**Change Log**

| **Revision** | **Submission Date** | **Affected Sections or Pages** | **Change Summary** |
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# Introduction

## Identification

| **Property** | **Value** |
| --- | --- |
| Configuration ID (CI) |  |
| Element | PDS |
| Program Set |  |
| Version | B13.0 |

## Purpose

This Test Plan defines specific tests Integration and Testing Team will perform to verify and validate that the PDS4 system deployed for Build 13.0. Section 5 of this document lists each test and a summary of how each test is going to be performed. A traceability matrix in section 6 and section 7 traces these tests to the new PDS4 system design requirements, enhancements and defects.

## Overview

See [B13.0 RDD](https://nasa-pds.github.io/releases/13.0/rdd.htm).

## Terminology and Notation

N/A

## References

See [B13.0 RDD](https://nasa-pds.github.io/releases/13.0/rdd.htm).

**Table 1: Applicable JPL Rules Documents**

| **Title** | **DocID** |
| --- | --- |
| *Software Development* | 57653 |
| *Overview of Software Development Processes* | 78187 |

**Table 2: Applicable MGSS Documents**

| **Title** | **Document Number** |
| --- | --- |
| *MGSS Implementation and Maintenance Task Requirements* | DOC-001455 |

# Dependencies and Environments

## Software Dependencies and Assumptions

Included in this release are the following packages.

**Table 3: Software Packages**

| **Product** | **Version** |
| --- | --- |
| Java Runtime Environment (JRE) | 11.0.16.1 |
| Various Java dependency libraries used by testable products (e.g., JASON, etc.) | varies |
| Python | 3.9.7 |
| Various Python modules used for test setup/analysis (e.g., Pandas, etc.) | varies |

## Test Environment

Build 13.0 integration and test environment encompasses the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Host** | **OS** | **RAM** | **Software** |
| John’s laptop | Mac OS X 11.6.5 | 16 GB | Validate, im |
| GC’s laptop | Mac OS X 11.2.3 | 16 GB | PDS-API, Registry, Registry-API, Registry-Mgr, Doi Service, DOI-UI, harvest, Planetarydata.org |
| John’s pc | Windows 10 Enterprise  (21H2) | 32 GB | Validate, im |

# Test Policy

The PDS4 build structure is organized such that the system can be tested and verified early on to ensure seamless transitions. The builds will ensure there is a coordinated testing and deployment of functionality coupled with upgrades of the data standards.

Build 13.0 Integration testing is the execution and management of tests by the Engineering Node to ensure that the release of Build 13.0 meets the intended functionality. The process of verification testing includes the selection of verification items, integration, and regression testing. Any functionality that is added to the system is treated as a new verification item.

# Test Tools

**Table 4: Test Tools**

| **Tool** | **Version** |
| --- | --- |
| Docker Desktop | 4.12.0 |
| Curl | 7.79.1 |

# Test Procedures

Table 5 identifies all the test procedures that verify the implementation of requirements, improvements, features, and so on, as well as the correction of defects and the time to perform each test. The total estimated time to execute the test procedures is 36 hours. [Release Build 13.0 Test Procedure](https://pds-engineering.jpl.nasa.gov/file/release_build_13.0_test_procedure.20221005.docx) identifies the complete specification of the test procedures.

**Table 5: Summary of Test Procedures**

| **Test Procedure ID** | **Test Procedure Summary Statement** | **Time to Perform Test** |
| --- | --- | --- |
| API.1 | Verify PDS Search API user guide | 0.5 hour |
| API.2 | Verify key “summary-only” is replaced by “limit=0” | 0.5 hour |
| API.3 | Perform a query of the API for products/{LID}/all | 1 hour |
| API.4 | Perform a query of the API for product/{lidvid}/bundles, the API to returns the primary bundle (there should be only 1) AND any secondary bundle(s) (could be many) the product belongs to. | 1 hour |
| API.5 | Perform a query of the API for product/{lidvid} with --header ' Accept: application/vnd.nasa.pds.pds4+json ' | 0.5 hour |
| API.6 | Perform a query of the API for product/{lidvid} with --header ' Accept: application/vnd.nasa.pds.pds4+xml' | 0.5 hour |
| API.7 | Test from the production deployed links. <https://pds.nasa.gov/api> --> <https://nasa-pds.github.io/pds-api/overview.html> <https://pds.nasa.gov/api/search/> --> <https://pds.nasa.gov/api/search/1.0> <https://pds.nasa.gov/api/doi/> --> <https://pds.nasa.gov/api/doi/0.2> <https://pds.nasa.gov/api/search/1.0> --> <https://nasa-pds.github.io/pds-api/specifications/search-v1.0.0-redoc.html> <https://pds.nasa.gov/api/doi/0.2> --> <https://nasa-pds.github.io/pds-api/specifications/doi-v0.2-redoc.html> | 0.5 hour |
| API.8 | Test link and verify content for cookbook page | 0.5 hour |
| API.9 | Test link and verify content for search api user guide | 0.5 hour |
| REG.1 | Harvest test file and query registry for items from the package just harvested | 1 hour |
| REG\_API.1 | Query API with wildcard, Expect return only products with title start with "InSight RAD" | 0.5 hour |
| REG\_API.2 | Verify vulnerabilities count raised by sonalift | 0.5 hour |
| REG\_API.3 | Verify <http://localhost:8080/> is returning swagger-ui.html | 0.5 hour |
| REG\_API.4 | Verify api returns results when querying with multiple fields | 0.5 hour |
| REG\_API.5 | Verify api returns contain property values when querying with “summary-only=true” | 0.5 hour |
| REG\_API.6 | Verify query of bundle of a product returns the description of the bundle of the requested product. | 1 hour |
| REG\_API.7 | Verify registry docker can load. | 0.5 hour |
| REG\_API.8 | Verify fields query results are consistent. | 1 hour |
| REG\_API.9 | Verify query of summary-only returns expected behaviour | 0.5 hour |
| REG\_API.10 | Verify /products, /bundles & /collections endpoints from api does not give a 404 error | 0.5 hour |
| REG\_API.11 | Verify when query for summary-only, the result should have a properties section | 0.5 hour |
| REG\_API.12 | Verify api doesn’t return error 500 when querying production of a collection with summary-only=true | 0.5 hour |
| REG\_API.13 | Verify there is an error message to contact pds-operator when the user gets an error 500 from the API | 0.5 hour |
| REG\_API.14 | Verify home controller section is removed from swagger welcome page | 0.5 hour |
| REG\_API.15 | Verify swagger welcome page, observe the endpoints | 0.5 hour |
| REG\_MGR.1 | Verify the API doesn’t return error 500 when querying with limit=500 | 0.5 hour |
| REG\_MGR.2 | Verify searching with ref\_lid\_\* returns the description of the bundle of the requested product. | 1 hour |
| DOI.1 | Verify DOI reserve works on the test file | 1 hour |
| DOI.2 | Verify DOI service does not ingest bad value files using the test file with bad values. | 0.5 hour |
| DOI.3 | Verify DOI service does not inaccurately report a valid LID as being an invalid LIDVID. | 0.5 hour |
| DOI.4 | Verify DOI service does not convert the test file into an invalid json that files internal datacite validator. | 0.5 hour |
| DOI.5 | Reserve, release, and update a DOI, verify DOI service validate the DOI metadata. | 1 hour |
| DOI.6 | Create a new doi  Validate CCO licensing info is included in the DOI metadata. | 1 hour |
| DOI.7 | Create a new doi  Validate "US Government Works" copyright is included in the DOI metadata. | 1 hour |
| DOI.8 | Verify DOI service can release a DOI which doesn’t include the DOI label | 0.5 hour |
| DOI-UI.1 | Submit any erroneous data in create, reserve or release. The error message will be shown without the "title" or "description" labels. | 1 hour |
| DOI-UI.2 | Verify there are no critical or high vulnerabilities when building doi-ui from source | 1 hour |
| DOI-UI.3 | Verify there is no error message when reserving a DOI using the test file. | 1 hour |
| DOI-UI.4 | Verify web site style has no error | 0.5 hour |
| DOI-UI.5 | Kill backend api service  search or any type of operations involving the request to the API  **expect** a popup message signifying the failure to the user and providing a point of contact to reach for support. | 0.5 hour |
| DOI-UI.6 | Verify user be requested an authentication and be able to use the application when not connected to JPL VPN. | 0.5 hour |
| DOI-UI.7 | Verify an ASR was created for the application. | 0.5 hour |
| DOI-UI.8 | Tested Cognito authentication on pds-gamma, see <http://pds-gamma.jpl.nasa.gov/tools/doi-editor> | 0.5 hour |
| HAR.1 | Verify the lidvid is correct when the id has trailing zero | 0.5 hour |
| DATA.1 | Verify website’s login screen is not blocked | 0.5 hour |
| WDS.1 | Verify App bar issue identified on ATM website  was fixed | 0.5 hour |
| POR.1 | Verify filenames for CASSINI\_1B00\_1300 in online archive are all in upper case | 0.5 hour |
| POR.2 | Verify spacing in header for keyword search and data set status is correct | 0.5 hour |
| IM.1 | Execute lddtool against the latest released ingest data dictionary and the previously released ingest data dictionary. Validate that latest generated schema only includes a single line for rule “disp:Movie\_Display\_settings” whereas the previous release shows multiple duplicate rules. | 1 hour |
| IM.2 | Execute validate against a dataset that references kg/m3 and g/cm3 against the latest data schema release. Verify that it is successful. Likewise test against an older data schema release to verify that errors/warnings are raised. | 1 hour |
| VAL.1 | Execute validate against a known dataset by declaring the label extension. If the label | 0.5 hour |
| VAL.2 | Execute validate against a known PDF/A-1a containing data set. Verify that an error is not reported that the data fails PDF/A-1a compliance. | 0.5 hour |
| VAL.3 | Execute validate against a known bundle that references other files by path on a Windows 10 OS. Verify that FileNotFoundEsception is not thrown during the test. | 1.5 hour |
| VAL.4 | Execute validate against a known dataset by declaring the label extension. If the label extension does not match, validate should fail with an error. | 0.5 hour |
| VAL.5 | Execute validate against known datasets with multiple headers and header fields between data sets and product should pass. | 1.0 hour |

# Traceability Matrices

Table 6 identifies the implemented requirements, improvements, features and so on, including references to the test procedures that verify them.

**Table 6: Requirement, Improvement, and Feature Traceability Matrix**

| **ID** | **Requirement, Improvement, or Feature Statement** | **Verification Procedure ID** |
| --- | --- | --- |
| Pds-api#169 | As a user, I want to have a PDS Search API user guide | API.1 |
| Pds-api#173 | Replace summary-only=true by limit=0 | API.2 |
| Pds-api#148 | As a user, I want to search for past versions of a product where the LID changed during the product history | API.3 |
| Pds-api#60 | As an API user, I want to know the Bundle for a given Product. | API.4 |
| Pds-api#101 | As a user, I want to receive a JSON response that contains the PDS4 label metadata in JSON format (application/vnd.nasa.pds.pds4+json) | API.5 |
| Pds-api#125 | As a user, I want to receive a XML response that contains the PDS4 label metadata in XML format (application/vnd.nasa.pds.pds4+xml) | API.6 |
| Pds-api#191 | As a user, I want to get directions whenever I arrive on an API URL | API.7 |
| Pds-api#183 | Create a cookbook page on the content negotiation for the PDS Search API | API.8 |
| Pds-api#172 | Create user guide for the search api | API.9 |
| registry-api#109 | As a user, I want to have an administrator contact when I am getting an error 500 from the server | REG\_API.13 |
| registry-api#108 | Remove the home controller from the swagger-ui | REG\_API.14 |
| registry-api#131 | Refactor API endpoints for simpler architecture/design/implementation to maintain/extend | REG\_API.15 |
| registry-mgr#50 | As a user I want to search on ref\_lid\_\* | REG\_MGR.2 |
| doi-service#13 | The software shall validate the DOI metadata when reserving, releasing, or updating a DOI | DOI.5 |
| doi-service#224 | As a DOI user, I would like to know the licensing information PDS data | DOI.6 |
| doi-service#335 | As a DOI user, I would like to know the copyright for PDS data | DOI.7 |
| doi-service#344 | As a user, I want to release a DOI with a label that does not contain the DOI | DOI.8 |
| ddoi-ui#92 | As a user, I want to get an error message with support contact when the backend API is unavailable | DOI-UI.5 |
| ddoi-ui#145 | As a user, I want to access the DOI UI from outside JPL | DOI-UI.6 |
| ddoi-ui#149 | create an ASR for the application | DOI-UI.7 |
| ddoi-ui#147 | Replace authentication with Cognito on DOI UI and DOI service | DOI-UI.8 |

Table 7 identifies the corrected defects and the references to the test procedures that verify them.

**Table 7: Defect Traceability Matrix**

| **ID** | **Summary Statement of Defect** | **Verification Procedure ID** |
| --- | --- | --- |
| registry#64 | Scalable Harvest does not replace file paths with the appropriate URL prefix | REG.1 |
| registry-api#134 | wildcard search in query parameter returning odd results | REG\_API.1 |
| registry-api#121 | Fix vulnerabilities raised by sonalift | REG\_API.2 |
| registry-api#141 | / is not returning swagger API doc | REG\_API.3 |
| registry-api#162 | ields parameter does not return values if more than one value is requested for CSV format | REG\_API.4 |
| registry-api#171 | summary does not contain the property values | REG\_API.5 |
| registry-api#150 | bundle of a product does not return result | REG\_API.6 |
| registry-api#128 | Registry API Service docker container fails to start with error: Unable to access jarfile /usr/local/registry-api-service/registry-api-service.jar | REG\_API.7 |
| registry-api#172 | fields query parameter does not work consistently across all response formats | REG\_API.8 |
| registry-api#167 | summary-only does not work as expected | REG\_API.9 |
| registry-api#178 | The /products, /bundles & /collections endpoints are missing from the API | REG\_API.10 |
| registry-api#179 | limit=0 is not providing list of properties (fka summary-only) | REG\_API.11 |
| registry-api#152 | summary-only does not work on products of a collection | REG\_API.12 |
| registry-mgr#53 | bug with pagination limitations per OpenSearch config | REG\_MGR.1 |
| doi-service#350 | dataCite reserve error on title | DOI.1 |
| doii-service#331 | doi sync failing for SBN-PSI DOIs | DOI.2 |
| doi-service#336 | DOI-service application inaccurately reports LID as being invalid | DOI.3 |
| doi-service#328 | Valid PDS4 xml input is converted into an invalid json that fails internal datacite validator | DOI.4 |
| doi-ui#151 | Error messages are inconsistent | DOI-UI.1 |
| doi-ui#130 | Remove vulnerabilities from the package per npm audit | DOI-UI.2 |
| doi-ui#160 | Sometimes there is a null error message when there is no error | DOI-UI.3 |
| doi-ui#155 | Keywords text box and info icon do not appear correctly | DOI-UI.4 |
| harvest#90 | Incorrect "lidvid" and "\_id" fields are ingested (trailing zeros are truncated) | HAR.1 |
| planetarydata.org#6 | IPDA Charter blocked by login | DAT.1 |
| wds-web#31 | App bar issue identified on ATM website | WDS.1 |
| portal-tasks#38 | fix filenames for CASSINI\_1B00\_1300 in online archive | POR.1 |
| portal-tasks#22 | Fix odd spacing in header for keyword search and data set status | POR.2 |
| pds4-information-model#468 | LDDTool is generating multiple Schematron rules to test the same condition | IM.1 |
| pds4-information-model#499 | CCB-348: Add Units\_of\_Mass\_Density as a unit of measure | IM.2 |
| validate#496 | Support new lblx file extension | VAL.1 |
| validate#482 | Validate labels/bundles/collections should use the LBLX file extension | VAL.1 |
| validate#479 | Validate erroneously flags PDF/A-1a compliant file | VAL.2 |
| validate#507 | Validate having issues checking some file content on windows | VAL.3 |
| validate#503 | Validate passes confusing message to the Windows command window | VAL.3 |
| validate#524 | An error should be received when no products are found within the validation target | VAL.4 |
| validate#480 | Table headers in data sets are miscalculated resulting in erroneous error reports | VAL.5 |
| validate#425 | Data sets with multiple table headers, e.g. header-data-header-data, result in incorrect error reports. | VAL.5 |

# Test Environment and Personnel

**Table 8: Availability of Personnel**

|  |  |  |
| --- | --- | --- |
| **Person** | **Assignment(s)** | **Availability** |
| Gary Chen | PDS-API, Registry, Registry-API, Registry-Mgr, Doi Service, DOI-UI, harvest, Planetarydata.org, WDS-web, Portal-tasks, | 18 hours/week |
| John Engelke | Validate, IM, regression tests | 16 hours/week |
| **Total** |  | **Enter total hours or days here** |

# Testing Constraints and Risks

These planned tests fully depend on Registry Docker fully functioning, including bringing up swagger web and loading test data from existing test folders.

* IF installation and configuration of external software packages goes poorly THEN testing of the registry will halt until solved WITH LIKELIHOOD OF 50%.
* IF software changes and fixes come in THEN those tests will need to be rerun WITH LIKELIHOOD of 90% and CONSEQUENCE OF resetting the number of days needed for testing.
* IF DataCite’s interface works poorly THEN many components of DOI service will halt WITH LIKELIHOOD of less than 1%.

**A.** **Appendix Name**

Use appendixes to provide information separately.