

## ctools - Feature #1069

### Document which ctool works with which instrument

01/09/2014 01:41 PM - Owen Ellis

<b>Status:</b>	New	<b>Start date:</b>	01/09/2014
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assigned To:</b>		<b>% Done:</b>	0%
<b>Category:</b>		<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>			
<b>Description</b>			
<p>I'm trying to run a Fermi LAT analysis with the ctools and get errors about missing header keywords:</p>			
<pre>eowen@hfm-1307f:~/analyses/ctools_crab\$ ctlike Event list, counts map or observation definition file [counts.fits] *** ERROR encountered in the execution of ctlike. Run aborted ... *** ERROR in GFitsHeaderCode&amp; GFitsHeader::at(std::string&amp;): Invalid argument. Keyword "RA_PNT" not found in FITS header. eowen@hfm-1307f:~/analyses/ctools_crab\$ ctselect Input event list or observation definition file [/home/eowen/data/fermi/photon/lat_photon_weekly_w009_p130_v001.fits] *** ERROR in GFitsTable::operator[](std::string&amp;): Column "MULTIP" not found in table *** ERROR encountered in the execution of ctselect. Run aborted ...</pre>			
<p>The ctselect help page doesn't mention for which instruments it works: <a href="http://cta.irap.omp.eu/ctools/doc/ctselect.html">http://cta.irap.omp.eu/ctools/doc/ctselect.html</a></p>			
<p>The ctlike help page explicitly mentions that it's for CTA analysis, but it should work for HESS and Fermi LAT, too, I think. <a href="http://cta.irap.omp.eu/ctools/doc/ctlike.html">http://cta.irap.omp.eu/ctools/doc/ctlike.html</a></p>			
<p>Maybe add a section for each ctool listing the instruments it supports?</p>			
<p>How can I run ctselect, ctmodel and ctlike for Fermi LAT data?</p>			

### History

#### #1 - 01/09/2014 02:44 PM - Knödlseider Jürgen

The ctools are only intended to work for CTA data, and HESS, MAGIC, VERITAS in CTA data format.

ctlike can indeed also digest Fermi/LAT data, but not in the way you're trying to do this. To use Fermi/LAT data, you have to define the data in an observation definition XML file. Here an example (from the gammalib source code, see inst/lat/test/data/p6v3):

```
<observation_list title="observation library">
  <observation name="Crab" id="00001" instrument="LAT">
    <parameter name="CountsMap" file="$(PACKAGE_SOURCE)/inst/lat/test/data/p6v3/srcmap.fits"/>
    <parameter name="ExposureMap" file="$(PACKAGE_SOURCE)/inst/lat/test/data/p6v3/binned_expmap.fits"/>
    <parameter name="LiveTimeCube" file="$(PACKAGE_SOURCE)/inst/lat/test/data/p6v3/lcube.fits"/>
    <parameter name="IRF" value="P6_v3_diff"/>
  </observation>
</observation_list>
```

You can then pass this file instead of counts.fits to ctlike, and it should work.

But you're fully right: the documentation of ctools is too sparse for the moment. All this has to be written down. I'm actually trying to get a first complete set of gammalib documents, once this is done, I'm also going to improve the ctools documentation.