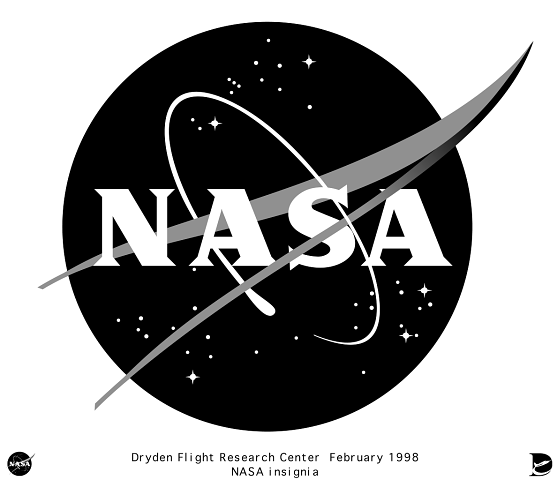
Plan Document

NASA Planetary Data System

PDS4 System

Build 9b Test Document



## Change Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Description** | **Author** |
| Draft |  | Initial draft release. |  |
| 1c | May 16, 2011 | Modified many tests to work with build 1c of Harvest and Registry. Other minor revisions. | Richard Chen |
| 1d | Oct 24, 2011 | Updated for build 1d | Richard Chen |
| 2a | Nov 11, 2011 | Updated for build 2a | Richard Chen |
| 2b | Feb 28, 2012 | Updated for build 2b | Richard Chen |
| 2b.1 | Mar 7, 2012 | Re-added HVT.T3, expanded SRCH.T5 | Richard Chen |
| 2c | Jul 17, 2012 | Updated for build 2c | Richard Chen |
| 3a | Oct 26, 2012 | Added BNDL.T1 to .T4 | Richard Chen |
| 3b | Apr 09, 2013 | Added AAFUNCTION.\* | Richard Chen |
| 3b.1 | Aug 30, 2013 | Incorporated JIRA resolutions | Richard Chen |
| 3b.2 | Sep 15, 2013 | Cleaned up and removed not applicable test procedures | Richard Chen, Emily Law |
| 4a | Dec. 05, 2013 | Incorporated PDS4ORR-RFA1’s reeendations by:   * folding the test plan into this (test procedures and test results) document. * listing the requirements tested in each test case and their pass/fail status * adding version numbers in list of software components tested * indicating for each JIRA issue: the software build under which it was discovered, its severity, the test case demonstrating, and its description. * adding “pass”, “fail”, or “skip” to the requirements traceability matrix   Added tests TPRT.1, SCMA.1 to test transport service and schema.  Removed redundant tests AATESTME.\*. | Richard Chen, Emily Law |
| 4b’ | Apr 14, 2014 | Replaced generate0.7.0 with 0.7.1 | Richard Chen |
| 5a | Oct 27, 2014 | Added PRV.3, TPRT.4. Changed HVT.4 to GEN.2. Changed TPRT.3 to test more of transport-proxy. Deleted TPRT.2 after folding its step into TPRT.1 | Richard Chen |
| 5b | Apr 19, 2015 | Rewrote TPRT.4 to test transport-proxy correctly. Much work on formatting issues in Generate, Transform, and Transport. Added SRCH.8 | Richard Chen |
| 6a | Oct 19, 2015 | Added HVT.7, REG.10. Modified HVT.5, PRG.1, PRT.1, PRV.1, PRV.3, PRV.5, PRV.6, REG.3, REG.9, SRCH.5, SRCH.8, TPRT.1, TPRT.3 | Richard Chen |
| 6b | Apr 29, 2016 | Added PRP.1, PRT.2, PRT.3, PRV.7, TPRT.5 | Richard Chen |
| 7a | Oct 24, 2016 | Added MOD.1, Changed DSV.1 to POR.1, added POR.2 | Richard Chen |
| 7b | Apr 17, 2017 | Added HVT.8 | Richard Chen |
| 8a | Oct 23, 2017 | Added harvest-search, search-analytics | Richard Chen |
| 8b | Apr 23, 2018 | Added PRI.1, PRS.1, TPRT.6. Removed obsolete PRV.6 | Richard Chen |
| 9a | Oct 30, 2018 | Removed SRCH.9 and merged it into POR.1 | Richard Chen |
| 9b | Jun 12, 2019 | Removed REG.10 | Richard Chen |

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## Introduction

For over twenty years, the Planetary Data System (PDS) has been NASA’s official data system for archiving and distribution of data from planetary exploration missions. It has been a leader in defining data standards, working with missions and instrument teams, and developing data system technologies. The PDS has been instrumental in changing the scientific culture by working with the planetary science community to publicly release and peer review the data it captures. It has also been used as a model by other science data systems interested in establishing distributed scientific networks organized by independent discipline nodes at facilities that are doing leading-edge scientific research.

While PDS has been a leader in developing and exploiting new technologies and ideas, an increasing workload and substantial increases in the volume of delivered data are now threatening the system's ability to accomplish its primary missions of both archiving planetary science data and distributing it to working scientists. PDS identified these challenges in its Roadmap published in 2006. In addition to these challenges, the ten year Roadmap outlined several goals including improving the PDS data standards, increasing user services by leveraging newer technologies and technical standards, and re-architecting PDS to ensure efficient operations of the system while supporting the increasing demands on PDS by both the data providers and end users.

In response to these challenges and goals, PDS has developed a plan for the next generation. The vision, as defined by the PDS Management Council at its April 2008 meeting, includes:

* Simplified, but rigorous, archiving standards that are consistent, easy to learn, and easy to use
* Adaptable tools for designing archives, preparing data, and delivering the results efficiently to PDS
* On-line services allowing users to access and transform data quickly from anywhere in the system
* A highly reliable, scalable computing infrastructure that protects the integrity of data, links the nodes into an integrated data system, and provides the best service to both data providers and users

PDS previously maintained two separate documents:

* the Integration and Test Plan
* the Test Procedures and Report

Because the latter document grew to encompass most of the former, this document merges the two.

### Purpose

This Test Document 1) defines specific tests that ensure that the new system and the new standards called “PDS4” comply with requirements and meet customers’ needs, and 2) reports results of the tests to verify and validate that the PDS4 system deployed for Build 9b is free of critical defects. This document describes the integration and test activities and contains test cases that demonstrate compliance to requirements. The test scenarios verify and validate the system components and data products in an integrated manner. A test traceability matrix in section 5 below traces these scenarios to the new PDS4 system design requirements, which in turn can be traced to high-level PDS requirements.

### Scope

For PDS4 Build 9b, this document describes EN’s testing of the software modules as guided by <https://osr.jpl.nasa.gov/wiki/pages/viewpage.action?spaceKey=PDSEN&title=PDS4+Software+Deployment#PDS4SoftwareDeployment-DataSetView>, with a more module-centric description at <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/>. The tested modules:

* Ingest: Harvest 1.15.0, Catalog 1.16.0
* Model: LDDTool 9.1.0
* Portal: Data Set View 2.12.0
* Preparation: Design, Generate 0.15.0, Inspect 0.3.0, Tools Service 0.4.0, Transform 1.9.0, Validate 1.15.0
* Registry: Service 1.15.0, UI 1.15.0
* Search: Core 1.13.0, Service 1.13.0, UI 1.13.0, Product-Search-UI 2.0.0, Analytics 2.0.0
* Storage: Storage-Service 1.2.0, Product-Service 1.2.0
* Transport: Registry 1.7.0, OFSN 1.9.0, Proxy 1.8.0, Upload 0.6.0

Some modules have no download and thus were minimally tested or not tested. These include:  
- the open source software for Model/Model DM, Model/Model Ontology, Security  
- the commercial software for Report  
- the already deployed Portal/Data Search, Portal/Dictionary Search, Portal/Phone Book Search, Portal/Tool Registry

### Document Revision

Revisions of this document will be held in the PDS Engineering Node website through the use of its document history functionality. Previous versions of this document can be accessed through the use of that tool.

### Test Approach

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 9b Integration testing is the execution and management of tests by the Engineering Node to ensure that the release of Build 9b 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.

### Applicable Documents

#### Controlling Documents

[1] Planetary Data System Strategic Roadmap 2006 - 2016, February 2006.

[2] Planetary Data System Level 1, 2 and 3 Requirements, March 26, 2010.

#### Referenced Documents

[3] PDS4 Project Plan, July 2013.

[4] PDS4 Operations Concept, September 2013.

[4] System Architecture Specification, September 2013.

[5] General System Requirements, September 2013.

[6] Software Requirements and Design, 2013.

[7] PDS4 Standards Documents, 2014.

## Executive Summary

**The testing documented herein substantiates that all tested tools and services meet Build 9b requirements as specified in their Software Requirements and Design documents.**

|  |  |  |  |
| --- | --- | --- | --- |
| **# of tests performed** | **# of tests passed** | **# of tests failed** | **# of high priority anomalies** |
| 49 | 49 | 0 | 0 |

Build 9b opens 1 major JIRA issue (PDS-833, already resolved), 2 minor issues (PDS-888 and PDS-890), and 5 requests for improvement (PDS‑834, PDS‑835, PDS-837, PDS-839, PDS-887). In addition, build 9b reopens 2 previously resolved requests for improvement: (PDS-602, PDS-605).

Build 9b confirms the closure of JIRA issues PDS-603, PDS-606, PDS-678, PDS-701, PDS‑793.

Section 3.2 has one sequence of four tests that represent the most likely operating scenario for PDS4 products: creation, validation, ingestion, search. Section 3.3 has one sequence of tests per software module. These tests cover level 4 and 5 requirements for completeness. The sequences:

* CTLG.\* tested the catalog tool and the storage service successfully.
* GEN.\* tested general functionality successfully. Testing of accessing a controlled registry was skipped, as no registries are run that way now or are availabe to test with.
* HVT.\* tested Ingest/Harvest successfully, though PDS-888 uncovered a minor bug
* MOD.1 tested LDDTool successfully.
* POR.1 tested Portal/Data Set View successfully
* PRG.1 tested the Preparation/Generate tool successfully.
* PRI.1 tested PDS4 Viewer successfully after resolving major issue PDS-833. Also requested improvement PDS-887
* PRP.1 tested Preparation/PDS4 Tools (i.e. extract-table) successfully.
* PRS.1 tested Preparation/Tools (i.e. webapps tools-service and ts) successfully
* PRT.\* tested Preparation/Transform tool successfully, though it requested improvements PDS-602 and PDS-834.
* PRV.\* tested Preparation/Validation tool successfully. Requested improvements PDS-605 and PDS-837. Reported minor bugs PDS-835 and PDS-890
* REG.\* tested the Registry service successfully
* SCMA.1 tested Model/Model Ontology successfully albeit peripherally via the PDS4 schema v1.C.0.0. These tests proceeded independently from software build 9b.
* SRCH.\* tested the Search service successfully
* TPRT.\* tested Transport/\* successfully.

Section 4 lists all issues and their info: status, JIRA tracking number, severity, relevant test case, and description. Testing of Build 9b created 1 major anomaly, 3 minor anomalies, and created or reopened 6 requests for improvement. Overall, 23 issues remain open: 0 major anomlies, 6 minor anomalies, 14 requests for improvement.

Section 5 shows the traceability of the test cases to the level 5 requirements (and level 4 if no level 5 requirement applies).

## Test Procedures

The following section defines the tests and their results. All tests below have been run for build 9b (except those written for future builds) and will be run as necessary to re-test the system after software changes.

Section 3.2 below contains one sequence of tests that demonstrates how a bundle of products passes through the PDS4 software, especially the tools and services to support PDS4 data validation, registration, and search.

Section 3.3 contains tests that demonstrate the broader functionality of the PDS4 software.

### Setup

The root URL for all software is <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/>

The tests in section 3.2 require the installation of the following PDS4 software:

* **Harvest**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/ingest/harvest>
* **Search**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/search>
* **Validate**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/preparation/validate>
* an **XML editor**, e.g. Oxygen. This can be skipped, though not recommended.
* an XML-friendly web **browser**, e.g. firefox

The tests in Section 3.3 require the installation of the software above as well as:

* **Catalog**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/ingest/catalog>
* **Email**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/email>
* **Extract-table**,  [https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/preparation/pds4-tools](https://pds-engineering.jpl.nasa.gov/development/pds4/8.1.0/preparation/pds4-tools)
* **Generate**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/preparation/generate>
* **Inspect**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/preparation/inspect>
* **Model**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/model>
* **Portal**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/portal>
* **Storage**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/storage>
* **Transform**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/preparation/transform>
* **Transport**, <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0/transport>
* **curl**, a command-line utility to access a URL, used here to manipulate a registry. The Registry Service Guide has more information. This is native to most versions of unix.

Please follow the installation instructions carefully. For more help, the file NOTES.txt, created during SETUP below, details one tester’s configuration experience. Note that the tests are written for Unix, but running on other platforms requires simple changes.

In the tests in the rest of this document, replace

|  |  |
| --- | --- |
| *testDir* | directory where input files are extracted |
| *binDir* | directory where the PDS4 software are installed |
| harvest | If the registry is uncontrolled, do not replace. Else:  harvest –u*username* –p*password*  Also add “‑k *keystorePassword*” depending on the registry configuration, especially if Harvest gives error “Keystore password must be specified” |
| curl | If the registry is uncontrolled, do not replace. Else:  curl ‑u*username:password* –k |
| http://localhost:8080 | Use the URL of the registry |

The tests in Sections 3.2 and 3.3 require this:

|  |  |
| --- | --- |
| Test Case ID | SETUP |
| Description | This is not a test. This sets up test data. |
| Test Steps | From https://pds-engineering.jpl.nasa.gov/content/build\_9b\_deliverables, download  PDS4test.build9b.tgz, then   * mkdir *testDir* * cd *testDir* * tar xzf PDS4test.build9b.tgz |

The registry is the central service. It can reside locally or remotely, controlled or uncontrolled. If remote, it need not be installed. If local, testing is easier, but installation and configuration of it and of the required Apache Tomcat server can be difficult.

Many test sequences in this document assume a local, uncontrolled registry, which may get corrupted during testing. The following step resets the registry:

|  |  |
| --- | --- |
| Test Case ID | RESETSOLR |
| Description | This is not a test. This wipes the database and the search indices clean. |
| Test Steps | $CATALINA\_HOME/bin/shutdown.sh  (the mysql server probably does not need to reboot. In case it does, in its own window:  mysqladmin -u root -p shutdown  sudo mysqld\_safe --defaults-extra-file=/PDS4tools/mysql.cnf --user=mysql)  mysql -uroot -p  DROP database registrypds3;  DROP database registrypds4;  CREATE database registrypds3;  CREATE database registrypds4;  USE registrypds3;  GRANT ALL ON registrypds3.\* TO registry@localhost IDENTIFIED BY 'p@ssw0rd';  SOURCE /PDS4tools/registry-service/conf/mysql-registry-schema.ddl  USE registrypds4;  GRANT ALL ON registrypds4.\* TO registry@localhost IDENTIFIED BY ' p@ssw0rd ';  SOURCE /PDS4tools/registry-service/conf/mysql-registry-schema.ddl  quit  \rm $CATALINA\_HOME/logs/\*  \rm /PDS4tools/search-service/../logs/\*  \rm -r /PDS4tools/search-service/pds/\*data\*  \rm -r /PDS4tools/search-service/pds/solr-docs/\*  \rm -r /PDS4tools/search-service/pds/solr-docs\_old/\*  $CATALINA\_HOME/bin/startup.sh  cd /PDS4tools/registry-service/bin; setenv REGISTRY\_SERVICE http://localhost:8080/registry-pds3; ./registry-config; setenv REGISTRY\_SERVICE http://localhost:8080/registry-pds4; ./registry-config; unsetenv REGISTRY\_SERVICE  curl -X GET -H "Accept:application/xml" -v http://localhost:8080/registry-pds3/report  curl -X GET -H "Accept:application/xml" -v http://localhost:8080/registry-pds4/report |
| Test Results | % shutdown.sh  Using CATALINA\_BASE: /usr/local/tomcat  Using CATALINA\_HOME: /usr/local/tomcat  Using CATALINA\_TMPDIR: /usr/local/tomcat/temp  Using JRE\_HOME: /Library/Java/JavaVirtualMachines/jdk1.8.0\_101.jdk/Contents/Home  Using CLASSPATH: /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bin/tomcat-juli.jar  % mysqladmin -u root -p shutdown  Enter password:  mysqladmin: connect to server at 'localhost' failed  error: 'Can't connect to local MySQL server through socket '/tmp/mysql.sock' (2)'  Check that mysqld is running and that the socket: '/tmp/mysql.sock' exists!  % sudo mysqld\_safe --defaults-extra-file=/PDS4tools/mysql.cnf --user=mysql  Password:  2019-06-09T18:15:03.6NZ mysqld\_safe Logging to '/usr/local/mysql/data/LMC-053074.err'.  2019-06-09T18:15:03.6NZ mysqld\_safe Starting mysqld daemon with databases from /usr/local/mysql/data  ^Z  Suspended  % bg  [1] sudo mysqld\_safe --defaults-extra-file=/PDS4tools/mysql.cnf --user=mysql &  % mysql -uroot -p  Enter password:  Welcome to the MySQL monitor. Commands end with ; or \g.  Your MySQL connection id is 2  Server version: 5.7.26 MySQL Community Server (GPL)  Copyright (c) 2000, 2019, Oracle and/or its affiliates. All rights reserved.  Oracle is a registered trademark of Oracle Corporation and/or its  affiliates. Other names may be trademarks of their respective  owners.  Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  mysql> DROP database registrypds3;  Query OK, 54 rows affected (0.09 sec)  mysql> DROP database registrypds4;  Query OK, 54 rows affected (0.07 sec)  mysql> CREATE database registrypds3;  Query OK, 1 row affected (0.00 sec)  mysql> CREATE database registrypds4;  Query OK, 1 row affected (0.00 sec)  mysql> USE registrypds3;  Database changed  mysql> GRANT ALL ON registrypds3.\* TO registry@localhost IDENTIFIED BY 'p@ssw0rd';  Query OK, 0 rows affected, 1 warning (0.00 sec)  mysql> SOURCE /PDS4tools/registry-service/conf/mysql-registry-schema.ddl  Query OK, 0 rows affected (0.02 sec)  [snip 53 repetitions]  Query OK, 0 rows affected (0.03 sec)  Records: 0 Duplicates: 0 Warnings: 0  [snip 78 repetitions]  mysql> USE registrypds4;  Database changed  mysql> GRANT ALL ON registrypds4.\* TO registry@localhost IDENTIFIED BY 'p@ssw0rd';  Query OK, 0 rows affected, 1 warning (0.00 sec)  mysql> SOURCE /PDS4tools/registry-service/conf/mysql-registry-schema.ddl  Query OK, 0 rows affected (0.02 sec)  [snip 53 repetitions]  Query OK, 0 rows affected (0.02 sec)  Records: 0 Duplicates: 0 Warnings: 0  [snip 78 repetitions]  mysql> quit  Bye  % \rm $CATALINA\_HOME/logs/\*  % \rm /PDS4tools/search-service/../logs/\*  rm: No match.  % \rm -r /PDS4tools/search-service/pds/\*data\*  % \rm -r /PDS4tools/search-service/pds/solr-docs/\*  rm: No match.  % \rm -r /PDS4tools/search-service/pds/solr-docs\_old/\*  rm: No match.  % $CATALINA\_HOME/bin/startup.sh  Using CATALINA\_BASE: /usr/local/tomcat  Using CATALINA\_HOME: /usr/local/tomcat  Using CATALINA\_TMPDIR: /usr/local/tomcat/temp  Using JRE\_HOME: /Library/Java/JavaVirtualMachines/jdk1.8.0\_101.jdk/Contents/Home  Using CLASSPATH: /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bin/tomcat-juli.jar  Tomcat started.  % cd /PDS4tools/registry-service/bin; setenv REGISTRY\_SERVICE http://localhost:8080/registry-pds3; ./registry-config; setenv REGISTRY\_SERVICE http://localhost:8080/registry-pds4; ./registry-config; unsetenv REGISTRY\_SERVICE  Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/configure?name=Core+Objects&description=This+configures+the+core+set+of+registry+objects HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 6201  > Expect: 100-continue  \* Done waiting for 100-continue  \* We are completely uploaded and fine  < HTTP/1.1 100  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/packages/urn:uuid:10214872-2e07-47b4-8556-89ff31ac496f  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:20 GMT  \* Connection #0 to host localhost left intact  urn:uuid:10214872-2e07-47b4-8556-89ff31ac496fNote: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/configure?name=PDS+Objects&description=This+configures+PDS+object+types HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 14753  > Expect: 100-continue  < HTTP/1.1 100  \* We are completely uploaded and fine  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/packages/urn:uuid:9147ee44-42ec-4ece-8dd5-18676e4dce67  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:20 GMT  \* Connection #0 to host localhost left intact  urn:uuid:9147ee44-42ec-4ece-8dd5-18676e4dce67Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/configure?name=Core+Associations&description=This+configures+the+core+set+of+associations HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 544  \* upload completely sent off: 544 out of 544 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/packages/urn:uuid:0f3bc6a4-f232-484f-9e08-0cdc00694610  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:20 GMT  \* Connection #0 to host localhost left intact  urn:uuid:0f3bc6a4-f232-484f-9e08-0cdc00694610Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/configure?name=PDS+Associations&description=This+configures+PDS+association+types HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 7876  > Expect: 100-continue  < HTTP/1.1 100  \* We are completely uploaded and fine  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/packages/urn:uuid:28b9948b-844f-4052-bddf-cb64b28ea19c  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:20 GMT  \* Connection #0 to host localhost left intact  urn:uuid:28b9948b-844f-4052-bddf-cb64b28ea19cNote: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds4/configure?name=Core+Objects&description=This+configures+the+core+set+of+registry+objects HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 6201  > Expect: 100-continue  < HTTP/1.1 100  \* We are completely uploaded and fine  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds4/packages/urn:uuid:13174cf4-88c5-419f-b2a7-db04bd001c1f  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:21 GMT  \* Connection #0 to host localhost left intact  urn:uuid:13174cf4-88c5-419f-b2a7-db04bd001c1fNote: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds4/configure?name=PDS+Objects&description=This+configures+PDS+object+types HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 14753  > Expect: 100-continue  < HTTP/1.1 100  \* We are completely uploaded and fine  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds4/packages/urn:uuid:860e0bca-e90d-4621-b04c-2e8c895cb11a  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:21 GMT  \* Connection #0 to host localhost left intact  urn:uuid:860e0bca-e90d-4621-b04c-2e8c895cb11aNote: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds4/configure?name=Core+Associations&description=This+configures+the+core+set+of+associations HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 544  \* upload completely sent off: 544 out of 544 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds4/packages/urn:uuid:fb81e39a-b9d5-4bed-a633-309c6af7b9d2  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:21 GMT  \* Connection #0 to host localhost left intact  urn:uuid:fb81e39a-b9d5-4bed-a633-309c6af7b9d2Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds4/configure?name=PDS+Associations&description=This+configures+PDS+association+types HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 7876  > Expect: 100-continue  < HTTP/1.1 100  \* We are completely uploaded and fine  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds4/packages/urn:uuid:f74a2e27-849e-4bfa-8034-0d5783ed1b6c  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Sun, 09 Jun 2019 18:17:21 GMT  \* Connection #0 to host localhost left intact  urn:uuid:f74a2e27-849e-4bfa-8034-0d5783ed1b6c/PDS4tools/registry-service/bin>  % curl -X GET -H "Accept:application/xml" -v http://localhost:8080/registry-pds3/report  Note: Unnecessary use of -X or --request, GET is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > GET /registry-pds3/report HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept:application/xml  < HTTP/1.1 200  < Content-Type: application/xml  < Content-Length: 314  < Date: Sun, 09 Jun 2019 18:17:33 GMT  \* Connection #0 to host localhost left intact  <?xml version="1.0" encoding="UTF-8" standalone="yes"?><ns2:report xmlns:ns2="http://registry.pds.nasa.gov" status="OK" serverStarted="2019-06-09T11:17:16.418-07:00" associations="71" extrinsics="0" services="0" classificationSchemes="2" classificationNodes="69" packages="4" events="75" registryVersion="1.14.0"/>/PDS4tools/registry-service/bin> |

### Testing of Bundle Processing

The AAFUNCTION sequence tests the PDS4 software’s ability to process a bundle of products. All expected product types should be able to pass through the sequence.

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| Test Case ID | AAFUNCTION.1 |
| Description | Create a PDS4 Product Label using a design tool based on PDS’s schema. |
| Requirements | PASS L5.PRP.DE.1: The tool shall initiate a design session as follows...  PASS L5.PRP.DE.2: The tool shall accept the following as input for specifying a schema file...  PASS L5.PRP.DE.3: The tool shall facilitate modification of a schema file as follows...  PASS L5.PRP.DE.4: The tool shall provide standard editing features as follows...  PASS L5.PRP.DE.5: The tool shall indicate when a schema is not valid.  PASS L5.PRP.DE.6: The tool shall generate an XML instance file from a schema.  PASS L5.PRP.DE.7: The tool shall export the schema for use outside the tool. |
| Success Criteria | Design tool produces a syntactically valid PDS Product Label else indicates where the label is invalid. |
| Test Steps | In general:   * Consult the Data Providers’ Handbook (DPH), Version 1.9.0, Appendix D. |
| Test Results | Creation of a label-template (xml) from the master-schema (xsd). |
| Comments | Results met success criteria |
| Date of Testing | 2019.06.09 |
| Test Personnel | Richard Chen |

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| Test Case ID | AAFUNCTION.2 |
| Description | Validate PDS4 label |
| Requirements | PASS L5.PRP.VA.1: The tool shall accept the following as input for specifying the product(s) to be validated…  PASS L5.PRP.VA.2: The tool shall traverse a directory tree and validate products  PASS L5.PRP.VA.3: The tool shall validate aggregate products and all products referenced by such products.  PASS L5.PRP.VA.5: The tool shall verify that a product label is well-formed XML.  PASS L5.PRP.VA.6: The tool shall verify that a product label conforms to its associated schema file(s).  PASS L5.PRP.VA.7: The tool shall accept the following as input for specifying the associated schema file(s)…  PASS L5.PRP.VA.9: The tool shall indicate the schema(s) utilized during validation. |
| Success Criteria | Validation tool validates a file or all eligible products in a directory tree, indicates the schemas utilized during the validation, and ensures that a product label is well formed XML and conforms to its schemas. Also validate for content as well as syntax. |
| Test Steps | 1. cd *testDir* 2. validate -f -t bundle\_geo\_ra -e "\*.xml" |
| Test Results | PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T06:18:13Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/bundle\_1.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/context/spacecraft.phx\_1.1.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/context/phx.ra\_1.0.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/context/planet.mars\_1.2.xml  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/context/context\_collection\_1.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/context/mission.phoenix\_1.1.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/data\_derived/sol101a.xml  [snip]  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/xml\_schema/PDS4\_PDS\_1C00.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_geo\_ra/xml\_schema/collection.xml  Summary:  0 error(s)  0 warning(s)  End of Report |
| Comments | Results met success criteria  In 9b, [PDS-890](https://osr.jpl.nasa.gov/jira/browse/PDS-890) showed an odd java warning |
| Date of Testing | 2019.06.13 |
| Test Personnel | Richard Chen |

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| Test Case ID | AAFUNCTION.3 |
| Description | Harvest PDS4 labels. Harvest provides a command-line interface, accepts a configuration file, determines candidates for registration, captures metadata, and submits metadata to the Registry Service. Registry accepts the artifacts, assigns global unique IDs to the products. Registry relates artifacts via (LID-based) association |
| Requirements | PASS L5.HVT.1: The tool shall accept a configuration file specifying policy for tool behavior.  PASS L5.HVT.2: The tool shall provide a command-line interface for execution.  PASS L5.HVT.4: The tool shall recursively traverse the specified directory or directories…  PASS L5.HVT.5: The tool shall determine candidate products for registration through a combination of the following…  PASS L5.HVT.6: The tool shall capture metadata for a candidate product specified by the product type.  PASS L5.HVT.7: The tool shall submit the associated metadata for a candidate product to the [Registry].  PASS L5.HVT.8: The tool shall track each product registration.  PASS L5.REG.1: The service shall accept artifact registrations.  PASS L5.REG.2: The service shall provide a means for relating artifact registrations.  PASS L5.REG.3: The system shall register products of a data delivery into an instance of the registry.  PASS L5.REG.4: The service shall accept metadata for a registered artifact in a defined format.  PASS L5.REG.6: The service shall assign a global unique identifier to a registered artifact.  PASS L5.REG.8: The service shall store metadata for a registered artifact in an underlying metadata store.  PASS L5.REG.14: The service shall allow queries for registered artifacts.  PASS L5.SEC.1: The service shall authenticate a user given identifying credentials for that user. |
| Success Criteria | Harvest tool, based on criteria given in a user-edited configuration file, executed from the command line, discovers all matching artifacts and for each submits metadata to the Registry service. Tools to view the registry show the metadata of the matching artifacts, with appropriate metadata, including the guid, which is assigned by the Registry. Tools to view the registry show the associations. |
| Test Steps | 1. cd *testDir*   Specify “*testDir*“ below with the absolute path, which should match harvest-policy-master.xml’s policy/accessUrls/accessUrl/offset. “harvest4” is the version of harvest that writes to database registry-pds4, as determined by the bottom of that script   1. harvest4 *testDir*/contextPDS4onlyPHX -c harvest-policy-master.xml -l h1.out -e "\*.xml" 2. grep -v "SUCCESS\|INFO" h1.out | uniq 3. harvest4 *testDir*/bundle\_geo\_ra -c harvest-policy-master.xml -l h2.out -e "\*.xml" 4. grep -v "SUCCESS\|INFO" h2.out | uniq   The following set up search-core in the next test case.   1. In a browser: http://localhost:8080/registry-ui/ 2. set Registry Service(s) to registry-pds4 3. Click tab “Packages”. Select the two “Harvest-Package\_\*”, set Status to “Approved”, click “Update Status”. |
|  | Step 3: Without grep, the output file is very large  PDS Harvest Tool Log  Version Version 1.15.0  Time Sun, Jun 09 2019 at 09:20:47 PM  Target(s) [/Users/rchen/Desktop/test/contextPDS4onlyPHX]  File Inclusions [\*.xml]  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190609212047  Registration Package GUID urn:uuid:44aa3ceb-091f-4e56-9b01-87e56db9d989  Summary:  26 of 26 file(s) processed, 0 other file(s) skipped  0 error(s), 0 warning(s)  26 of 26 products registered.  31 of 31 ancillary products registered.  Product Types Registered:  5 Product\_Collection  31 Product\_File\_Repository  20 Product\_Context  1 Product\_Bundle  31 of 31 associations registered.  End of Log  Step 5:  PDS Harvest Tool Log  Version Version 1.15.0  Time Sun, Jun 09 2019 at 09:22:35 PM  Target(s) [/Users/rchen/Desktop/test/bundle\_geo\_ra]  File Inclusions [\*.xml]  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190609212235  Registration Package GUID urn:uuid:4abd99fd-784d-4361-8999-be40cd30b317  WARNING: [/Users/rchen/Desktop/test/bundle\_geo\_ra/context/spacecraft.phx\_1.1.xml] Product already exists: urn:nasa:pds:context:instrument\_host:spacecraft.phx::1.1  WARNING: [/Users/rchen/Desktop/test/bundle\_geo\_ra/context/phx.ra\_1.0.xml] Product already exists: urn:nasa:pds:context:instrument:ra.phx::1.0  WARNING: [/Users/rchen/Desktop/test/bundle\_geo\_ra/context/planet.mars\_1.2.xml] Product already exists: urn:nasa:pds:context:target:planet.mars::1.2  WARNING: [/Users/rchen/Desktop/test/bundle\_geo\_ra/context/mission.phoenix\_1.1.xml] Product already exists: urn:nasa:pds:context:investigation:mission.phoenix::1.1  Summary:  173 of 173 file(s) processed, 0 other file(s) skipped  0 error(s), 4 warning(s)  169 of 173 products registered.  338 of 338 ancillary products registered.  Product Types Registered:  1 Product\_XML\_Schema  5 Product\_Collection  4 Product\_Document  120 Product\_Observational  38 Product\_Browse  338 Product\_File\_Repository  1 Product\_Bundle  338 of 338 associations registered.  End of Log  Step 7:    Step 8: |
| Comments | Results met success criteria.  The warnings in step 8 are expected, as step 3 registered the context products already. |
| Date of Testing | 2019.06.09 |
| Test Personnel | Richard Chen |

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| Test Case ID | AAFUNCTION.4 |
| Description | Search for PDS4 data at the product level and the context level. |
| Requirements | PASS L5.SCH.1: The service shall provide a user interface for entering of queries and display of search results…  PASS L5.SCH.5: The service shall provide the capability to retrieve metadata associated with registered artifacts for the purpose of generating search indexes. PASS L5.SCH.6: The service shall support searching by accepting criteria as a sequence of open text keywords.  PASS L5.SCH.8: The service shall support narrowing of additional index results based on specifications of terms and/or values on indexes.  PASS L5.SCH.10: The service shall provide results to a search as a sequence of matching URIs to resources that contain search desiderata.  PASS L5.SCH.11: The service shall annotate each URI of a result with metadata describing the URI.  PASS L5.SCH.12: The service shall support configuration on the kinds of indexes maintained on indexed data |
| Success Criteria | After configuration (e.g. regenerating search indices), Search returns the data harvested in the previous step. |
| Test Steps | Build the search index   1. In a browser, http://localhost:8080/product-search-ui 2. Beneath “Data Search” in the middle of the page, type “phoenix” 3. In a browser, http://localhost:8080/search-ui 4. Beneath “Keyword Search” in the middle of the page, type “phoenix” 5. search-core -H *binDir*/search-service/pds -p *binDir*/search-core/conf/defaults/pds/pds4/core.properties 6. Repeat step 2 7. Repeat step 4 |
| Test Results | Step 2:  Step 4:  Step 5:  Processing config: document.xml  Processing config: class.xml  Processing config: observational.xml  Processing config: service.xml  Processing config: bundle.xml  Processing config: attribute.xml  PDS Search Core Run Log  Version Version 1.13.0  Time Sun, Jun 09 2019 at 09:37:45 PM  Severity Level INFO  Search Home /PDS4tools/search-service/pds  Search Service URL http://localhost:8080/search-service  Search Core Properties /PDS4tools/search-core/conf/defaults/pds/pds4/core.properties  INFO: Completed: urn:nasa:pds:phx\_ra:document:activity\_table\_desc  INFO: Completed: urn:nasa:pds:phx\_ra:document:ra\_dataset  INFO: Completed: urn:nasa:pds:phx\_ra:document:ra\_instrument  INFO: Completed: urn:nasa:pds:phx\_ra:document:readme  SUCCESS: Completed extraction: document.xml  SUCCESS: Completed extraction: class.xml  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol089b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol007  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol042e  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol148c  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol058c  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol022b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol127b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol042c  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol089a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol033c  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol025  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol042b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol087a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol014  INFO: Completed: urn:nasa:pds:phx\_ra:document:activity  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol116a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol068b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol013  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol128a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol077  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol062  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol147a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol146b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol042d  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol020b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol076  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol148b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol146a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol066  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol033a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol133d  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol130  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol024  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol125b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol098a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol068a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol128b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol073  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol058b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol143  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol083  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol034  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol147b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol133b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_trench\_wall\_failure\_bottom  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol148a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol045a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol088  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol019b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol057a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol064  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol057b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol009  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_icy\_soil\_dig1  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol116b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol051  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol067  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol141  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol090  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol132a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol058a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol149a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol074b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol133c  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol126b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol074a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol117  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol136  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol049  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol134a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol095  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol071a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol006  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol125a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol114  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol099b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol087b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol140  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol022a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol093  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol105b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol071b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol020a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol079b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol134d  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol115  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol101b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol032b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol129  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol032a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol042a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol019a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol079a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol133a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol075  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol148d  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol085  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol060  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol033b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol099a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol134c  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_icy\_soil\_dig2  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_duricrust  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol126a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol098b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol132b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol072  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol069  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol110  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol101a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol145a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol045b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol011  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_trench\_wall\_failure\_tip  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol145b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol031  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol127a  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol134b  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived:sol149b  SUCCESS: Completed extraction: observational.xml  SUCCESS: Completed extraction: service.xml  INFO: Completed: urn:nasa:pds:phx\_ra  INFO: Completed: urn:nasa:pds:context  SUCCESS: Completed extraction: bundle.xml  SUCCESS: Processing config: context.xml  Processing config: collection.xml  Completed extraction: attribute.xml  INFO: Completed: urn:nasa:pds:context:investigation:mission.phoenix  INFO: Completed: urn:nasa:pds:context:instrument:om.phx  INFO: Completed: urn:nasa:pds:context:instrument:meca\_afm.phx  INFO: Completed: urn:nasa:pds:context:target:satellite.mars.phobos  INFO: Completed: urn:nasa:pds:context:instrument:ra.phx  INFO: Completed: urn:nasa:pds:context:instrument:meca\_wcl.phx  INFO: Completed: urn:nasa:pds:context:instrument:met.phx  INFO: Completed: urn:nasa:pds:context:instrument:lidar.phx  INFO: Completed: urn:nasa:pds:context:node:node.psa  INFO: Completed: urn:nasa:pds:context:target:satellite.mars.deimos  INFO: Completed: urn:nasa:pds:context:instrument:ssi.phx  INFO: Completed: urn:nasa:pds:context:instrument\_host:spacecraft.phx  INFO: Completed: urn:nasa:pds:context:instrument:meca\_tecp.phx  INFO: Completed: urn:nasa:pds:context:instrument:tt.phx  INFO: Completed: urn:nasa:pds:context:target:planet.mars  INFO: Completed: urn:nasa:pds:context:instrument:rac.phx  INFO: Completed: urn:nasa:pds:context:instrument:ase.phx  INFO: Completed: urn:nasa:pds:context:node:node.pds-mgt  INFO: Completed: urn:nasa:pds:context:instrument:tega.phx  INFO: Completed: urn:nasa:pds:context:instrument:meca\_elec.phx  SUCCESS: Completed extraction: context.xml  INFO: Completed: urn:nasa:pds:context:target  INFO: Completed: urn:nasa:pds:phx\_ra:data\_test  INFO: Completed: urn:nasa:pds:phx\_ra:context  INFO: Completed: urn:nasa:pds:context:instrument  INFO: Completed: urn:nasa:pds:context:agency  INFO: Completed: urn:nasa:pds:phx\_ra:data\_derived  INFO: Completed: urn:nasa:pds:phx\_ra:document  INFO: Completed: urn:nasa:pds:context:instrument\_host  INFO: Completed: urn:nasa:pds:context:investigation  INFO: Completed: urn:nasa:pds:system\_bundle:xml\_schema  SUCCESS: Completed extraction: collection.xml  SUCCESS: Completed extracting data from data source.  INFO: Running Solr Indexer to create new solr documents for indexing ...  SUCCESS: Completed transforming data into Solr Lucene index  INFO: Running Solr Post to Post Data To Search Service ...  INFO: Cleaning Search Service Index  INFO: Posting: /PDS4tools/search-service/pds/index/solr\_index.xml.0  INFO: Optimizing Search Service index.  SUCCESS: Completed posting data to the Search Service  Summary:  ==================================================  The Numbers:  -- Number of Warnings: 0  -- Number of Errors: 0  -- Bad Registries: []  -- Number of Missing Associations: 0  -- Association Cache Hits: 0  -- Number of products: 156  ==================================================  Processing Time:  -- service.xml: 0 h, 0 m, 0 s  -- collection.xml: 0 h, 0 m, 3 s  -- context.xml: 0 h, 0 m, 7 s  -- observational.xml: 0 h, 0 m, 52 s  -- attribute.xml: 0 h, 0 m, 0 s  -- document.xml: 0 h, 0 m, 3 s  -- class.xml: 0 h, 0 m, 0 s  -- bundle.xml: 0 h, 0 m, 2 s  ==================================================  Total Processing Time: 0 h, 1 m, 9 s  End of Log  Step 6:  Step 7: |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.09 |
| Test Personnel | Richard Chen |

### Testing for Complete Coverage of PDS4 Level 5 Requirements

The following test cases test all Build 9b functions, including those not covered above. These tests ensure complete verification and validation of Build 9b level 5 requirements.

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| Test Case ID | CTLG.1 |
| Description | Compare PDS3 data against other PDS3 data, both file to file and directory to directory |
| Requirements | PASS 4.2.4: PDS will provide a mechanism to upgrade products or data sets which do not meet usability requirements (e.g., data sets from old missions) |
| Success Criteria | Tool reports differences. |
| Test Steps | 1. cd *testDir* 2. catalog -mcompare testCatalog/CORPWS\_0164 testCatalog/CORPWS\_0180   Compare two directories differing in only one file.   1. catalog -c testCatalog/config |
| Test Results | Step 2:  PDS Catalog Ingest Tool Report  Configuration:  Version Version 1.16.0  Date Wed, Apr 17 2019 at 05:18:45 PM  Parameters:  Mode compare  Target(s)  Source = file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/  Target = file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/  Directory Recursion true  Severity Level WARNING  Compare Details:  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/INSTHOST.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/KEYDS.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/LRFULLDS.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/MISSION.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/PERSON.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/PROJREF.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/RAWDS.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/REF.CAT  SAME: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/RPWSINST.CAT  DIFFERENT: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/VOLDESC.CAT  line 9: Element "VOLUME\_NAME" has different value than source.  Source: line 9 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  10c10  < VOLUME 164: CASSINI RADIO AND PLASMA WAVE STANDARD PRODUCTS  ----  > VOLUME 180: CASSINI RADIO AND PLASMA WAVE STANDARD PRODUCTS  line 11: Element "VOLUME\_ID" has different value than source.  Source: line 11 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  11c11  < CORPWS\_0164  ----  > CORPWS\_0180  line 15: Element "PUBLICATION\_DATE" has different value than source.  Source: line 15 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  15c15  < 2011-12-22  ----  > 2013-03-28  line 16: Element "DESCRIPTION" has different value than source.  Source: line 16 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  19c19  < (SCET) dates 2011-05-27 (147) through 2011-06-12 (163).  ----  > (SCET) dates 2012-11-26 (331) through 2012-12-23 (358).  line 23: Element "DATA\_SET\_ID" has different value than source.  Source: line 23 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  23c23  < CO-V/E/J/S/SS-RPWS-4-SUMM-KEY60S-V1.0  ----  > {CO-V/E/J/S/SS-RPWS-4-SUMM-KEY60S-V1.0, CO-V/E/J/S/SS-RPWS-2-REFDR-ALL-V1.0, CO-V/E/J/S/SS-RPWS-3-RDR-LRFULL-V1.0, CO-V/E/J/S/SS-RPWS-2-REFDR-WBRFULL-V1.0, CO-V/E/J/S/SS-RPWS-2-REFDR-WFRFULL-V1.0}  line 74: Element "DATA\_SET\_ID" has different value than source.  Source: line 70 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  70c74  < CO-V/E/J/S/SS-RPWS-4-SUMM-KEY60S-V1.0  ----  > {CO-V/E/J/S/SS-RPWS-4-SUMM-KEY60S-V1.0, CO-V/E/J/S/SS-RPWS-2-REFDR-ALL-V1.0, CO-V/E/J/S/SS-RPWS-3-RDR-LRFULL-V1.0, CO-V/E/J/S/SS-RPWS-2-REFDR-WBRFULL-V1.0, CO-V/E/J/S/SS-RPWS-2-REFDR-WFRFULL-V1.0}  line 80: Pointer "DATA\_SET\_CATALOG" has different value than source.  Source: line 71 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  71c80  < KEYDS.CAT  ----  > {KEYDS.CAT, RAWDS.CAT, LRFULLDS.CAT, WBFULLDS.CAT, WFFULLDS.CAT}  line 86: Pointer "REFERENCE\_CATALOG" has different value than source.  Source: line 72 of file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  72c86  < {REF.CAT}  ----  > {REF.CAT, PROJREF.CAT}  SAME: file: *testDir*/testCatalog/CORPWS\_0180/WBFULLDS.CAT  SAME: file: *testDir*/testCatalog/CORPWS\_0180/WFFULLDS.CAT  Summary:  12 of 12 validated, 0 skipped  11 of 12 passed  End of Report  Step 3:  PDS Catalog Ingest Tool Report  Configuration:  Version Version 1.16.0  Date Wed, Apr 17 2019 at 05:19:19 PM  Parameters:  Mode compare  Target(s)  Source = file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/RAWDS.CAT  Target = file:/Users/rchen/Desktop/test/testCatalog/CORPWSrawX.CAT  Directory Recursion true  Severity Level WARNING  Compare Details:  DIFFERENT: file:*testDir/*testCatalog/CORPWSrawX.CAT  line 56: Element "DATA\_SET\_DESC" has different value than source.  Source: line 56 of file:*testDir/*testCatalog/CORPWS\_0164/RAWDS.CAT  126,130c126,130  < kernels can be used with the SPICE toolkit to convert from the  < spacecraft frame to virtually any frame which may be of use in  < analyzing these data. However, for many purposes, the wave  < amplitudes are extremely useful and may be entirely adequate with no  < coordinate transformations at all.  ----  > kernels EXTRAWORDHERE can be used with the SPICE toolkit to convert  > from the spacecraft frame to virtually any frame which may be of  > use in analyzing these data. However, for many purposes, the  > wave amplitudes are extremely useful and may be entirely adequate  > with no coordinate transformations at all.  Summary:  1 of 1 validated, 0 skipped  0 of 1 passed  End of Report |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.17 |
| Test Personnel | Richard Chen |

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| Test Case ID | CTLG.2 |
| Description | Validate a submission of PDS3 data. |
| Requirements | PASS 4.2.4: PDS will provide a mechanism to upgrade products or data sets which do not meet usability requirements (e.g., data sets from old missions) |
| Success Criteria | Tool flags invalid language constructs. |
| Test Steps | 1. catalog -mvalidate -d testCatalog/pdsdd.full -t testCatalog/LRO\_diviner |
| Test Results | Step 1:  PDS Catalog Ingest Tool Report  Configuration:  Version Version 1.16.0  Date Wed, Apr 17 2019 at 05:20:06 PM  Parameters:  Mode validate  Target file:*testDir*/testCatalog/LRO\_diviner/  Directory Recursion true  Dictionary File(s) [testCatalog/pdsdd.full]  Severity Level WARNING  Aliasing Enabled false  Validation Details:  PASS: file:*testDir*/testCatalog/LRO\_diviner/dsmap.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/dsmap\_polar.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/gdrds.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/inst.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/insthost.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/mission.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/person.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/prpds.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/rdrds.cat  PASS: file:*testDir*/testCatalog/LRO\_diviner/ref.cat  FAIL: file:*testDir*/testCatalog/LRO\_diviner/voldesc.cat  Begin Fragment: file: *testDir*/testCatalog/LRO\_diviner/REF.CAT  WARNING The label fragment, "REF.CAT", should not contain a PDS\_VERSION\_ID.  End Fragment: file: *testDir*/testCatalog/LRO\_diviner/REF.CAT  Begin Fragment: file: *testDir*/testCatalog/LRO\_diviner/INSTHOST.CAT  WARNING The label fragment, "INSTHOST.CAT", should not contain a PDS\_VERSION\_ID.  End Fragment: file: *testDir*/testCatalog/LRO\_diviner/INSTHOST.CAT  Begin Fragment: file: *testDir*/testCatalog/LRO\_diviner/PERSON.CAT  WARNING The label fragment, "PERSON.CAT", should not contain a PDS\_VERSION\_ID.  End Fragment: file: *testDir*/testCatalog/LRO\_diviner/PERSON.CAT  Begin Fragment: file: *testDir*/testCatalog/LRO\_diviner/GDRDS.CAT  WARNING The label fragment, "GDRDS.CAT", should not contain a PDS\_VERSION\_ID.  End Fragment: file: *testDir*/testCatalog/LRO\_diviner/GDRDS.CAT  Begin Fragment: file: *testDir*/testCatalog/LRO\_diviner/INST.CAT  WARNING The label fragment, "INST.CAT", should not contain a PDS\_VERSION\_ID.  End Fragment: file: *testDir*/testCatalog/LRO\_diviner/INST.CAT  Begin Fragment: file: *testDir*/testCatalog/LRO\_diviner/MISSION.CAT  WARNING The label fragment, "MISSION.CAT", should not contain a PDS\_VERSION\_ID.  ERROR line 40: Found a reference, "SAYLOR2006A", which is not defined in a REFERENCE\_KEY\_ID within the label.  ERROR line 40: Found a reference, "SAYLOR2006B", which is not defined in a REFERENCE\_KEY\_ID within the label.  End Fragment: file: *testDir*/testCatalog/LRO\_diviner/MISSION.CAT  Referential Integrity Details:  PASS: Data Set  Parent File(s): [gdrds.cat, prpds.cat, rdrds.cat]  Begin checking children  End checking children  FAIL: Reference  Parent File(s): [ref.cat]  Begin checking children  dsmap.cat: "REFERENCE\_KEY\_ID = SEIDELMANNETAL2002" is not found in a(n) "ref.cat".  dsmap.cat: "REFERENCE\_KEY\_ID = SNYDER1987" is not found in a(n) "ref.cat".  dsmap\_polar.cat: "REFERENCE\_KEY\_ID = SEIDELMANNETAL2002" is not found in a(n) "ref.cat".  dsmap\_polar.cat: "REFERENCE\_KEY\_ID = SNYDER1987" is not found in a(n) "ref.cat".  End checking children  PASS: Mission  Parent File(s): [mission.cat]  Begin checking children  End checking children  PASS: Personnel  Parent File(s): [person.cat]  Begin checking children  End checking children  PASS: Instrument  Parent File(s): [inst.cat]  Begin checking children  End checking children  PASS: Instrument Host  Parent File(s): [insthost.cat]  Begin checking children  End checking childrenNew Standard Values:  Referential Integrity Summary:  6 of 6 referential integrity check(s) made, 0 skipped  5 of 6 passed  New Standard Values Summary:  0 new standard value(s) found  Summary:  11 of 11 validated, 0 skipped  10 of 11 passed  End of Report |
| Comments | Results met success criteria. All warnings and errors are either expected or carried over from PDS3 and do not affect meeting success criteria. |
| Date of Testing | 2019.04.17 |
| Test Personnel | Richard Chen |

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| Test Case ID | CTLG.3 |
| Description | Ingest valid PDS3 files into the PDS4 registry service |
| Requirements | PASS 4.2.4: PDS will provide a mechanism to upgrade products or data sets which do not meet usability requirements (e.g., data sets from old missions) |
| Success Criteria | Catalog successfully ingests the PDS3 files into the registry else indicates where the input is invalid. Tools to view the registry show the metadata of the PDS3 files |
| Test Steps | The catalog ingest requires access to a storage service. In its own terminal window:  $CATALINA\_HOME/bin/shutdown.sh  \rm $CATALINA\_HOME/logs/\*  \rm -f -r /Users/rchen/putRDBhere/registrypds3/  cd /PDS4tools/registry-service  java -Djava.ext.dirs=lib/ org.apache.derby.tools.ij  connect 'jdbc:derby:registrypds3;create=true;user=registry';  run 'conf/derby-registry-schema.ddl';  disconnect;  exit;  mv registrypds?/ /Users/rchen/putRDBhere/  \rm derby.log  $CATALINA\_HOME/bin/startup.sh  setenv REGISTRY\_SERVICE http://localhost:8080/registry-pds3; cd /PDS4tools/registry-service/bin; ./registry-config; unsetenv REGISTRY\_SERVICE  storage-service stop  cd /PDS4tools/storage-service  \rm -r archive/ catalog/ logs/ run/  storage-service start  storage-client --operation --ingestProduct --productName CatalogTest --productStructure Flat --productTypeName CatalogFile --metadataFile "file:///PDS4tools/storage-service/test/test.txt.met" --refs file:///PDS4tools/storage-service/test/test.txt  storage-query --sql -query "SELECT \* FROM CatalogFile WHERE CAS.ProductName == 'CatalogTest'" -outputFormat '$CAS.ProductId' | storage-delete --read  Nominal case, including multiple REF.CATs:   1. catalog testCatalog/CORPWS\_0180 -m ingest -s http://localhost:9000 -T http://localhost:8080/product -v 1 -r c1.out 2. In a browser: <http://localhost:8080/registry-ui> to see registrations. Then click on the row where Object Type is Product\_Instrument\_PDS3 3. Test the product service: copy a productID from c1.out, e.g. the one for the inst: curl -X GET -o x.cat -v 'http://localhost:8080/product/data?productID=*productID'* 4. diff x.cat testCatalog/CORPWS\_0180/RPWSINST.CAT 5. Test the product service’s other function: curl -X GET -o v.zip -v "http://localhost:8080/product/dataset?typeID=urn:pds:CatalogFile" 6. Expand and compare any one of the catalog files: unzip v.zip CORPWS\_0180:VOLDESC.CAT.zip ; unzip C\*zip 7. diff VOLDESC.CAT testCatalog/CORPWS\_0180/VOLDESC.CAT   When >1 voldesc lists the same catalog files (e.g. mission.cat), do not re-register them.   1. catalog testCatalog/CORPWS\_0164 -m ingest -s http://localhost:9000 -T http://localhost:9999 -r c3.out 2. New registrations: <http://localhost:8080/registry-ui>, set LID to \*0164\*, Refresh   Give good error messages if file listed in voldesc is missing   1. catalog testCatalog/MPC\_review -m ingest -s http://localhost:9000 -T http://localhost:8080/product   Nicely ignore dsmap catalog files.   1. catalog testCatalog/LRO\_diviner -m ingest -s http://localhost:9000 -T http://localhost:8080/product -r c6.out   Quit and give a nice error message when the mode is not specified.   1. catalog testCatalog/CORPWS\_0180 |
| Test Results | Step 1: Ignore brutal command line warnings. c1.out:  PDS Catalog Ingest Tool Report  Configuration:  Version Version 1.16.0  Date Tue, Apr 16 2019 at 12:12:10 AM  Parameters:  Mode ingest  Target file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/  Directory Recursion true  Severity Level INFO  Report File c1.out  Ingest Details:  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/PERSON.CAT  WARNING: This file is not required to ingest into the registry.  INFO: Successfully delivered a catalog file to the storage service. productID - f4a2d664-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:9a0159a0-7ba7-4faf-8cb8-f980d827becd  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/LRFULLDS.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:data\_set:data\_set.co-v-e-j-s-ss-rpws-3-rdr-lrfull-v1.0::1.0  INFO: Product GUID - urn:uuid:d4e5dc28-c000-47ac-8cbb-92c034175c7c  INFO: Successfully delivered a catalog file to the storage service. productID - f4cfd9d5-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:f4bedd45-1313-46e3-af0b-8764e0bc9053  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/KEYDS.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:data\_set:data\_set.co-v-e-j-s-ss-rpws-4-summ-key60s-v1.0::1.0  INFO: Product GUID - urn:uuid:0f32a92b-71ba-45d5-84b1-ed9253590af5  INFO: Successfully delivered a catalog file to the storage service. productID - f4eed386-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:be1440f6-5c7c-4a56-9106-08352f68d6ee  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/INSTHOST.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:instrument\_host:spacecraft.co::1.0  INFO: Product GUID - urn:uuid:b1cf9cf4-76a1-4fd4-9428-fc0c8983dc19  INFO: Successfully delivered a catalog file to the storage service. productID - f500d4e7-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:3fe52c33-dec9-480c-9760-21eeeab81c4d  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/RAWDS.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:data\_set:data\_set.co-v-e-j-s-ss-rpws-2-refdr-all-v1.0::1.0  INFO: Product GUID - urn:uuid:152e837b-1855-4eb9-8ede-fc9913395d80  INFO: Successfully delivered a catalog file to the storage service. productID - f5159568-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:2916b671-495f-4c3d-acd4-3175483adef4  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/PROJREF.CAT  WARNING: This file is not required to ingest into the registry.  INFO: Successfully delivered a catalog file to the storage service. productID - f523ed49-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:89431528-2816-4074-bf66-7c98fe66b73f  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/WFFULLDS.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:data\_set:data\_set.co-v-e-j-s-ss-rpws-2-refdr-wfrfull-v1.0::1.0  INFO: Product GUID - urn:uuid:9b82eaa2-e89d-454a-8923-61b4b3f12b94  INFO: Successfully delivered a catalog file to the storage service. productID - f53419ea-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:18645e47-f381-4e6c-a570-6689ac68cdff  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/MISSION.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens::1.0  INFO: Product GUID - urn:uuid:a8824d3d-948b-4ce5-9486-747666df04cf  INFO: Successfully delivered a catalog file to the storage service. productID - f546907b-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:962ccd3a-fa0e-4bab-b514-90f4909b590c  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/REF.CAT  WARNING: This file is not required to ingest into the registry.  INFO: Successfully delivered a catalog file to the storage service. productID - f553d6ec-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:a2b9ca2e-243a-458c-8aa2-128604e9670d  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/VOLDESC.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx::1.0  INFO: Product GUID - urn:uuid:47738d0f-b75f-4b19-9868-f9c128a7ffc3  INFO: Successfully delivered a catalog file to the storage service. productID - f5695abd-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:4cbf3fb4-9dd9-4ea0-b2da-70f5a1659fc6  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/WBFULLDS.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:data\_set:data\_set.co-v-e-j-s-ss-rpws-2-refdr-wbrfull-v1.0::1.0  INFO: Product GUID - urn:uuid:3a73db1c-9e78-47de-ba9d-4f0412f70d30  INFO: Successfully delivered a catalog file to the storage service. productID - f57800be-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:b9af684a-a270-4bb1-be43-bc54e34dc81a  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0180/RPWSINST.CAT  INFO: Successfully registered a product. LIDVID - urn:nasa:pds:context\_pds3:instrument:instrument.rpws.co::1.0  INFO: Product GUID - urn:uuid:baff3c1a-ee32-4fbc-aff1-50e1ebe5c372  INFO: Successfully delivered a catalog file to the storage service. productID - f587df3f-6016-11e9-b3b7-0deabf4f5f19  INFO: Successfully ingested a file object. GUID - urn:uuid:46feb165-ec3b-4730-99dc-2babe1b266bc  Summary:  12 of 12 file(s) ingested, 0 skipped  Number of successful file object ingestion: 12  Number of successful storage service ingestion: 12  Number of successful registry ingestion: 9  Name of the registry package: Catalog-Package\_CORPWS\_0180\_20190416001211  End of Report  Step 2:  Step 3:  Note: Unnecessary use of -X or --request, GET is already inferred.  \* Trying ::1...  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0\* Connected to localhost (::1) port 8080 (#0)  > GET /product/data?productID=f587df3f-6016-11e9-b3b7-0deabf4f5f19 HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  < HTTP/1.1 200  < Content-Disposition: attachment; filename="RPWSINST.CAT"  < Content-Type: application/vnd.ms-pki.seccat  < Content-Length: 14202  < Date: Tue, 16 Apr 2019 07:43:33 GMT  <  { [8012 bytes data]  100 14202 100 14202 0 0 39392 0 --:--:-- --:--:-- --:--:-- 39670  \* Connection #0 to host localhost left intact  Step 4 shows no differences  Step 5:  Note: Unnecessary use of -X or --request, GET is already inferred.  \* Trying ::1...  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0\* Connected to localhost (::1) port 8080 (#0)  > GET /product/dataset?typeID=urn:pds:CatalogFile HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  < HTTP/1.1 200  < Content-Disposition: attachment; filename="CatalogFile.zip"  < Content-Length: 101503  < Date: Mon, 15 Oct 2018 21:33:56 GMT  { [8053 bytes data]  100 99k 100 99k 0 0 308k 0 --:--:-- --:--:-- --:--:-- 311k  \* Connection #0 to host localhost left intact  Step 6:  Archive: v.zip  inflating: CORPWS\_0180:VOLDESC.CAT.zip  Archive: CORPWS\_0180:VOLDESC.CAT.zip  inflating: VOLDESC.CAT  inflating: CORPWS\_0180:VOLDESC.CAT.met  Step 7 shows no differences  Step 8: c3.out:  PDS Catalog Ingest Tool Report  Configuration:  Version Version 1.16.0  Date Tue, Apr 16 2019 at 12:48:27 AM  Parameters:  Mode ingest  Target file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/  Directory Recursion true  Severity Level WARNING  Report File c3.out  Ingest Details:  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/INSTHOST.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/KEYDS.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/LRFULLDS.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/MISSION.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/PERSON.CAT  WARNING: This file is not required to ingest into the registry.  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/PROJREF.CAT  WARNING: This file is not required to ingest into the registry.  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/RAWDS.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/REF.CAT  WARNING: This file is not required to ingest into the registry.  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/RPWSINST.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/VOLDESC.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/WBFULLDS.CAT  PASS: file:/Users/rchen/Desktop/test/testCatalog/CORPWS\_0164/WFFULLDS.CAT  Summary:  4 of 12 file(s) ingested, 0 skipped  Number of successful file object ingestion: 4  Number of successful storage service ingestion: 4  Number of successful registry ingestion: 1  Name of the registry package: Catalog-Package\_CORPWS\_0164\_20190416004828  End of Report  Step 9: 5 extra records: the voldesc file, the CORPWS\_0164 product, and the three files not required to ingest into the registry.  Step 10: exit nicely upon discovering a catalog file is missing:  WARNING: *testDir*/testCatalog/MPC\_review/asteroid.cat is missing.  WARNING: *testDir*/testCatalog/MPC\_review/comet.cat is missing.  WARNING: *testDir*/testCatalog/MPC\_review/satellite.cat is missing.  Apr16,2019 11:13:11 AM org.apache.oodt.cas.filemgr.datatransfer.LocalDataTransferer setFileManagerUrl  INFO: Local Data Transfer to: [http://localhost:9000] enabled  Error: Failed to get a product by name. productName = SBN\_0178:asteroid.cat  Error: Catalog file (asteroid.cat) is missing in the archive volume and can't get it from the storage service.  Step 11: similar to step 1’s output. Used to die upon hitting dsmap.cat. c6.out::  PDS Catalog Ingest Tool Report  Configuration:  Version Version 1.16.0  Date Tue, Apr 16 2019 at 12:56:28 AM  Parameters:  Mode ingest  Target file: *testDir*/testCatalog/LRO\_diviner/  Directory Recursion true  Severity Level WARNING  Report File c6.out  Ingest Details:  PASS: file: *testDir*/testCatalog/LRO\_diviner/dsmap.cat  WARNING: This file is not required to ingest into the registry.  PASS: file: *testDir*/testCatalog/LRO\_diviner/dsmap\_polar.cat  WARNING: This file is not required to ingest into the registry.  PASS: file: *testDir*/testCatalog/LRO\_diviner/gdrds.cat  PASS: file: *testDir*/testCatalog/LRO\_diviner/inst.cat  PASS: file: *testDir*/testCatalog/LRO\_diviner/insthost.cat  PASS: file: *testDir*/testCatalog/LRO\_diviner/mission.cat  PASS: file: *testDir*/testCatalog/LRO\_diviner/person.cat  WARNING: This file is not required to ingest into the registry.  PASS: file: *testDir*/testCatalog/LRO\_diviner/prpds.cat  PASS: file: *testDir*/testCatalog/LRO\_diviner/rdrds.cat  PASS: file: *testDir*/testCatalog/LRO\_diviner/ref.cat  WARNING: This file is not required to ingest into the registry.  PASS: file: *testDir*/testCatalog/LRO\_diviner/voldesc.cat  Summary:  11 of 11 file(s) ingested, 0 skipped  Number of successful file object ingestion: 11  Number of successful storage service ingestion: 11  Number of successful registry ingestion: 7  Name of the registry package: Catalog-Package\_LRODLR\_1001\_20190416005628  End of Report  Step 12:  Exception: No mode specified. 'm' flag must be specified. |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.16 |
| Test Personnel | Richard Chen |

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| Test Case ID | EML.1 |
| Description | Accept email via REST-based service. Send via an SMTP server |
| Requirements |  |
| Success Criteria | Email gets sent |
| Test Steps | 1. In a browser, <http://localhost:8080/email-service> 2. Type something and Send |
| Test Results | Step 1:    Step 2: |
| Comments | In 9b, this test was meant to resolve [PDS-782](https://osr.jpl.nasa.gov/jira/browse/PDS-782) but instead opened [PDS-839](https://osr.jpl.nasa.gov/jira/browse/PDS-839). |
| Date of Testing | 2019.04.21 |
| Test Personnel | Richard Chen |

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| Test Case ID | GEN.1 |
| Description | Run components distributed over multiple machines on any PDS-supported platforms. |
| Requirements | PASS L5.GEN.1: The system shall operate in a distributed environment.  PASS L5.GEN.2: Components shall run on any PDS-supported platform. |
| Success Criteria | Services produce identical results independent of machine and platform. |
| Test Steps | This is similar to PRV.1 but with a URL instead of a local file   1. validate -f http://pds-geosciences.wustl.edu/messenger/urn-nasa-pds-izenberg\_pdart14\_meap/data\_eetable/ele\_evt\_8hr\_orbit\_2014-2015.xml |
| Test Results | Step 1: Output is similar to PRV.1’s  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T06:22:35Z  Parameters:  Targets [http://pds-geosciences.wustl.edu/messenger/urn-nasa-pds-izenberg\_pdart14\_meap/data\_eetable/ele\_evt\_8hr\_orbit\_2014-2015.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: http://pds-geosciences.wustl.edu/messenger/urn-nasa-pds-izenberg\_pdart14\_meap/data\_eetable/ele\_evt\_8hr\_orbit\_2014-2015.xml  Summary:  0 error(s)  0 warning(s)  End of Report |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.13 |
| Test Personnel | Richard Chen |

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| Test Case ID | GEN.2 \*not run for build 9b |
| Description | Authorize only authenticated users access to a controlled capacity. |
| Requirements | PASS L5.GEN.10: Components shall control access to interfaces that alter content.  PASS L5.SEC.1: The service shall authenticate a user given identifying credentials for that user.  PASS L5.SEC.3: The service shall authorize an authenticated user for access to a controlled capability. |
| Success Criteria | Registration fails when given invalid credentials. |
| Test Steps | 1. curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.1b.xml http://pds-gamma.jpl.nasa.gov/services/registry-pds3 |
| Test Results | Step 1:  \* About to connect() to pds-gamma.jpl.nasa.gov port 80 (#0)  \* Trying 128.149.124.6...  \* connected  \* Connected to pds-gamma.jpl.nasa.gov (128.149.124.6) port 80 (#0)  > POST /services/registry-pds3 HTTP/1.1  > User-Agent: curl/7.24.0 (x86\_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8z zlib/1.2.5  > Host: pds-gamma.jpl.nasa.gov  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 629  \* upload completely sent off: 629 out of 629 bytes  < HTTP/1.1 403 Forbidden  < Date: Sat, 18 Oct 2014 19:19:49 GMT  < Content-Length: 224  < Connection: close  < Content-Type: text/html; charset=iso-8859-1  <!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">  <html><head>  <title>403 Forbidden</title>  </head><body>  <h1>Forbidden</h1>  <p>You don't have permission to access /services/registry-pds3  on this server.</p>  </body></html>  \* Closing connection #0 |
| Comments | Results met success criteria. |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | GEN.4 \*not ready for build 9b. This is reserved for future testing |
| Description | Services provide an interface to enable monitoring of health. |
| Requirements | SKIP L5.GEN.8: Services shall provide an interface to enable monitoring of the service's health. |
| Success Criteria | The interface correctly reflects the services’ health. |
| Test Steps |  |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | GEN.7 |
| Description | Document components’ capabilities, dependencies, interfaces, installation, operation |
| Requirements | PASS L5.GEN.11: Components shall provide documentation detailing their capabilities, dependencies, interfaces, installation and operation |
| Success Criteria | Documentation of components show capabilities, dependencies, interfaces, installation and operation. |
| Test Steps | Examine such documentation, currently accessible from <https://pds-engineering.jpl.nasa.gov/development/pds4/9.1.0> |
| Test Results | Documents were available and examined. |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | HVT.1 |
| Description | Provide a command-line interface, accept a configuration file, recursively traverse directories, determine candidates for registration, capture metadata, submit metadata to the Registry Service, track each artifact registration. |
| Requirements | PASS L5.HVT.1: The tool shall accept a configuration file specifying policy for tool behavior.  PASS L5.HVT.2: The tool shall provide a command-line interface for execution.  PASS L5.HVT.4: The tool shall recursively traverse the specified directory or directories…  PASS L5.HVT.5: The tool shall determine candidate products for registration through a combination of the following…  PASS L5.HVT.6: The tool shall capture metadata for a candidate product specified by the product type.  PASS L5.HVT.7: The tool shall submit the associated metadata for a candidate product to the [Registry].  PASS L5.HVT.8: The tool shall track each product registration.  PASS L5.GEN.7: Tools shall generate a report detailing results from a single execution of the tool. |
| Success Criteria | Harvest tool, executed from the command line, discovers all matching artifacts and for each submits metadata, based on both identifying and artifact-specific metadata, to the Registry service. A matching artifact resides in the directory tree of the target directory or is listed in a manifest file in the target directory, and it matches the criteria given in the user-edited configuration file and if previously registered, has been since modified. Tools to view the registry should show the matching artifacts, with appropriate metadata, and not show the non-matching artifacts. |
| Test Steps | The harvesting in this test is redundant to tests AAFUNCTION.\*. The deleting (not a core function) is different, so if desired:   1. Clean database as described in RESETREGISTRY in Section 3.1 2. cd *testDir*; harvest4 *testDir*/contextPDS4onlyPHX -c harvest-policy-master.xml -l h.out -e "\*.xml" 3. grep -v "SUCCESS\|INFO" h.out | uniq 4. At <http://localhost:8080/registry-ui>, select Registry Service registry-pds4, click “Packages”, select “Harvest-Package\_...”, compare the GUID with Step 2’s output. 5. Close the pop-up, select line with “Harvest-Package\_...”, click “Delete” 6. Click “Products” |
| Test Results | Step 3:  PDS Harvest Tool Log  Version Version 1.15.0  Time Mon, Jun 10 2019 at 09:55:02 AM  Target(s) [/Users/rchen/Desktop/test/contextPDS4onlyPHX]  File Inclusions [\*.xml]  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190610095502  Registration Package GUID urn:uuid:1e38a950-1879-40f9-9c16-529820082218  Summary:  26 of 26 file(s) processed, 0 other file(s) skipped  0 error(s), 0 warning(s)  26 of 26 products registered.  31 of 31 ancillary products registered.  Product Types Registered:  5 Product\_Collection  31 Product\_File\_Repository  20 Product\_Context  1 Product\_Bundle  31 of 31 associations registered.  End of Log  Step 4:  Step 6: |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.10 |
| Test Personnel | Richard Chen |

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| Test Case ID | HVT.2 |
| Description | Execute from a scheduler, accept a configuration file, recursively traverse directories, determine candidates for registration, capture metadata, submit metadata to the Registry Service. |
| Requirements | PASS L5.HVT.1: The tool shall accept a configuration file specifying policy for tool behavior.  PASS L5.HVT.3: The tool shall execute from a scheduler…  PASS L5.HVT.4: The tool shall recursively traverse the specified directory or directories…  PASS L5.HVT.5: The tool shall determine candidate products for registration through a combination of the following…  PASS L5.HVT.6: The tool shall capture metadata for a candidate product specified by the product type.  PASS L5.HVT.7: The tool shall submit the associated metadata for a candidate product to the [Registry].  PASS L5.HVT.8: The tool shall track each product registration. |
| Success Criteria | Harvest tool, executed from a scheduler, discovers all matching artifacts and for each submits metadata, based on both identifying and artifact-specific metadata, to the Registry service. A matching artifact resides in the directory tree of the target directory or is listed in a manifest file in the target directory, and it matches the criteria given in the user-edited configuration file and if previously registered, has been since modified. Tools to view the registry should show the matching artifacts, with appropriate metadata, and not show the non-matching artifacts. |
| Test Steps | 1. Clean database as described in RESETREGISTRY in Section 3.1 2. cd *testDir/*; mkdir x; mv contextPDS4onlyPHX/\* x 3. harvest4 *testDir*/contextPDS4onlyPHX -c harvest-policy-master.xml -l log.txt -P 9001 -w 120 4. In browser, <http://localhost:8080/registry-ui/> shows no data in registry-pds4   In a different terminal window   1. harvest-ctrl --url http://localhost:9001/xmlrpc --operation --isRunning 2. cd *testDir*; mv x/\* contextPDS4onlyPHX; rmdir x 3. In browser, after at most 120 seconds, note changing Num Records. http://localhost:8080/registry-ui/   After Num Records stops increasing   1. harvest-ctrl --url http://localhost:9001/xmlrpc --operation --stop 2. grep "products registered" log.txt 3. On http://localhost:8080/registry-ui/#Packages, delete Harvest-Package\_\*; if verification desired, check GUID against Registration Package GUID in log.txt 4. Check Num Records is original value: http://localhost:8080/registry-ui |
| Test Results | Step 5: Yes  Step 7: Same Num Records as in HVT.1, assuming both started with 0 records  Step 8:  Crawl Daemon: [http://localhost:9001/xmlrpc]: shutdown successful  Step 9:  26 of 26 new products registered.  31 of 31 new ancillary products registered.  Step 11: “There is no data to display” (same as HVT.1’s step 7) |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.10 |
| Test Personnel | Richard Chen |

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| Test Case ID | HVT.3 |
| Description | Harvest a large number of files. |
| Requirements | PASS. No specific functional requirement. This is a performance test case. |
| Success Criteria | Harvest completes in a reasonable amount of time per product. |
| Test Steps | 1. Clean database as described in RESETSOLR in Section 3.1 2. cd *testDir* 3. date; harvest3 *testDir*/contextPDS3 -c harvest-policy-master.xml -l h.out -e "\*.xml"; date 4. Check for harvested files. <http://localhost:8080/registry-ui/>   This lets SRCH.3 show Archive information   1. harvest *testDir*/testHarv/archivePDS3 -c harvest-policy-master.xml -l h.out; grep -v "SUCCESS\|INFO" h.out |
| Test Results | Step 3: The time to harvest dropped from 214 minutes in build 5b.  Mon Jun 10 13:12:48 PDT 2019  Mon Jun 10 13:37:13 PDT 2019  The bottom of h.out:  Summary:  27302 of 27302 file(s) processed, 0 other file(s) skipped  10403 error(s), 8 warning(s)  Product Labels:  27294 Successfully registered  8 Failed to register  Search Service Solr Documents:  16891 Successfully created  10403 Failed to get created  Product Types Handled:  13 Product\_Collection  4254 Product\_Target\_PDS3  199 Product\_Instrument\_Host\_PDS3  2293 Product\_Data\_Set\_PDS3  7161 Product\_Context  2184 Product\_Attribute\_Definition  626 Product\_Instrument\_PDS3  1 Product\_Bundle  71 Product\_Mission\_PDS3  89 Product\_Class\_Definition  End of Log  Step 4:  Step 5:  PDS Harvest Tool Log  Version Version 1.15.0  Time Mon, Jun 10 2019 at 02:05:41 PM  Target(s) [/Users/rchen/Desktop/test/testHarv/archivePDS3]  Registry Location http://localhost:8080/registry-pds3  Registry Package Name Harvest-Package\_20190610140541  Registration Package GUID urn:uuid:ecb48b25-8561-43e3-9456-b7e072cf9cdf  Summary:  1 of 1 file(s) processed, 0 other file(s) skipped  0 error(s), 0 warning(s)  1 of 1 products registered.  1 of 1 ancillary products registered.  Product Types Registered:  1 Product\_Context  1 Product\_File\_Repository  1 of 1 associations registered.  End of Log |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.10 |
| Test Personnel | Richard Chen |

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| Test Case ID | HVT.5 |
| Description | Harvest skips candidate products not matching configuration file. Harvest also checks for previous registrations and skips those. |
| Requirements | PASS L5.HVT.1: The tool shall accept a configuration file specifying policy for tool behavior.  PASS L5.HVT.5: The tool shall determine candidate products for registration through a combination of the following…  PASS L5.HVT.8: The tool shall track each product registration. |
| Success Criteria | Tools to view the registry should show only matching products and not the others. |
| Test Steps | Run harvest with config file that does not accept Product\_Document   1. Clean database as described in RESETREGISTRY in Section 3.1 2. harvest4 *testDir*/bundle\_geo\_ra -c harvestPolicyNoDoc.xml -l h.out -e "\*.xml" 3. grep -v "SUCCESS\|INFO" h.out | uniq 4. In browser,<http://localhost:8080/registry-ui>, to see many products, then set “Object Type” to “Product\_Document” and hit “Refresh”   Repeat to show nothing more gets registered.   1. harvest4 *testDir*/bundle\_geo\_ra -c harvestPolicyNoDoc.xml -l h.out -e "\*.xml" 2. <http://localhost:8080/registry-ui>   Run harvest with config file that accepts Product\_Document   1. harvest4 *testDir*/bundle\_geo\_ra –c harvest-policy-master.xml –l h.out -e "\*.xml" 2. grep -v "WARNING\|INFO" h.out | uniq 3. <http://localhost:8080/registry-ui>. Set “Object Type” to “Product\_Document”. Hit “Refresh” 4. Hit the “Packages” tab. Note the packages are unsorted. 5. Click column headers such as “Name” to see sorting on that field 6. Select both Harvest-\*, hit “Delete” 7. Hit the “Products” tab |
| Test Results | Step 3: Note the SKIPs of Product\_Document:  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 01:33:11 AM  Target(s) [/Users/rchen/Desktop/test/bundle\_geo\_ra]  File Inclusions [\*.xml]  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190611013311  Registration Package GUID urn:uuid:0cb328ae-1cfa-494a-96de-201d77e4622a  SKIP: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/activity\_table\_desc.xml] 'Product\_Document' is not an object type found in the policy file.  SKIP: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_dataset.xml] 'Product\_Document' is not an object type found in the policy file.  SKIP: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml] 'Product\_Document' is not an object type found in the policy file.  SKIP: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/readme.xml] 'Product\_Document' is not an object type found in the policy file.  Summary:  169 of 169 file(s) processed, 4 other file(s) skipped  0 error(s), 0 warning(s)  169 of 169 products registered.  334 of 334 ancillary products registered.  Product Types Registered:  1 Product\_XML\_Schema  5 Product\_Collection  120 Product\_Observational  38 Product\_Browse  334 Product\_File\_Repository  4 Product\_Context  1 Product\_Bundle  334 of 334 associations registered.  End of Log  Step 4: Note that Total Records = 503 before filtering  Step 6: Note that still only 503 products are registered  Step 8: Many WARNINGs had “Product already exists”  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 01:41:04 AM  Target(s) [/Users/rchen/Desktop/test/bundle\_geo\_ra]  File Inclusions [\*.xml]  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190611014104  Registration Package GUID urn:uuid:6fed576c-028f-4177-b8ad-8173c9b49c19  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/activity\_table\_desc.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:activity\_table\_desc::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/activity\_table\_desc.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:activity\_table\_desc:activity\_table\_desc\_xml::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/activity\_table\_desc.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:activity\_table\_desc:activity\_table\_desc.txt::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/activity\_table\_desc.xml] Successfully registered association to 'urn:uuid:6c670f37-9397-4169-9084-eff18c786ce0'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/activity\_table\_desc.xml] Successfully registered association to 'urn:uuid:e13a92e6-3f56-4c77-aeab-1b7c774eb3bb'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_dataset.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:ra\_dataset::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_dataset.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:ra\_dataset:ra\_dataset\_xml::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_dataset.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:ra\_dataset:ra\_dataset.txt::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_dataset.xml] Successfully registered association to 'urn:uuid:97c0e842-42c4-4f17-81f6-8c7265a306d6'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_dataset.xml] Successfully registered association to 'urn:uuid:6132e6f7-5fda-4268-8e5b-b2206e3d0a21'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:ra\_instrument::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:ra\_instrument:ra\_instrument\_xml::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:ra\_instrument:ra\_instrument.txt::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml] Successfully registered association to 'urn:uuid:eb7816d5-2adb-4987-86f5-41cede927c57'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml] Successfully registered association to 'urn:uuid:4240e0d0-1910-4af6-b28d-079558fef0a5'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/readme.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:readme::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/readme.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:readme:readme\_xml::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/readme.xml] Successfully registered product: urn:nasa:pds:phx\_ra:document:readme:readme.txt::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/readme.xml] Successfully registered association to 'urn:uuid:7c747225-9726-421c-9fe0-b98702a714e1'  SUCCESS: [/Users/rchen/Desktop/test/bundle\_geo\_ra/document/readme.xml] Successfully registered association to 'urn:uuid:e44e0ce7-8b2e-46a8-bf8f-1772649cfea5'  Summary:  173 of 173 file(s) processed, 0 other file(s) skipped  0 error(s), 169 warning(s)  4 of 173 products registered.  8 of 8 ancillary products registered.  Product Types Registered:  4 Product\_Document  8 Product\_File\_Repository  8 of 8 associations registered.  End of Log  Step 9: Note that 1) 515 products are registered and 2) there are 4 Product Documents    Step 11:  Step 13: “There is no data to display” |
| Comments | Results met success criteria.  [PDS-166](https://oodt.jpl.nasa.gov/jira/browse/PDS-166), created during testing of build 3b, requests an improvement: check if secondary members match primary members. |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

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| Test Case ID | HVT.6 |
| Description | Harvest PDS3 products, not just catalog files. |
| Requirements | PASS 4.2.4: PDS will provide a mechanism to upgrade products or data sets which do not meet usability requirements (e.g., data sets from old missions) |
| Success Criteria | The registry shows the harvested PDS3 products. |
| Test Steps | 1. Clean database as described in RESETREGISTRY in Section 3.1 2. In browser, <http://localhost:8080/registry-ui/> shows no data 3. cd *testDir* 4. harvest3 -c testHarv/harvestDawnNondata.xml 5. <http://localhost:8080/registry-ui/> shows such files.   Using that version of harvest again, harvest the 4 .LBLs and the files they point to.   1. harvest -c testHarv/harvestDawnData.xml   <http://localhost:8080/registry-ui/> includes labelled files |
| Test Results | Step 2: “There is no data to display”  Step 4:  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 02:17:10 AM  Target(s) [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B]  Target Type PDS3  File Exclusions [\*.cat, \*.CAT]  Severity Level INFO  Registry Location http://localhost:8080/registry-pds3  Registry Package Name Harvest-Package\_20190611021710  Registration Package GUID urn:uuid:534c4d3e-8a01-475c-8eff-7e36517783e1  INFO: XML extractor set to the following default namespace: http://pds.nasa.gov/pds4/pds/v1  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/MD5\_CHECKSUM.TXT] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/MD5\_CHECKSUM.TXT] "MD5\_CHECKSUM.TXT" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Created the following logical identifier: urn:nasa:pds:nondata  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Successfully registered product: urn:nasa:pds:nondata::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Product has the following GUID: urn:uuid:76091b33-0cfd-4203-aaff-ffd49d34d2e3  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Capturing file object metadata for AAREADME.TXT  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Successfully registered product: urn:nasa:pds:nondata:AAREADME.TXT::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Product has the following GUID: urn:uuid:b812c89b-09b5-4887-a6db-e9b9e7933c90  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Successfully registered association to 'urn:uuid:b812c89b-09b5-4887-a6db-e9b9e7933c90'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/AAREADME.TXT] Association has the following GUID: urn:uuid:e46e544c-8323-493e-a53b-cc5d4eddf578  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/ERRATA.TXT] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/ERRATA.TXT] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/ERRATA.TXT] Created the following logical identifier: urn:nasa:pds:nondata  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/ERRATA.TXT] Created title:  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/ERRATA.TXT] Product already exists: urn:nasa:pds:nondata::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/GRaND\_Acronyms\_130711.pdf] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/GRaND\_Acronyms\_130711.pdf] "GRaND\_Acronyms\_130711.pdf" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Created the following logical identifier: urn:nasa:pds:nondata:extras  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Successfully registered product: urn:nasa:pds:nondata:extras::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Product has the following GUID: urn:uuid:e6778c82-1933-42e6-9bc8-b5bb2c58aff2  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Capturing file object metadata for EXTRINFO.TXT  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Successfully registered product: urn:nasa:pds:nondata:extras:EXTRINFO.TXT::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Product has the following GUID: urn:uuid:573d5cf0-b606-4755-ba45-2c7d223f749f  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Successfully registered association to 'urn:uuid:573d5cf0-b606-4755-ba45-2c7d223f749f'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/EXTRINFO.TXT] Association has the following GUID: urn:uuid:0bc5b313-981f-4267-9b49-dbf60145c5d6  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/SOFTWARE/plot\_grand\_L2.pro] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/SOFTWARE/plot\_grand\_L2.pro] "plot\_grand\_L2.pro" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/SOFTWARE/Extras\_Guide\_130711.pdf] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/EXTRAS/SOFTWARE/Extras\_Guide\_130711.pdf] "Extras\_Guide\_130711.pdf" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Created the following logical identifier: urn:nasa:pds:nondata:data  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered product: urn:nasa:pds:nondata:data::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Product has the following GUID: urn:uuid:cd2d7a81-5e15-4fae-81dc-6df6686b842e  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Capturing file object metadata for GRD-L1B-151023-151216\_160816-EPG.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Capturing file object metadata for GRD-L1B-151023-151216\_160816-EPG.TAB  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered product: urn:nasa:pds:nondata:data:GRD-L1B-151023-151216\_160816-EPG.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Product has the following GUID: urn:uuid:d2fe50aa-8b34-41f1-85a8-e2055fe6c5cb  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered product: urn:nasa:pds:nondata:data:GRD-L1B-151023-151216\_160816-EPG.TAB::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Product has the following GUID: urn:uuid:c69393f3-069f-4b9a-8dd6-fd9882e2db32  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered association to 'urn:uuid:d2fe50aa-8b34-41f1-85a8-e2055fe6c5cb'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Association has the following GUID: urn:uuid:c5f20a6d-c4ae-4ad7-a50e-a95364387751  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered association to 'urn:uuid:c69393f3-069f-4b9a-8dd6-fd9882e2db32'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Association has the following GUID: urn:uuid:40c4efd7-b318-4495-ac15-f414e546d055  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.TAB] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.TAB] "GRD-L1B-151023-151216\_160816-EPG.TAB" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.TAB] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.TAB] "GRD-L1B-151023-151216\_160816-CTL-BGOC.TAB" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Created the following logical identifier: urn:nasa:pds:nondata:data  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Created title:  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Product already exists: urn:nasa:pds:nondata:data::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Created the following logical identifier: urn:nasa:pds:nondata:index  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered product: urn:nasa:pds:nondata:index::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Product has the following GUID: urn:uuid:f34bf5c8-fac8-41fb-92a7-5b79d6c9c195  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Capturing file object metadata for INDEX.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Capturing file object metadata for INDEX.TAB  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered product: urn:nasa:pds:nondata:index:INDEX.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Product has the following GUID: urn:uuid:eff2177c-01db-476b-abd8-c92c1a8d27b6  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered product: urn:nasa:pds:nondata:index:INDEX.TAB::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Product has the following GUID: urn:uuid:a2128075-4000-4208-a367-2e1cec887f0a  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered association to 'urn:uuid:eff2177c-01db-476b-abd8-c92c1a8d27b6'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Association has the following GUID: urn:uuid:7d835d43-66b7-4f47-902e-790ed9988ba5  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered association to 'urn:uuid:a2128075-4000-4208-a367-2e1cec887f0a'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Association has the following GUID: urn:uuid:80720724-bbcf-4087-8faf-7e72c0dda620  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.TAB] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.TAB] "INDEX.TAB" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDXINFO.TXT] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDXINFO.TXT] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDXINFO.TXT] Created the following logical identifier: urn:nasa:pds:nondata:index  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDXINFO.TXT] Created title:  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDXINFO.TXT] Product already exists: urn:nasa:pds:nondata:index::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.HTM] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.HTM] "DAWN\_GRAND\_SIS\_R2\_4.HTM" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.PDF] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.PDF] "DAWN\_GRAND\_SIS\_R2\_4.PDF" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Created the following logical identifier: urn:nasa:pds:nondata:document:sis  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:nondata:document:sis::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:c273ecaf-e96d-4630-b65f-a2852809bdc4  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_R2\_4.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_R2\_4.PDF  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_R2\_4.HTM  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_FIG1.JPG  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_FIG2.JPG  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:nondata:document:sis:DAWN\_GRAND\_SIS\_R2\_4.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:57e72acc-7978-416f-b795-1d44cb7cca36  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:nondata:document:sis:DAWN\_GRAND\_SIS\_R2\_4.PDF::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:5d521edf-a736-4cc6-a718-c6ac137eeb22  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:nondata:document:sis:DAWN\_GRAND\_SIS\_R2\_4.HTM::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:510dfe59-2d8c-40b0-b206-271d15aae743  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:nondata:document:sis:DAWN\_GRAND\_SIS\_FIG1.JPG::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:45e14834-d5ad-4502-999b-a11f82aa8258  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:nondata:document:sis:DAWN\_GRAND\_SIS\_FIG2.JPG::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:2289da7f-a753-4a83-9512-9df4679ca208  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:57e72acc-7978-416f-b795-1d44cb7cca36'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:fea79bd7-34e6-48a4-a023-47bb35e42bed  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:5d521edf-a736-4cc6-a718-c6ac137eeb22'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:914bef8a-7da1-4570-93a0-5a004dfc42ae  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:510dfe59-2d8c-40b0-b206-271d15aae743'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:15e5146e-573a-4f49-ac6d-6cbb3d3f5f75  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:45e14834-d5ad-4502-999b-a11f82aa8258'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:d0a25a8e-4238-4ad1-945f-b678caa64b00  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:2289da7f-a753-4a83-9512-9df4679ca208'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:437156a9-dabe-4df8-9b31-03237514f620  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_FIG2.JPG] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_FIG2.JPG] "DAWN\_GRAND\_SIS\_FIG2.JPG" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_FIG1.JPG] Begin processing.  SKIP: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_FIG1.JPG] "DAWN\_GRAND\_SIS\_FIG1.JPG" is not a label. Could not find the PDS\_VERSION\_ID in the first line.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Created the following logical identifier: urn:nasa:pds:nondata:catalog  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Successfully registered product: urn:nasa:pds:nondata:catalog::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Product has the following GUID: urn:uuid:c71e19fa-d5c6-4d36-97c5-0afec5b24644  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Capturing file object metadata for CATINFO.TXT  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Successfully registered product: urn:nasa:pds:nondata:catalog:CATINFO.TXT::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Product has the following GUID: urn:uuid:ee66aeb5-0f36-41fe-8771-907cf8113811  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Successfully registered association to 'urn:uuid:ee66aeb5-0f36-41fe-8771-907cf8113811'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/CATALOG/CATINFO.TXT] Association has the following GUID: urn:uuid:e83044a8-34c8-4f6c-8a60-94974ae1c461  Summary:  9 of 9 file(s) processed, 11 other file(s) skipped  0 error(s), 3 warning(s)  6 of 9 products registered.  12 of 12 ancillary products registered.  Product Types Registered:  12 Product\_File\_Repository  6 Product\_Proxy\_PDS3  12 of 12 associations registered.  End of Log  Step 5:  Step 6:  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 02:24:03 AM  Target(s) [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B]  Target Type PDS3  File Inclusions [\*.LBL, \*.lbl]  Severity Level INFO  Registry Location http://localhost:8080/registry-pds3  Registry Package Name Harvest-Package\_20190611022403  Registration Package GUID urn:uuid:08501182-73de-4f3a-8c81-bad70c7b4ff7  INFO: XML extractor set to the following default namespace: http://pds.nasa.gov/pds4/pds/v1  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Created the following logical identifier: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-epg:data  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Created title: DAWN-A-GRAND-3-RDR-CERES-COUNTS-V1.0 GRD-L1B-151023-151216\_160816-EPG  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered product: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-epg:data::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Product has the following GUID: urn:uuid:2d1bee71-8b15-4c3c-9a17-c122cb7d9df4  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Capturing file object metadata for GRD-L1B-151023-151216\_160816-EPG.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Capturing file object metadata for GRD-L1B-151023-151216\_160816-EPG.TAB  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered product: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-epg:data:GRD-L1B-151023-151216\_160816-EPG.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Product has the following GUID: urn:uuid:ec98b580-2ecb-4df7-8182-aec158bd670e  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered product: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-epg:data:GRD-L1B-151023-151216\_160816-EPG.TAB::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Product has the following GUID: urn:uuid:b6aa2853-e9fc-4f69-b561-c68cacbf474b  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered association to 'urn:uuid:ec98b580-2ecb-4df7-8182-aec158bd670e'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Association has the following GUID: urn:uuid:3e370339-29f5-4f69-8c73-97839b42e5dc  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Successfully registered association to 'urn:uuid:b6aa2853-e9fc-4f69-b561-c68cacbf474b'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-EPG.LBL] Association has the following GUID: urn:uuid:1699dccf-7284-42f4-b052-96a630f2b292  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Created the following logical identifier: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-ctl-bgoc:data  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Created title: DAWN-A-GRAND-3-RDR-CERES-COUNTS-V1.0 GRD-L1B-151023-151216\_160816-CTL-BGOC  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Successfully registered product: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-ctl-bgoc:data::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Product has the following GUID: urn:uuid:12259fcb-4cc4-4257-9b16-b5e1b1af93b7  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Capturing file object metadata for GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Capturing file object metadata for GRD-L1B-151023-151216\_160816-CTL-BGOC.TAB  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Successfully registered product: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-ctl-bgoc:data:GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Product has the following GUID: urn:uuid:c50c2b61-1281-4646-b815-68ec3601e13a  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Successfully registered product: urn:nasa:pds:data:dawn-a-grand-3-rdr-ceres-counts-v1.0:grand:grd-l1b-151023-151216\_160816-ctl-bgoc:data:GRD-L1B-151023-151216\_160816-CTL-BGOC.TAB::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Product has the following GUID: urn:uuid:26418288-a128-4345-af92-19c1c69c438d  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Successfully registered association to 'urn:uuid:c50c2b61-1281-4646-b815-68ec3601e13a'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Association has the following GUID: urn:uuid:47421000-f7a7-4ecf-86f8-bd0022169dee  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Successfully registered association to 'urn:uuid:26418288-a128-4345-af92-19c1c69c438d'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DATA/GRD-L1B-151023-151216\_160816-CTL-BGOC.LBL] Association has the following GUID: urn:uuid:266504dc-3435-446c-8a59-ca314358bcae  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Creating logical identifier.  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] DATA\_SET\_ID not found.  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] INSTRUMENT\_ID not found.  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] PRODUCT\_ID not found.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Created the following logical identifier: urn:nasa:pds:data:index  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] DATA\_SET\_ID not found.  WARNING: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] PRODUCT\_ID not found.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Created title:  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered product: urn:nasa:pds:data:index::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Product has the following GUID: urn:uuid:e4946720-709b-45ce-9c99-bba5ed9ac167  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Capturing file object metadata for INDEX.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Capturing file object metadata for INDEX.TAB  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered product: urn:nasa:pds:data:index:INDEX.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Product has the following GUID: urn:uuid:1fb72665-1e27-48db-92f2-db8d11f836ee  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered product: urn:nasa:pds:data:index:INDEX.TAB::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Product has the following GUID: urn:uuid:7c7ea3f3-7b47-4da5-acd5-b3d7a11b6d0f  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered association to 'urn:uuid:1fb72665-1e27-48db-92f2-db8d11f836ee'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Association has the following GUID: urn:uuid:1453622d-81b4-4601-9ab1-ea26207a11e2  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Successfully registered association to 'urn:uuid:7c7ea3f3-7b47-4da5-acd5-b3d7a11b6d0f'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/INDEX/INDEX.LBL] Association has the following GUID: urn:uuid:e1e6a7f5-d21f-4101-8b13-620840126865  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Creating logical identifier.  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Created the following logical identifier: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Created title: DAWN-M-GRAND-2-EDR-MARS-COUNTS-V1.0 DAWN\_GRAND\_SIS  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:2c9d6374-9fd9-4c03-9a96-3abc85503e08  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_R2\_4.LBL  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_R2\_4.PDF  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_R2\_4.HTM  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_FIG1.JPG  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Capturing file object metadata for DAWN\_GRAND\_SIS\_FIG2.JPG  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis:DAWN\_GRAND\_SIS\_R2\_4.LBL::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:3445bafb-e68d-49ad-80f4-36fc358efa34  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis:DAWN\_GRAND\_SIS\_R2\_4.PDF::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:d9834776-3847-4c0a-a3a9-1e7035ed67f0  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis:DAWN\_GRAND\_SIS\_R2\_4.HTM::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:8ea2c097-bd8b-41a6-9f20-4f8dbc9e86f1  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis:DAWN\_GRAND\_SIS\_FIG1.JPG::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:c8ced75a-30f3-4b43-95d7-e76384ee19ee  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered product: urn:nasa:pds:data:dawn-m-grand-2-edr-mars-counts-v1.0:grand:dawn\_grand\_sis:document:sis:DAWN\_GRAND\_SIS\_FIG2.JPG::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Product has the following GUID: urn:uuid:27312c57-8587-4450-9891-d66e5a506e8d  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:3445bafb-e68d-49ad-80f4-36fc358efa34'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:69faf386-02f8-4170-a928-034d2922c389  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:d9834776-3847-4c0a-a3a9-1e7035ed67f0'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:2665d6af-a67b-47a0-8595-18771c10ddcf  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:8ea2c097-bd8b-41a6-9f20-4f8dbc9e86f1'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:817ad7dc-6156-42e0-8a47-0810b9bb2eda  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:c8ced75a-30f3-4b43-95d7-e76384ee19ee'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:4658f2c1-9636-4d25-ae1b-a92032b197a3  SUCCESS: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Successfully registered association to 'urn:uuid:27312c57-8587-4450-9891-d66e5a506e8d'  INFO: [/Users/rchen/Desktop/test/testHarv/DAWNGRAND1B/DOCUMENT/SIS/DAWN\_GRAND\_SIS\_R2\_4.LBL] Association has the following GUID: urn:uuid:a99cbb84-009b-4441-97d9-572e0e24e78f  Summary:  4 of 4 file(s) processed, 0 other file(s) skipped  0 error(s), 5 warning(s)  4 of 4 products registered.  11 of 11 ancillary products registered.  Product Types Registered:  11 Product\_File\_Repository  4 Product\_Proxy\_PDS3  11 of 11 associations registered.  End of Log  Step 7: |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

|  |  |
| --- | --- |
| Test Case ID | HVT.7 |
| Description | Test bug fixes to harvest. |
| Requirements | PASS No specific functional requirement. |
| Success Criteria | The registry shows the harvested products. |
| Test Steps | Test URL in harvest config file with ‘?’, LID ending in .xml, <title> with many spaces   1. Clean database as described in RESETREGISTRY in Section 3.1 2. cd *testDir* 3. diff harvest-policy-master.xml harvest388.xml ; echo END\_DIFF\_11111 ; diff bundleLID/data\_test/scraping/pit\_test\_scraping.xml bundle\_geo\_ra/data\_test/scraping/pit\_test\_scraping.xml; echo END\_DIFF\_22222 ; diff bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml bundle\_geo\_ra/data\_test/scraping/pit\_test\_scraping\_pic2.xml 4. harvest4 *testDir*/bundleLID/data\_test/scraping -c harvest388.xml -e "\*.xml" | grep -v INFO: 5. On <http://localhost:8080/registry-ui/>, notice the automatically generated LIDs for label files have “\_xml” 6. Select any row, probably the different one, to see Access URL. 7. Another view, more slot-based: <http://localhost:8080/registry-pds4/extrinsics?lid=urn:nasa:pds:phx_ra:data_test:pit_test_scraping_pic1> shows the two Product\_Browse with the same LID 8. On <http://localhost:8080/registry-ui/>, select the two with LID urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1 and set one to Approved and one to Deprecated. 9. mkdir x; cp bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.\* x; mv x/pit\_test\_scraping\_pic1.xml x/pit\_test\_scraping\_pic44.xml Then edit the .xml file to change version\_id from 1.0 to 4.4 10. harvest4 *testDir*/x -c harvest388.xml -e "\*.xml" 11. On <http://localhost:8080/registry-ui/>, see that third entry with LID urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1 has Status “Submitted”. 12. rm –r x/ 13. Click “Associations”, Note the few with non-null “Source LID”. Click “Packages”. Delete both “Harvest-Package\_…” 14. Click “Associations”. The ones for this harvest should be gone.   For removing schemes and classifications via deleting their package   1. Clean database as described in RESETREGISTRY in Section 3.1 2. cd *testDir* 3. On <http://localhost:8080/registry-ui/>, “Associations”, “Schemes”, “Packages” 4. Delete all 4 packages 5. Click “Associations” and “Schemes” again   Test a bunch of slot stuff for 9a   1. harvest4 *testDir*/testHarv/slots -c harvest-policy-master.xml 2. In a browser:   <http://localhost:8080/registry-pds4/extrinsics?lid=urn:nasa:pds:ff:ffff:ffffff>  <http://localhost:8080/registry-pds4/extrinsics?lid=urn:nasa:pds:context:facility:observatory.irtf>  <http://localhost:8080/registry-pds4/extrinsics?lid=urn:nasa:pds:context:telescope:irtf.3m0>  <http://localhost:8080/registry-pds4/extrinsics?lid=urn:nasa:pds:context:investigation:observing_campaign.irtf_io> |
| Test Results | Step 3:  27c27  < <baseUrl>http://localhost:8080</baseUrl>  ---  > <baseUrl>http://testWeirdChars.com/download?x=y&amp;a=b</baseUrl>  END\_DIFF\_11111  10c10  < <logical\_identifier>urn:nasa:pds:phx\_ra:data\_test:pit\_test.xml</logical\_identifier>  ---  > <logical\_identifier>urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping</logical\_identifier>  END\_DIFF\_22222  10,16c10,12  < <logical\_identifier>urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1</logical\_identifier> <!--same as other -->  < <version\_id>1.2</version\_id>  < <title>add uselesss pit\_test\_scraping\_pic2  < and arbitray  < spaces  <  < </title>  ---  > <logical\_identifier>urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic2</logical\_identifier>  > <version\_id>1.0</version\_id>  > <title>pit\_test\_scraping\_pic2</title>  Step 4: harvest rejects LIDs ending in “.xml”.  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 10:00:44 AM  Target(s) [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping]  File Inclusions [\*.xml]  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190611100044  Registration Package GUID urn:uuid:cb5ac1bc-6930-476a-8a7c-fa64e4345f0d  ERROR: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping.xml] Lid cannot end in '.xml': urn:nasa:pds:phx\_ra:data\_test:pit\_test.xml  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1:pit\_test\_scraping\_pic1\_xml::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1:pit\_test\_scraping\_pic1.jpg::1.0  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml] Successfully registered association to 'urn:uuid:50be5d40-4d68-4969-91f6-78c1ea6d37cb'  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml] Successfully registered association to 'urn:uuid:514c7058-eb6c-48a1-983c-11a2f24280df'  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1::1.2  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1:pit\_test\_scraping\_pic2\_xml::1.2  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1:pit\_test\_scraping\_pic2.jpg::1.2  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml] Successfully registered association to 'urn:uuid:c995994e-a532-4634-8f1e-382b09729d5d'  SUCCESS: [/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml] Successfully registered association to 'urn:uuid:b0794ba4-2843-4e4f-890c-26cc559ab2de'  Summary:  3 of 3 file(s) processed, 0 other file(s) skipped  1 error(s), 0 warning(s)  2 of 2 products registered.  4 of 4 ancillary products registered.  Product Types Registered:  2 Product\_Browse  4 Product\_File\_Repository  4 of 4 associations registered. End of Log  Step 5: harvest (registry?) converts automatically generated products with LIDs ending in “\*.xml” to “\_xml”. Field “Name” handles extra spaces.  Step 6: URLs with question marks allowed.    Step 7 shows numFound returns correctly.    Step 8:  Step 10:  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 02:37:40 PM  Target(s) [/Users/rchen/Desktop/test/x]  File Inclusions [\*.xml]  Severity Level INFO  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190611143740  Registration Package GUID urn:uuid:a47469f4-fb4b-4f58-ac2b-6a20f58cda3e  INFO: XML extractor set to the following default namespace: http://pds.nasa.gov/pds4/pds/v1  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Begin processing.  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] line 26: Mapping reference type 'browse\_to\_data' to 'data\_ref'.  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Setting LID-based association, 'urn:nasa:pds:phx\_ra:document:RA\_dataset', under slot name 'data\_ref'.  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Created access url: http://testWeirdChars.com/download?x=y&a=b/x/pit\_test\_scraping\_pic44.xml  SUCCESS: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1::4.4  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Product has the following GUID: urn:uuid:7626274f-1ed7-45ba-b36e-ee8198a96cee  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Capturing file information for pit\_test\_scraping\_pic44.xml  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Capturing file object metadata for pit\_test\_scraping\_pic1.jpg  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] line 30: Setting file type for the file object 'pit\_test\_scraping\_pic1.jpg' to 'Browse'  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Created access url: http://testWeirdChars.com/download?x=y&a=b/x/pit\_test\_scraping\_pic44.xml  SUCCESS: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1:pit\_test\_scraping\_pic44\_xml::4.4  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Product has the following GUID: urn:uuid:94e4d5c3-6398-4cfa-a857-5dd2e40a39b5  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Created access url: http://testWeirdChars.com/download?x=y&a=b/x/pit\_test\_scraping\_pic1.jpg  SUCCESS: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Successfully registered product: urn:nasa:pds:phx\_ra:data\_test:pit\_test\_scraping\_pic1:pit\_test\_scraping\_pic1.jpg::4.4  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Product has the following GUID: urn:uuid:5431b9ce-54a5-4a68-b254-1eb069e6a9ca  SUCCESS: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Successfully registered association to 'urn:uuid:94e4d5c3-6398-4cfa-a857-5dd2e40a39b5'  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Association has the following GUID: urn:uuid:22a35af1-be8a-4658-b563-564573b55b9b  SUCCESS: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Successfully registered association to 'urn:uuid:5431b9ce-54a5-4a68-b254-1eb069e6a9ca'  INFO: [/Users/rchen/Desktop/test/x/pit\_test\_scraping\_pic44.xml] Association has the following GUID: urn:uuid:1b6a842c-443b-4a3c-b8da-814cd85a6a85  Summary:  1 of 1 file(s) processed, 0 other file(s) skipped  0 error(s), 0 warning(s)  1 of 1 products registered.  2 of 2 ancillary products registered.  Product Types Registered:  1 Product\_Browse  2 Product\_File\_Repository  2 of 2 associations registered.  End of Log  Step 11: In early versions, the Status was not “Submitted”  Step 13:  Step 14 should show no associations from any harvest  Step 17:  Step 19: Both Schemes and Associations should be empty.  ../../Users/rchen/Desktop/Screen%20Shot%202016-04-21%20at%2011  ../../Users/rchen/Desktop/Screen%20Shot%202016-04-21%20at%2011  Step 20:  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 03:33:44 PM  Target(s) [/Users/rchen/Desktop/test/testHarv/slots]  Severity Level INFO  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190611153344  Registration Package GUID urn:uuid:b30c349e-3a46-4db7-95ad-5fdaa26e5ab6  INFO: XML extractor set to the following default namespace: http://pds.nasa.gov/pds4/pds/v1  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] line 27: Mapping reference type 'investigation\_to\_facility' to 'facility\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] line 31: Mapping reference type 'investigation\_to\_target' to 'target\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Setting LID-based association, 'urn:nasa:pds:context:facility:observatory.irtf', under slot name 'facility\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Setting LID-based association, 'urn:nasa:pds:context:target:satellite.jupiter.io', under slot name 'target\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Created access url: http://localhost:8080/testHarv/slots/sw35inv.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Successfully registered product: urn:nasa:pds:context:investigation:observing\_campaign.irtf\_io::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Product has the following GUID: urn:uuid:feb58724-9de7-4454-a02b-8955dd793dc3  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Capturing file information for sw35inv.xml  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Created access url: http://localhost:8080/testHarv/slots/sw35inv.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Successfully registered product: urn:nasa:pds:context:investigation:observing\_campaign.irtf\_io:sw35inv\_xml::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Product has the following GUID: urn:uuid:5613771a-009c-4de7-b47a-6dd493d0ee39  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Successfully registered association to 'urn:uuid:5613771a-009c-4de7-b47a-6dd493d0ee39'  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inv.xml] Association has the following GUID: urn:uuid:456df188-50d0-4861-a19d-cbf845082bb4  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] line 38: Mapping reference type 'browse\_to\_browse' to 'browse\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] line 42: Mapping reference type 'browse\_to\_document' to 'document\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] line 50: Mapping reference type 'data\_to\_telemetry\_source\_product' to 'source\_product\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Setting LID-based association, 'urn:nasa:pds:phx\_ra:document:somebrowseforsw36', under slot name 'browse\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Setting LID-based association, 'urn:nasa:pds:phx\_ra:document:somedocforsw36', under slot name 'document\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Setting LIDVID-based association, 'urn:nasa:pds:cc:cccc:cccccc::1.0', under slot name 'source\_product\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Created access url: http://localhost:8080/testHarv/slots/sw33.34.36.38.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Successfully registered product: urn:nasa:pds:ff:ffff:ffffff::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Product has the following GUID: urn:uuid:05831406-2ebc-4490-b6b2-e0359c2a5c33  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Capturing file information for sw33.34.36.38.xml  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Capturing file object metadata for sw33.34.36.38.xml  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] line 58: Setting file type for the file object 'sw33.34.36.38.xml' to 'Browse'  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Created access url: http://localhost:8080/testHarv/slots/sw33.34.36.38.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Successfully registered product: urn:nasa:pds:ff:ffff:ffffff:sw33.34.36.38\_xml::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Product has the following GUID: urn:uuid:8605b56b-cf50-48d9-8f38-1c581995a804  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Created access url: http://localhost:8080/testHarv/slots/sw33.34.36.38.xml  ERROR: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] IngestException: Product already exists: urn:nasa:pds:ff:ffff:ffffff:sw33.34.36.38\_xml::1.0  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Successfully registered association to 'urn:uuid:8605b56b-cf50-48d9-8f38-1c581995a804'  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw33.34.36.38.xml] Association has the following GUID: urn:uuid:43d1850f-d53f-460a-b63c-c1437377573d  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] line 28: Mapping reference type 'facility\_to\_telescope' to 'telescope\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] line 32: Mapping reference type 'facility\_to\_investigation' to 'investigation\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] line 36: Mapping reference type 'facility\_to\_instrument' to 'instrument\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Setting LID-based association, 'urn:nasa:pds:context:telescope:irtf.3m0', under slot name 'telescope\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Setting LID-based association, 'urn:nasa:pds:context:investigation:observing\_campaign.irtf\_io', under slot name 'investigation\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Setting LID-based association, 'urn:nasa:pds:context:instrument:irtf.3m0.mirac', under slot name 'instrument\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Created access url: http://localhost:8080/testHarv/slots/sw35fac.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Successfully registered product: urn:nasa:pds:context:facility:observatory.irtf::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Product has the following GUID: urn:uuid:b5620ca3-f4f4-4aa1-9442-ba0241d1ba3e  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Capturing file information for sw35fac.xml  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Created access url: http://localhost:8080/testHarv/slots/sw35fac.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Successfully registered product: urn:nasa:pds:context:facility:observatory.irtf:sw35fac\_xml::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Product has the following GUID: urn:uuid:398b7d5f-c57c-4c61-8461-ef4eaa725a60  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Successfully registered association to 'urn:uuid:398b7d5f-c57c-4c61-8461-ef4eaa725a60'  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35fac.xml] Association has the following GUID: urn:uuid:d19b8f24-1ad1-4730-8b87-8cdad64dba29  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Begin processing.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] line 33: Mapping reference type 'telescope\_to\_instrument' to 'instrument\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Setting LID-based association, 'urn:nasa:pds:context:instrument:irtf.mirsi', under slot name 'instrument\_ref'.  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Created access url: http://localhost:8080/testHarv/slots/sw35inst.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Successfully registered product: urn:nasa:pds:context:telescope:irtf.3m0::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Product has the following GUID: urn:uuid:9e4e5712-5037-4b04-a664-8f754becbdf5  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Capturing file information for sw35inst.xml  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Created access url: http://localhost:8080/testHarv/slots/sw35inst.xml  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Successfully registered product: urn:nasa:pds:context:telescope:irtf.3m0:sw35inst\_xml::1.0  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Product has the following GUID: urn:uuid:35382a6e-b8ae-4211-96fd-cccdd4418a4a  SUCCESS: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Successfully registered association to 'urn:uuid:35382a6e-b8ae-4211-96fd-cccdd4418a4a'  INFO: [/Users/rchen/Desktop/test/testHarv/slots/sw35inst.xml] Association has the following GUID: urn:uuid:e21e03f2-c5ec-4661-a221-d100925f403e  Summary:  4 of 4 file(s) processed, 0 other file(s) skipped  1 error(s), 0 warning(s)  4 of 4 products registered.  4 of 5 ancillary products registered.  Product Types Registered:  1 Product\_Browse  3 Product\_Context  4 Product\_File\_Repository  4 of 4 associations registered.  End of Log  Step 21: |
| Comments | Results met success criteria.  In 9b, [PDS-888](https://osr.jpl.nasa.gov/jira/browse/PDS-888) notes that registry-ui can’t change a row’s status on the Product tab. |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

|  |  |
| --- | --- |
| Test Case ID | HVT.8 |
| Description | Test new capabilities of harvest. |
| Requirements | PASS No specific functional requirement. |
| Success Criteria | The registry shows the harvested products. |
| Test Steps | Test URL in harvest config file with ‘?’, LID ending in .xml, <title> with many spaces   1. Clean database as described in RESETREGISTRY in Section 3.1 2. cd *testDir*   harvestAtmV1/ and …V2/ show NAIF’s versioning of a growing ATM dataset.   1. diff harvestAtmV1/checksum.bad harvestAtmV2/checksum.works 2. validate -f -M harvestAtmV1/checksum.bad -t harvestAtmV1 3. harvest4 *testDir*/harvestAtmV1 -c harvestAtmV1.xml/harvestpolicy.xml -e "\*.xml" -l h1.out 4. At <http://localhost:8080/registry-ui/>, select registry-pds4/, then “Object Type” to “Product\_Observational”, then hit “Refresh” 5. validate -f -M harvestAtmV2/checksum.works -t harvestAtmV2 6. harvest4 *testDir*/harvestAtmV2 -c harvestAtmV2/harvestpolicy.xml -e "\*.xml" -l h2.out 7. repeat step 6 |
| Test Results | Step 3: line 1 has the debateable leading \. One line has an all CAPS checksum  1c1  < a9e18e8e7bc034f69c77e7aeee114fa0 \bundle\_v001.xml  ---  > 3d20c6cecfb18f6f2421d72a031b1e1d bundle\_v002.xml  3a4,5  > 9209d2f4b6b55b9391686c2c9567f04e data\_mer1\collection\_v002.csv  > e8d92e26de80b508be15833a1dc1f25c data\_mer1\collection\_v002.xml  10,13c12,17  < 7b69a8dc6136ddd98b4da378441dbc3c data\_mer2\sol0013\a0013\_p236402\_01\_01v04.qub  < 194601535dca45f7b587b7786790d7eb data\_mer2\sol0013\a0013\_p236402\_01\_01v04.xml  < ed1398a702ae0dae28ed13a98ceb832e data\_mer2\sol1245\a1245\_p276309\_02\_02v01.qub  < 5d013088de380339795b8627b50d97b1 data\_mer2\sol1245\a1245\_p276309\_02\_02v01.xml  ---  > 1c095f0a7cfc33908e29d8860c6cbd7a data\_mer2\collection\_v002.csv  > 5dea8f9e6af0adfc2d3bfcd0bdb351a9 data\_mer2\collection\_v002.xml  > 7b69a8dc6136ddd98b4da378441dbc3c data\_mer2\sol0013/a0013\_p236402\_01\_01v04.qub  > 194601535dca45f7b587b7786790d7eb data\_mer2\sol0013/a0013\_p236402\_01\_01v04.xml  > ed1398a702ae0dae28ed13a98ceb832e data\_mer2\sol1245/a1245\_p276309\_02\_02v01.qub  > 5d013088de380339795b8627b50d97b1 data\_mer2\sol1245/a1245\_p276309\_02\_02v01.xml  Step 4: bad checksum is deliberate. Ignore errors about harvestpolicy.xml  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T06:26:16Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Checksum Manifest File file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/checksum.bad  Manifest File Base Path file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/bundle\_v001.xml  ERROR [error.label.missing\_checksum] No checksum found in the manifest for 'file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/bundle\_v001.xml'  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/harvestpolicy.xml  FATAL\_ERROR [error.label.schema] No schema(s) found in the label.  ERROR [warning.label.missing\_schematron\_spec] No schematrons specified in the label  FATAL\_ERROR [error.label.schema] No schema(s) found in the label.  ERROR [warning.label.missing\_schematron\_spec] No schematrons specified in the label  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/data\_mer2/collection\_v001.xml  ERROR [error.label.checksum\_mismatch] Generated checksum '0d0ddeeaa2036ebb69cc4aeb30e11203' does not match supplied checksum '0D0DDEEAA2036EBB69CC4AEB30E11203' in the manifest for 'file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/data\_mer2/collection\_v001.xml'  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/data\_mer2/sol0013/a0013\_p236402\_01\_01v04.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/document/pancam\_instrument\_description.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/document/collection\_document\_inventory.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/miscellaneous/mer1\_cube\_list.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/miscellaneous/mer2\_cube\_list.xml  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/miscellaneous/collection\_misc\_inventory.xml  Begin Content Validation: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/miscellaneous/collection\_misc\_inventory.csv  ERROR [error.inventory\_table.invalid\_member\_status] table 1, record 1: Invalid member status p. It should begin with 'P' or 'S'.  ERROR [error.inventory\_table.invalid\_member\_status] table 1, record 2: Invalid member status p. It should begin with 'P' or 'S'.  End Content Validation: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/miscellaneous/collection\_misc\_inventory.csv  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/data\_mer1/collection\_v001.xml  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/harvestAtmV1/data\_mer1/sol0011/b0011\_p237201\_01\_01v02.xml  Summary:  8 error(s)  0 warning(s)  Message Types:  2 error.inventory\_table.invalid\_member\_status  2 error.label.schema  1 error.label.missing\_checksum  1 error.label.checksum\_mismatch  2 warning.label.missing\_schematron\_spec  End of Report  Step 5: The interesting parts of h1.out:  PDS Harvest Tool Log  Version Version 1.15.0  Time Tue, Jun 11 2019 at 04:57:14 PM  Target(s) [/Users/rchen/Desktop/test/harvestAtmV1]  File Inclusions [\*.xml]  Severity Level INFO  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20190611165714  Registration Package GUID urn:uuid:be49bac2-463d-488d-9491-57d5aeb7e054  Checksum Manifest File /Users/rchen/Desktop/test/harvestAtmV1/checksum.bad  Manifest File Base Path /Users/rchen/Desktop/test/harvestAtmV1  INFO: XML extractor set to the following default namespace: http://pds.nasa.gov/pds4/pds/v1  INFO: [/Users/rchen/Desktop/test/harvestAtmV1/checksum.bad] Processing checksum manifest.  INFO: [/Users/rchen/Desktop/test/harvestAtmV1/bundle\_v001.xml] Begin processing.  INFO: [/Users/rchen/Desktop/test/harvestAtmV1/bundle\_v001.xml] line 54: Mapping reference type 'bundle\_to\_investigation' to 'investigation\_ref'.  [snip…]  WARNING: [/Users/rchen/Desktop/test/harvestAtmV1/data\_mer2/collection\_v001.xml] Generated checksum '0d0ddeeaa2036ebb69cc4aeb30e11203' does not match supplied checksum '0D0DDEEAA2036EBB69CC4AEB30E11203' in the manifest for file object '/Users/rchen/Desktop/test/harvestAtmV1/data\_mer2/collection\_v001.xml'.  [snip…]  SUCCESS: [/Users/rchen/Desktop/test/harvestAtmV1/data\_mer2/sol0013/a0013\_p236402\_01\_01v04.xml] Successfully registered association to 'urn:uuid:375dce16-faf2-4e99-89df-4165af149f62'  INFO: [/Users/rchen/Desktop/test/harvestAtmV1/data\_mer2/sol0013/a0013\_p236402\_01\_01v04.xml] Association has the following GUID: urn:uuid:cabbe446-aa8d-434d-89b2-cd4b4fc2ff0f  Summary:  10 of 10 file(s) processed, 1 other file(s) skipped  0 error(s), 1 warning(s)  10 of 10 products registered.  19 of 19 ancillary products registered.  Product Types Registered:  4 Product\_Collection  2 Product\_Observational  1 Product\_Document  2 Product\_Ancillary  19 Product\_File\_Repository  1 Product\_Bundle  18 of 19 generated checksums matched their supplied value in the manifest, 0 value(s) not checked.  0 of 0 generated checksums matched the supplied value in their product label, 19 value(s) not checked.  19 of 19 associations registered.  End of Log  Step 6: (snipped from bottom: “Total Records: 29”)  Step 7: very similar to the output of step 4  Step 8:The interesting parts of h2.out:  PDS Harvest Tool Log  Version Version 1.15.0  Time Thu, Oct 18 2018 at 02:47:58 PM  Target(s) [/Users/rchen/Desktop/test/harvestAtmV2]  File Inclusions [\*.xml]  Severity Level INFO  Registry Location http://localhost:8080/registry-pds4  Registry Package Name Harvest-Package\_20181018144758  Registration Package GUID urn:uuid:a668bbcd-3a4d-48bc-a80e-6628bd3748b6  Checksum Manifest File /Users/rchen/Desktop/test/harvestAtmV2/checksum.works  Manifest File Base Path /Users/rchen/Desktop/test/harvestAtmV2  INFO: XML extractor set to the following default namespace: http://pds.nasa.gov/pds4/pds/v1  INFO: [/Users/rchen/Desktop/test/harvestAtmV2/checksum.works] Processing checksum manifest.  INFO: [/Users/rchen/Desktop/test/harvestAtmV2/bundle\_v001.xml] Begin processing.  [snip…]  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/bundle\_v001.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/miscellaneous/collection\_misc\_inventory.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:misc::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/miscellaneous/mer1\_cube\_list.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:misc:mer1\_cube\_list::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/miscellaneous/mer2\_cube\_list.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:misc:mer2\_cube\_list::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/document/collection\_document\_inventory.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:document::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/document/pancam\_instrument\_description.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:document:pancam\_inst::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/data\_mer2/collection\_v001.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:mer2::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/data\_mer2/sol0013/a0013\_p236402\_01\_01v04.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:mer2:a0013\_p236402\_01\_01v04::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/data\_mer1/collection\_v001.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:mer1::1.0  WARNING: [/Users/rchen/Desktop/test/harvestAtmV2/data\_mer1/sol0011/b0011\_p237201\_01\_01v02.xml] Product already exists: urn:nasa:pds:mer\_pancam\_photometry:mer1:b0011\_p237201\_01\_01v02::1.0  [snip…]  Summary:  15 of 15 file(s) processed, 0 other file(s) skipped  0 error(s), 10 warning(s)  5 of 15 products registered.  9 of 9 ancillary products registered.  Product Types Registered:  2 Product\_Collection  2 Product\_Observational  9 Product\_File\_Repository  1 Product\_Bundle  9 of 9 generated checksums matched their supplied value in the manifest, 0 value(s) not checked.  0 of 0 generated checksums matched the supplied value in their product label, 9 value(s) not checked.  9 of 9 associations registered.  End of Log  Step 9: (snipped from bottom: “Total Records: 43”) |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

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| Test Case ID | MOD.1 |
| Description | Use LDDTool to create local data dictionaries |
| Requirements | PASS L5.SCH.1: The service shall provide a user interface for entering of queries and display of search results |
| Success Criteria | Validate uses the created local data dictionary to validate a label. |
| Test Steps | 1. cd *testDir*/testLDD 2. validate -x ../PDS4\_PDS\_1C00.xsd -S ../PDS4\_PDS\_1C00.sch -t ccb235a.xml 3. lddtool -plM ccb235lddtoolinput.xml 4. validate -x ../PDS4\_PDS\_1C00.xsd PDS4\_INSIGHT\_1C00\_1C00.xsd -S ../PDS4\_PDS\_1C00.sch PDS4\_INSIGHT\_1C00\_1C00.sch -t ccb235a.xml 5. rm PDS4\_INSIGHT\_1C00\_1C00.\* |
| Test Results | Step 2:  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T06:46:48Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/testLDD/ccb235a.xml]  User Specified Schemas [file:/Users/rchen/Desktop/PDS4test.build9b/PDS4\_PDS\_1C00.xsd]  User Specified Schematrons [file:/Users/rchen/Desktop/PDS4test.build9b/PDS4\_PDS\_1C00.sch]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/testLDD/ccb235a.xml  ERROR [error.label.schema] line 60, 46: cvc-complex-type.2.4.c: The matching wildcard is strict, but no declaration can be found for element 'insight:Observation\_Information'.  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.label.schema  End of Report  Step 3:  >>info - LDDTOOL Version: 0.2.2.1  >>info - Date: Thu Jun 13 23:47:40 PDT 2019  >>info - JAVAHOME: /Library/Java/JavaVirtualMachines/jdk-12.0.1.jdk/Contents/Home  >>info - PARENT\_DIR: /PDS4tools/lddtool  >>info - SCRIPT\_DIR: /PDS4tools/lddtool/bin  >>info - LIB\_DIR: /PDS4tools/lddtool/lib  >>info - Found input file: ccb235lddtoolinput.xml  >>info - Found required file: /PDS4tools/lddtool/Data/MDPTNConfigClassDisp.xml  >>info - Disposition File Steward/NameSpaceId:  >>info - cart - pds  >>info - img - disp  >>info - img - pds  >>info - msn - msn  >>info - ops - pds  >>info - pds - pds  >>info - config.properties:  >>info - namespace\_id:naif  >>info - namespace\_id:img  >>info - namespace\_id:geom  >>info - namespace\_id:pds  >>info - namespace\_id:atm  >>info - namespace\_id:disp  >>info - namespace\_id:rssa  >>info - namespace\_id:msn  >>info - namespace\_id:psa  >>info - namespace\_id:isda  >>info - namespace\_id:cart  >>info - namespace\_id:darts  >>info - namespace\_id:rings  >>info - namespace\_id:sbn  >>info - namespace\_id:ppi  >>info - namespace\_id:rs  >>info - namespace\_id:geo  >>info - Found required file: /PDS4tools/lddtool/Data/dd11179.pins  >>info - Found required file: /PDS4tools/lddtool/Data/DMDocument.pins  >>info - Found required file: /PDS4tools/lddtool/Data/UpperModel.pont  >>warning - Class omitted from build - Class Identifier:0001\_NASA\_PDS\_1.pds.Schematron\_Rule  >>warning - Class omitted from build - Class Identifier:0001\_NASA\_PDS\_1.pds.Schematron\_Assert  >>info - Found required file: /PDS4tools/lddtool/Data/Glossary.pins  >>info - getMasterObjectDict - Found LDDToolSingletonClass - DMDocument.LDDToolSingletonClass.title:Mission\_Area  >>info - Found required file: /PDS4tools/lddtool/Data/UpperModel.pins  WARNING Init: - Config.Properties Namespace Id Not Found:insight  INFO Init: - Config.Properties Namespace Id Using:pds  >>info - Generate Schematron Rules - Custom Rule Counts - Before generation  >>info - Rule count for Arr: 63  >>info - Rule count for Map: 63  >>info - Rule count for Id Map: 63  WARNING Header: - New steward has been specified:geo  WARNING Header: - New namespace id has been specified:insight  >>info - Counts  >>info - Classes: 343  >>info - Attributes: 1225  >>info - Rules: 282  >>info - LDDTOOL Exit  Step 4:  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T06:48:38Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/testLDD/ccb235a.xml]  User Specified Schemas [file:/Users/rchen/Desktop/PDS4test.build9b/PDS4\_PDS\_1C00.xsd, file:/Users/rchen/Desktop/PDS4test.build9b/testLDD/PDS4\_INSIGHT\_1C00\_1C00.xsd]  User Specified Schematrons [file:/Users/rchen/Desktop/PDS4test.build9b/PDS4\_PDS\_1C00.sch, file:/Users/rchen/Desktop/PDS4test.build9b/testLDD/PDS4\_INSIGHT\_1C00\_1C00.sch]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/testLDD/ccb235a.xml  Summary:  0 error(s)  0 warning(s)  End of Report |
| Comments | Results met success criteria.  In 9b, step 4 clears [PDS-793](https://osr.jpl.nasa.gov/jira/browse/PDS-793), handle ASCII\_BibCode. |
| Date of Testing | 2019.04.19  In 9b, step 3 clears [PDS-694](https://osr.jpl.nasa.gov/jira/browse/PDS-694), adding LDD version to output filename. |
| Test Personnel | Richard Chen |

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| Test Case ID | POR.1 |
| Description | Use Data Set View (not Search) to browse products. |
| Requirements | PASS L5.SCH.1: The service shall provide a user interface for entering of queries and display of search results |
| Success Criteria | Access any registered, individual PDS3 data set. Also, if NASA and ESA each have an entry for the same DATA\_SET\_ID, PDS-438 requested that ds-view return NASA’s. |
| Test Steps | The primary test:   1. https://pds.nasa.gov/ds-view/query?identifier=RO/RL-E/M/A/C-SPICE-6-V1.0&resclass=data.dataset   Show that both ESA and NASA had entries for that DATA\_SET\_ID   1. https://pds.nasa.gov > "DATA SEARCH" > "Keyword Search". Type the same DATA\_SET\_ID as above, i.e. "RO/RL-E/M/A/C-SPICE-6-V1.0". "Search" 2. Select "ROSETTA ORBITER/LANDER SPICE KERNELS V1.0", which has no "(from ESA)" |
| Test Results | Step 1:  Step 2:  Step 3: same as step 1 |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRG.1 |
| Description | Generate a PDS4 label from a PDS3 label or a PDS-specific DOM object. |
| Requirements | PASS L4.PRP.2 : The system shall provide a tool that assists users in the generation of PDS product labels. |
| Success Criteria | Generate produces a syntactically valid PDS Product Label else indicates where the input is invalid. |
| Test Steps | Some files in *testDir*/testHarvest/ come from PDS3 labels. Generate automatically and compare. Step 3 would be better with an xml diff.   1. cd *testDir*/testPrep 2. generate -p gendoc.lbl -t gendoc.vm 3. diff -w gendoc.xml gendoc.baseline.xml 4. rm gendoc.xml 5. generate -p gen\_ELE\_MOM1.LBL gen\_ELE\_MOM2.LBL gen\_ELE\_MOM3.LBL -t gen\_data.vm 6. diff -w gen\_ELE\_MOM1.xml gen\_ele\_baseline.xml 7. diff gen\_ELE\_MOM[13].LBL 8. diff gen\_ELE\_MOM[13].xml 9. rm gen\_ELE\_MOM?.xml   Test new functionality from build 6a   1. cd genmpf 2. generate -p i455934l.drk -t mpf\_imp\_raw\_template\_1400.xml 3. generate -p i646954r.img -t mpf\_imp\_raw\_template\_1400.xml 4. diff i455934l.xml i455934l.baseline.xml; diff i646954r.xml i646954r.baseline.xml 5. rm i455934l.xml i646954r.xml |
| Test Results | Step 2:  New PDS4 Label: *testDir*/testPrep/gendoc.xml  Step 3: Differences only in spacing  Step 5: Note that generate used to (erroneously) require –d or –o  New PDS4 Label: *testDir*/testPrep/gen\_ELE\_MOM1.xml  New PDS4 Label: *testDir*/testPrep/gen\_ELE\_MOM2.xml  New PDS4 Label: *testDir*/testPrep/gen\_ELE\_MOM3.xml  Step 6: Differences only in spacing.  Step 7: diff the inputs  12c12  < PRODUCT\_ID = "ELE\_MOM1.TAB"  ---  > PRODUCT\_ID = "ELE\_MOM3.TAB"  21c21  < ^TABLE = "ELE\_MOM1.TAB"  ---  > ^TABLE = "ELE\_MOM3.TAB"  Step 8: diff the outputs  83,84c83,84  < <file\_name>ELE\_MOM1.TAB</file\_name>  < <local\_identifier>ELE\_MOM1.TAB</local\_identifier>  ---  > <file\_name>ELE\_MOM3.TAB</file\_name>  > <local\_identifier>ELE\_MOM3.TAB</local\_identifier>  Step 11  New PDS4 Label: *testDir*/testPrep/genmpf/i455934l.xml  Step 12:  New PDS4 Label: *testDir*/testPrep/genmpf/i646954r.xml  Step 13: Differences only in spacing except for modification\_date (for each pair).  42c28  < <modification\_date>2018-10-22</modification\_date>  ---  > <modification\_date>2015-10-22</modification\_date> |
| Comments | Generate converts most constructs in a PDS3 label into a PDS4 label.  Results met success criteria.  [PDS-113](https://oodt.jpl.nasa.gov/jira/browse/PDS-113), created during testing of build 2c, requests handling carets in PDS3 labels used for detached labels.  [PDS-398](https://oodt.jpl.nasa.gov/jira/browse/PDS-398), created during testing of build 6a, requests that `generate -o .` write output to a different directory.  In 9b, [PDS-519](https://osr.jpl.nasa.gov/jira/browse/PDS-519) recloses, as unexpected error messages are gone. |
| Date of Testing | 2019.04.20 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRI.1 untested in 9b: unclear documentation |
| Description | Inspect PDS4 data |
| Requirements | PASS L4?.???.? |
| Success Criteria | Visualize various structres of Product\_Observational data |
| Test Steps | The “Installation” page for 9a states: “In the future the code will be make into a standalone executable.” The current 9a procedure requires the installation of 10 modules, some apparently non-trivial (“There are possible errors and workarounds listed below. If you get stuck feel free to send an email to…”). Until the installation is simplified, this step tests the underlying module pds4\_tools, which does have a standalone viewer, PDS4 Viewer. Start the pds4\_viewer app (not via command line), then “File” > “Open in New Window”, each of these files in *testDir*   1. bundle\_geo\_ra/data\_derived/sol007.xml (Table\_Delimited) 2. harvestAtmV2/data\_mer2/sol1245/a1245\_p276309\_02\_02v01.xml (Array\_2D\_Image) 3. testPrep/cara\_data/data/C2004Q2.xml (Table\_Character) |
| Test Results | Step 1:  Step 2:  Step 3: |
| Comments | In 9b, [PDS-833](https://osr.jpl.nasa.gov/jira/browse/PDS-833) notes the unclear installation procedure. Fixed and closed.  In 9b, [PDS-887](https://osr.jpl.nasa.gov/jira/browse/PDS-887) requests improved orientation of qub images |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRP.1 |
| Description | Extract tabular data from a PDS4 product. |
| Requirements | PASS L4?.???.? |
| Success Criteria | Produce equivalent data in fixed width or csv. |
| Test Steps | 1. cd *testDir*/testPrep 2. java -version 3. extract-table extr\_hp3.xml 4. Operate on label pointing to multiple data files: extract-table -l extr3.xml 5. extract-table -t^ maven\_events\_20140801.xml 6. extract-table https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.xml |
| Test Results | Step 2:  java version "1.8.0\_101"  Java(TM) SE Runtime Environment (build 1.8.0\_101-b13)  Java HotSpot(TM) 64-Bit Server VM (build 25.101-b13, mixed mode)  Step 3:  Spacecraft Clock Time Tilt X Tilt Y Tilt A Tilt B Sol Number  527817604.00000 90823 -215633 372377 1118264 0029  527817614.00000 90210 -215075 372241 1118067 0029  527817624.00000 91265 -215667 373688 1118125 0029  …  Step 4:  file: extr3.TAB  table 1: fixed-width character table  field 1: SOL (ASCII\_Integer)  field 2: LTST (ASCII\_Real)  field 3: LMST (ASCII\_Real)  field 4: V (ASCII\_Real)  field 5: DV+ (ASCII\_Real)  field 6: DV- (ASCII\_Real)  field 7: DIR (ASCII\_Real)  field 8: DDIR (ASCII\_Real)  field 9: EXPOSURE TIME (ASCII\_Real)  field 10: FILE NAME (ASCII\_File\_Name)  file: extr3.csv  table 1: delimited table  field 1: CHANNEL\_NUMBER (ASCII\_Integer)  field 2: SPECTRA\_01 (ASCII\_Integer)  field 3: SPECTRA\_02 (ASCII\_Integer)  field 4: SPECTRA\_03 (ASCII\_Integer)  field 5: SPECTRA\_04 (ASCII\_Integer)  field 6: SPECTRA\_05 (ASCII\_Integer)  field 7: SPECTRA\_06 (ASCII\_Integer)  field 8: SPECTRA\_07 (ASCII\_Integer)  field 9: SPECTRA\_08 (ASCII\_Integer)  field 10: SPECTRA\_09 (ASCII\_Integer)  field 11: SPECTRA\_10 (ASCII\_Integer)  field 12: SPECTRA\_11 (ASCII\_Integer)  field 13: SPECTRA\_12 (ASCII\_Integer)  file: extr3.dat  table 1: fixed-width binary table  field 1: SCLK\_SECONDS (UnsignedMSB4)  field 2: SCLK\_SUBSECONDS (UnsignedMSB2)  field 3: SPARE (UnsignedMSB2)  field 4: ROTATION\_MOTOR\_POSITION (IEEE754MSBDouble)  field 5: ROTATION\_MOTOR\_CURRENT\_SENSOR (IEEE754MSBDouble)  field 6: REVOLUTION\_MOTOR\_POSITION (IEEE754MSBDouble)  field 7: REVOLUTION\_MOTOR\_CURRENT\_SENSOR (IEEE754MSBDouble)  field 8: Z\_MOTOR\_POSITION (IEEE754MSBDouble)  field 9: Z\_MOTOR\_CURRENT\_SENSOR (IEEE754MSBDouble)  field 10: TEMPERATURE\_SENSOR (IEEE754MSBDouble)  field 11: BUTTERFLY\_SWITCH\_1 (UnsignedMSB4)  field 12: BUTTERFLY\_SWITCH\_2 (UnsignedMSB4)  field 13: RAT\_OVER\_CURRENT\_ALARM (UnsignedMSB4)  field 14: Z\_AXIS\_MOTOR\_CONTROLLER\_STATUS (UnsignedByte)  field 15: REVOLVE\_MOTOR\_CONTROLLER\_STATUS (UnsignedByte)  field 16: GRIND\_MOTOR\_CONTROLLER\_STATUS (UnsignedByte)  field 17: SPARE (UnsignedByte)  field 18: ROVER\_BUS\_VOLTAGE (IEEE754MSBDouble)  field 19: ALGORITHM\_STATE (UnsignedMSB4)  field 20: ANOMALY\_FLAG (UnsignedMSB4)  Step 5:  Event ID^event\_type\_id^start\_time^end\_time^source^description^discussion^modified\_time^mission\_event\_id  13642^ 122^2014-11-23T18:15:39-07:00^2014-11-23T18:15:39-07:00^Integrated Report^Start of outbound side orbit segment.^['VM\_10', 'VM\_GV\_SET\_STR', 'vm\_gv=GV\_ORBIT\_SEGMENT', '(152),vm\_string=OB\_SIDE'] FILENAME:report\_integrated.MVN.txt^2014-12-19T11:31:41.566628^ 140997  13646^ 121^2014-11-18T04:26:15-07:00^2014-11-18T04:26:15-07:00^Integrated Report^Start of periapse orbit segment.^['VM\_10', 'VM\_GV\_SET\_STR', 'vm\_gv=GV\_ORBIT\_SEGMENT', '(152),vm\_string=PERIAPSE'] FILENAME:report\_integrated.MVN.txt^2014-12-19T11:31:41.597141^ 122415  [snip…]  24062^ 131^2015-02-14T21:34:37-07:00^2015-02-14T21:34:37-07:00^SPICE ^Spacecraft entered eclipse^Generated using mvn\_spk\_2015\_050\_20\_00\_02.bsp^2015-02-22T02:30:13.515326^ 594473  24063^ 130^2015-02-14T17:27:26-07:00^2015-02-14T17:27:26-07:00^SPICE ^Spacecraft exited eclipse^Generated using mvn\_spk\_2015\_050\_20\_00\_02.bsp^2015-02-22T02:30:13.916244^ 594472  Step 6: demonstrate URL support  AST\_NUMBER AST\_NAME PROV\_DESIG REF\_ID TYPE FLAG PERIOD1 AMP1 PERIOD2 AMP2 PORB DS\_DP\_RATIO A\_DP\_RATIO  22 Kalliope - summary - - 4.1483 0.53 -999.99999999 -.99 -999.99999999 -.99 -9.999  22 Kalliope - Descamps 2008a B A -99999.99999999 -.99 -999.99999999 -.99 -999.99999999 -.99 -9.999  [snip ...]  0 - 2016 BU13 summary - - 39.5 0.24 -999.99999999 -.99 -999.99999999 -.99 -9.999  0 - 2016 BU13 Warner 2016m ? A 39.5 0.24 2.4499 0.11 -999.99999999 -.99 -9.999 |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.06 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRS.1 |
| Description | Run webapps in tools-service |
| Requirements | PASS L4.PRP.4: The system shall provide a tool for transforming PDS products as follows… |
| Success Criteria | Contents and checksums of the registry artifacts match what have been ingested. |
| Test Steps | 1. In a browser, <http://localhost:8080/tools-service/> 2. Click “Browse”. Navigate to *testDir*/testPrep/TFM\_GRAND1A.\*. Click “Upload File(s)”, then “Continue” 3. On new page, “Format” = csv. Click “Transform” 4. Run this after PRT.1, which runs transform on the command line   diff *testDir*/testPrep/tfm\_grand1a\_delimited\_csv.xml /tmp/;  diff *testDir*/testPrep/tfm\_grand1a.xml /tmp/; diff *testDir*/testPrep/TFM\_GRAND1a.csv /tmp/ |
| Test Results | Step 2:  Step 3: |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.16 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRT.1 |
| Description | Transform PDS4 images into other formats. Transform is built upon a Java API. |
| Requirements | PASS L4.PRP.4: The system shall provide a tool for transforming PDS products as follows…  PASS L5.GEN.4: Tools shall have an application programming interface. |
| Success Criteria | Input and output images look the same. |
| Test Steps | 1. cd *testDir*/ 2. transform testPrep/i943630r.xml -o ./ -f jpg 3. transform testPrep/tfm\_FF01.LBL -o ./ -f jp2 4. transform testPrep/tfm\_ELE\_MOM.LBL -f pds4-label 5. grep -H NAME testPrep/tfm\_ELE\_MOM.LBL | grep , ; grep -H name testPrep/tfm\_ELE\_MOM.xml | grep , 6. diff -w tfm\_ele\_mom.xml testPrep/tfm\_ELE\_MOM.xml 7. transform testPrep/tfm\_414.xml -f jpg 8. transform testPrep/TFM\_GRAND1A.LBL -f csv 9. transform tfm\_grand1a.xml -f pds3-label 10. ln -s testPrep/tfm\_grand1a.tab . 11. Run NASAView to show TFM\_GRAND1A.LBL == testPrep/tfmgrand1A.lbl   == tfm\_grand1a\_delimited\_csv.xml (through pds\_viewer)   1. Edit output file TFM\_GRAND1A.csv to replace all commas with spaces 2. diff -w TFM\_GRAND1A.csv testPrep/TFM\_GRAND1A.TAB 3. transform -f csv https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.xml 4. Use pds4\_viewer to examine local file lc\_binary\_delimited\_csv.xml 5. transform testPrep/xrs\_map\_ca\_si\_20150424.xml -f fits 6. Use pds4\_viewer for testPrep/xrs\_map\_ca\_si\_20150424.xml and fv for xrs\_map\_ca\_si\_20150424.fits 7. rm xrs\_map\_ca\_si\_20150424.fits lc\_binary\_delimited\_csv.xml lc\_binary.csv TFM\_GRAND1a.csv tfm\_grand1a.tab TFM\_GRAND1A.LBL tfm\_grand1a\_delimited\_csv.xml tfm\_grand1a.xml velocity.log tfm\_414.jpg tfm\_ele\_mom.xml TFM\_FF01.jp2 i943630r.jpg |
| Test Results | Step 2:  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:40:10 AM  Target [file:/Users/rchen/Desktop/test/testPrep/i943630r.xml]  Output Directory .  Index 1  Format Type jpg  INFO: [/Users/rchen/Desktop/test/testPrep/i943630r.xml] Transforming image '1' of file 'i943630r.raw'  INFO: [TwoDImageExporter:setImageStatistics] No display settings found for identifier 'MPFL-M-IMP\_IMG\_GRAYSCALE'.  INFO: [/Users/rchen/Desktop/test/testPrep/i943630r.xml] Successfully transformed image '1' of file 'i943630r.raw' to the following output: ./i943630r.jpg  i943630r.jpg:  i943630r.jpg  Step 3: transform VICAR IO  Image write Done  JConvertIIO  0) INP = *testDir*/testPrep/tfm\_FF01.LBL  1) OUT = ../TFM\_FF01.jp2  2) FORMAT = jpeg2000  3) RI = true  4) OFORM = BYTE  outputs = [./TFM\_FF01.jp2]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:40:27 AM  Target [file:/Users/rchen/Desktop/test/testPrep/tfm\_FF01.LBL]  Output Directory .  Index 1  Format Type jp2  INFO: [*testDir*/testPrep/tfm\_FF01.LBL] Transforming image file: *testDir*/testPrep/TFM\_FF01.IMG  INFO: [*testDir*/testPrep/tfm\_FF01.LBL] Successfully transformed image file '*testDir*/testPrep/TFM\_FF01.IMG' to the following output: ../TFM\_FF01.jp2  TFM\_FF01.jp2:  Step 4:  New PDS4 Label: /Users/rchen/Desktop/test/tfm\_ele\_mom.xml  outputs = [/Users/rchen/Desktop/test/tfm\_ele\_mom.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:40:39 AM  Target [file:/Users/rchen/Desktop/test/testPrep/tfm\_ELE\_MOM.LBL]  Output Directory /Users/rchen/Desktop/test  Index 1  Format Type pds4-label  INFO: [*testDir*/testPrep/tfm\_ELE\_MOM.LBL] Transforming label file: *testDir*/testPrep/tfm\_ELE\_MOM.LBL  INFO: [*testDir*/testPrep/tfm\_ELE\_MOM.LBL] Finished transforming PDS3 label '*testDir*/testPrep/tfm\_ELE\_MOM.LBL' to a PDS4 label ' *testDir*/tfm\_ele\_mom.xml'  Step 5 shows proper handling of commas in column name.  testPrep/tfm\_ELE\_MOM.LBL: NAME = "ELE\_TEMP,OK,COMMA"  testPrep/tfm\_ELE\_MOM.xml: <name>ele\_temp,ok,comma</name>  Step 6: Differences not related to spacing:  1,9c1,2  < <?xml version="1.0" encoding="UTF-8" standalone="no"?>  <  < <?xml-model href="https://pds.nasa.gov/pds4/pds/v1/PDS4\_PDS\_1A00.sch"  < schematypens="http://purl.oclc.org/dsdl/schematron"?>  <  < <Product\_Observational xmlns="http://pds.nasa.gov/pds4/pds/v1"  < xmlns:pds="http://pds.nasa.gov/pds4/pds/v1"  < xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  < xsi:schemaLocation="http://pds.nasa.gov/pds4/pds/v1 https://pds.nasa.gov/pds4/pds/v1/PDS4\_PDS\_1A00.xsd">  ---  > <?xml version="1.0" encoding="UTF-8"?>  > <Product\_Observational xmlns="http://pds.nasa.gov/pds4/pds/v1" xmlns:pds="http://pds.nasa.gov/pds4/pds/v1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="">  14c7  < <information\_model\_version>1.12.0.0</information\_model\_version>  ---  > <information\_model\_version>1.2.0.1</information\_model\_version>  18c11  < <modification\_date>2019-04-20</modification\_date>  ---  > <modification\_date>2014-04-07</modification\_date>  Step 7:  testPrep/tfm_414.jpg  Step 8:  New PDS4 Label: /Users/rchen/Desktop/test/tfm\_grand1a.xml  outputs = [/Users/rchen/Desktop/test/tfm\_grand1A.csv, /Users/rchen/Desktop/test/tfm\_grand1a\_delimited\_csv.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:41:29 AM  Target [file:/Users/rchen/Desktop/test/testPrep/TFM\_GRAND1A.LBL]  Output Directory /Users/rchen/Desktop/test  Index 1  Format Type csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/tfm\_grand1A.lbl] Transforming label file: file:/Users/rchen/Desktop/test/testPrep/tfm\_grand1A.lbl  INFO: [file:/Users/rchen/Desktop/test/testPrep/tfm\_grand1A.lbl] Finished transforming PDS3 label 'file:/Users/rchen/Desktop/test/testPrep/tfm\_grand1A.lbl' to a PDS4 label '/Users/rchen/Desktop/test/tfm\_grand1a.xml'  INFO: [file:/Users/rchen/Desktop/test/tfm\_grand1a.xml] Transforming table '1' of file: file:/Users/rchen/Desktop/test/testPrep/tfm\_grand1A.tab  INFO: [file:/Users/rchen/Desktop/test/tfm\_grand1a.xml] Successfully transformed table '1' to the following output: /Users/rchen/Desktop/test/tfm\_grand1A.csv  INFO: [file:/Users/rchen/Desktop/test/tfm\_grand1a.xml] Successfully created Table\_Delimited label: /Users/rchen/Desktop/test/tfm\_grand1a\_delimited\_csv.xml  Step 9:  outputs = [/Users/rchen/Desktop/test/TFM\_GRAND1A.LBL]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:42:34 AM  Target [file:/Users/rchen/Desktop/test/tfm\_grand1a.xml]  Output Directory /Users/rchen/Desktop/test  Index 1  Format Type pds3-label  INFO: [file:/Users/rchen/Desktop/test/tfm\_grand1a.xml] Transforming label file: file:/Users/rchen/Desktop/test/tfm\_grand1a.xml  INFO: [/Users/rchen/Desktop/test/tfm\_grand1a.xml] Successfully transformed target label to a PDS3 label: /Users/rchen/Desktop/test/TFM\_GRAND1A.LBL  Step 13: no differences  Step 14: URL as input. Then inspect output file lc\_binary.csv  outputs outputs = [/Users/rchen/Desktop/test/lc\_binary.csv, /Users/rchen/Desktop/test/lc\_binary\_delimited\_csv.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:49:05 AM  Target [https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.xml]  Output Directory /Users/rchen/Desktop/test  Index 1  Format Type csv  INFO: [https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.xml] Transforming table '1' of file: https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.tab  INFO: [https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.xml] Successfully transformed table '1' to the following output: /Users/rchen/Desktop/test/lc\_binary.csv  INFO: [https://sbn.psi.edu/archive/bundles/ast\_lightcurve\_derived/data/lc\_binary.xml] Successfully created Table\_Delimited label: /Users/rchen/Desktop/test/lc\_binary\_delimited\_csv.xml  Step 15:  Step 16:  outputs = [/Users/rchen/Desktop/test/xrs\_map\_ca\_si\_20150424.fits]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:50:11 AM  Target [file:/Users/rchen/Desktop/test/testPrep/xrs\_map\_ca\_si\_20150424.xml]  Output Directory /Users/rchen/Desktop/test  Index 1  Format Type fits  INFO: [/Users/rchen/Desktop/test/testPrep/xrs\_map\_ca\_si\_20150424.xml] Transforming image '1' of file 'xrs\_map\_ca\_si\_20150424.img'  INFO: [TwoDImageExporter:setImageStatistics] No display settings found for identifier 'RATIO\_OF\_CA\_TO\_SI'.  INFO: [/Users/rchen/Desktop/test/testPrep/xrs\_map\_ca\_si\_20150424.xml] Successfully transformed image '1' of file 'xrs\_map\_ca\_si\_20150424.img' to the following output: /Users/rchen/Desktop/test/xrs\_map\_ca\_si\_20150424.fits.  Step 17: |
| Comments | Results met success criteria.  <https://oodt.jpl.nasa.gov/jira/browse/PDS-343> (formerly PDS-349), created during testing of build 5b, requests friendlier warning messages |
| Date of Testing | 2019.04.20 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRT.2 |
| Description | Transform PDS4 Array\_3D products into other formats. |
| Requirements | PASS L4.PRP.4: The system shall provide a tool for transforming PDS products as follows…  PASS L5.GEN.4: Tools shall have an application programming interface. |
| Success Criteria | If browse product exists, compare output against it. |
| Test Steps | 1. cd *testDir*/testPrep   Files tfm\_d00.\* were d000m5240t494053574edr\_f0000\_0501m1.\* from an Insight review   1. transform tfm\_d00.xml -f jpg 2. rm tfm\_d00.jpg   Transform an unsignedLSB2 and a signedLSB2.   1. transform tfm\_434u.xml -f png 2. transform tfm\_434s.xml -f gif 3. rm tfm\_434.png tfm\_434.gif   The input is actually an Array\_3D\_Image. PDS-602   1. transform -f fits 7f90.xml |
| Test Results | Step 2:  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:05:37 AM  Target [file:/Users/rchen/Desktop/test/testPrep/tfm\_d00.xml]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type jpg  INFO: [/Users/rchen/Desktop/test/testPrep/tfm\_d00.xml] Transforming image '1' of file 'tfm\_d00.vic'  INFO: [ThreeDImageExporter:setImageStatistics] No display settings found for identifier 'IMAGE DATA'.  INFO: [/Users/rchen/Desktop/test/testPrep/tfm\_d00.xml] Successfully transformed image '1' of file 'tfm\_d00.vic' to the following output: /Users/rchen/Desktop/test/testPrep/tfm\_d00.jpg  Output looks good and matches browse product tfm\_d00.png../../Users/rchen/Desktop/d000m5240t494053574edr_f0000_0501m  Step 4:testPrep/tfm_434.png  Step 5:testPrep/tfm_434.gif  Step 7: This should work but doesn’t.  PDS Transform Tool Lo  outputs = []  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 10:59:52 PM  Target [file:/Users/rchen/Desktop/7f90.xml]  Output Directory /Users/rchen/Desktop  Index 1  Format Type fits  INFO: [/Users/rchen/Desktop/7f90.xml] Transforming image '1' of file '7f90.img'  ERROR: [file:/Users/rchen/Desktop/7f90.xml] Problem occurred during transformation: colorModel == null! |
| Comments | Results met success criteria.  In 9b, step 7 reopens [PDS-602](https://osr.jpl.nasa.gov/jira/browse/PDS-602) since it fails to transform the given Array\_3D\_Image |
| Date of Testing | 2019.04.20 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRT.3 |
| Description | Test various capabilities described in release documents:   * Transform PDS4 Array\_3D\_Spectrum into other formats. * Use scaling\_factor, value\_offset, and orientation values. * Transform label with multiple images * pds3 with groups to pds4 counted pds4 fields and groups incorrectly |
| Requirements | PASS L4.PRP.4: The system shall provide a tool for transforming PDS products as follows… |
| Success Criteria | Visually inspect output product |
| Test Steps | 1. cd *testDir*/testPrep   A. Transform PDS4 Array\_3D\_Spectrum into other formats. Note, tfm\_spec.xml is tfm\_d00.xml with “…\_Spectrum” replacing “…\_Image”   1. transform tfm\_spec.xml -f jpg   B. Use scaling\_factor, value\_offset, and orientation values. Note, the input files tfm\_433\*.xml, are all variations of tfm\_d00.xml   1. diff tfm\_433a.xml tfm\_433b.xml 2. diff tfm\_433a.xml tfm\_433c.xml 3. transform tfm\_433a.xml -f gif 4. transform tfm\_433b.xml -f jpg 5. transform tfm\_433c.xml -f png   C. File pancam.qub has many images and uses <disp:\*display\_direction>   1. mkdir xA ; transform pancamA.xml -f jpg -a -o xA 2. mkdir xB ; transform pancamB.xml -f jpg -a -o xB 3. ls -l xA 4. diff pancamA.xml pancamB.xml 5. diff -r xA xB 6. view the two first files (and any other so desired) 7. transform -O pancamA.xml   D. Prior to 8b, the -a on this caused an error   1. transform -a -f csv -t mvn\_rse\_l2.xml   E. Count pds3 groups correctly; no warning for missing .fmt files; avoid deprecateds   1. mkdir x ; mv APXS\_\*.FMT x ; transform -f pds4-label APXS.LBL 2. validate -f apxs.xml 3. mv x/\* .; rmdir x; transform -f pds4-label APXS.LBL 4. validate -f apxs.xml 5. grep "APXS.DAT" APXS.LBL; grep offset apxs.xml 6. Verify apxs.xml, e.g. pds4\_viewer shows 4 tables of 1, 13, 1, and 1 rows   F. Build 9a   1. transform ED\_1996\_10\_31\_V01.LBL -f pds4-label 2. transform JGDWN\_CER18D\_SHA.LBL -f csv 3. transform -f pds4-label RMI\_SRU\_CRT\_05\_2017085\_2017086\_V01.LBL 4. transform -a -f csv PSP\_001777\_1650\_RED0\_1.IMG 5. transform -a -f jpg PSP\_001777\_1650\_RED0\_1.IMG 6. transform -f pds4-label -t DAWNCEGR2015002.LBL 7. rm -r tfm\_d00.jpg tfm\_433.gif tfm\_433.jpg tfm\_433.png xA xB velocity\* ed\_1996\_10\_31\_v01.xml jg\* JG\*.csv rmi\_sru\_crt\_05\_2017085\_2017086\_v01.xml PSP\*csv psp\*xml PSP\*jpg |
| Test Results | Step 2:  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:10:56 AM  Target [file:/Users/rchen/Desktop/test/testPrep/tfm\_spec.xml]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type jpg  INFO: [/Users/rchen/Desktop/test/testPrep/tfm\_spec.xml] Transforming image '1' of file 'tfm\_d00.vic'  INFO: [ThreeDSpectrumExporter:setImageStatistics] No display settings found for identifier 'IMAGE DATA'.  INFO: [/Users/rchen/Desktop/test/testPrep/tfm\_spec.xml] Successfully transformed image '1' of file 'tfm\_d00.vic' to the following output: /Users/rchen/Desktop/test/testPrep/tfm\_d00.jpg  ../../Users/rchen/Desktop/tfm_d0  Step 3:  118,119c118,119  < <line\_display\_direction>Down</line\_display\_direction>  < <sample\_display\_direction>Right</sample\_display\_direction>  ---  > <line\_display\_direction>Up</line\_display\_direction>  > <sample\_display\_direction>Left</sample\_display\_direction>  Step 4:  105c105  < <scaling\_factor>1</scaling\_factor>  ---  > <scaling\_factor>0</scaling\_factor>  Steps 5,6,7 (images have been shrunk to fit 3-wide on this page)  ../../Users/rchen/Desktop/../../Users/rchen/Desktop/../../Users/rchen/Desktop/  Step 8 (Step 9 is very similar):  outputs = [xA/pancam\_1.jpg, xA/pancam\_2.jpg, xA/pancam\_3.jpg, xA/pancam\_4.jpg, xA/pancam\_5.jpg, xA/pancam\_6.jpg, xA/pancam\_7.jpg, xA/pancam\_8.jpg, xA/pancam\_9.jpg, xA/pancam\_10.jpg, xA/pancam\_11.jpg, xA/pancam\_12.jpg, xA/pancam\_13.jpg, xA/pancam\_14.jpg, xA/pancam\_15.jpg, xA/pancam\_16.jpg, xA/pancam\_17.jpg, xA/pancam\_18.jpg, xA/pancam\_19.jpg, xA/pancam\_20.jpg]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:16:14 AM  Target [file:/Users/rchen/Desktop/test/testPrep/pancamA.xml]  Output Directory xA  Transform All true  Format Type jpg  INFO: [/Users/rchen/Desktop/test/testPrep/pancamA.xml] Transforming image '1' of file 'pancam.qub'  INFO: [/Users/rchen/Desktop/test/testPrep/pancamA.xml] Successfully transformed image '1' of file 'pancam.qub' to the following output: xA/pancam\_1.jpg  INFO: [/Users/rchen/Desktop/test/testPrep/pancamA.xml] Transforming image '2' of file 'pancam.qub'  [snip...]  INFO: [/Users/rchen/Desktop/test/testPrep/pancamA.xml] Transforming image '20' of file 'pancam.qub'  INFO: [TwoDImageExporter:setImageStatistics] No display settings found. Missing local\_identifier element in the Array\_2D\_Image area.  INFO: [/Users/rchen/Desktop/test/testPrep/pancamA.xml] Successfully transformed image '20' of file 'pancam.qub' to the following output: xA/pancam\_20.jpg  Step 10:  total 2928  -rw-rw-r-- 1 rchen 703763885 96617 Apr 20 11:16 pancam\_1.jpg  -rw-rw-r-- 1 rchen 703763885 38511 Apr 20 11:16 pancam\_10.jpg  -rw-rw-r-- 1 rchen 703763885 51693 Apr 20 11:16 pancam\_11.jpg  -rw-rw-r-- 1 rchen 703763885 63297 Apr 20 11:16 pancam\_12.jpg  -rw-rw-r-- 1 rchen 703763885 72366 Apr 20 11:16 pancam\_13.jpg  -rw-rw-r-- 1 rchen 703763885 98680 Apr 20 11:16 pancam\_14.jpg  -rw-rw-r-- 1 rchen 703763885 73826 Apr 20 11:16 pancam\_15.jpg  -rw-rw-r-- 1 rchen 703763885 115606 Apr 20 11:16 pancam\_16.jpg  -rw-rw-r-- 1 rchen 703763885 113894 Apr 20 11:16 pancam\_17.jpg  -rw-rw-r-- 1 rchen 703763885 68505 Apr 20 11:16 pancam\_18.jpg  -rw-rw-r-- 1 rchen 703763885 80052 Apr 20 11:16 pancam\_19.jpg  -rw-rw-r-- 1 rchen 703763885 89209 Apr 20 11:16 pancam\_2.jpg  -rw-rw-r-- 1 rchen 703763885 64422 Apr 20 11:16 pancam\_20.jpg  -rw-rw-r-- 1 rchen 703763885 76261 Apr 20 11:16 pancam\_3.jpg  -rw-rw-r-- 1 rchen 703763885 71655 Apr 20 11:16 pancam\_4.jpg  -rw-rw-r-- 1 rchen 703763885 68849 Apr 20 11:16 pancam\_5.jpg  -rw-rw-r-- 1 rchen 703763885 71295 Apr 20 11:16 pancam\_6.jpg  -rw-rw-r-- 1 rchen 703763885 63583 Apr 20 11:16 pancam\_7.jpg  -rw-rw-r-- 1 rchen 703763885 29191 Apr 20 11:16 pancam\_8.jpg  -rw-rw-r-- 1 rchen 703763885 52468 Apr 20 11:16 pancam\_9.jpg  Step 11:  71c71  < <disp:horizontal\_display\_direction>Left to Right</disp:horizontal\_display\_direction>  ---  > <disp:horizontal\_display\_direction>Right to Left</disp:horizontal\_display\_direction>  73c73  < <disp:vertical\_display\_direction>Top to Bottom</disp:vertical\_display\_direction>  ---  > <disp:vertical\_display\_direction>Bottom to Top</disp:vertical\_display\_direction>  Step 12: no differences  Step 13: (images have been shrunk to fit 2-wide on this page)  ../../../../../../Desktop/pancam_ ../../../../../../Desktop/pancam_  Step 14:  Supported Images:  Data file: pancam.qub  index = 1  object type = Array\_3D\_Spectrum  name = null  local identifier = Spectral\_Qube\_Object  data type = SignedMSB2  lines = 1024  samples = 1024  index = 2  object type = Array\_2D\_Image  name = iof\_r2  local identifier = null  data type = SignedMSB2  lines = 1024  samples = 1024  [snip…]  index = 20  object type = Array\_2D\_Image  name = approx\_phase\_angle  local identifier = null  data type = SignedMSB2  lines = 1024  samples = 1024  Supported Tables:  None Found  Step 15:  outputs = [/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2\_1.csv, /Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2\_2.csv, /Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2\_delimited\_csv.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:17:31 AM  Target [file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.xml]  Output Directory /Users/rchen/Desktop/test/testPrep  Transform All true  Format Type csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.xml] Transforming table '1' of file: file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.tab  INFO: [file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.xml] Successfully transformed table '1' to the following output: /Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2\_1.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.xml] Transforming table '2' of file: file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.tab  INFO: [file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.xml] Successfully transformed table '2' to the following output: /Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2\_2.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2.xml] Successfully created Table\_Delimited label: /Users/rchen/Desktop/test/testPrep/mvn\_rse\_l2\_delimited\_csv.xml  Step 16: This should warn that the APXS\_\*.FMT files are missing. PDS-548  New PDS4 Label: /Users/rchen/Desktop/test/testPrep/apxs.xml  outputs = [/Users/rchen/Desktop/test/testPrep/apxs.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:17:42 AM  Target [file:/Users/rchen/Desktop/test/testPrep/APXS.LBL]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type pds4-label  INFO: [/Users/rchen/Desktop/test/testPrep/APXS.LBL] Transforming label file: /Users/rchen/Desktop/test/testPrep/APXS.LBL  INFO: [/Users/rchen/Desktop/test/testPrep/APXS.LBL] Finished transforming PDS3 label '/Users/rchen/Desktop/test/testPrep/APXS.LBL' to a PDS4 label '/Users/rchen/Desktop/test/testPrep/apxs.xml'  Step 17:  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T07:00:07Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/testPrep/apxs.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/testPrep/apxs.xml  ERROR [error.label.schema] line 61, 22: cvc-complex-type.2.4.b: The content of element 'Record\_Binary' is not complete. One of '{"http://pds.nasa.gov/pds4/pds/v1":Field\_Binary, "http://pds.nasa.gov/pds4/pds/v1":Group\_Field\_Binary}' is expected.  ERROR [error.label.schema] line 71, 22: cvc-complex-type.2.4.b: The content of element 'Record\_Binary' is not complete. One of '{"http://pds.nasa.gov/pds4/pds/v1":Field\_Binary, "http://pds.nasa.gov/pds4/pds/v1":Group\_Field\_Binary}' is expected.  ERROR [error.label.schema] line 81, 22: cvc-complex-type.2.4.b: The content of element 'Record\_Binary' is not complete. One of '{"http://pds.nasa.gov/pds4/pds/v1":Field\_Binary, "http://pds.nasa.gov/pds4/pds/v1":Group\_Field\_Binary}' is expected.  ERROR [error.label.schematron] line 61, 22: The values for 'fields' and 'groups' must not both be '0'. The number of fields found: (0). The number of groups found: (0).  ERROR [error.label.schematron] line 71, 22: The values for 'fields' and 'groups' must not both be '0'. The number of fields found: (0). The number of groups found: (0).  ERROR [error.label.schematron] line 81, 22: The values for 'fields' and 'groups' must not both be '0'. The number of fields found: (0). The number of groups found: (0).  ERROR [error.label.context\_ref\_not\_found] line 33: 'urn:nasa:pds:investigation.mars.science.laboratory' could not be found in the supplied list of registered context products.  Summary:  7 error(s)  0 warning(s)  Message Types:  3 error.label.schematron  3 error.label.schema  1 error.label.context\_ref\_not\_found  End of Report  Step 18:  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:18:15 AM  Target [file:/Users/rchen/Desktop/test/testPrep/APXS.LBL]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type pds4-label  INFO: [/Users/rchen/Desktop/test/testPrep/APXS.LBL] Transforming label file: /Users/rchen/Desktop/test/testPrep/APXS.LBL  INFO: [/Users/rchen/Desktop/test/testPrep/APXS.LBL] Finished transforming PDS3 label '/Users/rchen/Desktop/test/testPrep/APXS.LBL' to a PDS4 label '/Users/rchen/Desktop/test/testPrep/apxs.xml'  Step 19: [PDS-834](https://osr.jpl.nasa.gov/jira/browse/PDS-834): create a correct lid\_reference  Configuration:  Version 1.15.0  Date 2019-06-14T07:31:19Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/testPrep/apxs.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/testPrep/apxs.xml  ERROR [error.label.context\_ref\_not\_found] line 33: 'urn:nasa:pds:investigation.mars.science.laboratory' could not be found in the supplied list of registered context products.  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.label.context\_ref\_not\_found  End of Report  Step 20:  ^SCI\_HEADER\_TABLE = ("APXS.DAT", 1)  ^SCIENCE\_TABLE = ("APXS.DAT", 43 <BYTES>)  ^ENGINEERING\_TABLE = ("APXS.DAT", 27317 <BYTES>)  ^ERROR\_CONTROL\_TABLE = ("APXS.DAT", 29815 <BYTES>)  <offset unit="byte">0</offset>  <offset unit="byte">42</offset>  <offset unit="byte">27316</offset>  <offset unit="byte">29814</offset>  Step 22:  New PDS4 Label: /Users/rchen/Desktop/test/testPrep/ed\_1996\_10\_31\_v01.xml  outputs = [/Users/rchen/Desktop/test/testPrep/ed\_1996\_10\_31\_v01.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:19:55 AM  Target [file:/Users/rchen/Desktop/test/testPrep/ED\_1996\_10\_31\_V01.LBL]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type pds4-label  INFO: [/Users/rchen/Desktop/test/testPrep/ED\_1996\_10\_31\_V01.LBL] Transforming label file: /Users/rchen/Desktop/test/testPrep/ED\_1996\_10\_31\_V01.LBL  INFO: [/Users/rchen/Desktop/test/testPrep/ED\_1996\_10\_31\_V01.LBL] Finished transforming PDS3 label '/Users/rchen/Desktop/test/testPrep/ED\_1996\_10\_31\_V01.LBL' to a PDS4 label '/Users/rchen/Desktop/test/testPrep/ed\_1996\_10\_31\_v01.xml'  A visual comparison:  Step 23:  New PDS4 Label: /Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha.xml  outputs = [/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.csv, /Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha\_delimited\_csv.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:20:05 AM  Target [file:/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.LBL]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.LBL] Transforming label file: file:/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.LBL  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find an object: [NONEXISTENT\_TABLE]  INFO: [file:/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.LBL] Finished transforming PDS3 label 'file:/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.LBL' to a PDS4 label '/Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha.xml'  INFO: [file:/Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha.xml] Transforming table '1' of file: file:/Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.TAB  INFO: [file:/Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha.xml] Successfully transformed table '1' to the following output: /Users/rchen/Desktop/test/testPrep/JGDWN\_CER18D\_SHA.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha.xml] Successfully created Table\_Delimited label: /Users/rchen/Desktop/test/testPrep/jgdwn\_cer18d\_sha\_delimited\_csv.xml  Step 24:  New PDS4 Label: *testDir*/testPrep/rmi\_sru\_crt\_05\_2017085\_2017086\_v01.xml  outputs = [*testDir*/testPrep/rmi\_sru\_crt\_05\_2017085\_2017086\_v01.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:20:15 AM  Target [*testDir*/testPrep/RMI\_SRU\_CRT\_05\_2017085\_2017086\_V01.LBL]  Output Directory *testDir*/testPrep  Index 1  Format Type pds4-label  INFO: [*testDir*/testPrep/RMI\_SRU\_CRT\_05\_2017085\_2017086\_V01.LBL] Transforming label file: *testDir*/testPrep/RMI\_SRU\_CRT\_05\_2017085\_2017086\_V01.LBL  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^SPREADSHEET, which has a record offset value.  INFO: [*testDir*/testPrep/RMI\_SRU\_CRT\_05\_2017085\_2017086\_V01.LBL] Finished transforming PDS3 label ' *testDir*/testPrep/RMI\_SRU\_CRT\_05\_2017085\_2017086\_V01.LBL' to a PDS4 label ' *testDir*/testPrep/rmi\_sru\_crt\_05\_2017085\_2017086\_v01.xml'  Step 25: ERROR messages correctly note that input PDS3 file lacks RECORD\_BYTES  New PDS4 Label: /Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml  outputs = [/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_1.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_2.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_3.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_4.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_5.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_6.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_7.csv, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_8.csv, /Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1\_delimited\_csv.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:20:43 AM  Target [file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG]  Output Directory /Users/rchen/Desktop/test/testPrep  Transform All true  Format Type csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG] Transforming label file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^SCIENCE\_CHANNEL\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not map a 3 byte, MSB\_UNSIGNED\_INTEGER type to its equivalent PDS4 type for column 'CPMM readout time in flight software ticks'. Setting 'data\_type' element to 'Unknown'.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^LOOKUP\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^CPMM\_ENGINEERING\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not map a 3 byte, MSB\_UNSIGNED\_INTEGER type to its equivalent PDS4 type for column 'Delta Time Value'. Setting 'data\_type' element to 'Unknown'.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not map a 3 byte, MSB\_UNSIGNED\_INTEGER type to its equivalent PDS4 type for column 'Post Binned Lines'. Setting 'data\_type' element to 'Unknown'.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^CALIBRATION\_LINE\_PREFIX\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^CALIBRATION\_LINE\_SUFFIX\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^CALIBRATION\_IMAGE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^LINE\_PREFIX\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^LINE\_SUFFIX\_TABLE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^IMAGE, which has a record offset value.  ERROR: [UberspectImpl$VelMethodImpl:doInvoke] Could not find RECORD\_BYTES in the label, which is needed to calculate the actual byte location for ^GAP\_TABLE, which has a record offset value.  INFO: [file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG] Finished transforming PDS3 label 'file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG' to a PDS4 label '/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml'  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '1' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '1' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_1.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '2' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '2' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_2.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '3' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '3' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_3.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '4' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '4' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_4.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '5' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '5' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_5.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '6' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '6' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_6.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '7' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '7' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_7.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Transforming table '8' of file: file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully transformed table '8' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_8.csv  INFO: [file:/Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1.xml] Successfully created Table\_Delimited label: /Users/rchen/Desktop/test/testPrep/psp\_001777\_1650\_red0\_1\_delimited\_csv.xml  Step 26:  NumberFormatException java.lang.NumberFormatException: For input string: ""  no value found for //item[@key='RECORD\_BYTES']  Image write Done  JConvertIIO  0) INP = /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  1) OUT = /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_1.jpg  2) FORMAT = jpg  3) RI = true  4) OFORM = BYTE  NumberFormatException java.lang.NumberFormatException: For input string: ""  no value found for //item[@key='RECORD\_BYTES']  Image write Done  JConvertIIO  0) INP = /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG  1) OUT = /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_2.jpg  2) FORMAT = jpg  3) RI = true  4) OFORM = BYTE  outputs = [/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_1.jpg, /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_2.jpg]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:20:58 AM  Target [file:/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG]  Output Directory /Users/rchen/Desktop/test/testPrep  Transform All true  Format Type jpg  INFO: [/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG] Transforming image file: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG] Successfully transformed image file '/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG/PSP\_001777\_1650\_RED0\_1.IMG' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_1.jpg  INFO: [/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG] Transforming image file: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG/PSP\_001777\_1650\_RED0\_1.IMG  INFO: [/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG] Successfully transformed image file '/Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1.IMG/PSP\_001777\_1650\_RED0\_1.IMG' to the following output: /Users/rchen/Desktop/test/testPrep/PSP\_001777\_1650\_RED0\_1\_2.jpg  Step 27:  New PDS4 Label: /Users/rchen/Desktop/test/testPrep/dawncegr2015002.xml  outputs = [/Users/rchen/Desktop/test/testPrep/dawncegr2015002.xml]  PDS Transform Tool Log  Version Version 1.9.0  Time Sat, Apr 20 2019 at 11:21:13 AM  Target [file:/Users/rchen/Desktop/test/testPrep/DAWNCEGR2015002.LBL]  Output Directory /Users/rchen/Desktop/test/testPrep  Index 1  Format Type pds4-label  INFO: [/Users/rchen/Desktop/test/testPrep/DAWNCEGR2015002.LBL] Transforming label file: /Users/rchen/Desktop/test/testPrep/DAWNCEGR2015002.LBL  INFO: [/Users/rchen/Desktop/test/testPrep/DAWNCEGR2015002.LBL] Finished transforming PDS3 label '/Users/rchen/Desktop/test/testPrep/DAWNCEGR2015002.LBL' to a PDS4 label '/Users/rchen/Desktop/test/testPrep/dawncegr2015002.xml' |
| Comments | Results met success criteria.  In 8b, step 16 opens [PDS-548](https://oodt.jpl.nasa.gov/jira/browse/PDS-548), halt generate and notify when input files are missing.  In 9b, step 19 opens [PDS-834](https://osr.jpl.nasa.gov/jira/browse/PDS-834), create a correct lid\_reference for -f pds4-label |
| Date of Testing | 2019.04.20 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRV.1 |
| Description | Accept a file or a directory name for product(s) to be validated. If directory, be able to traverse the tree to find products. Indicate the schemas utilized during validation. Validate is built upon a Java API. |
| Requirements | PASS L5.PRP.VA.1: The tool shall accept the following as input for specifying the product(s) to be validated…  PASS L5.PRP.VA.2: The tool shall traverse a directory tree and validate products discovered within that tree.  PASS L5.PRP.VA.5: The tool shall verify that a product label is well-formed XML.  PASS L5.PRP.VA.6: The tool shall verify that a product label conforms to its associated schema file(s).  PASS L5.PRP.VA.9: The tool shall indicate the schema(s) utilized during validation.  PASS L5.GEN.4: Tools shall have an application programming interface.  PASS L5.GEN.7: Tools shall generate a report detailing results from a single execution of the tool. |
| Success Criteria | Validation tool validates a file or all eligible products in a directory tree. When validating a product, a label, or a schema, indicates which schemas it utilized during the validation. Ensures that a product label is well-formed XML and conforms to its schemas. |
| Test Steps | 1. cd *testDir*/bundle\_psi 2. validate -x xml\_schema/\*xsd -S xml\_schema/\*sch -R pds4.bundle -t .   Some files need local data dictionary img.   1. validate -x xml\_schema/\*xsd ../bundle\_psi2/\*xsd -S xml\_schema/\*sch ../bundle\_psi2/\*sch -R pds4.bundle -t . |
| Test Results | Step 2: like step 3, has [PDS-835](https://osr.jpl.nasa.gov/jira/browse/PDS-835) errors, plus the wanted ones about img:  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T07:45:12Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/]  Rule Type pds4.bundle  User Specified Schemas [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/xml\_schema/PDS4\_PDS\_1600.xsd]  User Specified Schematrons [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/xml\_schema/PDS4\_PDS\_1600.sch]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Allow Unlabeled Files false  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/bundle\_mars\_spectra\_reddy.xml  ERROR [error.label.context\_ref\_not\_found] line 49: 'urn:nasa:pds:context:instrument:telescope.spex.irtf' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 58: 'urn:nasa:pds:context:facility:observatory.mauna\_kea' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 67: 'urn:nasa:pds:context:telescope:irtf.3m0' could not be found in the supplied list of registered context products.  [snip]  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/data/2008/39572\_1993dq1.xml  ERROR [error.label.schema] line 69, 42: cvc-complex-type.2.4.c: The matching wildcard is strict, but no declaration can be found for element 'img:Imaging\_Instrument\_Parameters'.  ERROR [error.label.context\_ref\_not\_found] line 41: 'urn:nasa:pds:context:instrument:telescope.spex.irtf' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 50: 'urn:nasa:pds:context:facility:observatory.mauna\_kea' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 59: 'urn:nasa:pds:context:telescope:irtf.3m0' could not be found in the supplied list of registered context products.  [snip]  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/document/bundle\_description.xml  Summary:  32 error(s)  0 warning(s)  Message Types:  27 error.label.context\_ref\_not\_found  5 error.label.schema  End of Report  Step 3: should be no errors. [PDS-835](https://osr.jpl.nasa.gov/jira/browse/PDS-835)  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T07:49:11Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/]  Rule Type pds4.bundle  User Specified Schemas [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/xml\_schema/PDS4\_PDS\_1600.xsd, file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi2/PDS4\_IMG\_1100.xsd]  User Specified Schematrons [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/xml\_schema/PDS4\_PDS\_1600.sch, file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi2/PDS4\_IMG\_1100.sch]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Allow Unlabeled Files false  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/bundle\_mars\_spectra\_reddy.xml  ERROR [error.label.context\_ref\_not\_found] line 49: 'urn:nasa:pds:context:instrument:telescope.spex.irtf' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 58: 'urn:nasa:pds:context:facility:observatory.mauna\_kea' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 67: 'urn:nasa:pds:context:telescope:irtf.3m0' could not be found in the supplied list of registered context products.  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/document/allspectra.xml  [snip]  PASS: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/document/bundle\_description.xml  Summary:  27 error(s)  0 warning(s)  Message Types:  27 error.label.context\_ref\_not\_found  End of Report |
| Comments | Results met success criteria.  Build 8a opened [PDS-520](https://oodt.jpl.nasa.gov/jira/browse/PDS-520), where validate does not catch a ‘+’ in a text field format.  Build 9b open [PDS-835](https://osr.jpl.nasa.gov/jira/browse/PDS-835), incorrect flagging LIDs that actually exist |
| Date of Testing | 2019.06.14 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRV.2 |
| Description | Verify that a referenced file exists. |
| Requirements | PASS L5.PRP.VA.10: The tool shall verify that a file exists when referenced from a product label. |
| Success Criteria | Validation tool succeeds if referenced file exists, throws an error if not |
| Test Steps | 1. mv bundle\_psi/document/host\_OBS376T3\_description.txt . 2. validate -f -t bundle\_psi/document/host\_OBS376T3\_description.xml 3. mv host\_OBS376T3\_description.txt bundle\_psi/document/ 4. repeat step 2   References also consider <directory\_path\_name>, which can be absolute, relative, and with or without a trailing ‘/’.   1. diff testPrep/product\_document/Product\_Doc\_bad.xml testPrep/product\_document/Product\_Doc\_good.xml 2. validate -t testPrep/product\_document/Product\_Doc\_bad.xml -f 3. validate -t testPrep/product\_document/Product\_Doc\_good.xml -f |
| Test Results | Step 2: the referenced file was removed in step 1  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T07:52:37Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/document/host\_OBS376T3\_description.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/document/host\_OBS376T3\_description.xml  ERROR [error.label.missing\_file] URI reference does not exist: file:/Users/rchen/Desktop/PDS4test.build9b/bundle\_psi/document/host\_OBS376T3\_description.txt  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.label.missing\_file  End of Report  Step 4: Standard good message; the referenced file was restored in step 3  Step 5: the first difference (trailing /) doesn’t matter. The second does.  94c94  < <directory\_path\_name>meca\_rdr\_sis\_files/</directory\_path\_name>  ---  > <directory\_path\_name>meca\_rdr\_sis\_files</directory\_path\_name>  103c103  < <directory\_path\_name>/replaceWithFullPath</directory\_path\_name>  ---  > <directory\_path\_name> *testDir*/testPrep/product\_document/meca\_rdr\_sis\_files</directory\_path\_name>  Step 6: \_bad.xml should fail because of a non-existent path.  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T07:55:48Z  Parameters:  Targets [file:/Users/rchen/Desktop/PDS4test.build9b/testPrep/product\_document/Product\_Doc\_bad.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/PDS4test.build9b/testPrep/product\_document/Product\_Doc\_bad.xml  ERROR [error.label.missing\_file] URI reference does not exist: file:/replaceWithFullPath/image002.gif  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.label.missing\_file  End of Report  Step 7: non-existent path has been replaced by a real path  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:01:11Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/product\_document/Product\_Doc\_good.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/test/testPrep/product\_document/Product\_Doc\_good.xml  Summary:  0 error(s)  0 warning(s)End of Report |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.14 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRV.3 |
| Description | Validate aggregate products’ integrity of LID references. This differs from validating a directory by 1) hierarchically validating based on bundle.xml’s lid\_reference and/or collection.tab’s inventory, and 2) validating only the references, not other syntax. |
| Requirements | PASS L5.PRP.VA.3: The tool shall validate aggregate products and all products referenced by such products.  PASS L5.PRP.VA.7: The tool shall accept the following as input for specifying the associated schema file(s)… |
| Success Criteria | Find no bugs in bundle\_geo\_ra/. Find some bugs in bundleLID/. |
| Test Steps | 1. cd *testDir/* 2. validate -R pds4.bundle -t bundle\_geo\_ra -f 3. validate -R pds4.bundle -t bundleLID -f where bundleLID == bundle\_geo\_ra with some files removed except: 4. data\_test/data\_test\_collection\_1.xml has another collection’s logical\_identifier 5. context/context\_collection\_1.xml has a typo in its logical\_identifier (fine since members are secondary) and an incorrect count of records (not fine) 6. data\_derived/sol149b.xml has another product’s LIDVID 7. data\_test/scraping/pit\_test\_scraping\_pic[12].xml have the same LID but different VIDs, which should not be flagged. 8. data\_test/scraping/pit\_test\_scraping.xml’s LID changed to “<xxx>.xml” 9. data\_test/scraping/pit\_test\_scraping.xml’s <title> added various spaces 10. the document collection’s LID does not have the bundle’s LID as its basis. 11. validate -R pds4.bundle -t bundle\_geo\_ra/bundle\_1.xml Integrity checking only 1 file is illogical since references point to other files |
| Test Results | Step 2:  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:02:44Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/bundle\_geo\_ra/]  Rule Type pds4.bundle  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Allow Unlabeled Files false  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/bundle\_1.xml  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/context/spacecraft.phx\_1.1.xml  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/context/phx.ra\_1.0.xml  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/context/planet.mars\_1.2.xml  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  [snip…]  PDS4 Bundle Level Validation Results  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/context/context\_collection\_1.xml  [snip…]  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/document/ra\_instrument.xml  Summary:  0 error(s)  0 warning(s)  End of Report  Step 3: flagging duplicate u:n:p:phx\_ra:data\_derived:sol149a::1.0 and not flagging pit\_test\_scraping\_pic[23].xml are correct.  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:20:32Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/bundleLID/]  Rule Type pds4.bundle  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Allow Unlabeled Files false  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/test/bundleLID/bundle\_1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/phx.ra\_1.0.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/planet.mars\_1.2.xml  FAIL: file:/Users/rchen/Desktop/test/bundleLID/context/context\_collection\_1.xml  Begin Content Validation: file:/Users/rchen/Desktop/test/bundleLID/context/context\_collection\_inventory\_1.tab  ERROR [error.table.records\_mismatch] table 1: Number of records read is not equal to the defined number of records in the label (expected 4, got 3).  End Content Validation: file:/Users/rchen/Desktop/test/bundleLID/context/context\_collection\_inventory\_1.tab  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/mission.phoenix\_1.1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/sol149b.xml  FAIL: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/sol149a.xml  ERROR [error.label.duplicate\_identifier] Identifier urn:nasa:pds:phx\_ra:data\_derived:sol149a::1.0 already defined (old location: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/sol149b.xml)  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/data\_derived\_collection\_1.xml  FAIL: file:/Users/rchen/Desktop/test/bundleLID/data\_test/data\_test\_collection\_1.xml  ERROR [error.label.duplicate\_identifier] Identifier urn:nasa:pds:phx\_ra:data\_derived::1.0 already defined (old location: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/data\_derived\_collection\_1.xml)  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/duricrust/pit\_test\_duricrust\_dig2\_pic13.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/duricrust/pit\_test\_duricrust.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/duricrust/pit\_test\_duricrust\_dig1\_pic1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/document/collection\_1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/document/ra\_dataset.xml  PDS4 Bundle Level Validation Results  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/context\_collection\_1.xml  WARNING [warning.integrity.unreferenced\_member] Identifier 'urn:nasa:pds:phx\_ra:context\_typo::1.0' is not a member of any collection within the given target  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/data\_derived\_collection\_1.xml  WARNING [warning.integrity.member\_not\_found] The member 'urn:nasa:pds:phx\_ra:data\_derived:sol149b::1.0' could not be found in any product within the given target.  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/data\_test\_collection\_1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/document/collection\_1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/bundle\_1.xml  WARNING [warning.integrity.member\_not\_found] The member 'urn:nasa:pds:phx\_ra:data\_test' could not be found in any product within the given target.  WARNING [warning.integrity.member\_not\_found] The member 'urn:nasa:pds:phx\_ra:context' could not be found in any product within the given target.  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_derived/sol149b.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/document/ra\_dataset.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/duricrust/pit\_test\_duricrust.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/duricrust/pit\_test\_duricrust\_dig1\_pic1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/phx.ra\_1.0.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/mission.phoenix\_1.1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/duricrust/pit\_test\_duricrust\_dig2\_pic13.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/context/planet.mars\_1.2.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic1.xml  PASS: file:/Users/rchen/Desktop/test/bundleLID/data\_test/scraping/pit\_test\_scraping\_pic2.xml  Summary:  9 error(s)  4 warning(s)  Message Types:  2 error.label.duplicate\_identifier  1 error.table.records\_mismatch  3 warning.integrity.member\_not\_found  1 warning.integrity.unreferenced\_member  End of Report  Step 4:  PDS Validate Tool Report  Configuration:  Version 1.14.0  Date 2019-06-14T08:30:36Z  Core Schemas [PDS4\_PDS\_1C00.xsd]  Core Schematrons [PDS4\_PDS\_1C00.sch]  Model Version 1C00  Parameters:  Targets [file:/Users/rchen/Desktop/test/bundle\_geo\_ra/bundle\_1.xml]  Rule Type pds4.bundle  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Max Errors 100000  Product Level Validation Results  Summary:  0 error(s)  0 warning(s)  End of Report |
| Comments | Results met success criteria.  In 9b, step 3 reopens [PDS-605](https://osr.jpl.nasa.gov/jira/browse/PDS-605) since the document collection LID is not based on the bundle LID yet it passes |
| Date of Testing | 2019.06.14 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRV.4 |
| Description | Merge label fragments |
| Requirements | PASS L5.PRP.VA.4: The tool shall merge the contents of label fragments referenced by include elements with the contents of the parent label when validating a product. |
| Success Criteria | As of build 7b, this functionality (merging via xinculde) is gone, i.e. this should fail. The requirement above no longer applies, for [PDS-488](https://oodt.jpl.nasa.gov/jira/browse/PDS-488) removes support for xinclude. |
| Test Steps | 1. cd *testDir*/testPrep/product\_document 2. validate -x ../../PDS4\_PDS\_1C00.xsd -t Product\_Doc\_part1.xml |
| Test Results | Step 2:  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:32:40Z  Core Schematrons [PDS4\_PDS\_1C00.sch]  Model Version 1C00  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/product\_document/Product\_Doc\_part1.xml]  User Specified Schemas [file:/Users/rchen/Desktop/test/PDS4\_PDS\_1C00.xsd]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/test/testPrep/product\_document/Product\_Doc\_part1.xml  ERROR [error.label.schema] line 96, 56: cvc-complex-type.2.4.a: Invalid content was found starting with element 'xi:include'. One of '{"http://pds.nasa.gov/pds4/pds/v1":comment, "http://pds.nasa.gov/pds4/pds/v1":directory\_path\_name, "http://pds.nasa.gov/pds4/pds/v1":document\_standard\_id}' is expected.  WARNING [warning.label.missing\_schematron\_spec] No schematron specification found in the label.  ERROR [error.label.missing\_file] URI reference does not exist: file:/Users/rchen/Desktop/test/testPrep/product\_document/image001.gif  Summary:  2 error(s)  1 warning(s)  Message Types:  1 error.label.missing\_file  1 error.label.schema  1 warning.label.missing\_schematron\_spec  End of Report |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.14 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRV.5 |
| Description | Validate schemas |
| Requirements | PASS L5.PRP.VA.8: The tool shall verify that a schema file is valid. |
| Success Criteria | Validation tool verifies whether a schema is well formed. |
| Test Steps | The validate tool does not accept a schema as its target, i.e. this does not work:  validate PDS4\_PDS\_1C00.xsd  However, validate, when validating a label file, does complain when the schema is bad   1. validate bundle\_geo\_ra/bundle\_1.xml -x PDS4\_PDS\_1C00.xsd -S PDS4\_PDS\_1C00.sch 2. diff -w PDS4\_PDS\_1C00.xsd testPrep/PDS4\_PDS\_1C00.bad.xsd 3. validate bundle\_geo\_ra/bundle\_1.xml -x testPrep/PDS4\_PDS\_1C00.bad.xsd -S PDS4\_PDS\_1C00.sch   Give validate a non-existent schema   1. validate bundle\_geo\_ra/bundle\_1.xml -x xxx.xsd -S PDS4\_PDS\_1C00.sch |
| Test Results | Step 1: a normal validation with a schema specified on the command line  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:35:44Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/bundle\_geo\_ra/bundle\_1.xml]  User Specified Schemas [file:/Users/rchen/Desktop/test/PDS4\_PDS\_1C00.xsd]  User Specified Schematrons [file:/Users/rchen/Desktop/test/PDS4\_PDS\_1C00.sch]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/bundle\_1.xml  Summary:  0 error(s)  0 warning(s)  End of Report  Step 2: the first schema is good; the second has an important line commented out  15c15  < </xs:annotation>  ---  > <!--/xs:annotation-->  Step 3: validate fails because of the schema’s syntactic problems  Error while getting targetNamespace of schema 'file:/Users/rchen/Desktop/test/testPrep/PDS4\_PDS\_1C00.bad.xsd': org.xml.sax.SAXParseException; systemId: file:/Users/rchen/Desktop/test/testPrep/PDS4\_PDS\_1C00.bad.xsd; lineNumber: 799; columnNumber: 11; The string "--" is not permitted within comments.  Step 4: validate throws a normal java exception, plus eventually:  FAIL: file:/Users/rchen/Desktop/test/bundle\_geo\_ra/bundle\_1.xml  Begin Schema: file:/Users/rchen/Desktop/test/xxx.xsd  FATAL\_ERROR [error.label.unresolvable\_resource] /Users/rchen/Desktop/test/xxx.xsd (No such file or directory)  End Schema: file:/Users/rchen/Desktop/test/xxx.xsd |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.14 |
| Test Personnel | Richard Chen |

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| Test Case ID | PRV.7 |
| Description | Test various capabilities described in release documents: |
| Requirements | PASS L5.PRP.VA.3: The tool shall validate aggregate products and all products referenced by such products. |
| Success Criteria | Besides validating w.r.t. the schema, catch the 1 bad checksum |
| Test Steps | 1. cd *testDir*/testPrep   Validate multiple files via a checksum manifest   1. validate -m1400 -t cara\_data -M cara\_data/checksum.tab 2. cp cara\_data/checksum.tab /tmp 3. validate -m1400 -t cara\_data -M /tmp/checksum.tab 4. validate -f -t vld\_415   -R pds4.bundle and pds4.collection   1. validate -f -R pds4.collection -t orex 2. validate -f -R pds4.bundle -t orex/data\_hkl0   -D disable data check   1. validate -f -t twins\_raw\_0015\_01.xml 2. validate -f -D -t twins\_raw\_0015\_01.xml   Content validation on arrays. I can test size, but how to test statistics?   1. diff 7f90.xml 7f90b.xml 2. validate -f -t 7f90.xml 3. validate -f -t 7f90b.xml   Big validate of the largest test bundle, then a growing, active, remote bundle.   1. date ; validate -f -t ../contextPDS3 > validate.big.out ; date 2. date; validate -f -D -t https://atmos.nmsu.edu/PDS/data/PDS4/MAVEN/iuvs\_calibrated\_bundle/> validate.big.out; date   Catalog   1. validate -t catalogValidate/ele\_mom\_tblChar.xml -C catalogValidate/catalog-dph.xml   Allow large integers and readme\_\*.txt   1. validate -f maven-rose-raw -R pds4.bundle   Build 9a:   1. tail -1 mlascirdr.tab; validate -f -t mlascirdr.xml 2. ls -o insightcameras/data/sol/0003/mipl/edr/icc | head -2; ls -o insightcameras | head -2 ; validate -f -R pds4.bundle -t insightcameras 3. validate -f -t ccb213.xml 4. validate -f -t ccb226.xml 5. Download <http://pds-geosciences.wustl.edu/messenger/urn-nasa-pds-izenberg_pdart14_meap/data_imagecube/virs/H15>/\*, whose data file has an item over 2GB. (don’t validate remotely; already 1+ hours to validate). Then, validate -f --spot-check-data 100 -t virs\_cube\_64ppd\_h15sp.xml (which cuts execution time from 42 minutes to 80 seconds) 6. validate -f -t hd1386\_0109.xml 7. validate -f -t hblcpostperihelion.xml 8. validate -f -t 20160922T170122S099\_ncm\_L1S.xml 9. validate -f -D -t https://atmos.nmsu.edu/PDS/data/PDS4/MAVEN/iuvs\_calibrated\_bundle/calibration/centroid/2018/01 10. validate -f -t ccb226.xml 11. Ignore field\_format; use validation\_format: validate -f -t ccb214.xml |
| Test Results | Step 2: The one error is deliberate to demonstrate that the rest are working  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:39:29Z  Core Schemas [PDS4\_PDS\_1400.xsd]  Core Schematrons [PDS4\_PDS\_1400.sch]  Model Version 1400  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/cara\_data/]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode off  Checksum Manifest File file:/Users/rchen/Desktop/test/testPrep/cara\_data/checksum.tab  Manifest File Base Path file:/Users/rchen/Desktop/test/testPrep/cara\_data/  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/bundle.xml  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/collection.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/data/174P.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/data/67P.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/data/C2013A1.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/data/29P.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/data/C2004Q2.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_data/data/116P.xml  FAIL: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_documents/cara\_observer\_code.xml  ERROR [error.label.checksum\_mismatch] Generated checksum '4cba3db065570c5c85fa0907574e6f04' does not match supplied checksum '00000000000000000000000000000000' in the manifest for 'file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_documents/cara\_observer\_code.xml'  PASS: file:/Users/rchen/Desktop/test/testPrep/cara\_data/cara\_documents/collection.xml  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.label.checksum\_mismatch  End of Report  Step 4: This failed before 6b. Works now, i.e. same output as step 2.  Step 5: At one time, the 2nd warning would have 2 lines; the 3rd, three.  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:45:49Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/vld\_415/]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  PASS: file:/Users/rchen/Desktop/test/testPrep/vld\_415/bundle.xml  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  PASS: file:/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/collection.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/data/174P.xml  WARNING [warning.label.file\_ref\_case\_mismatch] File reference'/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/data/174p.tab' exists but the case doesn't match  PASS: file:/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/data/C2004Q2.xml  WARNING [warning.label.file\_ref\_case\_mismatch] File reference'/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/data/C2004q2.tab' exists but the case doesn't match  PASS: file:/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/data/116P.xml  WARNING [warning.label.file\_ref\_case\_mismatch] File reference'/Users/rchen/Desktop/test/testPrep/vld\_415/cara\_data/data/116p.tab' exists but the case doesn't match  Summary:  0 error(s)  3 warning(s)  Message Types:  3 warning.label.file\_ref\_case\_mismatch  End of Report  Step 6: weird to use -R pds4.collection on a bundle. More PDS-835 and PDS-890 errors  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T08:47:37Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/orex/]  Rule Type pds4.collection  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Allow Unlabeled Files false  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/test/testPrep/orex/bundle\_tagcams.xml  ERROR [error.label.context\_ref\_not\_found] line 62: 'urn:nasa:pds:context:instrument\_host:spacecraft.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 70: 'urn:nasa:pds:context:instrument:tagcams.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 78: 'urn:nasa:pds:context:instrument:ocams.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 86: 'urn:nasa:pds:context:instrument:ola.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 94: 'urn:nasa:pds:context:instrument:otes.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 102: 'urn:nasa:pds:context:instrument:ovirs.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 110: 'urn:nasa:pds:context:instrument:rexis.orex' could not be found in the supplied list of registered context products.  WARNING: An illegal reflective access operation has occurred  WARNING: Illegal reflective access by com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1 (file:/PDS4.9b.tools/validate-1.15.0/lib/jaxb-impl-2.2.4.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int)  WARNING: Please consider reporting this to the maintainers of com.sun.xml.bind.v2.runtime.reflect.opt.Injector$1  WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  WARNING: All illegal access operations will be denied in a future release  FAIL: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/collection\_tagcams\_hkl0.xml  ERROR [error.label.context\_ref\_not\_found] line 59: 'urn:nasa:pds:context:instrument\_host:spacecraft.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 67: 'urn:nasa:pds:context:instrument:ocams.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 75: 'urn:nasa:pds:context:instrument:tagcams.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 83: 'urn:nasa:pds:context:instrument:ola.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 91: 'urn:nasa:pds:context:instrument:otes.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 99: 'urn:nasa:pds:context:instrument:ovirs.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 107: 'urn:nasa:pds:context:instrument:rexis.orex' could not be found in the supplied list of registered context products.  FAIL: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/ega/20170922T204112S269\_ncm\_L0S.xml  ERROR [error.label.context\_ref\_not\_found] line 28: 'urn:nasa:pds:context:investigation:mission.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 39: 'urn:nasa:pds:context:instrument\_host:spacecraft.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 47: 'urn:nasa:pds:context:instrument:tagcams.orex' could not be found in the supplied list of registered context products.  FAIL: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/cruise\_1/20170815T164303S694\_ncm\_L0S.xml  ERROR [error.label.context\_ref\_not\_found] line 28: 'urn:nasa:pds:context:investigation:mission.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 39: 'urn:nasa:pds:context:instrument\_host:spacecraft.orex' could not be found in the supplied list of registered context products.  ERROR [error.label.context\_ref\_not\_found] line 47: 'urn:nasa:pds:context:instrument:tagcams.orex' could not be found in the supplied list of registered context products.  PDS4 Collection Level Validation Results  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/checksums.txt  WARNING [warning.file.not\_referenced\_in\_label] File is not referenced by any label  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/collection\_tagcams\_hkl0.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/ega/20170922T204112S269\_ncm\_L0S.xml  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/bundle\_tagcams.xml  WARNING [warning.integrity.unreferenced\_member] Identifier 'urn:nasa:pds:orex.tagcams::1.0' is not a member of any collection within the given target  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/cruise\_1/20170815T164303S694\_ncm\_L0S.xml  Summary:  20 error(s)  2 warning(s)  Message Types:  20 error.label.context\_ref\_not\_found  1 warning.integrity.unreferenced\_member  1 warning.file.not\_referenced\_in\_label  End of Report  Step 7: more PDS-835 and PDS-890 errors, then the desired warnings:  PDS4 Bundle Level Validation Results  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/ega/20170922T204112S269\_ncm\_L0S.xml  WARNING [warning.integrity.unreferenced\_member] Identifier 'urn:nasa:pds:orex.tagcams:data\_hkl0:20170922t204112s269\_ncm\_l0s.dat::1.0' is not a member of any collection within the given target  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/cruise\_1/20170815T164303S694\_ncm\_L0S.xml  WARNING [warning.integrity.unreferenced\_member] Identifier 'urn:nasa:pds:orex.tagcams:data\_hkl0:20170815t164303s694\_ncm\_l0s.dat::1.0' is not a member of any collection within the given target  PASS: file:/Users/rchen/Desktop/test/testPrep/orex/data\_hkl0/collection\_tagcams\_hkl0.xml  WARNING [warning.integrity.unreferenced\_member] Identifier 'urn:nasa:pds:orex.tagcams:data\_hkl0::1.0' is not a member of any bundle within the given target  Step 8:  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T09:02:12Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/twins\_raw\_0015\_01.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/test/testPrep/twins\_raw\_0015\_01.xml  Begin Content Validation: file:/Users/rchen/Desktop/test/testPrep/twins\_raw\_0015\_01.csv  ERROR [error.table.field\_value\_data\_type\_mismatch] table 1, record 1, field 5: Value does not match its data type 'ASCII\_Date\_Time\_DOY\_UTC': Could not parse notadatebyanystandard using these patterns 'YYYYZ, YYYY-DOYThhZ, YYYY-DOYThh:mmZ, YYYY-DOYThh:mm:ss[.ffffff]Z'  ERROR [error.table.field\_value\_data\_type\_mismatch] table 1, record 1, field 6: Value does not match its data type 'ASCII\_Integer': '88.88' does not match the pattern '[+-]?\d+'  End Content Validation: file:/Users/rchen/Desktop/test/testPrep/twins\_raw\_0015\_01.csv  Summary:  2 error(s)  0 warning(s)  Message Types:  2 error.table.field\_value\_data\_type\_mismatch  End of Report  Step 9: standard good message  Step 10:  64c64  < <local\_identifier\_reference>Image\_Cube\_Object</local\_identifier\_reference>  ---  > <local\_identifier\_reference>Image\_Cube\_Object\_TYPO</local\_identifier\_reference>  134c134  < <elements>945</elements>  ---  > <elements>9945</elements>  Step 11: standard good message  Step 12: This validates PDS-606  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T09:04:08Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/7f90b.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/test/testPrep/7f90b.xml  ERROR [error.label.schema] line 12, 110: cvc-id.1: There is no ID/IDREF binding for IDREF 'Image\_Cube\_Object\_TYPO'.  ERROR [error.label.schematron] line 63, 43: Display Dictionary: In the pds:Local\_Internal\_Reference class, the value of the pds:local\_identifier\_reference must match the value of the pds:local\_identifer of an Array class or sub-class within the File\_Area.  ERROR [error.label.local\_identifier\_not\_found] line 64: Referenced Local Identifier 'Image\_Cube\_Object\_TYPO' does not exist in any of the local\_identifier attributes in the label.  Begin Content Validation: file:/Users/rchen/Desktop/test/testPrep/7f90.img  FATAL\_ERROR [error.array.bad\_file\_read] array 1: Error occurred while reading data file: Error occurred while trying to read data at location (1, 335, 4771): null  End Content Validation: file:/Users/rchen/Desktop/test/testPrep/7f90.img  Summary:  4 error(s)  0 warning(s)  Message Types:  1 error.label.schematron  1 error.array.bad\_file\_read  1 error.label.local\_identifier\_not\_found  1 error.label.schema  End of Report  Step 13: the output file actually shows validation errors (irrelevant to this test)  Fri Jun 14 02:05:53 PDT 2019  Fri Jun 14 02:41:21 PDT 2019  Step 14: not run. Quit after 10 hours. Not sure the network traffic is feasible  Step 15: standard good message  Step 16: standard good message  Step 17:  PDS557SAYSSKIPTHISPARTOFDATAFILE  [standard good validation message]  Step 18: Warn that collection.csv contains a dangling LID (nosuchfile.obj )  total 6184  -rw-rw-r-- 1 rchen 1 Apr 20 19:08 00ANOTHERDANGLER  total 24  -rw-rw-r-- 1 rchen 1 Apr 20 19:09 00DANGLINGFILE  PDS Validate Tool Report  [snip]  PDS4 Bundle Level Validation Results  PASS: file:/Users/rchen/Desktop/test/testPrep/insightcameras/data/collection\_data.xml  WARNING [warning.integrity.member\_not\_found] The member 'urn:nasa:pds:insight\_cameras:data:nosuchfile.obj::1.0' could not be found in any product within the given target.  [snip]  Step 19: Standard good message. Reals ok with no digits before ‘.’ in label and data  Step 20: Standard good message. 2016-12-31T23:59:60.555555Z ok in label and data  Step 21: Unfortunately, this was the only large file available, and it has a validation error unrelated to showing that validate can handle 2+GB items of data.  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-04-21T08:33:42Z  Parameters:  Targets [file:/Users/rchen/Desktop/virs\_cube\_64ppd\_h15sp.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Data Spot Check 100  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/virs\_cube\_64ppd\_h15sp.xml  ERROR [error.label.schema] line 121, 84: cvc-complex-type.2.4.a: Invalid content was found starting with element 'cart:longitude\_of\_central\_meridian'. One of '{"http://pds.nasa.gov/pds4/cart/v1":straight\_vertical\_longitude\_from\_pole}' is expected.  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.label.schema  End of Report  Step 22: Standard good message. Small negative IEEE754MSBSingle in data ok  Step 23: Standard good message. Datetime value of 1997-04-06T02:09:36 ok  Step 24: Standard good message. All floats are read ok.  Step 25: This test only works with bad labels. Older versions hung.  PDS Validate Tool Report  Configuration:  Version 1.14 Version 1.15.0  Date 2019-06-14T09:55:31Z  Parameters:  Targets [https://atmos.nmsu.edu/PDS/data/PDS4/MAVEN/iuvs\_calibrated\_bundle/calibration/centroid/2018/01]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation off  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: https://atmos.nmsu.edu/PDS/data/PDS4/MAVEN/iuvs\_calibrated\_bundle/calibration/centroid/2018/01/mvn\_iuv\_l1b\_centroid-orbit06470-fuv\_20180127T053800.xml  Begin Fragment: http://pds.nasa.gov/pds4/disp/v1  ERROR [error.label.schema] line 10, 5: The element type "meta" must be terminated by the matching end-tag "</meta>".  End Fragment: http://pds.nasa.gov/pds4/disp/v1  FAIL: https://atmos.nmsu.edu/PDS/data/PDS4/MAVEN/iuvs\_calibrated\_bundle/calibration/centroid/2018/01/mvn\_iuv\_l1b\_centroid-orbit06470-muv\_20180127T053800.xml  Begin Fragment: http://pds.nasa.gov/pds4/disp/v1  ERROR [error.label.schema] line 10, 5: The element type "meta" must be terminated by the matching end-tag "</meta>".  End Fragment: http://pds.nasa.gov/pds4/disp/v1  [snip…1  Summary:  1806 error(s)  0 warning(s)  Message Types:  1806 error.label.schema  End of Report  Step 26: Standard good message.  Step 27: I think complaining about insufficient digit is correct  PDS Validate Tool Report  Configuration:  Version 1.15.0  Date 2019-06-14T09:57:49Z  Parameters:  Targets [file:/Users/rchen/Desktop/test/testPrep/ccb214.xml]  Severity Level WARNING  Recurse Directories true  File Filters Used [\*.xml, \*.XML]  Force Mode on  Data Content Validation on  Max Errors 100000  Registered Contexts File /PDS4tools/validate/resources/registered\_context\_products.json  Product Level Validation Results  FAIL: file:/Users/rchen/Desktop/test/testPrep/ccb214.xml  Begin Content Validation: file:/Users/rchen/Desktop/test/testPrep/ccb214.tab  ERROR [error.table.field\_value\_format\_precision\_mismatch] table 1, record 9, field 2: The number of digits to the right of the decimal point in the value '2.409219' does not equal the precision set in the defined field format (expected 7, got 6).  End Content Validation: file:/Users/rchen/Desktop/test/testPrep/ccb214.tab  Summary:  1 error(s)  0 warning(s)  Message Types:  1 error.table.field\_value\_format\_precision\_mismatch  End of Report |
| Comments | Results met success criteria.  In 9a, step 7 opens [PDS-620](https://oodt.jpl.nasa.gov/jira/browse/PDS-620). `validate -R pds4.bundle` on a collection incorrectly warns about labels not in any collection  In 9b, step 12 closes [PDS-606](https://osr.jpl.nasa.gov/jira/browse/PDS-606), flagging bad local\_identifier\_reference  In 9b, step 17 opens [PDS-837](https://osr.jpl.nasa.gov/jira/browse/PDS-837), request to add an option to flag dangling files. Wait, this would close [PDS-604](https://osr.jpl.nasa.gov/jira/browse/PDS-604).  In 9b, step 21 closes [PDS-603](https://osr.jpl.nasa.gov/jira/browse/PDS-603), add option to spot check data  In 9b, step 27 veifies [PDS-701](https://osr.jpl.nasa.gov/jira/browse/PDS-701), check against validate\_format not field\_Oformat |
| Date of Testing | 2019.06.14 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.1 |
| Description | Validate and accept metadata to register an artifact or modify an artifact’s registration, query for a registered artifact, delete a registered artifact. Use the REST-based API. |
| Requirements | PASS L5.REG.1: The service shall accept artifact registrations.  PASS L5.REG.4: The service shall accept metadata for a registered artifact in a defined format.  PASS L5.REG.5: The service shall validate metadata for a registered artifact.  PASS L5.REG.13: The service shall allow deletion of registered artifacts.  PASS L5.REG.14: The service shall allow queries for registered artifacts.  PASS L5.GEN.3: The system shall generate metrics regarding performance and activity. |
| Success Criteria | Registry service validates and accepts metadata for an artifact in a defined format, consistent with the appropriate schema for the artifact. Registering an Inventory artifact should allow locating and auditing the artifact. Registering a Dictionary artifact should be reflected in the Information Model. Registering a Document artifact, e.g. a schema, should store the file and make the document available. Registering a Service artifact should document and promote the service. Query and delete artifacts or provide error messages for unrecognized artifacts. |
| Test Steps | Clean database as described in RESETREGISTRY in Section 3.1   1. cd *testDir* 2. http://localhost:8080/registry-pds3/extrinsics/logicals/testing.REG.1   in a browser shows no current product has lid “testing.REG.1”, which input files test.REG.1[abc].xml have.   1. Attempt to register a bad input file: curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.1a.xml http://localhost:8080/registry-pds3/extrinsics 2. Repeat step 2 to ensure lid still does not exist. 3. Register a good file: curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.1b.xml http://localhost:8080/registry-pds3/extrinsics 4. Repeat step 2 to see the lid 5. At <http://localhost:8080/registry-ui/>, select “Product 1234 v1”, Delete, OK 6. Repeat step 2 to ensure lid no longer exists |
| Test Results | Step 2: The error message should be (if lid does exist, run step 7):  Step 3:  Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/extrinsics HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 653  >  \* upload completely sent off: 653 out of 653 bytes  < HTTP/1.1 400  < Content-Length: 0  < Date: Wed, 12 Jun 2019 18:16:25 GMT  < Connection: close  \* Closing connection 0  Step 4: Same as step 2  Step 5:  Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/extrinsics HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 629  >  \* upload completely sent off: 629 out of 629 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/extrinsics/testing.REG.1.v1.0  < Content-Type: application/xml  < Transfer-Encoding: chunked  < Date: Wed, 12 Jun 2019 18:17:06 GMT  \* Connection #0 to host localhost left intact  testing.REG.1.v1.0  Step 6: Upon success, the registry service returns good xml. In firefox:  Step 7:  Step 8: Same as step 2 |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.2 |
| Description | Relate artifact registrations. Query and delete such associations. |
| Requirements | PASS L5.REG.2: The service shall provide a means for relating artifact registrations.  PASS L5.REG.13: The service shall allow deletion of registered artifacts. PASS L5.REG.14: The service shall allow queries for registered artifacts. |
| Success Criteria | Registry service relates together multiple artifacts during their registrations, whether as a batch or as individual registrations. The associations are removed from the registry after deletion. |
| Test Steps | 1. http://localhost:8080/registry-pds3/associations/linkREG.1toREG.2a   shows no such associations   1. curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.2.xml http://localhost:8080/registry-pds3/associations   adds 1 association (from a nonexistent sourceLid) to desired targetLid   1. Repeat step 1 to see the association. 2. curl -X DELETE -v http://localhost:8080/registry-pds3/associations/linkREG.1toREG.2a 3. Repeat step 1 to see no association |
| Test Results | Step 1: The error should look like  If not (i.e. if output looks like step 3’s below), delete as is Test Step 4.  Step 2: Benign output messages without “ERROR”  Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/associations HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 225  \* upload completely sent off: 225 out of 225 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/associations/linkREG.1toREG.2a  < Content-Type: text/plain  < Transfer-Encoding: chunked  < Date: Wed, 12 Jun 2019 18:19:34 GMT  \* Connection #0 to host localhost left intact  linkREG.1toREG.2a  Step 3:  Step 4:  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > DELETE /registry-pds3/associations/linkREG.1toREG.2a HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  < HTTP/1.1 200  < Content-Length: 0  < Date: Wed, 12 Jun 2019 18:21:43 GMT  \* Connection #0 to host localhost left intact  Step 5: same as step 1 |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.3 |
| Description | Maintain policies for classes of artifacts, i.e. all classes of artifacts capture a base set of metadata, in the form of XML attributes: objectType, guid as well as metadata specific to each artifact class. |
| Requirements | PASS L5.REG.3: The system shall register products of a data delivery into an instance of the registry. |
| Success Criteria | Registry service defines separate policies for each class of artifact. Changes to the policies of a class can reflect in the validation of a registered artifact in that class. |
| Test Steps | In a browser,   1. http://localhost:8080/registry-pds3/extrinsics (e.g. REG.1’s step 5) 2. http://localhost:8080/registry-pds3/associations (e.g. REG.2’s step 2) 3. http://localhost:8080/registry-pds3/services 4. http://localhost:8080/registry-pds3/schemes 5. http://localhost:8080/registry-pds3/events 6. http://localhost:8080/registry-pds3/packages 7. http://localhost:8080/registry-pds3/docs/   From a command line (to show the registry version),   1. curl -X GET -H "Accept:application/xml" -v http://localhost:8080/registry-pds3/report |
| Test Results | Specific results will differ, but every item in every class has XML attributes objectType, guid. Each class may have others attributes such as lid, name, home.            Step 7 shows correct output formatting  Step 8:  Note: Unnecessary use of -X or --request, GET is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > GET /registry-pds3/report HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept:application/xml  < HTTP/1.1 200  < Content-Type: application/xml  < Content-Length: 314  < Date: Wed, 12 Jun 2019 19:37:47 GMT  \* Connection #0 to host localhost left intact  <?xml version="1.0" encoding="UTF-8" standalone="yes"?><ns2:report xmlns:ns2="http://registry.pds.nasa.gov" status="OK" serverStarted="2019-06-11T16:47:37.667-07:00" associations="71" extrinsics="0" services="0" classificationSchemes="2" classificationNodes="69" packages="4" events="79" registryVersion="1.14.0"/> |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.4 |
| Description | Assign a global unique identifier to a registered artifact with no global unique identifier, query for the registered artifact, delete the registered artifact. |
| Requirements | PASS L5.REG.6: The service shall assign a global unique identifier to a registered artifact.  PASS L5.REG.13: The service shall allow deletion of registered artifacts.  PASS L5.REG.14: The service shall allow queries for registered artifacts. |
| Success Criteria | Registry service assigns each registered artifact, including multiple versions of an artifact, a global unique identifier. |
| Test Steps | 1. curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.4.xml http://localhost:8080/registry-pds3/extrinsics   From the output, copy the GUID (assigned by the registry) from the last line   1. http://localhost:8080/registry-pds3/extrinsics/*guid* 2. To be nice, delete via http://localhost:8080/registry-ui |
| Test Results | Step 1: Note the value (an assigned LID) of “Location:” in the positive message:  Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/extrinsics HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 668  \* upload completely sent off: 668 out of 668 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/extrinsics/urn:uuid:00bf22b3-bef4-4446-9e29-39d898495167  < Content-Type: application/xml  < Transfer-Encoding: chunked  < Date: Wed, 12 Jun 2019 19:39:00 GMT  \* Connection #0 to host localhost left intact  urn:uuid:00bf22b3-bef4-4446-9e29-39d898495167  Step 2: |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.5 |
| Description | Assign a version to a registered artifact based on its unique identifier |
| Requirements | PASS L5.REG.7: The service shall assign a version to a registered artifact based on its logical identifier. |
| Success Criteria | Registry service assigns each registered artifact, especially multiple versions of an artifact, a version identifier, derivable from its logical identifier. |
| Test Steps | 1. http://localhost:8080/registry-pds3/extrinsics/logicals/testing.REG.2b   shows no current product with lid “testing.REG.2b”   1. Register a product with no versionId attribute curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.5a.xml http://localhost:8080/registry-pds3/extrinsics 2. Repeat step 1. Note that versionName is 1.0   Note versionName is independent of extrinsicObject’s versionId, name, guid. |
| Test Results | Step 1:  Step 2:  Note: Unnecessary use of -X or --request, POST is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/extrinsics HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 641  \* upload completely sent off: 641 out of 641 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/extrinsics/urn:uuid:db656929-e27b-42eb-8226-6e79d2ccf9f4  < Content-Type: application/xml  < Transfer-Encoding: chunked  < Date: Wed, 12 Jun 2019 20:43:11 GMT  \* Connection #0 to host localhost left intact  urn:uuid:db656929-e27b-42eb-8226-6e79d2ccf9f4  Step 3: Note that versionName=1.0 even though input file had no versionId attribute |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.6 |
| Description | Allow replacement, approval, deprecation, undeprecation, and verification of registered artifacts. The Tomcat server access log lists the search. |
| Requirements | PASS L5.REG.9: The service shall allow updates to registered artifacts.  PASS L5.REG.10: The service shall allow approval of registered artifacts.  PASS L5.REG.11: The service shall allow deprecation of registered artifacts.  PASS L5.REG.12: The service shall allow undeprecation of registered artifacts.  PASS L5.GEN.6: Applications shall generate metrics in a format suitable for ingestion by the Report Service. |
| Success Criteria | Registry service provides these standard functions with expected results. Initial registration results in an artifact being in an unapproved state. Also, the Tomcat server access log lists the actions. |
| Test Steps | 1. Show that no current product has LID “testing.REG.2a”: http://localhost:8080/registry-pds3/extrinsics/logicals/testing.REG.2a 2. curl -X POST -H "Content-type:application/xml" -v -d @testRegistry/test.REG.6a.xml http://localhost:8080/registry-pds3/extrinsics 3. Repeat step 1 to see the lid   An alternative to the steps below is to modify via GUID  curl -X POST -H "Content-type:application/xml" -v http://localhost:8080/registry-pds3/extrinsics/testing.REG.2a.v1.0/{approve,deprecate,undeprecate}   1. In a browser, <http://localhost:8080/registry-ui/> Under “LID”, enter “testing.REG.2a”. Click “Refresh” 2. Select row, set “Status” to “Approved”, hit “Update Status” 3. Select row, set “Status” to “Deprecated”, hit “Update Status” 4. Select row, set “Status” to “Submitted”, hit “Update Status”   The above actions get into the Tomcat server log, which the report service can process.   1. grep testing.REG.2a $CATALINA\_HOME/logs/localhost\_access\_log.*yyyy*-*mm*-*dd*.txt |
| Test Results | Step 1: If browser isn’t as below, delete using http://localhost:8080/registry-ui    Step 2:  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > POST /registry-pds3/extrinsics HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  > Content-type:application/xml  > Content-Length: 645  \* upload completely sent off: 645 out of 645 bytes  < HTTP/1.1 201  < Location: http://localhost:8080/registry-pds3/extrinsics/testing.REG.2a.v1.0  < Content-Type: application/xml  < Transfer-Encoding: chunked  < Date: Wed, 24 Oct 2018 00:41:28 GMT  \* Connection #0 to host localhost left intact  testing.REG.2a.v1.0  Step 3:  Step 4:  Step 5:  Step 6:  Step 7: same as Step 4  Step 8:  *0:0:0:0:0:0:0:1 - - [23/Oct/2018:17:41:08 -0700] "GET /registry-pds3/extrinsics/logicals/testing.REG.2a HTTP/1.1" 404 68*  *0:0:0:0:0:0:0:1 - - [23/Oct/2018:17:41:43 -0700] "GET /registry-pds3/extrinsics/logicals/testing.REG.2a HTTP/1.1" 200 776*  *127.0.0.1 - - [23/Oct/2018:17:46:30 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=20 HTTP/1.1" 200 799*  *127.0.0.1 - - [23/Oct/2018:17:46:30 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=1 HTTP/1.1" 200 799*  *127.0.0.1 - - [23/Oct/2018:17:46:32 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=20 HTTP/1.1" 200 799*  *127.0.0.1 - - [23/Oct/2018:17:46:32 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=1 HTTP/1.1" 200 799*  *127.0.0.1 - - [23/Oct/2018:17:46:47 -0700] "GET /registry-pds3/extrinsics/testing.REG.2a.v1.0 HTTP/1.1" 200 720*  *127.0.0.1 - - [23/Oct/2018:17:46:47 -0700] "POST /registry-pds3/extrinsics/testing.REG.2a.v1.0 HTTP/1.1" 200 -*  *127.0.0.1 - - [23/Oct/2018:17:46:47 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=20 HTTP/1.1" 200 798*  *127.0.0.1 - - [23/Oct/2018:17:46:47 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=1 HTTP/1.1" 200 798*  *127.0.0.1 - - [23/Oct/2018:17:47:03 -0700] "GET /registry-pds3/extrinsics?queryOp=AND&lid=testing.REG.2a&start=1&sort=guid&rows=20&status=Deprecated HTTP/1.1" 200 162*  *127.0.0.1 - - [23/Oct/2018:17:47:21 -0700] "GET /registry-pds3/extrinsics/testing.REG.2a.v1.0 HTTP/1.1" 200 719*  *127.0.0.1 - - [23/Oct/2018:17:47:21 -0700] "POST /registry-pds3/extrinsics/testing.REG.2a.v1.0 HTTP/1.1" 200 -*  *127.0.0.1 - - [23/Oct/2018:17:47:29 -0700] "GET /registry-pds3/extrinsics/testing.REG.2a.v1.0 HTTP/1.1" 200 721*  *127.0.0.1 - - [23/Oct/2018:17:47:29 -0700] "POST /registry-pds3/extrinsics/testing.REG.2a.v1.0 HTTP/1.1" 200 -* |
| Comments | Results met success criteria.  HVT.7 already pointed out PDS-888, registry-ui’s inability to change status |
| Date of Testing | 2019.06.12 |
| Test Personnel | Richard Chen |

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| Test Case ID | REG.7 \*not ready for build 9a. This is reserved for future testing |
| Description | Enable replication of registry contents. |
| Requirements | SKIP L5.REG.15: The service shall enable replication of registry contents with another instance of the service. |
| Success Criteria | Contents of the registry are duplicated on a separate machine. |
| Test Steps |  |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | REG.8 \*not ready for build 5a. This is reserved for future testing |
| Description | Verify registry contents. |
| Requirements | SKIP L5.REG.16: The service shall enable verification of registry contents. |
| Success Criteria | Contents and checksums of the registry artifacts match what have been ingested. |
| Test Steps |  |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | REG.9 |
| Description | Test scalability of registry. |
| Requirements | PASS No specific functional requirement. This is a performance test case. |
| Success Criteria | Performance of registry in ingesting and viewing artifacts remains acceptable under logarithmic increases in volume. |
| Test Steps | This requires python to be installed on the local machine and possible editing of stressTest.py to change the location of the python executable.  Step 3 is configurable. 5M registrations for build 6a took 16 hours.   1. cd *testDir*/bin 2. ./stressTest.py 3. ./stressTest.py -v -n500000 > ../out.txt 4. grep Time ../out.txt |
| Test Results | Step 2:  stressTesting.T000000.v1.0  stressTesting.T000001.v1.0  stressTesting.T000002.v1.0  REGSTR 3 good. Time(sec): avg=0.015 median=0.010 stdDev=0.00748 sum=0.0  <?xml version="1.0" encoding="UTF-8" standalone="yes"?><ns2:extrinsicObject xmlns:ns2="http://registry.pds.nasa.gov" lid="stressTesting.T000000" name="Stress The Registry " objectType="Product" status="Submitted" description="Stolen from http://pdscm/2010/registry/registry-service/operate/index.html with attribute lid above changed for uniqueness" versionName="1.0" guid="stressTesting.T000000.v1.0" home="http://localhost:8080/registry"><ns2:slot id="171" name="last-name"><ns2:value>Doe</ns2:value></ns2:slot><ns2:slot id="172" name="cannotPossibleBeAnExistingSlot"><ns2:value>cannot possibly be an existing value</ns2:value></ns2:slot><ns2:slot id="173" name="phone"><ns2:value>(818)777-7777</ns2:value><ns2:value>(818)888-8888</ns2:value></ns2:slot><ns2:slot id="174" name="first-name"><ns2:value>John</ns2:value></ns2:slot></ns2:extrinsicObject>  <?xml version="1.0" encoding="UTF-8" standalone="yes"?><ns2:extrinsicObject xmlns:ns2="http://registry.pds.nasa.gov" lid="stressTesting.T000001" name="Stress The Registry " objectType="Product" status="Submitted" description="Stolen from http://pdscm/2010/registry/registry-service/operate/index.html with attribute lid above changed for uniqueness" versionName="1.0" guid="stressTesting.T000001.v1.0" home="http://localhost:8080/registry"><ns2:slot id="176" name="last-name"><ns2:value>Doe</ns2:value></ns2:slot><ns2:slot id="177" name="cannotPossibleBeAnExistingSlot"><ns2:value>cannot possibly be an existing value</ns2:value></ns2:slot><ns2:slot id="178" name="phone"><ns2:value>(818)777-7777</ns2:value><ns2:value>(818)888-8888</ns2:value></ns2:slot><ns2:slot id="179" name="first-name"><ns2:value>John</ns2:value></ns2:slot></ns2:extrinsicObject>  <?xml version="1.0" encoding="UTF-8" standalone="yes"?><ns2:extrinsicObject xmlns:ns2="http://registry.pds.nasa.gov" lid="stressTesting.T000002" name="Stress The Registry " objectType="Product" status="Submitted" description="Stolen from http://pdscm/2010/registry/registry-service/operate/index.html with attribute lid above changed for uniqueness" versionName="1.0" guid="stressTesting.T000002.v1.0" home="http://localhost:8080/registry"><ns2:slot id="181" name="last-name"><ns2:value>Doe</ns2:value></ns2:slot><ns2:slot id="182" name="cannotPossibleBeAnExistingSlot"><ns2:value>cannot possibly be an existing value</ns2:value></ns2:slot><ns2:slot id="183" name="phone"><ns2:value>(818)777-7777</ns2:value><ns2:value>(818)888-8888</ns2:value></ns2:slot><ns2:slot id="184" name="first-name"><ns2:value>John</ns2:value></ns2:slot></ns2:extrinsicObject>  VIEW 3 good. Time(sec): avg=0.012 median=0.012 stdDev=0.00100 sum=0.0  stressTesting.T000000.v1.0 deleted  stressTesting.T000001.v1.0 deleted  stressTesting.T000002.v1.0 deleted  DELETE 3 good. Time(sec): avg=0.011 median=0.011 stdDev=0.00072 sum=0.0  Step 4: In 5b, the sums for 500,000 were 2348.7, 10706.9, 2476.9.  REGSTR 500000 good. Time(sec): avg=0.007 median=0.006 stdDev=0.01340 sum=3476.8  VIEW 500000 good. Time(sec): avg=0.006 median=0.005 stdDev=0.01597 sum=3039.8  DELETE 500000 good. Time(sec): avg=0.007 median=0.007 stdDev=0.01100 sum=3702.4 |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.13 |
| Test Personnel | Richard Chen |

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| Test Case ID | RPT.1 |
| Description | Various requirements regarding reporting |
| Requirements | PASS L5.RPT.1: The service shall support periodic submission of metrics.  PASS L5.RPT.2: The service shall allow the submission of metrics in the form of a log file.  PASS L5.RPT.3: The service shall utilize a secure transfer protocol for transferring log files across the Internet.  PASS L5.RPT.4: The service shall support log files from the following sources…  PASS L5.RPT.5: The service shall discover product-related information by querying the Registry service.  PASS L5.RPT.6: The service shall aggregate and store the metrics in a repository.  PASS L5.RPT.7: The service shall control access to the user interface and metrics repository.  PASS L5.RPT.8: The service shall allow users to tailor reports and report templates as follows...  PASS L5.RPT.9: The service shall allow users to save report templates for reuse.  PASS L5.RPT.10: The service shall allow periodic generation of reports from saved templates.  PASS L5.RPT.11: The service shall export reports in the following formats... |
| Success Criteria | Following operator configuration of content, representation, filter, and scope of reports and report templates, Report Service receives metrics periodically in log files generated by web and FTP servers, PDS4 services, and node-specific services. Tools can view the repository to compare against log. Report Service queries Registry Service for metrics regarding products instead of transfers or views. Tools can view the repository to compare against the registry. Report Service authenticates for proper access, and reports unsuccessful attempts. Generated reports, even when generated from saved templates, should match configuration and meet the export format specified. |
| Test Steps | Commercial applications, in particular Sawmill, provide the functionality required. Verification of installation suffices. |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | SCMA.1 |
| Description | Verify various change requests made to the Information Model schema and schemarons. |
| Requirements | PASS 1.3.3: PDS will provide criteria for validating archival products |
| Success Criteria | Validate tool accepts (or rejects) constructs deemed as valid (or invalid), primarily through software change requests. |
| Test Steps | Document testScma.docx describes the testing of the PDS4 schema and schematron. |
| Test Results | Document testScma.docx includes the test results of testing the PDS4 schema and schematron. |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.01 |
| Test Personnel | Richard Chen |

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| Test Case ID | SEC.1 |
| Description | Various requirements regarding security |
| Requirements | PASS L5.SEC.1: The service shall authenticate a user given identifying credentials for that user.  PASS L5.SEC.2: The service shall encrypt the transmission of identifying credentials across the network.  PASS L5.SEC.3: The service shall authorize an authenticated user for access to a controlled capability.  PASS L5.SEC.4: The service shall allow an operator of the system to create, update or delete a user identity.  PASS L5.SEC.5: The service shall capture identifying information associated with a user identity.  PASS L5.SEC.6: The service shall allow an operator of the system to create, update or delete a group identity.  PASS L5.SEC.7: The service shall allow an operator of the system to add or remove a user from a group. |
| Success Criteria | Security service provides standard functions. Tools to view identities verify each activity. Security service allows an operator of the system to add or remove a user from a group. The user should subsequently be able or unable to access capabilities specific to the group. Security service captures identifying information. Tools to view identities show the information. Captured network packets show encryption, or trust that security service’s protocol encrypts. Security service authorizes valid users, denies invalid users. |
| Test Steps | (From https://pds-engineering.jpl.nasa.gov/development/pds4/5.0.0/security/)  The Security Service provides the authentication and authorization functions for the PDS4 system. The intent of this service is to control access to interfaces and services that require authentication and authorization (e.g., Monitor, Report, Registry interfaces, etc.). |
| Test Results | The functionality for this service is satisfied by the open source software package OpenDS, which is a directory service supporting the Lightweight Directory Access Protocol (LDAP). |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | SRCH.1 \*not ready for build 5a. This is reserved for future testing |
| Description | Degrade gracefully on archaic browsers. |
| Requirements | SKIP L5.SCH.2: The service shall degrade gracefully on browsers that lack modern features and not depend on them for operation. |
| Success Criteria | Using an archaic browser to search does not freeze the browser. |
| Test Steps |  |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | SRCH.2 |
| Description | Comply with Section 508 and adhere to WCAG level A |
| Requirements | PASS L5.SCH.3: The service's browser-based user interface shall be Section 508 compliant and adhere to WCAG …  PASS L5.GEN.9: Applications shall meet Section 508 compliance guidelines. |
| Success Criteria | PDS home page successfully passes through JPL website release process. |
| Test Steps | Submit PDS portal to JPL document review office to get approval for release |
| Test Results | JPL approved the release result PDS portal made available to general public |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04 |
| Test Personnel | Paul Zimdars |

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| Test Case ID | SRCH.3 |
| Description | Provide HTTP-based API to enter queries and return results. The browser utilizes the REST-based API. The Tomcat server access log lists the search. |
| Requirements | PASS L5.SCH.4: The service shall provide a programmatic interface for entering of queries and return of search results that communicates over HTTP for use by client applications developed by PDS, PDS nodes, and others.  PASS L5.GEN.3: Services shall have an application programming interface.  PASS L5.GEN.5: Services shall generate metrics in a format suitable for ingestion by the Report Service. |
| Success Criteria | Receives correct search results after using HTTP-based API. |
| Test Steps | This test is best run on an operational machine or after harvesting a large number of files including context products, e.g. after HVT.3 (assume database is registry-pds3):   1. http://localhost:8080/registry-ui/ 2. set Registry Service(s) to registry-pds3 3. Click tab “Packages”. Select “Harvest-Package\_\*”, set Status to “Approved”, click “Update Status”. If more than 1, approve 1 at a time. Slow. May fail with an error about cache space. This may take 30 minutes. 4. date; search-core -H *binDir*/search-service/pds -p *binDir*/search-core/conf/defaults/pds/pds3/core.properties; date   The search-core above may take 2 hours.   1. http://localhost:8080/search-service/pds/search?q=cassini cda 2. In the center of <http://localhost:8080/search-ui>, type “cassini cda” (without quotes) and hit the “Search” button   The search-ui gets into the Tomcat server log, which the report service can process.   1. grep cassini $CATALINA\_HOME/logs/localhost\_access\_log.*yyyy*-*mm*-*dd*.txt 2. http://localhost:8080/search-analytics |
| Test Results | Step 3:  Step 4:  Mon Jun 10 15:10:59 PDT 2019  Processing config: class.xml  Processing config: dataset.xml  PDS Search Core Run Log  Version Version 1.13.0  Time Mon, Jun 10 2019 at 03:11:00 PM  Severity Level INFO  Search Home /PDS4tools/search-service/pds  Search Service URL http://localhost:8080/search-service  Search Core Properties /PDS4tools/search-core/conf/defaults/pds/pds3/core.properties  INFO: Completed: urn:nasa:pds:context\_pds3:class:class.header  INFO: Completed: urn:nasa:pds:context\_pds3:class:class.software\_information  INFO: Completed: urn:nasa:pds:context\_pds3:class:class.band\_suffix  …  INFO: Posting: /PDS4tools/search-service/pds/index/solr\_index.xml.5  INFO: Posting: /PDS4tools/search-service/pds/index/solr\_index.xml.2  INFO: Optimizing Search Service index.  SUCCESS: Completed posting data to the Search Service  Summary:  ==================================================  The Numbers:  -- Number of Warnings: 10  -- Number of Errors: 0  -- Bad Registries: []  -- Number of Missing Associations: 0  -- Association Cache Hits: 0  -- Number of products: 16878  ==================================================  Processing Time:  -- service.xml: 0 h, 0 m, 0 s  -- instrument.xml: 0 h, 1 m, 26 s  -- target.xml: 0 h, 13 m, 9 s  -- context.xml: 5 h, 19 m, 10 s  -- instrumenthost.xml: 0 h, 0 m, 36 s  -- attribute.xml: 0 h, 5 m, 5 s  -- class.xml: 0 h, 0 m, 17 s  -- dataset.xml: 0 h, 16 m, 24 s  -- investigation.xml: 0 h, 0 m, 12 s  ==================================================  Total Processing Time: 5 h, 56 m, 23 s  End of Log  Mon Jun 10 21:08:42 PDT 2019  Step 5:  Step 6: Note that 1) search-ui filters deprecated data sets, e.g. HRD < 16.0, and 2) Archive Information and Search Tools are there thanks to harvest of such information, though those sometimes are missing if not built into the installation package.    Step 7:  0:0:0:0:0:0:0:1 - - [11/Jun/2019:00:13:35 -0700] "GET /search-ui/search.jsp?q=cassini+cda HTTP/1.1" 200 5416  0:0:0:0:0:0:0:1 - - [11/Jun/2019:00:13:35 -0700] "GET /search-service/pds/archive-filter?q=cassini+cda& HTTP/1.1" 200 36707  Step 8: |
| Comments | Results met success criteria. |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

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| Test Case ID | SRCH.5 |
| Description | Search based on a sequence of open text keywords. Do so in a browser. |
| Requirements | PASS L5.SCH.1: The service shall provide a user interface for entering of queries and display of search results  PASS L5.SCH.6: The service shall support searching by accepting criteria as a sequence of open text keywords. |
| Success Criteria | Receives reasonable results based on text such as “Cassini”. Also, the Tomcat server access log lists the searched da ta. |
| Test Steps | This test is best run on an operational machine or after harvesting a large number of files including context products, e.g. HVT.3. If running after HVT.3, first:  search-core -H *binDir*/search-service/pds -p *binDir*/search-core/conf/pds/pds3/core.properties  The search-core above may take an hour.  In <http://localhost:8080/search-ui>, type   1. mro spice 2. voyager plasma wave 3. (continued) In Refine Your Search, click “Comet SL9/Jupiter Collision (88)” 4. mars digital elevation maps   The “More” and “Hide” link failed for a while on firefox and chrome, so test that on various platforms for Neptune   1. Neptune 2. jupiter images 3. corona 4. NEAR-A-SPICE-6-V1.0 (a specific data set ID) |
| Test Results | Step 1:  Step 2:  Step 3:  Step 4:  Step 5:  Step 6:  Step 7:  Step 8: |
| Comments | Results met success criteria.  <https://oodt.jpl.nasa.gov/jira/browse/PDS-258>, created during testing of build 4b, suggests merging 2 related facets into 1 |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

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| Test Case ID | SRCH.6 |
| Description | Search based on constraints on specific indexes, and narrow results based on more constraints. Support ordering of results based on specified criteria. Results returned as clickable URIs with metadata describing each URI. |
| Requirements | PASS L5.SCH.7: The service shall accept criteria as a series of values for constraints on specified indexes.  PASS L5.SCH.8: The service shall support narrowing of additional index results…  PASS L5.SCH.9: The service shall support the ordering of results based on specified criteria...  PASS L5.SCH.10: The service shall provide results to a search as a sequence of matching URIs…  PASS L5.SCH.11: The service shall annotate each URI of a result with metadata describing the URI. |
| Success Criteria | Results match constraint criteria and consist of clickable links with text describing each link. |
| Test Steps | Also best run after HVT.3. In <http://localhost:8080/search-ui>:   1. mission: mars global surveyor 2. target:mercury 3. target: mercury |
| Test Results | Step 1:  Step 2:  Step 3: inserting a space bfore “mercury” gives significantly different results |
| Comments | Results met success criteria.  <https://oodt.jpl.nasa.gov/jira/browse/PDS-319>, created during build 5a, notes differences in search results between “target:mercury” and “target: mercury” |
| Date of Testing | 2019.06.11 |
| Test Personnel | Richard Chen |

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| Test Case ID | SRCH.7 \*not ready for build 9b. This is reserved for future testing |
| Description | Capture metrics on search index usage and contents |
| Requirements | SKIP L5.SCH.13: The service shall capture metrics pertaining to its search indexes usage and contents. |
| Success Criteria | A log shows metrics pertaining to usage of search indexes. |
| Test Steps |  |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel |  |

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| Test Case ID | SRCH.8 |
| Description | Query for the data dictionary’s PDS3 elements and objects and PDS4 attributes and classes. |
| Requirements | PASS L5.SCH.1: The service shall provide a user interface for entering of queries and display of search results… |
| Success Criteria | Results match parameters and consist of clickable links with text describing each link. |
| Test Steps | Compare PDS3’s pdsdd.full with [https://pds.nasa.gov/tools/dd-search](https://pds.nasa.gov/tools/dd-search/):   1. pdsdd.full’s \*\_OBJECT\_DEFINITION vs. dd-search’s Class,PDS3 2. pdsdd.full’s ELEMENT\_DEFINITION vs. dd-search’s Attribute,PDS3   Compare PDS4’s Information Model (<https://pds.nasa.gov/pds4/doc/im/v1/index_1B00.html>) with [dd-search](https://pds.nasa.gov/tools/dd-search's)   1. IM’s classes vs. dd-search’s Class,PDS4 2. IM’s Attributes vs. dd-search’s Attribute,PDS4 |
| Test Results | Step 1: dd-search and pdsdd.full have the same 89 results, e.g. ALIAS, ARRAY, …  Step 2: dd-search has 2184 results; pdsdd.full, 2196. All diffs were recently added to the pds3 data dictionary. They are:  GEO:BAUD  GEO:CENTROID\_LOCATION  GEO:CODE\_LENGTH  GEO:DELAY\_OFFSET  GEO:MODE  GEO:PARALLACTIC\_ANGLE\_CORRECTION  GEO:POINTING  GEO:TRANSFORM\_LENGTH  MSL:CCAM\_ANNOTATION\_COUNT  MSL:CCAM\_ANNOTATION\_NAME  MSL:CCAM\_ANNOTATION\_VALUE  MSL:TARGET\_NAME  Step 3: The IM matches dd-search except for the:  Only in dd-search: Binary\_Data\_Type, Data\_Type, USER  Only in the IM: Source\_Product\_External, Source\_Product\_Internal, Term\_Map\_SKOS  Terminological\_Entry\_SKOS  Step 4: no easy, clever way to numerically check Attributes of the web page above with dd-search’s Attribute,PDS4. Spot check individual attributes. |
| Comments | Results met success criteria.  [PDS-357](https://oodt.jpl.nasa.gov/jira/browse/PDS-357), created during testing of 5b, handles the questions raised below.  Maybe it would help the user to see what schemas and versions of schemas are used.  Is it ok for ddsearch to lack:  Steps 1 and 2: is it all right for ddsearch not to have the equivalent attributes listed in the output? It may be because EN did not produce the corresponding Product\_Class\_Definition or \_Attribute\_. There are very likely more missing Product\_Class\_Attribute, but full lists (especially for dd-search) are hard to create.  Step 4: Does dd-search’s list correspond to the .xsd’s complexType + simpleType="[A-Z]\*" but not simpleType="[a-z]\*"? Where did dd-search’s Unsigned\* classes come from? There are probably more mismatches, but full lists are hard to create. Do the PDS4 attributes come from all (including node) released schemas? That would explain "along\_track\_timing\_offset". "abstract\_flag" is listed twice because dd search shows one attribute per Class x Attribute? Where do "alias" and "alias\_list" come from? dd-search:"Class" has a capitalized version of each. Where does character\_constraint come from?  [PDS-615](https://oodt.jpl.nasa.gov/jira/browse/PDS-615), created during testing of 9a, suggests indicating which PDS4 classes are deprecated. |
| Date of Testing | 2019.04.20 |
| Test Personnel | Richard Chen |

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| Test Case ID | TPRT.1 |
| Description | Request data from transport-registry by specifying a LID |
| Requirements | PASS L5.TRS.1: The service shall accept requests for download of PDS products.  PASS L5.TRS.2: The service shall accept requests for download of an individual file.  PASS L5.TRS.4: The service shall package the requested product(s) or file into the specified format.  PASS L5.TRS.5: The service shall include a checksum manifest … along with their associated MD5 checksums.  PASS L5.TRS.6: The service shall transfer the result of a request via HTTP to the calling application.  PASS L5.GEN.3: Services shall have an application programming interface.  PASS L5.GEN.5: Services shall generate metrics in a format suitable for ingestion by the Report Service. |
| Success Criteria | The transport service returns the requested data. Also, the Tomcat server access log lists the transport. |
| Test Steps | For builds 9a and earlier, HVT.3 ran first with absolute paths as inputs. In 9b, harvest does not use the registry, but catalog -mingest does, but that has no mechanism for specifying paths. This test uses, from CTLG.3   * urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens * urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx:ref.cat   Ensure CATALINA\_HOME/webapps/transport-registry/WEB-INF/config.xml has transport.RegistryProductHandler.registryUrl = http://localhost:8080/registry-pds3 Check transport-registry’s many downloading options by getting the same three files:   1. curl -X GET -o x1.zip -v "http://localhost:8080/transport-registry/prod?q=identifier+EQ+urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens+AND+identifier+EQ+urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx:ref.cat" 2. curl -X GET -o x2.tgz -v "http://localhost:8080/transport-registry/prod?q=identifier+EQ+urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens+AND+identifier+EQ+urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx:ref.cat+AND+package+EQ+TGZ" 3. curl -X GET -o x3.zip "http://localhost:8080/transport-registry/prod?q=identifier+EQ+urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens+AND+identifier+EQ+urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx:ref.cat" 4. Same thing but in a browser, http://localhost:8080/transport-registry/prod?q=identifier+EQ+urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens+AND+identifier+EQ+urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx:ref.cat&package=TGZ which somehow creates file products\_pds-package-20190417114526.zip.zip 5. Extract the four into their own directories. 6. diff -r x1 x2 7. diff -r x1 x3 8. diff -r x1 products\_pds-package-<yyyymmddhhmmss> 9. diff x1/MISSION.CAT *testDir/*testCatalog/CORPWS\_0180/MISSION.CAT 10. Does x1/md5\_checksum.txt have correct checksums for both files? On a mac: openssl md5 x1/\*.CAT; cat x1/md5\_checksums.txt |
| Test Results | Step 1 (Steps 2 and 3 are similar):  Note: Unnecessary use of -X or --request, GET is already inferred.  \* Trying ::1...  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0\* Connected to localhost (::1) port 8080 (#0)  > GET /transport-registry/prod?q=identifier+EQ+urn:nasa:pds:context\_pds3:investigation:mission.cassini-huygens+AND+identifier+EQ+urn:nasa:pds:context\_pds3:volume:volume.corpws\_0180\_\_usa\_nasa\_pds\_corpws\_0xxx:ref.cat HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  >  < HTTP/1.1 200  < Content-disposition: attachment; filename="products\_pds-package-20190417114033.zip.zip"  < Content-Type: application/zip  < Content-Length: 42106  < Date: Wed, 17 Apr 2019 18:40:33 GMT  <  { [7995 bytes data]  100 42106 100 42106 0 0 94082 0 --:--:-- --:--:-- --:--:-- 94833  \* Connection #0 to host localhost left intact  Step 4: in 9b, the file gets created, but the browser shows nothing  Steps 6-9 show no differences  Step 10: Visually check that the values from the first two lines match the last two  MD5(x1/MISSION.CAT)= 26c45a1436ae9dfa14ac4fbd3366baad  MD5(x1/REF.CAT)= 85454be035f2545377f8e4e12e6e83a2  85454be035f2545377f8e4e12e6e83a2 REF.CAT  26c45a1436ae9dfa14ac4fbd3366baad MISSION.CAT |
| Comments | Results met success criteria. |
| Date of Testing | 2019.04.17 |
| Test Personnel | Richard Chen |

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| Test Case ID | TPRT.3 |
| Description | Request data from transport-ofsn by specifying a path. Transport-ofsn can also transform the requested product. |
| Requirements | L5.TRS.3: The service shall transform the requested product(s) or file into the specified format. |
| Success Criteria | The original and the transformed products have the same data. |
| Test Steps | Besides $CATALINA\_HOME/webapps/transport-ofsn/WEB-INF/config.xml, modify $CATALINA\_HOME/webapps/transport-ofsn/WEB-INF/ofsn-ps.xml so that  oodt:ofsn/productRoot=*testDir*  To activate that change:  shutdown.sh; startup.sh  Test every Return Type listed in the middle of <https://pds-engineering.jpl.nasa.gov/development/pds4/7.1.0/transport/transport-ofsn/operate>. First, some ls information:   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/&RT=DIRFILELIST" 2. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/&RT=DIRFILELIST1" 3. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/&RT=DIRLIST" 4. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/&RT=DIRLIST1" 5. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.tab&RT=FILELIST" 6. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.tab&RT=FILE\_LIST\_ZIP"   A get, then some ls information about that file   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.tab&RT=RAW" > x.xml 2. diff x.xml *testDir*/testTprt/ladee\_ldex.tab 3. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.tab&RT=RAW\_SIZE" 4. ls -ol *testDir*/testTprt/ladee\_ldex.tab 5. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.tab&RT=MD5" 6. openssl md5 *testdir*/testTprt/ladee\_ldex.tab   Some image transformations (get and transform)   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_JPG" > x.jpg 2. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_JP2" > x.jp2 3. nothing; PDS\_TO\_BMP is no longer supported. 4. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_GIF" > x.gif 5. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_PNG" > x.png 6. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_TIFF" > x.tiff 7. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_TIF" > x.tif 8. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testPrep/i943630r.xml&RT=PDS\_TO\_PNM" > x.pnm   Some label transformations   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.xml&RT=PDS4\_TO\_PVL" > x.pvl 2. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.xml&RT=PDS4\_TO\_HTML" > x.html 3. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.xml&RT=PDS4\_TO\_HTML\_STRUCTURE\_ONLY" > xSO.html 4. Using editor or browser, visually compare x.\* with *testDir*/testTprt/ladee\_ldex.xml   Data transformation   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/ladee\_ldex.xml&RT=PDS4\_TO\_CSV" 2. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/msl\_chemcam.lbl&RT=PDS3\_TO\_PDS4\_LABEL" 3. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/msl\_chemcam.lbl&RT=PDS\_LABEL"   More “Return Type”s   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/msl\_chemcam.lbl&RT=PDS\_ZIP" > x.zip 2. unzip x.zip 3. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/msl\_chemcam.lbl&RT=PDS\_ZIP\_SIZE" 4. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt&RT=PDS\_ZIPD" > x.zip 5. unzip x.zip 6. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt&RT=PDS\_ZIPD\_SIZE"   Currently unsupported capabilities: FITS file, CDF file   1. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/mvn\_lpw.xml&RT=PDS\_TO\_JPG" 2. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/mvn\_iuv.xml&RT=PDS\_TO\_JPG"   Check proper handling of inaccessible directories   1. chmod 000 *testDir*/testTprt/dirLevel1a/dirLevel2 2. curl "http://localhost:8080/transport-ofsn/prod?OFSN=/testTprt/dirLevel1a/&RT=DIRFILELIST" 3. cp *testDir*/testTprt/dirLevel1a/fileLevel2b.txt *testDir*/testTprt/dirLevel1a/.ignoreME 4. chmod 777 *testDir*/testTprt/dirLevel1a/dirLevel2 5. repeat step 37 6. rm *testDir*/testTprt/dirLevel1a/.ignoreME |
| Test Results | Step 1:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/a0013.qub</OFSN>  <fileSize>50339840</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/a0013.xml</OFSN>  <fileSize>22618</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.tab</OFSN>  <fileSize>500</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.xml</OFSN>  <fileSize>7031</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/msl\_chemcam.csv</OFSN>  <fileSize>2241087</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/msl\_chemcam.lbl</OFSN>  <fileSize>28086</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_iuv.fits</OFSN>  <fileSize>449280</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_iuv.xml</OFSN>  <fileSize>75445</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_lpw.cdf</OFSN>  <fileSize>230296</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_lpw.xml</OFSN>  <fileSize>8423</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1b/tcshrc</OFSN>  <fileSize>29</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2a.txt</OFSN>  <fileSize>72</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2b.txt</OFSN>  <fileSize>307</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/dirLevel2/fileLevel3.txt</OFSN>  <fileSize>1550</fileSize>  </dirEntry>  </dirResult>  Step 2:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/a0013.qub</OFSN>  <fileSize>50339840</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/a0013.xml</OFSN>  <fileSize>22618</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.tab</OFSN>  <fileSize>500</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.xml</OFSN>  <fileSize>7031</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/msl\_chemcam.csv</OFSN>  <fileSize>2241087</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/msl\_chemcam.lbl</OFSN>  <fileSize>28086</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_iuv.fits</OFSN>  <fileSize>449280</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_iuv.xml</OFSN>  <fileSize>75445</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_lpw.cdf</OFSN>  <fileSize>230296</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_lpw.xml</OFSN>  <fileSize>8423</fileSize>  </dirEntry>  </dirResult>  Step 3:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a</OFSN>  <fileSize>1929</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1b</OFSN>  <fileSize>29</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/dirLevel2</OFSN>  <fileSize>1550</fileSize>  </dirEntry>  </dirResult>  Step 4:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry>  <OFSN>testTprt/dirLevel1a</OFSN>  <fileSize>379</fileSize>  </dirEntry>  <dirEntry>  <OFSN>testTprt/dirLevel1b</OFSN>  <fileSize>29</fileSize>  </dirEntry>  </dirResult>  Step 5:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.tab</OFSN>  <fileSize>500</fileSize>  </dirEntry>  </dirResult>  Step 6:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>ladee\_ldex.tab.zip</OFSN>  <fileSize>295</fileSize>  </dirEntry>  </dirResult>  Step 7:  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  100 500 100 500 0 0 2479 0 --:--:-- --:--:-- --:--:-- 2512  Step 8 shows no difference  Step 9:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <fileSize>500</fileSize>  </dirEntry>  Step 10: Result from this step matches previous step  -rwxr-xr-x 1 rchen 500 Oct 25 2014 *testDir*/testTprt/ladee\_ldex.tab  Step 11:  1c95600a27bf27ddaddaa9bdedaff44d  Step 12: Result from this step matches previous step  MD5(testTprt/ladee\_ldex.tab)= 1c95600a27bf27ddaddaa9bdedaff44d  Steps 13-20: the file sizes differ, but the images are always:  Macintosh HD:Users:rchen:Desktop:x.jpg  Step 21:  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  100 6019 100 6019 0 0 10450 0 --:--:-- --:--:-- --:--:-- 10486  Step 22:  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  100 29172 100 29172 0 0 404k 0 --:--:-- --:--:-- --:--:-- 418k  Step 23:  % Total % Received % Xferd Average Speed Time Time Time Current  Dload Upload Total Spent Left Speed  100 10799 100 10799 0 0 280k 0 --:--:-- --:--:-- --:--:-- 301k  Step 24:../../../../../../Desktop/Screen%20Shot%202017-04-21%20at%2  Step 25-33: as expected  Steps 34,35:  <!DOCTYPE html><html><head><title>Apache Tomcat/8.5.5 - Error report</title><style type="text/css">H1 {font-family:Tahoma,Arial,sans-serif;color:white;background-color:#525D76;font-size:22px;} H2 {font-family:Tahoma,Arial,sans-serif;color:white;background-color:#525D76;font-size:16px;} H3 {font-family:Tahoma,Arial,sans-serif;color:white;background-color:#525D76;font-size:14px;} BODY {font-family:Tahoma,Arial,sans-serif;color:black;background-color:white;} B {font-family:Tahoma,Arial,sans-serif;color:white;background-color:#525D76;} P {font-family:Tahoma,Arial,sans-serif;background:white;color:black;font-size:12px;}A {color : black;}A.name {color : black;}.line {height: 1px; background-color: #525D76; border: none;}</style> </head><body><h1>HTTP Status 500 - </h1><div class="line"></div><p><b>type</b> Exception report</p><p><b>message</b> <u></u></p><p><b>description</b> <u>The server encountered an internal error that prevented it from fulfilling this request.</u></p><p><b>exception</b></p><pre>java.lang.NullPointerException  gov.nasa.pds.transport.AbstractPdsGetHandler.sizeOf(AbstractPdsGetHandler.java:101)  gov.nasa.pds.transport.OFSNFileHandler.query(OFSNFileHandler.java:192)  org.apache.oodt.grid.ProductQueryServlet.handleQuery(ProductQueryServlet.java:63)  org.apache.oodt.grid.QueryServlet.doPost(QueryServlet.java:102)  org.apache.oodt.grid.QueryServlet.doGet(QueryServlet.java:75)  javax.servlet.http.HttpServlet.service(HttpServlet.java:622)  javax.servlet.http.HttpServlet.service(HttpServlet.java:729)  org.apache.tomcat.websocket.server.WsFilter.doFilter(WsFilter.java:52)  </pre><p><b>note</b> <u>The full stack trace of the root cause is available in the Apache Tomcat/8.5.5 logs.</u></p><hr class="line"><h3>Apache Tomcat/8.5.5</h3></body></html>  Step 37: inaccessible directory ignored  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2a.txt</OFSN>  <fileSize>72</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2b.txt</OFSN>  <fileSize>307</fileSize>  </dirEntry>  Step 40:  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2a.txt</OFSN>  <fileSize>72</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2b.txt</OFSN>  <fileSize>307</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/dirLevel2/fileLevel3.txt</OFSN>  <fileSize>1550</fileSize>  </dirEntry>  </dirResult> |
| Comments | Results met test criteria  <https://oodt.jpl.nasa.gov/jira/browse/PDS-322>, created during build 5a, requests:  1) (from Step 27) PDS3\_TO\_PDS4\_LABEL translate PDS3’s SPREADSHEET/FIELD/DESCRIPTION to PDS4’s Field\_Delimited/description  2) (from Step 29) PDS\_LABEL correctly carry over PDS3 constructs GROUP,  namespaces, post-value units, and pointers to documentation |
| Date of Testing | 2019.04.17 |
| Test Personnel | Richard Chen |

|  |  |
| --- | --- |
| Test Case ID | TPRT.4 |
| Description | Request data using the Transport Proxy, a proxy layer for PDS3 product servers |
| Requirements | PASS L5.TRS.1: The service shall accept requests for download of PDS products. |
| Success Criteria | The transport service returns the requested data. |
| Test Steps | $CATALINA\_HOME/webapps/prod/WEB-INF/classes/aliases.properties determines where the aliased request, so append line:  urn\:eda\:rmi\:PDS.testme=http\://localhost\:8080/transport-ofsn/prod  and shutdown.sh and startup.sh. Then   1. curl -X GET -v "http://localhost:8080/prod/?object=PDS.testme&keywordQuery=OFSN+EQ+/testTprt+AND+RT+EQ+DIRFILELIST" |
| Test Results | Step 1: the heart of the output matches step 1 of TRPT.1  Note: Unnecessary use of -X or --request, GET is already inferred.  \* Trying ::1...  \* Connected to localhost (::1) port 8080 (#0)  > GET /prod/?object=PDS.testme&keywordQuery=OFSN+EQ+/testTprt+AND+RT+EQ+DIRFILELIST HTTP/1.1  > Host: localhost:8080  > User-Agent: curl/7.48.0  > Accept: \*/\*  >  < HTTP/1.1 200  < Content-Type: text/xml  < Content-Length: 1756  < Date: Wed, 17 Apr 2019 20:56:37 GMT  <  <?xml version="1.0" encoding="UTF-8"?>  <dirResult xmlns="http://oodt.jpl.nasa.gov/xml/namespaces/dirlist/1.0">  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.tab</OFSN>  <fileSize>500</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/ladee\_ldex.xml</OFSN>  <fileSize>7031</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/msl\_chemcam.lbl</OFSN>  <fileSize>28086</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_lpw.cdf</OFSN>  <fileSize>230296</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_iuv.xml</OFSN>  <fileSize>75445</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_lpw.xml</OFSN>  <fileSize>8423</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/msl\_chemcam.csv</OFSN>  <fileSize>2241087</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/a0013.xml</OFSN>  <fileSize>22618</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/a0013.qub</OFSN>  <fileSize>50339840</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/mvn\_iuv.fits</OFSN>  <fileSize>449280</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1b/tcshrc</OFSN>  <fileSize>29</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2b.txt</OFSN>  <fileSize>307</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/fileLevel2a.txt</OFSN>  <fileSize>72</fileSize>  </dirEntry>  <dirEntry xmlns="">  <OFSN>/testTprt/dirLevel1a/dirLevel2/fileLevel3.txt</OFSN>  <fileSize>1550</fileSize>  </dirEntry>  \* Connection #0 to host localhost left intact |
| Comments | Results met test criteria |
| Date of Testing | 2019.04.17 |
| Test Personnel | Richard Chen |

|  |  |
| --- | --- |
| Test Case ID | TPRT.5 untested in 9b: search-service is not installed in $TOMCAT\_HOME/webapps |
| Description | Request multiple files from transport-registry by specifying multiple LIDs |
| Requirements | PASS L5.TRS.1: The service shall accept requests for download of PDS products. |
| Success Criteria | The transport service returns the requested data. |
| Test Steps | Since this feature uses the search registry instead of the normal registry, first run AAFUNCTION.3, then from $CATALINA\_HOME/webapps/transport-registry/WEB-INF/config.xml, remove  <server className="gov.nasa.pds.transport.RegistryProductHandler" type="product"/>  <property key="gov.nasa.pds.transport.RegistryProductHandler.tmpDir">/tmp</property>  <property key="gov.nasa.pds.transport.RegistryProductHandler.registryUrl">http://localhost:8080/registry-pds3,http://localhost:8080/registry-pds4</property>  (and possibly shutdown.sh; startup.sh). Then run AAFUNCTION.4, then:   1. cd *testDir*; mkdir x; cd x 2. grep logical\_identifier ../bundle\_geo\_ra/data\_derived/\*xml | sed 's/.\*<.\*>\(.\*\)<\/.\*>/\1/' > lids.txt 3. cat lids.txt 4. curl -X GET -o derived.zip -v "http://localhost:8080/transport-registry/prod?identifier-list=file:///*testDir*/x/lids.txt" 5. unzip derived.zip; cd .. 6. diff -r x bundle\_geo\_ra/data\_derived 7. rm -r x |
| Test Results |  |
| Comments |  |
| Date of Testing |  |
| Test Personnel | Richard Chen |

|  |  |
| --- | --- |
| Test Case ID | TPRT.6 |
| Description | Upload files to a staging area |
| Requirements | PASS. No specific functional requirement. |
| Success Criteria | The transport service returns the requested data. |
| Test Steps | 1. In a browser, <http://localhost:8080/transport-upload/> 2. Click “Browse”. Navigate to *testDir* and select testProcs.docx 3. diff /tmp/testProcs.docx *testDir*/testProcs.docx |
| Test Results | Step 2:  Step 3 shows no difference |
| Comments | Results met test criteria. |
| Date of Testing | 2019.04.17 |
| Test Personnel | Richard Chen |

## Anomalies

PDS uses the JIRA tracking system (<http://www.atlassian.com/software/jira>) to capture issues such as those found during testing. The full list of issues, including those raised by sources other than testing, is located at:

<http://oodt.jpl.nasa.gov/jira/browse/PDS>

In the tables below:

* Column 1: the issue’s status. Issues below are closed (i.e. resolved) unless marked “open”.
* Column 2: the JIRA issue number. To see the full issue, go to  
  http://oodt.jpl.nasa.gov/jira/browse/PDS-<n>
* Column 3: the issue’s severity: major anomaly, minor anomaly, request for improvement
* Column 4: test case that demonstrates the issue and its resolution, if closed
* Column 5: brief description of the issue

Testing of build 1b found 1 major anomaly, 0 minor, 0 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-1](http://oodt.jpl.nasa.gov/jira/browse/PDS-1) | major | REG.1 | Registry: >1 copy of associations if reregistration of a deleted product |

Testing of build 1c found 0 major anomalies, 1 minor, 1 improvement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-34](http://oodt.jpl.nasa.gov/jira/browse/PDS-34) | improve | n/a – expected behavior | Registry: association to obsoleted product not automatically updated |
| closed | [PDS-35](http://oodt.jpl.nasa.gov/jira/browse/PDS-35) | minor | n/a – expected behavior | Validate: -x fails unexpectedly |

Testing of build 1d found 1 major anomaly, 2 minor, 2 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-45](http://oodt.jpl.nasa.gov/jira/browse/PDS-45) | improve | REG.9 | Registry: curl –X DELETE …/registry/packages/<guid>/members fails |
| closed | [PDS-46](http://oodt.jpl.nasa.gov/jira/browse/PDS-46) | minor | REG.4 | Validate: -x fails unexpectedly |
| closed | [PDS-47](http://oodt.jpl.nasa.gov/jira/browse/PDS-47) | minor | REG.6 | Registry: product’s initial status is “Unknown” |
| closed | [PDS-48](http://oodt.jpl.nasa.gov/jira/browse/PDS-48) | improve | n/a – expected behavior | Validate: files within bundle.xml are not validated |
| closed | [PDS-49](http://oodt.jpl.nasa.gov/jira/browse/PDS-49) | major | HVT.2 | Harvest: HarvestController does not start |

Testing of build 2a found 0 major anomalies, 0 minor, 0 improvements

Testing of build 2b found 3 major anomalies, 2 minor, 3 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-52](http://oodt.jpl.nasa.gov/jira/browse/PDS-52) | major | CTLG.3 | Catalog: -m ingest does not handle multiple \*\_CATALOG in voldesc |
| closed | [PDS-53](http://oodt.jpl.nasa.gov/jira/browse/PDS-53) | major | n/a – expected behavior | Catalog: -m ingest quits without voldec.cat |
| closed | [PDS-54](http://oodt.jpl.nasa.gov/jira/browse/PDS-54) | improve | CTLG.3 | Catalog: -m ingest gives uninformative error message for dsmap file |
| closed | [PDS-55](http://oodt.jpl.nasa.gov/jira/browse/PDS-55) | improve | moved to PDS-113 and -114 | Generate: can’t handle some constructs |
| closed | [PDS-56](http://oodt.jpl.nasa.gov/jira/browse/PDS-56) | major | SCH.5 | Search: if >10 results, only the first 10 are accessible |
| closed | [PDS-57](http://oodt.jpl.nasa.gov/jira/browse/PDS-57) | minor | SCH.3 | Search: superseded datasets returned |
| closed | [PDS-58](http://oodt.jpl.nasa.gov/jira/browse/PDS-58) | improve | PRG.1 | Generate: bad error message when neither –d nor –o is given |
| closed | [PDS-63](http://oodt.jpl.nasa.gov/jira/browse/PDS-63) | minor | HVT.6 | Harvest: crashes on one specific file |

Testing of build 2c found 0 major anomalies, 1 minor, 4 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-85](http://oodt.jpl.nasa.gov/jira/browse/PDS-85) | improve | PRV.1 | Validate: should use schema and schematron specified in labels |
| closed | [PDS-86](http://oodt.jpl.nasa.gov/jira/browse/PDS-86) | improve | n/a – expected behavior | Search: after searching and refining, new search unintentionally refines |
| closed | [PDS-87](http://oodt.jpl.nasa.gov/jira/browse/PDS-87) | minor | CTLG.1 | Catalog: -cconfig fails |
| closed | [PDS-88](http://oodt.jpl.nasa.gov/jira/browse/PDS-88) | improve | CTLG.3 | Catalog: bad output message when voldesc points to a missing file |
| closed | [PDS-89](http://oodt.jpl.nasa.gov/jira/browse/PDS-89) | improve | CTLG.3 | Catalog: -m ingest gives too long an error message for a bad password |

Testing of build 3a found 0 major anomalies, 2 minor, 3 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| open | [PDS-113](http://oodt.jpl.nasa.gov/jira/browse/PDS-113) | improve | PRG.1 | Generate: handle detached files in labels |
| closed | [PDS-114](http://oodt.jpl.nasa.gov/jira/browse/PDS-114) | improve | PRG.1 | Generate: update tool scenario documentation |
| closed | [PDS-123](http://oodt.jpl.nasa.gov/jira/browse/PDS-123) | improve | CTLG.3 | Catalog: poor error message if no config file or command-line params |
| closed | [PDS-125](http://oodt.jpl.nasa.gov/jira/browse/PDS-125) | minor | SCH.3, SCH.5 | Search: superseded data sets appear, and search tools don’t |
| closed | [PDS-134](http://oodt.jpl.nasa.gov/jira/browse/PDS-134) | minor | SCH.5 | Search: incorrectly handles slashes in dataset ID |

Testing of build 3b found 0 major anomalies, 1 minor, 5 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-161](http://oodt.jpl.nasa.gov/jira/browse/PDS-161) | improve | CTLG.1 | Catalog: -m compare should compare token by token, not line by line |
| closed | [PDS-162](http://oodt.jpl.nasa.gov/jira/browse/PDS-162) | improve | n/a – expected behavior | Catalog: -m ingest does nothing with reference.cat |
| closed | [PDS-163](http://oodt.jpl.nasa.gov/jira/browse/PDS-163) | improve | CTLG.3 | Catalog: -m ingest reregisters files if listed in multiple voldescs |
| closed | [PDS-164](http://oodt.jpl.nasa.gov/jira/browse/PDS-164) | minor | n/a – expected behavior | Search: search-ui returns differently than search-service |
| closed | [PDS-165](http://oodt.jpl.nasa.gov/jira/browse/PDS-165) | improve | SRCH.5 | Search: for targets, show PRIMARY\_BODY\_NAME when not N/A. |
| open | [PDS-166](http://oodt.jpl.nasa.gov/jira/browse/PDS-166) | improve | HVT.5 | Harvest: check if secondary members match primary members |

Testing of build 4a found 1 major anomaly, 0 minor, 3 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-213](http://oodt.jpl.nasa.gov/jira/browse/PDS-213) | major | PRV.2 | Validate: the tool is not finding document files correctly |
| closed | [PDS-220](http://oodt.jpl.nasa.gov/jira/browse/PDS-220) | improve | AAFUNCTION.4 | Search: many resultant resource products clutter output |
| closed | [PDS-225](http://oodt.jpl.nasa.gov/jira/browse/PDS-225) | improve | SCMA.1/SCMA.REL1101N2 | Validate: treat role="warning" differently than default (role="error") |
| closed | [PDS-227](https://oodt.jpl.nasa.gov/jira/browse/PDS-227) | improve | CTLG.3 | Catalog: Re-ingesting a file skipped during ingest (e.g. ref.cat) re-registers it |

Testing of build 4b found 0 major anomalies, 2 minor, 1 improvement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-257](https://oodt.jpl.nasa.gov/jira/browse/PDS-257) | minor | PRV.2 | Transform tool does nothing with TABLEs and COLUMNs for PDS3->PDS4 |
| open | [PDS-258](https://oodt.jpl.nasa.gov/jira/browse/PDS-258) | improve | SCH.5 | In search-ui’s results, merge 2 related facets into 1 |
| closed | [PDS-259](https://oodt.jpl.nasa.gov/jira/browse/PDS-259) | minor | SCH.5 | Generate balks at a getRecords() call that previously worked |

Testing of build 5a found 0 major anomalies, 4 minor, 7 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-312](https://oodt.jpl.nasa.gov/jira/browse/PDS-312) | improve | AAFUNCTION.3 | http://localhost:8080/registry-ui needs one unexpected click |
| closed | [PDS-313](https://oodt.jpl.nasa.gov/jira/browse/PDS-313) | minor | PRT.1 | transform transforms only the first column of a table |
| closed | [PDS-314](https://oodt.jpl.nasa.gov/jira/browse/PDS-314) | minor | PRV.1 | validate dirX passes, but validate 1fileInDirX fails |
| closed | [PDS-315](https://oodt.jpl.nasa.gov/jira/browse/PDS-315) | minor | PRV.2 | validate misses invalid directory\_path\_name |
| closed | [PDS-316](https://oodt.jpl.nasa.gov/jira/browse/PDS-316) | improve | PRV.3 | clarify and check for proper usage of referential integrity feature |
| closed | [PDS-317](https://oodt.jpl.nasa.gov/jira/browse/PDS-317) | improve | SRCH.3 | registry-ui takes FOREVER to approve a large package |
| open | [PDS-319](https://oodt.jpl.nasa.gov/jira/browse/PDS-319) | improve | SRCH.6 | search-ui returns different results for “target:mercury” and “target: mercury” |
| closed | [PDS-321](https://oodt.jpl.nasa.gov/jira/browse/PDS-321) | minor | TPRT.1 | transport TGZ\_SIZE, ZIPD\_SIZE oddly return the sum of size of raw files |
| open | [PDS-322](https://oodt.jpl.nasa.gov/jira/browse/PDS-322) | improve | TPRT.3 | transport with various RTs could handle some PDS3 features better |
| closed | [PDS-323](https://oodt.jpl.nasa.gov/jira/browse/PDS-323) | improve | TPRT.3 | transport PDS4\_TO\_CSV chokes on data\_type ASCII\_Date\_Time |
| closed | [PDS-324](https://oodt.jpl.nasa.gov/jira/browse/PDS-324) | improve | TPRT.3 | transport doesn’t transform FITS or CDF files |

Testing of build 5b found 0 major anomalies, 5 minor, 3 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-348](https://oodt.jpl.nasa.gov/jira/browse/PDS-348) | minor | HVT.5 | Cannot delete two packages at one time. |
| open | [PDS-343](https://oodt.jpl.nasa.gov/jira/browse/PDS-343) | minor | PRT.1 | Was PDS-349. Ugly warning message from transform |
| closed | [PDS-350](https://oodt.jpl.nasa.gov/jira/browse/PDS-350) | improve | POR.1 | Remove extra carriage-return in long output value |
| closed | [PDS-351](https://oodt.jpl.nasa.gov/jira/browse/PDS-351) | minor | PRV.1 | Validate with multiple schemas fails |
| closed | [PDS-352](https://oodt.jpl.nasa.gov/jira/browse/PDS-352) | improve | PRV.3 | Reduce ugliness of error message |
| closed | [PDS-353](https://oodt.jpl.nasa.gov/jira/browse/PDS-353) | minor | TPRT.3 | Disambiguate transport-ofsn’s output |
| closed | [PDS-355](https://oodt.jpl.nasa.gov/jira/browse/PDS-355) | minor | SRCH.8 | dd-search incorrectly orders PDS3 Attribute |
| open | [PDS-357](https://oodt.jpl.nasa.gov/jira/browse/PDS-357) | improve | SRCH.8 | Questions about why some Attributes and Classes are missing. |

Testing of build 6a found 0 major anomalies, 3 minor, 2 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-397](https://oodt.jpl.nasa.gov/jira/browse/PDS-397) | minor | HVT.2 | harvest –P –w finds no files in persistent mode |
| open | [PDS-398](https://oodt.jpl.nasa.gov/jira/browse/PDS-398) | improve | PRG.1 | generate -o behaves unexpectedly |
| closed | [PDS-366](https://oodt.jpl.nasa.gov/jira/browse/PDS-366) | improve | PRT.1 | Was PDS-399. works under java 1.6 but not 1.8 |
| closed | [PDS-401](https://oodt.jpl.nasa.gov/jira/browse/PDS-401) | minor | PRV.3 | warn when bundle has LID references not in the bundle |
| closed | [PDS-402](https://oodt.jpl.nasa.gov/jira/browse/PDS-402) | minor | HVT.7 | associations persist after package deleted |

Testing of build 6b found 1 major anomaly, 1 minor, 2 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-443](https://oodt.jpl.nasa.gov/jira/browse/PDS-443) | major | AAFUNCTION.3 | Harvest doesn’t handle collection.xml files conforming to schematron 1600 |
| closed | [PDS-444](https://oodt.jpl.nasa.gov/jira/browse/PDS-444) | improve | CTLG.3 | catalog –mingest has long warnings and incorrect documentation |
| closed | [PDS-446](https://oodt.jpl.nasa.gov/jira/browse/PDS-446) | improve | PRT.2 | Ugly warning message when transforming an Array\_3D\_Image |
| closed | [PDS-447](https://oodt.jpl.nasa.gov/jira/browse/PDS-447) | minor | TPRT.5 | transport-registry/prod?identifier-list doesn’t work |

Testing of build 7a found 0 major anomalies, 1 minor, 1 improvement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-469](https://oodt.jpl.nasa.gov/jira/browse/PDS-469) | minor | HVT.6 | Harvest of non-data picks up hidden files |
| closed | [PDS-470](https://oodt.jpl.nasa.gov/jira/browse/PDS-470) | minor | PRG.1 | Generate filters instead of passing through elements with nil values |

Testing of build 7b found 0 major anomalies, 2 minor, 1 improvement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-486](https://oodt.jpl.nasa.gov/jira/browse/PDS-486) | minor | PRV.1 | Spurious errors possibly related to validate’s -e option |
| closed | [PDS-496](https://oodt.jpl.nasa.gov/jira/browse/PDS-469) | improve | PRV.3 | Validate picks up hidden files. Rejected. |
| open | [PDS-497](https://oodt.jpl.nasa.gov/jira/browse/PDS-497) | minor | HVT.8 | Handle filename beginning with / and checksum in all caps |

Testing of build 8a found 0 major anomalies, 3 minor, 3 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-518](https://oodt.jpl.nasa.gov/jira/browse/PDS-518) | improve | MOD.1 | Unexpected error messages |
| closed | [PDS-519](https://oodt.jpl.nasa.gov/jira/browse/PDS-519) | improve | PRG.1 | Unexpected warning messages |
| open | [PDS-520](https://oodt.jpl.nasa.gov/jira/browse/PDS-520) | minor | PRV.1 | Handle “+” in format |
| closed | [PDS-521](https://oodt.jpl.nasa.gov/jira/browse/PDS-521) | minor | PRV.1 | Option -R pds4.bundle negates -e "\*.xml" |
| closed | [PDS-522](https://oodt.jpl.nasa.gov/jira/browse/PDS-522) | improve | PRV.2 | Less brutal error message for missing file |
| closed | [PDS-523](https://oodt.jpl.nasa.gov/jira/browse/PDS-523) | minor | PRT.1 | Transform fails on table\_character to pds3-label |

Testing of build 8b found 2 major anomalies, 4 minor, 0 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-501](https://oodt.jpl.nasa.gov/jira/browse/PDS-501) | minor | PRV.7 | Reopened. Changes to validate’s output make some errors look ok |
| closed | [PDS-533](https://oodt.jpl.nasa.gov/jira/browse/PDS-533) | minor | PRT.3 | Output pds4 label does not validate |
| open | [PDS-548](https://oodt.jpl.nasa.gov/jira/browse/PDS-548) | minor | PRT.3 | Stop generate if errors |
| closed | [PDS-558](https://oodt.jpl.nasa.gov/jira/browse/PDS-558) | major | MOD.1 | Produces unusable .xsd |
| closed | [PDS-559](https://oodt.jpl.nasa.gov/jira/browse/PDS-559) | major | PRS.1 | Do something, anything |
| closed | [PDS-560](https://oodt.jpl.nasa.gov/jira/browse/PDS-560) | minor | PRT.3 | Update the outputted xml |

Testing of build 9a found 0 major anomalies, 4 minor, 1 improvement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| closed | [PDS-573](https://oodt.jpl.nasa.gov/jira/browse/PDS-573) | minor | PRT.1 | Reopened. Support orientation better. |
| open | [PDS-615](https://oodt.jpl.nasa.gov/jira/browse/PDS-615) | improve | SRCH.8 | Indicate which classes are deprecated. |
| closed | PDS-618 | minor | PRV.7 | validate hangs when traversing remote site with bad labels |
| open | [PDS-620](https://oodt.jpl.nasa.gov/jira/browse/PDS-620) | minor | PRV.7 | validate -R pds4.bundle on a collection is off |
| closed | [PDS-621](https://oodt.jpl.nasa.gov/jira/browse/PDS-621) | minor | TPRT.5 | transport-registry choked on something |

Testing of build 9b found 1 major anomalies, 2 minor, 7 improvements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| open | [PDS-602](https://osr.jpl.nasa.gov/jira/browse/PDS-602) | improve | PRT.2 | Reopened. Transform Array\_3D\_Image to FITS fails for >3 bands |
| open | [PDS-605](https://osr.jpl.nasa.gov/jira/browse/PDS-605) | improve | PRV.3 | Reopened. LID of collection does not fit LID of bundle. |
| closed | [PDS-833](https://osr.jpl.nasa.gov/jira/browse/PDS-833) | major | PRI.1 | Inspect: unclear installation procedure |
| open | PDS-834 | improve | PRT.3 | Transform -f pds4-label creates a .xml file with incurrect lid\_references |
| open | PDS-835 | improve | PRV.1 | Validate flags LIDs of context products available on starbase for months |
| open | PDS-837 | improve | PRV.7 | Add option to validate to flag dangling files |
| open | [PDS-839](https://osr.jpl.nasa.gov/jira/browse/PDS-839) | improve | EML.1 | Clicking “Send” button fails |
| open | [PDS-887](https://osr.jpl.nasa.gov/jira/browse/PDS-887) | improve | PRI.1 | Better vertically orient .qub files |
| open | [PDS-888](https://osr.jpl.nasa.gov/jira/browse/PDS-888) | minor | HVT.7 | registry-ui can’t change status on the Product tab |
| open | [PDS-890](https://osr.jpl.nasa.gov/jira/browse/PDS-890) | minor | AAFUNCTION.2 | Validate generates a weird java warning |

## Requirements Traceability

This test traceability matrix lists the requirement ID, the system component of the requirement, the ID of the test case in Section 3 that tests the requirement, and the status of the test.

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement #** | **System Component** | **Test case ID** | **Test Status** |
| L5.GEN.1 | General System | GEN.1 | pass |
| L5.GEN.2 | General System | GEN.1 | pass |
| L5.GEN.3 | General System | TPRT.1 | pass |
| L5.GEN.4 | General System | PRV.1, PRT.1 | pass |
| L5.GEN.5 | General System | SRCH.3, TPRT.1 | pass |
| L5.GEN.6 | General System | SRCH.5 | pass |
| L5.GEN.7 | General System | HVT.1, PRV.1 | pass |
| L5.GEN.8 | General System | GEN.4 | skip |
| L5.GEN.9 | General System | SRCH.2 | pass |
| L5.GEN.10 | General System | GEN.2 | skip |
| L5.GEN.11 | General System | GEN.7 | pass |
| L5.HVT.1 | Harvest Tool | AAFUNCTION.3, HVT.1, HVT.2, HVT.5 | pass |
| L5.HVT.2 | Harvest Tool | AAFUNCTION.3, HVT.1 | pass |
| L5.HVT.3 | Harvest Tool | HVT.2 | pass |
| L5.HVT.4 | Harvest Tool | AAFUNCTION.3, HVT.1, HVT.2 | pass |
| L5.HVT.5 | Harvest Tool | AAFUNCTION.3, HVT.1, HVT.2, HVT.5 | pass |
| L5.HVT.6 | Harvest Tool | AAFUNCTION.3, HVT.1, HVT.2 | pass |
| L5.HVT.7 | Harvest Tool | AAFUNCTION.3, HVT.1, HVT.2 | pass |
| L5.HVT.8 | Harvest Tool | AAFUNCTION.3, HVT.1, HVT.2, HVT.5 | pass |
| L5.PRP.DE.1 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.DE.2 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.DE.3 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.DE.4 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.DE.5 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.DE.6 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.DE.7 | Prep: Design Tool | AAFUNCTION.1 | pass |
| L5.PRP.VA.1 | Prep: Validation Tool | AAFUNCTION.2, PRV.1 | pass |
| L5.PRP.VA.2 | Prep: Validation Tool | AAFUNCTION.2, PRV.1 | pass |
| L5.PRP.VA.3 | Prep: Validation Tool | AAFUNCTION.2, PRV.3 | pass |
| L5.PRP.VA.4 | Prep: Validation Tool | PRV.4 | pass |
| L5.PRP.VA.5 | Prep: Validation Tool | AAFUNCTION.2, PRV.1 | pass |
| L5.PRP.VA.6 | Prep: Validation Tool | AAFUNCTION.2, PRV.1 | pass |
| L5.PRP.VA.7 | Prep: Validation Tool | AAFUNCTION.2, PRV.3 | pass |
| L5.PRP.VA.8 | Prep: Validation Tool | PRV.5 | pass |
| L5.PRP.VA.9 | Prep: Validation Tool | AAFUNCTION.2, PRV.1 | pass |
| L5.PRP.VA.10 | Prep: Validation Tool | PRV.2 | pass |
| L5.REG.1 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.2 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.3 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.4 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.5 | Registry Service |  |  |
| L5.REG.6 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.7 | Registry Service |  |  |
| L5.REG.8 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.9 | Registry Service |  |  |
| L5.REG.10 | Registry Service |  |  |
| L5.REG.11 | Registry Service |  |  |
| L5.REG.12 | Registry Service |  |  |
| L5.REG.13 | Registry Service |  |  |
| L5.REG.14 | Registry Service | AAFUNCTION.3 | pass |
| L5.REG.15 | Report Service |  |  |
| L5.REG.16 | Report Service |  |  |
| L5.RPT.1 | Report Service | RPT.1 | pass |
| L5.RPT.2 | Report Service | RPT.1 | pass |
| L5.RPT.3 | Report Service | RPT.1 | pass |
| L5.RPT.4 | Report Service | RPT.1 | pass |
| L5.RPT.5 | Report Service | RPT.1 | pass |
| L5.RPT.6 | Report Service | RPT.1 | pass |
| L5.RPT.7 | Report Service | RPT.1 | pass |
| L5.RPT.8 | Report Service | RPT.1 | pass |
| L5.RPT.9 | Report Service | RPT.1 | pass |
| L5.RPT.10 | Report Service | RPT.1 | pass |
| L5.RPT.11 | Report Service | RPT.1 | pass |
| L5.SCH.1 | Search Service | AAFUNCTION.4, POR.1, SRCH.5,SRCH.8 | pass |
| L5.SCH.2 | Search Service | SRCH.1 | skip |
| L5.SCH.3 | Search Service | SRCH.2 | pass |
| L5.SCH.4 | Search Service | SRCH.3 | pass |
| L5.SCH.5 | Search Service | AAFUNCTION.4, SRCH.4 | pass |
| L5.SCH.6 | Search Service | AAFUNCTION.4, SRCH.5 | pass |
| L5.SCH.7 | Search Service | SRCH.6 | pass |
| L5.SCH.8 | Search Service | AAFUNCTION.4, SRCH.6 | pass |
| L5.SCH.9 | Search Service | AAFUNCTION.4, SRCH.6 | pass |
| L5.SCH.10 | Search Service | AAFUNCTION.4, SRCH.6 | pass |
| L5.SCH.11 | Search Service | AAFUNCTION.4, SRCH.6 | pass |
| L5.SCH.12 | Search Service | AAFUNCTION.4 | pass |
| L5.SCH.13 | Search Service | SRCH.7 | skip |
| L5.SEC.1 | Security Service | GEN.2, SEC.1 | pass |
| L5.SEC.2 | Security Service | AAFUNCTION.3, SEC.1 | pass |
| L5.SEC.3 | Security Service | GEN.2, SEC.1 | pass |
| L5.SEC.4 | Security Service | SEC.1 | pass |
| L5.SEC.5 | Security Service | SEC.1 | pass |
| L5.SEC.6 | Security Service | SEC.1 | pass |
| L5.SEC.7 | Security Service | SEC.1 | pass |
| L5.TRS.1 | Transport Service | TPRT.1, TPRT.3, TPRT.4 | pass |
| L5.TRS.2 | Transport Service | TPRT.1 | pass |
| L5.TRS.3 | Transport Service | TPRT.3 | pass |
| L5.TRS.4 | Transport Service | TPRT.1 | pass |
| L5.TRS.5 | Transport Service | TPRT.1 | pass |
| L5.TRS.6 | Transport Service | TPRT.1 | pass |
| 4.2.4 | Catalog Tool | CTLG.1 | pass |
| 4.2.4 | Catalog Tool | CTLG.2 | pass |
| 4.2.4 | Catalog Tool | CTLG.3 | pass |
| 4.2.4 | Harvest Tool | HVT.6 | pass |
| 4.2.2 | Portal | POR.2 | pass |
| L4.PRP.2 | Prep: Generate Tool | PRG.1 | pass |
| L4.PRP.4 | Prep: Transform Tool | PRT.1 | pass |
|  | Prep: PDS4 Tools | PRP.1 | pass |
| 1.3.3 | PDS Requirements | SCMA.1 | pass |
|  | Model: LDDTool | MOD.1 | pass |

Test Status: “skip” signifies requirements not implemented nor tested in build 9b. Those test cases are included for future builds only.

Of the 97 requirements listed above, 91 were tested during Build 9b integration and test.

## Miscellaneous

### Test Data

https://pds-engineering.jpl.nasa.gov/content/build\_9b\_deliverables has this document as well as test data PDS4test.build9b.tgz.

### Test Environment

Build 9b integration and test environment encompasses the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Hostname** | **OS** | **Memory** | **Software** |
| local host (mac) | Mac OS X 10.11.6 | 16GB RAM | Catalog, Harvest, Model, Portal, Preparation (Generate, Extract, Transform, Validate), Registry, Search, Storage, Transport |
| pds-gamma | Linux | 24GB | Security |
| pdsops | Linux | 12GB | Report |

### Configuration Management

The PDS Configuration Management (CM) process will uniquely identify the build 9b and other releases. It will be followed and maintained by the Operations Team, which will act as the configuration management process engineer.

### Acronyms

CM – Configuration Management

DN – PDS Discipline or Data Node

EN – PDS Engineering Node

I&T – Integration and Test

NASA – National Aeronautics and Space Administration

OS – Operating System

PDS – Planetary Data System

PDS3 – Version 3.8 of the PDS Data Standards

PDS4 – Version 4.0 of the PDS Data Standards

PDS MC – PDS Management Council

SDD – Software Design Document

SRD – Software Requirements Document

UI – User Interface