

Jet Propulsion Laboratory
California Institute of Technology

MULTI-MISSION GROUND SYSTEM & SERVICES OFFICE, INTERPLANETARY NETWORK DIRECTORATE



PDS Build 12.1 Test Readiness Review

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Jordan Padams/Thomas Loubrieu/Vivian Tang*

4/7/2022



Agenda

- Review Board
- Work Product Status
- System Package Delivery Status
- Test Objectives
- Test Environment
- Security Scan Results
- Known Security Risks
- Summary of Test Cases
- Key Test Cases
- Test Personnel
- Test Effort
- Testing Constraints and Risks
- Action Item Status
- Deviations
 - Waivers
 - Liens
 - ECRs
 - Other



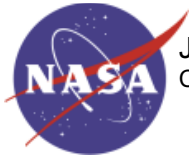
Review Board

Board

Chair	Scott Markham
Chief Engineer	Costin Radulescu
Assurance Engineer	Eva Bokor
Security Systems Engineer	Mike Pajevski
Task Manager	Jordan Padams
Test Engineer	Gary Chen/Richard Chen/John Engelke

Customers

N/A



Work Product Status

Work Product	DMS Doc and Revision ID	DMS Document Status
Test Plan	https://pds-engineering.jpl.nasa.gov/file/release_build_12.1_test_plan.v6.20220407.pdf	Version 1.0
PDS General System Software Requirements Document (SRD) version 1.1	https://pds-engineering.jpl.nasa.gov/file/pds4-system-reqs.pdf-0 https://pds-engineering.jpl.nasa.gov/file/ds4-harvest-design.pdf-0 https://pds-engineering.jpl.nasa.gov/file/pds4-preparation-design.pdf-0 https://pds-engineering.jpl.nasa.gov/file/pds4-registry-design.pdf-0 https://pds-engineering.jpl.nasa.gov/file/pds4-report-design.pdf-0 https://pds-engineering.jpl.nasa.gov/file/pds4-search-design.pdf-0 https://pds-engineering.jpl.nasa.gov/file/pds4-security-design.pdf-0 , as found on https://pds-engineering.jpl.nasa.gov/content/key-documents https://github.com/NASA-PDS-Incubator/pds-deep-archive/blob/master/docs/pds4_nssdca_delivery_design_20191219.docx and https://docs.google.com/spreadsheets/d/18oqtg3DEo2KrgvBOWLSOuqF2uZtq2XmByJwUknYSZUQ/edit#gid=1170315169	Released
Test Procedures	<i>To be developed after TRR</i>	N/A
Test Anomaly & Issues (GitHub Issues)	Issues are tracked under each individual component repository, e. g. https://github.com/NASA-PDS See Release Description for links to specific repositories.	Anomalies found during system test cycles. Task tracking.
Test Support Tools	N/A	N/A
Test Report	<i>To be developed after testing is completed</i>	N/A
System Deployment Guide	See individual tool Installation Guides.	N/A
Release Description	https://nasa-pds.github.io/releases/12.1/rdd.html	N/A



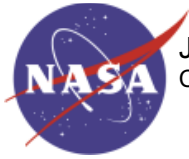
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System Package Delivery Status

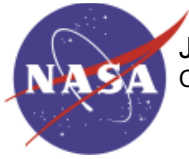


- Software delivered for I&T as described in Release Description Document:
 - <https://nasa-pds.github.io/releases/12.1/rdd.html>



Test Objectives

- Ensure modified tools are
 - Functioning correctly
 - Meeting user needs
 - Meeting requirements



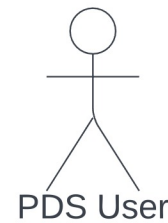
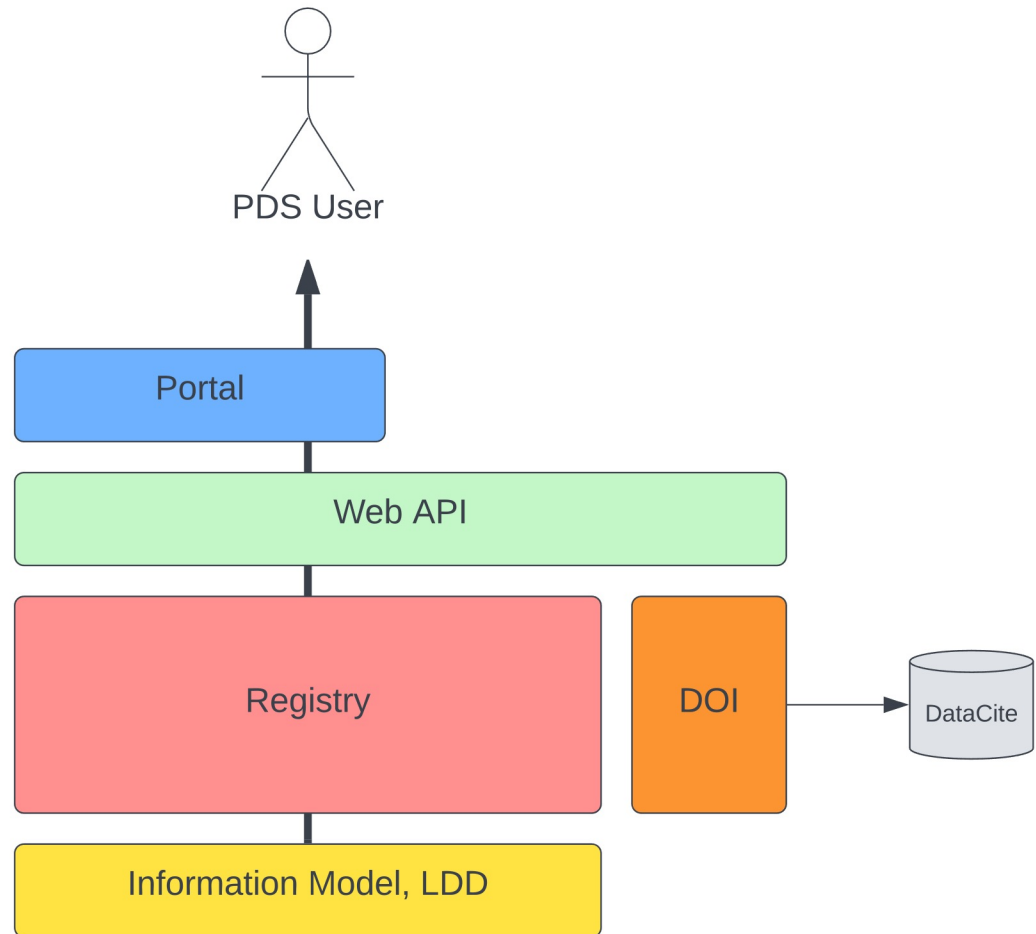
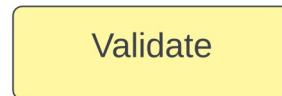
Test Environment

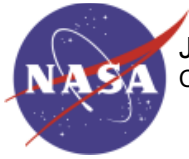
- The software tested can be run on any machine with sufficient resources. At EN:
 - macbook running macOS 10.14.6, 32GB memory
 - pds-int.jpl.nasa.gov, Linux 4.18.0, 16GB memory
 - Docker container, Ubuntu 20.04 LTS, 16GB sys RAM
 - Windows 10 Pro.



Modified components

Component	bug fixes	new requirements	new enhancements
portal	9	3	10
API	7	12	10
registry	16	15	20
validate	15	1	4
Deep Archive	1	0	1
DOI	19	7	10
Information model	5	6	7





Summary of Test Cases

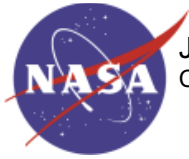


Each item in the [Test Plan](#), referenced earlier, maps 1-to-1 with an improvement, a fix, or an altered requirement that is testable in the RDD.



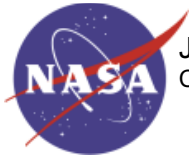
Key Test Cases

- PDS API Services
 - All PDS API requirements / enhancements - all of these requirements are must-have/should-have and critical basis for other components of system
 - [pds-api#139](#) As a user, I want to see API stable release specifications
 - [pds-api#66](#) As an API user, I want to get an XML response
 - [pds-api#125](#) As a user, I want to get the metadata in a pds4+xml response
 - [pds-api#127](#) As a user, I want to clearly see which formats are accepted by the API when a 406 error is raised
 - [pds-api#152](#) As a user, I want the API response media types to be compliant with RFC 6838
 - [pds-api#153](#) As a user, I want to receive error messages when an invalid request is submitted to the API
 - [pds-api#154](#) Refactor *meta* section of pds4+json and pds4+xml to use ops namespace



Key Test Cases

- PDS API Services (Cont.)
 - [pds-api#134](#) As an API user, I want to get a key-value-pair JSON response
 - [pds-api#72](#) As an API user, I want to search by a temporal range as an ISO-8601 time interval
 - [pds-api#120](#) As an API user, I want a CSV response format option
 - [pds-api#106](#) As a API manager, I want to restrict access to registered products that should not be publicly accessible
 - [pds-api#74](#) As an API user, I want to specify whether I get the latest or all versions of a product
 - [pds-api#65](#) As an API user, I want to get only the fields I explicitly requested
 - [pds-api#108](#) Update API endpoints to use *identifier* instead of *lidvid*
 - [pds-api#110](#) Extend application/pds4+json support to all endpoints



Key Test Cases

- PDS Registry Services

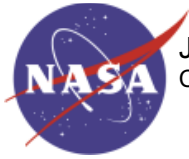
- All PDS registry requirements / enhancements - all of these requirements are must-have/should-have and critical basis for other components of system
 - [pds-registry-app#179](#) As a user, I want the registry app components to be able to ingest data sets containing 1+ million products
 - [pds-registry-app#200](#) As a user, I want big data ingestion tools packaged and dockerized together
 - [pds-registry-app#201](#) As a user, I want to be able to ingest a set of files specified in a file listing
 - [pds-registry-app#223](#) As a user, I want to change the archive status for a collection and it's associated products
 - [pds-registry-app#224](#) As a user, I want to switch a bundle and it's associated collections and products from a protected status to operational.
 - [pds-registry-app#187](#) As a developer, I want to be able to access the registry related docker images from <https://hub.docker.com/>



Key Test Cases

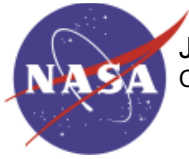
- PDS Registry Services (Cont.)

- [pds-registry-app#241](#) Simplify the readme and procedure to start the registry with docker-compose
- [pds-registry-app#186](#) As a developer, I want to deploy the registry with a single docker-compose command
- [pds-registry-app#260](#) Make CI/CD work on registry-api repository
- [pds-registry-app#90](#) Develop cost model and reporting for Registry deployments
- [pds-registry-app#237](#) Rename bigdata repositories
- [pds-registry-app#245](#) Update the README of the harvest service repositories
- [registry-api-service#52](#) As a developer, I was to be able to use AWS Secrets Manager with registry api service
- [registry-api-service#97](#) Revert ES High Level Java API version 7.13.3
- [registry-api-service#79](#) simple url requested in a browser generate a 500 error



Key Test Cases

- LDDTool
 - [pds4-information-model#341](#) As a user, I want to specify an IngestLDD using a relative path
 - [pds4-information-model#453](#) CCB-335: Inventory Specification Allows Too Many Delimiters
 - [pds4-information-model#448](#) CCB-343: Revise Product_Metadata_Supplemental
 - [pds4-information-model#443](#) CCB-339: add Units_of_Power with SI watts as option
 - [pds4-information-model#450](#) CCB-340 :
<Local_Internal_Reference>.<local_identifier_reference> cardinality
 - [pds4-information-model#446](#) CCB-344: Add
data_to_partially_processed_product to reference types for Internal_Reference
 - [pds4-information-model#421](#) [namespace-registry] add new namespace
“<neas>”
 - [pds4-information-model#440](#) remaining code cleanup / refactoring



Key Test Cases (Cont.)



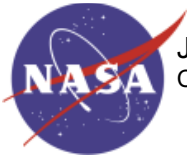
- DOI Service + UI
 - [doi-service#201](#) As an operator, I want to know how to deploy and use the API from the Sphinx documentation
 - [doi-service#202](#) As an operator, I want one place to go for all DOI Service / API / UI documentation
 - [doi-service#257](#) As a PDS Operator, I want to perform a bulk update of a specific field across many DOI records
 - [doi-service#278](#) As a user, I want to update the LIDVID associated with a DOI
 - [doi-service#279](#) As a user, I want to update the bundle/collection metadata associated with a DOI for accumulating data sets
 - [doi-service#317](#) Add Radio Science to set of possible nodes
 - [doi-ui#63](#) As an administrator, I want to deploy the ui from a release and be able to change the back-end API urls



Key Test Cases (Cont.)



- Validate
 - [validate#388](#) Improve PDF/A validation to include more robust reporting on failures
- PLAID
 - [PLAID#30](#) Revise Docker and deployment docs for open source access



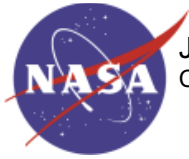
Test Personnel

Person	Role(s)	Assignment(s)	FTE / Days
Gary Chen	Lead EN I&T Tester	Lead PDS I&T	0.75/40
Richard Chen	EN I&T Tester	Support PDS I&T	0.1/40
John Engelke	EN I&T Tester	Support PDS I&T	0.4/40
Total			40 days



Test Effort

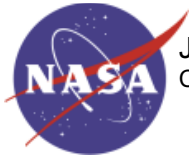
#	Test ID	Mission	Tester	Days to Perform Test
1	information-model (Iddtool)	PDS	JEngelke	5
2	validate	PDS	JEngelke	5
3	registry / harvest	PDS	GChen	4
4	api/api-client	PDS	GChen	7
5	doi service/doi-ui	PDS	GChen	8
6	Pds-wds-react	PDS	GChen	3
7	deep-archive	PDS	GChen	1
8	PLAID, Cloud-tasks, PDS mi-label	PDS	GChen	2
9	Registry-Common/Registry-mgr	PDS	GChen	3
10	Software-issues-repo, Template-repo-java, feedback-widget	PDS	GChen	2
				Total days
				40



Testing Constraints & Risks



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






Action Item Status

- Test Environment
 - pds-int.jpl.nasa.gov: has been upgraded to Linux 4.18.0 to support the Oracle Enterprise Linux (*EL8*) migration.
- NASA Big Fix Scan
 - PDS addresses NASA Big Fix Scan in two-fold
 - Scan related to *application* security are handled by the developers (e.g., NPM audit)
 - Scan related to *infrastructure* security are handled by PDS SA team



Deviations

“CCB” process defined with PDS Software Working Group

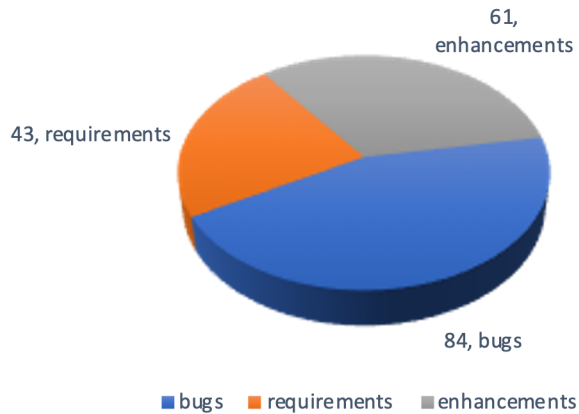
-  [CR] B12.1 Defer improved handling of product versioning B12.1 change-request
#16 opened 4 minutes ago by tloubrieu-jpl ||| Needs Triage
-  [CR] B12.1 Defer Registry external source integration task B12.1 change-request
#15 by jordanpadams was closed on Feb 8
-  [CR] B12.1 Defer Validate Referential Integrity Checking and Logging Improvements B12.1 change-request
#14 by jordanpadams was closed on Feb 8

See details and rational on <https://github.com/NASA-PDS/pds-swg/issues?q=is%3Aissue+label%3AB12.1+label%3Achange-request>

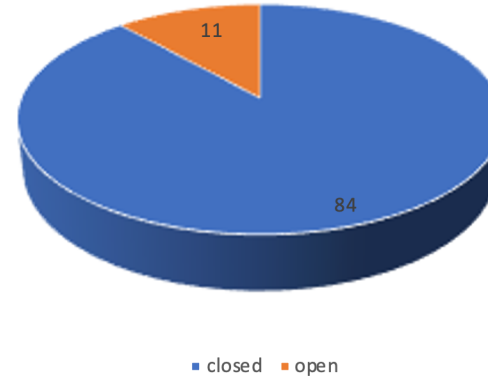


Bug metrics

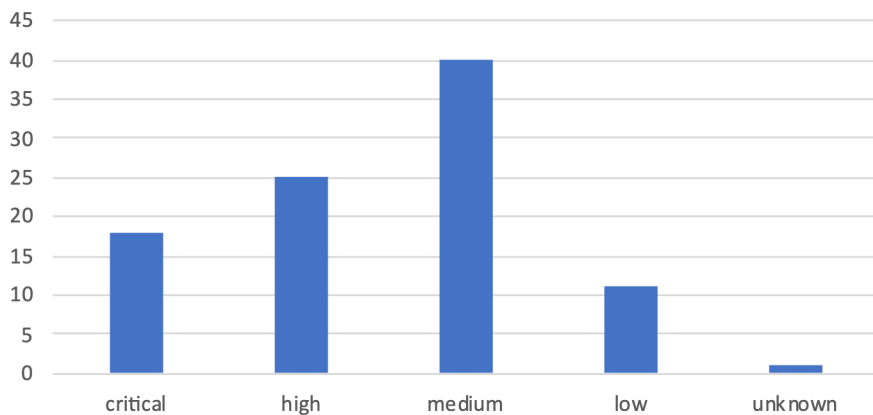
Closed tickets for build 12,1



Status of Bugs open during the Build 12.1 period

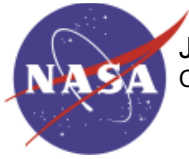


Severities of the bugs open during the Build 12.1 period



2 high severity bugs still open:

- [NASA-PDS/pds4-information-model#434](#) ASCII_Date_Time_* do not sufficiently check valid days of a month or seconds s.high
- [NASA-PDS/registry-api#113](#) Update all endpoints to only allow access to public data. s.high



Improvements (EPICs)

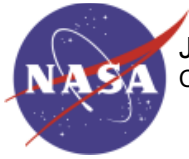


Components	planned	planned realized	realized	comment
cloud-tasks	7		4	6 web lift-and-shift is taking longer than expected
deep-archive	1		1	1
devops	2		1	1
doi-service	4		4	5
pds-api	2		2	9 Refinement as we want to release a version 1
registry	5		3	3 Slightly late on opensearch migration
wds-react	0		0	2 Technical component which development started earlier for the DOI UI
web-mgmt	3		3	3
UX/Web design	2		2	9 planned after beginning of the build cycle
information-model	3		2	4 planned after beginning of the build cycle
PLAID	0		0	1 security issue
validate	5		2	2 hr challenges
nucleus	2		0	0 hr challenges
other	3		3	3



Work to Go

- Two IM bug tickets will be implemented and tested before DDR
 - PDS4_PDS_1100.sch has two bugs regarding CCB-339 *[#455](#))
 - ASCII_Date_Time_* do not sufficiently check valid days of a month or second ([# 434](#))



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Backup