

# Calibration Scripts Repository and Logging

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## Intro

Evolution of calibration system of LCLS creates new opportunities and increase complexity. Large number of detectors and scripts for calibration processing makes it hard to track down what is going on. This note is intended to collect in one spot references to location of all intermediate repositories and log files.

## Environment variables

### psana/psdm

#### lcls1

```
source /cds/sw/ds/ana/conda1/manage/bin/psconda.sh, setup_testrel
```

```
export SIT_ROOT=/reg/g/psdm/  
export SIT_DATA=/cds/group/psdm/data/  
export SIT_PSDM_DATA=/cds/data/psdm/
```

*in Detector/src/dir\_root.py*

```
DIR_ROOT = os.getenv('SIT_ROOT') # /reg/g/psdm/
```

```
DIR_LOG_AT_START = /cds/group/psdm/detector/logs/atstart/
```

```
DIR_REPO = /cds/group/psdm/detector/calib/constants/
```

#### lcl2

```
source /cds/sw/ds/ana/conda2/manage/bin/psconda.sh
```

```
export DIR_PSDM=/cds/group/psdm # or /sdf/group/psdm # s3df
```

*in lcls2/psana/psana/detector/dir\_root.py*

```
DIR_ROOT = os.getenv('DIR_PSDM')
```

```
DIR_LOG_AT_START = /cds/group/psdm/detector/logs/atstart/
```

```
DIR_REPO = /cds/group/psdm/detector/calib2/constants/
```

### s3df

#### lcls1

```
source /sdf/group/lcls/ds/ana/sw/conda1/manage/bin/psconda.sh, setup_testrel
```

```
export SIT_ROOT=/sdf/group/lcls/ds/ana/
export SIT_DATA=/sdf/group/lcls/ds/ana/data/
export SIT_PSDM_DATA=/sdf/data/lcls/ds/
```

lclc2

```
source /sdf/group/lcls/ds/ana/sw/conda2/manage/bin/psconda.sh
```

Repositories

Structure

- Log files at start, in the script level directory, and detector-type level directory:  
  
<DIR\_LOG\_AT\_START>/<year>/<year>\_lcls<1-or-2>\_<script-name>.txt  
  
<DIR\_REPO>/scripts/<script-name>/logs/<year>/<time-stamp-of-processing>\_log\_<script-name>\_<uid>.txt@ <<< this is a reference if processing script is completed.  
  
<DIR\_REPO>/<dettype>/logs/<year>/<time-stamp-of-processing>\_log\_<script-name>\_<uid>.txt
- panel aliases and per-panel calibration files:  
  
<DIR\_REPO>/<dettype>/aliases.txt  
  
<DIR\_REPO>/<dettype>/<panel-id>/<calib-type>/<dettype>\_<det-id-alias>\_<YYYYMMSS<6-digit-s>>\_<experiment-name>\_r<run-number>\_<calib-type>.dat

Examples

```
/cds/group/psdm/detector/logs/atstart/2023/2023_lcls1_det_raw_pixel_status.txt

/cds/group/psdm/detector/calib/constants/scripts/det_raw_pixel_status/logs/2023/2023-04-21T103547_log_det_raw_pixel_status_dubrovin.txt@ <<<
reference to:

/cds/group/psdm/detector/calib/constants/epix100a/logs/2023/2023-04-21T103547_log_det_raw_pixel_status_dubrovin.txt
```

/cds/group/psdm/detector/calib/constants/epix100a/aliases.txt					
0001	3925999620-0996513537-2080374794-1794135040-0940361739-2398406657-0419430424	2023-04-21T08:26:51	xpplw3319	r0287	XppGon.0:Epix100a.3 dubrovin
0002	3925999620-0996579585-0553648138-1232098304-1221641739-2650251521-3976200215	2023-04-21T11:10:23	xpplw3319	r0287	XppGon.0:Epix100a.2 dubrovin
0003	3925999620-0996432897-3590324234-1232100352-1154532875-2654088449-0033554455	2023-04-21T11:10:33	xpplw3319	r0287	XppGon.0:Epix100a.1 dubrovin
0004	3925999620-1000248321-4076863498-1794137088-0410306571-2402454273-0067108888	2023-04-21T11:10:46	xpplw3319	r0287	XppGon.0:Epix100a.4 dubrovin

```
/cds/group/psdm/detector/calib/constants/epix100a/3925999620-0996513537-2080374794-1794135040-0940361739-2398406657-0419430424
/status_data/epix100a_0001_20210716061106_xpplw3319_r0287_status_data.dat
```

LCLS scripts

script	record at start	repository	logs	control parameters	comments
area detectors					

calibrun	>ana-4.0.46-py3:  \$SIT_ROOT/detector /logs/atstart/2022 /2022_lcls1_calibrun. txt	>ana-4.0.46-py3:  \$SIT_ROOT/detector /calib/constants /calibrun/	/reg/g/psdm/logs/calibman/<year> /<month>/<repository>/logs/2022 /2022-10- 12T103606_log_calibrun_dubrovin. txt  >ana-4.0.46-py3:  <repository>/logs/<year>/<time- stamp>_log_calibrun_<login>.txt  <repository>/logs/2022/2022-10- 12T103606_log_calibrun_dubrovin. txt	N/A	CLI dark processing for generic detector
calibfile	/reg/g/psdm/logs /calibman/<year> /<month>/calibfile.txt  >ana-4.0.46-py3:  \$SIT_ROOT/detector /logs/atstart/2022 /2022_lcls1_calibfile. txt	>ana-4.0.46-py3:  \$SIT_ROOT/detector /calib/constants /calibfile/	>ana-4.0.46-py3:  <repository>/logs/<year>/<time- stamp>_log_calibfile_<login>.txt  <repository>/logs/2022/2022-10- 13T170608_log_calibfile_dubrovin. txt	-l, --lfname	CLI for calib file deployment under .../<experiment> /calib/...
geometry_deploy_constants	/reg/g/psdm/logs /atstart/<year> /<year>_lcls1_geometry_deploy_constants. txt  >ana-4.0.46-py3:  \$SIT_ROOT/detector /logs/atstart/2022 /2022_lcls1_geometry_deploy_constants.txt	/reg/g/psdm/detector /calib/geometry/  >ana-4.0.46-py3:  \$SIT_ROOT/detector /calib/geometry	<repository>/<dettype> /<dettype>_<full-lcls1-detector- name>_<time-stamp>.data  >ana-4.0.46-py3:  <repository>/logs/<year>/<time- stamp>_log_geometry_deploy_cons tants_<login>.txt  <repository>/logs/2022/2022-10- 14T094805_log_geometry_deploy_c onstants_dubrovin.txt	-o, --dirrepo	Geometry calibration constants deployment CLI
dcs	/reg/g/psdm/logs /atstart/<year> /<year>_lcls1_dcs.txt  >ana-4.0.46-py3:  \$SIT_ROOT/detector /logs/atstart/<year> /<year>_lcls1_dcs.txt	/reg/g/psdm/<INS> /<experiment>/calib /<dettype> # default experiment-detector repo  or parameter -c <path to local calib>  e.g.:  -c /reg/d/psdm/detector /calib # detector- dependent repo  >ana-4.0.46-py3:  \$SIT_PSDM_DATA /XPP/xpput15/calib /epix100a \$SIT_PSDM_DATA /detector/calib /epix100a	run-time only		Interaction with dcs-store - hdf5 file calibration constants.
deploy_constants for releases > ana-4.0.42	/reg/g/psdm/logs /atstart/<year> /<year>_lcls1_deploy_constants.txt  >ana-4.0.46-py3:  \$SIT_ROOT/detector /logs/atstart/2022 /2022_lcls1_deploy_c onstants.txt	/reg/g/psdm/detector /calib/constants/  >ana-4.0.46-py3:  \$SIT_ROOT/detector /calib/constants/	<repository>/logs/<year>/<time- stamp>_log_deploy_constants_<uid> >.txt  <repository>/logs/2022/2022-10- 14T105634_log_deploy_constants_ dubrovin.txt	-o, --dirrepo	Deployment of default constants for all generic (one gain range) detectors. Special case of deployment with merging at <b>-t status_extra</b>
det_pixel_status	\$SIT_ROOT/detector /logs/atstart/<year> /<year>_lcls1_det_pix el_status.txt  /sdf/group/lcls/ds/ana /detector/logs/atstart /2023 /2023_lcls1_det_pixel _status.txt	\$SIT_ROOT/detector /calib/constants/	begins with:  /sdf/group/lcls/ds/ana/detector/calib /constants/scripts/det_pixel_status /logs/<year>/<time-stamp>_log_det_ pixel_status_<uid>.txt move at the end to: /sdf/group/lcls/ds /ana/detector/calib/constants /epix100a/logs/<year>/<time-stamp> _log_det_pixel_status_<uid>.txt	-o, --dirrepo	Light data processing for bad pixel status. See: <a href="#">Bad pixel mask ...</a>

epix10ka					
epix10ka_offset_calibration	<pre>&lt;repository&gt;/logs &lt;year&gt;_epix10ka_offset_calibration.txt  &gt;ana-4.0.37:  /cds/group/psdm/logs /atstart/&lt;year&gt; /&lt;year&gt;_lcls1_epix10ka_offset_calibration.txt</pre>	/reg/g/psdm/detector/gains/epix10k/panels/	<pre>&lt;repository&gt;/logs/&lt;year&gt;/&lt;time-stamp&gt;_log_epix10ka_offset_calibration_&lt;login&gt;.txt ????</pre>	-o, --dirrepo	Processing of the charge injection runs with 103 steps/calib-cycles
epix10ka_pedestals_calibration	<pre>&lt;repository&gt;/logs &lt;year&gt;_epix10ka_pedestals_calibration.txt  &gt;ana-4.0.37:  /cds/group/psdm/logs /atstart/&lt;year&gt; /&lt;year&gt;_lcls1_epix10ka_offset_calibration.txt</pre>	/reg/g/psdm/detector/gains/epix10k/panels/	<pre>&lt;repository&gt;/logs/&lt;year&gt;/&lt;time-stamp&gt;_log_epix10ka_pedestals_calibration_&lt;login&gt;.txt</pre>	-o, --dirrepo	Dark processing of runs with 5 steps/calib-cycles
epix10ka_deploy_constants	<pre>&lt;repository&gt;/logs &lt;year&gt;_epix10ka_deploy_constants.txt  &gt;ana-4.0.37:  /cds/group/psdm/logs /atstart/&lt;year&gt; /&lt;year&gt;_lcls1_epix10ka_deploy_constants.txt</pre>	/reg/g/psdm/detector/gains/epix10k/panels/	<pre>&lt;repository&gt;/logs/&lt;year&gt;/&lt;time-stamp&gt;_log_epix10ka_deploy_constants_&lt;login&gt;.txt</pre>	-o, --dirrepo	Merging and deployment of per-panel constants.
Jungfrau					
jungfrau_dark_proc	<pre>&lt;repository&gt;/logs &lt;year&gt;_log_jungfrau_dark_proc.txt  &gt;ana-4.0.37:  /cds/group/psdm/logs /atstart/&lt;year&gt; /&lt;year&gt;_lcls1_jungfrau_dark_proc.txt</pre>	<pre>/reg/g/psdm/detector/gains/jungfrau/panels/  contains per-panel constants</pre>	<pre>&lt;repository&gt;/logs/&lt;year&gt;/&lt;time-stamp&gt;_jungfrau_dark_proc_&lt;login&gt;.txt</pre>	-o, --dirrepo	<p>replacement for jungfrau_ndarr_dark_proc</p> <p>intended for per-panel calibration constants.</p> <p>Dark processing of runs with 3 steps/calib-cycles</p>
jungfrau_deploy_constants	<pre>&lt;repository&gt;/logs &lt;year&gt;_log_jungfrau_deploy_constants.txt  &gt;ana-4.0.37:  /cds/group/psdm/logs /atstart/&lt;year&gt; /&lt;year&gt;_lcls1_jungfrau_deploy_constants.txt</pre>	/reg/g/psdm/detector/gains/jungfrau/panels/	<pre>&lt;repository&gt;/logs/&lt;year&gt;/&lt;time-stamp&gt;_jungfrau_deploy_constants_&lt;login&gt;.txt</pre>	-o, --dirrepo	works after jungfrau_dark_proc to merge and deploy constants under .../<experiment>/calib/...
jungfrau_gain_constants	<pre>&gt;ana-4.0.44  /cds/group/psdm/logs /atstart/&lt;year&gt; /&lt;year&gt;_lcls1_jungfrau_gain_constants.txt</pre>	/reg/g/psdm/detector/gains/jungfrau/ - reference to dirs with gain constants for panel-ids	<pre>/reg/g/psdm/logs/calibman/jungfrau_gain/&lt;year&gt;/&lt;time-stamp&gt;-&lt;experiment&gt;-&lt;run&gt;-&lt;login&gt;.txt  for &gt;ana-4.0.44:  /reg/g/psdm/detector/gains/jungfrau/logs/&lt;year&gt;/&lt;time-stamp&gt;_log_jungfrau_gain_constants_&lt;experiment&gt;-&lt;run&gt;-&lt;login&gt;.txt</pre>	-R, --replib	
DEPRECATED jungfrau_ndarr_dark_proc			<pre>/reg/g/psdm/logs/calibman/&lt;year&gt;/&lt;month&gt;/jungfrau_ndarr_dark_proc.txt - log record at start</pre>		Dark processing and deployment of calibration constants for etire detector. It was DEPRECATED due to new per-panel approach to calibration constants. Replaced by jungfrau_dark_proc and jungfrau_deploy_constants

## LCLS2 scripts

script	record at start	repository	logs	control parameters	comments
<b>Generic calibration manager</b>					
calibman	/cds/group/psdm/detector/logs/atstart/2023/2023_lcls2_calibman.txt	/cds/group/psdm/detector/calib2/constants/  <b>DEPRECATED:</b> /cds/group/psdm/logs/calibman/lcls2	<repository>/scripts/<script-name> OR <detype>/logs/<year>/<time-stamp>-<script-name>-<login>.txt	-L, --logdir	Interaction with MongoDB etc
<b>epix10ka</b>					
epix10ka_pedestals_calibration	/cds/group/psdm/logs/atstart/<year>/<year>_logrec_epix10ka_pedestals_calibration.txt	/cds/group/psdm/detector/calib2/constants/  <b>DEPRECATED:</b> /cds/group/psdm/detector/gains2/epix10ka/panels/	<repository>/scripts/<script-name> OR <detype>/logs/<year>/<time-stamp>-<script-name>-<login>.txt	-o, --dirrepo	
epix10ka_deploy_constants	/cds/group/psdm/logs/atstart/<year>/<year>_logrec_epix10ka_deploy_constants.txt	/cds/group/psdm/detector/calib2/constants/  <b>DEPRECATED:</b> /cds/group/psdm/detector/gains2/epix10ka/panels/	<repository>/scripts/<script-name> OR <detype>/logs/<year>/<time-stamp>-<script-name>-<login>.txt	-o, --dirrepo	
epix10ka_charge_injection	/cds/group/psdm/detector/logs/atstart/2023/2023_lcls2_epix10ka_charge_injection.txt	/cds/group/psdm/detector/calib2/constants/			
<b>epix100, opal</b>					
det_dark_proc	/cds/group/psdm/detector/logs/atstart/2023/2023_lcls2_det_dark_proc.txt  <b>DEPRECATED:</b> /cds/group/psdm/logs/atstart/<year>/<year>_log_det_dark_proc.txt	/cds/group/psdm/detector/calib2/constants/	<repository>/scripts/<script-name> OR <detype>/logs/<year>/<time-stamp>-<script-name>-<login>.txt		

## Tentative logging for LCLS2

Q: is it ok to save logs in repo?

A: if repodir is changed path will be loss along with local location. It would be nice to have record at start in well known static directory. Each record points to the main log file etc.

## Logging at start records

Is intended to keep all records at start for all scripts in a single place.

Root directory is intended to be hardwired, e.g.

/cds/group/psdm/logs/atstart/

Further path

/cds/group/psdm/logs/atstart/<year>/<year>-logrec-<script-name>.txt - single file per year per script.

## Repository

### Root directory

-o, --dirrepo

/cds/group/psdm/detector/gains2/<detector-type>/panels/

/cds/group/psdm/detector/gains2/<detector-type>/panels/<panel-id>,

where <detector-type> e.g. epix10ka

## Logging files

/cds/group/psdm/detector/gains2/<detector-type>/panels/logs/<year>/<time-stamp>--<script-name>--<login>.txt

## References

- [EPIX10KA2M References](#)
- [Jungfrau References](#)
- [Detector Calibration Constants Deployment](#)
- [Detector geometry constants deployment](#)
- [Bad Pixel Status](#)