fermitools - Installation #5677

Install version 2.0.8

2020-05-14 12:30 PM - Albert van Eck

Status:	Closed	**Start date:**	2022-05-17
Priority:	Normal	**Due date:**	2022-05-31
Assignee:	Albert van Eck	**% Done:**	100%
Category:		**Estimated time:**	40.00 hours
Target version:		**Spent time:**	28.75 hours

Description

Install from: https://github.com/fermi-lat/Fermitools-conda/wiki/Installation-Instructions

History

#1 - 2021-06-23 09:10 AM - Albert van Eck

- Subject changed from Install version 1.2.23 to Install version 2.0.8

#2 - 2021-09-21 10:40 AM - Albert van Eck

- Estimated time changed from 2.00 h to 40.00 h

#3 - 2021-09-21 12:01 PM - Albert van Eck

- Tracker changed from Support to Installation

#4 - 2021-09-21 12:07 PM - Albert van Eck

- % Done changed from 20 to 70

- Status changed from New to In Progress

#5 - 2021-09-21 12:10 PM - Albert van Eck

- Start date changed from 2020-05-14 to 2021-10-04

#6 - 2021-09-21 12:12 PM - Albert van Eck

- Due date set to 2021-10-08

#7 - 2022-05-23 09:28 PM - Albert van Eck

- Start date changed from 2021-10-04 to 2022-05-17

- Due date changed from 2021-10-08 to 2022-05-31

- File output.txt added

#8 - 2022-05-23 09:50 PM - Albert van Eck

- % Done changed from 70 to 100

- Status changed from In Progress to Closed

#9 - 2022-05-24 04:24 PM - Albert van Eck

(fermi_2.0.8) [root@node0518 ~]# /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8/bin/python3.7 -m pip install "setuptools<58"
Collecting setuptools<58
Downloading setuptools-57.5.0-py3-none-any.whl (819 kB)
━━ 819.3/819.3 kB 7.8 MB/s eta 0:00:00
Installing collected packages: setuptools
Attempting uninstall: setuptools
Found existing installation: setuptools 62.3.2
Uninstalling setuptools-62.3.2:

Successfully uninstalled setuptools-62.3.2
Successfully installed setuptools-57.5.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(fermi_2.0.8) [root@node0518 ~]# pip install "setuptools<58"
Requirement already satisfied: setuptools<58 in /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/envs/fermi_2.0.8/lib/python3.7/site-packages (57.5.0)
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(fermi_2.0.8) [root@node0518 ~]# pip install pyds9
Requirement already satisfied: pyds9 in /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/envs/fermi_2.0.8/lib/python3.7/site-packages (1.8.1)
Requirement already satisfied: six in /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/envs/fermi_2.0.8/lib/python3.7/site-packages (from pyds9) (1.16.0)
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(fermi_2.0.8) [root@node0518 ~]# pip install pyfits
Collecting pyfits
Using cached pyfits-3.5.tar.gz (1.7 MB)
Preparing metadata (setup.py) ... done
Requirement already satisfied: numpy in /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/envs/fermi_2.0.8/lib/python3.7/site-packages (from pyfits) (1.21.6)
Building wheels for collected packages: pyfits
Building wheel for pyfits (setup.py) ... done
Created wheel for pyfits: filename=pyfits-3.5-cp37-cp37m-linux_x86_64.whl size=1035574 sha256=61c11af3f2490aca0c0b32620bb77385e99a5908f71e61baa8a2128217398dca
Stored in directory: /root/.cache/pip/wheels/08/e8/5b/05e3ed8ca223800d18334962514e593713e22452e45362ced9
Successfully built pyfits
Installing collected packages: pyfits
Successfully installed pyfits-3.5
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(fermi_2.0.8) [root@node0518 ~]# conda config --add channels conda-forge
(fermi_2.0.8) [root@node0518 ~]# conda install -y cryptography pyopenssl urllib3
Collecting package metadata (current_repodata.json): done
Solving environment: done

> WARNING: A newer version of conda exists. <
current version: 4.9.2
latest version: 4.12.0

Please update conda by running

```
$ conda update -n base -c defaults conda
```

1. Package Plan ##

   environment location: /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8

   added / updated specs:
   - cryptography
   - pyopenssl
   - urllib3

The following packages will be downloaded:

```
package                    |            build
    ---------------------------|-----------------
    brotlipy-0.7.0             |py37h540881e_1004         342 KB  conda-forge
    cryptography-37.0.2        |   py37h38fbfac_0         1.5 MB  conda-forge
    idna-3.3                   |     pyhd8ed1ab_0          55 KB  conda-forge
    pyopenssl-22.0.0           |     pyhd8ed1ab_0          49 KB  conda-forge
    pysocks-1.7.1              |   py37h89c1867_5          28 KB  conda-forge
    urllib3-1.26.9             |     pyhd8ed1ab_0         100 KB  conda-forge
    ------------------------------------------------------------
                                           Total:         2.1 MB
```

The following NEW packages will be INSTALLED:

```
brotlipy           conda-forge/linux-64::brotlipy-0.7.0-py37h540881e_1004
  cryptography       conda-forge/linux-64::cryptography-37.0.2-py37h38fbfac_0
  idna               conda-forge/noarch::idna-3.3-pyhd8ed1ab_0
```

```
  pyopenssl           conda-forge/noarch::pyopenssl-22.0.0-pyhd8ed1ab_0
  pysocks             conda-forge/linux-64::pysocks-1.7.1-py37h89c1867_5
  urllib3             conda-forge/noarch::urllib3-1.26.9-pyhd8ed1ab_0


Downloading and Extracting Packages
brotlipy-0.7.0      | 342 KB    |
########################################################################################################################
########################################################################################################################
######################################################################################## | 100%
cryptography-37.0.2 | 1.5 MB    |
########################################################################################################################
########################################################################################################################
######################################################################################## | 100%
idna-3.3            | 55 KB     |
########################################################################################################################
########################################################################################################################
######################################################################################## | 100%
pysocks-1.7.1       | 28 KB     |
########################################################################################################################
########################################################################################################################
######################################################################################## | 100%
pyopenssl-22.0.0    | 49 KB     |
########################################################################################################################
########################################################################################################################
######################################################################################## | 100%
urllib3-1.26.9      | 100 KB    |
########################################################################################################################
########################################################################################################################
######################################################################################## | 100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
You have PYTHONPATH set. This might interfere with the correct functioning of conda and the Fermi ST
(fermi_2.0.8) [root@node0518 ~]# python -c "import urllib3.contrib.pyopenssl; urllib3.contrib.pyopenssl.inject_into_urllib3()"
(fermi_2.0.8) [root@node0518 ~]# echo $?
0
(fermi_2.0.8) [root@node0518 ~]# conda install -y healpy ndg-httpsclient pyasn1 bz2file virtualenv cython ipython sympy pandas pathos readline
fermiPy nb_conda
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: / failed with repodata from current_repodata.json, will retry with next repodata source.

CondaError: KeyboardInterrupt

^C
You have new mail in /var/spool/mail/root
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# alias conda='mambo '
(fermi_2.0.8) [root@node0518 ~]# conda install -y healpy ndg-httpsclient pyasn1 bz2file virtualenv cython ipython sympy pandas pathos readline
fermiPy nb_conda
-bash: mambo: command not found
(fermi_2.0.8) [root@node0518 ~]# unalias conda
(fermi_2.0.8) [root@node0518 ~]# conda install mamba -c conda-forge
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: - failed with repodata from current_repodata.json, will retry with next repodata source.

CondaError: KeyboardInterrupt

^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# ^C
(fermi_2.0.8) [root@node0518 ~]# alias conda='mamba '
```

(fermi_2.0.8) [root@node0518 ~]# unalias conda
(fermi_2.0.8) [root@node0518 ~]# conda install mamba -c conda-forge
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: failed with repodata from current_repodata.json, will retry with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: done

> WARNING: A newer version of conda exists. <
current version: 4.9.2
latest version: 4.12.0

Please update conda by running

```
$ conda update -n base -c defaults conda
```

1. Package Plan ##

   environment location: /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8

   added / updated specs:
   - mamba

The following packages will be downloaded:

```
package                    |            build
    ---------------------------|-----------------
    charset-normalizer-2.0.12  |     pyhd8ed1ab_0          35 KB  conda-forge
    conda-4.12.0               |   py37h89c1867_0         1.0 MB  conda-forge
    conda-package-handling-1.8.1|   py37h540881e_1         1.0 MB  conda-forge
    libarchive-3.5.1           |       h3f442fb_1         1.6 MB  conda-forge
    libsolv-0.7.22             |       h6239696_0         443 KB  conda-forge
    lzo-2.10                   |    h516909a_1000         314 KB  conda-forge
    mamba-0.15.3               |   py37h7f483ca_0         741 KB  conda-forge
    pycosat-0.6.3              |py37h540881e_1010         107 KB  conda-forge
    reproc-14.2.3              |       h7f98852_0          28 KB  conda-forge
    reproc-cpp-14.2.3          |       h9c3ff4c_0          20 KB  conda-forge
    requests-2.27.1            |     pyhd8ed1ab_0          53 KB  conda-forge
    ruamel_yaml-0.15.80        |py37h5e8e339_1006         270 KB  conda-forge
    ------------------------------------------------------------
                                           Total:         5.5 MB
```

The following NEW packages will be INSTALLED:

```
charset-normalizer conda-forge/noarch::charset-normalizer-2.0.12-pyhd8ed1ab_0
  conda              conda-forge/linux-64::conda-4.12.0-py37h89c1867_0
  conda-package-han~ conda-forge/linux-64::conda-package-handling-1.8.1-py37h540881e_1
  libarchive         conda-forge/linux-64::libarchive-3.5.1-h3f442fb_1
  libsolv            conda-forge/linux-64::libsolv-0.7.22-h6239696_0
  lzo                conda-forge/linux-64::lzo-2.10-h516909a_1000
  mamba              conda-forge/linux-64::mamba-0.15.3-py37h7f483ca_0
  pycosat            conda-forge/linux-64::pycosat-0.6.3-py37h540881e_1010
  reproc             conda-forge/linux-64::reproc-14.2.3-h7f98852_0
  reproc-cpp         conda-forge/linux-64::reproc-cpp-14.2.3-h9c3ff4c_0
  requests           conda-forge/noarch::requests-2.27.1-pyhd8ed1ab_0
  ruamel_yaml        conda-forge/linux-64::ruamel_yaml-0.15.80-py37h5e8e339_1006
```

Proceed ([y]/n)? y

Downloading and Extracting Packages
libarchive-3.5.1 | 1.6 MB |
##
##
| 100%
lzo-2.10 | 314 KB |
##
##
| 100%
reproc-14.2.3 | 28 KB |
##

```
####################################################################################################
######################################################################## | 100%
conda-package-handli | 1.0 MB    |
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requests-2.27.1      | 53 KB     |
####################################################################################################
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######################################################################## | 100%
libsolv-0.7.22       | 443 KB    |
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######################################################################## | 100%
pycosat-0.6.3        | 107 KB    |
####################################################################################################
####################################################################################################
######################################################################## | 100%
reproc-cpp-14.2.3    | 20 KB     |
####################################################################################################
####################################################################################################
######################################################################## | 100%
ruamel_yaml-0.15.80  | 270 KB    |
####################################################################################################
####################################################################################################
######################################################################## | 100%
conda-4.12.0         | 1.0 MB    |
####################################################################################################
####################################################################################################
######################################################################## | 100%
charset-normalizer-2 | 35 KB     |
####################################################################################################
####################################################################################################
######################################################################## | 100%
mamba-0.15.3         | 741 KB    |
####################################################################################################
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######################################################################## | 100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
You have PYTHONPATH set. This might interfere with the correct functioning of conda and the Fermi ST
(fermi_2.0.8) [root@node0518 ~]# alias conda='mamba '
You have new mail in /var/spool/mail/root
(fermi_2.0.8) [root@node0518 ~]# pip install "setuptools<58"
Requirement already satisfied: setuptools<58 in /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages (50.3.1.post20201107)
(fermi_2.0.8) [root@node0518 ~]# pip install pyds9
Processing ./.cache/pip/wheels/98/72/08/5741556191721ab31dff3bd5e31d2536cd86d9baa10e98f30e/pyds9-1.8.1-py3-none-any.whl
Requirement already satisfied: six in /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages (from pyds9) (1.15.0)
Installing collected packages: pyds9
Successfully installed pyds9-1.8.1
(fermi_2.0.8) [root@node0518 ~]# pip install pyfits
Processing ./.cache/pip/wheels/08/e8/5b/05e3ed8ca223800d18334962514e593713e22452e45362ced9/pyfits-3.5-cp37-cp37m-linux_x86_64.whl
Collecting numpy
Downloading numpy-1.21.6-cp37-cp37m-manylinux_2_12_x86_64.manylinux2010_x86_64.whl (15.7 MB)
|████████████████████████████████| 15.7 MB 14.4 MB/s
Installing collected packages: numpy, pyfits
Successfully installed numpy-1.21.6 pyfits-3.5
(fermi_2.0.8) [root@node0518 ~]# conda config --add channels conda-forge

_      _      _
                  /  \  /  \  /  \  /  \
                 /    \/    \/    \/    \
                /  /  /  /  /  /  /  /
               /  / \   / \   / \   / \  \_
              /  /   \_/   \_/   \_/   \    o \__,
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    |/
        ███╗   ███╗ █████╗ ███╗   ███╗██████╗  █████╗
        ████╗ ████║██╔══██╗████╗ ████║██╔══██╗██╔══██╗
        ██╔████╔██║███████║██╔████╔██║██████╔╝███████║
        ██║╚██╔╝██║██╔══██║██║╚██╔╝██║██╔══██╗██╔══██║
        ██║ ╚═╝ ██║██║  ██║██║ ╚═╝ ██║██████╔╝██║  ██║
        ╚═╝     ╚═╝╚═╝  ╚═╝╚═╝     ╚═╝╚═════╝ ╚═╝  ╚═╝
```
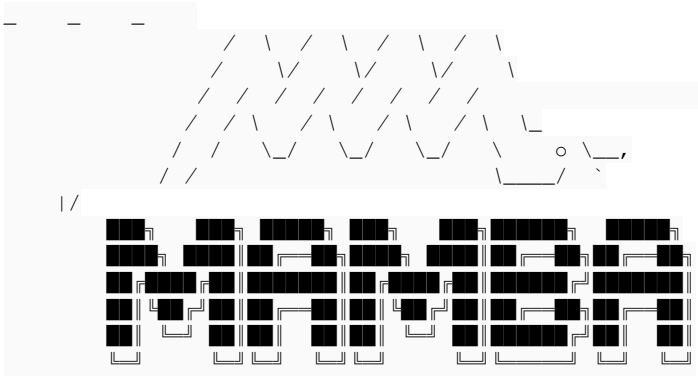

```
mamba (0.15.3) supported by @QuantStack


GitHub:  https://github.com/mamba-org/mamba
        Twitter: https://twitter.com/QuantStack
```

Currently, only install, create, list, search, run, info and clean are supported through mamba.
(fermi_2.0.8) [root@node0518 ~]# conda install -y cryptography pyopenssl urllib3



```
mamba (0.15.3) supported by @QuantStack


GitHub:  https://github.com/mamba-org/mamba
        Twitter: https://twitter.com/QuantStack
```

Looking for: ['cryptography', 'pyopenssl', 'urllib3']

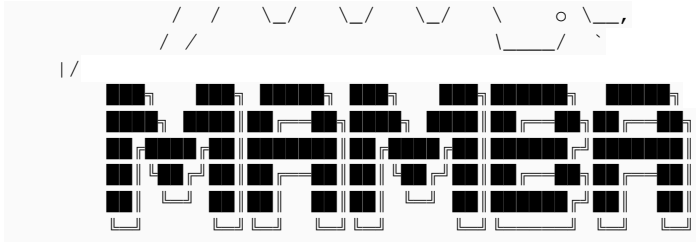
pkgs/main/noarch [==========] (00m:00s) Done
pkgs/r/linux-64 [==========] (00m:00s) Done
pkgs/r/noarch [==========] (00m:00s) Done
pkgs/main/linux-64 [==========] (00m:01s) Done
conda-forge/noarch [==========] (00m:03s) Done
conda-forge/linux-64 [==========] (00m:07s) Done

Pinned packages:
- python 3.7.*

Transaction

```
Prefix: /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8


All requested packages already installed
```

(fermi_2.0.8) [root@node0518 ~]# python -c "import urllib3.contrib.pyopenssl; urllib3.contrib.pyopenssl.inject_into_urllib3()"
(fermi_2.0.8) [root@node0518 ~]# conda install -y healpy ndg-httpsclient pyasn1 bz2file virtualenv cython ipython sympy pandas pathos readline fermiPy nb_conda



```
mamba (0.15.3) supported by @QuantStack


GitHub:  https://github.com/mamba-org/mamba
        Twitter: https://twitter.com/QuantStack
```

Looking for: ['healpy', 'ndg-httpsclient', 'pyasn1', 'bz2file', 'virtualenv', 'cython', 'ipython', 'sympy', 'pandas', 'pathos', 'readline', 'fermipy', 'nb_conda']

conda-forge/linux-64 Using cache
conda-forge/noarch Using cache
pkgs/main/linux-64 [====================] (00m:00s) No change
pkgs/main/noarch [====================] (00m:00s) No change
pkgs/r/linux-64 [====================] (00m:00s) No change
pkgs/r/noarch [====================] (00m:00s) No change

Pinned packages:
- python 3.7.*

Transaction

```
Prefix: /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8


Updating specs:


- healpy
   - ndg-httpsclient
   - pyasn1
   - bz2file
   - virtualenv
   - cython
   - ipython
   - sympy
   - pandas
   - pathos
   - readline
   - fermipy
   - nb_conda
   - ca-certificates
   - certifi
   - openssl


Package                Version  Build           Channel                    Size
-----------------------------------------------------------------------------------
  Install:
-----------------------------------------------------------------------------------


+ bz2file                0.98  py_0            conda-forge/noarch          9 KB
  + cython              0.29.30  py37hd23a5d3_0  conda-forge/linux-64        2 MB
  + dill                0.3.5.1  pyhd8ed1ab_0    conda-forge/noarch         71 KB
  + distlib               0.3.4  pyhd8ed1ab_0    conda-forge/noarch        371 KB
```

```
  + fermipy               1.0.1  py37h6531663_1  conda-forge/linux-64       29 MB
  + filelock              3.7.0  pyhd8ed1ab_0    conda-forge/noarch         12 KB
  + gammapy              0.18.2  py37h5e8e339_0  conda-forge/linux-64     1019 KB
  + gmp                   6.2.1  h58526e2_0      conda-forge/linux-64      806 KB
  + gmpy2                 2.1.2  py37h025e8b9_0  conda-forge/linux-64      216 KB
  + healpy               1.15.0  py37hd0552aa_2  conda-forge/linux-64        4 MB
  + mpc                   1.2.1  h9f54685_0      conda-forge/linux-64      106 KB
  + mpfr                  4.1.0  h9202a9a_1      conda-forge/linux-64        3 MB
  + mpmath                1.2.1  pyhd8ed1ab_0    conda-forge/noarch        437 KB
  + multiprocess      0.70.12.2  py37h540881e_2  conda-forge/linux-64      184 KB
  + nb_conda              2.2.1  py37h89c1867_4  conda-forge/linux-64       36 KB
  + nb_conda_kernels      2.3.1  py37h89c1867_1  conda-forge/linux-64       27 KB
  + ndg-httpsclient       0.5.1  py_1            conda-forge/noarch         26 KB
  + pathos                0.2.8  pyhd8ed1ab_0    conda-forge/noarch         49 KB
  + platformdirs          2.5.1  pyhd8ed1ab_0    conda-forge/noarch         15 KB
  + pox                   0.3.1  pyhd8ed1ab_0    conda-forge/noarch         24 KB
  + ppft                1.7.6.5  pyhd8ed1ab_0    conda-forge/noarch         32 KB
  + pyasn1                0.4.8  py_0            conda-forge/noarch         53 KB
  + pydantic              1.9.1  py37h540881e_0  conda-forge/linux-64        2 MB
  + pytest-runner         6.0.0  pyhd8ed1ab_0    conda-forge/noarch         11 KB
  + regions                 0.5  py37h5e8e339_1  conda-forge/linux-64      295 KB
  + sympy                1.10.1  py37h89c1867_0  conda-forge/linux-64       12 MB
  + virtualenv          20.14.1  py37h89c1867_0  conda-forge/linux-64        8 MB
```

```
Summary:
```

```
Install: 27 packages
```

```
Total download: 63 MB
```

Finished pyasn1 (00m:00s) 53 KB 168 KB/s
Finished dill (00m:00s) 71 KB 223 KB/s
Finished gmp (00m:00s) 806 KB 2 MB/s
Finished bz2file (00m:00s) 9 KB 17 KB/s
Finished pox (00m:00s) 24 KB 48 KB/s
Finished ppft (00m:00s) 32 KB 63 KB/s
Finished ndg-httpsclient (00m:00s) 26 KB 41 KB/s
Finished filelock (00m:00s) 12 KB 18 KB/s
Finished multiprocess (00m:00s) 184 KB 222 KB/s
Finished nb_conda (00m:00s) 36 KB 42 KB/s
Finished pytest-runner (00m:00s) 11 KB 11 KB/s
Finished pydantic (00m:00s) 2 MB 2 MB/s
Finished distlib (00m:00s) 371 KB 377 KB/s
Finished sympy (00m:00s) 12 MB 15 MB/s
Finished cython (00m:00s) 2 MB 2 MB/s
Finished mpc (00m:00s) 106 KB 92 KB/s
Finished mpmath (00m:00s) 437 KB 364 KB/s
Finished platformdirs (00m:00s) 15 KB 9 KB/s
Finished gmpy2 (00m:00s) 216 KB 112 KB/s
Finished fermipy (00m:01s) 29 MB 19 MB/s
Finished healpy (00m:00s) 4 MB 2 MB/s
Finished regions (00m:00s) 295 KB 126 KB/s
Finished pathos (00m:00s) 49 KB 20 KB/s
Finished nb_conda_kernels (00m:00s) 27 KB 10 KB/s
Finished mpfr (00m:00s) 3 MB 987 KB/s
Finished gammapy (00m:01s) 1019 KB 246 KB/s
Finished virtualenv (00m:07s) 8 MB 977 KB/s
Downloading [==]
(01m:04s) 7.24 MB/s
Extracting [==>]
(01m:03s) 26 / 27
if not haveBase: raise getopt.GetoptError("Must specify basename, printing help.")
- print "Creating model map"
+ print("Creating model map")

```
qP = quickPlot(basename, True)
qP.createModelMap(modelFile)
return
elif opt in ('-r', '--residmap'):
if not haveBase: raise getopt.GetoptError("Must specify basename, printing help.")
-             print "Creating residual map"
+              print("Creating residual map")
qP = quickPlot(basename,True)
qP.createResidMap()
return
elif opt in ('-s','--sigmap'):
if not haveBase: raise getopt.GetoptError("Must specify basename, printing help.")
-             print "Creating significance map"
+              print("Creating significance map")
qP = quickPlot(basename,True)
qP.createSigMap()
return
elif opt in ('-p','--plot'):
if not haveBase: raise getopt.GetoptError("Must specify basename, printing help.")
-             print "Plotting all maps"
+              print("Plotting all maps")
qP = quickPlot(basename, True)
qP.plotMaps()
return
elif opt in ('-P', '--Plot'):
if not haveBase: raise getopt.GetoptError("Must specify basename, printing help.")
-             print "Creating all maps and then plotting them"
+              print("Creating all maps and then plotting them")
qP = quickPlot(basename, True)
qP.runAll(modelFile,True)

if not opts: raise getopt.GetoptError("Must specify an option, printing help.")



except getopt.error as e:
-         print "Command Line Error: " + e.msg
+         print("Command Line Error: " + e.msg)
          printCLIHelp()



if __name__ == '__main__': cli()
RefactoringTool: Files that were modified:
RefactoringTool: ./quickPlot.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./quickUtils.py
--- ./quickUtils.py    (original)
+++ ./quickUtils.py    (refactored)
@ -10,7 +10,7 @
 import os
 import logging
 import math
-import ConfigParser
+import configparser
 import numpy as np



from gt_apps import *
@ -56,12 +56,12 @



basename = commonDictionary['base']



-    config = ConfigParser.RawConfigParser()
+    config = configparser.RawConfigParser()
config.read(basename+'.cfg')
if(not config.has_section('common')):
```

```
config.add_section('common')

-    for variable, value in commonDictionary.iteritems():
+    for variable, value in commonDictionary.items():
config.set('common', variable, value)
quickLogger.info("wrote common config to "+basename+".cfg.")

@ -70,7 +70,7 @@
quickLogger.info("quickAnalysis config exists, overwriting...")
else:
config.add_section('quickAnalysis')
-        for variable, value in analysisDictionary.iteritems():
+        for variable, value in analysisDictionary.items():
config.set('quickAnalysis', variable, value)
quickLogger.info("wrote quickAnalysis config to "+basename+".cfg.")

@ -79,7 +79,7 @@
quickLogger.info("quickLike config exists, overwriting...")
else:
config.add_section('quickLike')
-        for variable, value in likelihoodDictionary.iteritems():
+        for variable, value in likelihoodDictionary.items():
config.set('quickLike', variable, value)
quickLogger.info("wrote quickLikeconfig to "+basename+".cfg.")

@ -88,7 +88,7 @@
quickLogger.info("quickPlot config exists, overwriting...")
else:
config.add_section('quickPlot')
-        for variable, value in plotDictionary.iteritems():
+        for variable, value in plotDictionary.items():
config.set('quickPlot', variable, value)
quickLogger.info("wrote quickPlot config to "+basename+".cfg.")

@ -97,7 +97,7 @@
quickLogger.info("quickCurve config exists, overwriting...")
else:
config.add_section('quickCurve')
-        for variable, value in curveDictionary.iteritems():
+        for variable, value in curveDictionary.items():
config.set('quickCurve', variable, value)
quickLogger.info("wrote quickCurve config to "+basename+".cfg.")

@ -120,7 +120,7 @@
try:
checkForFiles(quickLogger,[basename+".cfg"])
quickLogger.info('Reading from config file ('+basename+'.cfg)')
-        config = ConfigParser.RawConfigParser()
+        config = configparser.RawConfigParser()
config.read(basename+'.cfg')

if(config.has_section('common')):
@ -244,7 +244,7 @@
          AppCommand.run(print_command=printCmd)
          quickLogger.info(AppCommand.command())
      else:
-         print AppCommand.command()
+         print(AppCommand.command())



def runModel(quickLogger,
RefactoringTool: Files that were modified:
RefactoringTool: ./quickUtils.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./setup.py
--- ./setup.py    (original)
+++ ./setup.py    (refactored)
@ -23,9 +23,9 @@
 fermi_dir = os.environ.get("FERMI_DIR")
```

```
if fermi_dir:
-    print "The Fermi Science tools seem to be set up."
+    print("The Fermi Science tools seem to be set up.")
 else:
-    print "The Fermi Science tools are not set up."
+    print("The Fermi Science tools are not set up.")
     sys.exit()



setup(name='LATAnalysisScripts',
RefactoringTool: Files that were modified:
RefactoringTool: ./setup.py
(fermi_2.0.8) [root@node0518 LATAnalysisScripts-master]# python setup.py install
The Fermi Science tools seem to be set up.
running install
running build
running build_py
copying quickUtils.py -> build/lib
copying quickAnalysis.py -> build/lib
copying quickLike.py -> build/lib
copying quickPlot.py -> build/lib
copying quickCurve.py -> build/lib
copying make2FGLxml.py -> build/lib
running install_lib
copying build/lib/quickUtils.py.bak -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickAnalysis.py.bak -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickLike.py.bak -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickPlot.py.bak -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/make2FGLxml.py.bak -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickUtils.py -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickAnalysis.py -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickLike.py -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickPlot.py -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/quickCurve.py -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
copying build/lib/make2FGLxml.py -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
byte-compiling /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/quickUtils.py to quickUtils.cpython-37.pyc
byte-compiling /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/quickAnalysis.py to quickAnalysis.cpython-37.pyc
byte-compiling /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/quickLike.py to quickLike.cpython-37.pyc
byte-compiling /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/quickPlot.py to quickPlot.cpython-37.pyc
Sorry: TabError: inconsistent use of tabs and spaces in indentation (quickPlot.py, line 367)
byte-compiling /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/quickCurve.py to quickCurve.cpython-37.pyc
byte-compiling /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/make2FGLxml.py to make2FGLxml.cpython-37.pyc
running install_data
creating /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8/share/fermitools/bin
copying scripts/quickAnalysis -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8/share/fermitools/bin
copying scripts/quickLike -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8/share/fermitools/bin
copying scripts/quickPlot -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8/share/fermitools/bin
copying scripts/quickCurve -> /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python/envs/fermi_2.0.8/share/fermitools/bin
running install_egg_info
Writing /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/LATAnalysisScripts-0.2.0-py3.7.egg-info
(fermi_2.0.8) [root@node0518 LATAnalysisScripts-master]# popd
/scratch/vanecka/build/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0
(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# cd $APP_TMP
(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# wget https://github.com/kialio/gtapps_mp/archive/master.zip
--O gtapps_mp-master.zip
-- 2022-05-24 16:10:52 --  https://github.com/kialio/gtapps_mp/archive/master.zip
Connecting to 172.31.1.254:3128... connected.
```

```
Proxy request sent, awaiting response... 301 Moved Permanently
Location: https://github.com/fermiPy/gtapps_mp/archive/master.zip [following]
--2022-05-24 16:10:53--  https://github.com/fermiPy/gtapps_mp/archive/master.zip
Connecting to 172.31.1.254:3128... connected.
Proxy request sent, awaiting response... 302 Found
Location: https://codeload.github.com/fermiPy/gtapps_mp/zip/refs/heads/master [following]
--2022-05-24 16:10:54--  https://codeload.github.com/fermiPy/gtapps_mp/zip/refs/heads/master
Connecting to 172.31.1.254:3128... connected.
Proxy request sent, awaiting response... 200 OK
Length: unspecified [application/zip]
Saving to: 'gtapps_mp-master.zip'
```

```
[ <=>
                                                                                    ] 20,3
02        112KB/s   in 0.2s
```

2022-05-24 16:10:55 (112 KB/s) - 'gtapps_mp-master.zip' saved [20302]

(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# unzip gtapps_mp-master.zip
Archive: gtapps_mp-master.zip
b8b67db78d889c5a0a8ef93afbbf5aad5f17f439
replace gtapps_mp-master/.gitignore? [y]es, [n]o, [A]ll, [N]one, [r]ename: A
extracting: gtapps_mp-master/.gitignore
inflating: gtapps_mp-master/LICENSE
inflating: gtapps_mp-master/MANIFEST
inflating: gtapps_mp-master/README
inflating: gtapps_mp-master/gtapps_mp/__init__.py
inflating: gtapps_mp-master/gtapps_mp/gtdiffrsp_mp.py
inflating: gtapps_mp-master/gtapps_mp/gtexpmap_mp.py
inflating: gtapps_mp-master/gtapps_mp/gtltcube_mp.py
inflating: gtapps_mp-master/gtapps_mp/gtsrcmaps_mp.py
inflating: gtapps_mp-master/gtapps_mp/gttsmap_mp.py
inflating: gtapps_mp-master/gtapps_mp/utils.py
extracting: gtapps_mp-master/setup.cfg
inflating: gtapps_mp-master/setup.py
(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# pushd gtapps_mp-master/
/scratch/vanecka/build/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/gtapps_mp-master /scratch/vanecka/build/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0
(fermi_2.0.8) [root@node0518 gtapps_mp-master]# find . ~~name "*.py" -exec 2to3 -w {} \;~~
~~RefactoringTool: Skipping optional fixer: buffer~~
~~RefactoringTool: Skipping optional fixer: idioms~~
~~RefactoringTool: Skipping optional fixer: set_literal~~
~~RefactoringTool: Skipping optional fixer: ws_comma~~
~~RefactoringTool: No changes to ./gtapps_mp/__init__.py~~
~~RefactoringTool: Files that need to be modified:~~
~~RefactoringTool: ./gtapps_mp/__init__.py~~
~~RefactoringTool: Skipping optional fixer: buffer~~
~~RefactoringTool: Skipping optional fixer: idioms~~
~~RefactoringTool: Skipping optional fixer: set_literal~~
~~RefactoringTool: Skipping optional fixer: ws_comma~~
~~RefactoringTool: Refactored ./gtapps_mp/gtdiffrsp_mp.py~~
– ./gtapps_mp/gtdiffrsp_mp.py (original)
+++ ./gtapps_mp/gtdiffrsp_mp.py (refactored)
@ -21,7 +21,7 @
name of the created event file which can be combined with other
files and/or deleted later.'''

- print "Starting calculation on interval {} to {}".format(times[0],times[1])
+ print("Starting calculation on interval {} to {}".format(times[0],times[1]))

```
osfilehandle,outfilename = tempfile.mkstemp(suffix=".fits")
     filter['rad'] = "INDEF"
@ -47,7 +47,7 @
     diffResps['irfs'] = times[5]
     diffResps['chatter'] = 0
     diffResps.run(print_command=False)
-    print "Completed calculation of interval {} to {}".format(times[0],times[1])
+    print("Completed calculation of interval {} to {}".format(times[0],times[1]))
     return outfilename
```

```
def eventsum(filenames, Outfile, SaveTemp):
@ -83,10 +83,10 @@
         filter.run(print_command=False)



if SaveTemp:
-        print "Did not delete the following temporary files:"
-        print filenames
+        print("Did not delete the following temporary files:")
+        print(filenames)
     else:
-        print "Deleting temporary files..."
+        print("Deleting temporary files...")
         for filename in filenames:
             os.remove(filename)



@ -97,7 +97,7 @@
and splits the time into chunks.  It then submits jobs based upon
those start and stop times.'''

-    print "Opening event file to determine break points..."
+    print("Opening event file to determine break points...")
hdulist = pyfits.open(EVFile)
tstart = hdulist[0].header['TSTART']
tstop = hdulist[0].header['TSTOP']
@ -112,9 +112,9 @@
pool = Pool(processes=bins)
times = np.array([starts,stops,scfiles,evfiles,srcmdls,irfs])

-    print "Spawning {} jobs...".format(bins)
+    print("Spawning {} jobs...".format(bins))
tempfilenames = pool.map(diffrsp,times.transpose())
-    print "Combining temporary files..."
+    print("Combining temporary files...")
eventsum(tempfilenames, OutFile, SaveTemp)

def cli():
RefactoringTool: Files that were modified:
RefactoringTool: ./gtapps_mp/gtdiffrsp_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./gtapps_mp/gtexpmap_mp.py
--- ./gtapps_mp/gtexpmap_mp.py    (original)
+++ ./gtapps_mp/gtexpmap_mp.py    (refactored)
@ -18,10 +18,10 @@
     srcrad and nenergies.  This function creates a temporary file for
     the output and returns that file's name.'''



-    print "Starting calculation of region {},{} to {},{}".format(square[0][0],
+    print("Starting calculation of region {},{} to {},{}".format(square[0][0],
square[1][0],
square[0][1],
-                                                square[1][1])
+                                                square[1][1]))
osfilehandle,outfilename = tempfile.mkstemp(suffix=".fits")
expMap['nlongmin'] = "{:,.0f}".format(float(square[0][0]))
expMap['nlongmax'] = "{:,.0f}".format(float(square[0][1]))
@ -39,10 +39,10 @@
expMap['submap'] = "yes"
expMap['chatter'] = 0
expMap.run(print_command=False)
-    print "Completed calculation of region {},{} to {},{}".format(square[0][0],
+    print("Completed calculation of region {},{} to {},{}".format(square[0][0],
square[1][0],
square[0][1],
-                                                square[1][1])
+                                                square[1][1]))
```

```
return outfilename
```

```
@ -65,10 +65,10 @@
for expmap_file in expmap_files: expmap_file.close()

if SaveTemp:
-        print "Did not delete the following temporary files:"
-        print filenames
+        print("Did not delete the following temporary files:")
+        print(filenames)
     else:
-        print "Deleting temporary files..."
+        print("Deleting temporary files...")
         for filename in filenames:
             os.remove(filename)
```

```
@ -82,7 +82,7 @@
bins = xbins*ybins

if np.mod(nlong,xbins) or np.mod(nlat,ybins):
-        print "The number of x and y bins must fit evenly into the number of long or lat points."
+        print("The number of x and y bins must fit evenly into the number of long or lat points.")
         return
```

```
stepx = nlong/xbins
@ -97,9 +97,9 @@
     SQ = [(row, SCFile,EVFile,ExpCube,nlong,nlat,IRF,srcrad,nenergy) for row in pairs]
```

```
pool = Pool(processes=bins)
-    print "Spawning {} jobs...".format(bins)
+    print("Spawning {} jobs...".format(bins))
     filenames = pool.map(expmap,SQ)
-    print "Combining temporary files..."
+    print("Combining temporary files...")
     expsum(filenames, OutFile, SaveTemp)
```

```
def cli():
RefactoringTool: Files that were modified:
RefactoringTool: ./gtapps_mp/gtexpmap_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./gtapps_mp/gtltcube_mp.py
--- ./gtapps_mp/gtltcube_mp.py    (original)
+++ ./gtapps_mp/gtltcube_mp.py    (refactored)
@ -22,7 +22,7 @@
     created ltcube file which can be combined with other files and/or
     deleted later.'''
```

```
-    print "Starting calculation on interval {} to {}".format(times[0],times[1])
+    print("Starting calculation on interval {} to {}".format(times[0],times[1]))
if times[3] != '':
evfile = tempfile.NamedTemporaryFile(suffix=".fits")
filter['ra']="INDEF"
@ -59,7 +59,7 @@
expCube['zmax'] = times[4]
expCube['chatter'] = 0
expCube.run(print_command=True)
-    print "Completed calculation on interval {} to {}".format(times[0],times[1])
+    print("Completed calculation on interval {} to {}".format(times[0],times[1]))
return outfilename
```

@ -83,10 +83,10 @@
"outfile="+Outfile])

```
if SaveTemp:
-        print "Did not delete the following temporary files:"
-        print filenames
-    else:
-        print "Deleting temporary files..."
+        print("Did not delete the following temporary files:")
+        print(filenames)
+    else:
+        print("Deleting temporary files...")
         for filename in filenames:
             os.remove(filename)
```

@ -107,15 +107,15 @@
gti_data = evfile[2].data

```
if tmin == 0:
-        print "Determining start and stop times from the event file..."
+        print("Determining start and stop times from the event file...")
         tstart = evfile[0].header['TSTART']
         tstop = evfile[0].header['TSTOP']
     else:
-        print "Using user defined tmin and tmax..."
+        print("Using user defined tmin and tmax...")
         tstart = tmin
         tstop = tmax
```

- print "Opening SC file to determine break points..."
+ print("Opening SC file to determine break points...")
hdulist = pyfits.open(SCFile, mode='readonly')
scdata = hdulist[1].data
hdulist.close()
@ -126,7 +126,7 @@

```
redo = True
     if EVFile !="":
-        print "Checking for good times in the event file..."
+        print("Checking for good times in the event file...")
     while redo:
         redo = False
         scstartssplit = np.array_split(scstart[time_filter],int(bins))
@ -141,42 +141,42 @@


if EVFile != "":
             for interval in zip(starts,stops):
-                if verbose: print "Looking at interval",interval[0],"to",interval[1]
+                if verbose: print("Looking at interval",interval[0],"to",interval[1])
                 good_times = False
                 #grrrr.  some bug in pyfits doesn't let me do this the python way...
                 for gti_i in range(len(gti_data)):
                     if(not good_times):
-                        if verbose: print "   Checking gti",gti_data[gti_i]['START'],"to",gti_data[gti_i]['ST
OP']
+                        if verbose: print("   Checking gti",gti_data[gti_i]['START'],"to",gti_data[gti_i]['ST
OP'])
                         gti_starts = interval[0] <= gti_data[gti_i]['START'] <= interval[1]
                         gti_stops = interval[0] <= gti_data[gti_i]['STOP'] <= interval[1]
-                        if verbose: print "   Does this gti start inside this interval? ", gti_starts
-                        if verbose: print "   Does this gti stop inside this interval? ", gti_stops
+                        if verbose: print("   Does this gti start inside this interval? ", gti_starts)
+                        if verbose: print("   Does this gti stop inside this interval? ", gti_stops)
                         good_times = gti_starts or gti_stops
-                        if verbose: print
+                        if verbose: print()
```

```
-             if verbose: print "  Are there good times inside this interval? ", good_times
+             if verbose: print("  Are there good times inside this interval? ", good_times)
if not good_times:
redo = True
-             if verbose: print
+             if verbose: print()

if redo:
              if bins <= 1:
-                 print "No good time intervals found.  Bailing..."
+                 print("No good time intervals found.  Bailing...")
                  sys.exit(1)
-             print "One (or more) of the slices doesn't have a GTI."
-             print "Reducing the number of threads from ",bins,"to",bins-1
+             print("One (or more) of the slices doesn't have a GTI.")
+             print("Reducing the number of threads from ",bins,"to",bins-1)
              bins -= 1



scfiles = [SCFile for st in scstartssplit]
     evfiles = [EVFile for st in scstartssplit]
-    print "EVFiles:",evfiles
+    print("EVFiles:",evfiles)
     zmaxes =  [zmax for st in scstartssplit]



pool = Pool(processes=bins)
     times = np.array([starts,stops,scfiles,evfiles,zmaxes])
-    print "Spawning {} jobs...".format(bins)
+    print("Spawning {} jobs...".format(bins))
     tempfilenames = pool.map(ltcube,times.transpose())
-    print "Combining temporary files..."
+    print("Combining temporary files...")
     ltsum(tempfilenames, OutFile, SaveTemp)



def cli():
RefactoringTool: Files that were modified:
RefactoringTool: ./gtapps_mp/gtltcube_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./gtapps_mp/gtsrcmaps_mp.py
--- ./gtapps_mp/gtsrcmaps_mp.py    (original)
+++ ./gtapps_mp/gtsrcmaps_mp.py    (refactored)
@ -83,10 +83,10 @
         ref_hdu.writeto(outfile,clobber='yes')



if savetemp:
-        print "Did not delete the following temporary files:"
-        print results
+        print("Did not delete the following temporary files:")
+        print(results)
     else:
-        print "Deleting temporary files..."
+        print("Deleting temporary files...")
         for result in results:
             os.remove(result[1])



@ -105,9 +105,9 @
#There's an error when you only use one bin so you need to
#make sure and compute more than one bin per job.
while len(energies)/float(jobs) < 3:
-       print "Too many jobs ({}), reducing by 1".format(jobs)
+       print("Too many jobs ({}), reducing by 1".format(jobs))
jobs -= 1
print "Jobs is now {}".format(jobs)
```

```
+       print("Jobs is now {}".format(jobs))
energy_arrays = np.array_split(energies,jobs)

options = {'nxpix': nxpix,
@ -132,9 +132,9 @@
      SQ = [(array,options) for array in energy_arrays]



pool = Pool(processes=jobs)
-     print "Spawning {} jobs...".format(jobs)
+     print("Spawning {} jobs...".format(jobs))
      results = pool.map(run_gtsrcmaps,SQ)
-     print "Combining temporary files..."
+     print("Combining temporary files...")
      srcmapssum(results, ref_hdu, outfile, savetmp)



def cli():
RefactoringTool: Files that were modified:
RefactoringTool: ./gtapps_mp/gtsrcmaps_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./gtapps_mp/gttsmap_mp.py
--- ./gtapps_mp/gttsmap_mp.py    (original)
+++ ./gtapps_mp/gttsmap_mp.py    (refactored)
@ -149,7 +149,7 @@
      command = ("python %s runLike %s %s"
                 % (this_arg,subdir, tpl_file))
      sys.stdout.write("partition %s: " % subdir)
-     print command
+    print(command)
      sys.stdout.flush()
      subprocess.call(command.split())



@ -291,7 +291,7 @@

tsmap.merge_results()
      if not savetmp:
-         print "Deleting temporary files."
+         print("Deleting temporary files.")
          tsmap.remove_tempfiles()



RefactoringTool: Files that were modified:
RefactoringTool: ./gtapps_mp/gttsmap_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: No changes to ./gtapps_mp/utils.py
RefactoringTool: Files that need to be modified:
RefactoringTool: ./gtapps_mp/utils.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: No changes to ./build/lib/gtapps_mp/__init__.py
RefactoringTool: Files that need to be modified:
RefactoringTool: ./build/lib/gtapps_mp/__init__.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: No changes to ./build/lib/gtapps_mp/utils.py
RefactoringTool: Files that need to be modified:
RefactoringTool: ./build/lib/gtapps_mp/utils.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
```

```
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./build/lib/gtapps_mp/gtdiffrsp_mp.py
--- ./build/lib/gtapps_mp/gtdiffrsp_mp.py    (original)
+++ ./build/lib/gtapps_mp/gtdiffrsp_mp.py    (refactored)
@ -21,7 +21,7 @@
name of the created event file which can be combined with other
files and/or deleted later.'''

-    print("Starting calculation on interval {} to {}".format(times[0],times[1]))
+    print(("Starting calculation on interval {} to {}".format(times[0],times[1])))

osfilehandle,outfilename = tempfile.mkstemp(suffix=".fits")
     filter['rad'] = "INDEF"
@ -47,7 +47,7 @@
     diffResps['irfs'] = times[5]
     diffResps['chatter'] = 0
     diffResps.run(print_command=False)
-    print("Completed calculation of interval {} to {}".format(times[0],times[1]))
+    print(("Completed calculation of interval {} to {}".format(times[0],times[1])))
     return outfilename



def eventsum(filenames, Outfile, SaveTemp):
@ -112,7 +112,7 @@
     pool = Pool(processes=bins)
     times = np.array([starts,stops,scfiles,evfiles,srcmdls,irfs])



-    print("Spawning {} jobs...".format(bins))
+    print(("Spawning {} jobs...".format(bins)))
tempfilenames = pool.map(diffrsp,times.transpose())
print("Combining temporary files...")
eventsum(tempfilenames, OutFile, SaveTemp)
RefactoringTool: Files that were modified:
RefactoringTool: ./build/lib/gtapps_mp/gtdiffrsp_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./build/lib/gtapps_mp/gtexpmap_mp.py
--- ./build/lib/gtapps_mp/gtexpmap_mp.py    (original)
+++ ./build/lib/gtapps_mp/gtexpmap_mp.py    (refactored)
@ -18,10 +18,10 @@
srcrad and nenergies.  This function creates a temporary file for
the output and returns that file's name.'''

-    print("Starting calculation of region {},{} to {},{}".format(square[0][0],
+    print(("Starting calculation of region {},{} to {},{}".format(square[0][0],
square[1][0],
square[0][1],
-                                                 square[1][1]))
+                                                 square[1][1])))
osfilehandle,outfilename = tempfile.mkstemp(suffix=".fits")
expMap['nlongmin'] = "{:,.0f}".format(float(square[0][0]))
expMap['nlongmax'] = "{:,.0f}".format(float(square[0][1]))
@ -39,10 +39,10 @@
expMap['submap'] = "yes"
expMap['chatter'] = 0
expMap.run(print_command=False)
-    print("Completed calculation of region {},{} to {},{}".format(square[0][0],
+    print(("Completed calculation of region {},{} to {},{}".format(square[0][0],
square[1][0],
square[0][1],
-                                                 square[1][1]))
+                                                 square[1][1])))

return outfilename



@ -97,7 +97,7 @@
SQ = [(row, SCFile,EVFile,ExpCube,nlong,nlat,IRF,srcrad,nenergy) for row in pairs]
```

```
pool = Pool(processes=bins)
-    print("Spawning {} jobs...".format(bins))
+    print(("Spawning {} jobs...".format(bins)))
     filenames = pool.map(expmap,SQ)
     print("Combining temporary files...")
     expsum(filenames, OutFile, SaveTemp)
RefactoringTool: Files that were modified:
RefactoringTool: ./build/lib/gtapps_mp/gtexpmap_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./build/lib/gtapps_mp/gtltcube_mp.py
--- ./build/lib/gtapps_mp/gtltcube_mp.py    (original)
+++ ./build/lib/gtapps_mp/gtltcube_mp.py    (refactored)
@ -22,7 +22,7 @
     created ltcube file which can be combined with other files and/or
     deleted later.'''
```

```
-   print("Starting calculation on interval {} to {}".format(times[0],times[1]))
+   print(("Starting calculation on interval {} to {}".format(times[0],times[1])))
if times[3] != '':
evfile = tempfile.NamedTemporaryFile(suffix=".fits")
filter['ra']="INDEF"
@ -59,7 +59,7 @
expCube['zmax'] = times[4]
expCube['chatter'] = 0
expCube.run(print_command=True)
-   print("Completed calculation on interval {} to {}".format(times[0],times[1]))
+   print(("Completed calculation on interval {} to {}".format(times[0],times[1])))
return outfilename

@ -141,20 +141,20 @
```

```
if EVFile != "":
             for interval in zip(starts,stops):
-                if verbose: print("Looking at interval",interval[0],"to",interval[1])
+                if verbose: print(("Looking at interval",interval[0],"to",interval[1]))
                 good_times = False
                 #grrrr.  some bug in pyfits doesn't let me do this the python way...
                 for gti_i in range(len(gti_data)):
                     if(not good_times):
-                        if verbose: print("   Checking gti",gti_data[gti_i]['START'],"to",gti_data[gti_i]['ST
OP'])
+                        if verbose: print(("   Checking gti",gti_data[gti_i]['START'],"to",gti_data[gti_i]['S
TOP']))
                         gti_starts = interval[0] <= gti_data[gti_i]['START'] <= interval[1]
                         gti_stops = interval[0] <= gti_data[gti_i]['STOP'] <= interval[1]
-                        if verbose: print("   Does this gti start inside this interval? ", gti_starts)
-                        if verbose: print("   Does this gti stop inside this interval? ", gti_stops)
+                        if verbose: print("   Does this gti start inside this interval? ", gti_starts))
+                        if verbose: print("   Does this gti stop inside this interval? ", gti_stops))
                         good_times = gti_starts or gti_stops
                         if verbose: print()
```

```
-            if verbose: print("  Are there good times inside this interval? ", good_times)
+            if verbose: print(("  Are there good times inside this interval? ", good_times))
if not good_times:
redo = True
if verbose: print()
@ -164,17 +164,17 @
print("No good time intervals found.  Bailing...")
sys.exit(1)
print("One (or more) of the slices doesn't have a GTI.")
-         print("Reducing the number of threads from ",bins,"to",bins-1)
+         print(("Reducing the number of threads from ",bins,"to",bins-1))
bins -= 1
```

```
scfiles = [SCFile for st in scstartssplit]
     evfiles = [EVFile for st in scstartssplit]
-    print("EVFiles:",evfiles)
```

```
+    print(("EVFiles:",evfiles))
     zmaxes =  [zmax for st in scstartssplit]



pool = Pool(processes=bins)
     times = np.array([starts,stops,scfiles,evfiles,zmaxes])
-    print("Spawning {} jobs...".format(bins))
+    print(("Spawning {} jobs...".format(bins)))
     tempfilenames = pool.map(ltcube,times.transpose())
     print("Combining temporary files...")
     ltsum(tempfilenames, OutFile, SaveTemp)
RefactoringTool: Files that were modified:
RefactoringTool: ./build/lib/gtapps_mp/gtltcube_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: Refactored ./build/lib/gtapps_mp/gtsrcmaps_mp.py
--- ./build/lib/gtapps_mp/gtsrcmaps_mp.py    (original)
+++ ./build/lib/gtapps_mp/gtsrcmaps_mp.py    (refactored)
@ -105,9 +105,9 @@
     #There's an error when you only use one bin so you need to
     #make sure and compute more than one bin per job.
     while len(energies)/float(jobs) < 3:
-        print("Too many jobs ({}), reducing by 1".format(jobs))
+        print(("Too many jobs ({}), reducing by 1".format(jobs)))
         jobs -= 1
-        print("Jobs is now {}".format(jobs))
+        print(("Jobs is now {}".format(jobs)))
     energy_arrays = np.array_split(energies,jobs)



options = {'nxpix': nxpix,
@ -132,7 +132,7 @@
     SQ = [(array,options) for array in energy_arrays]



pool = Pool(processes=jobs)
-    print("Spawning {} jobs...".format(jobs))
+    print(("Spawning {} jobs...".format(jobs)))
     results = pool.map(run_gtsrcmaps,SQ)
     print("Combining temporary files...")
     srcmapssum(results, ref_hdu, outfile, savetmp)
RefactoringTool: Files that were modified:
RefactoringTool: ./build/lib/gtapps_mp/gtsrcmaps_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: No changes to ./build/lib/gtapps_mp/gttsmap_mp.py
RefactoringTool: Files that need to be modified:
RefactoringTool: ./build/lib/gtapps_mp/gttsmap_mp.py
RefactoringTool: Skipping optional fixer: buffer
RefactoringTool: Skipping optional fixer: idioms
RefactoringTool: Skipping optional fixer: set_literal
RefactoringTool: Skipping optional fixer: ws_comma
RefactoringTool: No changes to ./setup.py
RefactoringTool: Files that need to be modified:
RefactoringTool: ./setup.py
(fermi_2.0.8) [root@node0518 gtapps_mp-master]# python setup.py install
running install
running bdist_egg
running egg_info
writing gtapps_mp.egg-info/PKG-INFO
writing dependency_links to gtapps_mp.egg-info/dependency_links.txt
writing entry points to gtapps_mp.egg-info/entry_points.txt
writing top-level names to gtapps_mp.egg-info/top_level.txt
reading manifest file 'gtapps_mp.egg-info/SOURCES.txt'
writing manifest file 'gtapps_mp.egg-info/SOURCES.txt'
installing library code to build/bdist.linux-x86_64/egg
running install_lib
running build_py
```

```
copying gtapps_mp/gttsmap_mp.py -> build/lib/gtapps_mp
creating build/bdist.linux-x86_64/egg
creating build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/__init__.py -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/utils.py -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtdiffrsp_mp.py.bak -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtdiffrsp_mp.py -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtexpmap_mp.py.bak -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtexpmap_mp.py -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtltcube_mp.py.bak -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtltcube_mp.py -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtsrcmaps_mp.py.bak -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gtsrcmaps_mp.py -> build/bdist.linux-x86_64/egg/gtapps_mp
copying build/lib/gtapps_mp/gttsmap_mp.py -> build/bdist.linux-x86_64/egg/gtapps_mp
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/__init__.py to init.cpython-37.pyc
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/utils.py to utils.cpython-37.pyc
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/gtdiffrsp_mp.py to gtdiffrsp_mp.cpython-37.pyc
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/gtexpmap_mp.py to gtexpmap_mp.cpython-37.pyc
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/gtltcube_mp.py to gtltcube_mp.cpython-37.pyc
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/gtsrcmaps_mp.py to gtsrcmaps_mp.cpython-37.pyc
byte-compiling build/bdist.linux-x86_64/egg/gtapps_mp/gttsmap_mp.py to gttsmap_mp.cpython-37.pyc
creating build/bdist.linux-x86_64/egg/EGG-INFO
copying gtapps_mp.egg-info/PKG-INFO -> build/bdist.linux-x86_64/egg/EGG-INFO
copying gtapps_mp.egg-info/SOURCES.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
copying gtapps_mp.egg-info/dependency_links.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
copying gtapps_mp.egg-info/entry_points.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
copying gtapps_mp.egg-info/top_level.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
zip_safe flag not set; analyzing archive contents...
creating 'dist/gtapps_mp-1.5-py3.7.egg' and adding 'build/bdist.linux-x86_64/egg' to it
removing 'build/bdist.linux-x86_64/egg' (and everything under it)
Processing gtapps_mp-1.5-py3.7.egg
Copying gtapps_mp-1.5-py3.7.egg to /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages
Adding gtapps-mp 1.5 to easy-install.pth file
Installing gtdiffrsp_mp script to /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/bin
Installing gtexpmap_mp script to /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/bin
Installing gtltcube_mp script to /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/bin
Installing gttsmap_mp script to /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/bin
```

Installed /soft/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0/lib/python3.7/site-packages/gtapps_mp-1.5-py3.7.egg
Processing dependencies for gtapps-mp==1.5
Finished processing dependencies for gtapps-mp==1.5
(fermi_2.0.8) [root@node0518 gtapps_mp-master]# popd
/scratch/vanecka/build/sl7/gen5-mic/fermitools/2.0.8_gcc_9.3.0
(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# cd $APP_TMP
(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# wget https://fermi.gsfc.nasa.gov/ssc/data/analysis/user/SED_scripts_v13.1.tgz ~~O SED_scripts_v13.1.tgz~~
~~--2022-05-24 16:11:49--~~ https://fermi.gsfc.nasa.gov/ssc/data/analysis/user/SED_scripts_v13.1.tgz
Connecting to 172.31.1.254:3128... connected.
Proxy request sent, awaiting response... 200 OK
Length: 721155 (704K) [application/x-tar]
Saving to: ‘SED_scripts_v13.1.tgz’

100%[==========>] 721,155
131KB/s in 6.7s

2022-05-24 16:11:57 (105 KB/s) - ‘SED_scripts_v13.1.tgz’ saved [721155/721155]

(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# wget https://www.slac.stanford.edu/~lott/ABM_mult_P8.tar.gz ~~O ABM_mult_P8.tar.gz~~
~~--2022-05-24 16:11:58--~~ https://www.slac.stanford.edu/~lott/ABM_mult_P8.tar.gz
Connecting to 172.31.1.254:3128... connected.
Proxy request sent, awaiting response... 200 OK
Length: 25945342 (25M) [application/x-gzip]
Saving to: ‘ABM_mult_P8.tar.gz’

69%
[==========>
] 18,071,552 --.-K/s in 6m 24s

2022-05-24 16:18:25 (46.0 KB/s) - Connection closed at byte 18071552. Retrying.

--2022-05-24 16:18:26-- (try: 2) https://www.slac.stanford.edu/~lott/ABM_mult_P8.tar.gz
Connecting to 172.31.1.254:3128... connected.
Proxy request sent, awaiting response... 206 Partial Content
Length: 25945342 (25M), 7873790 (7.5M) remaining [application/x-gzip]
Saving to: ‘ABM_mult_P8.tar.gz’

100%[+++
+++
+++===>] 25,945,342
222KB/s in 36s

2022-05-24 16:19:03 (215 KB/s) - ‘ABM_mult_P8.tar.gz’ saved [25945342/25945342]

(fermi_2.0.8) [root@node0518 2.0.8_gcc_9.3.0]# cd $CONDA_PKGS_DIRS
(fermi_2.0.8) [root@node0518 site-packages]# tar -xf $APP_TMP/SED_scripts_v13.1.tgz
(fermi_2.0.8) [root@node0518 site-packages]# tar -xf $APP_TMP/ABM_mult_P8.tar.gz
(fermi_2.0.8) [root@node0518 site-packages]# conda deactivate
Run 'mamba init' to be able to run mamba activate/deactivate
and start a new shell session. Or use conda to activate/deactivate.

```
$ conda deactivate
```

(fermi_2.0.8) [root@node0518 site-packages]# chown $HPC_OWNER:$HPC_GROUP $APP_DEST $(dirname /soft/sl7/gen5-mic/modules/physical-sciences/fermitools/2.0.8_gcc_9.3.0) -R

Files

output.txt	10.8 KB	2022-05-23	Albert van Eck