

MacPorts Python installation on Mac - 10 easy steps

Please report any issues with these instructions [here](#).

This page was originally designed for Astronomers, but most of the instructions are generic, and apply to anyone wanting to use Python via MacPorts.

Installing MacPorts

1. Ensure that [XCode](#) 3 or 4 is installed (should be on the install DVDs for your Mac). If you like to live on the bleeding edge, you can purchase XCode 4 from the Mac App Store. To check if XCode is installed properly, you can type `gcc` in the command-line. If you get `gcc: command not found`, then XCode is not properly installed.
2. Download the DMG image for MacPorts from [here](#) - be sure to pick the correct one for your MacOS X version. Mount the disk image and run the installer. Note that if needed, it is possible to install MacPorts without root/admin privileges - see [here](#) for more details.

Installing Packages

3. Go to the terminal and update the package index:

```
sudo port selfupdate
```

4. To install most of the basic Python packages, run:

```
sudo port install py27-matplotlib py27-numpy py27-scipy py27-ipython
```

Note that this will probably take several hours, and is best done overnight.

5. To install Astronomy packages, use for example:

```
sudo port install py27-pyfits py27-pywcs py27-atpy py27-aplpy
```

MacPorts will automatically take care of any dependencies! (by default SQL dependencies are not installed for `py27-atpy`, and the Montage dependency is not installed for `py27-aplpy`. If you want to install these, use `sudo port install py27-atpy +sql` and `sudo port install py27-aplpy +montage` respectively).

Note: if for any reason the installation gets interrupted (for example if you get disconnected) and you end up with an error, try running the installation command again. If this does not work, try cleaning the latest port that MacPorts was trying to install, e.g.:

```
sudo port clean --all -f py27-aplpy
```

then try running the installation again. If you are still having issues, please let me know!

Configuration

6. If it does not already exist, create a folder called `.matplotlib` in your home directory and copy the default `matplotlibrc` file to it:

```
cp /opt/local/Library/Frameworks/Python.framework/Versions/2.7/lib/python2.7/site-  
packages/matplotlib/mpl-data/matplotlibrc ~/.matplotlib/
```

7. Edit `~/.matplotlib/matplotlibrc` and change the following line

```
backend : Agg
```

to

```
backend : MacOSX
```

This ensures that when you use Matplotlib interactively, a window will pop up. Optionally, you can uncomment and set the `image.origin` and `image.interpolation` lines to

```
image.origin : lower  
image.interpolation : nearest
```

These settings are likely to be the most useful for plotting astronomical data.

8. Make this Python installation the default:

```
sudo port select --set python python27  
sudo port select --set ipython ipython27
```

Note that this is optional - you can also invoke this Python installation by using `python2.7` and `ipython-2.7`.

Searching for packages

9. To check if a package is available through MacPorts, you can do:

```
$ port search pyfits  
  
py25-pyfits @2.4.0 (python, science)  
Python interface to FITS formatted files  
  
py26-pyfits @2.4.0 (python, science)  
Python interface to FITS formatted files  
  
py27-pyfits @2.4.0 (python, science)  
Python interface to FITS formatted files  
  
Found 3 ports.
```

Be sure to install the one for the correct Python version (py27-* if you've been using the above instructions).

Before installing the package, you can check what *variants* are available:

```
$ port variants py27-aplpy  
py27-aplpy has the variants:  
[+]avm: Include support for AVM meta-data  
[+]ds9: Include support for DS9 region files  
montage: Include support for Montage reprojection  
[+]rgb: Include support for RGB images  
universal: Build for multiple architectures
```

Variants listed with [+] are installed by default. To remove a default variant, use `-variant`. To include a variant not installed by default, use `+variant`. For example, the following will install APLpy with support for Montage, but not for RGB images:

```
sudo port install py27-aplpy +montage -rgb
```

Installing packages not in macports

10. When installing packages not in MacPorts, first make sure that you remove your `.pydistutils` file if you have one, then simply use:

```
python setup.py install --user
```

(do not omit `--user` and do not use `sudo`). This will place user installed packages in `~/Library/Python/2.7/lib/python/site-packages` where they will automatically be picked up by the Python installation, without messing up the MacPorts file structure. Note that you can also install packages in a similar way using `easy_install-2.7` and `pip-2.7` by specifying the `--user` option.

The reason for installing packages with `--user` is that if instead you install packages using `sudo python setup.py install`, the packages will be installed inside the MacPorts tree, but MacPorts won't be aware of it, so this could cause issues in future if the package is installed via MacPorts. As a rule of thumb, don't ever install anything into `/opt/local/` other than via the `port` command. If you did mistakenly install packages to the MacPorts directory, just go to `/opt/local/Library/Frameworks/Python.framework/Versions/2.7/lib/python2.7/site-packages` and remove the files relating to the package you installed.

Appendix: Available Python Astronomy Packages

```
py27-aplpy @0.9.6 (python, science)
    The Astronomical Plotting Library in Python
```

```
py27-asciitable @0.7.0.2 (python, science)
    An extensible ASCII table reader and writer
```

```
py27-atpy @0.9.5.3 (python, science)
    ATpy: Astronomical Tables in Python
```

```
py27-idlsave @0.9.7 (python, science)
    IDLSave - a python module to read IDL 'save' files
```

```
py27-kapteyn @2.1 (python, science)
    The Kapteyn Package
```

```
py27-montage @0.9.3 (python, science)
    Montage python wrapper
```

```
py27-pyavm @0.1.4 (python, science)
    Pure-Python AVM library
```

```
py27-pyfits @2.4.0 (python, science)
    Python interface to FITS formatted files
```

```
py27-pyregion @1.0.1 (python, science)
    pyregion is a Python module to parse ds9 region files
```

```
py27-pywcs @1.10-4.7 (python, science)
    pywcs is a set of routines for handling the FITS WCS standard
```

py27-vo @0.6 (python, science)

A Python library to parse, validate and generate VOTable XML files.

py27-yt @2.1 (python, science)

Astrophysical simulation Analysis and Viz

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