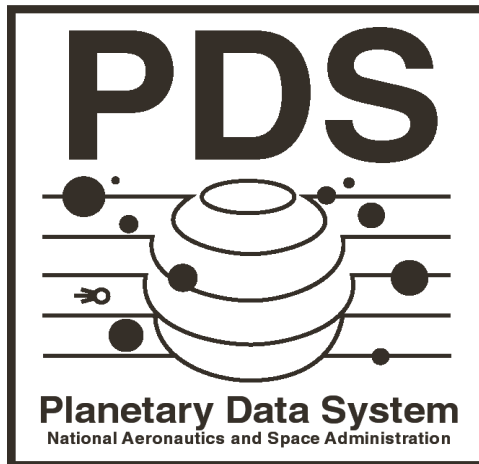


# **Planetary Data System**

## **Web Interface Requirements**

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**Version 0.070103**



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## CHANGE LOG

Revision	Date	Description	Author
Initial Draft	Sept 03, 2006	Define L4/L5 PDS Web Interface based on L3 requirements and use cases captured in the PDS Web Interface Use Cases Document.	E.Law
V.061204	Dec 04, 2006	Incorporated Mark Rose's comments.	E.Law
V.061211	Dec 11, 2006	Accepted Ron Joyner's comments and matrix, updated table of content	E.Law
V.061219	Dec 19, 2006	Incorporated Dan Crichton and Sean Hardman's comments. Added requirements to map to new use cases. Updated traceability matrix.	E.Law
V.070103	Jan 03, 2007	Fixed use cases mapping	E.Law

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## 1.0 INTRODUCTION

### 1.1 Purpose

The purpose of this document is to provide requirements for the PDS Web Interface. The PDS Web interface is the primary portal by which the PDS user communities gain access to PDS data and the various functions supported by the Web Interface.

One of the principle functions of the PDS Web Interface is to provide users with a mechanism to search, view, and retrieve PDS archive data. Within the context of this document, PDS archive data refers to any of the PDS products; including data sets, software, and related documents.

### 1.2 Scope

The scope of this document includes the Level 4 and Level 5 web interface requirements that can be traceable to Level 1-3 PDS requirements, and/or the Web Interface Use Cases.

### 1.3 Notation

The numbering of the requirements in this document will be formatted as **LX.WI.XX.X**, where:

- **LX** represents the requirements level where X is a number.
- **WI** is an acronym representing Web Interface requirements for the specified level.
- **XX** represents the type of requirement, either **FR** for functional or **NF** for non-functional.
- **X** is a unique number for the type of requirement.

Following the text of a requirement will be the reference(s) to the higher-level requirement(s) from which it was derived [1]. The references will be in parenthesis.

Following the requirement reference will be the use case(s) from which the requirement was related. The use cases are formatted as **UC-X** where **X** is a unique number [3]. The use cases will be in parenthesis.

A paragraph following a requirement, which is indented and has a reduced font size, represents a comment providing additional insight for the requirement that it follows. This comment can be considered for further requirement formulation, design, development and testing purposes.

## **1.4 Audience**

This document is written primarily for those who will determine the scope of PDS website usability improvement, and who will use the requirements to design and implement new and additional web interface capabilities, as well as enhance the current interface. The expected audience includes:

- PDS Web Interface Requirements Working Group
- PDS EN Web Development Staff

## **1.5 Controlling Documents**

[1] Planetary Data System (PDS) Level 1, 2 and 3 Requirements, August, 2006.

[2] Planetary Data System (PDS) System Requirements Document (SRD), In Preparation.

[3] Planetary Data System (PDS) Web Interface Use Case, December 2006, Version 0.20061219.

## **1.6 Applicable Documents**

[4] Planetary Data System (PDS) Standards Reference, March 20, 2006, Version 3.7, JPL D-7669, Part 2.

[5] Planetary Science Data Dictionary Document, August 28, 2002, Planetary Data System (PDS), JPL D-7116, Rev E.

[6] Planetary Data System Proposers Archiving Guide, June 15, 2003, Version 1.0.

[7] Planetary Data System Archive Preparation Guide (APG), August 29, 2006, Version 1.1.

## **1.7 Document Maintenance**

New functionality requests from the PDS MC, Nodes and user community are expected. This document will be evolved and updated periodically to reflect any changes or additions.

## 2.0 LEVEL 4 REQUIREMENTS

This section details the level 4 functional and non-functional requirements for the Web Interface, hereby referred to as the interface. These requirements are derived directly from the level 3 requirements [1] and/or use cases [3] which describe both the existing capabilities of the current PDS website, and capabilities useful to be incorporated into the PDS website.

### 2.1 Functional Requirements

**L4.WI.FR.1** - The interface shall provide a set of search services (including discipline-specific search) that allow users to find the PDS archive data. (3.1.1, 3.1.2 & 3.1.3) (UC-1 - UC-3, UC-19, UC-21, UC-22)

PDS archive data refers to any of the PDS products; including data sets, software, related documents, etc.

**L4.WI.FR.2** - The interface shall return to users the resource links that point to the data regardless of where the data is stored. (3.1.1, 3.1.2 & 3.1.3) (UC-1 – UC-3)

A data search generally leads to either one or more data sets residing on one or more Node repositories. The resource links to the data on the repositories are shown to the users.

**L4.WI.FR.3** - The interface shall provide a subscription service that will notify users when specified archive data set(s), software tool(s), or PDS documentation is released or updated. (3.3.6) (UC-8)

Users who have subscribed to the service will be notified when the data set(s), software tool(s), or documentation has been released or updated.

**L4.WI.FR.4** - The interface shall provide an input mechanism that will allow users to submit comments and inquiries. (3.3.7) (UC-9)

**L4.WI.FR.5** – The interface shall provide access to the PDS data model and archiving standards. (1.4) (UC-4, UC-5, UC-6, UC-13, UC-26, UC-27)

**L4.WI.FR.6** - The interface shall provide a set of “How-to” tutorial and informational pages with procedures and examples that will assist users with the following topics:

- How to archive data with the PDS (1.3.1 & 2.2.1) (UC-4 – UC-6)
- How to prepare PDS compliant archival data (1.2.1, & 2.3.1) (UC-5)
- How to review archival data (2.4.1) (UC-6)
- How to accept, store and catalog archival data (2.5.1, 2.6.1, 2.7.1)
- How to search and retrieve archive data (3.1.1 – 3.2.1) (UC-1 – UC-3, UC-19 – UC-22)

Most of the above information can be found in one of two online documents: (1) the Archive

Preparation Guide (APG), and (2) the Proposer's Archive Guide.

**L4.WI.FR.7** - The interface shall provide a set of summary viewing capabilities that will allow users to obtain:

- The summary of data set status (UC-7)
- The summary of active mission data set list (UC-22)
- The summary of data for target (UC-21)
- The summary of data for a mission (UC-22)
- The summary of a new release (UC-8)

**L4.WI.FR.8** - The interface shall provide access to International Planetary Data Alliance (IPDA) information. (2.8.4) (UC-27)

**L4.WI.FR.9** - The interface shall provide links to information for proposers to NASA data analysis programs interested in using PDS archival data. (2.1.4) (UC-28)

**L4.WI.FR.10** - The interface shall provide a download capability to allow users to download PDS tools. (1.5) (UC-14)

## **2.2 Non-Functional Requirements**

**L4.WI.NF.1** - The interface shall meet NASA web interface requirements (framework, copyright, etc) (2.9.2)

## **3.0 LEVEL 5 REQUIREMENTS**

This section details the level 5 functional and non-functional requirements for the PDS Web Interface, hereby referred to as the interface. The requirements are derived directly from the level 4 requirements above, and/or the use cases [3] of the existing capabilities from the current PDS website, and/or new cases [3], and/or the current implementation of PDS website.

### **3.1 Functional Requirements**

**L5.WI.FR.1** - The interface shall provide a parameter based search service to allow users to find the PDS archive data by selecting a set of basic standard parameters such as missions, instruments, and targets. (L4.WI.FR.1) (UC-1)

Current PDS simple form based search capability meets this requirement.

**L5.WI.FR.2** - The interface shall provide a parameter based search service to allow experienced users to narrow down finding the PDS archive data by



selecting a set of detailed parameters including start/stop time, instrument type, etc. (L4.WI.FR.1) (UC-1)

Current PDS advanced form based search capability meets this requirement.

**L5.WI.FR.3** - The interface shall provide a parameter based search service to allow users who understand PDS data model to narrow down finding the PDS archive data by selecting a set of comprehensive parameters including specific disciplines, curating nodes, etc. (L4.WI.FR.1) (UC-1)

Current PDS Power form based search capability meets this requirement.

**L5.WI.FR.4** - The interface shall provide a free-text search service to allow users to find the PDS archive data by entering any text string selection criteria. (L4.WI.FR.1)

The PDS "google-like" search capability will meet this requirement.

**L5.WI.FR.5** - The interface shall provide a set of tailored search services to allow users to find and view data products including data, documentation, and ancillary products from a data volume. (L4.WI.FR.1) (UC-2 & UC-3)

Current PDS Explorer and Basic Browser meet this requirement.

**L5.WI.FR.6** – Deleted.

**L5.WI.FR.7** - The subscription service shall allow users to subscribe to specific data sets, tools and documents for receiving notification when the subscribed product is released or updated. (L4.WI.FR.3) (UC-8)

Current PDS subscription manager allows users to subscribe to CAS, MER1/2, ODY data sets based on instruments, to subscribe to PDS tool package and PDS key documents. (SBN would like to allow users to subscribe by Target. Should additional requirements be added to support additional subscription criterions?)

**L5.WI.FR.8** - The subscription service shall send email-notifications to subscribers when the subscribed product is released or updated. (L4.WI.FR.3) (UC-8)

Current PDS subscription manager meets this requirement. (Should there be additional notification methods?)

**L5.WI.FR.9** - The interface shall provide a free-text input service for users to submit inquires, anomalies, and provide comments. (L4.WI.FR.4) (UC-9)

Current PDS "Feedback" page meets this requirement. (Should there be additional notification methods?)

**L5.WI.FR.10** - The interface shall email all inquires, anomaly reports, and comments/inputs from users to pds\_operator@jpl.nasa.gov. (L4.WI.FR.4) (UC-9)

Current PDS "Feedback" page meets this requirement. (Should there be additional method than email? But this is not an interface requirement, an implementation requirement?)

**L5.WI.FR.11** - The interface shall provide one or more pages that describe how to archive data with PDS. The page shall include examples of data management and archive plans, and procedures that help scientists, proposers, missions, science teams to organize data products and to deliver data to the PDS. (L4.WI.FR.5) (UC-4, UC-6)

Current PDS "APG", "PAG" & "How to submit data" pages meet together this requirement. (Should review their usability.)

**L5.WI.FR.12** - The interface shall provide one or more pages that describe how to prepare PDS compliant archival data. The page shall include procedures that help data producers (science teams and nodes) to determine syntactic and semantic compliance with the PDS standards. (L4.WI.FR.5) (UC-4)

Current PDS "Documents" pages meet this requirement (consider improvement).

**L5.WI.FR.13** - The interface shall provide one or more pages that describe how to review archive data. The page shall include procedures that help data reviewers understand the peer review process and success criteria. (L4.WI.FR.5) (UC-6)

Current PDS "Peer Review" pages meets this requirement (consider improvement).

**L5.WI.FR.14** – The interface shall allow users to view PDS announcements including new releases of data, Standards, documents and tools, and general announcements. (UC-8, UC-16, UC-17, UC-25)

Current PDS home page has a new release section.

**L5.WI.FR.15** - The interface shall provide one or more pages that describe how to accept, store and catalog archive data. The page shall include procedures that help the PDS perform archive functions. (L4.WI.FR.5) (UC-4 – UC-6)

Current PDS "How to search" and "Data Services" pages meet this requirement (Consider improvement).

**L5.WI.FR.16** - The interface shall provide one or more pages that provides information for proposers who wish to include PDS archive as part of their proposals. (UC-5, UC-6)

Current PDS "Proposing" pages meet this requirement (consider improvement).

**L5.WI.FR.17** - The interface shall provide a summary view of data sets that allows node managers and node staff to view node specific data sets and generate a customizable report. (L4.WI.FR.7) (UC-7)

Current PDS "Data Set Status" page meets this requirement.

**L5.WI.FR.18** - The interface shall provide a viewing service that allows users to view summary list of active mission data sets. (L4.WI.FR.7) (UC-22)

This is an existing capability for active list viewing.

**L5.WI.FR.19** - The interface shall provide a summary view of all data available for a user-specified or selected target. (L4.WI.FR.7) (UC-21)

This supports a new use case that current PDS does not meet.

**L5.WI.FR.20** – Deleted.

**L5.WI.FR.21** - The interface shall provide a summary view of all current releases of data, PDS data dictionaries and the Standards Reference Document. (L4.WI.FR.7) (UC-8)

Current PDS New Releases section on the home page meets this requirement.

**L5.WI.FR.22** - The interface shall provide services that allow users to look up the following information: (UC-10 – UC-13)

- Bibliographic references in data sets
- Data Dictionary keywords and objects
- PDS staff contact info
- Related papers

Current PDS "Tools" page meets this requirement. Is there additional information that are useful for users to find related papers.

**L5.WI.FR.23** - The interface shall provide a link to the Planetary Photojournal to allow users to find and access images that are held in the Planetary Image Archive. (UC-15)

**L5.WI.FR.24** – All PDS web pages shall provide links to the PDS Management and Nodes websites to allow users to easily navigate and find to additional PDS information provided by the PDS management and discipline nodes. (UC-1)

Current PDS page's Node Bar meets this requirement.

**L5.WI.FR.25** – Deleted.

**L5.WI.FR.26** - The interface shall provide an easy/quick search service for users to find appropriate tools and documentation that are relevant to a user's needs. (UC-12, UC-14)

This supports new use cases that current PDS does not meet.

**L5.WI.FR.27** – Deleted.

**L5.WI.FR.28** - The interface shall provide a Frequently Asked Questions (FAQ) service that allows users to search and find the answers to questions commonly asked by other users. (UC-23)

Currently, there is an FAQ section within the "About PDS" section of the web site. It is very high level and in need of more detailed information.

**L5.WI.FR.29** - The interface shall provide a document repository service that allow all users to browse a catalog of available PDS presentations and publications. This service shall allow a limited set of users (with permission) to upload presentations and publication. (UC-24)

The Engineering Node web site maintains a fairly extensive online repository of the above documentation for which the EN had responsibility. The PDS web site provides a limited number of Management Council approved PDS publications online (e.g., Standards Reference, PAG, APG, etc).

### **3.2 Non-functional Requirements**

**L5.WI.NF.1** – All web pages shall comply to NASA web framework requirements to contain NASA header and footer, Freedom of Information Act, and NASA Privacy Statement and Copyright. (L4.WI.NF.1)

Current PDS simple form based search capability meets this requirement.

**L5.WI.NF.2** – The Interface shall run on any PDS-supported browsers.

Need to review the list of browsers.

## **APPENDIX A    ACRONYMS**

Acronyms pertaining to this document:

EN	Engineering Node (PDS)
FR	Functional Requirement
JPL	Jet Propulsion Laboratory
NASA	National Aeronautics and Space Administration
NF	Non-functional requirement
PDS	Planetary Data System
PSDD	Planetary Science Data Dictionary
WI	Web Interface

## APPENDIX B REQUIREMENT/USE CASES TRACEABILITY MATRIX

Requirement	Description	Use Case(s)
L4.WI.FR.1	Search services	UC-1 thru UC-3; UC-19, UC-21, UC-22
L4.WI.FR.2	Retrieval services	UC-1 thru UC-3
L4.WI.FR.3	Subscription services	UC-8
L4.WI.FR.4	Comments & inquiry services	UC-9
L4.WI.FR.5	PDS Data Model & Standards	UC-4, UC-5, UC-26, UC-27
L4.WI.FR.6	How to tutorial services	UC-1 thru UC-6, UC-19 thru UC-22
L4.WI.FR.7	Summary viewing services	UC-7, UC-8, UC-21, UC-22
L4.WI.FR.8	IPDA information access	UC-27
L4.WI.FR.9	DAP information access	UC-28
L4.WI.FR.10	Download services	UC-14
L4.WI.NF.1	NASA web interface requirements	N/A
L5.WI.FR.1	Basic search service	UC-1
L5.WI.FR.2	Advanced search service	UC-1
L5.WI.FR.3	Super advanced search service	UC-1
L5.WI.FR.4	Free-text search service	UC-1 thru UC-3
L5.WI.FR.5	Tailored search service	UC-2, UC-3
L5.WI.FR.6	Deleted	N/A
L5.WI.FR.7	Subscribe to subscription service	UC-8
L5.WI.FR.8	Notification via subscription service	UC-8
L5.WI.FR.9	Feedback service	UC-9
L5.WI.FR.10	Notification via feedback service	UC-9
L4.WI.NF.11	Help service – How to archive	UC-4, UC-6
L5.WI.FR.12	Help service – How to prepare	UC-4
L5.WI.FR.13	Help service – How to review	UC-6
L5.WI.FR.14	Announcement services	UC-25
L5.WI.FR.15	Help service – How to accept	UC-4 thru UC-6
L5.WI.FR.16	Help service – How to propose	UC-5, UC-6
L5.WI.FR.17	Summary view service – managers	UC-7
L5.WI.FR.18	Summary view service – missions	UC-22
L5.WI.FR.19	Summary view service – all data	UC-21
L5.WI.FR.20	Deleted	N/A
L4.WI.NF.21	Summary view service – current release	UC-8
L5.WI.FR.22	Look up service	UC-10 thru UC-13
L5.WI.FR.23	Image service	UC-15
L5.WI.FR.24	MC & Node link service	UC-1
L5.WI.FR.25	Deleted	N/A
L5.WI.FR.26	Quick search for tools and docs	UC-12, UC-14
L5.WI.FR.27	Deleted	N/A
L5.WI.FR.28	FAQ service	UC-23
L5.WI.FR.29	Document repository service	UC-24
L5.WI.NF.1	NASA web framework requirements	N/A
LF.WI.NF.2	PDS supported browsers	N/A