hard disk.

You will find further explanations on the Windows Recovery Console and its parameters under
http://www.support.microsoft.com/kb/314058

O&O DiskImage
Quick and easy system restore.

Backup Software for Windows

This backup software is the safest and easiest way to avoid losing important personal files! Options are available for both auto backup and manual settings. Thanks to a unique recovery system that includes additional system recovery tools combined with O&O DiskImage you'll quickly be able to restore all your important data – even if the backup you're using was created with an older O&O DiskImage version.

Product features

- Backup an entire computer with the push of a button
- Backup system and hard drives, clone drives and entire disks
- Brand new file-based backup: now twice as fast as ever before – backup and restore individual files and/or folders
- Direct creation of VHDs
- Monitoring and warning of security risks
- Incremental/differential backup: back up only the changes
- Easily restore files, folders, drives and disks
- System restore onto different hardware (M.I.R.)
- Create a Windows Boot system directly from within the program with driver integration
- Plug-and-play: Selected files and folders are automatically backed up and synchronized