

DropDMG 2.0 Manual

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1 Introduction

DropDMG is a utility for creating disk images in Mac OS X's device image (DMG) format. Disk images are a wonderful way of packing entire folders or disks into a single file, either for transport across the Internet or simply for achival. Unlike other archival methods, they preserve both long filenames and Mac and Unix metadata. DMG images may be created using Apple's Disk Copy utility, and Disk Copy can also “mount” an image—make its contents accessible as if they resided on an inserted CD-ROM. Although Disk Copy comes free with Mac OS X, DropDMG goes beyond what Disk Copy offers, both in power and ease of use.

Here's a brief rundown of DropDMG's features:

- Supported formats: zlib-compressed, ADC-compressed, read-only, read-write, NDIF (`.img`), self-mounting (`.smi`).
- Make encrypted compressed disk images.
- Post-process images with BZip2, GZip, or MacBinary.
- Hold down Option when creating an image to specify options for that image without changing the preferences.
- Make images auto-open when you mount them.
- All options are available from AppleScript.

- Include rich text license agreements, in multiple languages.
- Create more than one image a time to take advantage of dual processors, or just so you don't have to babysit the program when creating multiple images.
- Reliability. Like all good Mac applications, DropDMG has no trouble handling folders with spaces, quotation marks, dollar signs, or other “special” characters.
- Fix downloaded DMGs so that they open in Disk Copy.
- Does *not* require Mac OS X's optional “BSD Subsystem” installation.
- Clean and simple interface that stays out of your way and respects your screen real estate.

2 Requirements and Installation

DropDMG has been developed and tested on Mac OS X 10.2.1 and 10.1.5. I do not have the resources to test it on other systems, although I suspect it will work fine on Mac OS X 10.1 or later. DropDMG does *not* require Mac OS X's optional “BSD Subsystem” installation.

Double-click the **DropDMG-2.0.dmg** file to mount the image with Disk Copy. If you like, you can run DropDMG directly from the image to test it out. To install, simply copy the application to your hard disk, e.g. into **/Applications/Utilities**.

There's no need to copy this manual to your hard disk. A copy of it is built into DropDMG, and you can access it by choosing **DropDMG Manual (PDF)** from the **Help** menu. Apple Help is also available by choosing **DropDMG Help** from the **Help** menu.

DropDMG 2.0 is a free update for owners of previous versions of DropDMG. DropDMG 2.0 will recognize serial numbers from older versions, but it is more strict about the name in the Registration window matching the name of the person who purchased DropDMG. If you have trouble getting DropDMG to recognize your serial number, please contact dropdmg@c-command.com¹.

3 Using DropDMG

3.1 Making Disk Images

There are several ways to create disk images using DropDMG. The top of the status window shows the options that will be used to create the image.

Drag and Drop Drag and drop one or more folders onto the DropDMG icon, either in the Finder or in the Dock; or onto the top portion of the status window.

Menu Choose **New Image from Folder or Volume...** from the **File** menu.

¹<mailto:dropdmg@c-command.com>

AppleScript You can use AppleScript to automate the creation of an image. For example:

```
tell application "DropDMG"
    set myFolder to alias "HD:Users:me:folder:"
    create image from folder myFolder format ADC compressed with encryption
end tell
```

When you create an image using the `create image` verb, the AppleScript command will not return until after the image has been created. You may wish to use AppleScript's `with timeout` construct when creating large images. Due to limitations in Cocoa, you cannot enqueue more image operations while DropDMG is processing an AppleScript command; however, any operations already in progress will proceed and complete as normal.

Command-Line To create disk images using the options specified in the preferences, you can use `open` and pass the folders as arguments:

```
open -a DropDMG.app ~/path/to/a/folder ~/another/folder
```

If you want to specify options from the command line, use `osascript` to run an AppleScript, as above. Note that `open` will return before DropDMG has finished creating the image, so if you are writing a shell script that will act on the finished image file it's best to use `osascript` and DropDMG's AppleScript interface, instead.

3.2 Converting Disk Images

DropDMG can convert existing disk images to the format specified in the preferences. You can use conversion to change a Mac OS X image into a Mac OS 9 image, to add or remove a license agreement from an image, to add or remove encryption from an image, to segment an existing image or join multiple segment files into one image, to change an image's compression, or any nearly combination of the above.

One common use of the convert feature is to compress a read-write image. You might want to create a read-write image so that you can set up a background picture and position the icons exactly as you want. You can then convert the image to one of the compressed formats to reduce its size before distribution.

There are several ways to convert disk images using DropDMG:

Drag and Drop Hold down the Control and Shift keys while dropping one or more folders onto the DropDMG icon, either in the Finder or in the Dock; or onto the top portion of the status window.

Menu Choose **Convert Image...** from the **File** menu.

AppleScript You can use AppleScript to automate the conversion of an image. For example:

```
tell application "DropDMG"
    set myImage to alias "HD:Users:me:image.dmg"
    create image by converting image myImage format NDIF compressed
end tell
```

Command-Line Use `osascript` to convert the image using DropDMG's AppleScript interface.

3.3 Fixing Disk Images

Sometimes a downloaded disk image won't open in Disk Copy because the Web server told the Web browser that the disk image was a text file. DropDMG can fix such images by setting their type and creator codes so that the Finder will open them in Disk Copy. There are several ways to fix disk images:

- Drag and drop one or more disk images onto the DropDMG icon or onto the status window.
- Choose **Fix Disk Image...** from the **File** menu.
- Use `open` with AppleScript or the command line.

3.4 License Agreements

Disk images can include license agreements, which are displayed to the user whenever Disk Copy mounts the image. DropDMG lets you define multiple license agreements ahead of time. Each agreement may be localized into multiple languages. You can choose which agreement (if any) to include in the preferences. When you make an image, DropDMG will add that agreement, and all its localizations, to the image file.

To manage your license agreements, choose **Show Agreements** from the **License Agreements** menu. This opens the **License Agreements** window, which displays the agreements and localizations you have defined. The license agreements are automatically saved in DropDMG's preferences file.

To make a new license agreement, choose **Add Agreement...** from the **License Agreements** menu. The created agreement will be empty. You can rename it by double-clicking the agreement's name. In order to type the text of the agreement, use **Add Language...** from the **License Agreements** menu. This creates an entry in the **License Agreements** window for a new localized variant. Note that only the English variant will be displayed on Mac OS 9.

To edit the text of an agreement, double-click on one of its languages in the **License Agreements** window. This opens an editing window where you can type. You can view and edit multiple localizations at once, if you want. The **Edit** menu contains commands for checking spelling and text-to-speech.

Use the **Delete Selection** command in the **License Agreements** menu to delete the selected agreement or localization.

License agreements can use multiple fonts, sizes, and styles of text. Beware, however, of using fonts that are not built into Mac OS X, for the license agreement will look different if the user does not have the fonts installed. Secondly, note that “synthetic” font traits will not be preserved between DropDMG and Disk Copy. A synthetic trait is a style for which you do not have a font. For instance, Mac OS X ships with normal and bold variants of Lucida. Both of these work fine in license agreements. DropDMG will also let you create a license agreement using italic Lucida, where the operating synthesizes Lucida Italic from regular Lucida, but this will not be displayed in Disk Copy.

3.5 The Status Window

The top portion of the status window displays the current options that will be used for creating images. Control-click on the striped portion of the window to quickly change common preferences using a contextual menu.

The button portion of the status window displays a log of the images that DropDMG has created, converted, and fixed. Choose **Clear Log** from the **File** menu to erase the contents of the log.

3.6 Temporary Preferences

Normally, when DropDMG is creating or converting an image, it uses the preferences shown in the Preferences window. (See Section 4 for explanations of the preferences.) Sometimes you may wish to use slightly different preferences for a particular image. For instance, perhaps you usually create zlib images, but you sometimes need to make NDIF images for a friend who uses Mac OS 9. You could open the Preferences window, change the image format to NDIF, make the image, and change the format back to zlib. Or, you could save yourself some time by using *temporary preferences*.

To use temporary preferences, hold down the Option key when you drag a folder or image onto DropDMG’s icon or its status window. (If you are already holding down Control and Shift because you want to convert an image, then hold down Option in addition to those two keys.) When you release the mouse button, DropDMG displays a temporary preferences window with the name of your folder at the top. Any changes you make in this window will only affect the current operation; they will not be saved. Click the **OK** button to use the temporary preferences as shown, or the **Cancel** button to use the saved preferences.

If you hold down Option while dropping more than one item at a time, you can set different temporary preferences for each item. DropDMG will first show the temporary preferences window for the first item. If you click **OK**, DropDMG will use the saved preferences for the other items. If, instead, you hold down Option as you click **OK**, DropDMG will display the temporary preferences window for the next item.

4 Preferences

4.1 Image Format

DropDMG supports the following image formats:

zlib-compressed zlib creates the smallest disk images, but they only work on Mac OS 10.1 and later. This is DropDMG's recommended format for general use. zlib images created on Mac OS X 10.2 or later will be smaller than those created on 10.1.x. The smaller images are fully compatible with 10.1.x.

ADC-compressed ADC images are a bit larger and slower than zlib images, but they work on Mac OS X 10.0 and later.

NDIF-compressed NDIF images work with Disk Copy 6.x on Mac OS 7, 8, and 9, as well as on Mac OS X. They have resource forks and so must be encoded with a utility such as StuffIt, MacBinary, or BinHex before they are shared on the Internet. NDIF images do not support encryption and they are limited to 2 GB.

Read-only Read-only images require Mac OS X and are larger than zlib- and ADC-compressed images. However, when post-compressed with BZip2 or GZip they may end up smaller than the other formats. Read-only images are also a good choice when the folder you are imaging contains internally compressed files such as MP3s or JPEGs; in this case, using a compressed image format takes significantly longer and does not save much more space.

Read-write Read-write images can be mounted in the Finder and their contents modified. DropDMG creates read-write images slightly larger than needed to hold all the files. This allows you to make minor modifications such as repositioning icons and creating aliases to other files on the image. Once the image is exactly the way you want it, you can use DropDMG to convert the read-write image into a compressed one.

4.2 Encrypted

Encrypted images require a password for access. They only work on Mac OS X 10.1 and later. Encrypted images are much slower to access than unencrypted images. DropDMG uses Apple's implementation of the [AES-128 algorithm](http://csrc.nist.gov/encryption/aes/)².

4.3 Self-mounting

Self-mounting NDIF images (.smi files) may be used on Mac OS 7, 8, and 9 systems that do not have Disk Copy installed. Additionally, self-mounting images are the only type that can display license agreements on Mac OS 9.

²<http://csrc.nist.gov/encryption/aes/>

4.4 Limit segments to ___ MB

This option lets you set a maximum size for image files. If an image requires more space than the set limit, DropDMG will split the image into two or more files.

4.5 Post-compress with BZip2 or GZip

With this option selected, DropDMG will compress DMG images so that you end up with a `.dmg.bz2` file or a `.dmg.gz` file. This compression is *in addition* to the zlib/ADC compression that is intrinsic to the image format, so the resulting file will be a bit smaller. Some Web servers have trouble handling plain `.dmg` files, so that when people download them they open in the Web browser instead of Disk Copy. Using post-compression eliminates this problem, at the expense of an extra decompression step after downloading (usually using StuffIt Expander or OpenUp).

BZip2 is slower than GZip but compresses better. DropDMG can only compress with BZip2 when running on Mac OS X 10.2 or later. Post-compression is disabled for NDIF images because it does not work with files that have resource forks.

If you use post-compression in combination with segments, DropDMG will post-compress each segment of the image. Some segments may compress better than others, so it is normal for the segments to be of unequal size after compressing.

4.6 Encode with MacBinary

NDIF image files cannot be directly transmitted on the Internet because they have resource forks. MacBinary encoding converts the image to a data fork-only file that can be safely uploaded to Web and FTP servers, even using software that's improperly configured or not Mac-savvy. MacBinary encoding is disabled for DMG images because they are already data fork-only.

4.7 Include license agreement

With this option selected, Disk Copy will display a license agreement each time the image is mounted. Use the popup menu to select the license agreement you want included. This option is disabled if you have not entered any license agreements. To add a license agreement, choose **Show Agreements** from the **License Agreements** menu. Then choose **Add Agreement...** to add an agreement and **Add Language...** to add at least one language.

4.8 Auto-open image windows

With this option selected, DropDMG will make images that automatically open their root folder when mounted. That is, when you double-click the image in the Finder, its window will open. This is especially useful for images that you will be distributing to other users. Depending on how their Finders are configured, they may not see the image's icon appear on the desktop; therefore, making the image window auto-open provides a superior user experience.

4.9 Image Destination

You can choose to have images created in the same folder as the source folder, or specify a folder where all images should be saved. Note that if you specify a destination folder that's contained by the source folder, DropDMG will revert to its default behavior of saving the image next to the source folder.

4.10 Prompt for image and volume names

With this option selected, DropDMG will ask you to enter the name of the image file it will create and the name of the volume that will appear on the desktop when you mount the image. DropDMG will automatically add the proper filename extension (`.dmg` or `.img`) to the image name. It may also truncate the names you enter if they would be too long for the Mac's volume and filename limits.

With this option deselected, DropDMG will assign the image and volume names based on the name of the folder being imaged.

4.11 When Imaging a Package

Some Mac OS X files, such as applications, are actually special folders called packages. The system presents packages to the user as a single file, but they're actually stored on disk as folders. Normally, when DropDMG makes an image from a folder it copies the contents of the folder into the image; that is, the mounted image behaves just like the original folder did.

Since packages are folders, you can make images of them with DropDMG. However, if DropDMG proceeds as usual, when you mount an image that was created from a package, the Finder will think that the mounted image *is* a package. It will show the package icon instead of the disk image icon, but it won't let you double-click the mounted image to access the package (e.g. launch the application). You might think that you could drag the mounted image to your hard disk to launch the application from there, but the Finder will create an alias instead (unless you know to hold down Option).

Therefore, by default, DropDMG recognizes when you are imaging a package and gives you a disk image with the package inside it, instead of making an image *of* the package. To disable this feature, and thus have DropDMG treat all folders consistently, click the **Copy contents of package** radio button.

5 Contact Information

You can download the latest version of DropDMG from the [DropDMG Web site](http://www.c-command.com/dropdmg/)³. Questions about DropDMG may be sent to dropdmg@c-command.com⁴. I'm always looking to improve DropDMG, so please feel free to send any feature requests to that address.

³<http://www.c-command.com/dropdmg/>

⁴<mailto:dropdmg@c-command.com>

To make sure that you have the latest version of DropDMG, you may wish to subscribe to the [DropDMG Announcements mailing list](#)⁵. The traffic on this list is very low, only one message per new version of DropDMG.

6 Registering

DropDMG is shareware. If you find yourself using DropDMG beyond a reasonable trial period, you must register it. Registration costs \$10 (US) and entitles you to free updates and support.

To register, go to the [eSellerate Online Store](#)⁶. Soon after paying, you'll receive an e-mail with your serial number. Enter it in the Registration window to personalize your copy of DropDMG.

This is the honor system. If you use DropDMG without registering, I probably won't know. However, registering will give me an incentive to continue updating and enhancing DropDMG, and to write more Mac software. And you won't have to look at the shareware reminders anymore.

7 Notes and Limitations

- The destination volume must have free space at least equal to twice the size of the folder, because DropDMG needs room to compress the image.
- Dragging a volume onto DropDMG creates an image that contains the volume's *contents*, not an image of the *device*. Use Disk Copy to create images of devices, e.g. to make an image of a bootable CD-ROM.
- DropDMG will not copy `Desktop DB`, `Desktop DF`, or `.Trashes` to the top level of the disk image. These files are managed by the operating system and should not be replaced. Do not create your own files with these names at the top level of your source folder.

Future versions of DropDMG may address these issues.

8 Version History

2.0—October 23, 2002

- Converts dropped images to the format specified in the preferences when you hold down Control-Shift.
- Hold down Option when dropping a folder or image to specify settings to be used for that item (temporarily overriding the preferences).

⁵<http://www.c-command.com/dropdmg/support.shtml>

⁶<http://store.eSellerate.net/mt/store>

- Makes self-mounting NDIF images (SMIs). This is the only kind of image that supports license agreements on both 9 and X.
- Creates smaller zlib-compressed images when running on 10.2 and later. (The images are still compatible with 10.1's Disk Copy.)
- You can now choose to post-compress with BZip2 instead of GZip. BZip2 is slower than GZip but creates smaller files.
- Improved the layout of the preferences window.
- Faster at copying files to the image when running on 10.2 and later.
- Worked around 10.2 bug that caused errors when a file or folder name contained a slash (as shown in the Finder).
- Worked around OS X bug that prevented copying files larger than about 1 GB.
- New application icon.
- Compiled with GCC 3.
- No longer calls thread-unsafe parts of Carbon from child threads.
- Prevents the user from making a read-write image with a license agreement, rather than stopping midway through with an error message saying that this wasn't possible.
- The status window no longer looks as though it will accept the drop when you try to drop a `.dmg` file that doesn't need metadata fixing.
- Changed **File** menu text and keyboard shortcuts to more closely match 10.2's Disk Copy.
- The about box and registration window now use the design first seen in SpamSieve.
- The log no longer uses the large system font under 10.2.
- Better error message if you try to image the startup volume.
- Fixed bug where images with license agreements contained duplicate `styl` resources.

1.7.3—August 17, 2002

- Fixed bug that could make DropDMG crash when you clicked the **Include license agreement** checkbox.
- The spelling commands now have the standard keyboard equivalents.
- The **Preferences...** keyboard equivalent has been changed to **Command-.**

1.7.2—August 15, 2002

- Removed spurious error message when changing the attributes of text in a license agreement.

1.7.1—August 12, 2002

- The user interface no longer gets out of sync when you modify license agreements.
- Changes to the segment size take effect immediately; you no longer have to type Tab or Return to commit them.
- The status window updates faster.

1.7—August 12, 2002

- Added support for license agreements. License agreements support rich text and may be localized.
- The image destination path is now stored abbreviated with a tilde, if possible. This should help people who have multiple boot partitions.
- The log is printable.
- Finer-grained progress bar and status text.
- If adding the requisite filename extensions would make the requested image name longer than the limit, DropDMG will now quietly truncate the name rather than stopping with an error.
- NDIF images are now created with filenames of 31 characters or less, so that there won't be any name mangling when they're viewed in Mac OS 9.
- DropDMG now truncates `.dmg` volume names to 62 characters and `.img` volume names to 27.
- Fixed bug where DropDMG could deadlock after certain kinds of errors.
- Fixed bug where DropDMG sometimes didn't detect filename collisions until after it started making the image.
- Fixed bug where DropDMG would overwrite pre-existing `.dmgpart` files if the first segment was not present and the newly created image happened to have the same name.
- Renamed some **File** menu commands.

1.6—July 15, 2002

- Option to make images auto-open. When you mount an image, its window opens in the Finder. Previously, there might have been no visual indication that the image had mounted, depending on how the user's Finder preferences were set.
- The status window has a contextual menu for quickly changing common preferences.
- You can optionally set the names of the image file and volume, instead of having them based on the name of the folder.
- Documentation is now included in Apple Help (HTML) format as well as PDF.
- Contains a menu command for clearing the log.
- No longer fails when copying files for which the user only has read privileges. Previously, DropDMG would copy the file and permissions and then report a permissions error when it tried to set the catalog information of the copy, which wasn't writable.
- The radio buttons for selecting where the image will be saved are no longer linked to the image destination text field. That is, tabbing of the text field no longer affects the radio button's selection, making the preferences more friendly for keyboard navigators.

1.5—May 2, 2002

- Multi-threading—DropDMG can create more than one image at a time, and the interface remains responsive.
- Can divide large images into multiple segments of fixed size.
- Creates uncompressed read-only images, which often compress better with GZip than internally-compressed image files do.
- Creates read-write images.
- Encodes Mac OS 9 .img images with MacBinary so that they can be transferred on the Internet.
- The status window displays a log that shows all the completed operations and errors.
- The status window now shows all the format options that are in effect.
- Faster copying of Mac metadata.
- Worked around Apple bug that sometimes caused errors when creating large images.
- Fixed bug where DropDMG mistakenly resolved symlinks when copying Mac metadata. This had caused some metadata not to be copied, and also caused image creation to fail if the user didn't have write access to the original file.

- Fixed regression where DropDMG sometimes didn't complain when the destination folder was inside the source folder.
- Tries several times to eject images, rather than giving up immediately.
- More detailed reporting of file copy errors.
- More accurate reporting of what state the image creation process is in when errors occur.
- Mailing list for version announcements has a Web interface.

1.3.1—March 11, 2002

- You can now create images by dragging and dropping folders into the status window.
- The status window's indication of the progress is more accurate.
- Fixed regression in which images couldn't be created on non-boot volumes.
- Fixed regression in which images couldn't be created in `~/Desktop` if the destination folder had never been manually set.

1.3—February 25, 2002

- You can now choose whether images are saved next to the source folder, or in a user-defined folder.
- Volume images are now created in `~/Desktop` by default (instead of `/Volumes`).
- Resolved problem in which DropDMG tried to replace invisible system files on the image, if the source folder contained items with the same names.
- The `format` parameter is now optional when creating images with AppleScript.
- Notifies the system after fixing an image's type and creator.
- Fixed bug in which DropDMG would report the wrong file as the cause of a copy error.
- The keyboard loop in the Preferences window should work again.
- The status window no longer flickers when the program first opens.
- The distribution is smaller, since the manual uses fewer images.

1.2.1—February 11, 2002

- Uses Carbon to preserve Finder info (e.g. the locked, stationery, and custom icon bits) when copying files.

1.2—February 3, 2002

- All options are now available from the scripting interface.
- No longer requires Mac OS X’s optional “BSD Subsystem” installation.
- Optionally post-compresses DMGs with GZip.
- Fixes type and creator codes of DMGs.
- Preferences window is easier to use; now, enablement is only tied to the Image Format radio buttons.
- Capitalizations now follow the Aqua Human Interface Guidelines.

1.1—January 28, 2002

- Supports ADC and NDIF compression for compatibility with Mac OS 10.0.x and Mac OS 9, respectively.
- Supports encrypted compressed images in the zlib and ADC formats.
- Optionally detects packages so that you end up with a mounted image *containing* the package instead of a mounted image that the Finder thinks *is* a package.
- Copies locked files to images (instead of stopping with an access error).
- Images’ logical sizes are smaller; this should slightly reduce their physical sizes and reduce mount times.
- Accepts drops of all file types (including packages); if DropDMG doesn’t know how to handle a dropped file it will just ignore it.
- The **Make Image From Folder...** menu command lets you choose packages and subfolders of packages (instead of just vanilla folders).
- Minor UI tweaks.

1.0—January 21, 2002

- First public release.

9 Legal Stuff

DropDMG and this manual are copyright © 2002 [Michael Tsai](mailto:mjt@c-command.com)⁷. All rights reserved.

The MacBinary III encoder is copyright © 2001 Gregory L. Guerin. DropDMG uses it in unmodified binary form under the terms of the Artistic License. Thanks, Greg! The original source is [available](http://www.amug.org/glguerin/sw/)⁸.

Please distribute the unmodified **DropDMG-2.0.dmg** file on the Web, LANs, compilation CD-ROMs, etc. Please do not charge for it (beyond a reasonable cost for media), or distribute the contents of the image file in isolation.

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⁷<mailto:mjt@c-command.com>

⁸<http://www.amug.org/glguerin/sw/>