Quick Look Framework

Status Report

Angelo Fausti
on behalf of LIneA

May 2017

Outline

QLF v0.3 updates

- Running QLF locally
  - Installation and configuration steps
- Results & Findings
- QLF interfaces

Plans for the DESI Meeting

What should come next?

A typical month in the life of QLF developers *

Sprints of 2 weeks, ~15 tasks per sprint

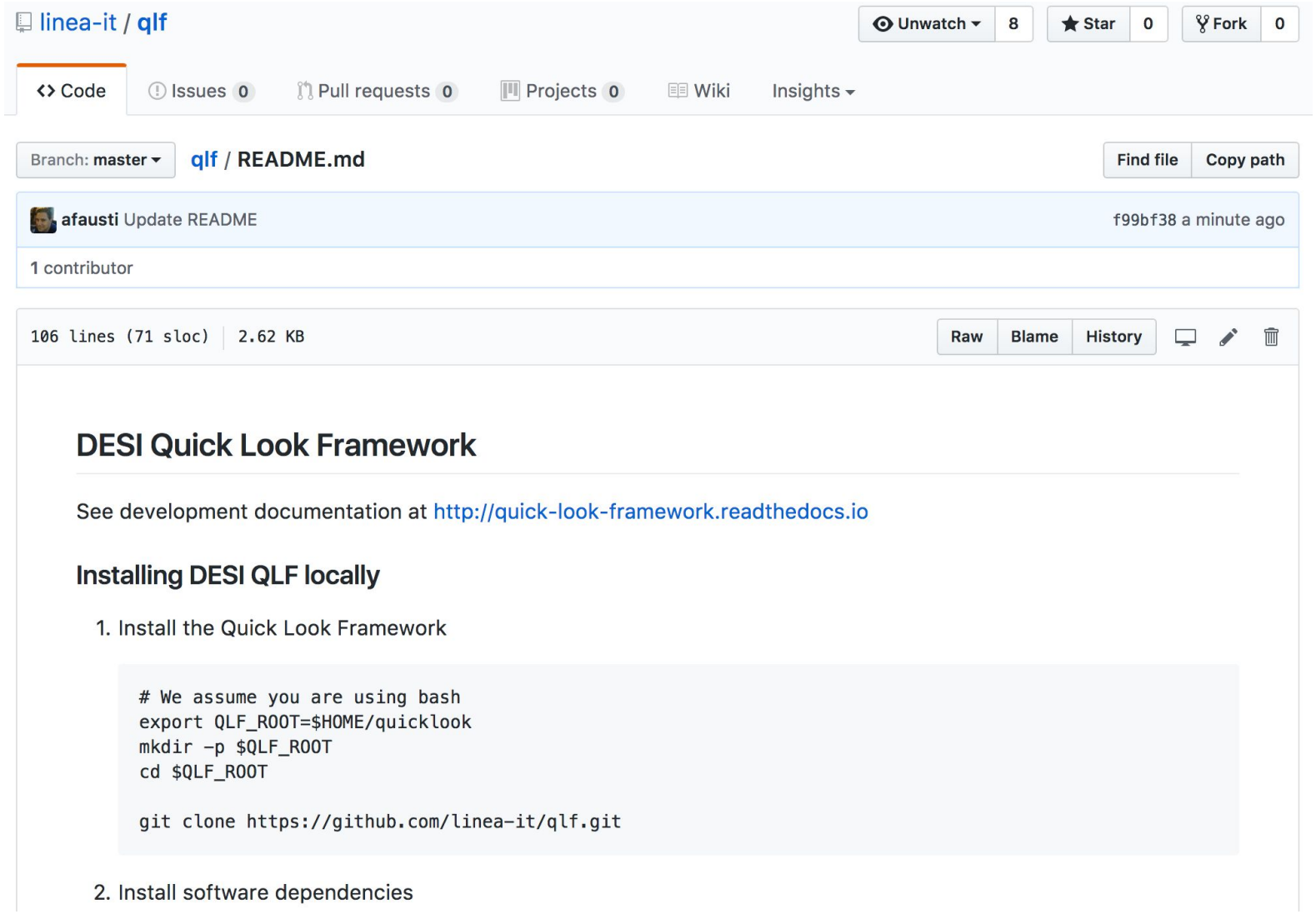
Our dev team!

	⊞ SPRINT 3 - 08/05/2017 - 10 dias úteis - 26 tarefas - 69% Done+OnApproval				
	⊟ SPRINT 4 - 22/05/2017 - 10 dias úteis - 11 tarefas - x% Done+OnApproval				
Sprint 4	Integrate Monitor with execution environment	QLF - May	Cristiano Si	0	On apprc
Sprint 4	QA Plots (To be detailed the week of May 22)	QLF - May			To Do
Sprint 4	Deployment of QLF: Make deployment at ql.linea.gov.br	QLF - May	Angelo	1	To Do
Sprint 4	Fix QA result ingestion (some QA results are not being ingested, this must be investigated and fixed)	QLF - May	Angelo	2	To Do
Sprint 4	Design of Night Summary	QLF - May	Rafael	2	To Do
Sprint 4	Add timing in qlf logs (change log format string to include time, and report execution time of each job, example Finished Job 36 in 76 seconds)	QLF - May	Cristiano Si	1	Doing
Sprint 4	Implement script to control qlf_daemon.py execution (start/stop/reset and ability to clean db upon reset)	QLF - May	Cristiano Si	2	On apprc
Sprint 4	Add buttons START/STOP (same button?), RESET and STATUS message (Running or Idle) in the QLF navbar when monitor option is selected	QLF - May	Rafael	1	On apprc
Sprint 4	Make sure ./run.sh does not start django and bokeh servers if they are already running	QLF - May			To Do
Sprint 4	Implement suggestion in Exposure app from sprint 3	QLF - May			To Do
Sprint 4	Implement suggestion in Monitor app from sprint 3	QLF - May			To Do
Sprint 4	Make sure ./run.sh updates (git pull) desispec and desiutils repos	QLF - May			To Do
	⊞ SPRINT 5 - 05/06/2017 - 9 dias úteis - x tarefas - X% Done+OnApproval				

* Thanks to the help of new project management personnel hired by LIneA!

How to install QLF and run it locally

https://github.com/linea-it/qlf/



linea-it / qlf

Unwatch 8 | Star 0 | Fork 0

Code | Issues 0 | Pull requests 0 | Projects 0 | Wiki | Insights

Branch: master | qlf / README.md | Find file | Copy path

afausti Update README — f99bf38 a minute ago

1 contributor

106 lines (71 sloc) | 2.62 KB | Raw | Blame | History

DESI Quick Look Framework

See development documentation at http://quick-look-framework.readthedocs.io

Installing DESI QLF locally

1. Install the Quick Look Framework

```
# We assume you are using bash
export QLF_ROOT=$HOME/quicklook
mkdir -p $QLF_ROOT
cd $QLF_ROOT

git clone https://github.com/linea-it/qlf.git
```

2. Install software dependencies

The config file

https://github.com/linea-it/qlf/blob/master/config/qlf.cfg.template

+ qlf.cfg

```
[main]
# Always True if you are running QLF in development
# mode
emulate_dos=True

# Exptime is used only if emulate_dos=True, it sets
# the time interval between exposures to emulate the
# DOS environment

# If 0 then process the next exposure imediately after the
# previous exposure is done
exptime=0

# log level, e.g. DEBUG, INFO, WARNING or ERROR
loglevel=INFO

# log file name, e.g. $QLF_ROOT/qlf.log this is the main place for following
# the progress of the data reduction
# Note: do not use env variables here, you have to provide the actual path
logfile=/Users/afausti/quicklook/qlf.log

[data]
# which night to process? we do not support a list of nights yet.
night=20170428
# calibration exposure id to be used, e.g. fiberflat-b0-00000001.fits
calib=1

# exposure ids to be processed, e.g. desi-00000003.fits.fz, desi-00000004.fits.fz
exposures=3,4

# Note: for a local installation of QLF we don't recommend processing all
# the 30 cameras in parallel, unless you have a multicore machine, test at your
# own risk
# cameras to be processed, camera=arm+spectrograph
# b,r,z
arms=b,r,z
# 0,1,2,3,4,5,6,7,8,9
spectrographs=0,1

[namespace]
# Input data directory, e.g. $QLF_ROOT/data
datadir=/Users/afausti/quicklook/data

# Processing output, e.g. $QLF_ROOT/outputs or some other local (fast) scratch area
# Note: this directory is created by QLF if it does not exist.
scratch=/Users/afausti/quicklook/outputs
~
~/quicklook/qlf/config/qlf.cfg[+]   CWD: /Users/afausti/quicklook/qlf/config   Line: 46  Column: 41
```

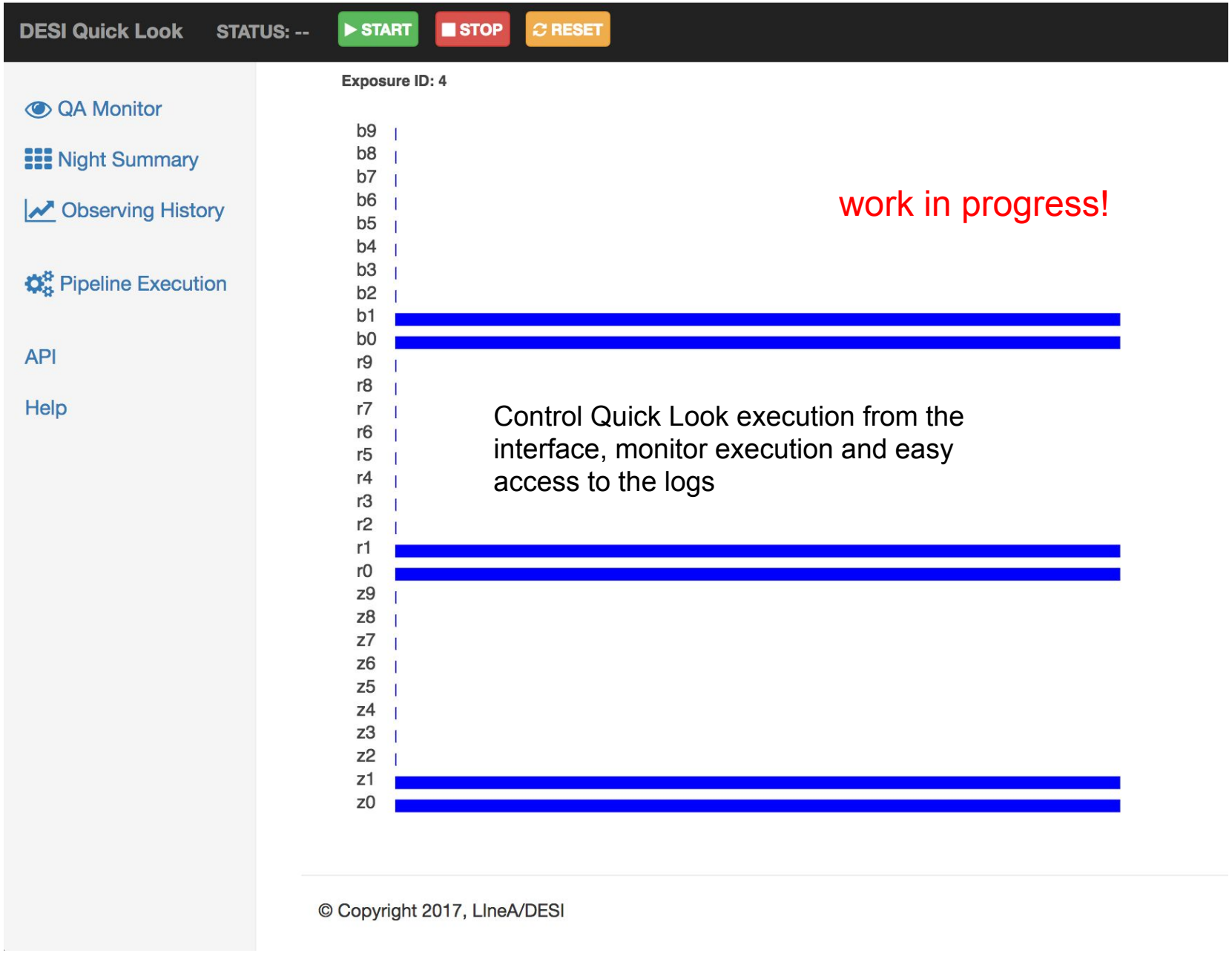
The run.sh script

https://github.com/linea-it/qlf/blob/master/qlf/run.sh

- Set DESI Quick Look environment
- Initialize QLF DB (sqlite3)
- Start QLF web application (django and bokeh servers)
- Start QLF Daemon
  - Process a sequence of N exposures
  - spawns n processes, one for each camera
  - ingest QA outpus at the end

* Includes process management

Pipeline Execution



Results & Findings

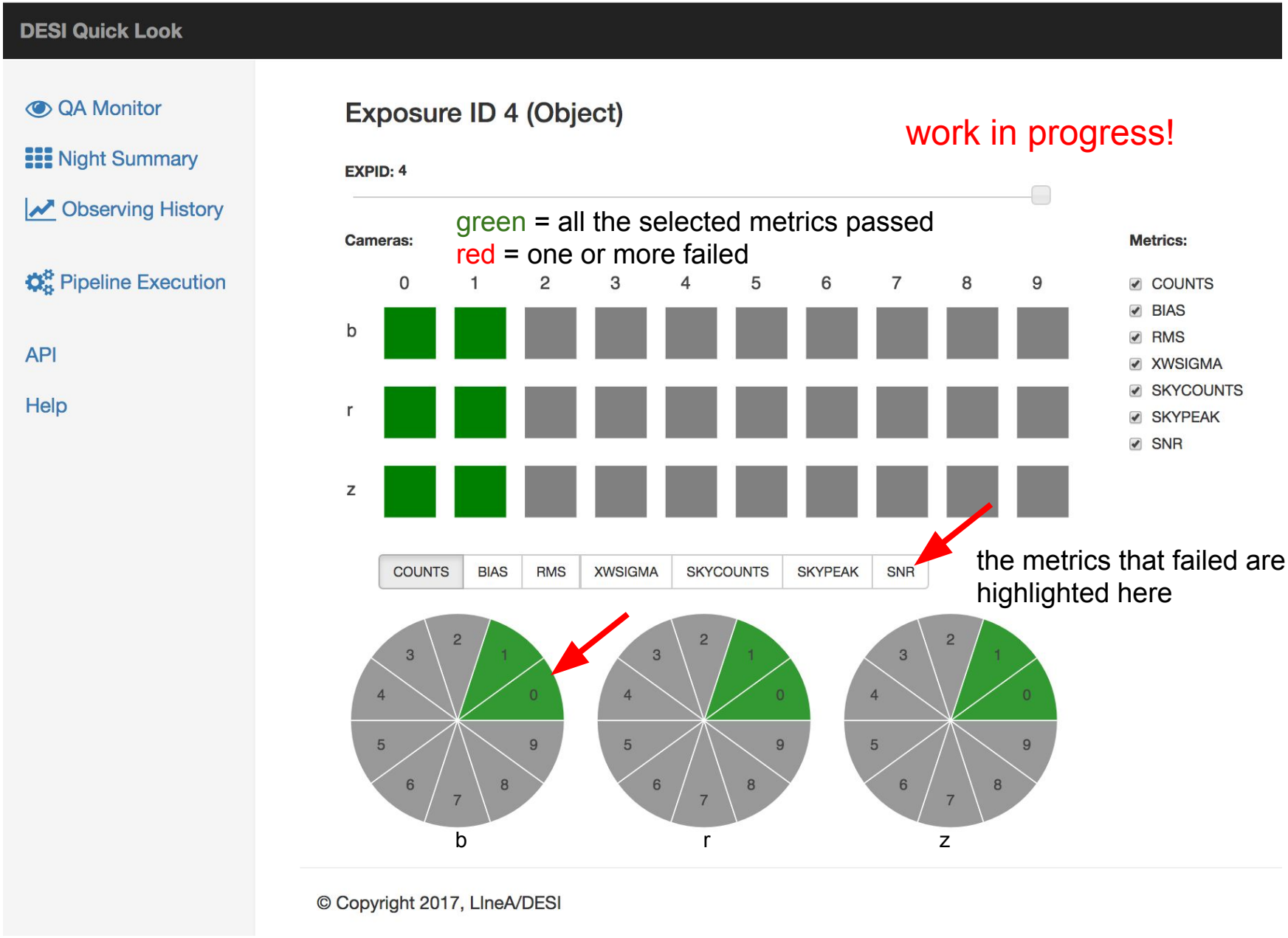
- Processing at desidev@lbl.gov, 48 cores, outputs written to local disk (tmpfs)
- Test data provided in the QLF installation instructions
- Kyle installed QLF on his machine (first real user!) valuable feedback on the installation steps

Processing results:

- ~3 min to process 1 camera
- ~15 min to process 1 exposure (30 cameras in parallel)
- ~30 min to process 2 exposures (30 cameras in parallel)
- Quick Look execution (as is) is limited by I/O
  - Large intermediate files written to the disk
- ~5 min to ingest QA outputs for 1 exposure
  - Ingestion in sqlite3 is done in series, after all cameras are processed

More results from this week tests at https://goo.gl/7XRPH0

QA Monitor


DESI Quick Look
QA Monitor
Night Summary
Observing History
Pipeline Execution
API
Help
Exposure ID 4 (Object)
work in progress!
EXPID: 4
green = all the selected metrics passed
red = one or more failed
Cameras:
0 1 2 3 4 5 6 7 8 9
b
r
z
Metrics:
COUNTS
BIAS
RMS
XWSIGMA
SKYCOUNTS
SKYPEAK
SNR
COUNTS BIAS RMS XWSIGMA SKYCOUNTS SKYPEAK SNR
the metrics that failed are highlighted here
b
r
z
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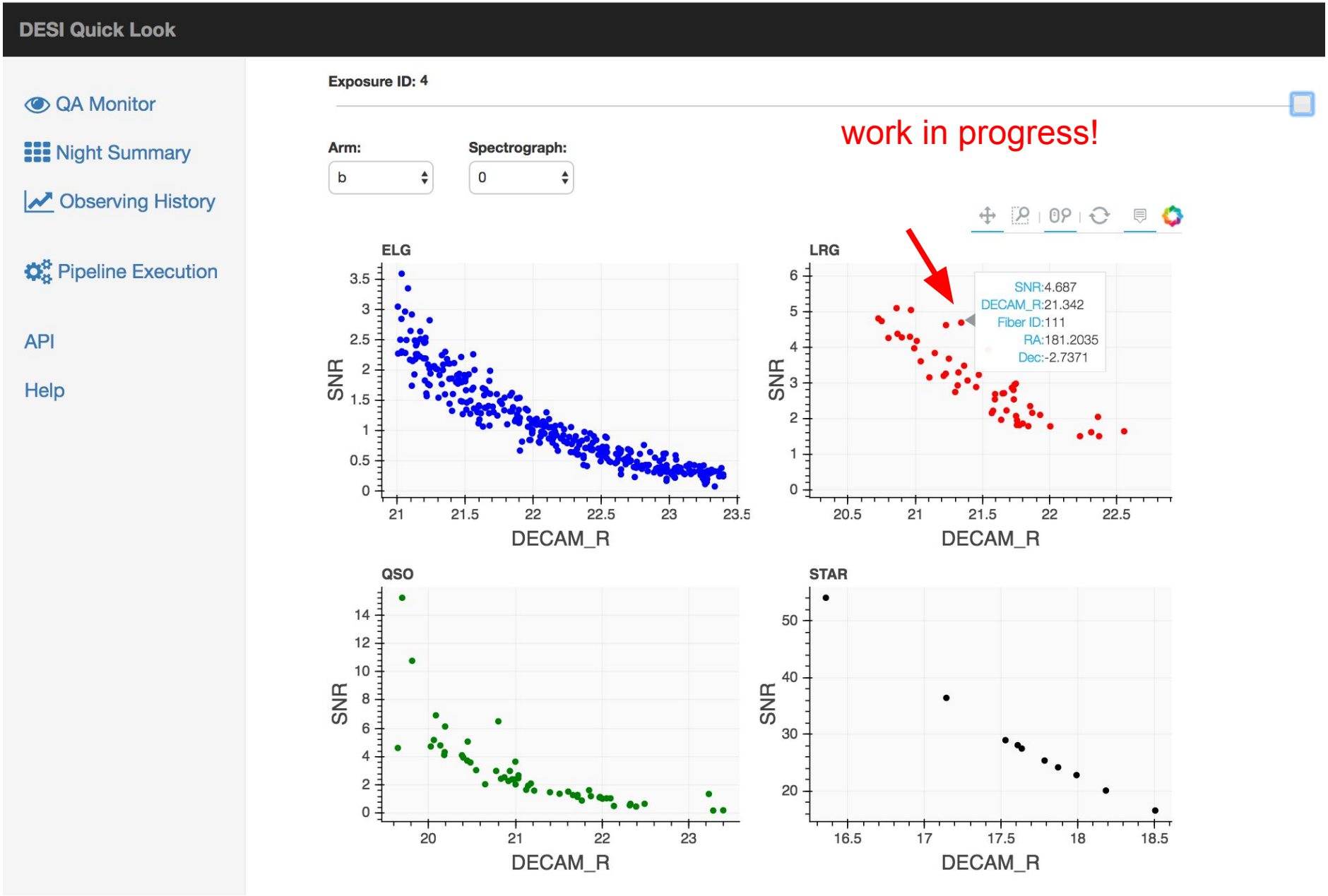
S/N vs. Mag plots



Integration of QLF with DECALs viewer

http://legacysurvey.org/viewer?ra=181.2035&dec=-2.7371&zoom=16&layer=decals-dr3

How we are regarding the schedule?

WBS 1.7.10 Activities

The following table lists the high level WBS 1.7 activities performed by Brazil in 2016 – 2018. WBS 1.7.10.2 (Requirements and Interface Control Documents) has already been completed. Upon approval of the Statement of Work these tasks will be added to the projects schedule in P6.

1.7.10.5.6 L4: Intermediate Quick Look Execution Framework Complete	8/1/17	8/1/17
1.7.10.5.7 Program Production Quick Look Execution Framework	12/1/17	3/1/18
1.7.10.5.8 Review Production Quick Look Execution Framework	3/2/18	3/2/18
1.7.10.5.9 L4: Production Quick Look Execution Framework Complete	3/2/18	3/2/18
1.7.10.5.10 L3: Execution Framework for Quick Look Software Complete	3/2/18	3/2/18
1.7.10.6 Visualization Framework for Quick Look Software		
1.7.10.6.1 Program Early Quick Look Visualization Framework	1/1/17	3/1/17
1.7.10.6.2 Review Early Quick Look Visualization Framework	3/2/17	3/2/17
1.7.10.6.3 L4: Early Quick Look Visualization Framework Complete	3/2/17	3/2/17
1.7.10.6.1 Program Intermediate Quick Look Visualization Framework	4/1/17	7/31/17
1.7.10.6.2 Review Intermediate Quick Look Visualization Framework	8/1/17	8/1/17
1.7.10.6.3 L4: Intermediate Quick Look Visualization Framework Complete	8/1/17	8/1/17
1.7.10.6.4 Program Production Quick Look Visualization Framework	12/1/17	3/1/18
1.7.10.6.5 Review Production Quick Look Visualization Framework	3/2/18	3/2/18
1.7.10.6.6 L4: Production Quick Look Visualization Framework Complete	3/2/18	3/2/18
1.7.10.6.7 L3: Visualization Framework for Quick Look Soft	3/2/18	3/2/18
1.7.10.7 Integration of Quick Look Framework Software		
1.7.10.7.1 Integration of intermediate QLF and ICS level mock observing tests	8/2/17	11/29/17
1.7.10.7.2 Review of QLD integration and mock observing tests	11/30/17	11/30/17

Summary

- Simple instructions on how to install and run QLF locally
- Automation of Quick Look pipeline execution
  - Implemented the ICS “emulator”
  - Processing 30 cameras in parallel
  - QA outputs are ingested at the end of each exposure processing
- New schema for QLF v0.3 database
  - includes job and process information
- QA visualization (work in progress)
- QLF v0.3 is already a useful tool to test the Quick Look pipeline, provide feedback to Quick Look team and get feedback on QA visualization

Short term goals (before the DESI meeting)

- Run QLF with PostgreSQL on desidev
- Control the pipeline execution from the interface
- Easy access to QLF logs from the interface
- Process ~1 night of data
- Improve time profiling of the execution
- Improve QA Monitor and SNR vs. Mag plots
- Finish the integration with the DECALs viewer
- Update documentation

What should come next?

QA display/monitoring

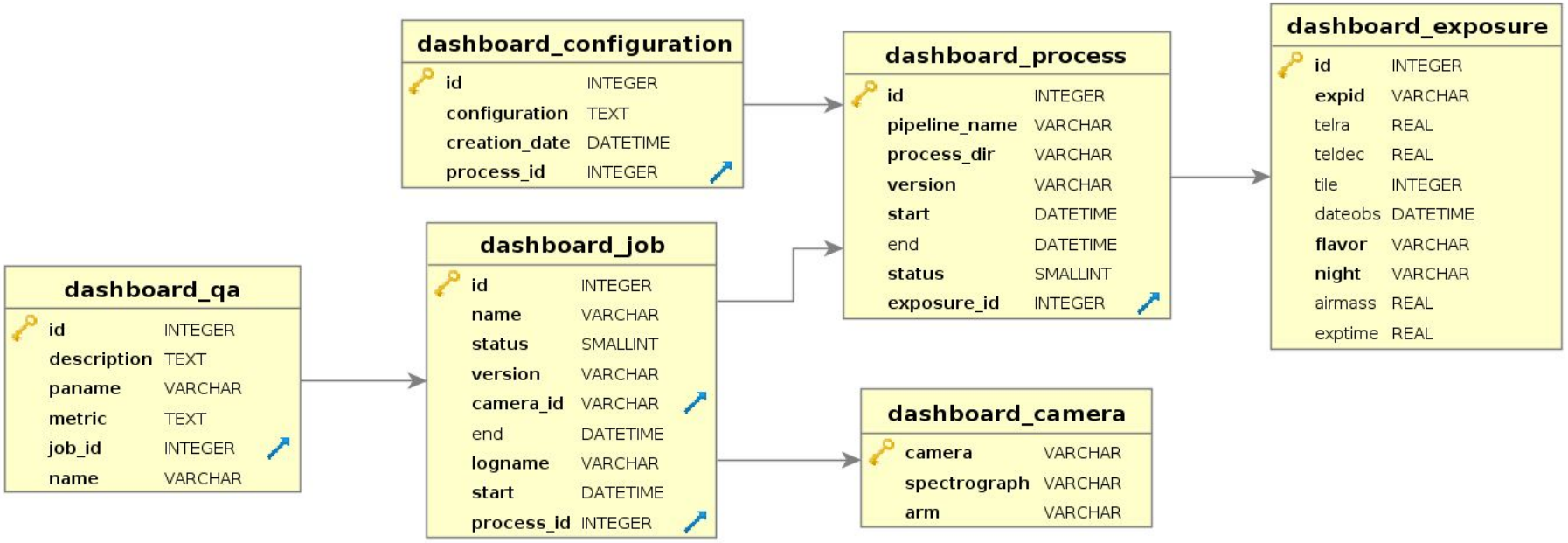
- We have the Quick Look outputs, but it's missing a clearer definition of the **metrics** (**scalars**) we want to monitor
- Metrics are measured by Quick Look but QLF must test them against **specifications** to display pass/fail and generate alerts
- **We don't have a mechanism in place to define specifications** (thresholds or ranges) for each metric

ICS integration

- Methods to discover new exposures, ETC information?
- Are we going to copy the raw files from ICS to Quick Look local disk?
- Management of the calibration files
- Policy for login? remote access of QLF?

Extra Slides

QLF v0.3 database schema



Job: processing of one camera
Process: processing of one exposure

QLF v0.3 system components