LCLS Data Analysis Cheat Sheet

NEW!

eLog

link | API access

One-stop shop for your experiment: samples, run tables, file manager, shifts, workflow (SLAC or NERSC), collaborators...

NEW!

JupyterHub

link

Running python notebooks from a browser.

pswww.slac.stanford.edu

Applications for User Experiments

- eLog (aka Data Manager)
- Analysis docs (psana)
- PCDS computing docs
- JupyterHub

Analysis resources

How to analyze LCLS data

```
ssh -X pslogin.slac.stanford.edu
... -l YOURACCOUNTNAME
ssh -X psana
source /reg/g/psdm/etc/psconda.sh
# or to get "new" psana1 (py2 and py3)
source /reg/g/psdm/sw/conda1/...
...manage/bin/psconda.sh [-py3]
```

> more info: see link

Computing resources

link

How to use SLAC infrastructure and methods.

Prompt analysis

link

Direct access to the data during the experiment

- **Real time: AMI**
- **Fast Feedback: psana**
- **Shared memory: OM**

NEW!

Thorough analysis

What is SLURM?

Run those heavy analysis jobs using SLURM, **not LSF**

1. Identify the right queue
2. Submit a job

or Run interactively!

```
srun -N2 -n4 hello.mpi
```

```
sinfo  > Check resources
sbatch > Submit job
squeue > Check job status
sacct  > Check finished jobs
```

Note the change: sbatch not bsub

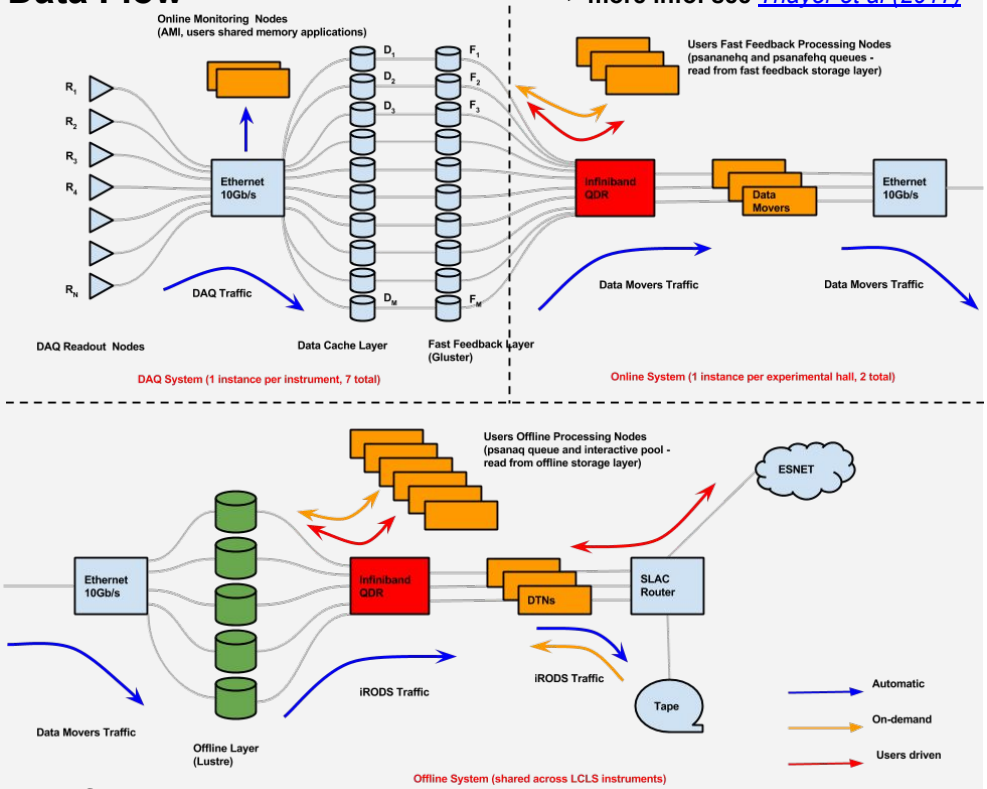
my_slurm_script

Data System:	LCLS-I	LCLS-II
Reacts to	LCLS-I timing	LCLS-I-II timing
DAQ	LCLS-I DAQ: LCLS-I detectors < 120Hz < ~10GB/s	LCLS-II DAQ: LCLS-II detectors < 1 MHz < ~TB/s
SXU	NEH1.2 (TXI)	NEH1.1 (AMO) NEH1.2 (TXI) NEH2.1 (RIXS) NEH2.2 (SXR)
HXU	NEH1.2 (TXI) XPP XCS MFX CXI MEC	NEH1.2 (TXI)
Format	xtc	xtc2
Monitoring	AMI	AMI2
Analysis	psana1	psana2

Resources	SRCF	SDF	NERSC
Experiments	LCLS-I	LCLS-II (soon)	All (testing)
Installation	conda	conda	shifter
JupyterHub	yes	yes	yes
Scheduling system	SLURM	SLURM	eLog workflow

Data Flow

> more info: see *Thayer et al (2017)*



Useful acronyms:

PCDS: Photon Control and Data Systems
PSDM: Photon Science Data Management
PSANA: Photon Science Analysis
SCS: Scientific Computing Services
SDF: Shared Data Facility
DAQ: Data AcQuisition
AMI: Analysis Monitoring Interface
OM: OnDA Monitor / Online Monitoring

> for more: see link

For any question, please send an email to Ticket System: pcds-help.slac.stanford.edu