Vera C. Rubin Observatory
Data Management

Data Management QA Strategy Working Group Charge

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LDM-622

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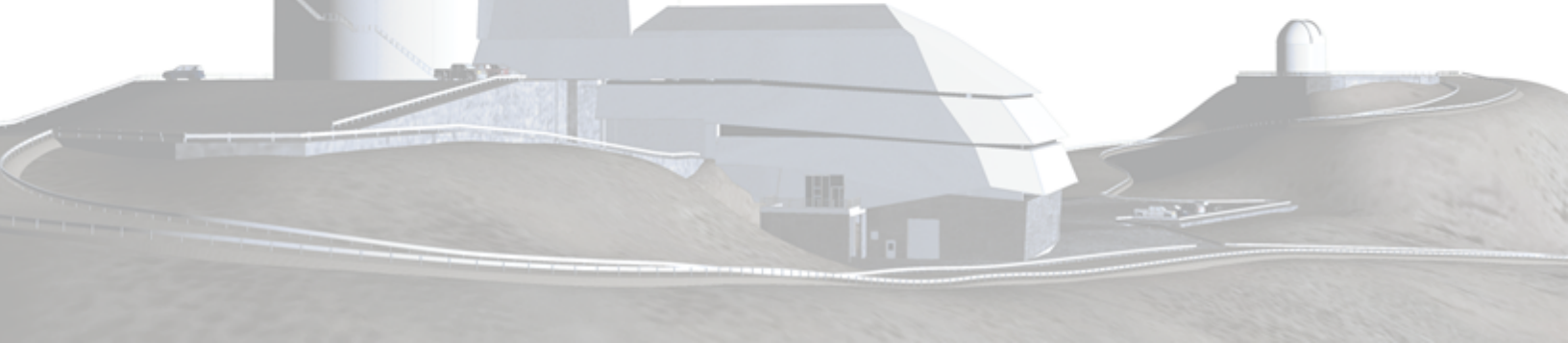

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Abstract

This is the charge for Data Management QA Strategy Working Group, to be convened in April 2018.

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Change Record

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15d9cdc	2018-04-30	Unreleased draft.	J.D. Swinbank
1.0	2018-04-30	Approved in RFC-476	T .Jenness

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Data Management QA Strategy Working Group Charge

1 Scope

This working group (WG) is charged with defining the plan for "quality assurance" (QA) within the Data Management Subsystem.

For the purposes of this WG, we identify the scope of QA as the following:

- Providing developers of the LSST Science Pipelines with tooling and datasets which will enable them to identify, understand and resolve — or avoid altogether, where possible — algorithmic issues or pathologies.
- Defining procedures by which the Science Pipelines are verified to run on Data Facility-provided hardware at a scale appropriate to demonstrate their readiness for operations.
- Tracking progress relative to numerical algorithmic performance targets as defined in LSE-61 or other DM requirements documents[1].
- Tracking computational performance and enabling the rapid identification of performance regressions.

Explicitly excluded from this scope are:

- General purpose "science validation" activities, which will be separately coordinated by the DM Subsystem Scientist.
- Usability or other general-purpose improvements to the codebase.
- Testing of other parts of the DM Subsystem deliverables, including but not limited to Data Facility systems, large scale databases, or the Science Platform, except in so far as their availability may be necessary to carry out QA tasks on the Science Pipelines.

[1] We deliberately avoid the term "key performance metric", since existing KPMs (described in LDM-502) are ill-defined, presupposing as they do the existence of a complete LSST system before it is available.

Note that this WG is not charged with delivering tools explicitly designed for use by the Commissioning Team or during the operational phase of the project. It is anticipated that their needs overlap in large part with those of DM developers, but a separate requirements gathering exercise, likely conducted in conjunction with the DM Subsystem Scientist[2], may be necessary to address Commissioning. However, the DM representative to the Commissioning Team, Simon Krughoff, is expected to serve on this WG (see §5.3) to ensure that the overall direction of travel is aligned with the expectations of commissioning.

2 Period

The working group will convene in early May 2018. Its remit will expire, and deliverables must be provided, by the end of June 2018.

3 Responsibilities

This WG has the following responsibilities:

- Collect input from stakeholders, including the DM System Science Team, Science Pipelines Leadership Team, DM Developers, and DM Systems Engineering Team, to develop a collection of QA use cases.
- Map those use cases to existing QA tools or procedures within DM, where possible, and identify where new tools or procedures need to be developed.
- Develop requirements documentation covering all tools or procedures, new or existing, identified above.
- Produce a list of datasets which should be curated in support of QA activities, and develop a strategy for the management of those datasets[3].
- Propose a development plan for delivering the required tools, procedures and datasets for consideration by DM Project Management.

[2] And/or DM Validation Scientist, as and when one is appointed

[3] Where possible, datasets should be as specific as possible, but the WG may also suggest certain *types* of dataset which should be compiled after the WG has been completed.

4 Specific Considerations

Topics for discussion by the WG should include, but are not limited to:

- To what extent can all interactive QA use cases be captured within the framework of the Science Platform? On what timescale will that be available in a form that is useful to Pipelines developers?
- At what granularity and cadence are integration tests required? Can these be scheduled automatically, e.g. by Jenkins, or do they require manual intervention for large scale tests?
- Current thinking has Firefly as LSST's primary image visualization tool during operations and (presumably) commissioning, but direct support of Pipelines developers is outside its scope. Do we need additional tooling here? Is Firefly's existing development plan adequate to DM's needs? Must the scope of Firefly development be extended?
- What tools are required for ad hoc plotting? Should Bokeh, Holoviews or other Python packages be formally adopted as part of the LSST software stack? Are LSST-specific interfaces required?
- What is the form of metrics that will be captured by the SQuaSH system SQR-009?
- How should pipelines be instrumented to supply those metrics (see e.g. DMTN-057)?
- By what mechanism is a regularly updated pipeline output dataset made available for test purposes (RFC-243)? How does it relate to other dataset packages, and to making test data available to developers?
- By what mechanism, if any, can users "drill down" from SQuaSH to detailed analysis of processing results? Which tools will be provided within the drill-down environment to help?

5 Organization

5.1 Meetings and Activities

The WG will have a scheduled weekly meeting. Other meetings may be called by the chair on an ad hoc basis.

Members are expected to reserve several hours per week for WG activities.

5.2 Reporting

The WG chair will report on WG activities to the DM Project Manager weekly.

At the conclusion of the WG (§2), a brief summary report and the collection of uses cases and requirements documentation will be presented to the DM Leadership Team for acceptance.

5.3 Membership (Proposed)

Core members of the WG are as follows:

- John Swinbank (Chair; Alert Production & System Management)
- Eric Bellm (Alert Production)
- Hsin-Fang Chiang (LSST Data Facility)
- Angelo Fausti (SQuaRE)
- Simon Krughoff (SQuaRE)
- Lauren MacArthur (Data Release Production)
- Tim Morton (Data Release Production)
- Trey Roby (SUIT)

In addition, subject matter experts may be invited to participate in certain WG activities or to present material to WG meetings.

6 References

[1] **[LSE-61]**, Dubois-Felsmann, G., Jenness, T., 2018, *LSST Data Management Subsystem Requirements*, LSE-61, URL https://ls.st/LSE-61

[2] **[SQR-009]**, Fausti, A., 2017, *The SQuaSH metrics dashboard*, SQR-009, URL https://sqr-009.lsst.io

[3] **[DMTN-057]**, Findeisen, K., 2017, *Integrating Verification Metrics into the LSST DM Stack*, DMTN-057, URL https://dmtn-057.lsst.io,
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[4] **[LDM-502]**, Nidever, D., Economou, F., 2016, *The Measurement and Verification of DM Key Performance Metrics*, LDM-502, URL https://ls.st/LDM-502