

# TUG-IMAGEMAGICK

RICHARD KOCH

## 1. IMAGEMAGICK

This is the portion of the TUG documentation which deals with making the ImageMagick package. A clean package file will contain

- “Building This Package” folder with document explaining in detail how to build the package
- Files “buildPackage.sh” and “buildPackage1.sh”
- Files “Description.plist” and “Info.plist”
- “resources” folder with various files
- “IM” folder containing tar files with the sources for ImageMagick and the various libraries it requires. This folder also contains a “How To Compile” document, but the document you are reading is more up to date.
- “OldTests” folder with some image files; probably irrelevant
- “Universal” folder with two files named liposcript and tarscript, and three empty folders.
- “TUG” folder with this document

## 2. OVERVIEW

We do not ship ImageMagick, but only the “convert” utility inside it. This is necessary because convert is used by TeX4ht and yet is not part of TeX Live. Also TeX can be instructed to call convert automatically if tiff files are encountered.

Normally ImageMagick ships as a series of libraries called by the main program. We don’t want to install any libraries. So we compile convert to use static libraries. This requires some tricky maneuvers as the program is constructed.

### 3. ADJUSTING FOR A NEW YEAR

To switch to the new name:

- Edit the “buildPackage.sh” script, noting that the name of the package is contained in the last few lines of the script.
- Edit the “buildPackage1.sh” script, for the same reason.
- Edit the short “Description.plist” to indicate the new name.
- Edit the “Info.plist” file, which contains a list of keys and values. The important key is “CFBundleIdentifier”; it contains the name of the package in the form “org.tug.mactex.imagemagick-convert-6.6.9-3”. This item is the crucial element which determines the Mac’s receipt policy.
- The folder resources/English.lproj contains three files which will be shown to the user during installation: License.rtf, ReadMe.rtf, and Welcome.rtf. Edit these files to reflect the new package name and release date. Make other changes as appropriate.

### 4. COMPILING

Compiling convert is tricky. Image Magick constructs shared libraries which all of its components call, and it requires other libraries: libjpeg, png, freetype, tiff, zlib. We don’t want to install the Image Magick shared libraries or these extra libraries. The trick is to compile Image Magick using static libraries and then pull out convert.

Start by renaming the old /usr/local in /usr, and rename X11 and/or X11R6 so X11 support won’t be added.

We compile on OS X 10.5 for PPC and for Intel.

First install the required libraries in /usr/local. We need the following libraries:

zlib	<a href="http://www.zlib.net/">http://www.zlib.net/</a>	Ver 1.2.5: April 19, 2010
libjpeg	<a href="http://www.ijg.org">http://www.ijg.org</a>	Ver 8c: January 16, 2011
freetype	<a href="http://freetype.sourceforge.net/index2.html">http://freetype.sourceforge.net/index2.html</a>	Ver 2.4.4: November 28, 2010
libpng	<a href="http://www.libpng.org/pub/png/libpng.html">http://www.libpng.org/pub/png/libpng.html</a>	Ver 1.5.2: March 31, 2011
libtiff	<a href="http://www.remotesensing.org/libtiff/">http://www.remotesensing.org/libtiff/</a>	Ver 3.9.4: June 15, 2010
bzip2	<a href="http://bzip.org/">http://bzip.org/</a>	Ver 1.0.6; September 20, 2010

Compile and install libjpeg first. Use the following instructions:

```
make clean
./configure --enable-shared --enable-static

rm libtool
ln -s 'which glibtool' ./libtool

make

sudo mkdir -p /usr/local/include

sudo mkdir -p /usr/local/lib
sudo mkdir -p /usr/local/man/man1
sudo mkdir -p /usr/local/bin

sudo make install
```

Then change to /usr/local/lib and remove all files except libjpeg.a.

Compile zlib, libtiff, libpng, freetype, and bzip2 in that order, using the standard commands (bzip2 doesn't have a .configure step):

```
make clean
./configure
make
sudo make install
```

After each step, remove all .dylib and .la files in /usr/local/lib.

Next go to /usr/local and remove everything in the bin directory. Also remove the man, and share directories, leaving only the include and lib directories.

Obtain the ImageMagick source code at

<http://www.imagemagick.org/script/install-source.php#unix>

This contains version 6.6.9-3 released March 1, 2011.

Go to IM/ImageMagick-6.6.9-3 and compile Image Magick using the sequence

```
make clean
./configure --disable-shared
make
sudo make install
```

It helps to look at the configure output and confirm that shared libraries are disabled.

Now go to `/usr/local` and remove the include library. Also in `/usr/local/lib`, remove the “old” directory and all libraries, leaving only the folder named “ImageMagick-6.6.9”.

Finally, move the entire remaining contents of `/usr/local` to `Universal/local-i386` or `Universal/local-ppc` depending on whether you compiled on Intel or on PPC.

Make sure the Universal folder has a subfolder named “local” containing a subfolder named “bin”. Change directory to Universal, strip the binaries, and lipo them together using the following commands:

```
cd local-i386/bin
strip *
cd ../../
cd local-ppc/bin
strip *
cd ../../
sh liposcript
```

Finally, execute the build instruction using the command

```
sudo sh buildPackage.sh
```

## 5. ADJUSTING THE IMAGEMAGICK INSTALL PACKAGE

The folder `resources/English.lproj` contains some files which are shown to the user during installation. One of these files is a brief Welcome document, a second is a longer ReadMe file, and a third shows the License for the code. After the Ghostscript install package is constructed, you may need to revise these documents. For example, the Welcome document contains the release date. Usually TeX Live authors are overly ambitious and predict a release several months earlier than it actually occurs, and you’ll need to change the release date from time to time.

A special script is provided to make changes in these support files without rebuilding everything. The script is called `buildPackage1.sh`. This script uses the already constructed root folder, and makes a new install package using this root, and possible new versions of `Description.plist`, `Info.plist`, and the documents in `resources/English.lproj`.