Configuring Mac OSX 10.8 (Mountain Lion) for python

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With Mac OSX 10.8 (Mountain Lion), Apple is moving their laptops deeper into the Apple AppStore ecosystem. This means that unlike previous versions you have to perform quite a bit more extra configuration in order to run OSU's python-based programs for the LBT like modsView, luciView, and the MODS Basic 2D reduction scripts (these steps are also generally useful if you want to run other custom astronomy programs, and it is gets your system ready to install IRAF and pyRAF, but we won't be doing that here).

IMPORTANT – READ THIS FIRST!

Please read these instructions completely from start to finish before beginning. If none of the steps below make sense to you, or you are not comfortable loading system utilities on your Mac, stop now and seek help from a Mac expert. We are not responsible if you do things incorrectly and turn your Mac into a brick.

Prerequisites:

Make sure your Mountain Lion is up to date with all patches applied.

Download and install Xcode from the App Store (it is free).

Make sure your default path isn't too heavily hacked. If you've already installed a lot of ad hoc code, you could have more than a little difficulty with what follows. You might want to sudo -s as root in a new (pristine) account if yours is heavily hacked.

Step 1: Install the Xcode command-line tools

Launch Xcode

From the menu, select Xcode ... Preferences...

In the Preferences dialog, select "Downloads", then the "Components" tab, and from the list click on "Command Line Tools" to highlight and press the Install button. (If already listed as "Installed" instead of a button, you're good to go.

Quit Xcode

Step 2: Install pip

Open a terminal shell

Type "`sudo -s`" to get the root shell (type your password to get the shell).

type "`easy_install pip`"

Step 3: Install gfortran

Open a web browser (e.g., Safari or Firefox)

Go to hpc.sourceforge.net, and download **gfortran-mlion.tar.gz**, using the recent stable version (as of 2012 Dec, that was version 4.7.1)

Follow the instructions for installing gfortran, it should end up in /usr/local.

BEWARE: Mountain Lion does not like to have g77 installed. You really should use only gfortran. Uninstall g77 if you have it from an earlier setup.

Step 4: Install python modules

Each step here can be quick or take many minutes, sometime printing very little, sometimes a lot. The ones that print a lot to the terminal will come with warnings that generally should be ignored.

```
pip install --upgrade numpy
```

```
pip install -e git+https://github.com/scipy/scipy#egg=scipy-dev
```

... you'll see a lot of warnings, just let them spool on the screen, this step takes a while...

```
pip install --upgrade pyfits
```

```
pip install --upgrade matplotlib
```

Step 5: Install XQuartz (a Mac version of the X.Org X Window System)

Open a web browser

Go to xquartz.macosforge.org

Download the latest XQuartz .dmg file (in Dec 2012 this was XQuartz-2.7.4.dmg)

Open a Finder Window and go to your Downloads folder

Double click on the XQuartz-x.y.z.dmg file

When the XQuartz window opens, double click on the XQuartz.pkg file to start the installation (follows the usual procedures for package install)

Clean up after the installation in the usual way.

Step 6: Install pyds9, ds9, and the xpa utilities

pyds9 is not yet distributed via pip, so you have to do this one by hand. Similarly ds9 and xpa don't have .dmg or other convenient installation methods, so you have to download binaries directly.

Open a web browser

Go to hea-www.harvard.edu/RD/ds9/site/Home.html

Download the following:

ds9

xpa (the version for MacOSX 10.7 is compatible)

pyds9

Go to your Downloads folder and move the binaries for ds9 and xpa into /usr/local/bin

```
tar xvpf ds9.darwinmountainlion.7.1.tar  -- (e.g., for ds9 v7.1)
cp ds9 /usr/local/bin
cp ds9.zip /usr/local/bin
tar xvpf xpa.darwinlion.2.1.14.tar  -- (e.g., for xpa v2.1.14)
cp xpaaccess /usr/local/bin
```

... and so on for all of the xpa programs (6 in all)

```
tar xvpf pyds9-1.2.tar  -- (e.g., for pyds9 v1.2)
cd pyds9-1.2
python setup.py install
```

Step 7: Clean up and Quick Verification Tests

Cleanup after you are done with the installations.

A quick test of ds9 and xpa. Do these from a non-root user account.

`ds9` -- launch the program and make sure it runs (and XQuartz launches automatically)

```
xpaset -p ds9 width 800
```

`xpaset -p ds9 height 800` -- make sure it resizes the window

Test python modules:

```
python
>>> import ds9
>>> print ds9.__version__
>>> import pyfits
>>> print pyfits.__version__
>>> import numpy
>>> print numpy.__version__
>>> import scipy
>>> print scipy.__version__
>>> import matplotlib
>>> print matplotlib.__version__
```

All of the new modules should import without errors, and report the correct version info.

You are now ready to download and install the OSU LBT instrument python programs.