

HDClone CLI 2

User Manual for Backup, Cloning, Restoration, and Automation

This manual describes how to operate HDClone CLI from the command line. It covers safe disk selection, the principal copy and image modes, command files, network functions, activation, and return codes.

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About This Manual

The examples use placeholders enclosed in angle brackets. Replace them with the device specifications, paths, and values reported by your installation. Available functions may depend on the operating system, execution environment, and license.

Caution

Cloning and restoring writes to target disks. Always verify the source and target immediately before starting. Selecting the wrong target disk can irretrievably overwrite existing data.

Conventions

Notation	Meaning
<value>	Required value to be replaced
[Option]	Optional element
[=value]	Optional value assignment
a b	One of the alternatives shown
ON or OFF in uppercase	Default setting

All options are case-insensitive.

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1 Basics

1.1 Command Syntax

```
HDClone-CLI <mode> [device indicators] [options]
```

```
HDClone-CLI [options] --CmdFile=<command file>
```

The mode determines the task to be performed. Device indicators define the source and target. Additional options control functions such as verification, resizing, report creation, activation, and the action performed when the process ends.

1.2 Device Indicators

Option	Use
--SrcDrv=<Spec>	Physical source disk using a specification reported by listdisks
--SrcImg=<file>	Path and file name of the source image
--DstDrv=<Spec>	Physical target disk using a specification reported by listdisks
--DstImg=<file>	Path and file name of the target image

Use the [listdisks](#) command to obtain device specifications. In multi-target modes, --DstDrv may be specified more than once; alternatively, a single disk specification may resolve to multiple targets. If more target disks are found than the license or mode permits, the program exits with an error message.

1.3 Recommended Workflow

1. List the available disks and record the specification of the intended source and target disks.
2. Check the capacity, model, and role of each disk. Do not rely on device order alone.
3. Start by writing the command with explicit options such as --SrcDrv and --DstDrv or --DstImg.
4. Enable a report and verification if required.
5. After completion, check the return code and the generated report.

1.4 Available Modes

Mode and Aliases	Task	Required Indicators
listdisks	List all available disks and volumes	none
backup, smartimage, image	Create an image of an entire disk	--SrcDrv, --DstImg
differential, delta	Create a differential image of an entire disk	--SrcDrv, --DstImg
bitcopy, multibitcopy	Copy disks in sector-by-sector 1:1 mode	--SrcDrv, --DstDrv
bitimage	Create a sector-by-sector 1:1 image	--SrcDrv, --DstImg
bitresume	Resume interrupted bitimage creation	--SrcDrv, --DstImg
clone, smartcopy, multiclone, multismartcopy, hotspare, shelfspare	Clone an entire disk	--SrcDrv, --DstDrv
vmimage	Create a disk image in a VM format	--SrcDrv, --DstImg

Mode and Aliases	Task	Required Indicators
restore, multirestore	Restore an image to one or more disks	--SrcImg, --DstDrv

The supplied detailed help covers backup, delta, vmimage, clone, multiclone, restore, and multirestore, as well as the utility functions. For version-specific options, also use HDClone-CLI `<mode> --help`.

2 Identifying Disks

2.1 Displaying the List

```
HDClone-CLI listdisks
```

The `listdisks` mode lists all available disks and volumes and provides several ways to specify each disk. Copy the displayed disk specification without any changes to `--SrcDrv` or `--DstDrv`.

2.2 Verifying the Selection

- Do not inverse the source and target.
- The disk containing the Windows system drive cannot be used as a target disk.
- For removable disks, run `listdisks` again after every change to obtain the correct specification.
- A single target specification may select multiple disks, for example when several disks have the same name.

3 General Process Options

The following options apply to the copy, image, and restore modes described in detail.

Option	Description
--AppDelay=<seconds>	Set the wait time before the application starts so that Symobi can activate all required services. Default: 0 seconds.
--Timeout=<seconds>	Set the duration of various timeouts, including disk searches and activations. Default: 20 seconds.
--OTA	Perform a one-time activation.
--Interactive	Allow interactive activation, including activation without an Internet connection.
--LMAddr=<address>	Set the license server address.
--MaxSpeed=<MB/s>	Limit device speed in MB/s.
--Report=<file>	Specify the file name for the final report. If no file extension is given, .pdf is appended.
--ReportType=<type>	Specify the output format if it cannot be determined from the file extension. Valid values are pdf and txt.
--ReportMandatory	When automatic shutdown or reboot is selected, errors during the creation of the report prevent shutdown/reboot. This option has no effect when the shutdown or reboot condition is "always".

3.1 Reboot and Shutdown

Option	Effect
--Shutdown[=<condition>]	Shut down the computer when the process ends, optionally depending on the result.
--Reboot[=<condition>]	Reboot the computer when the process ends, optionally depending on the result.

Condition	Effect
always	Always shut down or reboot.
essential	Only if the process was not terminated because of an uncorrectable error.
complete	Only if the process completed without errors.

```
HDClone-CLI clone --SrcDrv=<source> --DstDrv=<target> --Report=<report.pdf> --
Shutdown=complete
```

4 Cloning Disks

4.1 Single Target

```
HDClone-CLI clone --SrcDrv=<source> --DstDrv=<target> [options]
```

clone copies an entire disk to another disk. This mode is also available under the alias "smartcopy". The "bitcopy" mode creates an unmodified 1:1 copy.

4.2 Multiple Targets

```
HDClone-CLI multiclone --SrcDrv=<source> --DstDrv=<target1> --DstDrv=<target2> [options]
```

multiclone writes the same source to multiple target disks. --DstDrv may be repeated, or a specification that selects multiple disks may be used.

4.3 Accessing the Source

Value for --Access	Behavior
lock	Use exclusive access only.
vss	Use VSS, also known as LiveImage or HotCopy.
lock,vss	Try exclusive access first, then VSS.
vss,lock	Try VSS first, then exclusive access. This is the default.
shared	Do not lock the source. Verification is not possible; the result may be inconsistent and unusable.

4.4 Selecting and Processing Partitions

Not available in bitcopy or multibitcopy mode.

Option	Description
--Include=<list>	Copy only the comma-separated partition numbers specified.
--Exclude=<list>	Do not copy the comma-separated partition numbers specified.
--Trim	Run TRIM on the target disk before cloning starts.
--Verify=[on OFF]	Run verification after copying. The default is off, which disables verification.

Do not combine Include and Exclude in contradictory ways. Use the partition numbers shown by the listdisks command.

4.5 File-Based Data Selection

Not available in bitcopy or multibitcopy mode.

Option	Description
--DataSelect=<partition>:<file>[,<file>...]	Specify one or more lists of files and folders to be deleted before the copy or image is created. If the partition is omitted, the list applies to all partitions.
--SkipFiles=<method>	Specify which operating-system files are excluded from the source.

Each line of a DataSelect file contains a file or folder. Files and folders within a folder marked for deletion can be retained by listing their names first with a preceding plus sign.

SkipFiles Method	Effect
none	Copy all files.
minimum	Exclude only a minimum set of files.
known	Exclude a selected set of files from the list provided by the operating system.
system	Exclude all files from the list provided by the operating system.

When verification is enabled, the none and minimum methods may produce verification errors if the operating system changes files between the copy and verification passes.

4.6 Resizing Partitions

Not available in bitcopy or multibitcopy mode.

Option	Description
--Resize[=<partition>:<size setting>]	Set the size of one partition or all partitions.
--NoResize	Retain all partition sizes. If no partitions are omitted and the target is large enough, an identical copy can be created.
--ResizeAutoMode=<mode>	Specify the distribution method used for automatic resizing.
--ResizeMultiMode=<mode>	Specify how resize settings are applied to multiple targets of different sizes.
--allowFSChange	Allow dynamic switching between file-system subtypes, for example from FAT16 to FAT32.

Resize Setting	Meaning
fixed	Keep the original size.
auto	Adjust the size automatically.
skip	Skip the partition.
min	Minimize the partition to the smallest possible size.
Number	Size in sectors or bytes; SI prefixes are permitted, for example 10GB or 100MiB.

ResizeAutoMode	Distribution
part	Proportional to the partition sizes.
used	Proportional to the amount of used space.
equalpart	All affected partitions receive the same amount of additional space beyond their current partition size.
equalused	All affected partitions receive the same amount of additional space beyond their currently used space.

ResizeMultiMode	Behavior with Multiple Targets
proportional	Corresponding partitions are resized in proportion to the disk size; fixed sizes remain unchanged.
same	Corresponding partitions receive the same size on all targets, based on the smallest target disk. Unallocated space may remain on larger target disks.

4.7 Adjusting the Target System

Not available in [bitcopy](#) or [multibitcopy](#) mode.

Option	Description
<code>--Defrag[=<partition list>]</code>	Defragment the specified partitions; if no list is given, defragment all partitions.
<code>--AdjustVolID[=<partition list>]</code>	Adjust the volume IDs of selected or all partitions. Omitting the list is equivalent to <code>--Adjust=valid</code> .
<code>--Adjust[=<adjustments>]</code>	Apply adjustments automatically, apply none, or apply a comma-separated selection.
<code>--ConvertAF=[ON off]</code>	Make adjustments for Advanced Format media. Default: on.
<code>--4KCompat=[ON off]</code>	Align file-system structures and partitions to 4 KiB boundaries. Default: on.
<code>--1MAlign=[ON off]</code>	Align partition boundaries to 1 MiB rather than cylinder boundaries. Default: on.

Adjust Value	Effect
auto	Select adjustments automatically.
none	Do not make any adjustments.
drivers	Activate specific drivers in the copied system.
usbboot	Make the adjustments required to boot the copied system directly from USB. USB bootability depends on the operating system and cannot always be guaranteed.
disksig	Assign a new unique disk signature and, for GPT, new partition IDs.
valid	Assign new volume IDs.

4.8 Examples

```
HDClone-CLI clone --SrcDrv=<source> --DstDrv=<target> --Verify=on --Report=<clone.pdf>
```

```
HDClone-CLI multiclone --SrcDrv=<source> --DstDrv=<target1> --DstDrv=<target2> --Resize=auto  
--ResizeMultiMode=same
```

```
HDClone-CLI clone --SrcDrv=<source> --DstDrv=<target> --Access=vss,lock --Adjust=disksig,volid
```

5 Creating Images

5.1 SmartImage and Full Image

```
HDClone-CLI backup --SrcDrv=<source> --DstImg=<target image> [options]
```

backup saves the contents of an entire disk to an image file. The **smartimage** and **image** aliases provide the same function.

Option	Description
--Verify=[on OFF]	Verify the image after creation. Default: off.
--ImageType=<type>	Set the image type; otherwise it is determined from the file extension.
--Timestamp=[ON off]	Append the current timestamp to the image name. Default: on.
--Smart=[ON off]	Use SmartImage and copy only occupied areas of partitions. Default: on.
--Split=<size>[:<digits>]	Split the image into files of the specified maximum size. Digits sets the minimum number of digits used for the sequence number in each file name.
--Note=<file>	Store the contents of a file as an annotation in the image.
--Compress=<method>	Compress the data if the image format supports compression.

ImageType	Format
smart, mfi, mfismart	SmartImage in MFI format; mfismart is the default when no file extension is specified.
mai, maismart	HDClone Archive Image as a SmartImage.
full, mfifull, maifull	Full image, including unused sectors.

MFI Compression	Effect
none	No compression.
quick	Quick compression; used when --Compress is specified without a method.
normal	Normal compression.
strong	Strong compression.

The access, partition selection, DataSelect, and SkipFiles options described in Chapter 4 apply accordingly.

5.2 Password Protection and Encryption

Option	Description
--Password[=<file>]	Protect the image with a password. The password is read from the specified file or requested interactively if no file is specified.
--PasswordHash[=<file>]	Protect the image with a previously generated password hash. The hash is read from the specified file or entered interactively.
--PasswordHash=#<Hash>	Specify the password hash directly on the command line.
--Encrypt=<method>	Encrypt the image. This requires --Password or --PasswordHash. Valid methods are aes128 and aes256.

An image protected with a password hash can be restored only with the original password from which the hash was generated, not with the password hash itself.

```
HDClone-CLI pwhashgen --Password=<password.txt> --OutFile=<password.hash>
```

```
HDClone-CLI backup --SrcDrv=<source> --DstImg=<backup.mfi> --PasswordHash=<password.hash> --
Encrypt=aes256
```

5.3 Differential Images

```
HDClone-CLI delta --SrcDrv=<source> --DstImg=<base image or delta target> [options]
```

A delta image contains the differences between the original base image and the current state of the disk. Unlike an incremental image chain, restoring a specific point in time requires only the base image and the corresponding delta image.

Option	Description
--CreateBase	Create a new full base image if the specified base image does not exist. This allows the same command to be used for the initial and all subsequent runs.

5.4 Virtual Disk Images

```
HDClone-CLI vmimage --SrcDrv=<source> --DstImg=<target image> [options]
```

vmimage creates an image for a virtual machine. In addition to the backup options, you can define the virtual target capacity and post-copy adjustments.

ImageType	Format
vhd	Microsoft VHD
vhdx	Microsoft VHDX
vmdk	VMware VMDK
esxi	VMware ESXi
vdi	VirtualBox VDI
dmg	Apple DMG

Option	Description
--Preallocate	For VHD, VHDX, VMDK, VDI, and DMG, create a preallocated image.
--NoDelete	Do not delete incomplete images after cancellation or an error.
--TargetSize=<size>	Set the capacity of the virtual target in bytes or with an SI prefix, such as 10GB or 100MiB.

The Resize, Defrag, Adjust, Advanced Format, and alignment options are described in Chapter 4.

```
HDClone-CLI vmimage --SrcDrv=<source> --DstImg=<system.vhdx> --TargetSize=100GB --Resize=auto
--Preallocate
```

5.5 Sector-by-Sector Image Modes

The bitimage mode for creating a 1:1 image and the bitresume mode for resuming a previously interrupted bitimage run require --SrcDrv and --DstImg.

```
HDClone-CLI bitimage --SrcDrv=<source> --DstImg=<target image>
```

```
HDClone-CLI bitresume --SrcDrv=<source> --DstImg=<existing target image>
```

6 Restoring Images

6.1 Single and Multiple Targets

```
HDClone-CLI restore --SrcImg=<source image> --DstDrv=<target> [options]
```

```
HDClone-CLI multirestore --SrcImg=<source image> --DstDrv=<target1> --DstDrv=<target2>
[options]
```

restore writes an existing image to an entire disk. multirestore restores the same image to multiple target disks. The disk containing the Windows system drive cannot be used as a target disk.

6.2 Image Selection and Overlay

Option	Description
--Latest	Restore the latest state in a delta-image series. Without this option, specify the required delta image file instead of the base image.
--Overlay	Apply and restore the overlay associated with the image.
--Overlay=try	Apply the overlay if it exists; otherwise restore the original image without an overlay.
--Password[=<file>]	Read the password for a protected image from a file or request it interactively.

6.3 Processing the Target

The same options as for cloning apply to verification, TRIM, partition selection, DataSelect, SkipFiles, resizing, defragmentation, and post-copy adjustments. The settings are applied to the restored target.

```
HDClone-CLI restore --SrcImg=<backup.mfi> --DstDrv=<target> --Verify=on --Trim --
Report=<restore.pdf>
```

```
HDClone-CLI restore --SrcImg=<basis.mfi> --DstDrv=<target> --Latest --Resize=auto
```

7 Special Modes for Disk-to-Disk Backups

Mode	Task	Minimum Command
hotspare	Clone a disk in hotspare mode	HDClone-CLI hotspare --SrcDrv=<source> --DstDrv=<target>
shelfspare	Clone a disk in shelfspare mode	HDClone-CLI shelfspare --SrcDrv=<source> --DstDrv=<target>

```
HDClone-CLI <mode> --help
```

Display the mode-specific help for the version you are using before automating these modes. This avoids relying on parameters that are not provided.

8 Command Files

8.1 Structure and Execution

A command file contains one or more lines in the format `<program name> <mode> [parameters]`. Multiple files may be passed to `--CmdFile` as a comma-separated list. By default, lines are executed until the end of the file is reached; a return code other than SUCCESS stops processing.

```
HDClone-CLI [command-file options] --CmdFile=<file1>,<file2>
```

Command-file options must appear before `--CmdFile`. Settings within the command file begin with `$` instead of `--`.

8.2 Command File Example

```
$BreakOnError
$SyslogEachTime
HDClone-CLI backup --SrcDrv=<source> --DstImg=backup.mfi --Verify=on
HDClone-CLI restore --SrcImg=backup.mfi --DstDrv=<target> --Verify=on
```

8.3 Flow Control and Logging

Parameter or Directive	Effect
<code>--CmdFileTimeout=<seconds></code>	Specify the maximum time to wait for the volume containing the command file to become ready. Default: 20 seconds.
<code>--ContinueOnError</code> or <code>\$ContinueOnError</code>	Continue after a return code other than SUCCESS.
<code>--BreakOnError</code> or <code>\$BreakOnError</code>	Stop on errors. This is the default.
<code>--SyslogOnlyAtEnd</code> or <code>\$SyslogOnlyAtEnd</code>	Do not write a syslog entry each time an application exits.
<code>--SyslogEachTime</code> or <code>\$SyslogEachTime</code>	Write a syslog each time an application exits. This is the default.

If a setting is specified both on the command line and in the command file, the command-line setting overrides the setting in the file.

8.4 System Action in Self-Booting and Linux Environments

The following command-file settings are active only in the self-booting and Linux CLI versions.

Parameter or Directive	Effect
<code>--ShutdownOnError</code> or <code>\$ShutdownOnError</code>	Shut down at the end even if an error occurred. This also enables <code>ShutdownAtEnd</code> .
<code>--NoShutdownOnError</code> or <code>\$NoShutdownOnError</code>	Do not shut down if an error occurred; display the error message instead. This is the default.
<code>--NoShutdownAtEnd</code> or <code>\$NoShutdownAtEnd</code>	Do not shut down after the command file has been executed.
<code>--ShutdownAtEnd</code> or <code>\$ShutdownAtEnd</code>	Shut down after execution. This is the default.
<code>--RestartAtEnd</code> or <code>\$RestartAtEnd</code>	Reboot instead of shutting down.
<code>--RestartOnError</code> or <code>\$RestartOnError</code>	Reboot instead of shutting down if an error occurs.
<code>\$NoRestartAtEnd</code>	Disable a preceding <code>\$RestartAtEnd</code> directive. Available only in a command file.

Parameter or Directive	Effect
\$NoRestartOnError	Disable a preceding \$RestartOnError directive. Available only in a command file.

9 Activation and License Server

9.1 Status and Permanent Activation

```
HDClone-CLI activate [options]
```

```
HDClone-CLI deactivate [options]
```

activate displays the current activation status when used without options and can perform activations. deactivate removes existing activations when used without options.

Option	Description
--Show	Display the activation status.
--PA=create	Perform permanent activation.
--PA=remove	Remove an existing permanent activation.
--Interactive	Allow interactive mode when creating a permanent activation.
--SystemName=<Name>	Set the system name.
--LicenseKey=<key>	Pass the license key for activation. It is required for certain license types; in interactive mode, the key may be entered directly if this option is omitted.
--AppDelay=<seconds>	Set the startup delay for Symobi services. Default: 0 seconds.
--Timeout=<seconds>	Set timeouts, including activation timeouts. Default: 20 seconds.

```
HDClone-CLI activate --Show
```

```
HDClone-CLI activate --PA=create --Interactive --SystemName=<Name>
```

```
HDClone-CLI deactivate
```

10 Generating a Password Hash

HDClone-CLI pwhashgen [options]

pwhashgen creates a password hash for use when creating an image. The hash does not need to be kept secret; the image can still be restored only with the correct original password.

Option	Description
--Password=<file>	Read the password from a file. If this option is omitted, the password is requested at the console.
--OutFile=<file>	Write the generated hash to a file. If this option is omitted, the hash is printed to the console.

Do not pass plain-text passwords directly on the command line. Use interactive input or an appropriately protected password file.

11 Mounting Network Shares

11.1 Command Syntax

```
netmount [mount options] <Remote> <user> [<password>]
```

```
netmount [solo option]
```

netmount mounts SMB, FTP, or NFS resources in the file system. When called without parameters, it lists the active mounts.

11.2 Remote Path Syntax

Protocol	Valid Syntax
SMB	smb://host/share, //host/share, or host/share; forward slashes and backslashes may be used interchangeably.
FTP	ftp://host or ftp://host:port, each optionally followed by a path; use forward slashes only.
NFS	nfs://host, optionally followed by a path; use forward slashes only.

11.3 Options

Option	Description
--interactive	Request the password interactively instead of passing it on the command line.
--pwdfile=<file>	Read the password from a file.
--timeout=<seconds>	Set the time to wait for the network to become available. Default: 10 seconds.
--EnforceEncrypt	Connect only to an encrypted FTP service; fail if only an unencrypted service is available.
--AcceptAnyValidCert	Accept valid server certificates even if they are not in the trust chain. FTP only.
--IgnoreSNI	Accept server certificates even if they were issued for a different host name. FTP only.
--help	Display help.
--nfsv3	NFS only: use protocol version 3.
--remove=<entry>	Remove a mount from the list. The entry may be the node name or subst name shown in the list.

```
netmount --interactive //<server>/<share> <user>
```

```
netmount --EnforceEncrypt --interactive ftp://<host>:<port>/<path> <user>
```

12 NetDisk Server

HDClone-CLI netdisk <mode> [options]

Mode	Function
list	Display currently exported NetDisks and their status.
add	Export a local disk as a NetDisk.
remove	Remove an exported NetDisk.
close	Stop the NetDisk server and remove all exported NetDisks.

Option	Valid in	Description
--rodisk=<Spec>	add	Export the disk in read-only mode.
--rwdisk=<Spec>	add	Export the disk in read/write mode.
--keepRunning	add	Keep NetDisk running after adding it. This stops further command-file execution.
--UID=<UID>	remove	Select the export to remove by its UID.
--ID=<ID>	remove	Select the export to remove by its ID.
--Force	remove	Remove the export even if clients are still connected.

Use `netdisk list` to obtain the UID or ID first. Do not use `--keepRunning` if a `clone` operation is to start later in the same command file.

HDClone-CLI netdisk add --rodisk=<Spec> --keepRunning

13 NetDisk Client

HDClone-CLI `ndclient <mode> [options]`

Mode	Function
add	Manually add a NetDisk server that was not discovered automatically.
list	Display automatically discovered and manually added NetDisk servers and their exports.
connect	Connect to a NetDisk export.
disconnect	Disconnect from a NetDisk export.

Option	Description
<code>--IP=<address></code>	Specify the IP address of the server to connect to or add.
<code>--ID=<ID></code>	In connect and disconnect mode, select the NetDisk directly.
<code>--connect</code>	In add mode, automatically connect all NetDisks exported by the specified server.
<code>--all</code>	In connect mode, connect all discovered NetDisks.
<code>--force</code>	In disconnect mode, disconnect a NetDisk even if it is currently in use.
<code>--name=<Name></code>	Select the NetDisk by name and identify its server with <code>--IP</code> or <code>--sysname</code> .
<code>--sysname=<Name></code>	Select the NetDisk server by system name instead of IP address.

In add mode, only `--IP` is supported. In connect and disconnect mode, specify the target either with `--ID` or with `--name` together with `--IP` or `--sysname`.

```
HDClone-CLI ndclient add --IP=<address>
```

```
HDClone-CLI ndclient connect --ID=<ID>
```

```
HDClone-CLI ndclient disconnect --name=<NetDisk> --sysname=<Server> --force
```

14 Mounting Images as Virtual Disks

```
HDClone-CLI mvd <action> --Img=<filename> [options]
```

Action	Description
--Mount	Mount the image. If it is already mounted, no action is taken.
--Unmount	Unmount the image. A partial match of the image name is accepted if it is unique.

Option	Description
--ImageType=<type>	Specify the image type explicitly. Valid values are auto as the default and raw.
--BlockSize=<size>	Specify the block size of a RAW image. Default: 512 bytes.
--Password[=<file>]	Read the password from a file or request it interactively.
--Overlay	Open the image in overlay mode. Load an existing overlay or create one if none exists.
--Overlay=exist	Require an existing overlay.
--Overlay=none	Require that no overlay exists. If an overlay is present, the image is not mounted.
--ReadOnly	Open the image in read-only mode. This is the default when no overlay exists. When combined with --Overlay, it prevents further changes to the overlay.
--Latest	Use the latest snapshot of a differential image. Without this option, the base image is loaded.

For RAW images, specify `--ImageType=raw`. If the block size differs from 512 bytes, `--BlockSize` is also required. To load a specific snapshot, specify its file name instead of the base image.

```
HDClone-CLI mvd --Mount --Img=<image.mfi> --ReadOnly
```

```
HDClone-CLI mvd -m --Img=<image.raw> --ImageType=raw --BlockSize=4096
```

```
HDClone-CLI mvd --Unmount --Img=<unique part of name>
```

15 Return Codes and Script Integration

HDClone CLI reports the result as a numeric return code. Automation should distinguish at least between success, completion with warnings, and failure to complete. If both completion errors apply, code 9 (crReadWrite) takes precedence over code 8 (crVerify).

Code	Symbol	Meaning
0	crSuccess	Success, no errors.
1	crParameter	Parameters are invalid, missing, specified more than once, or otherwise incorrect.
2	crLicense	The license is invalid or expired, or the selected option is not covered by the license.
3	crSize	A size parameter is outside the permitted range, for example a resize value or target size.
4	crDisk	The source or target disk was not found.
5	crFile	An error occurred while accessing a specified file; for example, the file was not found, has the wrong type, is empty, or is inaccessible.
6	crPassword	A password is required but was not specified, or the specified password is incorrect.
7	crAbort	The process was interrupted by the user, for example by pressing Ctrl+C.
8	crVerify	The process finished with verification errors.
9	crReadWrite	The process finished with read or write errors. This takes precedence over crVerify.
10	crDouble	Another instance is already running.
11	crRestartApp	The application must be restarted after the initial run made system changes that allow it to run more efficiently.
12	crMissingService	A required service is missing or not running, for example NetDisk because commands appear in the wrong order in a command file.
13	crServiceDenied	A service denied the request, for example a request for exclusive access to a NetDisk that is already in exclusive use.
14	crServerDenied	A remote server denied required permission or information, for example RAS or SMB.
15	crOverThreshold	The application terminated because a threshold was exceeded, for example the number of errors or time spent in error recovery.
99	crInternal	An unspecified internal error occurred. The error code and message are printed to the console.

15.1 Evaluation in a Shell

```
HDClone-CLI clone --SrcDrv=<source> --DstDrv=<target> --Report=<clone.pdf>
rc=$?
case "$rc" in
  0) echo "Success" ;;
  8) echo "Completed with verification errors" ;;
  9) echo "Completed with read or write errors" ;;
  *) echo "HDClone-CLI failed: return code $rc" ;;
esac
```

The example illustrates basic return-code evaluation in a POSIX-like shell. Adapt logging and error handling to your operating environment.

16 Troubleshooting

Symptom or Code	Check
Code 1	Check the syntax, required device indicators, duplicate options, and value ranges. Display the mode-specific help.
Code 2	Display the activation status, check the license server address, and confirm that the function is covered by the license.
Code 3	Check the target capacity, Resize settings, and size prefixes.
Code 4	Run <code>listdisks</code> again and copy the disk specification unchanged.
Code 5	Check the path, file type, access permissions, available space, and network mount if applicable.
Code 6	Use the correct original password; do not confuse the hash with the password.
Code 8	Check the report and verification output; do not treat the result as error-free.
Code 9	Check the source and target media and their connections; review the report and console output.
Code 10	Check whether another HDClone CLI process is already running.
Code 12 or 13	Check the required services and NetDisk command order; rule out conflicting exclusive access.
Code 14	Check the credentials and permissions on the remote server.
Code 15	Identify the reported threshold and preceding errors.
Code 99	Save the complete console output, including the internal error code.

16.1 Collecting Diagnostic Information

- Record the complete command that was run, omitting secret values.
- Save the return code and complete console output.
- Retain the report generated with `--Report`.
- Record the `listdisks` output and the device indicators used.
- For network errors, also collect the output of `netmount` or `ndclient list`.

17 Quick Reference

Task	Command
List disks	HDClone-CLI listdisks
Clone a disk	HDClone-CLI clone --SrcDrv=<source> --DstDrv=<target>
Clone to multiple targets	HDClone-CLI multiclone --SrcDrv=<source> --DstDrv=<target1> --DstDrv=<target2>
Create an image	HDClone-CLI backup --SrcDrv=<source> --DstImg=<Image>
Create a delta image	HDClone-CLI delta --SrcDrv=<source> --DstImg=<Image>
Create a VM image	HDClone-CLI vmimage --SrcDrv=<source> --DstImg=<Image>
Restore an image	HDClone-CLI restore --SrcImg=<Image> --DstDrv=<target>
Restore to multiple targets	HDClone-CLI multirestore --SrcImg=<Image> --DstDrv=<target1> --DstDrv=<target2>
Run a command file	HDClone-CLI --CmdFile=<file>
Activation status	HDClone-CLI activate --Show
Generate a password hash	HDClone-CLI pwhashgen --OutFile=<hash file>
List NetDisk exports	HDClone-CLI netdisk list
List NetDisk servers	HDClone-CLI ndclient list
Mount an image	HDClone-CLI mvd --Mount --Img=<Image>

17.1 Checklist Before Production Runs

- Source and target verified against the current [listdisks](#) output
- Sufficient target capacity and appropriate resize settings confirmed
- Existing data on the target may be overwritten
- Access method for a live source selected deliberately
- Verification and reporting enabled as required
- Password or original password is securely available
- Automatic shutdown or reboot condition checked
- Return-code handling implemented in the calling script

18 File Variable Reference

Variables may be used anywhere in file paths for the image to be created, except @imgname@, or for report output. They may therefore be used in both directory names and file names.

18.2 Variables

Variable	Meaning	Example
@date@	Date	2026-03-30
@time@	Time	12.30.57
@timestamp@	Timestamp	20260330-122057
@dt:<specifier>@	Date and time, user-specified	03/30/2026 (Wednesday)
@unique@	Unique number	BD5281
@sysid@	System ID	16A097D5-03AE-5D48-B3EB-94BB4389B948
@sysprod@	System product name	Mini I13
@sysvend@	System manufacturer	GEEKOM
@sysserial@	System serial number	5198011C23520879
@imgname@	Image file name	2026-03-30 Mail Server Backup
@imgtype@	Image file type (extension)	mfi

18.3 Date and Time Specifiers

Option	Meaning	Result
yy / yyyy	Year	26 / 2026
M / MM / MMM / MMMM	Month	9 / 09
d / dd	Day	4 / 04 / Apr / April
w / ww / www / wwww	Day of the week	3 / 03 / Wed / Wednesday
h / hh	Hour	6 / 06
m / mm	Minute	5 / 05
s / ss	Second	3 / 03

18.4 Examples

```
--Report="C:\@date@\@time@ System @sysserial@ (@sysvend@ @sysprod@).pdf"

--Report="//Server\@sysid@\Erasure on @dt:dd.MM.yyyy at hh-mm@.pdf"
```