

Tips and Tricks for using the Stack

Since the stack documentation and tutorials are incomplete and in transition, I'm putting the things I've learned about using the stack here. Please feel free to add your own "tips and tricks". DN.

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Enable DEBUG log level for a particular subtask

Use `--show` to list the subtasks of a `CmdLineTask`

```
processCcdDecam.py /home/afausti/bulge/input --show tasks
```

then use the `--loglevel` to set the DEBUG log level when executing the task

```
processCcdDecam.py /home/afausti/bulge/input/ --output /home/afausti/bulge/output --id visit=0205484 ccdnum=1 --loglevel  
processCcdDecam.calibrate.astrometry=DEBUG
```

NOTE: the `--show` does not include the `CmdLineTak` as part of the subtask name (in this case `processCcdDecam`) but it must be included in `--loglevel` (as above)

Using afw tables

Once you have an `afwTable` loaded, such as the source table produced by `processCcd`

```
>>> import lsst.afw.table as afwTable  
>>> import lsst.daf.persistence as dafPersist  
>>> butler = dafPersist.Butler("/data/lsst/decam/redux/cp/cosmos/")  
>>> sourceCat = butler.get('src', visit=177341, ccdnum=31)  
  
You can access the data in the file by using the column name  
>>> print sourceCat["slot_Centroid_x"]  
[ 7. 84. 582. ..., 1764. 1964. 1331.]
```

You can also modify any of the individual values

```
>>> sourceCat["slot_Centroid_x"][0:10] += 10.0
```

or all the values

```
>>> sourceCat["slot_Centroid_x"][:] += 10.0
```

Here's how to get the full schema and all the column names,

```
>>> sourceCat.getSchema()  
  
Schema(  
    (Field['L'](name="id", doc="unique ID"), Key<L>(offset=0, nElements=1)),  
    (Field['Angle'](name="coord_ra", doc="position in ra/dec"), Key<Angle>(offset=8,  
nElements=1)),
```

.... many more lines ...

You can also use the "get()" method with the column names,

```
>>> sourceCat.get("slot_Centroid_x")
array([  7.,  84., 582., ..., 1764., 1964., 1331.])
>>> sourceCat.get("slot_Centroid_x")[0]
7.0
```

There are many different pixel centroid values in the source tables (e.g., deblend_psfCenter_x/y, base_GaussianCentroid_x/y, base_NaiveCentroid_x/y, base_SdssCentroid_x/y). The "official" one that is used by the stack routines is "slot_Centroid_x/y" which is actually a link to another field (most of the time "base_SdssCentroid_x/y").

Some other useful columns are "coord_ra", "coord_dec" (NOTE these are in RADIANS), "slot_PsfFlux" (also a link to another column), "slot_Shape_xx/xy/yy" (another link).