New Version

HDClone X.5 ushers in significant innovations and enhancements in the areas of **archiving**, **network integration** and **cloud**. It also opens up HDClone for **ARM-based CPU platforms** and for use as a **native Linux application**.

As a solution for the permanent archiving of data in file images, HDClone X.5 introduces the new MAI image format (Miray Archive Image) in addition to the existing MFI image format. It offers **special capabilities to permanently archive data** and is equipped with special features to protect against and to detect changes to archived data.

For an improved network integration, HDClone X.5 contains enhancements on many levels. The **network and internet connection via USB adapter and tethering** (Android) is seamlessly available, as is access to SMB/NAS drives and NetDisks, which has also been simplified and accelerated. With the integration of **access to FTP servers**, images and backups can now also be stored on the network or in the cloud and can also be restored from there.

With the introduction of the optional **add-on for ARM-based Snapdragon® processors**, the respective notebooks and tablets are now also supported, including the self-booting operation with HDClone/S. Also, HDClone X.5 is available with the optional Linux add-on as a **native Linux application** (HDClone/X), which can be started as an AppImage without further installation of libraries, similar to an EXE file under Windows. Customers who choose both add-ons will also receive a **Linux AppImage for ARM-based systems**, which can be used on, for example,a Raspberry Pi or other ARM processor-based systems.

Capabilities such as the **backing up of network drives** and other volumes that are without a physical disk, plus other innovations top off the overall package.

Details about HDClone's ongoing improvements can be found online in the HDClone changelog at:
https://www.miray-software.com/Changelog/HDClone

New Features

FTP access – fully integrated | 14.0 PE and up

Save and restore images directly to/from an FTP server, via LAN, WAN or the internet. Various routers and NASs with integrated FTP servers and mobile devices with FTP server apps are also supported. One or more FTP servers can be connected at a time. FTP connections are fully integrated as regular volumes in all HDClone apps and can also be used for file operations in the Spot file manager.

Special image format for archiving | 14.0 PE and up

HDClone has been enhanced and adapted for disk archiving. A unique archive image format has been developed and introduced to guarantee the integrity of the contained image. Despite its specialized nature, this image format is just as versatile as standard, HDClone-created images and can be used in the same manner – this includes the creation of differential images, data recovery, overlays, virtual disk mounting, and direct access to files stored within the image. Moreover, the archive image format is well-suited for direct storiage on FTP servers or tape drives.

Volume images – NAS & network drives | 14.0 AE and up

Create backups and images for media (volumes) that are not directly accessible as physical drives. This allows to the creation of images of network shares, network drives, subst drives, and NAS storage devices. Various formats, including VM image formats, can be used for this purpose. These volume images can be mounted for direct file access and an overlay option is also available, to ensure that the original image remains unaltered, even during write access.

HDClone X.5

NoExecute compatible for more security │13.0 PE and up

HDClone's boot versions now include support for the NoExecute CPU feature (Intel: XD, AMD: NX). It prohibits code execution in dedicated data memory areas and thereby prevents the onboarding of malware onto a system. This security measure will become a standard feature on SecureBoot-capable systems in the future.

CPU-integrated Thunderbolt controller │14.0 FE/AE and up

HDClone's latest bootable versions now also support the most recent generation of Thunderbolt controllers, wherein the controllers are seamlessly integrated directly into the CPU.

USB LAN adapters – full support │14.0 BE/PE and up

To ensure optimal utilization of the network and internet-oriented features of HDClone, we recommend establishing a LAN connection. In situations in which a suitable LAN connection is unavailable (e.g. when using ultrabooks or tablets), users can now utilize common USB LAN adapters (Realtek and ASIX chipsets) in the boot versions of HDClone.

USB tethering with Android │14.0 BE/PE and up

In the absence of a LAN or WLAN connection, the self-booting versions of HDClone can establish direct access to WLAN or the internet by means of USB tethering with an Android smartphone or tablet. By activating USB tethering on the Android device and connecting via a USB cable, HDClone/S and HDClone/L can effortlessly link to WLAN and also connect to the Internet.

SMB network shares auto-detection │14.0 PE and up

Network shares that are available in the LAN (SMB protocol) can be automatically displayed in the Network Storage applet. A one-time user authentication may be required, which is also supported. The option to manually specify shares (e.g. hidden shares) also remains.

NetDisk accelerated to up to 200% │14.0 PE and up

Thanks to the newly integrated compression, which is automatically managed between the communication partners, NetDisk can now attain speeds up to twice as fast as previously achievable.

Progress bar with speed graph │14.0 AE and up

In addition to the status of the copy, backup, or recovery processes, the updated progress bar now also graphically displays the achieved speed over the course of the entire process. This helps to easily distinguish specific characteristics of the disks and media from actual issues.

BitLocker drives with partial encryption │14.0 AE and up

The time that is needed to encrypt drives using BitLocker typically spans anywhere from a few minutes to several hours, depending on the amount of data that is encrypted. Consequently, the process is susceptible to interruptions, which can may result in a partially encrypted drive. HDClone is adept at mounting and utilizing partiallyencrypted BitLocker drives, e.g. in the Spot File Manager. Partially encrypted drives can also be backed up, copied and restored. Furthermore, the user can also select whether the target will end up as a fully encrypted or fully decrypted drive. In this case, HDClone will perform encryption or decryption automatically on-the-fly.

ARM add-on (optional) ——————————————————

Boot and run on ARM CPUs │14.0 PE and up

CPUs with ARM architecture differ fundamentally from Intel and AMD processors. Consequently, it is necessary to the program and create entirely separate program files that are specifically tailored to this architecture. By opting for the ARM add-on, users will receive these specific program files, which enable the use of HDClone on ARM-based PCs that are equipped with Snapdragon® CPUs. This add-on includes the 64 bit EXE file for Windows-on-ARM and a boot version (HDClone/S) designed for standard PCs using Snapdragon® CPUs, complete with SecureBoot support. Additionally, in conjunction with the Linux add-on (see details below), users are provided with an AppImage executable specifically for Linux-on-ARM systems.

Linux add-on (optional) ——————————————————

Start HDClone directly in Linux │14.0 PE and up

HDClone is available as a Windows program (HDClone/W) and as a boot version in two variants (HDClone/S and HDClone/L). With the optional Linux add-on, users also receive HDClone/X, an AppImage for Linux on 64 bit Intel/AMD processors. This directly executable file, akin to a Windows EXE file, requires no further installation on the Linux system. It enables users to start HDClone directly on common Linux distributions. This applies to live Linux or installed Linux. Furthermore, in conjunction with the ARM add-on (see details above), an AppImage executable is provided for Linux-on-ARM, which can be used with Linux distributions for 64 bit ARM processors.

HDClone X.5

Feature Matrix

The table below provides an overview of the main features that have been added to HDClone, along with their availability in the respective editions. Unfilled dots (▫) indicate that, while the feature is available, it cannot be used to its full extent when working with the edition in question.

Ver. New Features in HDClone X.5	FE	BE	SE	AE	PE	EE
14.0 **FTP access** – fully integrated					▪	▪
14.0 **Special image format for archiving**					▪	▪
14.0 **Volume images** – NAS and network drives				▪	▪	▪
14.0 **NoExecute compatible** for more security	▪	▪	▪	▪	▪	▪
14.0 **CPU-integrated Thunderbolt controller**	▫	▫	▫	▪	▪	▪
14.0 **USB LAN adapters** – full support		▫	▫	▫	▪	▪
14.0 **USB tethering** with Android		▫	▫	▫	▪	▪
14.0 **SMB network shares** auto-detection					▪	▪
14.0 **NetDisk** accelerated to up to 200%					▪	▪
14.0 **Progress bar** with speed graph				▪	▪	▪
14.0 **BitLocker drives** with partial encryption				▪	▪	▪
14.0 **ARM add-on** (optional): Boot and run on ARM CPUs					▫	▫
14.0 **Linux add-on** (optional): Start HDClone directly in Linux					▫	▫

Information on Modifications

The following information pertains to modifications which do not represent features in the actual sense, yet which bring about a different or new program behavior in comparison to the previous version. Therefore, this information is specifically aimed toward users of HDClone X.4 or older versions.

New apps marked with '+' in corner of icon

To make this version's new and fundamentally modified apps stand out in the menu, the respective app icons have been marked with a '+' symbol in the upper right hand corner.

Changes to the Backup tab

The "VolumeBackup" app has been added to the "Create" group within the tab. It can be used to back up file systems that have no underlying physical storage media (NAS, network drives, SMB shares, FTP paths, etc.).

Changes to the Images tab

The "VolumeImage" app has been added to the group "Create" within the tab. It is used to create images of file systems that have no underlying physical storage media (NAS, network drives, SMB shares, FTP paths, etc.). The "ImageConvert" app has been moved from this group to the "Special Formats" group.

New FTP applet

The new FTP applet is used to open a connection to an FTP server. It has been added to the existing "Network Storage" applet group.

Using FTP servers

Once an FTP connection has been established via the FTP applet, the directory structure of this server is available as a volume in all existing apps, for example in the Spot file manager and in the standard dialogues to open and save files.

Additional information on network connections

The self-booting versions, HDClone/S and HDClone/L, now show the complete IP information for network adapters, including standard gateway and DNS server in the "System Monitoring" applet. This makes it easier to check whether the system is using the appropriate network connection.

Access to command line of host operating systems

The command line of the respective host operating system, Command Shell and PowerShell for Windows, bash, ksh, sh and others for Linux, can be accessed via the Toolbox applet. These offer access to the resources of the host operating system via command line, which is especially useful when used remotely via the remote access feature that is integrated in HDClone.

License management account

The license management at Nanoways.com now allows you to create a user account for free, where single or multiple licenses can be managed collectively. It also offers other advantages, such as direct downloads, automatic email notifications when new versions are released or assignment of an individual license identifier, which can make it easier to distinguish between multiple licenses.

Note: You can continue to use your product license permanently without a Nanoways account. However, certain additional options or convenience functions can only be used with an account.