

Building Python

- [Anaconda2-4.2.0](#)
- [2.7.12](#)
- [2.7.11](#) (never officially released)
- [2.7.10](#)
 - [redhat7](#)
 - [Pmw 1.3.3](#)
- [2.7.8](#)
- [2.7.6-gl2](#)
 - [redhat6-x86_64bit-gcc44](#)
 - [pip](#) (also installs [setuptools](#))
 - [nose 1.3.7](#)
 - [numpy 1.8.1](#)
 - [PyFITS - 3.3](#)
 - [matplotlib 1.4.3](#)
 - [pywcs-1.12](#)
 - [astropy-1.0.4](#)
 - [APLpy-0.9.11](#) (requires [astropy](#))
 - [4Suite XML - 1.0.2](#)
 - [SciPy - 0.14.0](#)
 - [pywcsgrid2-0.1b2](#)
 - [PyYAML 3.11](#)
 - [healpy 1.8.6](#)
 - [virtualenv-13.1.2](#)
 - [Pmw 1.3.3](#)
 - [iPython - 4.0.0](#)
- [2.7.6-gl1](#)
 - [redhat6-x86_64bit-gcc44](#)
 - [pip](#) (also installs [setuptools](#))
 - [nose 1.3.2](#)
 - [numpy 1.8.1](#)
 - [PyFITS - 3.2.2](#)
 - [matplotlib 1.3.1](#)
 - [pywcs-1.12](#)
 - [astropy-0.3.1](#)
 - [APLpy-0.9.11](#) (requires [astropy](#))
 - [4Suite XML - 1.0.2](#)
 - [SciPy - 0.14.0](#)
 - [pywcsgrid2-0.1b2](#)
 - [PyYAML 3.11](#)
 - [healpy 1.7.4](#)
 - [virtualenv-1.11.5](#)
 - [Pmw 1.3.3](#)
 - [iPython - 2.0.0](#)
- [2.7.6](#)
 - [redhat5-i686-32bit-gcc41 & redhat5-x86_64-64bit-gcc41 & redhat6-x86_64bit-gcc44](#)
 - [pip](#) (also installs [setuptools](#))
 - [nose 1.3.2](#)
 - [numpy 1.8.1](#)
 - [PyFITS - 3.2.2](#)
 - [matplotlib 1.3.1](#)
 - [pywcs-1.12](#)
 - [astropy-0.3.1](#)
 - [APLpy-0.9.11](#) (requires [astropy](#))
 - [4Suite XML - 1.0.2](#)
 - [SciPy - 0.14.0](#)
 - Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try `ldd /usr/lib/libblas.so`). See SciPy's [INSTALL.txt](#) file for more information.
 - [pywcsgrid2-0.1b2](#)
 - [PyYAML 3.11](#)
 - [healpy 1.7.4](#)
 - [virtualenv-1.11.5](#)
 - [iPython - 2.0.0](#)
- [2.7.2-gl4](#)
 - [redhat6-x86_64-64bit-gcc44](#)
 - [distribute 0.6.21](#) for use with [pip](#)
 - [pip](#)
 - [nose 1.2.1](#)
 - [NumPy - 1.6.1](#)
 - [PyFITS - 3.1](#)
 - [matplotlib 1.1.1](#)
 - [pywcs-1.11-4.8.2](#)
 - [APLpy-0.9.8](#)
 - [4Suite XML - 1.0.2](#)
 - [SciPy - 0.10.1](#)
 - [pywcsgrid2](#)

- PyYAML 3.1.0
 - iPython - 0.13
- 2.7.2-gl3
 - redhat6-x86_64-64bit-gcc44
 - distribute 0.6.16 for use with pip
 - pip
 - nose 1.2.1
 - NumPy - 1.6.1
 - PyFITS - 3.1
 - matplotlib 1.1.1
 - pywcs-1.11-4.8.2
 - APLpy-0.9.8
 - 4Suite XML - 1.0.2
 - SciPy - 0.10.1
 - pywcsgrid2
 - PyYAML 3.1.0
 - iPython - 0.13
- 2.7.2 = 2.7.2-gl1 = 2.7.2-gl2
 - redhat6-x86_64-64bit-gcc44
 - distribute 0.6.16 for use with pip
 - pip
 - NumPy - 1.6.1
 - PyFITS - 3.1
 - matplotlib 1.1.0
 - pywcs-1.11-4.8.2
 - APLpy-0.9.8
 - 4Suite XML - 1.0.2
 - SciPy - 0.10.1
 - pywcsgrid2
 - sympy 0.7.2
 - iPython - 0.13
- 2.7.1
 - redhat4-i686-32bit-gcc34
 - redhat4-x86_64-64bit-gcc34
 - redhat5-i686-32bit-gcc41
 - redhat5-x86_64-64bit-gcc41
 - snowleopard-gcc42
 - Additional Python Modules
 - distribute 0.6.16 for use with pip
 - pip 1.0.1
 - nose 1.0.0
 - NumPy - 1.5.1
 - PyFITS - 2.4.0
 - matplotlib 1.0.0
 - pywcs-1.10-4.7
 - APLpy-0.9.5
 - 4Suite XML - 1.0.2
 - SciPy - 0.9.0
 - iPython - 0.10.2
 - pywcsgrid2
- 2.5.1
 - tiger-i386-32bit
 - Additional Python Modules
 - NumPy - 1.2.0
 - PyFITS - 1.3
 - 4Suite XML - 1.0.2
- 2.5.1-gl4
 - tiger-i386-32bit-gcc40
 - Additional Python Modules
 - NumPy - 1.2.0
 - PyFITS - 2.1.1
 - 4Suite XML - 1.0.2
 - iPython - 0.10
 - redhat5-i686-64bit-gcc41
- 2.5.1-gl5
 - redhat4-i686-32bit-gcc34
 - Additional Python Modules
 - NumPy - 1.4.0
 - PyFITS - 2.1.1
 - matplotlib 0.99
 - pywcs-1.7-4.4.4
 - APLpy-0.9.4
 - 4Suite XML - 1.0.2
 - iPython - 0.10
- 2.6.5
 - redhat4-i686-32bit-gcc34
 - Windows-vc90
 - Additional Python Modules
 - NumPy - 1.4.0

- [PyFITS - 2.1.1](#)
- [matplotlib 0.99](#)
- [pywcs-1.7-4.4.4](#)
- [APLpy-0.9.4](#)
- [4Suite XML - 1.0.2](#)
- [iPython - 0.10](#)

Anaconda2-4.2.0

```
installing: python-2.7.12-1 ...
installing: _license-1.1-py27_1 ...
installing: _nb_ext_conf-0.3.0-py27_0 ...
installing: alabaster-0.7.9-py27_0 ...
installing: anaconda-clean-1.0.0-py27_0 ...
installing: anaconda-client-1.5.1-py27_0 ...
installing: anaconda-navigator-1.3.1-py27_0 ...
installing: argcomplete-1.0.0-py27_1 ...
installing: astroid-1.4.7-py27_0 ...
installing: astropy-1.2.1-np111py27_0 ...
installing: babel-2.3.4-py27_0 ...
installing: backports-1.0-py27_0 ...
installing: backports_abc-0.4-py27_0 ...
installing: beautifulsoup4-4.5.1-py27_0 ...
installing: bitarray-0.8.1-py27_0 ...
installing: blaze-0.10.1-py27_0 ...
installing: bokeh-0.12.2-py27_0 ...
installing: boto-2.42.0-py27_0 ...
installing: bottleneck-1.1.0-np111py27_0 ...
installing: cairo-1.12.18-6 ...
installing: cdecimal-2.3-py27_2 ...
installing: cffi-1.7.0-py27_0 ...
installing: chest-0.2.3-py27_0 ...
installing: click-6.6-py27_0 ...
installing: cloudpickle-0.2.1-py27_0 ...
installing: clyent-1.2.2-py27_0 ...
installing: colorama-0.3.7-py27_0 ...
installing: configobj-5.0.6-py27_0 ...
installing: configparser-3.5.0-py27_0 ...
installing: contextlib2-0.5.3-py27_0 ...
installing: cryptography-1.5-py27_0 ...
installing: curl-7.49.0-1 ...
installing: cycler-0.10.0-py27_0 ...
installing: cython-0.24.1-py27_0 ...
installing: cytoolz-0.8.0-py27_0 ...
installing: dask-0.11.0-py27_0 ...
installing: datashape-0.5.2-py27_0 ...
installing: dbus-1.10.10-0 ...
installing: decorator-4.0.10-py27_0 ...
installing: dill-0.2.5-py27_0 ...
installing: docutils-0.12-py27_2 ...
installing: dynd-python-0.7.2-py27_0 ...
installing: entrypoints-0.2.2-py27_0 ...
installing: enum34-1.1.6-py27_0 ...
installing: et_xmlfile-1.0.1-py27_0 ...
installing: expat-2.1.0-0 ...
installing: fastcache-1.0.2-py27_1 ...
installing: filelock-2.0.6-py27_0 ...
installing: flask-0.11.1-py27_0 ...
installing: flask-cors-2.1.2-py27_0 ...
installing: fontconfig-2.11.1-6 ...
installing: freetype-2.5.5-1 ...
installing: funcsigns-1.0.2-py27_0 ...
installing: functools32-3.2.3.2-py27_0 ...
installing: futures-3.0.5-py27_0 ...
installing: get_terminal_size-1.0.0-py27_0 ...
installing: gevent-1.1.2-py27_0 ...
installing: glib-2.43.0-1 ...
installing: greenlet-0.4.10-py27_0 ...
installing: grin-1.2.1-py27_3 ...
```

installing: gst-plugins-base-1.8.0-0 ...
installing: gstreamer-1.8.0-0 ...
installing: h5py-2.6.0-np111py27_2 ...
installing: harfbuzz-0.9.39-1 ...
installing: hdf5-1.8.17-1 ...
installing: heapdict-1.0.0-py27_1 ...
installing: icu-54.1-0 ...
installing: idna-2.1-py27_0 ...
installing: imagesize-0.7.1-py27_0 ...
installing: ipaddress-1.0.16-py27_0 ...
installing: ipykernel-4.5.0-py27_0 ...
installing: ipython-5.1.0-py27_0 ...
installing: ipython_genutils-0.1.0-py27_0 ...
installing: ipywidgets-5.2.2-py27_0 ...
installing: itsdangerous-0.24-py27_0 ...
installing: jbig-2.1-0 ...
installing: jdcalf-1.2-py27_1 ...
installing: jedi-0.9.0-py27_1 ...
installing: jinja2-2.8-py27_1 ...
installing: jpeg-8d-2 ...
installing: jsonschema-2.5.1-py27_0 ...
installing: jupyter-1.0.0-py27_3 ...
installing: jupyter_client-4.4.0-py27_0 ...
installing: jupyter_console-5.0.0-py27_0 ...
installing: jupyter_core-4.2.0-py27_0 ...
installing: lazy-object-proxy-1.2.1-py27_0 ...
installing: libdynd-0.7.2-0 ...
installing: libffi-3.2.1-0 ...
installing: libgcc-4.8.5-2 ...
installing: libgfortran-3.0.0-1 ...
installing: libpng-1.6.22-0 ...
installing: libsodium-1.0.10-0 ...
installing: libtiff-4.0.6-2 ...
installing: libxcb-1.12-0 ...
installing: libxml2-2.9.2-0 ...
installing: libxslt-1.1.28-0 ...
installing: llvmlite-0.13.0-py27_0 ...
installing: locket-0.2.0-py27_1 ...
installing: lxml-3.6.4-py27_0 ...
installing: markupsafe-0.23-py27_2 ...
installing: matplotlib-1.5.3-np111py27_0 ...
installing: mistune-0.7.3-py27_0 ...
installing: mkl-11.3.3-0 ...
installing: mkl-service-1.1.2-py27_2 ...
installing: mpmath-0.19-py27_1 ...
installing: multipledispatch-0.4.8-py27_0 ...
installing: nb_anacondacloud-1.2.0-py27_0 ...
installing: nb_conda-2.0.0-py27_0 ...
installing: nb_conda_kernels-2.0.0-py27_0 ...
installing: nbconvert-4.2.0-py27_0 ...
installing: nbformat-4.1.0-py27_0 ...
installing: nbpresent-3.0.2-py27_0 ...
installing: networkx-1.11-py27_0 ...
installing: nltk-3.2.1-py27_0 ...
installing: nose-1.3.7-py27_1 ...
installing: notebook-4.2.3-py27_0 ...
installing: numba-0.28.1-np111py27_0 ...
installing: numexpr-2.6.1-np111py27_0 ...
installing: numpy-1.11.1-py27_0 ...
installing: odo-0.5.0-py27_1 ...
installing: openpyxl-2.3.2-py27_0 ...
installing: openssl-1.0.2j-0 ...
installing: pandas-0.18.1-np111py27_0 ...
installing: partd-0.3.6-py27_0 ...
installing: patchelf-0.9-0 ...
installing: path.py-8.2.1-py27_0 ...
installing: pathlib2-2.1.0-py27_0 ...
installing: patsy-0.4.1-py27_0 ...
installing: pep8-1.7.0-py27_0 ...
installing: pexpect-4.0.1-py27_0 ...
installing: pickleshare-0.7.4-py27_0 ...

```
installing: pillow-3.3.1-py27_0 ...
installing: pip-8.1.2-py27_0 ...
installing: pixman-0.32.6-0 ...
installing: pkginfo-1.3.2-py27_0 ...
installing: ply-3.9-py27_0 ...
installing: prompt_toolkit-1.0.3-py27_0 ...
installing: psutil-4.3.1-py27_0 ...
installing: ptyprocess-0.5.1-py27_0 ...
installing: py-1.4.31-py27_0 ...
installing: pyasn1-0.1.9-py27_0 ...
installing: pycairo-1.10.0-py27_0 ...
installing: pycosat-0.6.1-py27_1 ...
installing: pycparser-2.14-py27_1 ...
installing: pycrypto-2.6.1-py27_4 ...
installing: pycurl-7.43.0-py27_0 ...
installing: pyflakes-1.3.0-py27_0 ...
installing: pygments-2.1.3-py27_0 ...
installing: pylint-1.5.4-py27_1 ...
installing: pyopenssl-16.0.0-py27_0 ...
installing: pyparsing-2.1.4-py27_0 ...
installing: pyqt-5.6.0-py27_0 ...
installing: pytables-3.2.3.1-np111py27_0 ...
installing: pytest-2.9.2-py27_0 ...
installing: python-dateutil-2.5.3-py27_0 ...
installing: pytz-2016.6.1-py27_0 ...
installing: pyyaml-3.12-py27_0 ...
installing: pyzmq-15.4.0-py27_0 ...
installing: qt-5.6.0-0 ...
installing: qtawesome-0.3.3-py27_0 ...
installing: qtconsole-4.2.1-py27_1 ...
installing: qtpy-1.1.2-py27_0 ...
installing: readline-6.2-2 ...
installing: redis-3.2.0-0 ...
installing: redis-py-2.10.5-py27_0 ...
installing: requests-2.11.1-py27_0 ...
installing: rope-0.9.4-py27_1 ...
installing: scikit-image-0.12.3-np111py27_1 ...
installing: scikit-learn-0.17.1-np111py27_2 ...
installing: scipy-0.18.1-np111py27_0 ...
installing: setuptools-27.2.0-py27_0 ...
installing: simplegeneric-0.8.1-py27_1 ...
installing: singledispatch-3.4.0.3-py27_0 ...
installing: sip-4.18-py27_0 ...
installing: six-1.10.0-py27_0 ...
installing: snowballstemmer-1.2.1-py27_0 ...
installing: sockjs-tornado-1.0.3-py27_0 ...
installing: sphinx-1.4.6-py27_0 ...
installing: spyder-3.0.0-py27_0 ...
installing: sqlalchemy-1.0.13-py27_0 ...
installing: sqlite-3.13.0-0 ...
installing: ssl_match_hostname-3.4.0.2-py27_1 ...
installing: statsmodels-0.6.1-np111py27_1 ...
installing: sympy-1.0-py27_0 ...
installing: terminado-0.6-py27_0 ...
installing: tk-8.5.18-0 ...
installing: toolz-0.8.0-py27_0 ...
installing: tornado-4.4.1-py27_0 ...
installing: traitlets-4.3.0-py27_0 ...
installing: unicodcsv-0.14.1-py27_0 ...
installing: wcwidth-0.1.7-py27_0 ...
installing: werkzeug-0.11.11-py27_0 ...
installing: wheel-0.29.0-py27_0 ...
installing: widgetsnbextension-1.2.6-py27_0 ...
installing: wrapt-1.10.6-py27_0 ...
installing: xlrd-1.0.0-py27_0 ...
installing: xlswriter-0.9.3-py27_0 ...
installing: xlwt-1.1.2-py27_0 ...
installing: xz-5.2.2-0 ...
installing: yaml-0.1.6-0 ...
installing: zeromq-4.1.4-0 ...
installing: zlib-1.2.8-3 ...
```

```
installing: anaconda-4.2.0-np11py27_0 ...
installing: ruamel_yaml-0.11.14-py27_0 ...
installing: conda-4.2.9-py27_0 ...
installing: conda-build-2.0.2-py27_0 ...
Python 2.7.12 :: Continuum Analytics, Inc.
creating default environment...
```

1. pip install pyfits (3.4)
 2. pip install pywcs (1.12)
 3. pip install APLpy (1.1.1) which requires astropy
 4. ~~4Suite XML 1.0.2, using the tarball available and then run: python setup.py install~~
skipped since 4Suite-XML would not install
 5. pywcsgrid2-0.1b2 tarball should be within our GLAST_EXT area
extract
- cd
- python setup.py install
6. conda install -c conda-forge healpy (1.9.1-np11py27_0)
 7. pmw
 8. wcsaxes (0.6-py27_0) <http://wcsaxes.readthedocs.org/en/latest/installation.html>
conda install -c openastronomy wcsaxes

2.7.12

Started with Anaconda2-4.0.0.sh, which install python 2.7.11, however installing healpy via conda results in an upgrade to python 2.7.12

2.7.11 (never officially released)

Anaconda Python (python 2.7.11)

```
[/u/gl/heather/anaconda2] >>> /afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python
/2.7.11
PREFIX=/afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python/2.7.11
installing: _cache-0.0-py27_x0 ...
installing: python-2.7.11-0 ...
installing: alabaster-0.7.7-py27_0 ...
installing: anaconda-client-1.4.0-py27_0 ...
installing: anaconda-navigator-1.1.0-py27_0 ...
installing: argcomplete-1.0.0-py27_1 ...
installing: astropy-1.1.2-np110py27_0 ...
installing: babel-2.2.0-py27_0 ...
installing: backports_abc-0.4-py27_0 ...
installing: beautifulsoup4-4.4.1-py27_0 ...
installing: bitarray-0.8.1-py27_0 ...
installing: blaze-0.9.1-py27_0 ...
installing: bokeh-0.11.1-py27_0 ...
installing: boto-2.39.0-py27_0 ...
installing: bottleneck-1.0.0-np110py27_0 ...
installing: cairo-1.12.18-6 ...
installing: cdecimal-2.3-py27_0 ...
installing: cffi-1.5.2-py27_0 ...
installing: chest-0.2.3-py27_0 ...
installing: cloudpickle-0.1.1-py27_0 ...
installing: clyent-1.2.1-py27_0 ...
installing: colorama-0.3.7-py27_0 ...
installing: conda-manager-0.3.1-py27_0 ...
installing: configobj-5.0.6-py27_0 ...
installing: cryptography-1.3-py27_0 ...
installing: curl-7.45.0-0 ...
installing: cyclo-0.10.0-py27_0 ...
installing: cython-0.23.4-py27_0 ...
installing: cytoolz-0.7.5-py27_0 ...
installing: dask-0.8.1-py27_0 ...
installing: datashape-0.5.1-py27_0 ...
installing: decorator-4.0.9-py27_0 ...
installing: dill-0.2.4-py27_0 ...
installing: docutils-0.12-py27_0 ...
```

```
installing: dynd-python-0.7.2-py27_0 ...
installing: enum34-1.1.2-py27_0 ...
installing: et_xmlfile-1.0.1-py27_0 ...
installing: fastcache-1.0.2-py27_0 ...
installing: flask-0.10.1-py27_1 ...
installing: flask-cors-2.1.2-py27_0 ...
installing: fontconfig-2.11.1-5 ...
installing: freetype-2.5.5-0 ...
installing: funcsigs-0.4-py27_0 ...
installing: futures-3.0.3-py27_0 ...
installing: gevent-1.1.0-py27_0 ...
installing: greenlet-0.4.9-py27_0 ...
installing: grin-1.2.1-py27_1 ...
installing: h5py-2.5.0-np110py27_4 ...
installing: hdf5-1.8.15.1-2 ...
installing: heapdict-1.0.0-py27_0 ...
installing: idna-2.0-py27_0 ...
installing: ipaddress-1.0.14-py27_0 ...
installing: ipykernel-4.3.1-py27_0 ...
installing: ipython-4.1.2-py27_1 ...
installing: ipython_genutils-0.1.0-py27_0 ...
installing: ipywidgets-4.1.1-py27_0 ...
installing: itsdangerous-0.24-py27_0 ...
installing: jbig-2.1-0 ...
installing: jdcalf-1.2-py27_0 ...
installing: jedi-0.9.0-py27_0 ...
installing: jinja2-2.8-py27_0 ...
installing: jpeg-8d-0 ...
installing: jsonschema-2.4.0-py27_0 ...
installing: jupyter-1.0.0-py27_2 ...
installing: jupyter_client-4.2.2-py27_0 ...
installing: jupyter_console-4.1.1-py27_0 ...
installing: jupyter_core-4.1.0-py27_0 ...
installing: libdynd-0.7.2-0 ...
installing: libffi-3.0.13-0 ...
installing: libgfortran-3.0-0 ...
installing: libpng-1.6.17-0 ...
installing: libsodium-1.0.3-0 ...
installing: libtiff-4.0.6-1 ...
installing: libxml2-2.9.2-0 ...
installing: libxslt-1.1.28-0 ...
installing: llvmlite-0.9.0-py27_0 ...
installing: locketch-0.2.0-py27_0 ...
installing: lxml-3.6.0-py27_0 ...
installing: markupsafe-0.23-py27_0 ...
installing: matplotlib-1.5.1-np110py27_0 ...
installing: mistune-0.7.2-py27_0 ...
installing: mkl-11.3.1-0 ...
installing: mkl-service-1.1.2-py27_0 ...
installing: mpmath-0.19-py27_0 ...
installing: multipledispatch-0.4.8-py27_0 ...
installing: nbconvert-4.1.0-py27_0 ...
installing: nbformat-4.0.1-py27_0 ...
installing: networkx-1.11-py27_0 ...
installing: nltk-3.2-py27_0 ...
installing: nose-1.3.7-py27_0 ...
installing: notebook-4.1.0-py27_1 ...
installing: numba-0.24.0-np110py27_0 ...
installing: numexpr-2.5-np110py27_0 ...
installing: numpy-1.10.4-py27_1 ...
installing: odo-0.4.2-py27_0 ...
installing: openpyxl-2.3.2-py27_0 ...
installing: openssl-1.0.2g-0 ...
installing: pandas-0.18.0-np110py27_0 ...
installing: partd-0.3.2-py27_1 ...
installing: patchelf-0.8-0 ...
installing: path.py-8.1.2-py27_1 ...
installing: patsy-0.4.0-np110py27_0 ...
installing: pep8-1.7.0-py27_0 ...
installing: pexpect-4.0.1-py27_0 ...
installing: pickleshare-0.5-py27_0 ...
```

installing: pillow-3.1.1-py27_0 ...
installing: pip-8.1.1-py27_1 ...
installing: pixman-0.32.6-0 ...
installing: ply-3.8-py27_0 ...
installing: psutil-4.1.0-py27_0 ...
installing: ptyprocess-0.5-py27_0 ...
installing: py-1.4.31-py27_0 ...
installing: pyasn1-0.1.9-py27_0 ...
installing: pycairo-1.10.0-py27_0 ...
installing: pycosat-0.6.1-py27_0 ...
installing: pycparser-2.14-py27_0 ...
installing: pycrypto-2.6.1-py27_0 ...
installing: pycurl-7.19.5.3-py27_0 ...
installing: pyflakes-1.1.0-py27_0 ...
installing: pygments-2.1.1-py27_0 ...
installing: pyopenssl-0.15.1-py27_2 ...
installing: pyparsing-2.0.3-py27_0 ...
installing: pyqt-4.11.4-py27_1 ...
installing: pytables-3.2.2-np110py27_1 ...
installing: pytest-2.8.5-py27_0 ...
installing: python-dateutil-2.5.1-py27_0 ...
installing: pytz-2016.2-py27_0 ...
installing: pyyaml-3.11-py27_1 ...
installing: pyzmq-15.2.0-py27_0 ...
installing: qt-4.8.7-1 ...
installing: qtawesome-0.3.2-py27_0 ...
installing: qtconsole-4.2.0-py27_0 ...
installing: qtpy-1.0-py27_0 ...
installing: readline-6.2-2 ...
installing: redis-2.6.9-0 ...
installing: redis-py-2.10.3-py27_0 ...
installing: requests-2.9.1-py27_0 ...
installing: rope-0.9.4-py27_1 ...
installing: scikit-image-0.12.3-np110py27_0 ...
installing: scikit-learn-0.17.1-np110py27_0 ...
installing: scipy-0.17.0-np110py27_2 ...
installing: setuptools-20.3-py27_0 ...
installing: simplegeneric-0.8.1-py27_0 ...
installing: singledispatch-3.4.0.3-py27_0 ...
installing: sip-4.16.9-py27_0 ...
installing: six-1.10.0-py27_0 ...
installing: snowballstemmer-1.2.1-py27_0 ...
installing: sockjs-tornado-1.0.1-py27_0 ...
installing: sphinx-1.3.5-py27_0 ...
installing: sphinx_rtd_theme-0.1.9-py27_0 ...
installing: spyder-2.3.8-py27_1 ...
installing: sqlalchemy-1.0.12-py27_0 ...
installing: sqlite-3.9.2-0 ...
installing: ssl_match_hostname-3.4.0.2-py27_0 ...
installing: statsmodels-0.6.1-np110py27_0 ...
installing: sympy-1.0-py27_0 ...
installing: terminado-0.5-py27_1 ...
installing: tk-8.5.18-0 ...
installing: toolz-0.7.4-py27_0 ...
installing: tornado-4.3-py27_0 ...
installing: traitlets-4.2.1-py27_0 ...
installing: unicodedcsv-0.14.1-py27_0 ...
installing: util-linux-2.21-0 ...
installing: werkzeug-0.11.4-py27_0 ...
installing: wheel-0.29.0-py27_0 ...
installing: xlrd-0.9.4-py27_0 ...
installing: xlswriter-0.8.4-py27_0 ...
installing: xlwt-1.0.0-py27_0 ...
installing: xz-5.0.5-1 ...
installing: yaml-0.1.6-0 ...
installing: zeromq-4.1.3-0 ...
installing: zlib-1.2.8-0 ...
installing: anaconda-4.0.0-np110py27_0 ...
installing: conda-4.0.5-py27_0 ...
installing: conda-build-1.20.0-py27_0 ...
installing: conda-env-2.4.5-py27_0 ...

```
Python 2.7.11 :: Continuum Analytics, Inc.  
creating default environment...  
installation finished.
```

1. pip install pyfits (3.4)
2. pip install pywcs (1.12)
3. pip install APLpy (1.0) which requires astropy
4. 4Suite-XML 1.0.2, using the tarball available and then run: python setup.py install
5. pywcsgrid2-0.1b2 tarball should be within our GLAST_EXT area
extract

cd

python setup.py install
6. conda install -c conda-forge healpy (1.9.1)
7. pmw
8. wcsaxes (0.6-py27_0) <http://wcsaxes.readthedocs.org/en/latest/installation.html>
conda install -c openastronomy wcsaxes

2.7.10

Trying Anaconda Python 2.3.0, which installs python 2.7.10

```
installing: python-2.7.10-0 ...  
installing: conda-3.14.1-py27_0 ...  
installing: conda-build-1.14.1-py27_0 ...  
installing: conda-env-2.2.3-py27_0 ...  
installing: _license-1.1-py27_0 ...  
installing: abstract-rendering-0.5.1-np19py27_0 ...  
installing: alabaster-0.7.3-py27_0 ...  
installing: argcomplete-0.8.9-py27_0 ...  
installing: astropy-1.0.3-np19py27_0 ...  
installing: babel-1.3-py27_0 ...  
installing: bcolz-0.9.0-np19py27_0 ...  
installing: beautiful-soup-4.3.2-py27_0 ...  
installing: binstar-0.11.0-py27_0 ...  
installing: bitarray-0.8.1-py27_0 ...  
installing: blaze-core-0.8.0-np19py27_0 ...  
installing: blz-0.6.2-np19py27_1 ...  
installing: bokeh-0.9.0-np19py27_0 ...  
installing: boto-2.38.0-py27_0 ...  
installing: bottleneck-1.0.0-np19py27_0 ...  
installing: cairo-1.12.18-4 ...  
installing: cdecimal-2.3-py27_0 ...  
installing: certifi-14.05.14-py27_0 ...  
installing: cffi-1.1.0-py27_0 ...  
installing: clyent-0.3.4-py27_0 ...  
installing: colorama-0.3.3-py27_0 ...  
installing: configobj-5.0.6-py27_0 ...  
installing: cryptography-0.9.1-py27_0 ...
```

installing: curl-7.43.0-0 ...

installing: cython-0.22.1-py27_0 ...

installing: cytoolz-0.7.3-py27_0 ...

installing: datashape-0.4.5-np19py27_0 ...

installing: decorator-3.4.2-py27_0 ...

installing: docutils-0.12-py27_0 ...

installing: dynd-python-0.6.5-np19py27_0 ...

installing: enum34-1.0.4-py27_0 ...

installing: fastcache-1.0.2-py27_0 ...

installing: flask-0.10.1-py27_1 ...

installing: fontconfig-2.11.1-4 ...

installing: freetype-2.5.2-2 ...

installing: funcsigs-0.4-py27_0 ...

installing: gevent-1.0.1-py27_0 ...

installing: gevent-websocket-0.9.3-py27_0 ...

installing: greenlet-0.4.7-py27_0 ...

installing: grin-1.2.1-py27_1 ...

installing: h5py-2.5.0-np19py27_3 ...

installing: hdf5-1.8.15.1-1 ...

installing: idna-2.0-py27_0 ...

installing: ipaddress-1.0.7-py27_0 ...

installing: ipython-3.2.0-py27_0 ...

installing: ipython-notebook-3.2.0-py27_0 ...

installing: ipython-qtconsole-3.2.0-py27_0 ...

installing: itsdangerous-0.24-py27_0 ...

installing: jdcals-1.0-py27_0 ...

installing: jedi-0.8.1-py27_0 ...

installing: jinja2-2.7.3-py27_1 ...

installing: jpeg-8d-0 ...

installing: jsonschema-2.4.0-py27_0 ...

installing: libdynd-0.6.5-0 ...

installing: libffi-3.0.13-0 ...

installing: libpng-1.6.17-0 ...

installing: libsodium-0.4.5-0 ...

installing: libtiff-4.0.2-1 ...

installing: libxml2-2.9.2-0 ...

installing: libxslt-1.1.28-0 ...

installing: llvmlite-0.5.0-py27_0 ...

installing: lxml-3.4.4-py27_0 ...

installing: markupsafe-0.23-py27_0 ...

installing: matplotlib-1.4.3-np19py27_2 ...
installing: mistune-0.5.1-py27_1 ...
installing: mock-1.0.1-py27_0 ...
installing: multipledispatch-0.4.7-py27_0 ...
installing: networkx-1.9.1-py27_0 ...
installing: nltk-3.0.3-np19py27_0 ...
installing: nose-1.3.7-py27_0 ...
installing: numba-0.19.1-np19py27_0 ...
installing: numexpr-2.4.3-np19py27_0 ...
installing: numpy-1.9.2-py27_0 ...
installing: odo-0.3.2-np19py27_0 ...
installing: openpyxl-1.8.5-py27_0 ...
installing: openssl-1.0.1k-1 ...
installing: pandas-0.16.2-np19py27_0 ...
installing: patsy-0.3.0-np19py27_0 ...
installing: pep8-1.6.2-py27_0 ...
installing: pillow-2.8.2-py27_0 ...
installing: pip-7.0.3-py27_0 ...
installing: pixman-0.26.2-0 ...
installing: ply-3.6-py27_0 ...
installing: psutil-2.2.1-py27_0 ...
installing: ptyprocess-0.4-py27_0 ...
installing: py-1.4.27-py27_0 ...
installing: py2cairo-1.10.0-py27_2 ...
installing: pyasn1-0.1.7-py27_0 ...
installing: pycosat-0.6.1-py27_0 ...
installing: pycparser-2.14-py27_0 ...
installing: pycrypto-2.6.1-py27_0 ...
installing: pycurl-7.19.5.1-py27_2 ...
installing: pyflakes-0.9.2-py27_0 ...
installing: pygments-2.0.2-py27_0 ...
installing: pyopenssl-0.15.1-py27_1 ...
installing: pyparsing-2.0.3-py27_0 ...
installing: pyqt-4.11.3-py27_1 ...
installing: pytables-3.2.0-np19py27_0 ...
installing: pytest-2.7.1-py27_0 ...
installing: python-dateutil-2.4.2-py27_0 ...
installing: pytz-2015.4-py27_0 ...
installing: pyyaml-3.11-py27_1 ...
installing: pyzmq-14.7.0-py27_0 ...

installing: qt-4.8.6-3 ...
installing: readline-6.2-2 ...
installing: redis-2.6.9-0 ...
installing: redis-py-2.10.3-py27_0 ...
installing: requests-2.7.0-py27_0 ...
installing: rope-0.9.4-py27_1 ...
installing: runipy-0.1.3-py27_0 ...
installing: scikit-image-0.11.3-np19py27_0 ...
installing: scikit-learn-0.16.1-np19py27_0 ...
installing: scipy-0.15.1-np19py27_0 ...
installing: setuptools-17.1.1-py27_0 ...
installing: sip-4.16.5-py27_0 ...
installing: six-1.9.0-py27_0 ...
installing: snowballstemmer-1.2.0-py27_0 ...
installing: sockjs-tornado-1.0.1-py27_0 ...
installing: sphinx-1.3.1-py27_0 ...
installing: sphinx_rtd_theme-0.1.7-py27_0 ...
installing: spyder-2.3.5.2-py27_0 ...
installing: spyder-app-2.3.5.2-py27_0 ...
installing: sqlalchemy-1.0.5-py27_0 ...
installing: sqlite-3.8.4.1-1 ...
installing: ssl_match_hostname-3.4.0.2-py27_0 ...
installing: statsmodels-0.6.1-np19py27_0 ...
installing: sympy-0.7.6-py27_0 ...
installing: system-5.8-2 ...
installing: terminado-0.5-py27_0 ...
installing: theano-0.7.0-np19py27_0 ...
installing: tk-8.5.18-0 ...
installing: toolz-0.7.2-py27_0 ...
installing: tornado-4.2-py27_0 ...
installing: ujson-1.33-py27_0 ...
installing: unicodedcsv-0.9.4-py27_0 ...
installing: util-linux-2.21-0 ...
installing: werkzeug-0.10.4-py27_0 ...
installing: xlrd-0.9.3-py27_0 ...
installing: xlswriter-0.7.3-py27_0 ...
installing: xlwt-1.0.0-py27_0 ...
installing: yaml-0.1.6-0 ...
installing: zeromq-4.0.5-0 ...
installing: zlib-1.2.8-0 ...

installing: anaconda-2.3.0-np19py27_0 ...

installing: _cache-0.0-x0 ...

Python 2.7.10 :: Continuum Analytics, Inc.

creating default environment...

linktype: copy

linking: _cache-0.0-x0

linking: _license-1.1-py27_0

linking: abstract-rendering-0.5.1-np19py27_0

linking: alabaster-0.7.3-py27_0

linking: anaconda-2.3.0-np19py27_0

linking: argcomplete-0.8.9-py27_0

linking: astropy-1.0.3-np19py27_0

linking: babel-1.3-py27_0

linking: bcolz-0.9.0-np19py27_0

linking: beautiful-soup-4.3.2-py27_0

linking: binstar-0.11.0-py27_0

linking: bitarray-0.8.1-py27_0

linking: blaze-core-0.8.0-np19py27_0

linking: blz-0.6.2-np19py27_1

linking: bokeh-0.9.0-np19py27_0

linking: boto-2.38.0-py27_0

linking: bottleneck-1.0.0-np19py27_0

linking: cairo-1.12.18-4

linking: cdecimal-2.3-py27_0

linking: certifi-14.05.14-py27_0

linking: cffi-1.1.0-py27_0

linking: clyent-0.3.4-py27_0

linking: colorama-0.3.3-py27_0

linking: conda-3.14.1-py27_0

linking: conda-build-1.14.1-py27_0

linking: conda-env-2.2.3-py27_0

linking: configobj-5.0.6-py27_0

linking: cryptography-0.9.1-py27_0

linking: curl-7.43.0-0

linking: cython-0.22.1-py27_0

linking: cytoolz-0.7.3-py27_0

linking: datashape-0.4.5-np19py27_0

linking: decorator-3.4.2-py27_0

linking: docutils-0.12-py27_0

linking: dynd-python-0.6.5-np19py27_0

linking: enum34-1.0.4-py27_0
linking: fastcache-1.0.2-py27_0
linking: flask-0.10.1-py27_1
linking: fontconfig-2.11.1-4
linking: freetype-2.5.2-2
linking: funcsigs-0.4-py27_0
linking: gevent-1.0.1-py27_0
linking: gevent-websocket-0.9.3-py27_0
linking: greenlet-0.4.7-py27_0
linking: grin-1.2.1-py27_1
linking: h5py-2.5.0-np19py27_3
linking: hdf5-1.8.15.1-1
linking: idna-2.0-py27_0
linking: ipaddress-1.0.7-py27_0
linking: ipython-3.2.0-py27_0
linking: ipython-notebook-3.2.0-py27_0
linking: ipython-qtconsole-3.2.0-py27_0
linking: itsdangerous-0.24-py27_0
linking: jdcalf-1.0-py27_0
linking: jedi-0.8.1-py27_0
linking: jinja2-2.7.3-py27_1
linking: jpeg-8d-0
linking: jsonschema-2.4.0-py27_0
linking: libdynd-0.6.5-0
linking: libffi-3.0.13-0
linking: libpng-1.6.17-0
linking: libsodium-0.4.5-0
linking: libtiff-4.0.2-1
linking: libxml2-2.9.2-0
linking: libxslt-1.1.28-0
linking: llvmlite-0.5.0-py27_0
linking: lxml-3.4.4-py27_0
linking: markupsafe-0.23-py27_0
linking: matplotlib-1.4.3-np19py27_2
linking: mistune-0.5.1-py27_1
linking: mock-1.0.1-py27_0
linking: multipledispatch-0.4.7-py27_0
linking: networkx-1.9.1-py27_0
linking: nltk-3.0.3-np19py27_0
linking: nose-1.3.7-py27_0

linking: numba-0.19.1-np19py27_0
linking: numexpr-2.4.3-np19py27_0
linking: numpy-1.9.2-py27_0
linking: odo-0.3.2-np19py27_0
linking: openpyxl-1.8.5-py27_0
linking: openssl-1.0.1k-1
linking: pandas-0.16.2-np19py27_0
linking: patsy-0.3.0-np19py27_0
linking: pep8-1.6.2-py27_0
linking: pillow-2.8.2-py27_0
linking: pip-7.0.3-py27_0
linking: pixman-0.26.2-0
linking: ply-3.6-py27_0
linking: psutil-2.2.1-py27_0
linking: ptyprocess-0.4-py27_0
linking: py-1.4.27-py27_0
linking: py2cairo-1.10.0-py27_2
linking: pyasn1-0.1.7-py27_0
linking: pycosat-0.6.1-py27_0
linking: pycparser-2.14-py27_0
linking: pycrypto-2.6.1-py27_0
linking: pycurl-7.19.5.1-py27_2
linking: pyflakes-0.9.2-py27_0
linking: pygments-2.0.2-py27_0
linking: pyopenssl-0.15.1-py27_1
linking: pyparsing-2.0.3-py27_0
linking: pyqt-4.11.3-py27_1
linking: pytables-3.2.0-np19py27_0
linking: pytest-2.7.1-py27_0
linking: python-2.7.10-0
linking: python-dateutil-2.4.2-py27_0
linking: pytz-2015.4-py27_0
linking: pyyaml-3.11-py27_1
linking: pyzmq-14.7.0-py27_0
linking: qt-4.8.6-3
linking: readline-6.2-2
linking: redis-2.6.9-0
linking: redis-py-2.10.3-py27_0
linking: requests-2.7.0-py27_0
linking: rope-0.9.4-py27_1

```
linking: runipy-0.1.3-py27_0
linking: scikit-image-0.11.3-np19py27_0
linking: scikit-learn-0.16.1-np19py27_0
linking: scipy-0.15.1-np19py27_0
linking: setuptools-17.1.1-py27_0
linking: sip-4.16.5-py27_0
linking: six-1.9.0-py27_0
linking: snowballstemmer-1.2.0-py27_0
linking: socks-tornado-1.0.1-py27_0
linking: sphinx-1.3.1-py27_0
linking: sphinx_rtd_theme-0.1.7-py27_0
linking: spyder-2.3.5.2-py27_0
linking: spyder-app-2.3.5.2-py27_0
linking: sqlalchemy-1.0.5-py27_0
linking: sqlite-3.8.4.1-1
linking: ssl_match_hostname-3.4.0.2-py27_0
linking: statsmodels-0.6.1-np19py27_0
linking: sympy-0.7.6-py27_0
linking: system-5.8-2
linking: terminado-0.5-py27_0
linking: theano-0.7.0-np19py27_0
linking: tk-8.5.18-0
linking: toolz-0.7.2-py27_0
linking: tornado-4.2-py27_0
linking: ujson-1.33-py27_0
linking: unicodcsv-0.9.4-py27_0
linking: util-linux-2.21-0
linking: werkzeug-0.10.4-py27_0
linking: xlrd-0.9.3-py27_0
linking: xlswriter-0.7.3-py27_0
linking: xlwt-1.0.0-py27_0
linking: yaml-0.1.6-0
linking: zeromq-4.0.5-0
linking: zlib-1.2.8-0
installation finished.
```

Still need to install pyfits, healpy, pmwcs

after Anaconda installation is finished, add bin directory to your PATH and then install additional packages needed for Fermi:

1. pip install pyfits (3.4)
2. pip install pywcs (1.12)
3. pip install APLpy (0.9.14) which requires astropy

4. 4Suite-XML 1.0.2, using the tarball available and then run: `python setup.py install`
5. `pywcsgrid2-0.1b2` tarball should be within our `GLAST_EXT` area
`extract`
- `cd`
- `python setup.py install`
6. `pip install healpy (1.8.4)`
7. `pmw`
8. `wcsaxes` <http://wcsaxes.readthedocs.org/en/latest/installation.html>
`pip install wcsaxes`
9. `jupyter`

redhat7

`pip install pyfits (3.4)`

`pip install pywcs (1.12)`

APLpy 0.9.14 from source via `python setup.py install`

conda update astropy after failing to install APLpy

The following packages will be UPDATED:

```

astropy:  1.0.3-np19py27_0 --> 1.1.2-np110py27_0 (soft-link)
conda:    3.14.1-py27_0    --> 4.0.5-py27_0    (soft-link)
conda-env: 2.2.3-py27_0    --> 2.4.5-py27_0    (soft-link)
numpy:    1.9.2-py27_0     --> 1.10.4-py27_1    (soft-link)
openssl:  1.0.1k-1        --> 1.0.2g-0         (soft-link)
pip:      7.0.3-py27_0     --> 8.1.1-py27_0     (soft-link)
python:   2.7.10-0         --> 2.7.11-0         (soft-link)
requests: 2.7.0-py27_0     --> 2.9.1-py27_0     (soft-link)
setuptools: 17.1.1-py27_0 --> 20.3-py27_0     (soft-link)
sqlite:   3.8.4.1-1       --> 3.9.2-0          (soft-link)

```

1. 4Suite-XML 1.0.2, using the tarball available and then run: `python setup.py install`
2. `pywcsgrid2-0.1b2` tarball should be within our `GLAST_EXT` area
`extract`
- `cd`
- `python setup.py install`
3. `pip install healpy (1.9.1)`
4. `pmw`

Pmw 1.3.3

Home page: <http://pmw.sourceforge.net/>

Note Pmw 2.0.0 is for Python 3.0 while the 1.3 series is meant for Python 2.x. The Pmw-2.0.0 tarball includes both versions and during the installation chooses the correct one to install based on the version of python.

- Download the source code from: <http://sourceforge.net/projects/pmw/files/>
- Unpack the tarball
- `python setup.py install`
- Test by running: `python All.py` in the `site-packages/Pmw/Pmw_1_3_3/tests` directory

2.7.8

Starting to try Anaconda Python distribution: `Anaconda-2.1.0-Linux-x86_64.sh`

```
[[u/gl/heather/anaconda] >>> /afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python/2.7.8
PREFIX=/afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python/2.7.8
installing: python-2.7.8-1 ...
installing: conda-3.7.0-py27_0 ...
installing: conda-build-1.8.2-py27_0 ...
installing: _license-1.1-py27_0 ...
installing: abstract-rendering-0.5.1-np19py27_0 ...
installing: argcomplete-0.8.1-py27_0 ...
installing: astropy-0.4.2-np19py27_0 ...
installing: atom-0.3.9-py27_0 ...
installing: beautiful-soup-4.3.2-py27_0 ...
installing: binstar-0.7.1-py27_0 ...
installing: bitarray-0.8.1-py27_0 ...
installing: blaze-0.6.3-np19py27_0 ...
installing: blz-0.6.2-np19py27_0 ...
installing: bokeh-0.6.1-np19py27_0 ...
installing: boto-2.32.1-py27_0 ...
installing: cairo-1.12.2-2 ...
installing: casuarius-1.1-py27_0 ...
installing: cdecimal-2.3-py27_0 ...
installing: cffi-0.8.6-py27_0 ...
installing: chaco-4.4.1-np19py27_0 ...
installing: colorama-0.3.1-py27_0 ...
installing: configobj-5.0.6-py27_0 ...
installing: cryptography-0.5.4-py27_0 ...
installing: curl-7.38.0-0 ...
installing: cython-0.21-py27_0 ...
installing: cytoolz-0.7.0-py27_0 ...
installing: datashape-0.3.0-np19py27_1 ...
installing: dateutil-2.1-py27_2 ...
installing: decorator-3.4.0-py27_0 ...
installing: docutils-0.12-py27_0 ...
installing: dynd-python-0.6.5-np19py27_0 ...
installing: enable-4.3.0-np19py27_2 ...
installing: enaml-0.9.8-py27_0 ...
installing: flask-0.10.1-py27_1 ...
installing: freetype-2.4.10-0 ...
installing: future-0.13.1-py27_0 ...
installing: futures-2.1.6-py27_0 ...
installing: gevent-1.0.1-py27_0 ...
installing: gevent-websocket-0.9.3-py27_0 ...
installing: greenlet-0.4.4-py27_0 ...
installing: grin-1.2.1-py27_1 ...
installing: h5py-2.3.1-np19py27_0 ...
installing: hdf5-1.8.13-0 ...
installing: ipython-2.2.0-py27_0 ...
installing: ipython-notebook-2.2.0-py27_0 ...
installing: ipython-qtconsole-2.2.0-py27_0 ...
installing: itsdangerous-0.24-py27_0 ...
installing: jdcals-1.0-py27_0 ...
installing: jinja2-2.7.3-py27_1 ...
installing: jpeg-8d-0 ...
installing: kiwisolver-0.1.3-py27_0 ...
installing: lcms-1.19-0 ...
installing: libdynd-0.6.5-0 ...
installing: libffi-3.0.13-0 ...
installing: libpng-1.5.13-1 ...
installing: libsodium-0.4.5-0 ...
installing: libtiff-4.0.2-1 ...
installing: libxml2-2.9.0-0 ...
installing: libxslt-1.1.28-0 ...
installing: llvm-3.3-0 ...
installing: llvmpy-0.12.7-py27_0 ...
installing: lxml-3.4.0-py27_0 ...
installing: markupsafe-0.23-py27_0 ...
installing: matplotlib-1.4.0-np19py27_0 ...
installing: mock-1.0.1-py27_0 ...
installing: mpi4py-1.3-py27_0 ...
installing: mpich2-1.4.1p1-0 ...
installing: multipledispatch-0.4.7-py27_0 ...
installing: networkx-1.9.1-py27_0 ...
installing: nltk-3.0.0-np19py27_0 ...
installing: nose-1.3.4-py27_0 ...
installing: numba-0.14.0-np19py27_0 ...
installing: numexpr-2.3.1-np19py27_0 ...
installing: numpy-1.9.0-py27_0 ...
installing: openpyxl-1.8.5-py27_0 ...
installing: openssl-1.0.1h-1 ...
installing: pandas-0.14.1-np19py27_0 ...
```

```

installing: patsy-0.3.0-np19py27_0 ...
installing: pep8-1.5.7-py27_0 ...
installing: pil-1.1.7-py27_1 ...
installing: pip-1.5.6-py27_0 ...
installing: pixman-0.26.2-0 ...
installing: ply-3.4-py27_0 ...
installing: psutil-2.1.1-py27_0 ...
installing: py-1.4.25-py27_0 ...
installing: py2cairo-1.10.0-py27_1 ...
installing: pycosat-0.6.1-py27_0 ...
installing: pycparser-2.10-py27_0 ...
installing: pycrypto-2.6.1-py27_0 ...
installing: pycurl-7.19.5-py27_1 ...
installing: pyface-4.4.0-py27_0 ...
installing: pyflakes-0.8.1-py27_0 ...
installing: pygments-1.6-py27_0 ...
installing: pyopenssl-0.14-py27_0 ...
installing: pyparsing-2.0.1-py27_0 ...
installing: pyqt-4.10.4-py27_0 ...
installing: pytables-3.1.1-np19py27_1 ...
installing: pytest-2.6.3-py27_0 ...
installing: pytz-2014.7-py27_0 ...
installing: pyyaml-3.11-py27_0 ...
installing: pyzmq-14.3.1-py27_0 ...
installing: qt-4.8.5-0 ...
installing: readline-6.2-2 ...
installing: redis-2.6.9-0 ...
installing: redis-py-2.9.1-py27_0 ...
installing: requests-2.4.1-py27_0 ...
installing: rope-0.9.4-py27_1 ...
installing: runipy-0.1.1-py27_0 ...
installing: scikit-image-0.10.1-np19py27_0 ...
installing: scikit-learn-0.15.2-np19py27_0 ...
installing: scipy-0.14.0-np19py27_0 ...
installing: setuptools-5.8-py27_0 ...
installing: sip-4.15.5-py27_0 ...
installing: six-1.8.0-py27_0 ...
installing: socks-tornado-1.0.1-py27_0 ...
installing: sphinx-1.2.3-py27_0 ...
installing: spyder-2.3.1-py27_0 ...
installing: spyder-app-2.3.1-py27_0 ...
installing: sqlalchemy-0.9.7-py27_0 ...
installing: sqlite-3.8.4.1-0 ...
installing: ssl_match_hostname-3.4.0.2-py27_0 ...
installing: statsmodels-0.5.0-np19py27_2 ...
installing: sympy-0.7.5-py27_0 ...
installing: system-5.8-1 ...
installing: theano-0.6.0-np19py27_0 ...
installing: tk-8.5.15-0 ...
installing: toolz-0.7.0-py27_0 ...
installing: tornado-4.0.2-py27_0 ...
installing: traits-4.4.0-py27_0 ...
installing: traitsui-4.4.0-py27_0 ...
installing: ujson-1.33-py27_0 ...
installing: unicodecsv-0.9.4-py27_0 ...
installing: util-linux-2.21-0 ...
installing: werkzeug-0.9.6-py27_1 ...
installing: xlrd-0.9.3-py27_0 ...
installing: xlswriter-0.5.7-py27_0 ...
installing: xlwt-0.7.5-py27_0 ...
installing: yaml-0.1.4-0 ...
installing: zeromq-4.0.4-0 ...
installing: zlib-1.2.7-0 ...
installing: anaconda-2.1.0-np19py27_0 ...
installing: _cache-0.0-x0 ...

```

after Anaconda installation is finished, add bin directory to your PATH and then install additional packages needed for Fermi:

1. pip install pyfits (3.3)
 2. pip install pywcs (1.12)
 3. pip install APLpy (0.9.14)
 4. 4Suite-XML 1.0.2, using the tarball available and then run: python setup.py install
 5. pywcsgid2-0.1b2 tarball should be within our GLAST_EXT area
extract
- ```

cd

python setup.py install

```
6. pip install healpy (1.8.4)

## 2.7.6-gl2

### redhat6-x86\_64bit-gcc44

1. Obtain python source from python.org
2. Ungzip/Untar source
3. Change directory to Python-2.7.6
4. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
5. Change directory to Python-2.7.2
6. edit setup.py, in detect\_modules() change the lines from:  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/local/include')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/local/lib')  
to:  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/local/include')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/local/lib')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/lib')  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/include')
7. setenv LDFLAGS -fPIC; setenv CPPFLAGS -fPIC; setenv CFLAGS -m64 -fPIC need to force 64 bit build even on rhel6-64
8. Execute ./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat5-i386-32bit-gcc41/python/2.7.6
9. Execute make
10. Execute make install
11. Leave and erase the current directory (Python-2.7.6)
12. Make sure to unset the env variables set up above

### pip (also installs setuptools)

1. curl -O <https://bootstrap.pypa.io/get-pip.py>
2. python get-pip.py

### nose 1.3.7

unit test framework necessary for running numpy and scipy unit tests

1. pip install nose

### numpy 1.8.1

Still installing by hand to include --fcompiler flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy INSTALL.txt file.

1. Download numpy-1.8.1.tar.gz
2. Extract numpy-1.8.1.tar.gz
3. Change directory to numpy-1.8.1
4. python setup.py build --fcompiler=gnu95 (for gfortran.)  
It seems the rhel4s have blas and lapack linked against g77, while rhel5 & rhel6 use gfortran
5. python setup.py install
6. Run the test routine by starting up python and doing:  
import numpy  
numpy.test()
7. Leave and erase the current directory (numpy-1.8.1)

### PyFITS - 3.3

pip install pyfits

### matplotlib 1.4.3

pip install matplotlib

which also installed tornado, python-dateutil, pyparsing, six, and backport.ssl-match-hostname

### pywcs-1.12

pip install pywcsS

### **astropy-1.0.4**

pip install astropy

### **APLpy-0.9.11 (requires astropy)**

pip install APLpy

### **4Suite XML - 1.0.2**

The 4Suite-XML web site no longer works via easy\_install. Installing by hand  
python setup.py install

### **SciPy - 0.14.0**

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try ldd /usr/lib/libblas.so). See SciPy's INSTALL.txt file for more information.

Download scipy-0.14.1.tar.gz from <http://www.scipy.org/>  
Extract scipy-0.14.0.tar.gz  
Change directory to scipy-0.14.0  
Execute python setup.py config\_fc --fcompiler=gnu95 install  
Leave and erase scipy-0.14.0  
Test by starting up python and doing:  
import scipy  
scipy.test() (NOTE this segfaulted on rhel5-32.. hoping that's not a big deal)

### **pywcsgrid2-0.1b2**

Download from <https://github.com/leejjoon/pywcsgrid2/downloads>  
Extract  
cd  
python setup.py install

### **PyYAML 3.11**

curl -O <http://pyyaml.org/download/pyyaml/PyYAML-3.11.tar.gz>  
python setup.py install

### **healpy 1.8.6**

see: <https://pypi.python.org/pypi/healpy>  
pip install healpy

### **virtualenv-13.1.2**

<https://virtualenv.pypa.io/en/latest/virtualenv.html#installation>  
pip install virtualenv

**How to use:** <http://docs.python-guide.org/en/latest/dev/virtualenvs/>

### **Pmw 1.3.3**

Home page: <http://pmw.sourceforge.net/>

Note Pmw 2.0.0 is for Python 3.0 while the 1.3 series is meant for Python 2.x. The Pmw-2.0.0 tarball includes both versions and during the installation chooses the correct one to install based on the version of python.

- Download the source code from: <http://sourceforge.net/projects/pmw/files/>
- Unpack the tarball
- python setup.py install
- Test by running: python All.py in the site-packages/Pmw/Pmw\_1\_3\_3/tests directory

### **iPython - 4.0.0**

We do not distribute IPython any long due to ongoing issues with hard-coded paths associated with IPython. Instead, we manually create the tar.gz file and copy it over to u35, then install IPython for use at SLAC in the GLAST\_EXT copy.

pip install ipython  
Run the ipctest located in python's bin directory.

to support HTML notebooks:

pyzmq

### zeromq 4.1.3

download from <http://zeromq.org/area:download>

curl -O <http://download.zeromq.org/zeromq-4.1.3.tar.gz>

zeromq depends on libsodium <https://download.libsodium.org/doc/installation/index.html>

curl -O <https://download.libsodium.org/libsodium/releases/libsodium-1.0.3.tar.gz>

uncompress libsodium.tar.gz

./configure --prefix=location

make && make check

make install

I chose to store the libsodium installation as part of my zeromq install in \$GLAST\_EXT/zeromq/4.1.3

To build zeromq

./configure --prefix=\$GLAST\_EXT/zeromq/4.1.3 PKG\_CONFIG\_PATH=\$GLAST\_EXT/zeromq/4.1.3/lib/pkgconfig CPPFLAGS=-I\$GLAST\_EXT/zeromq/4.1.3/include LDFLAGS=-L\$GLAST\_EXT/zeromq/4.1.3/lib

make

make install

Then install pyzmq 14.7.0:

pip install pyzmq --install-option="--zmq=\$GLAST\_EXT/zeromq/4.0.4"

Jinja2: <http://jinja.pocoo.org/docs/intro/#installation>

pip install Jinja2

## 2.7.6-gl1

### redhat6-x86\_64bit-gcc44

1. Obtain python source from python.org
2. Ungzip/Untar source
3. Change directory to Python-2.7.6
4. edit setup.py, in detect\_modules() change the lines from:  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/local/include')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/local/lib')  
to:  
  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/local/include')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/local/lib')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/lib')  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/include')
5. Execute ./configure --prefix /afs/sllac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat5-i386-32bit-gcc41/python/2.7.6
6. Execute make
7. Execute make install
8. Leave and erase the current directory (Python-2.7.6)

### pip (also installs setuptools)

1. curl -O <https://bootstrap.pypa.io/get-pip.py>
2. python get-pip.py

### nose 1.3.2

unit test framework necessary for running numpy and scipy unit tests

1. pip install nose

### numpy 1.8.1

Still installing by hand to include -fcompiler flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy INSTALL.txt file.

1. Download numpy-1.8.1.tar.gz
2. Extract numpy-1.8.1.tar.gz
3. Change directory to numpy-1.8.1
4. python setup.py build --fcompiler=gnu95 (for gfortran.)  
It seems the rhel4s have blas and lapack linked against g77, while rhel5 & rhel6 use gfortran
5. python setup.py install
6. Run the test routine by starting up python and doing:  
import numpy  
numpy.test()
7. Leave and erase the current directory (numpy-1.8.1)

### **PyFITS - 3.2.2**

pip install pyfits

### **matplotlib 1.3.1**

pip install matplotlib

which also installed tornado, python-dateutil, pyparsing, six, and backport.ssl-match-hostname

### **pywcs-1.12**

pip install pywcs

### **astropy-0.3.1**

pip install astropy

### **APLpy-0.9.11 (requires astropy)**

pip install APLpy

### **4Suite XML - 1.0.2**

The 4Suite-XML web site no longer works via easy\_install. Installing by hand  
python setup.py install

### **SciPy - 0.14.0**

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try ldd /usr/lib/libblas.so). See SciPy's INSTALL.txt file for more information.

Download scipy-0.14.1.tar.gz from <http://www.scipy.org/>  
Extract scipy-0.14.0.tar.gz  
Change directory to scipy-0.14.0  
Execute python setup.py config\_fc --fcompiler=gnu95 install  
Leave and erase scipy-0.14.0  
Test by starting up python and doing:  
import scipy  
scipy.test() (NOTE this segfaulted on rhel5-32.. hoping that's not a big deal)

### **pywcsgrid2-0.1b2**

Download from <https://github.com/leeijoon/pywcsgrid2/downloads>  
Extract  
cd  
python setup.py install

### **PyYAML 3.11**

curl -O <http://pyyaml.org/download/pyyaml/PyYAML-3.11.tar.gz>

python setup.py install

### **healpy 1.7.4**

see: <https://pypi.python.org/pypi/healpy>

pip install healpy

### **virtualenv-1.11.5**

<https://virtualenv.pypa.io/en/latest/virtualenv.html#installation>

pip install virtualenv

**How to use:** <http://docs.python-guide.org/en/latest/dev/virtualenvs/>

### Pmw 1.3.3

Home page: <http://pmw.sourceforge.net/>

Note Pmw 2.0.0 is for Python 3.0 while the 1.3 series is meant for Python 2.x. The Pmw-2.0.0 tarball includes both versions and during the installation chooses the correct one to install based on the version of python.

- Download the source code from: <http://sourceforge.net/projects/pmw/files/>
- Unpack the tarball
- python install setup.py
- Test by running: python All.py in the site-packages/Pmw/Pmw\_1\_3\_3/tests directory

### iPython - 2.0.0

**We do not distribute IPython any long due to ongoing issues with hard-coded paths associated with IPython. Instead, we manually create the tar.gz file and copy it over to u35, then install IPython for use at SLAC in the GLAST\_EXT copy.**

pip install ipython

Run the iptest located in python's bin directory.

to support HTML notebooks:

pyzmq

**zeromq**

download from <http://zeromq.org/area:download>

./configure --prefix=location

make

make install

pip install pyzmq --install-option="--zmq=\$GLAST\_EXT/zeromq/4.0.4"

Jinja2: <http://jinja.pocoo.org/docs/intro/#installation>

pip install Jinja2

## 2.7.6

### redhat5-i686-32bit-gcc41 & redhat5-x86\_64-64bit-gcc41 & redhat6-x86\_64bit-gcc44

1. Obtain python source from python.org
2. Ungzip/Untar source
3. Change directory to Python-2.7.6
4. edit setup.py, in detect\_modules() change the lines from:  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/local/include')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/local/lib')  
to:  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/local/include')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/local/lib')  
add\_dir\_to\_list(self.compiler.library\_dirs, '/usr/lib')  
add\_dir\_to\_list(self.compiler.include\_dirs, '/usr/include')
5. Execute ./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat5-i386-32bit-gcc41/python/2.7.6
6. Execute make
7. Execute make install
8. Leave and erase the current directory (Python-2.7.6)

### pip (also installs setuptools)

1. curl -O <https://bootstrap.pypa.io/get-pip.py>
2. python get-pip.py

### nose 1.3.2

unit test framework necessary for running numpy and scipy unit tests

1. pip install nose

### numpy 1.8.1

Still installing by hand to include --fcompiler flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy INSTALL.txt file.

1. Download numpy-1.8.1.tar.gz
2. Extract numpy-1.8.1.tar.gz
3. Change directory to numpy-1.8.1
4. python setup.py build --fcompiler=gnu95 (for gfortran.)  
It seems the rhel4s have blas and lapack linked against g77, while rhel5 & rhel6 use gfortran
5. python setup.py install
6. Run the test routine by starting up python and doing:  
import numpy  
numpy.test()
7. Leave and erase the current directory (numpy-1.8.1)

### PyFITS - 3.2.2

pip install pyfits

### matplotlib 1.3.1

pip install matplotlib

which also installed tornado, python-dateutil, pyparsing, six, and backport.ssl-match-hostname

### pywcs-1.12

pip install pywcs

### astropy-0.3.1

pip install astropy

### APLpy-0.9.11 (requires astropy)

pip install APLpy

### 4Suite XML - 1.0.2

The 4Suite-XML web site no longer works via easy\_install. Installing by hand  
python setup.py install

### SciPy - 0.14.0

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try ldd /usr/lib/libblas.so). See SciPy's INSTALL.txt file for more information.

Download scipy-0.14.1.tar.gz from <http://www.scipy.org/>  
Extract scipy-0.14.0.tar.gz  
Change directory to scipy-0.14.0  
Execute python setup.py config\_fc --fcompiler=gnu95 install  
Leave and erase scipy-0.14.0  
Test by starting up python and doing:  
import scipy  
scipy.test() (NOTE this segfaulted on rhel5-32.. hoping that's not a big deal)

### pywcsgrid2-0.1b2

Download from <https://github.com/leejjoon/pywcsgrid2/downloads>  
Extract  
cd  
python setup.py install

### PyYAML 3.11

curl -O <http://pyyaml.org/download/pyyaml/PyYAML-3.11.tar.gz>

python setup.py install

## healpy 1.7.4

see: <https://pypi.python.org/pypi/healpy>

pip install healpy

## virtualenv-1.11.5

<https://virtualenv.pypa.io/en/latest/virtualenv.html#installation>

pip install virtualenv

How to use: <http://docs.python-guide.org/en/latest/dev/virtualenvs/>

## iPython - 2.0.0

**We do not distribute IPython any long due to ongoing issues with hard-coded paths associated with IPython. Instead, we manually create the tar.gz file and copy it over to u35, then install IPython for use at SLAC in the GLAST\_EXT copy.**

pip install ipython

Run the iptest located in python's bin directory.

to support HTML notebooks:

pyzmq

### zeromq

download from <http://zeromq.org/area:download>

./configure --prefix=location

make

make install

pip install pyzmq --install-option="--zmq=\$GLAST\_EXT/zeromq/4.0.4"

Jinja2: <http://jinja.pocoo.org/docs/intro/#installation>

pip install Jinja2

## 2.7.2-gl4



NOTE Aug 20, 2015: This version of python on RHEL6-64 was updated to include astropy 1.0.4 which caused numpy to be updated as well. This was done by executing "pip install astropy"  
The RM tarball under u35 was updated as well.

See email thread in opsproblast from Aug 20, 2015

started really building the shared python library but also need the static lib for GR and ST too. Need to hide the shared library during installation to avoid using it during the install process for things like numpy.

## redhat6-x86\_64-64bit-gcc44

These instructions should be performed as the glastrm user or with appropriate privileges to write in the GLAST\_EXT area.

Note that the scipy unit test will report failures due to missing symbols in the rhel4 blas installed at SLAC. This is likely always been the case, and apparently cannot be fixed unless we're will to install BLAS and Lapack ourselves.

1. Download Python 2.7.2 from <http://www.python.org/> and save to /afs/slac/g/glast/ground/GLAST\_EXT/srcExtLibs if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat6-x86\_64-64bit-gcc44/python
3. Ungzip and Untar the file Python-2.7.2.tgz
4. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
5. Change directory to Python-2.7.2
6. edit setup.py, in detect\_modules() change the lines from:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
```

to:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
add_dir_to_list(self.compiler.library_dirs, '/usr/lib')
add_dir_to_list(self.compiler.include_dirs, '/usr/include')
```

6. `setenv LDFLAGS -fPIC; setenv CPPFLAGS -fPIC; setenv CFLAGS -m64 -fPIC`  
 need to force 64 bit build even on rhel6-64

1. Execute `./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python/2.7.2 --enable-shared`  
 this will create a shared library.. however we also want a python executable built against the static library - so we need to repeat this procedure without `--enable-shared` turned on.
2. Execute `make`
3. Execute `make install`
4. Leave and erase the current directory (Python-2.7.2)
5. install additional python modules the same way as python 2.7.1 instruction. As for matplotlib, most of matplotlib unit tests requires functions from PIL imaging module which in turn requires zlib.crc32 which has been an issue for us. After consulting with the users, we agreed that if in the future the users start to use functions in PIL, we will come back to re-visit the PIL issue again. For now, we will just skip the PIL module installation as we always have. Also there is a Scipy unit test need to be fixed after the Scipy installation. Edit `scipy/stats/tests/test_morestats.py`, change line #10 from `"assert_raises"` to `"assert_raises, assert_"` and change line #72 from `"assert_array_less(crit[:-1], A)"` to `"assert_(A > crit[:-1])"`.

## distributed 0.6.21 for use with pip

1. `curl -O http://python-distribute.org/distribute\_setup.py`
2. `python distribute_setup.py`

## pip

`curl https://raw.github.com/pypa/pip/master/contrib/get-pip.py | python`

## nose 1.2.1

unit test framework necessary for running numpy and scipy unit tests

1. `pip install nose`

## NumPy - 1.6.1

Still installing by hand to include `--fcompiler` flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy `INSTALL.txt` file. On RHEL6-64:

```
glastrm@noric22 $ ldd /usr/lib64/liblapack.so
linux-vdso.so.1 => (0x00007fff49dff000)
libblas.so.3 => /usr/lib64/libblas.so.3 (0x00007fac2ac9d000)
libm.so.6 => /lib64/libm.so.6 (0x00007fac2aa18000)
libgfortran.so.3 => /usr/lib64/libgfortran.so.3 (0x00007fac2a726000)
libc.so.6 => /lib64/libc.so.6 (0x00007fac2a394000)
/lib64/ld-linux-x86-64.so.2 (0x00007fac2b72d000)
```

where `libgfortran` means we should use the gnu95 flag

1. Download `numpy-1.6.1.tar.gz` from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858)
2. Extract `numpy-1.6.1.tar.gz`
3. Change directory to `numpy-1.6.1`
4. unset `LDFLAGS`, `CFLAGS` if set above
5. `python setup.py build --fcompiler=gnu95` (for gfortran)
6. `python setup.py install`
7. Run the test routine by starting up python and doing:  

```
import numpy
numpy.test()
```
8. Leave and erase the current directory (`numpy-1.6.1`)

## PyFITS - 3.1

`pip install pyfits`

## matplotlib 1.1.1

`pip install matplotlib`

<http://sourceforge.net/projects/matplotlib/files/matplotlib/matplotlib-1.0/matplotlib-1.0.0.tar.gz>

## pywcs-1.11-4.8.2

`pip install pywcs`

## APLpy-0.9.8

pip install APLpy

#### 4Suite XML - 1.0.2

The 4Suite-XML web site no longer works via easy\_install. Installing by hand  
python setup.py install

#### SciPy - 0.10.1

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try ldd /usr/lib/libblas.so). See SciPy's INSTALL.txt file for more information.

Download scipy-0.10.1.tar.gz from <http://www.scipy.org/> and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat6-i686-64bit-gcc44/python if it doesn't already exist.

Extract scipy-0.10.1.tar.gz

Change directory to scipy-0.10.1

Execute python setup.py config\_fc --fcompiler=gnu95 install

Leave and erase scipy-0.10.1

Test by starting up python and doing:

```
import scipy
```

```
scipy.test()
```

#### pywcsgrid2

Download from <https://github.com/leejjoon/pywcsgrid2/downloads>

Extract

cd

python setup.py install

We do not distribute IPython any long due to ongoing issues with hard-coded paths associated with IPython. Instead, we manually create the tar.gz file and copy it over to u35, then install IPython for use at SLAC in the GLAST\_EXT copy.

#### PyYAML 3.1.0

curl -O <http://pyyaml.org/download/pyyaml/PyYAML-3.10.tar.gz>

python setup.py install

#### iPython - 0.13

pip install ipython

Run the iptest located in python's bin directory.

## 2.7.2-glibc

started really building the shared python library

### redhat6-x86\_64-64bit-gcc44

These instructions should be performed as the glastrm user or with appropriate privileges to write in the GLAST\_EXT area.

Note that the scipy unit test will report failures due to missing symbols in the rhel4 blas installed at SLAC. This is likely always been the case, and apparently cannot be fixed unless we're will to install BLAS and Lapack ourselves.

1. Download Python 2.7.2 from <http://www.python.org/> and save to /afs/slac/g/glast/ground/GLAST\_EXT/srcExtLibs if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat6-x86\_64-64bit-gcc44/python
3. Ungzip and Untar the file Python-2.7.2.tgz
4. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
5. Change directory to Python-2.7.2
6. edit setup.py, in detect\_modules() change the lines from:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
```

to:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
add_dir_to_list(self.compiler.library_dirs, '/usr/lib')
add_dir_to_list(self.compiler.include_dirs, '/usr/include')
```

6. setenv LDFLAGS -fPIC; setenv CPPFLAGS -fPIC; setenv CFLAGS -m64 -fPIC  
need to force 64 bit build even on rhel6-64

1. Execute `./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python/2.7.2 --enable-shared` this will create a shared library.. however we also want a python executable built against the static library - so we need to repeat this procedure without `--enable-shared` turned on.
2. Execute `make`
3. Execute `make install`
4. Leave and erase the current directory (Python-2.7.2)
5. install additional python modules the same way as python 2.7.1 instruction. As for matplotlib, most of matplotlib unit tests requires functions from PIL imaging module which in turn requires zlib.crc32 which has been an issue for us. After consulting with the users, we agreed that if in the future the users start to use functions in PIL, we will come back to re-visit the PIL issue again. For now, we will just skip the PIL module installation as we always have. Also there is a Scipy unit test need to be fixed after the Scipy installation. Edit `scipy/stats/tests/test_morestats.py`, change line #10 from `"assert_raises"` to `"assert_raises, assert_"` and change line #72 from `"assert_array_less(crit[:-1], A)"` to `"assert_(A > crit[:-1])"`.

## distributed 0.6.16 for use with pip

1. curl -O [http://python-distribute.org/distribute\\_setup.py](http://python-distribute.org/distribute_setup.py)
2. python `distribute_setup.py`

## pip

curl <https://raw.githubusercontent.com/pypa/pip/master/contrib/get-pip.py> | python

## nose 1.2.1

unit test framework necessary for running numpy and scipy unit tests

1. pip install nose

## NumPy - 1.6.1

Still installing by hand to include `--fcompiler` flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy `INSTALL.txt` file. On RHEL6-64:

```
glasm@noric22 $ ldd /usr/lib64/liblapack.so
linux-vdso.so.1 => (0x00007fff49df000)
libblas.so.3 => /usr/lib64/libblas.so.3 (0x00007fac2ac9d000)
libm.so.6 => /lib64/libm.so.6 (0x00007fac2aa18000)
libgfortran.so.3 => /usr/lib64/libgfortran.so.3 (0x00007fac2a726000)
libc.so.6 => /lib64/libc.so.6 (0x00007fac2a394000)
/lib64/ld-linux-x86-64.so.2 (0x00007fac2b72d000)
```

where `libgfortran` means we should use the `gnu95` flag

1. Download `numpy-1.6.1.tar.gz` from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858)
2. Extract `numpy-1.6.1.tar.gz`
3. Change directory to `numpy-1.6.1`
4. unset `LD_FLAGS`, `C_FLAGS` if set above
5. python `setup.py build --fcompiler=gnu95` (for `gfortran`)
6. python `setup.py install`
7. Run the test routine by starting up python and doing:  

```
import numpy
numpy.test()
```
8. Leave and erase the current directory (`numpy-1.6.1`)

## PyFITS - 3.1

pip install `pyfits`

## matplotlib 1.1.1

pip install `matplotlib`

<http://sourceforge.net/projects/matplotlib/files/matplotlib/matplotlib-1.0/matplotlib-1.0.0.tar.gz>

## pywcs-1.11-4.8.2

pip install `pywcs`

## APLpy-0.9.8

pip install `APLpy`

## 4Suite XML - 1.0.2

The 4Suite-XML web site no longer works via `easy_install`. Installing by hand  
python `setup.py install`

## SciPy - 0.10.1

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try `ldd /usr/lib/libblas.so`). See SciPy's INSTALL.txt file for more information.  
 Download scipy-0.10.1.tar.gz from <http://www.scipy.org/> and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat6-i686-64bit-gcc44/python if it doesn't already exist.  
 Extract scipy-0.10.1.tar.gz  
 Change directory to scipy-0.10.1  
 Execute `python setup.py config_fc --fcompiler=gnu95 install`  
 Leave and erase scipy-0.10.1  
 Test by starting up python and doing:  
`import scipy`  
`scipy.test()`

## pywcsgrid2

Download from <https://github.com/leejjoon/pywcsgrid2/downloads>  
 Extract  
`cd`  
`python setup.py install`

We do not distribute IPython any long due to ongoing issues with hard-coded paths associated with IPython. Instead, we manually create the tar.gz file and copy it over to u35, then install IPython for use at SLAC in the GLAST\_EXT copy.

## PyYAML 3.1.0

`curl -O http://pyyaml.org/download/pyyaml/PyYAML-3.10.tar.gz`  
`python setup.py install`

## iPython - 0.13

`pip install ipython`  
 Run the ipython located in python's bin directory.

# 2.7.2 = 2.7.2-gl1 = 2.7.2-gl2

## redhat6-x86\_64-64bit-gcc44

These instructions should be performed as the glastrm user or with appropriate privileges to write in the GLAST\_EXT area.  
 Note that the scipy unit test will report failures due to missing symbols in the rhel4 blas installed at SLAC. This is likely always been the case, and apparently cannot be fixed unless we're will to install BLAS and Lapack ourselves.

1. Download Python 2.7.2 from <http://www.python.org/> and save to /afs/slac/g/glast/ground/GLAST\_EXT/srcExtLibs if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat6-x86\_64-64bit-gcc44/python
3. Ungzip and Untar the file Python-2.7.2.tgz
4. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
5. Change directory to Python-2.7.2
6. edit setup.py, in `detect_modules()` change the lines from:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
```

to:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
add_dir_to_list(self.compiler.library_dirs, '/usr/lib')
add_dir_to_list(self.compiler.include_dirs, '/usr/include')
```

6. `setenv LDFLAGS -fPIC; setenv CPPFLAGS -fPIC; setenv CFLAGS -fPIC`

1. Execute `./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat6-x86_64-64bit-gcc44/python/2.7.2/gcc34 --enable-shared`
2. Execute `make`
3. Execute `make install`
4. Leave and erase the current directory (Python-2.7.2)
5. install additional python modules the same way as python 2.7.1 instruction. As for matplotlib, most of matplotlib unit tests requires functions from PIL imaging module which in turn requirez zlib.crc32 which has been an issue for us. After consulting with the users, we agreed that if in the future the users start to use functions in PIL, we will come back to re-visit the PIL issue again. For now, we will just skip the PIL module installation as we always have. Also there is a Scipy unit test need to be fixed after the Scipy installation. Edit `scipy/stats/tests/test_morestats.py`, change line #10 from "`assert_raises`" to "`assert_raises, assert_`" and change line #72 from "`assert_array_less(crit[-1], A)`" to "`assert_(A > crit[-1])`".

## distribute 0.6.16 for use with pip

1. `curl -O http://python-distribute.org/distribute\_setup.py`
2. `python distribute_setup.py`

## pip

curl <https://raw.githubusercontent.com/pypa/pip/master/contrib/get-pip.py> | python

## NumPy - 1.6.1

Still installing by hand to include `--fcompiler` flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy INSTALL.txt file. On RHEL6-64:

```
glastrm@noric22 $ ldd /usr/lib64/liblapack.so
linux-vdso.so.1 => (0x00007fff49dff000)
libblas.so.3 => /usr/lib64/libblas.so.3 (0x00007fac2ac9d000)
libm.so.6 => /lib64/libm.so.6 (0x00007fac2aa18000)
libgfortran.so.3 => /usr/lib64/libgfortran.so.3 (0x00007fac2a726000)
libc.so.6 => /lib64/libc.so.6 (0x00007fac2a394000)
/lib64/ld-linux-x86-64.so.2 (0x00007fac2b72d000)
```

where libgfortran means we should use the gnu95 flag

1. Download numpy-1.6.1.tar.gz from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858)
2. Extract numpy-1.6.1.tar.gz
3. Change directory to numpy-1.6.1
4. unset LDFLAGS, CFLAGS if set above
5. python setup.py build --fcompiler=gnu95 (for gfortran)
6. python setup.py install
7. Run the test routine by starting up python and doing:  
import numpy  
numpy.test()
8. Leave and erase the current directory (numpy-1.6.1)

## PyFITS - 3.1

pip install pyfits

## matplotlib 1.1.0

pip install matplotlib

<http://sourceforge.net/projects/matplotlib/files/matplotlib/matplotlib-1.0/matplotlib-1.0.0.tar.gz>

## pywcs-1.11-4.8.2

pip install pywcs

## APLpy-0.9.8

pip install APLpy

## 4Suite XML - 1.0.2

The 4Suite-XML web site no longer works via easy\_install. Installing by hand  
python setup.py install

## SciPy - 0.10.1

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try ldd /usr/lib/libblas.so). See SciPy's INSTALL.txt file for more information.

Download scipy-0.10.1.tar.gz from <http://www.scipy.org/> and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat6-i686-64bit-gcc44/python if it doesn't already exist.

Extract scipy-0.10.1.tar.gz

Change directory to scipy-0.10.1

Execute python setup.py config\_fc --fcompiler=gnu95 install

Leave and erase scipy-0.10.1

Test by starting up python and doing:

```
import scipy
scipy.test()
```

## pywcsgrid2

Download from <https://github.com/leejjoon/pywcsgrid2/downloads>

Extract

cd

python setup.py install

We do not distribute IPython any longer due to ongoing issues with hard-coded paths associated with IPython. Instead, we manually create the tar.gz file and copy it over to u35, then install IPython for use at SLAC in the GLAST\_EXT copy.

## sympy 0.7.2

<http://sympy.org/en/index.html>

```
curl -O http://sympy.googlecode.com/files/sympy-0.7.2.tar.gz
python setup.py install
```

## iPython - 0.13

pip install ipython  
Run the ipython located in python's bin directory.

## 2.7.1

Adding in the following modules:

```
distribute0.6.16
pip1.0.1
nose1.0.0
numpy 1.5.1
pyfits 2.4.0
matplotlib1.0.0
pywcs 1.10-4.7
APLpy 0.9.5
4Suite-XML 1.0.2
scipy 0.9.0
iPython 0.10.2
pywcsgrid2
```

## redhat4-i686-32bit-gcc34

These instructions should be performed as the glastrm user or with appropriate privileges to write in the GLAST\_EXT area.  
Note that the scipy unit test will report failures due to missing symbols in the rhel4 blas installed at SLAC. This is likely always been the case, and apparently cannot be fixed unless we're will to install BLAS and Lapack ourselves.

1. Download Python 2.7.1 from <http://www.python.org/ftp/python/2.7.1/Python-2.7.1.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/srcExtLibs if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Ungzip and Untar the file Python-2.7.1.tgz
4. Change directory to Python-2.7.1
5. edit setup.py, in detect\_modules() change the lines from:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
```

to:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
add_dir_to_list(self.compiler.library_dirs, '/usr/lib')
add_dir_to_list(self.compiler.include_dirs, '/usr/include')
```

1. Execute ./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.7.1/gcc34
2. Execute make
3. Execute make install
4. Leave and erase the current directory (Python-2.7.1)

## redhat4-x86-64bit-gcc34

Unable to install numpy 1.5.1 successfully on rhel4-64, due to a known bug with 64 bit and gcc3. The numpy unit test fails. Fix is to move to gcc4, which we cannot do. For now remaining on python 2.6.5. In either case, the scipy unit tests results some errors which we seemingly have always been dealing with. The bug report suggests doing a new install of BLAS, but according to unix-admins that is not possible.

## redhat5-i686-32bit-gcc41

Same directions as redhat4-i686-32bit-gcc34. The fortran compiler to use for numpy and scipy install is gfortran so --fcompiler=gnu95. There should be no errors in the numpy or scipy unit tests.

## redhat5-x86\_64-64bit-gcc41

Same directions as redhat4-i686-32bit-gcc34. The fortran compiler to use for numpy and scipy install is gfortran so --fcompiler=gnu95. There should be no errors in the numpy or scipy unit tests.

## snowleopard-gcc42

pip and easy\_install have no connectivity to download on bldmac02, so performing all module installations by hand.

Skipping matplotlib (some missing system libraries would have to be installed), pywcsgrid2 (needs matplotlib), APLpy (needs matplotlib), and SciPy (due to missing fortran compiler)

## Additional Python Modules

These modules should additionally be installed into python after updating PATH to point to the new python binary.

### distribute 0.6.16 for use with pip

1. curl -O [http://python-distribute.org/distribute\\_setup.py](http://python-distribute.org/distribute_setup.py)
2. python distribute\_setup.py

### pip 1.0.1

easy\_install replacement that should also work with python 3.0

1. curl -O <https://github.com/pypa/pip/raw/master/contrib/get-pip.py>
2. python get-pip.py

### nose 1.0.0

unit test framework necessary for running numpy and scipy unit tests

1. pip install nose

### NumPy - 1.5.1

Still installing by hand to include --fcompiler flag to force correct fortran compiler to be used. This is dictated by whatever blas and lapack are linked against. For more information, see the numpy INSTALL.txt file.

1. Download numpy-1.5.1.tar.gz from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858)
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract numpy-1.5.1.tar.gz
4. Change directory to numpy-1.5.1
5. python setup.py build --fcompiler=gnu (for g77) or gnu95 for gfortran.  
It seems the rhel4s have blas and lapack linked against g77, while rhel5 uses gfortran
6. python setup.py install
7. Run the test routine by starting up python and doing:  
import numpy  
numpy.test()
8. Leave and erase the current directory (numpy-1.5.1)

### PyFITS - 2.4.0

1. pip install pyfits

### matplotlib 1.0.0

Had to provide explicit web link to version we wanted to install, otherwise the default seems to be 0.91

1. pip install <http://sourceforge.net/projects/matplotlib/files/matplotlib/matplotlib-1.0/matplotlib-1.0.0.tar.gz>

### pywcs-1.10-4.7

1. pip install pywcs

### APLpy-0.9.5

1. pip install APLpy

### 4Suite XML - 1.0.2

This module was not recognized by pip. Using easy\_install instead.

1. easy\_install 4Suite-XML

### SciPy - 0.9.0

Continuing to install by hand to provide compiler flag to force correct fortran compiler, depending on what blas and lapack are linked against (try ldd /usr/lib/libblas.so). See SciPy's INSTALL.txt file for more information.

1. Download scipy-0.9.0.tar.gz from <http://www.scipy.org/> and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract scipy-0.9.0.tar.gz
4. Change directory to scipy-0.9.0
5. Execute python setup.py config\_fc --fcompiler=gnu install (gnu for g77 or gnu95 for gfortran)
6. Leave and erase scipy-0.9.0
7. Test by starting up python and doing:  
import scipy  
scipy.test()

## iPython - 0.10.2

1. pip install ipython
2. Run the iptest located in python's bin directory.

## pywcsgrid2

1. Download from <https://github.com/leejjoon/pywcsgrid2/downloads>
2. Extract
3. cd
4. python setup.py install

## 2.5.1

These are instructions for building Python 2.5.1 for the various OSes supported.

## tiger-i386-32bit

These instructions should be performed as the glastrm user on the machine bldmac01 (accessible only from within SLAC).

1. Download Python 2.5.1 from <http://www.python.org/ftp/python/2.5.1/Python-2.5.1.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python
3. Ungzip and Untar the file Python-2.5.1.tgz
4. Change directory to Python-2.5.1
5. Set the environment variable EXTRA\_CFLAGS to "-fno-common"
6. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/2.5.1-gl3/gcc40 --enable-unicode=ucs2
7. Edit the file Modules/posixmodule.c and change lines 342 and 360 to "#ifdef \_APPLE\_" (without quotes) and save/exit.
8. Execute make
9. Execute make install
10. Leave and erase the current directory (Python-2.5.1)

## Additional Python Modules

These modules should additionally be installed into python.

### NumPy - 1.2.0

1. Download numpy-1.2.0.tar.gz from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858) and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python
3. Extract numpy-1.2.0.tar.gz
4. Change directory to numpy-1.2.0
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/2.5.1-gl3/gcc40/bin/python setup.py install
6. Leave and erase the current directory (numpy-1.2.0)

### PyFITS - 1.3

1. Download pyfits-1.3.tar.gz from [http://www.stsci.edu/resources/software\\_hardware/pyfits/pyfits-1.3.tar.gz](http://www.stsci.edu/resources/software_hardware/pyfits/pyfits-1.3.tar.gz) and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python
3. Extract pyfits-1.3.tar.gz
4. Change directory to pyfits-1.3
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/2.5.1-gl3/gcc40/bin/python setup.py install
6. Leave and erase pyfits-1.3

### 4Suite XML - 1.0.2

1. Download 4Suite-XML-1.0.2.tar.gz from [http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use\\_mirror=voxel](http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use_mirror=voxel) and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python
3. Extract 4Suite-XML-1.0.2.tar.gz
4. Change directory to 4Suite-XML-1.0.2
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/2.5.1-gl3/gcc40/bin/python setup.py install --prefix /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python/2.5.1-gl3/gcc40
6. Leave and erase 4Suite-XML-1.0.2

## 2.5.1-gl4

These are the instructions to build python 2.5.1-gl4 on the various supported platforms

### tiger-i386-32bit-gcc40

These instructions should be performed as the glastrm user on the machine bldmac01 (accessible only from within SLAC).

1. Download Python 2.5.1 from <http://www.python.org/ftp/python/2.5.1/Python-2.5.1.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/python
3. Ungzip and Untar the file Python-2.5.1.tgz
4. Change directory to Python-2.5.1
5. Set the environment variable EXTRA\_CFLAGS to "-fno-common"
6. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/2.5.1-gl4/gcc40 --enable-unicode=ucs2
7. Edit the file Modules/posixmodule.c and change lines 342 and 360 to "#ifdef \_APPLE\_" (without quotes) and save/exit.
8. Execute make
9. Execute make install
10. Leave and erase the current directory (Python-2.5.1)

## Additional Python Modules

These modules should additionally be installed into python.

### NumPy - 1.2.0

1. Download numpy-1.2.0.tar.gz from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858) and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python
3. Extract numpy-1.2.0.tar.gz
4. Change directory to numpy-1.2.0
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/2.5.1-gl4/gcc40/bin/python setup.py install
6. Leave and erase the current directory (numpy-1.2.0)

### PyFITS - 2.1.1

1. Download pyfits-2.1.1.tar.gz from [http://www.stsci.edu/resources/software\\_hardware/pyfits/pyfits-2.1.1.tar.gz](http://www.stsci.edu/resources/software_hardware/pyfits/pyfits-2.1.1.tar.gz) and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python
3. Extract pyfits-2.1.1.tar.gz
4. Change directory to pyfits-2.1.1
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/2.5.1-gl4/gcc40/bin/python setup.py install
6. Leave and erase pyfits-2.1.1

### 4Suite XML - 1.0.2

1. Download 4Suite-XML-1.0.2.tar.gz from [http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use\\_mirror=voxel](http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use_mirror=voxel) and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python
3. Extract 4Suite-XML-1.0.2.tar.gz
4. Change directory to 4Suite-XML-1.0.2
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/2.5.1-gl4/gcc40/bin/python setup.py install --prefix /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/2.5.1-gl4/gcc40
6. Leave and erase 4Suite-XML-1.0.2

### iPython - 0.10

1. Download ipython-0.10.tar.gz from <http://ipython.scipy.org/dist/ipython-0.10.tar.gz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/ if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python
3. Extract ipython-0.10.tar.gz
4. Change directory to ipython-0.10
5. Execute /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc40/python/2.5.1-gl4/gcc40/bin/python setup.py install
6. Leave and erase ipython-0.10

## redhat5-i686-64bit-gcc41

These instructions should be performed as the glastrm user

1. Download Python 2.5.1 from <http://www.python.org/ftp/python/2.5.1/Python-2.5.1.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc41/python if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-i686-64bit-gcc41/python
3. Ungzip and Untar the file Python-2.5.1.tgz
4. Change directory to Python-2.5.1
5. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
6. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-i686-64bit-gcc41/python/2.5.1-gl4/gcc41
7. Execute make
8. Execute make install
9. Leave and erase the current directory (Python-2.5.1)

## 2.5.1-gl5

## redhat4-i686-32bit-gcc34

These are instructions for building Python 2.5.1 for the various OSes supported.

These instructions should be performed as the glastrm user

1. Download Python 2.5.1 from <http://www.python.org/ftp/python/2.5.1/Python-2.5.1.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc41/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Ungzip and Untar the file Python-2.5.1.tgz
4. Change directory to Python-2.5.1
5. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
6. edit setup.py, in detect\_modules() change the lines from:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
```

to:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
add_dir_to_list(self.compiler.library_dirs, '/usr/lib')
add_dir_to_list(self.compiler.include_dirs, '/usr/include')
```

1. Execute ./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34
2. Execute make
3. Execute make install
4. Leave and erase the current directory (Python-2.5.1)

## Additional Python Modules

These modules should additionally be installed into python.

### NumPy - 1.4.0

1. Download numpy-1.4.0.tar.gz from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858) and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract numpy-1.4.0.tar.gz
4. Change directory to numpy-1.4.0
5. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install
6. Leave and erase the current directory (numpy-1.4.0)

### PyFITS - 2.1.1

1. Download pyfits-2.1.1.tar.gz from [http://www.stsci.edu/resources/software\\_hardware/pyfits/pyfits-2.1.1.tar.gz](http://www.stsci.edu/resources/software_hardware/pyfits/pyfits-2.1.1.tar.gz) and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract pyfits-2.1.1.tar.gz
4. Change directory to pyfits-2.1.1
5. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install
6. Leave and erase pyfits-2.1.1

### matplotlib 0.99

1. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python

2. Extract matplotlib-0.99.1.tar.gz
3. Change directory to matplotlib-0.99.1/
4. setenv DISPLAY localhost:0.0
5. xhost +
6. Edit setup.cfg set wxagg = False, macosx = False
7. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py build
8. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install
9. Leave and erase matplotlib-0.99.1/

#### pywcs-1.7-4.4.4

1. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
2. Extract pywcs-1.7-4.4.4.tar.gz
3. Change directory to pywcs-1.7-4.4.4
4. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install
5. Leave and erase pywcs-1.7-4.4.4

#### APLpy-0.9.4

1. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
2. Extract APLpy-0.9.4.tar.gz
3. Change directory to APLpy-0.9.4
4. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install
5. Leave and erase APLpy-0.9.4

#### 4Suite XML - 1.0.2

1. Download 4Suite-XML-1.0.2.tar.gz from [http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use\\_mirror=voxel](http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use_mirror=voxel) and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Change directory to 4Suite-XML-1.0.2
4. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34
5. Leave and erase 4Suite-XML-1.0.2

#### iPython - 0.10

1. Download ipython-0.10.tar.gz from <http://ipython.scipy.org/dist/ipython-0.10.tar.gz> and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract ipython-0.10.tar.gz
4. Change directory to ipython-0.10
5. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.5.1-gl5/gcc34/bin/python setup.py install
6. Leave and erase ipython-0.10

## 2.6.5

### redhat4-i686-32bit-gcc34

These are instructions for building Python 2.6.5 for the various OSes supported.

These instructions should be performed as the glastrm user

1. Download Python 2.6.5 from <http://www.python.org/ftp/python/2.6.5/Python-2.6.5.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit-gcc41/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Ungzip and Untar the file Python-2.6.5.tgz
4. Change directory to Python-2.6.5
5. Set the environment variable EXTRA\_CFLAGS to "-fPIC -fwrapv"
6. edit setup.py, in detect\_modules() change the lines from:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
```

to:

```
add_dir_to_list(self.compiler.include_dirs, '/usr/local/include')
add_dir_to_list(self.compiler.library_dirs, '/usr/local/lib')
add_dir_to_list(self.compiler.library_dirs, '/usr/lib')
add_dir_to_list(self.compiler.include_dirs, '/usr/include')
```

1. Execute ./configure --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34
2. Execute make
3. Execute make install
4. Leave and erase the current directory (Python-2.6.5)

## Windows-vc90

Note that 2.6.5 defaults to VS2008 as do the various add-ons

1. Download Python 2.6.5 installer from <http://www.python.org>
2. Add
  - a. numpy 1.4.1
  - b. pyfits 2.3.1
  - c. matplotlib 0.99.3
  - d. pywcs 1.81-4.4.4 using tar.gz using python setup.py install
  - e. aplpy 0.9.4 tar.gz using python setup.py install
  - f. 4SuiteXML 1.0.2 using zip file
  - g. scipy 0.8.0b1
  - h. ipython 0.10, install using tar.gz using python setup.py install
  - i. setuptools 0.6c11
  - j. nose 0.11.3 install from tar.gz using python setup.py install

## Additional Python Modules

These modules should additionally be installed into python.

### NumPy - 1.4.0

1. Download numpy-1.4.0.tar.gz from [http://sourceforge.net/project/showfiles.php?group\\_id=1369&package\\_id=175103&release\\_id=628858](http://sourceforge.net/project/showfiles.php?group_id=1369&package_id=175103&release_id=628858) and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract numpy-1.4.0.tar.gz
4. Change directory to numpy-1.4.0
5. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install
6. Leave and erase the current directory (numpy-1.4.0)

### PyFITS - 2.1.1

1. Download pyfits-2.1.1.tar.gz from [http://www.stsci.edu/resources/software\\_hardware/pyfits/pyfits-2.1.1.tar.gz](http://www.stsci.edu/resources/software_hardware/pyfits/pyfits-2.1.1.tar.gz) and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
3. Extract pyfits-2.1.1.tar.gz
4. Change directory to pyfits-2.1.1
5. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install
6. Leave and erase pyfits-2.1.1

### matplotlib 0.99

1. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
2. Extract matplotlib-0.99.1.tar.gz
3. Change directory to matplotlib-0.99.1/
4. setenv DISPLAY localhost:0.0
5. xhost +
6. Edit setup.cfg set wxagg = False, macosx = False
7. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py build
8. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install
9. Leave and erase matplotlib-0.99.1/

### pywcs-1.7-4.4.4

1. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
2. Extract pywcs-1.7-4.4.4.tar.gz
3. Change directory to pywcs-1.7-4.4.4
4. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install
5. Leave and erase pywcs-1.7-4.4.4

### APLpy-0.9.4

1. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python
2. Extract APLpy-0.9.4.tar.gz
3. Change directory to APLpy-0.9.4
4. Execute /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install
5. Leave and erase APLpy-0.9.4

### 4Suite XML - 1.0.2

1. Download 4Suite-XML-1.0.2.tar.gz from [http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use\\_mirror=voxel](http://downloads.sourceforge.net/sourceforge/foursuite/4Suite-XML-1.0.2.tar.gz?use_mirror=voxel) and save to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python if it doesn't already exist.
2. Change directory to /afs/slac.stanford.edu/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit-gcc34/python

3. Change directory to 4Suite-XML-1.0.2
4. Execute `/afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install --prefix /afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34`
5. Leave and erase 4Suite-XML-1.0.2

### **iPython - 0.10**

1. Download `ipython-0.10.tar.gz` from <http://ipython.scipy.org/dist/ipython-0.10.tar.gz> and save to `/afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat4-i686-32bit-gcc34/python` if it doesn't already exist.
2. Change directory to `/afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat4-i686-32bit-gcc34/python`
3. Extract `ipython-0.10.tar.gz`
4. Change directory to `ipython-0.10`
5. Execute `/afs/slac.stanford.edu/g/glast/ground/GLAST_EXT/redhat4-i686-32bit-gcc34/python/2.6.5/gcc34/bin/python setup.py install`
6. Leave and erase `ipython-0.10`