



LARGE SYNOPTIC SURVEY TELESCOPE

Large Synoptic Survey Telescope (LSST)
Data Management

LDM-503-8 (Spectrograph Data Acquisition) Test Plan and Report

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DMTR-121

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Abstract

This is the test plan and report for LDM-503-8 (Spectrograph Data Acquisition), an LSST level 2 milestone pertaining to the Data Management Subsystem.



Change Record

Version	Date	Description	Owner name
1.0	2019-02-18	Test Plan LVV-P32 approved	Michelle Butler

Document curator: Michelle Butler

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LDM-503-8 (Spectrograph Data Acquisition) Test Plan and Report

1 Introduction

1.1 Objectives

To acquire data from the spectrograph instrument along with proper headers and transfer all data to NCSA for further viewing in LSP.

1.2 System Overview

The spectrograph instrument is the first device to have real data for viewing and evaluation. Early spectrograph data will undergo human inspection to determine whether it is suitable for further processing; if it is not, it will be deleted. Therefore the image data will be sent to NCSA for further viewing through the LSST Science Platform (LSP). If further processing is desired, the image will be ingested into the DBB along with its metadata/provenance for further processing. Version 1.0 of this test will have data written from the spectrograph directly to a local disk on the ATS storage server which is co-located and directly connected to the spectrograph instrument. Data will be copied from that local disk on the ATS storage server to NCSA and a ButlerG2 (or G3) ingest process completed so that the LSP can access the image data. Version 2.0 of this test, when the spectrograph is on the summit, will be that all data from the spectrograph will be written to the L1 handoff system, which will be at the BDC (base data center). The L1 handoff system will have the OODS(Observatory Operations Data Service) service and the DBB(Data BackBone) service in place. The DBB service will transfer the data to NCSA and be responsible for generating metadata/provenance data from image headers. The DBB will be responsible to ingest the image file into the correct ButlerG2 (or G3) repository, and DBB repository. The L1 handoff system through the OODS will enable quick access to images that were just created and keep 30 days worth of cached images for scientists to view as needed via the LSP instance on the summit.

1.3 Applicable Documents

LDM-294 Data Management Organization and Management

LDM-503 DM Test Plan

LDM-148 Data Management System Design

LSE-400 Header Service

1.4 Document Overview

This document was generated from Jira, obtaining the relevant information from the LVV-P32 Jira Test Plan and related Test Cycles (LVV-C56).

Section 1 provides an overview of the test campaign, the system under test (Data Management), the applicable documentation, and explains how this document is organized. Section 2 describes the configuration used for this test. Section 3 describes the necessary roles and lists the individuals assigned to them.

Section 4 provides a summary of the test results, including an overview in Table 1, an overall assessment statement and suggestions for possible improvements. Section 5 provides detailed results for each step in each test case.

The current status of test plan LVV-P32 in Jira is Approved.

1.5 References

- [1] **[LSE-400]**, Lim, K.T., 2019, *Header Service Interface*, LSE-400, URL <https://lse-400.lsst.io>
- [2] **[LDM-148]**, Lim, K.T., Bosch, J., Dubois-Felsmann, G., et al., 2018, *Data Management System Design*, LDM-148, URL <https://ls.st/LDM-148>
- [3] **[LDM-294]**, O'Mullane, W., Swinbank, J., Jurić, M., DMLT, 2018, *Data Management Organization and Management*, LDM-294, URL <https://ls.st/LDM-294>
- [4] **[LDM-503]**, O'Mullane, W., Swinbank, J., Jurić, M., Economou, F., 2018, *Data Management Test Plan*, LDM-503, URL <https://ls.st/LDM-503>

2 Test Configuration

2.1 Data Collection

Observing is not required for this test campaign.

2.2 Verification Environment

Verification environment will be the ATS storage server attached to the spectrograph. The OS is Centos 6.* running latest security patches. A Cron script is used to move to images on ATS storage server to NCSA. IP tables and port verifications are used for data transfer to NCSA. The receiving end at NCSA file systems is a file system available with the DTN protocol configured and set up. NCSA verification scripts including ButlerG* ingests are run.

2.3 Entry Criteria

Image data taken by the spectrograph.

2.4 Exit Criteria

Image data from spectrograph viewable by LSP at NCSA.

3 Personnel

The following personnel are involved in this test activity:

- Test Plan (LVV-P32) owner: Michelle Butler
- Test Cycles:
 - LVV-C56 owner: Michelle Gower
 - * Test case LVV-T454 tester:



- Additional Test Personnel involved: None

4 Overview of the Test Results

4.1 Summary

Test Cycle **LVV-C56: LDM-503-8 Enable spectrograph data viewable by LSP.**

test case	status	comment	issues
LVV-T454	Not Executed		

Table 1: Test Results Summary

4.2 Overall Assessment

Not yet available.

4.3 Recommended Improvements

Not yet available.

5 Detailed Test Results

5.1 Test Cycle LVV-C56

Open test cycle *LDM-503-8 Enable spectrograph data viewable by LSP.* in Jira.

LDM-503-8 Enable spectrograph data viewable by LSP.

Status: Not Executed

Image data needs to be created and available for transfer to NCSA. The data will be transferred to NCSA and made available to scientists for viewing and verification.

5.1.1 Software Version/Baseline

Not provided.

5.1.2 Configuration

ATS system connected to spectrograph DAQ is required to have well formed image data. Well formed means “good” image and correct headers (LSE-400).

5.1.3 Test Cases in LVV-C56 Test Cycle

5.1.3.1 Test Case LVV-T454

Open *LW-T454* test case in Jira.

- Acquire spectrograph image data, transfer that data to NCSA, ingest data into a Butler (G2 or G3 when available), and enable viewing of data on LSP.

Preconditions:

Data must be well formed on Spectrograph data archiving system (ATS). Well-formed means “good image” and correct headers. (LSE-400)



Execution status: **Not Executed**

Final comment:

Detailed step results:

Step	Description, Results and Status	
1	Description	Have data on the ATS archiver system from the spectragraph.
	Expected Result	Well formed files on the ATS system that need to be transferred to NCSA for further analysis
	Actual Result	
	Status	Not Executed
2	Description	A first few iterations is the human runs script to transfer data to NCSA through secure pipeline. after the process is unchanging/solid, a cronjob starts up data "sync" process.
	Expected Result	Data is transferred to NCSA, and is located in NCSA file systems.
	Actual Result	
	Status	Not Executed
3	Description	All files transferred have a ButlerG2 (or G3 when ready) ingest process.
	Expected Result	files now can be accessed by Butler access methods
	Actual Result	
	Status	Not Executed



4 Description LSP processes can now view spectragraph generate files

Expected LSP jupyter notebooks can view spectragraph files.
Result

Actual
Result

Status Not Executed
