POLYMAKE ON THE MAC
Snapshot-Release 2.13.2 of December 6, 2014

Introduction

`polymake` is a tool to study the combinatorics and the geometry of convex polytopes and polyhedra. It is also capable of dealing with simplicial complexes, matroids, polyhedral fans, graphs, tropical polytopes, and various other mathematical object. **Note that this Mac application of `polymake` is still experimental.** If you have problems, or suggestions for improvements please contact us.

System Requirements

The `polymake` package was built and tested on Intel-based Macs running Mac OS 10.10 with Apple's command line tools using the Snapshot-Release 2.13.2 of December 6, 2014 of `polymake`. Due to system package dependencies it won't work on Macs with **any** other Mac OS X version or architecture.
Note that there are different packages for different perl versions. Make sure you download the version of the `polymake` app that was built for the perl version that corresponds to your system perl. You can find the version number by executing

```
/usr/bin/perl --version
```

in a terminal.
If there is no version of the `polymake` app matching your perl version please contact us at forum.polymake.org.

The package requires that Apple's command line tools and java are installed on your Mac. If you don't have them a popup window will appear the first time polymake wants to use them. Please click install (you may need an administrator password to install them). The popoup for the ocmmand line tools is slightly confusing. It also offers to install XCode. This is not necessary. Just click *Install*.

Installation

Double clicking the `dmg` file mounts the disk image and opens it in the Finder. Drag `polymake` to a suitable location on your system. Preferably this should be the standard `Applications` folder. You might want to save this README file somewhere. Afterwards you can eject the image and delete the `dmg` file unless you want to rebuild the app.
To run `polymake` double click the `polymake` program icon. You can also drag the icon onto your dock for faster access. Note however that the `polymake` bundle is not a true Mac application: it basically opens a `Terminal` and starts `polymake` inside this. So it does not behave as most other apps, e.g. Mail: if you have a running `polymake` session then clicking again on the Dock icon just opens another instance of `polymake` instead of bringing the existing window to the front. Instead, you should navigate to the `Terminal` app (and then possibly cycle between different `Terminal` windows with `Cmd-<`) to reach `polymake`).

Usage

Double click the `polymake` program icon to start `polymake`. This will open a terminal and launch the interactive shell of `polymake` inside the terminal. For an introduction to `polymake` and the interactive shell see `polymake.org` .
To exit `polymake` type `exit;` at the `polymake` prompt (observe the ";" that is necessary for each `polymake` command). Depending on your `Terminal` settings the `Terminal` window might not close but just tell you that the process is completed. In that case close the window manually (but wait until `polymake` has finished, which might take a moment). You can change the behavior of `Terminal` in the *Preferences* menu. You cannot close `polymake` by right clicking the Dock icon or via Exposè. `polymake` saves open files and customization settings when you exit, so you **should not** terminate `polymake` by closing the terminal.

Customization Files

`polymake` puts its customization files into the directory

`.polymake-macbundle/`

in your home directory. The directory is created at the first start of `polymake`. If you want to reset `polymake` to default values then you can just delete this directory (You cannot do this in the Finder as it is a hidden folder (observe the "." in front). Open a `Terminal`, `cd` into your home directory and type `rm -rf .polymake-macbundle`.).
These files, as well as the customization files written to your extension directory when you import an extension into polymake contain the absolute path to the directory containing the polymake files. Thus, after you have started `polymake` once you cannot move the bundle to a different location on you Mac (e.g. from the disk image into your Application folder). You can, however, create links.
If you have to move the `polymake` app bundle, then you have to delete the folder `.polymake-macbundle` in your home directory (see above for instructions), and do a `make distclean` in each extension base directory prior to calling `polymake` from its new location. If you want to save some values (e.g. color settings) in `customize.pl` or `prefer.pl` then make a copy of the files and add the values back to the corresponding files in `.polymake-macbundle` after you have started `polymake` from the new location.
`polymake` has a basic check to detect whether you have moved the `polymake` app and offers to delete `.polymake-macbundle`. You can accept this as long as you don't have imported any extensions. If you have, then please choose "cancel" here and do `make clean` in the extension base directories before you start `polymake` from its new location.

Uninstalling polymake

To uninstall `polymake` just drag the `polymake` icon to the trash and remove the directory `$HOME/.polymake-macbundle` (This is only created after you have started `polymake` at least once). Note that this directory is a hidden directory, so you cannot delete it in the Finder. Instead, open a `Terminal`, `cd` into your home directory, and type `rm -rf .polymake-macbundle` (observe the ".").

Trouble-shooting

Please note that the `polymake` app is not relocatable after the first start, so please move it to a location on your hard disk (e.g. the Application folder) before starting it. If you need to move the app then please follow the instructions given

in the section about customization files. You can use the polymake app along with a standard installation, but you cannot import extensions from the same directory (but you can install extensions again to a different directory).
Support queries concerning installation and usage are welcome (please use our forum at forum.polymake.org), as well as any other feedback, but are served on voluntary base, depending, first of all, on the authors' free time resources. The polymake package for Mac is still experimental, so it might not work on your computer. Also, we don't have many different Mac OS X installations at hand to test. If it doesn't work we'd value feedback about what went wrong. To obtain relevant information you could try to start the script from a terminal instead of the Applications folder and send us the output. If you have installed polymake into the standard Applications folder, then the steps are as follows.

(1) open the Terminal application (inside Utilities in your Applications folder).
(2) at the prompt type
```
. /Application/polymake.app/Contents/MacOS/polymake.start
```

License

polymake is released under the the GPL license. By downloading polymake in any form (whether source code or compiled) you agree to be bound by this license; further you renounce to claim any kind of warranty or damages related to the use of this software.
Software libraries bundled directly with polymake are protected by open source licenses adequate to the GPL or broader. However, the exact wording and restrictions to use may vary.
Additionally, the polymake application package comes with compiled versions of several packages necessary for polymake:

(1) GMP 5.1.3.
(2) MPFR 3.1.2.
(3) readline 6.2
(4) perl::Term-Readline-Gnu
(5) boost 1.47.0
(6) ant 1.93
(7) ppl 1.1
(8) libnormaliz 2.12
(9) cdd 0.94g
(10) lrs 4.2
(11) nauty
(12) jReality
(13) readline 6.2
(14) Term-Readline-Gnu 1.20
(15) XML-LibXSLT 1.71
(16) permlib
(17) Singular
(18) polymake

Also these packages are protected by open source licences compliant to the GPL. The sources for polymake are also available on . All sources are either directly contained in the polymake distribution or included as compressed tar archives in the tarballs/ directory of the disk image, where you also find the polymake sources. Check the corresponding COPYING or README files included in the packages for the exact license. For the packages bundled directly with polymake you can

find the license statements in the `bundled` sub-directory of the `polymake` archive (currently `cdd, lrs, nauty, permlib, ppl, libnormaliz, jreality`).

Rebuilding the disk-image

If you need to rebuild the disk-image just copy the `src` directory to some location on your Mac. Change to the `src` directory and type `make`.