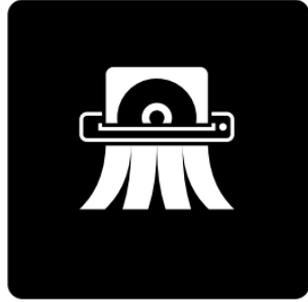


HDShredder

5





HDS shredder 5

Manual

Table of Contents

1	Introduction	6
1.1	Brief Description	6
1.2	Character Conventions	6
1.3	Edition Overview	6
2	Areas of Application	7
2.1	Deletion of Data	7
2.2	Computer Disposal	8
2.3	Selling Computers	8
2.4	Passing on Computers	8
2.5	Deleting Installed Software	8
2.6	Deleting Photos and Videos	8
2.7	Removal of Viruses	8
2.8	Proprietary Formats	9
2.9	Damaged Media	9
2.10	Arbitrary Computer Systems	9
3	Variants	10
3.1	HDS shredder/W	10
3.1.1	Supported Systems	10
3.1.2	Supported Devices and Storage Media	10
3.2	HDS shredder/S	11
3.2.1	Supported Systems	11
3.2.2	Supported Hardware Standards	11
3.2.3	Supported Storage Devices and Media	11
3.3	HDS shredder/L	12
3.3.1	Supported Systems	12
3.3.2	Supported Storage Devices and Media	12
4	Compatibility	13
4.1	Standards	13
4.2	Transfer Rates	13
4.3	SATA	14
4.3.1	SATA-Hotplug	14
4.3.2	Port-Multiplier	14
4.4	SCSI and SAS	14
4.5	RAID	15
4.5.1	Hardware RAID	15

4.5.2	Intel RAID	15
4.6	USB	15
4.7	Firewire (IEEE1394)	15
4.8	Bluetooth	16
4.9	NVMe	16
4.9.1	M.2	16
4.10	Thunderbolt	16
5	Quickstart	17
5.1	Windows	17
5.2	Self-booting	17
6	Installation	18
6.1	Setup for Windows	18
6.2	Boot-Setup	18
6.3	Windows PE	19
6.3.1	Windows HotCopy	20
6.4	ISO Image	20
7	Program Startup	22
7.1	Windows	22
7.2	Self-booting	22
7.3	Quit Program	22
8	Inline help	23
8.1	General	23
8.2	Windows	23
8.3	Self-booting	23
9	Troubleshooting	24
9.1	General	24
9.2	Storing a Log File	24
9.2.1	Log File Naming Scheme	24
9.2.2	Location of Stored Logs	25
9.2.3	Auto Log Function	25
9.2.4	Save Log Manually	25
9.3	Create a Bootable HDS shredder Media	26
9.3.1	USB Stick not Working	26
9.3.2	CD/DVD Writer not Selectable	26
9.4	Bootting HDS shredder	26
9.4.1	BIOS-USB-Boot	26
9.4.2	UEFI-Boot and SecureBoot	27
9.4.3	Extended Boot Options	28

9.5	Input Devices	29
9.5.1	General	29
9.5.2	Bluetooth Devices	29
9.5.3	Problem Devices	29
9.6	Deletion Process	29
9.6.1	Read, Write and Verification Errors	29
9.6.2	Deletion Performance	30
9.7	Mass Storage	30
9.7.1	SCSI/SAS	30
9.7.2	USB	31
9.7.3	Thermal Issues	31
9.8	Network	32
9.8.1	Mapped Network Drives	32
9.8.2	Network Shares	32
9.8.3	Thunderbolt Device not Recognized	32
10	Miscellaneous	33
10.1	Legal Information	33
10.1.1	GPL	33
10.1.2	Disclaimer	33
10.2	Licensing	33
10.2.1	Standard License Types	33
10.2.2	Activation	34
10.2.3	License Extension	34
10.2.4	Customer-specific Licensing	35
10.3	Feedback	35
10.4	Support	35

1 Introduction

Thank you very much for choosing HDS shredder. It is our expressed goal to develop products that meet your standards. Therefore, should you have any suggestions for improvement or should you for any reason be dissatisfied with the software, we would greatly appreciate your ▶ **10.3 Feedback**.

1.1 Brief Description

With HDS shredder, it is possible to delete entire hard drives or other disks, as well as individual partitions, securely and irreversibly as desired in accordance with international standards. The data can then not be recovered, even with the use of data recovery software. HDS shredder offers the highest security with its supported deletion standards, while at the same time providing great flexibility by offering the option to freely define deletion patterns. Therefore, HDS shredder is especially suitable for the named tasks in ▶ **2 Areas of Application**.

1.2 Character Conventions

In this manual, keys on the keyboard are printed with an inverted background, for example **Esc** for the escape key or **Return** for the return key. Some keys are represented by their corresponding symbol, for example **↑** for the 'up'-key. Visual controls on the screen, particularly buttons are represented over-and-underlined with italic font, for example *next*, *back*.

1.3 Edition Overview

There are various editions of HDS shredder. They differ from one another by the number of features they offer, their supported device types, performance and special options. For more information on the features of each edition visit www.miray-software.com/HDSshredder.

2 Areas of Application

HDShreder specializes in deleting complete hard drives or other storage media, as well as individual partitions, quickly yet also securely - that is, irrecoverably. The media will remain useable following the deletion. The deletion is done irreversibly on a physical level. HDShreder thereby offers special benefits when it comes to the deletion of [▶ 2.9 Damaged Media](#). Additionally, when required, HDShreder works independently from any partitioning scheme, data or operating system, and can therefore delete entire operating systems at once ([▶ 2.5 Deleting Installed Software](#)), or in the event of unknown/proprietary data systems, can execute a secure deletion ([▶ 2.8 Proprietary Formats](#)). With its universal deletion process, HDShreder covers a broad spectrum of application possibilities. Below you can find descriptions of frequently applied uses, as well as additional hints for the use of HDShreder.



Hint: With HDShreder, it is possible to delete data from media (i.e. hard drives) that have not been used on a PC ([▶ 2.10 Arbitrary Computer Systems](#)).



Note: Any media deleted by HDShreder remains fully operational and useable. In contrast to mechanical or physical deletion processes, media are not damaged or destroyed when deleted with HDShreder.

2.1 Deletion of Data

Generally, HDShreder's main use is the deletion of data. To securely delete data, select a deletion pattern of a higher standard or a self-created pattern. The deletion report, which can be generated at the end of a deletion process, will provide information regarding the parameters and the result of the deletion. This report can be used to provide clients with a confirmation of the completed deletion process.



Note: Any media that undergoes the deletion process with HDShreder remains useable. The media itself is not damaged by the deletion. After renewed formatting (and partitioning, if applicable), the media will be operational once again. The reconstruction of data deleted by HDShreder, even if the deletion occurred accidentally, is not possible.

2.2 Computer Disposal

In the event of a complete disposal of computers, the deletion of the installed hard drive(s) therein is recommended to avoid your data being easily accessed by a third party. This is possible with HDS shredder, as even non-functional operating systems and hard drive defects pose no problem, and the deletion can still be executed. Of course this also applies to the disposal of individual and external storage medias.

2.3 Selling Computers

Before selling your used computer or your used hard drives, you should ensure that any personal or other sensitive files cannot be accessed or recovered by the buyer. HDS shredder enables the fast and secure deletion of the entire hard drive or of individual partitions.

2.4 Passing on Computers

Prior to passing on computers or storage media, even within a company or organization, any sensitive data should preferably be removed. HDS shredder offers an advantage over mechanical or physical deletion processes, as the media from which the data is deleted, can still be used afterwards..

2.5 Deleting Installed Software

In some cases it makes sense to not just delete the data, but also the installed software and the operating system. In cases of commercial software that you may want to continue using, any remaining installation may be regarded as a pirated copy. With HDS shredder, when selling or passing on your computer or hard drives, you can make sure that no unauthorized person is able use your software license information.

2.6 Deleting Photos and Videos

Nowadays, when passing on or disposing of mobile storage media, especially flash drives for digital cameras and camcorders, the deletion of any images or other files contained therein is often forgotten and may end up in the wrong hands. With HDS shredder, you can clear these media simply and securely.

2.7 Removal of Viruses

Even though HDS shredder is not an anti-virus program, some viruses are so persistent, that they remain hidden in areas of the hard drive that are normally inac-

cessible (boot sector, MBR, non-partitioned areas). In these cases, the complete deletion of the hard drive, followed by a new installation, may not provide the most elegant, but definitely one of the safest solutions in order to remove malware from your hard drive in the long-term.

2.8 Proprietary Formats

HDS shredder deletes entire hard drives or individual partitions, regardless of any file or operating systems thereon. As a result, you can delete all hard drives or partitions with HDS shredder, regardless of the type of software or file systems installed on them. Therefore, the deletion of proprietary or rare formats is possible and unproblematic.

2.9 Damaged Media

Oftentimes damaged media are simply disposed of after data rescue without any further measures, due to them being “defective.” Yet third parties may just as well use data rescue software in order to recover large parts of data. This is why damaged media should also be deleted with HDS shredder, of course after it has undergone any possible data rescue.



Note: HDS shredder also works on media containing defective sectors. In this case, all writable sectors are overwritten. Defective sectors cannot be read anymore nonetheless.

2.10 Arbitrary Computer Systems

HDS shredder cannot only be used on PC systems. Many specialized systems, for instance industrial and medical technology, are compatible with PCs. In these cases, HDS shredder can be executed directly onto the pertinent system. Due to its independence from any operating system, it does not rely on working with the operating system installed on the PC. You may therefore deploy HDS shredder on arbitrary, PC-compatible systems in order to simply and irreversibly delete their data



Note: HDS shredder can also be used on non-PC systems. These types of systems often use IDE, SCSI or SATA hard drives, or storage media. In order for them to be deleted, connect them to a PC in the event of HDS shredder not running on the respective system.

3 Variants

HDS shredder comes in three variants – HDS shredder/W, HDS shredder/S and HDS shredder/L. All variants contain the same program software, meaning the same user interface. Generally, the program operation and functions are identical, yet they run on different operating systems. Therefore, the main difference is the device support, which may affect the program functions in the respective variant. The system requirements for each variant are described below.



Note: The following information represents the entire spectrum of the systems supported by HDS shredder. The actual availabilities of each edition are listed in the [▶ 1.3 Edition Overview](#).

3.1 HDS shredder/W

This variant runs as normal Windows application (.exe) and can therefore simply be executed on a running Windows PC parallel to other programs, or it can be executed via Windows PE even without Windows being permanently installed.

3.1.1 Supported Systems

HDS shredder/W runs on PCs (x86 + x64) with the following versions of Windows:

Workstation

- Windows XP (32+64 bit) *
- Windows Vista (32+64 bit)
- Windows 7 (32+64 bit)
- Windows 8 (32+64 bit)
- Windows 8.1 (32+64 bit)
- Windows 10 (32+64 bit)

Server

- Windows Server 2003 (32+64 bit) *
- Windows Server 2008 (32+64 bit)
- Windows Server 2008 R2 (64 bit)
- Windows Server 2012 (64 bit)
- Windows Server 2012 R2 (64 bit)
- Windows Server 2016 (64 bit)

*) We reserve the right to limit or suspend support for Windows XP and Server 2003 in future versions of HDS shredder 5 in favor of technical innovations which are not implementable thereon.

3.1.2 Supported Devices and Storage Media

All devices or mass storage media that are supported on Windows, or on which an appropriate Windows driver has been installed.

3.2 HDS shredder/S

The original variant of HDS shredder runs self-booting on PC's and Macs (x84 compatible) on the base of our Symbi OS. It is employed especially when achieving the highest possible copying speed or if Windows is not executable. The systems, controllers and devices that are supported are listed below.

3.2.1 Supported Systems

- PC Pentium III or higher, 500 MHz, 512 MB RAM, VGA/VESA
- Keyboard & mouse: PS/2, USB or Bluetooth
- Bootable CD drive or USB bootability

3.2.2 Supported Hardware Standards

HDS shredder/S supports the hardware standards listed below and thereby principally all devices that utilize these standards.

- PCI-IDE controller and Bus Master IDE controller
- Adaptec PCI-SCSI host adapter (▶ 4.4 SCSI and SAS)
- SATA controller with IDE interface
- SATA-II & SATA-6G controller (AHCI interface)
- USB 1.1 (UHCI & OHCI controller)
- USB 2.0 (EHCI controller)
- USB 3.0/3.1 (XHCI controller)
- Bluetooth (USB-HCI controller, HID class)
- Firewire / IEEE1394 (OHCI controller)
- Intel Onboard RAID (SATA-RAID controller)
- M.2 (SATA- & NVMe controller)
- PCI (NVMe controller)

3.2.3 Supported Storage Devices and Media

- IDE/ATA SSDs & hard disks, CompactFlash via IDE ¹⁾
- SATA SSDs & hard disks (internal & external)
- PCIe and M.2 SSDs
- Intel Software RAID (0, 1, 10, 5)

- SCSI hard disks (internal & external)
- USB sticks ²⁾
- USB hard disks and SSDs (internal & external) ²⁾
- Firewire hard disks (internal & external)
- SD ³⁾, microSD ³⁾, SDHC ³⁾ and MMC ³⁾
- CompactFlash I ³⁾, CompactFlash II ³⁾
- MicroDrive ³⁾, xD-Picture Card ³⁾
- Memory Stick ³⁾, Memory Stick PRO ³⁾, Memory Stick DUO ³⁾

¹⁾ CompactFlash media with TrueIDE support

²⁾ must support the USB-Mass-Storage-Class protocol

³⁾ connected over a USB card reader or an equivalent adaptor

3.3 HDS shredder/L

Professional Edition and up

Just as with HDS shredder/S, this variant also runs self-booting on our Symobi OS, yet on the basis of Linux. Many WLAN adapters and RAIDs can thereby be used without an executable Windows program and without Windows PE.

3.3.1 Supported Systems

- PC with 64 bit CPU (x64), 500 MHz, 512 MB RAM, VGA/VESA
- Keyboard & mouse: PS/2, USB or Bluetooth
- Bootable CD drive or USB bootability

3.3.2 Supported Storage Devices and Media

All devices and mass storage media that are supported directly by Linux Kernel Version 4.7.

4 Compatibility

Additional information and tips for the use on various types of devices are listed below.



Hint: In order to check if your devices are supported prior to the purchase of HDS shredder, start HDS shredder Free Edition on the respective PC and open the **SpeedTest** app in the **Tools** group. In the list to the left side you will be able to see which disks are actually available. You may also execute a speed test for these disks.

4.1 Standards

To support a wide spectrum of devices, HDS shredder/S implements the official interface standards for the particular device types. In addition, we perform extensive tests with each type of device. Though should you experience any issues, in most cases these can be resolved by setting the options appropriately (see ▶ 9 Troubleshooting). The event that this does not solve the issues, our Support Team (▶ 10.4 Support) will be glad to help you.

4.2 Transfer Rates

The achievable speed primarily depends on the disk's capabilities, for which the following approximate classifications can be made:

Type	Age	Transfer Rate
Older drives	~ 5-10 years	~ 10-60 MB/sec
Newer drives	~ 3-5 years	~ 40-120 MB/sec
Top models	~ 0-3 years	~ 80-180 MB/sec and more
USB 2	~ 0-5 years	~ 10-40 MS/sec
USB 3	~ 0-3 years	~ 10-150 MB/sec and more
SSD's	~ 0-2 years	~ 90-300 MB/sec and more
PCIs SSDs	~ 0-2 years	~ 200-1,500 MB/sec and more



Note: The speed also depends on other system components, for example on USB SATA bridges and on the variant of HDS shredder that is being used. The best speed is mostly achieved by HDS shredder/S. Should the speed deviate strongly from the expected value, please find further tips in chapter ▶ 9.6.2 Deletion Performance.

4.3 SATA

HDS shredder supports SATA, SATA-II and SATA 6G disks. We recommend setting SATA controllers in BIOS to operating modus **AHCI** (instead of **IDE**). Should the IDE mode be needed by the installed operating system, **IDE** can be reset after completion of the deleting process.

4.3.1 SATA-Hotplug

Enterprise Edition required

To connect SATA devices to a running system (hot-plugging), the SATA controller has to be set to **AHCI** (instead of **IDE**) operating mode in BIOS, and the ports to be used for hot-plugging must be set to **Hotplug**. Alternatively, SATA ports can also commonly be used for hot-plugging when they have a SATA device connected at power-on.



Warning: It is absolutely essential to first set the AHCI operating mode for the SATA controller in BIOS. In IDE operating mode, the plugging of devices into a running system usually causes a system crash.

4.3.2 Port-Multiplier

Enterprise Edition required

A port multiplier allows the connection of several SATA devices to a single SATA port, thereby sharing the transfer rate of the port. This enables the connection of more SATA disks than native SATA ports are available at one time. Disks connected over a port multiplier will be recognized and displayed automatically.

4.4 SCSI and SAS

Professional Edition or more advanced required

SCSI and SAS disks are supported by HDS shredder/W and HDS shredder/L as long as there is an appropriate driver. Only the following Adaptec Narrow, Wide, Ultra and Ultra-Wide SCSI controllers are supported by HDS shredder/S:

AHA-2930U	AHA-2940 Ultra	AHA-2940UW	AHA-2940AU
AHA-2944UW	ASC-19160	ASC-29160	ASC-29160LP
ASC-29160N	ASC-39160		



Hint: Use the Free Edition in order to determine whether your SCSI/SAS controller is supported (▶ **4 Compatibility**). If HDS shredder recognizes the connected drive, the SCSI/SAS controller is supported.

4.5 RAID

Professional Edition or more advanced required

HDS shredder can also delete RAIDs. Generally, the individual disks on the RAID can be deleted consecutively. Yet oftentimes the RAID can be addressed directly, so that the data from all of the RAID's disks can be deleted in a single step.

4.5.1 Hardware RAID

HDS shredder/W can basically use all available mass storage media on Windows, therefore also RAIDs which present as normal drives on Windows. They can be deleted with HDS shredder. HDS shredder deletes RAIDs just as it would be regular disks. The RAID structure is hidden by Windows and therefore special RAID properties are not visible to HDS shredder/W.

4.5.2 Intel RAID

Since 2003, Intel has offered the support for software RAIDs in its chipsets, which we will refer to here as Intel RAIDs. HDS shredder/S supports the deletion of Intel RAIDs. The RAIDs thereby must be connected, in their original configuration, to the internal Intel-SAT-controller. The available RAID volumes will be shown as disk in the drive list. In the event of incomplete or defective RAID sets, the deletion of the individual disks is required.

4.6 USB

HDS shredder can be used with USB devices of the USB versions 1.0/1.1 (UHCI, OHCI), 2.0 (EHCI) and 3.0/3.1 (XHCI). HDS shredder supports USB mass storage media (USB Mass Storage Class), USB keyboards, mice (HID) and USB hubs.

4.7 Firewire (IEEE1394)

Professional Edition and up

HDS shredder works with any Firewire drive or Firewire card reader which supports the Serial-Bus-Protocol (SBP).



Note: Please ensure to connect Firewire devices prior to starting HDS shredder, and if possible directly to the PC or to the Firewire controller.

4.8 Bluetooth

An HID-capable USB Bluetooth adapter (internal or external) is necessary in order to use Bluetooth-connected input devices (keyboard, mouse, etc.) with HDSHredder. Devices must be connected to the PC prior to using the program. The self-booting HDSHredder variants take care of this automatically upon starting.

4.9 NVMe

Professional Edition and up

The NVMe interface is used by modern SSDs and it allows high transfer rates in particular. HDSHredder supports NVMe disks, regardless of their structure, i.e. as M.2 or PCIe card.

4.9.1 M.2

The term "M.2" describes a form factor for expansion cards, yet it is oftentimes synonymous with an NVMe interface. Yet actually, SATA or USB-3 devices can be connected via M.2. Therefore, the support with M.2 cards conforms to the device interface and the HDSHredder edition used (▶ [1.3 Edition Overview](#)).

4.10 Thunderbolt

Thunderbolt adapters and devices of classes supported by HDSHredder (for example Thunderbolt-Firewire adapter) can generally be used. They must already be connected at the time of system startup, since hot-plugging for Thunderbolt is not yet supported.

5 Quickstart

You can use HDS shredder in two variants: as a Windows application (HDS shredder/W) or as a self-booting program (HDS shredder/S and HDS shredder/L).



Note: Further information on launching the program can be found under ▶ **6 Installation** and ▶ **7 Program Startup**. Information on how to use HDS shredder can be found under ▶ **8 Inline help**.

5.1 Windows

Please take the following steps to start HDS shredder in Windows:

1. Start the setup for Windows (**setup.exe**) and follow the instructions. Accept the default settings.
2. When setup is finished, HDS shredder will start automatically. Alternately, you can start HDS shredder from the Desktop or the Windows Start Menu.
3. After starting HDS shredder, select the desired function and follow the course of the program. For further information, please refer to ▶ **8 Inline help**.

5.2 Self-booting

To start (=boot) HDS shredder without Windows, the following steps are required:

1. If you already have a bootable media (CD/DVD or USB stick) with HDS shredder, please proceed with step 4.
2. Plug a USB stick into your PC or insert an empty CD/DVD into your CD/DVD writing drive. Start the Boot-Setup under:
Programs ▶ HDS shredder... ▶ Create bootable media
3. Select the desired CD/DVD drive or the desired USB stick and create a bootable media.
4. Boot from this media on your desired PC and select **S** for HDS shredder/S or **L** for HDS shredder/L from the home screen.
5. When the main program screen opens, select the desired function and follow the course of the program. For further information, please refer to the ▶ **8 Inline help**.

6 Installation

HDShreder has three variants (▶ 3 Variants). Use ▶ 6.1 Setup for Windows to install HDShreder/W in Windows and/or create a bootable media (HDShreder/S + HDShreder/L) with ▶ 6.2 Boot-Setup or as described in ▶ 6.4 ISO Image.



Note: Should you have obtained HDShreder on a media (CD/DVD or USB stick), you can start HDShreder directly from there (▶ 7 Program Startup).

6.1 Setup for Windows

Start `setup.exe` in order to install HDShreder on Windows. On the start screen, select **Quick installation** to install HDShreder with all of its options, or select **Custom** to select the options yourself (▶ fig. 1). Afterwards, select Next to follow the setup steps. Upon completion, ▶ 6.2 Boot-Setup will start in order to create an HDShreder bootable media.

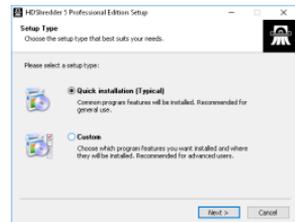


fig. 1: HDShreder Setup start screen

6.2 Boot-Setup

The Boot-Setup (▶ fig. 2) creates a bootable disk (CD/DVD or USB stick) from which HDShreder/S and HDShreder/L can be booted. Start Boot Setup one of three ways:

- Once ▶ 6.1 Setup for Windows is completed, the boot setup will be located under Programs ▶ HDShreder... ▶ Create bootable media.
- Start HDShreder/W and then click on the Toolbox symbol  or press the **F6** key and select **Boot-Setup**.
- Start `hdshredder.exe` from the program package. Then select the button Create bootable media.



fig. 2: Boot-Setup

The Boot-Setup offers these options:

- **Select target:** Select the desired type (USB or CD/DVD) and a drive from the

drop-down box. Drive lists are updated automatically. Alternately, you may select an ISO image to be created.

o **Boot support:**

UEFI+BIOS (recommended): Bootable in UEFI and (Legacy) BIOS mode

BIOS: Bootable only in (Legacy) BIOS mode. Only use this option when boot problems occur in systems with classic BIOS.

UEFI: Bootable only on UEFI systems (incl. SecureBoot). Use this option when booting problems occur on UEFI systems.

none: No bootcode will be written onto the disk, as to not overwrite an already existing bootcode. If the disk does not contain a bootcode, it will not be bootable upon connection. This option is designed for use with boot managers in order to not overwrite them.

- o **Format disks (USB only):** Formats the selected drive prior to making it bootable, for instance should booting problems occur or in order to newly set up a USB disk. All data on the USB disk will be deleted.

Click on Create now to start creating the bootable disk. Follow the instructions and wait for the program to confirm successful completion. Continue under

▶ 7 Program Startup or ▶ 5 Quickstart.



Note: When creating a CD/DVD, please always use a new, empty writeable CD/DVD. Otherwise there may be problems when trying to boot HDS shredder from this CD/DVD.

6.3 Windows PE

You may create a bootable CD version of Windows Vista, Windows 7, or Windows 8/8.1 or Windows 10. To do so, we recommend the freely available projects with the builder from CWCodes which you may find under <http://www.cwcodes.net/>.

You will find the projects for **Windows Vista PE**, **Windows 7 PE** and **Windows 8 PE**, **Windows 8.1 PE** and **Windows10 PE** at the following URLs:

- o **Windows Vista PE (VistaPE):** <http://vistape-capi.cwcodes.net/>
- o **Windows 7 PE (Win7PE SE):** <http://w7pese.cwcodes.net/>
- o **Windows 8 PE (Win8PE SE):** <http://w8pese.cwcodes.net/>
- o **Windows 8.1 (Win8.1 SE):** <http://win81se.cwcodes.net/>
- o **Windows 10 (Win10 SE):** <http://win10se.cwcodes.net/>

After having created a USB stick with Builder, copy `hdshredder.exe` into the stick's root folder. If using a CD/DVD, select **Finals** ▶ Create ISO on the left hand

side in builder prior to creating the ISO. The button [Put Files for 'RootCD' Here](#) will open a folder to which you can copy `hdshredder.exe`, in order for it to be included with the ISO image to be created. When creating a 64 bit Windows PE (x64), use the `hddshredder64.exe` file instead.



Hint: You may also include device drivers, especially for RAID's, with Windows PE. This will make them accessible from HDSHredder. For this purpose, the desired drivers must already be installed on the system you are using. On the left hand side, select in Builder [Drivers](#) ► [Driver Integration](#). Click on [Double Driver Export Host Drivers](#) to include the installed drivers with the Windows PE to be created.

6.3.1 Windows HotCopy

There is a practical alternative to creating a ► **6.3 Windows PE** in order to obtain an independently bootable Windows; for example to use special Windows drivers for RAID's or SCSI/SAS. Simply create a temporary clone of an existing Windows Installation. Install additional required drivers before or after creating the clone. This clone will then offer a Windows which can be booted independently from the installed operating system, similar to a Windows PE. Start HDSHredder/W from there.

6.4 ISO Image

The HDSHredder software package contains an ISO image (`hdshredder.iso`):

- To be created with ► **6.2 Boot-Setup**, option **ISO image**.
- In a program package in ZIP format as `hdshredder.iso`.
- On the genuine media (CD/DVD or USB stick) as `hdshredder.iso`.

It can be used to create a bootable HDSHredder CD/DVD in any operating system using third party CD/DVD writing software capable of burning ISO files. For further information, please refer to the manual of your CD/DVD writing software.

1. Start your CD/DVD writing software and choose **Create CD from image file** (or similar option, depending on the CD/DVD writing software used).
2. Specify the file `hdshredder.iso` as an image file (instead of adding it as a normal file).
3. Insert a blank CD /DVD into the drive and start the burning process.

Once these steps have been completed, you will have created a bootable CD/DVD. You can use it to start (boot) HDSHredder directly on a PC with a bootable

CD/DVD drive as described in ▶ **7 Program Startup**.



Hint: The easiest way to create a bootable CD under Linux is to use the software tool `cdrecord` with the following syntax:
`cdrecord hds shredder.iso`

7 Program Startup

7.1 Windows

Following the installation (▶ 6.1 Setup for Windows), you may start HDSHredder from the Windows Start Menu under *Program* ▶ *HDSHredder 5...* ▶ *Start HDSHredder*. Alternately HDSHredder can be started by invoking the file `hdshredder.exe` either from the genuine HDSHredder media or directly from the software package (ZIP archive).

7.2 Self-booting

Connect the bootable USB stick or insert the bootable CD/DVD (▶ 6.2 Boot-Setup). Start the PC and ensure that BIOS will boot from the desired media. HDSHredder/S will then be launched from the bootable media. Click **L** on the home screen to start HDSHredder/L.



Note: Should your PC not boot from the HDSHredder boot media, press **F8**, **F11** or **F12** (BIOS dependent) as soon as you power on the PC to access the boot menu and select the boot media.

HDSHredder will also boot on UEFI systems, with or without SecureBoot mode.

7.3 Quit Program

In the lower right of the system bar you find a symbol to close the application (**C** under Windows) or to power off the PC (**⏻** self-booting). Click on the symbol to quit HDSHredder.

If a program function remains open, you can return to the main screen by clicking on the menu symbol **☰** in the lower left hand corner of the system bar or by pressing the **Esc** key. An actively running process will have to be finished or cancelled first.



Note: (Self-booting only) If you do not want to start HDSHredder when starting the computer next time, remember to first remove the HDSHredder boot media from the boot drive.

8 Inline help

8.1 General

Detailed descriptions of all program functions and operating elements, as well as their modes of operation, can be found in the Inline Help, which can be invoked directly within the program. Open the Inline Help by selecting the question mark icon  on the left side of the system bar to the bottom or by pressing the **F1** key. In many cases, Help will already show a page with the current program context upon opening. Should there be no context available, Help's starting page will be displayed, allowing you to use either the table of contents or the search function to open the desired topic.

Generally, Help has the same contents for HDSHredder/W, HDSHredder/S and HDSHredder/L. Yet there are some minor differences in the Help display, which are described below.

8.2 Windows

If HDSHredder was installed by using [▶ 6.1 Setup for Windows](#), HDSHredder/W will use the Windows help system, this means Help will open in a separate window.

In this case, you may also open Help independently from the program under the HDSHredder entry in the Windows Start Menu ([▶ fig. 3](#)).

If HDSHredder/W is started without previous installation using the Setup for Windows, the integrated help system will be used, as described in [▶ 8.3 Self-booting](#). The Help window will then appear within the HDSHredder application window.

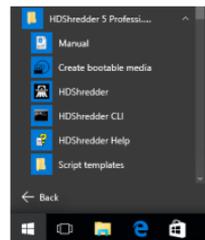


fig. 3: Windows Start Menu

8.3 Self-booting

The bootable version of HDSHredder also contains the Help in full. Here it will display in an integrated help system. This integrated help system is also used, if HDSHredder is used in Windows without installing it before.

9 Troubleshooting

This paragraph describes problems you may possibly encounter when using HDS shredder and offers proposals for solutions of these problems. Should you find no proposed solution to a problem, please feel free to contact our [▶ 10.4 Support](#).

9.1 General

Should a process not run as expected during the first attempt, a common, yet often effective solution is to give it a second try. This especially saves time when it comes to device issues, because they oftentimes just vanish on a second attempt at connection or the use of another connector.

9.2 Storing a Log File

Similar to a flight recorder, the system log contains details on the activity within the program, which will help us – and therefore you – to find a solution in considerably less time. Should you encounter technical difficulties and turn to our [▶ 10.4 Support](#) for assistance, please first store the system log ([▶ 9.2.4 Save Log Manually](#)) when the issue appears and send it with your request.

9.2.1 Log File Naming Scheme

Log files can be easily recognized by their uniform naming scheme:

- Symobi-[date]-[product]-auto-[nr].log — ([▶ 9.2.3 Auto Log Function](#))
- Symobi-[date]-[product]-user-[nr].log — ([▶ 9.2.4 Save Log Manually](#))
- Symobi-[date]-[product]-dump-[nr].log — (Crash report)

The log files can be differentiated by creation date (**date**), product version (**product**) and a sequential number (**nr**) in their respective file name.

Log files that are created by starting HDS shredder/W with `hdshredder.exe log`, or via the extended options of the startup menu of HDS shredder/S and HDS shredder/L, selecting System log ▶ System Start ([▶ 9.4.3 Extended Boot Options](#)), have the following naming scheme.

- Symobi-[date]-Startup.S32-[nr].log — (Startup-Log boot menu)
- Symobi-[date]-Startup.[W32|W64]-[nr].log — (Startup-Log HDS shredder/W)

- Symobi-[date]-Linux.[std]ext]-[nr].log — (crash report HDSHredder/L)

9.2.2 Location of Stored Logs

System Logs will be stored in the sub-folder `.\Symobi\Logs` of the following locations, depending on the product variant used:

HDSHredder/W: always in `%AllUsersProfile%` (usually referring to `C:\ProgramData`) or alternatively in `%AppData%` (usually referring to `C:\Users\\AppData\Roaming`), plus in one of the following locations (in this order), if applicable:

- the USB token, if connected, or
- the root of the USB drive the `.exe` has been started from or
- the folder (e.g. on a local or network drive) the `.exe` has been started from.

In HDSHredder/W, the effective folder can be invoked directly via the Toolbox icon  and the menu item **Stored log files**.

HDSHredder/S and HDSHredder/L: always on the bootable media, HDSHredder has been started from, if available for write access (not applicable for CD/DVD boot), plus on the USB token, if available.

If none of the above locations is available, the program will not store an Auto Log. In case of ▶ **9.2.4 Save Log Manually**, you will be prompted for a location.

9.2.3 Auto Log Function

HDSHredder automatically saves system logs at certain points in time.



Important: In case you encounter any issues with HDSHredder, please always store the Log manually (▶ **9.2.4 Save Log Manually**). The automatic Logs do not always cover the latest actions. If you have booted HDSHredder from a CD/DVD, the system log may not be saved automatically.

9.2.4 Save Log Manually

You may also trigger the system log to save yourself once a problem occurs, or if the system log does not save automatically, as described below:

1. **HDSHredder/S + HDSHredder/L:** If you have booted HDSHredder from a CD/DVD, connect a USB stick in order to save the System Log.
2. Click on the Toolbox symbol  and choose **Store log** or press **Ctrl + Alt + F12**.
HDSHredder/S + HDSHredder/L: If you have booted HDSHredder from a USB

stick, the System Log will be stored to it automatically. Otherwise, a popup will open and prompt you to select a storage media.

3. The saving process will be displayed in a pop-up window. The system log will be saved in the location specified by the file path provided in chapter [▶ 9.2.2 Location of Stored Logs](#).

9.3 Create a Bootable HDS shredder Media

This chapter addresses potential issues when creating a bootable media for the self-booting versions of HDS shredder (HDS shredder/S + HDS shredder/L).

9.3.1 USB Stick not Working

Should the creation or the booting of a bootable USB stick fail, it may not contain a partition table. In this case, use the **Format disk** option in [▶ 6.2 Boot-Setup](#) in order to recreate a bootable USB media. The files contained on the USB stick will be thereby lost.

9.3.2 CD/DVD Writer not Selectable

Should no drive be displayed during the boot setup under the CD/DVD burner, the installed burn software may be the cause. It may exclusively reserve the burner, so that it cannot be accessed by the boot setup. In this case, deactivate or uninstall the burner software, or create a bootable CD/DVD with your burn software and the [▶ 6.4 ISO Image](#) for HDS shredder.

9.4 Booting HDS shredder

Should issues arise while booting HDS shredder from a USB stick or CD/DVD (for example black screen or startup screen freezes), the following chapters provide appropriate solutions.

9.4.1 BIOS-USB-Boot

If the HDS shredder bootable media (USB stick or USB CD/DVD drive) is not listed in the BBS menu ([▶ 7.2 Self-booting](#)), activate USB boot support in the BIOS setup first. Press **F2**, **Del**, or **F10** (depending on BIOS) to enter BIOS setup. The setting can be found under different names and menu items, depending on the BIOS version. In most cases, it can be found under labels such as **USB**, **Boot** and **Legacy**. In BIOS setup you can also opt to boot from USB permanently, usually under the menu item **Boot**.

9.4.2 UEFI-Boot and SecureBoot

Current PC models often have a UEFI-BIOS. HDSshredder supports booting with UEFI. Some PCs also offer the SecureBoot function, which HDSshredder also supports. Should you encounter problems with SecureBoot, deactivate this function prior to booting HDSshredder. You may reactivate SecureBoot again afterwards. If issues still occur while booting with UEFI, recreate the bootable media (▶ 6.2 Boot-Setup) while thereby deactivating the Include UEFI boot support option. Then repeat the booting process.



Note: In newer versions of Windows, especially starting at Windows 8, UEFI-BIOS can often only be accessed through the operating system. The easiest way to achieve this is via the login screen. Click on the On/Off icon (▶ fig. 4) to open the selection upon restart. Press the Shift button  down and keep it pressed while clicking on **Restart**. This will

take you to a blue screen titled **Choose an option**. Here, you select **Troubleshoot**. On the next screen, select **Advanced options**, then select **UEFI Firmware Settings** on the final screen.

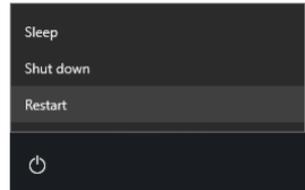


fig. 4: Restart selection

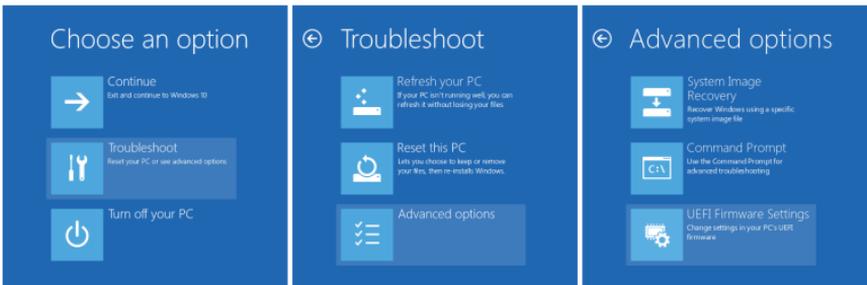


fig. 5: Windows restart process

9.4.3 Extended Boot Options

The boot settings of HDShreder/S and HDShreder/L are optimized for fast booting. If there are any problems with booting, change the settings on the boot screen (▶ fig. 6) press the **M** key for **More Options**. This will display the Extended Boot Options.

Start Selection

You may choose whether you wish to start HDShreder/S or HDShreder/L here.

- **Start Symobi:** Start the native system.
- **Start Symobi/L:** Start the Linux-based system.

Startup Mode

The startup mode offer the option to adjust various configurations for the system start in a graduated manner.

- **Normal:** Start the system with the most efficient configuration.
- **Compatible:** Conservative configurations with minimal limitations.
- **Safe:** Reduced configuration, limited device support.
- **Emergency:** Minimal configuration to save a ▶ 9.2 Storing a Log File.

Graphics Mode

A certain graphics mode can be selected, should issues occur.

- **Auto:** Automatically determine a graphics mode.
- **Native:** Use UEFI graphics mode (only with UEFI BIOS).
- **VESA:** Use VESA mode via BIOS.
- **VGA BIOS:** Use VGA mode via BIOS.
- **VGA:** Initialize VGA mode natively.

System Log

Options to save the System Log.

- **Normal:** Standard setting for gathering runtime information in the System Log.
- **System start:** Starts saving the System Log right upon system start for tracking startup issues. May slow down runtime performance.

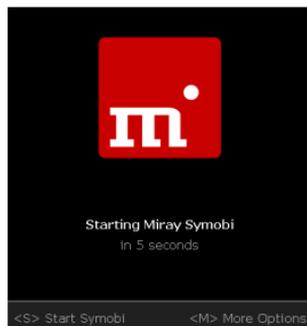


fig. 6: Boot screen

Startup Options

You may activate or deactivate the options individually and boot with one of the start modi afterwards.

- **USB:** Deactivate in order to prevent disturbances from devices that are connected to normal USB ports (connect input devices to USB 3 or PS/2!).
- **Advanced HID:** Advanced support for input devices. Deactivate if problems with the keyboard or mouse occur.
- **SATA port multiplier: extended detection:** Activate if disks that are connected with port multipliers are not recognized.

Select the desired start modi and options, and boot with the desired start selection afterwards (keys **f**, **i** and **Return**).

9.5 Input Devices

If there is no reaction on the mouse or keyboard input after starting HDS shredder/S, the following subchapters provide further information and solutions.

9.5.1 General

A generally very successful solution when having issues with input devices is to connect an alternative USB input device of the same type.

9.5.2 Bluetooth Devices

HDS shredder/S also supports Bluetooth mice and keyboards. If a Bluetooth input device is not recognized, please connect another USB device of the same type.

9.5.3 Problem Devices

A few input devices contain a flawed implementation of the standard. Though those devices may work with Windows, as vendors usually test them against Windows, they will not work with other operating systems. Should this be the case, please use a different USB device temporarily. Create a [▶ 9.2 Storing a Log File](#) and submit it, together with information about the applicable vendor and model of the non-working device to our [▶ 10.4 Support](#).

9.6 Deletion Process

9.6.1 Read, Write and Verification Errors

When HDS shredder reports errors, it is usually the result of defective areas on the

corresponding disk. General hardware problems can also cause reading and writing errors, which are usually indicated by a very high number of errors. In this event, cancel the deleting process, connect the affected disk to another port, or check it for defects. Then restart the deleting process.



Note: If disks are connected by USB, use another USB port and ensure sufficient power supply. When using USB cases for SATA or IDE hard disks, first check if the case is working properly.

9.6.2 Deletion Performance

Should the speed indicated by HDSshredder not reach the expected value, please consider the following possibilities:

- Is the disk working without any issue? Please use the **SpeedTest** function to check if the disks achieve the expected speed, or which one shows a lack of transfer speed.
- When using USB cases for SATA and IDE hard disks, please note that the maximum transfer speed is much lower for USB 2 than for SATA or IDE.
- When using USB3 devices, ensure that they are connected to a USB 3 connector (blue). While in fact USB3 devices are downward-compatible, yet they only run at USB2 speed when plugged to a USB2 connector (black).

9.7 Mass Storage

Please ensure that the disks are working properly and connected correctly and that the power supply is sufficient. The following subchapters contain information about certain types of storage media.

9.7.1 SCSI/SAS

When using SCSI devices, they must be configured correctly and connected to one of the supported SCSI controllers.



Note: For SCSI and SAS disks, we recommend using HDSshredder/W or HDSshredder/L due to them offering a wider spectrum of support for SCSI and SAS controllers than HDSshredder/S

In addition to the adapters listed under ▶ **4.4 SCSI and SAS**, HDSshredder/S also supports other SCSI controllers, either as Onboard-Chipset (AIC), or as adapter (AHA, ASC). They are determinable by the vendor ID and device ID, which are listed in the table below:

Vendor	Model	Device
9004h	AHA-2930U	3860h
9004h	AHA-2930CVAR	3868h
9004h	AHA-2930CVAR	3869h
9004h	AHA-4944(U)W	3B78h
9004h	AIC-755x	5x75h
9004h	AIC-785x	5x78h
9004h	AIC-7560	6075h
9004h	AIC-786x	6x78h
9004h	AIC-7870	7078h
9004h	AHA-2940(W)	7178h
9004h	AHA-3940(W)	7278h
9004h	AHA-2944	7478h
9004h	AHA-3944(W)	7578h
9004h	AHA-4944(U)W	7678h
9004h	AIC-7877	7778h
9004h	AIC-7860	7860h
9004h	AIC-7895	7895h
9004h	AIC-7880	8078h
9004h	AHA-2940U(W)	8178h
9004h	AHA-3940U(W)(D)	8278h
9004h	AHA-2944UW	8478h
9004h	AHA-3944U(WD)	8578h

Vendor	Model	Device
9004h	AHA-4944UW	8678h
9004h	AIC-7887	8778h
9004h	AIC-7888	8878h
9004h	AHA-4944(U)W	EC78h
9005h	AHA-2940/50U2W	0010h
9005h	AIC-789x	001xh
9005h	AIC-789x	002xh
9005h	AIC-789x	003xh
9005h	AHA-3940/50U2x	0050h
9005h	AHA-3950 U2x	0051h
9005h	AIC-7896/7 U2	005Fh
9005h	AIC-789x	006xh
9005h	AIC-789x	007xh
9005h	AIC-7892(A B)U160	008xh
9005h	AIC-789x	009xh
9005h	AIC-789x	00Axh
9005h	AIC-789x	00Bxh
9005h	AIC-7899(A) U160	00Cxh
9005h	AIC-789x	00Dxh
9005h	AIC-789x	00Exh
9005h	AIC-789x	00Fhx
9005h	AHA-2930U2	0180h

9.7.2 USB

USB devices can either be connected directly or over a USB hub. In order to achieve the highest transfer rates as possible, it is recommended that they be connected directly to the PC or the USB controller.



Note: USB 3 devices must be connected by a special USB 3 cable together with an appropriate USB connector (blue), and must be used, if applicable, with an external power supply in order to utilize the top speed of USB 3.

9.7.3 Thermal Issues

Some mass storage devices, especially very fast SSDs, are enabled by HDShredder to reach high data transfer rates, which may lead to overheating problems. This usually results in frequent read or write errors on the respective device, due to the chip installed therein becoming unresponsive to commands. This may also occur with hardware bridges, for example with SATA-to-USB adapters and it usually occurs in cheaper devices.



Note: This type of response represents a hardware error due to current standards clearly stipulating that normal software commands cannot cause any damage to the hardware.

In order to prevent these types of issues, please use, if applicable, the program's speed limitation option. Depending on the setting, the deleting process will then be slower than usual due to HDS shredder automatically adding small pauses to prevent the hardware from overheating.

9.8 Network

9.8.1 Mapped Network Drives

A small change in the Windows Registry is needed in order for HDClone/W to find established network drives. This is usually completed automatically by the ▶ 6.1 Setup for Windows, yet you may also make this change manually as described below:

- Open the following key in the Registry Editor (**regedit.exe**)
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System
- Create the **DWORD** value **EnableLinkedConnections**
- Assign the date 1 to it and restart Windows

In order to reverse these changes, simply delete the created value.

9.8.2 Network Shares

Should network shares not be displayed, it may help to make the following changes in the Windows Registry when working with a Windows PC or Server:

- Set the **LargeSystemCache** value to 0 (zero) in key **HKLM\System\CurrentControlSet\Control\SessionManager\MemoryManagement**
- Set the **size** value to 3 in key **HKLM\System\CurrentControlSet\Services\LanmanServer\Parameter**.

9.8.3 Thunderbolt Device not Recognized

Hot-plugging of Thunderbolt devices is not yet supported. Therefore, Thunderbolt devices must already be connected at the time of system startup. In addition, please ensure that the firmware setup of your PC (BIOS) is set to automatically activate and initialize Thunderbolt devices.

10 Miscellaneous

10.1 Legal Information

10.1.1 GPL

Parts of this product are based on products which are licensed under the GNU General Public License (GPL). The applicable license can be found by visiting <http://www.gnu.org/copyleft/gpl.html>. Upon submission of a request to support@miray.de you will be sent a copy of the source code.

10.1.2 Disclaimer

While HDS shredder was programmed and tested with the greatest possible care, please understand that we cannot assume any liability for the proper functionality of the program, and that we cannot be held liable for any damages that may result from its usage, which may be subject to gross negligence or intent.

10.2 Licensing

Various types of licenses are offered with HDS shredder in order to accommodate diverse usage scenarios. The standard types of licenses encompass the most common, yet not all, application scenarios. Therefore, standard licenses can be extended if needed, or individual licenses can be converted. For inquiries, please contact us by phone +49 89/72013-643 or mail@miray.de.

10.2.1 Standard License Types

- **Workplace License:** Permanent installation on up to two PCs belonging to the licensee, typically PC and laptop.
- **Technician License:** Usable on random PCs with the associated USB token. Additional permanent installation on up to two PCs owned by the licensee.
- **Volume License:** Permanent use on a determined number of PCs, according to the selected licensing volume. May also be used to extend existing Workplace, Technician and Volume Licenses.
- **Maintenance License:** Usable on random PCs with the associated USB token. Extends existing Technician Licenses.

- **One-time License:** Contingent on individual start-ups of the software. May be used with random PCs. Also suitable for simultaneous usage and for remotely operated systems. Extends existing Technician Licenses.

We offer further licensing options per request, for example within local networks or as a Corporate or Site License (▶ 10.2.4 Customer-specific Licensing).

10.2.2 Activation

Some license types require mandatory activation (Workplace License, Volume License, One-time License), while some activations are optional (Technician License). Activations are divided into Single Activation (SA) and Permanent Activation (PA). These are performed automatically upon installation or when starting the program. In the event that both activation types are available, the software will prompt you on which one to use (▶ fig. 7).

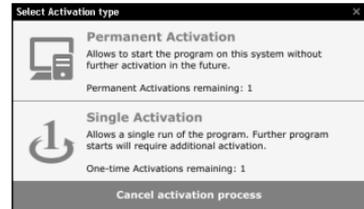


fig. 7: Activation

Important: Workplace or Technician Licenses include a small contingent for SAs, yet this is intended for urgent situations only. Therefore, always use PAs or your USB token (Technician License) in cases of urgency.

A PA has only to be completed once per system. Afterwards, the program can be started without any further activation. When switching systems (for example migration), you can release an existing PA by uninstalling the software. Your activation may then be (re-)used on the new system.

Note: When working with a Technician License, please ensure that the USB token is connected prior to the installation or the start of the program. The software will automatically recognize it and will not need to request it.

10.2.3 License Extension

We offer extensions for the following standard license types:

- **Workplace License:** The addition of further PAs and SAs.
- **Technician License:** The addition of USB-Tokens, PAs and SAs
- **Volume License:** The addition further PAs.

10.2.4 Customer-specific Licensing

Should you find that none of the above-listed standard license types and extensions meet your specific application scenario, we can also implement individual licensing models, including for use on license servers for easy license management within local networks.

10.3 Feedback

We are very interested in your feedback. We continuously strive to resolve any program errors that you may encounter, as well as to review and integrate, if at all possible, any ideas for improvement that you may have. If you wish to share your opinion of the software with us, we will be happy to hear from you!

Online miray-software.com/Feedback

Email feedback@miray.de

Postal address Miray Software AG
Gaissacher Str. 18
81371 Munich
Germany

10.4 Support

Should you encounter any problems with any of our products, our support team will be glad to assist you. Please send us your inquiry via our homepage at miray-software.com/support or email us at support@miray.de. If you also encounter technical difficulties, please attach a ▶ [9.2 Storing a Log File](#) regarding the respective process.