ctools - Feature #2208

Create csphagen script

10/09/2017 03:29 PM - Knödlseder Jürgen

Status:	Closed		**Start date:**	10/09/2017
Priority:	Normal		**Due date:**	
Assigned To:	Tibaldo Luigi		**% Done:**	100%
Category:			**Estimated time:**	0.00 hour
Target version:	1.5.0			

Description

Add csphagen script to produce XML/PHA/ARF/RMF data to be fed into ctlike, csspec, etc.

Inputs:

- Event list or XML file
- On region
- Exclusion region (optional)
- Minimum number of reflected regions (use all reflected regions that you can)
- Flag to toggle between stacking and joint analysis

Outputs:

- PHA file(s), ARF file(s), RMF file(s), XML file
- DS9 file of ON and OFF regions

History

#1 - 10/09/2017 03:37 PM - Knödlseder Jürgen

- Assigned To set to Tibaldo Luigi

#2 - 10/10/2017 09:54 AM - Tibaldo Luigi

Need also to add energy binning parameters.

#3 - 10/11/2017 11:26 AM - Tibaldo Luigi

- Status changed from New to In Progress

- % Done changed from 0 to 20

Committed running version.
Still need to add:
- id assignment for ON/OFF obs
- read energy binning from file
- ds9 regions
- log information
- stacking of multiple runs
- exclusion regions
Also need to create test unit.

#4 - 10/11/2017 03:32 PM - Tibaldo Luigi

- % Done changed from 20 to 50

All done except:
- observation stacking
- log information
- unit test

#5 - 10/13/2017 10:54 AM - Tibaldo Luigi

- % Done changed from 50 to 90

All done except stacking.

#6 - 10/13/2017 11:47 AM - Tibaldo Luigi

Script broken by latest gammalib revision where GCTAOnOffObservation only accepts GSkyRegionMap for region definition. Waiting on Jürgen to change this to finalize.

#7 - 10/13/2017 10:44 PM - Knödlseder Jürgen

- Target version set to 1.5.0

I updated GammaLib and put back GSkyRegions as input arguments of the GCTAOnOffObservation constructor.

#8 - 10/16/2017 12:04 PM - Tibaldo Luigi

- Status changed from In Progress to Pull request

*- % Done changed from 90 to 100*

Everything implemented and tested. From my point view it may be ready to merge.
The code is in the branch 2208-create-csphagen

#9 - 10/16/2017 06:30 PM - Knödlseder Jürgen

I integrated the code and did a couple of minor changes.

I changed the exclusion parameter to inexclusion since we decided some time ago to preceed all input file parameters with in while all output file parameters are preceeded with out. I also changed rootobs to prefix for consistency with ctselect.

Furthermore, I put all saving operations into a save() method which is the convention for all ctools and cscripts. If run() is called the ctools or cscripts should never save anything on disk to allow the construction of in-memory pipelines. I also added an obs() method to recover the result observation container from the script in case one want to use it in an in-memory pipeline. I also added a call of save() to execute() which is also the standard way of working (files are saved when execute() is called).

I also avoided storing some of the parameters into global class values since the code quality check always recommends to avoid global class members. Instead they are read on the fly from the parameter interface. To make sure that values are however queried at the beginning, I kept the query logic (meaning that the parameter values are requested once but not stored). For values that are stored I also added initialisations into the *init* method to make sure that the class is always setup properly. This should catch some of the issues that Sonar will come up wink.png

Finally, the DS9 On region is only stored once since the On region is the same for all observations. I also slightly adapted the file names.

I updated the unit test to take the changes I made into account and all tests passed.

Code is currently in the integration pipeline.

#10 - 10/16/2017 08:53 PM - Knödlseder Jürgen

The Python string.format() directive posed some problems on some of the platforms during the integration tests (CentOS 6, Debian 6, OpenSolaris, Scientific Linux 6).

The Python string.format() was apparently introduced in Python 2.6, but seems to have evolved for Python 2.7. I replaced the format directives by the classical % directives to assure that the code also works on the older Python versions.

<div style="text-align: right">3/3</div>

#11 - 10/16/2017 09:33 PM - Knödlseder Jürgen

- Status changed from Pull request to Closed

Code is integrated and merged into devel.