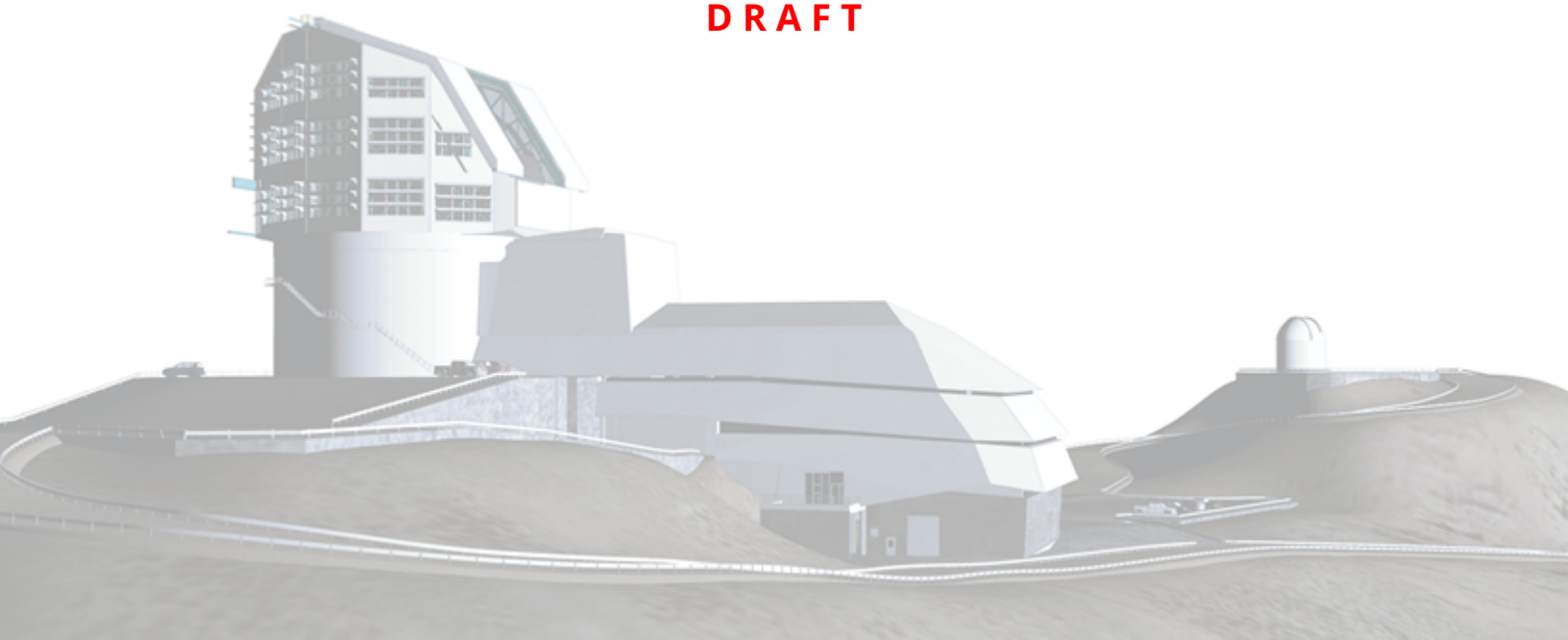

Vera C. Rubin Observatory
Software Test Report

LDM-GEN3: Gen 3 Butler Acceptance Testing Test Plan and Report

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DMTR-271

Latest Revision: 2021-06-30

DRAFT

Abstract

This is the test plan and report for **Gen 3 Butler Acceptance Testing** (LDM-GEN3), an LSST milestone pertaining to the Data Management Subsystem.
This document is based on content automatically extracted from the Jira test database on 2021-06-30 . The most recent change to the document repository was on 2021-07-01.

Change Record

Version	Date	Description	Owner name
	2020-10-30	First draft	Robert Gruendl

Document curator: Robert Gruendl
Document source location: `https://github.com/lsst-dm/DMTR-271`
Version from source repository: 3feebba

Contents

LDM-GEN3: Gen 3 Butler Acceptance Testing Test Plan and Report

1 Introduction

1.1 Objectives

The goal of this test is to demonstrate that the Gen3 Butler software project has sufficiently matured that subsequent DM development should begin focusing on adoption of Gen3 Butler software are repositories throughout the DM software project (i.e. that deprecation of Gen2 Butler usage within the project can begin).

1.2 System Overview

The Gen3 refactoring of the Butler is central to evolution of the overall DM software design and has repercussions throughout the rest of the DM project. This test plan is designed to verify that minimal requirements have been met and the DM project can now begin the process of integrating the Gen3 Butler within the pipelines and analysis tools. Those minimal requirements are that:

1. possible to ingest raw dataset types central to the Rubin operations and the ongoing development of the data management systems..
2. cp_pipe equivalent under Gen3 is available
3. developers can run a pipeline with a single-node using pipetask
4. processing supporting development is possible in a reasonable time (e.g. a 3-tract RC2 test run can be accomplished within a reasonable time)
5. Calibration Product Pipelines (CPP) can be run to support above investigations
6. Batch Processing System (BPS) is available to support testing at larger scales

In addition, at the time these tests occur the Gen3 Butler schema be considered stable enough that changes no longer occur on a weekly basis (i.e forced re-ingestion/migration of existing repositories are no longer a weekly occurrence). Changes requiring wholesale reingestion/migration may still be required but will occur in a regimented manner and the choice to allow

schema changes without an accompanying means to migrate old repositories would become a change-control board (CCB) level issue.

Applicable Documents:
LDM-592: Data Access Use Cases
LDM-556: Data Management Middleware Requirements
LDM-639: Data Management Acceptance Test Specification

1.3 Document Overview

This document was generated from Jira, obtaining the relevant information from the LVV-P77 Jira Test Plan and related Test Cycles (LVV-C160 LVV-C162).

Section 1 provides an overview of the test campaign, the system under test (Software Products), the applicable documentation, and explains how this document is organized. Section 2 provides additional information about the test plan, like for example the configuration used for this test or related documentation. 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 2, 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-P77 in Jira is **Draft** .

1.4 References

[1] **[DMTN-178]**, Comoretto, G., 2021, *Docsteady Usecases for Rubin Observatory Construction*, DMTN-178, URL http://DMTN-178.lsst.io

[2] **[DMTN-140]**, Comoretto, G., Guy, L.P., et al., 2020, *Documentation Automation for the Verification and Validation of Rubin Observatory Software*, DMTN-140, URL https://dmtn-140.lsst.io/

[3] **[LDM-556]**, Dubois-Felsmann, G., Jenness, T., Bosch, J., et al., 2018, *Data Management Middleware Requirements*, LDM-556, URL https://ls.st/LDM-556

[4] **[LDM-639]**, Guy, L., 2018, *DM Acceptance Test Specification*, LDM-639, URL https://ls.st/LDM-639

[5] **[LDM-592]**, Jenness, T., Bosch, J., Gower, M., et al., 2017, *Data Access Use Cases*, LDM-592, URL https://ls.st/LDM-592

[6] **[LSE-160]**, Selvy, B., 2013, *Verification and Validation Process*, LSE-160, URL https://ls.st/LSE-160

2 Test Plan Details

2.1 Data Collection

Observing is not required for this test campaign.

2.2 Verification Environment

These tests assume a stable weekly stack which supports Gen3 running of the above, that services that automatically ingest new data can support on-going ingestion to Gen3 repositories (i.e. DBB shared spaces and OODS support serving data through Gen3), and that batch processing services can support pipeline execution of Gen3 products.

2.3 Related Documentation

No additional documentation provided.

2.4 PMCS Activity

Primavera milestones related to the test campaign:

- LDM-503-GEN3-01

3 Personnel

The personnel involved in the test campaign is shown in the following table.

	T. Plan LVV-P77 owner:	**Robert Gruendl**	
	T. Cycle LVV-C160 owner:	**Robert Gruendl**	
Test Cases	**Assigned to**	**Executed by**	**Additional Test Personnel**
LVV-T1984	Leanne Guy		
LVV-T1982	Leanne Guy		
LVV-T1987	Leanne Guy		
LVV-T1983	Leanne Guy		
	T. Cycle LVV-C162 owner:	**Undefined**	
Test Cases	**Assigned to**	**Executed by**	**Additional Test Personnel**
LVV-T1985	Leanne Guy		

4 Test Campaign Overview

4.1 Summary

T. Plan LVV-P77:	**LDM-GEN3: Gen 3 Butler Acceptance Testing**			Draft
T. Cycle LVV-C160:	**LDM-503-GEN3: Gen 3 Butler Acceptance Testing**			Not Executed
Test Cases	**Ver.**	**Status**	**Comment**	**Issues**
LVV-T1984	1	Not Executed		
LVV-T1982	1	Not Executed		
LVV-T1987	1	Not Executed		
LVV-T1983	1	Not Executed		
T. Cycle LVV-C162:	**LDM-503-GEN3: Gen 3 Ingest raw dataset**			Not Executed
Test Cases	**Ver.**	**Status**	**Comment**	**Issues**
LVV-T1985	1	Not Executed		

Table 2: Test Campaign Summary

4.2 Overall Assessment

Not yet available.

4.3 Recommended Improvements

Not yet available.

5 Detailed Test Results

5.1 Test Cycle LVV-C160

Open test cycle *LDM-503-GEN3: Gen 3 Butler Acceptance Testing* in Jira.

Test Cycle name: LDM-503-GEN3: Gen 3 Butler Acceptance Testing
Status: Not Executed

This test cycle is meant to demonstrate that the Gen3 butler and associated database and pipeline interfaces have matured to the point where they can replace the Gen2 butler. The test cases outlined here:

1. use a series of modest pipeline executions to show that the Gen3 software can support all future pipeline development,
2. those pipeline executions also show that a batch processing system (BPS) is available to enable that processing, and
3. demonstrate through inspection that documentation for developers exists.

5.1.1 Software Version/Baseline

Not provided.

5.1.2 Configuration

Gen3 Butler repositories with test data are available within DBB spaces. Weekly DM stack has Gen3 and BPS elements present for tests.

5.1.3 Test Cases in LVV-C160 Test Cycle

5.1.3.1 LVV-T1984 - Demonstrate documentation/examples of Gen3 usage and cp_pipe equivalent.

Version **1**. Open *LVV-T1984* test case in Jira.

Demonstrate the existence of fundamental documentation necessary to aid Gen2 users with the transition to Gen3 use.

Preconditions:

Execution status: **Not Executed**

Final comment:

Detailed steps results:

Step 1	Step Execution Status: **Not Executed**

Description

Expected Result

Actual Result

5.1.3.2 LVV-T1982 - Run a pipeline on a single node using pipetask.

Version **1**. Open *LVV-T1982* test case in Jira.

To show that individual users have the ability to run either locally (w/ sqlite) or generally (w/ Postgres) using Gen3 Butler infrastructure.

Preconditions:

This test requires that Gen3 Butler infrastructure and underlying pipets have been integrated. It further requires (in spirit) that gen3 schema stability has been reached to facilitate comparison of pipeline results with further stack development can be compared.

Execution status: **Not Executed**

Final comment:

Detailed steps results:

Step 1	Step Execution Status: **Not Executed**

Description

Expected Result

Actual Result

5.1.3.3 LVV-T1987 - Run Calibration Products Processing (CPP)

Version **1**. Open *LVV-T1987* test case in Jira.

Demonstrate that basic calibration processing from Gen2 era has been enabled within Gen3 environment. This test is not concerned with large scales but merely demonstrates that Gen3 capability to generate calibration products (i.e. they are no longer required to be generated in Gen2 and then migrated to Gen3).

Preconditions:

Execution status: **Not Executed**

Final comment:

Detailed steps results:

Step 1	Step Execution Status: **Not Executed**

Description

Expected Result

Actual Result

5.1.3.4 LVV-T1983 - Mini RC2 processing capability

Version **1**. Open *LVV-T1983* test case in Jira.

Demonstrate that a typical 3-tract RC2 data processing is possible using the Gen3 system and the nascent Batch Production Service (BPS). This test is meant to demonstrate that Gen3 + BPS systems are capable of supporting future DM development by demonstrating that processing routinely used by developers for benchmarking/testing improvements can be performed in a reasonable time.

Preconditions:

Execution status: **Not Executed**

Final comment:

Detailed steps results:

Step 1	Step Execution Status: **Not Executed**

Description

Expected Result

Actual Result

5.2 Test Cycle LVV-C162

Open test cycle *LDM-503-GEN3: Gen 3 Ingest raw dataset* in Jira.

Test Cycle name: LDM-503-GEN3: Gen 3 Ingest raw dataset
Status: Not Executed

In the context of the milestone LDM-503-GEN3, Gen 3 Butler readiness, this test cycle is defining the configuration and the dataset for running a generic **Raw Data Ingestion Into Gen3 Butler** test case. There are currently 5 data sources that require verification as they are the central products that will be produced by Rubin or are used as precursor sets in the development/verification of the data management software systems. The current raw data products that are deemed central to DM development and testing are those from AuxTel/LATISS, ComCam, and precursor data from HyperSuprimeCam (HSC). Note, further tests using LSSTCam (currently only preliminary BOT data from the SLAC test stand are available) or precursor sets from the Dark Energy Camera (DECam) could be added but since these types do not exactly fit the central model used for LSST they are not tied directly to requirements.

5.2.1 Software Version/Baseline

LSST DM Stack with Gen3 Butler.

5.2.2 Configuration

Three separate raw data types, those from: AuxTel/LATISS, ComCam, and HSC (e.g. a CI_HSC raw) should be ingested when this test is executed.

5.2.3 Test Cases in LVV-C162 Test Cycle

5.2.3.1 LVV-T1985 - Verify daf_butler raw data ingest

Version **1**. Open *LVV-T1985* test case in Jira.

Demonstrate that a raw data type can be successfully ingested into a Butler repository.

Preconditions:
In order to run this test, a Gen3 daf butler should be deployed and ready to use, with access to the filesystems where the raw data to ingest is stored.

Execution status: **Not Executed**

Final comment:

Detailed steps results:

Step 1 Step Execution Status: **Not Executed**

Description
Verify that a Butler repository is available for the HSC RC2
(Note this either needs to be a test repository or if an existing repository is used then the raw data should not already be present.)

Test Data
HSC RC2

Expected Result

Repository or HSC RC2 is available

Actual Result

Step 2 Step Execution Status: **Not Executed**

Description

Verify that a Butler repository is available for the AuxTel/LATISS
(Note this either needs to be a test repository or if an existing repository is used then the raw data should not already be present.)

Test Data

AuxTel/LATISS

Expected Result

Repository or AuxTel/LATISS is available

Actual Result

Step 3 Step Execution Status: **Not Executed**

Description

Verify that a Butler repository is available for the ComCam
(Note this either needs to be a test repository or if an existing repository is used then the raw data should not already be present.)

Test Data

ComCam

Expected Result

Repository or ComCam is available

Actual Result

Step 4 Step Execution Status: **Not Executed**

Description

Verify that a Butler repository is available for the DESC DC2
(Note this either needs to be a test repository or if an existing repository is used then the raw data should not already be present.)

Test Data

DESC DC2

Expected Result

Repository or DESC DC2 is available

Actual Result

Step 5 Step Execution Status: **Not Executed**

Description

Ingest HSC RC2 raw data into repo

Test Data

HSC RC2

Expected Result

Tool reports data ingest successful for HSC RC2

Actual Result

Step 6 Step Execution Status: **Not Executed**

Description

Ingest AuxTel/LATISS raw data into repo

Test Data

AuxTel/LATISS

Expected Result
Tool reports data ingest successful for AuxTel/LATISS

Actual Result

Step 7 Step Execution Status: **Not Executed**

Description
Ingest ComCam raw data into repo

Test Data
ComCam

Expected Result
Tool reports data ingest successful for ComCam

Actual Result

Step 8 Step Execution Status: **Not Executed**

Description
Ingest DESC DC2 raw data into repo

Test Data
DESC DC2

Expected Result
Tool reports data ingest successful for DESC DC2

Actual Result

Step 9 Step Execution Status: **Not Executed**

Description
Query repository to verify that ingestion of HSC RC2 occurred.

Test Data
HSC RC2

Expected Result
HSC RC2 data are found by query.

Actual Result

Step 10 Step Execution Status: **Not Executed**

Description
Query repository to verify that ingestion of AuxTel/LATISS occurred.

Test Data
AuxTel/LATISS

Expected Result
AuxTel/LATISS data are found by query.

Actual Result

Step 11 Step Execution Status: **Not Executed**

Description
Query repository to verify that ingestion of ComCam occurred.

Test Data
ComCam

Expected Result

ComCam data are found by query.

Actual Result

Step 12 Step Execution Status: **Not Executed**

Description

Query repository to verify that ingestion of DESC DC2 occurred.

Test Data

DESC DC2

Expected Result

DESC DC2 data are found by query.

Actual Result

A Documentation

The verification process is defined in LSE-160. The use of Docsteady to format Jira information in various test and planing documents is described in DMTN-140 and practical commands are given in DMTN-178.

B Acronyms used in this document

Acronym	Description
BOT	Bench for Optical Testing
BPS	Batch Production Service
CCB	Change Control Board
CPP	Calibration Production Processing
ComCam	The commissioning camera is a single-raft, 9-CCD camera that will be installed in LSST during commissioning, before the final camera is ready.
DBB	Data Backbone
DC2	Data Challenge 2 (DESC)
DESC	Dark Energy Science Collaboration
DM	Data Management
DMTN	DM Technical Note
HSC	Hyper Suprime-Cam
LATISS	LSST Atmospheric Transmission Imager and Slitless Spectrograph
LDM	LSST Data Management (Document Handle)
LSE	LSST Systems Engineering (Document Handle)
LSST	Legacy Survey of Space and Time (formerly Large Synoptic Survey Telescope)
LVV	LSST Verification and Validation
OODS	Observatory Operations Data Service
PMCS	Project Management Controls System
SLAC	SLAC National Accelerator Laboratory