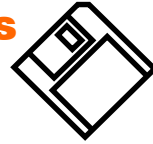


**Miray Stand-Alone-Tool Series**



# **HDClone**

## **Version 1.0**

**User's manual**



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## 1. Introduction

### 1.1. Areas of Use

With HDClone it is possible to make a physical copy of a disk, i.e. without taking care of partitions and file systems. Different disk sizes or defective sectors are not an obstacle for HDClone. Furthermore HDClone can copy areas on one disk from one place to another on physical level. With these features, HDClone has three main usage areas:

- **Moving of Data** (e.g. from an old to a newer hard disk),
- **Duplication from a master disk** (e.g. for administrators)
- **One-disk-backup and -restore** (e.g. for teaching, test- and home computers)

### 1.2. Compatibility

HDClone runs on every PC from 386SX-16 with at least 2 MB RAM, keyboard and VGA-adaptor installed. Additional a 3.5"/1.44 MB-floppy disk drive or a bootable CD-ROM drive is needed. The system should also have one or more hard disks installed.

HDClone supports ATA/IDE-hard disk drives with up to 128 GB capacity at the moment. A support for ATAPI-devices like ZIP- or CD-ROM-drives as well as for hard disk drives with more than 128 GB capacity is scheduled. The support for SCSI-devices can be implemented on request.

### 1.3. Creation of a Bootdisk

If you have received HDClone on a **bootable floppy disk** or a **bootable CD**, there is no further bootdisk creation required. In this case skip this chapter and continue reading at *"1.4. Start"*.

If you have received the **compressed software package**, extract it into a directory of your choice. Proceed with the steps for bootdisk creation as described in the next paragraph but one.

If you have a **uncompressed software package**, you can usually start the creation process directly from the directory the installation package lies in. If this is not possible, copy the installation package in a directory of your choice.

Now start the installation program included in the software package. Insert a formatted 3,5"/1,44 MB floppy disk into drive A:. Any data contained on this floppy disk will be erased. So please make sure you don't use a floppy disk with files you will still need on it. In the installation program start the creation process. After finishing the process the floppy disk you inserted is now **bootable and ready**.

If you have an **ISO-image** in your software package, you can create a CD-R with most of the available CD-recording applications. After creating the CD-R you have a **bootable CD**.

#### **1.4. Start**

To start HDClone, you must have HDClone installed on a bootable floppy disk or on a bootable CD. If you haven't received any of the above, you can create these from an installation package, as described in *"1.3. Creation of a Bootdisk"*.

Insert now the bootable floppy disk or CD in the corresponding drive and make sure that the BIOS of your computer boots from the corresponding CD or floppy drive. Turn on the computer or restart it. HDClone will be started automatically from floppy disk or CD.

## 2. Program-Interface

The application interface of HDClone is divided in different windows. These windows guide you through the program step by step. Using the <ESC>-key you can reach the previously active window. If you press the <ESC>-key from within the first window, HDClone will be terminated.

### 2.1. Selection of Source Disk

In this window, which appears as first window after program start, you can select the hard disk you want to make a copy of (source). Please use the arrow-keys for up- and downwards to change to a desired hard disk and the <Enter>-key to select it. After the selection has been made, the next window appears.

### 2.2. Selection of Destination Disk

In this window you have to select the destination, where the source disk's data should be written to. On the right side of this window you can see a hint on the applied copying modes behind the drive data. HDClone knows four different modes:

- **1:1** (identical copy),
- **1:n** (small-to-large-copy),
- **n:1** (large-to-small-copy) and
- **B&R** (Backup&Restore).

Detailed descriptions of these different copying modes can be found in chapter “3. Copying modes”.

### 2.3. Confirmation of Selected Mode

If source and destination disk are not identical, but have the same size, a real 1:1-copy can be made. In this case you immediately reach the confirmation dialog.

In all other cases, i.e. if source and destination disk have different sizes or if you have selected the “Backup&Restore”-mode a message or a selection dialog appears. More information can be found in chapter “3. Copying modes”. After confirming these message or selection dialogs you finally reach the confirmation dialog

## 2.4. Confirmation Dialog

Within the confirmation dialog you should again check if the drive and copying settings are correct. You can start now the copying process by pressing <Ctrl>+<Alt>+<S>. Pressing any other key brings you back without starting the copying process.

**Warning:** All data in the destination area will be deleted after the copying process has been started.

## 2.6. Progress Bar

After the initiation of the copying process another window appears, which displays the progress and some other information:

- **Sector-counter:** In the upper left corner of the window the number of the currently copied sector will be shown.
- **Defective-counter:** If a defective sector has been found, in the top right corner of the window a counter appears showing the number of defective sectors.
- **Percent display:** The percent display informs you, how many percent of the copying process have already been completed.
- **Progress bar:** The green progress bar shows, how far the copying process has already come. This green bar can additionally contain red segments, which symbolize that defective sectors have been encountered on these positions by HDClone.

## 2.7. Aborting the Copying Process

You can break the copying process at any time by pressing the <Esc>-key. After this, a dialog appears prompting you whether you want to really stop the copying process with the <A>-key or if you want to continue by pressing any other key.

## 2.8. End of the Copying Process

After the copying process has finished without user abort HDClone shows a short message with the result. This message includes the number of defective sectors encountered. Confirm this dialog with any key. You now are back in the startup view exactly as at the program start.

## 3. Copying Modes

Depending on the selected source and destination disk, there are four different copying modes available, each described in one of the following paragraphs:

### 3.1. The 1:1-Copy

This mode will be selected if the hint “1:1” appears on the right of the destination disk. The selected drives have to be of the same size for this mode. In this case the confirmation dialog as described in “2.4 Confirmation dialog” appears immediately after the selection of the destination disk.

*Notice: If source and destination disk are one and the same disk, HDClone offers the B&R-mode (see “3.4. Backup&Restore-Mode”) instead of a (theoretically possible, but not very useful) 1:1-copy.*

This mode is good especially for copying the contents of a master disk including operating system onto other disks of the same size, which can save a lot of time when making software installations for a larger number of computers.

### 3.2. The 1:n-Copy (“small-to-large”)

If the source disk is smaller than the destination disk, a complete copy is also possible. The hint “1:n” appears on the right of the destination disk. The entire content of the source disk will be copied onto the destination disk, starting from the beginning. The sectors beyond the size of the source disk will not be overwritten.

*Example: The source disk has 30 GB, the destination disk has 40 GB. After finishing the copying process the first 30 GB of the destination disk are identical with the content of the source disk. The last 10 GB of the destination disk have not been changed.*

Since it is not a 1:1-copy, after the selection of the destination disk a message dialog appears. It briefly describes and visualizes the 1:n-copying-process. Hitting the <Enter>-key you reach the confirmation dialog as described in chapter “2.4 Confirmation dialog”. With the <ESC>-key you can go back to the program startup view (see “2.1 Selection of source disk”).

This mode is especially useful for moving an older, smaller hard disk onto a newer, bigger disk. The partition sizes on the destination disk then have to be adapted to the new hard

disk size. A number of tools capable of doing this are available. HDClone will also offer this ability in a later version.

### **3.2. The n:1-Copy („large-to-small“)**

If the source disk is bigger than the destination disk, there is no complete copy possible. The hint “n:1” appears on the right of the destination disk. In this copying mode there will only that much data be copied as fits onto the destination disk. The copying process will start from the beginning of the source disk.

*Example: The source disk has 80 GB, the destination disk has 60 GB. After finishing the copying process the first 60 GB of the source disk have been copied onto the destination disk. The last 20 GB of the source disk are not saved on the destination disk.*

Since it is not a 1:1-copy, after the selection of the destination disk a message dialog appears. It briefly describes and visualizes the n:1-copying-process. Hitting the <Enter>-key you reach the confirmation dialog as described in chapter “2.4 Confirmation dialog”. With the <ESC>-key you can go back to the program startup view (see “2.1 Selection of source disk”).

This mode can be used for the (seldom encountered) moving from a larger to a smaller disk. On the source disk the partition sizes should be adapted for the smaller disk size of the destination disk, to make sure the partition table on the destination disk is consistent. A number of tools capable of doing this are available. HDClone will also offer this ability in a later version.

### **3.4. The Backup&Restore-Mode**

HDClone also is able to operate in the so-called Backup&Restore-mode (short “B&R”). The hint “B&R” appears on the right of the destination disk. In this mode the first half of a disk can be copied onto the second half and vice versa. This allows it to mirror hard disk drives for security and backup purposes, without having to install a second hard disk of the same size as the existing one.

After the selection of the destination disk and the B&R-mode there appears another selection dialog. Here you can select the copying mode (“Backup” or “Restore”). “Backup” copies the first half of the hard disk onto the second half, “Restore” copies the second half of the hard disk onto the first half. Select the desired mode with the <B>-key (for “Backup”) and <R>-key (for “Restore”). The currently selected mode is displayed blinking. Further-

more the copying direction will be visualized in the upper part of the dialog in a small animation. The lower part of the dialog shortly describes the consequences of Backup and Restore. With the <Enter>-key you now reach the confirmation dialog. The copying process then continues as described in “2.4. Confirmation dialog”. With the <ESC>-key you can go back to the program startup view (see “2.1 Selection of source disk”).

This mode is very interesting when applied on computers used for teaching or on test-computers, as well as computers for rent or on public terminals. Before installation the partition layout of the hard disk has to be adapted in a way that only the first 50% (or less) of the available space on the disk are used. With such a hard disk it is always possible to “Backup” the partition(s) on the first half to the second half of the hard disk with HDClone. Partitions saved in this way can be easily restored by “Restore” with HDClone. This makes it possible to bring the operating system and the software of a computer into the a previously saved state, without having to reinstall the operating system and the programs. Furthermore, this mode offers a certain level of data security, which makes it interesting for computer for rent or for computers used for teaching purposes or for public terminals: By restoring the previously saved image any data saved in the meantime (e.g. user data, personal data) will be erased on physical level.

## 4. Disclaimer

Although HDClone was programmed with the largest possible caution and was tested on a large scale of different systems, we hope you understand that we cannot give a warranty for the proper functionality of the program and that we are not responsible for damages resulting of its usage, subject to gross negligence and intention.

## 5. Feedback

We are deeply interested on your feedback. If you encounter any program errors or if you have any improvement ideas, we always try to fix the first named and implement or integrate the latter. If you only want to tell us your opinions about this software, we are also very interested in such information.

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