MacPorts: The Key to Python Happiness

For those who want the TL;DR version which gives you all the commands you need to copy and paste into a terminal window, then it's all here.

To do some of the work I do, I needed to have a working version of Python that included the `numpy`, `scipy`, and `matplotlib` libraries. I could not, however, get all these pieces to come together using homebrew. After trying a number of approaches from a variety of sources, I turned to StackOverflow for help. I got a response from tiago, who noted that "`Homebrew` and `pip` are great for minimalistic, pure python packages. But they stumble spectacularly with scipy or packages that require external non-python packages." His advice was to turn, again, to MacPorts. (My first step was to un-install `homebrew`. After that, it was time to crank up the MacPorts assembly.)

Installing MacPorts

First, before you do anything else, you'll need to make sure that you have Xcode's *command line tools* installed. Installation is now as easy as typing the following in a terminal window:

```
xcode-select --install
```

You'll get a GUI dialogue box, agree to the EULA, and then installation will happen. (And I believe software update / the App store will track updates for you.)

Second, Download the Mac OS X Package `pkg` Installer and step through the GUI install.

MacPorts should, as part of the install process, run `sudo port selfupdate -v` but you can always run it again. You know, just to make yourself feel better.

Third, you'll need to install a version of Python. In my case, I am building a setup around Python 2.7, and so I entered `sudo port -v install python27`. The `-v` option gives you a verbose description of what's happening. Be prepared to watch a lot of stuff scroll by. (If you'd rather not see all that and having the machine quietly do its thing, you can leave the `-v` off. Good for you for having quiet confidence in your Mac.)

MacPorts gives you some nice functionality with its `search feature`, which you can use to find MacPort portfiles. In my case, I wanted to start with `numpy` and so I entered `port search numpy` and got the following:

```
py-imread @0.2.5 (python, graphics)
    Reads images into numpy arrays

py-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python
```

```
py24-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

py25-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

py25-symeig @1.4 (python, science)
    Symeig - Symmetrical eigenvalue routines for NumPy.

py26-imread @0.2.5 (python, graphics)
    Reads images into numpy arrays

py26-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

py26-scikits-audiolab @0.11.0 (python, science, audio)
    Audiolab is a python toolbox to read/write audio files from numpy arrays

py27-imread @0.2.5 (python, graphics)
    Reads images into numpy arrays

py27-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

py31-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

py32-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

py33-numpy @1.6.2 (python, math)
    The core utilities for the scientific library scipy for Python

Found 13 ports.`
```

That `py27-numpy` is the one I want, and so I entered `sudo port install py27-numpy`. More scrolling. Done. Repeat these steps for `scipy` and `matplotlib` and `nltk`.

Finally, a crucial step is to make it so that your setup turns to your nice custom install of Python and not the one that came with the system. I usually accomplish this by editing my `.bash_profile`, but this did not work for me. Luckily, MacPorts has the solution: `sudo port install python_select`. Once you've done this, enter `sudo port select --set python python27` and you're done.

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