LARGE SYNOPTIC SURVEY TELESCOPE

Large Synoptic Survey Telescope (LSST)

LSST Science Platform Test Specification
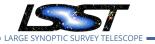
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LDM-540

Latest Revision: 2018-02-05

Abstract

This document describes the detailed test specification for the LSST Science Platform.

Change Record

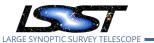| Version	Date	Description	Owner name
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Contents

LSST Science Platform Test Specification

1 Introduction

This document specifies the test procedure for the LSST Science Platform.

The LSST Science Platform is the component of the LSST system which is responsible for providing data access and data analysis capabilities to users.

It is aimed at meeting the needs of several categories of users, including:

- Science users with LSST data rights;

- LSST Project, and later, Operations staff doing algorithm development and the associated validations;

- LSST Project staff engaged in Commissioning and related activities; and

- LSST Operations staff engaged in science validation and other data quality analyses

A full description of this product is provided in LDM-542, with requirements enumerated in LDM-554..
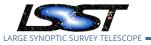
1.1 Objectives

This document builds on the description of LSST Data Management's approach to testing as described in LDM-503 to describe the detailed tests that will be performed on the LSST Science Platform as part of the verification of the DM system.

It identifies test designs, test cases and procedures for the tests, and the pass/fail criteria for each test.

1.2 Scope

This document describes the test procedures for the following components of the LSST system (as described in LDM-542), and their deployment over the resources and services of the LSST Data Facility:

- The science database, especially its Qserv component;

- The API Aspect of the Science Platform, comprising:

  - Catalog query via TAP and related VO services;
  - Image metadata query via TAP and SIAv2;
  - Image retrieval and cutout generation;
  - User Workspace database creation and access; and
  - User Workspace file system access.

- The Portal Aspect of the Science Platform, comprising a set of Web-based tools for:

  - Data discovery for Project-generated and user-generated data;
  - Catalog and image query;
  - Image display;
  - Catalog data visualization;
  - Exploratory data analysis; and
  - Alert subscription control.

- The Notebook Aspect of the Science Platform, comprising:

  - A deployment of the JupyterHub and JupyterLab interactive computing environments;
  - Access to the API Aspect services from within that environment;
  - Direct access to elements of the data systems underlying those services, e.g., access to the User File Workspace as a mounted filesystem rather than through the VOSpace API;
  - A customizable, persistent user environment; and
  - The provision of pre-built deployments of releases of the LSST Stack, usable to configure the computational environment provided by JupyterLab.
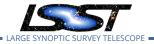
1.3   Applicable Documents

LDM-148   LSST DM System Architecture
LDM-294   LSST DM Organization & Management
LDM-503   LSST DM Test Plan
LDM-542   LSST Science Platform Design
LDM-554   LSST Science Platform Requirements
LSE-61   LSST DM Subsystem Requirements
LSE-319   LSST Science Platform Vision Document
LSE-163   LSST Data Products Definition Document

1.4   References

[1] **[LDM-554]**, Ciardi, D., Dubois-Felsmann, G., 2017, *Science Platform Requirements*, LDM-554, URL `https://ls.st/LDM-554`

[2] **[LSE-61]**, Dubois-Felsmann, G., Jenness, T., 2017, *LSST Data Management Subsystem Requirements*, LSE-61, URL `https://ls.st/LSE-61`

[3] **[LDM-542]**, Dubois-Felsmann, G., Lim, K.T., Wu, X., et al., 2017, *LSST Science Platform Design*, LDM-542, URL `https://ls.st/LDM-542`

[4] **[LSE-319]**, Jurić, M., Ciardi, D., Dubois-Felsmann, G., 2017, *LSST Science Platform Vision Document*, LSE-319, URL `https://ls.st/LSE-319`

[5] **[LSE-163]**, Jurić, M., et al., 2017, *LSST Data Products Definition Document*, LSE-163, URL `https://ls.st/LSE-163`

[6] **[LDM-148]**, Lim, K.T., Bosch, J., Dubois-Felsmann, G., et al., 2017, *Data Management System Design*, LDM-148, URL `https://ls.st/LDM-148`

[7] **[LDM-503]**, O'Mullane, W., Jurić, M., Economou, F., 2017, *Data Management Test Plan*, LDM-503, URL `https://ls.st/LDM-503`

[8] **[LDM-294]**, O'Mullane, W., Swinbank, J., Jurić, M., DMLT, 2017, *Data Management Organization and Management*, LDM-294, URL `https://ls.st/LDM-294`

2 Approach

The major activities to be performed are to:

- -

2.1 Tasks and criteria

The following are the major items under test:

- -

2.2 Features to be tested

- -

2.3 Features not to be tested

2.4 Pass/fail criteria
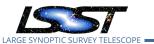
2.5 Suspension criteria and resumption requirements

Refer to individual test cases where applicable.

2.6 Naming convention

All tests are named according to the pattern PROD-XX-YY where:

A Precursor test datasets

A.1 Summer 2013 SDSS Stripe 82 Processing

A.2   Data from the WISE and NEOWISE missions