



EBImage installation HOWTO

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The package was tested to work on Linux (32/64 bit), MacOS, Windows XP (32 bit) and Solaris (64 bit). It should be possible to install and run the package on other versions of UNIX-like and Windows systems in a similar manner. It is advisable to install recommended dependencies as well to enjoy the full functionality of the package. On Windows, all dependencies are required, not recommended. GTK+ support was not tested on MacOS, but there is no apparent reason for the package to fail to support it.

1 UNIX/Linux Installation

The installation should be performed from the source after the following dependencies are satisfied:

ImageMagick version at least 6.2.0,

GTK+ version at least 2.6 (recommended).

On most Linux distributions, these are available as precompiled binaries `rpm` or `deb` format with a `-dev` or `-devel` suffix. Hereafter, the package names are for Ubuntu Linux, but other distributions have similar packages with only slight naming differences.

For `ImageMagick`, you will need to install `libmagick9-dev` with all dependencies using `apt-get` or Synaptic. Alternatively, you can download the latest version of `ImageMagick` from <http://www.imagemagick.org> and install it from source as usual using `./configure && make && make install`. The latter will install all the required development files as well.

`EBImage` will function without `GTK+`, but most of its GUI functionality (image chooser, interactive image display with zoom features etc) will be disabled. You will need `libgtk2.0-dev` with all the dependencies, which normally include `glib`, `pango-dev`, `libcairo-dev`, `atk-dev` and some others. Alternatively, all these packages can be installed from source available at <http://www.gtk.org> along with the corresponding installation instructions. When installing `GTK+`, please ensure that

you also install `pkg-config` as it is used to determine the location of GTK+ include files and its compile flags. Without this package, GTK+ will not be located on your system by the package installer. `pkg-config` is normally installed in UNIX/Linux systems running the GNOME desktop manager, it is also likely in this case that you have necessary GTK+ development files because GNOME is build upon GTK+.

After the dependencies are installed, install the package with the standard R `CMD INSTALL` script.

2 MacOS Installation

Analogously to the UNIX/Linux installation, this should be performed from source using the same technique and dependencies.

One can use the fink project (<http://fink.sf.net>) to download and install dependencies, or install them from source as in Linux. Both work fine. Sometimes, MacOS users get problems with a UNIX `libtool`, it is likely that a MacOS-specific `libtool` should be installed, which is named `glibtool`. It is also available from fink.

The author did not have any possibility to check if GTK+-enabled version works on MacOS due to the lack of hardware when the GTK+ support was added, but since `gtk+2-dev` and `gtk+2-shlib` are available at fink, it is worth trying. Please remember again, that you will need `pkgconfig` (also available from fink), in order for the installation script to find your GTK+ includes.

3 Windows 32bit Installation

The author did not check if the package compiles on Windows 64 bit due to the lack of the corresponding hardware. The Windows package contains a DLL that was precompiled on 32 bit Windows XP machine. The tarball is distributed with a *precompiled* Windows DLL included in `.instwinlibs`. This file is moved to the package's `.libs` during the Windows build process (R `CMD build -binary`) avoiding the compilation. If you want to recompile the source package on Windows, please delete the `.instwinlibs` directory from the source tarball.

Whether you are installing a binary package or compiling it from source on Windows, you will need to have *both* ImageMagick and GTK+ installed and *added* to your or system-wide `PATH` variable prior to the package installation.

If you plan to compile the package from source, first follow the R instructions on compiling Windows packages and install all the necessary tools (Cygwin, MSYS, MinGW, MS Help Compiler etc). In the latter case it is recommended to install MinGW and MSYS into `c:mingw` as this path is hard coded into `.srcMakevars.win` of the package. Otherwise you will need to edit this file. You do not need MinGW or MSYS if you install the binary package. For the binary package, just install the dependencies so that the library could function.

3.1 Installing ImageMagick

The Windows version of ImageMagick is also available from <http://www.imagemagick.org>. Please ensure that you download a package named like `ImageMagick-6.x.x-x-Q16-windows-dll.exe`, where `x.x-x` stand for the minor version number. You need to pay attention that you download `*-windows-dll.exe` and not `*-static.exe` otherwise the shared libraries to use with the package

will not be installed. You also should use the version with 16 bit QUANTUM depth (`*-Q16-*`) to ensure the best possible color range.

After starting the installation wizard, you can select the default settings and let the installer to register environmental variables for you. Ensure that the path to ImageMagick was added to your PATH variable, e.g. that it contains something like `c:ImageMagick;`.

If you are planning to compile EImage from source, select during the installation that you want development files to be installed as well of. In this case, it is strongly recommended to install ImageMagick into a path that does not contain spaces. The recommended, and hard coded into `.srcMakevars.win` is `c:ImageMagick`. If select another location, please be sure to update this file.

3.2 Installing GTK+

It is recommended to use the GladeWin32 project, <http://gladewin32.sf.net> for the source of GTK+ installer. The www.gtk.org site has its own installers, but the above one is an all-in-one installation which perfectly fits the needs of EImage. Please download the latest available release of *Gtk+/Win32 Development Environment* if you are planning to recompile the package from source, or *Gtk+/Win32 Runtime Environment* if you are just planning to use the binary. For the binary installation just run the installer and accept the default suggestions: the installer will register all environmental variables for you.

Please ensure now that the installer added the path to GTK+ `bin` directory *before* the path to `c:Windows` and `c:WindowsSystem32`. Otherwise, the package might find the wrong `xmlparser.dll` which is included in both, GTK+ and Windows itself (and is significantly outdated in Windows).

If you are planning to compile EImage from source, install GTK+ into a path that does not contain spaces. It is strongly recommended to use the same directory where you installed MSYS and MinGW, namely `c:mingw`. This directory is hard coded into `.srcMakevars.win` and you will need to modify this file if installing GTK+ elsewhere.

3.3 Installing the package

The binary package can be installed now using the R menu command to install a package from a local file.

To compile from source, ensure that R is in your PATH, run `cmd` and switch to the directory with the package tarball. Now run `R CMD build -binary` to generate the binary. Then install it as above.