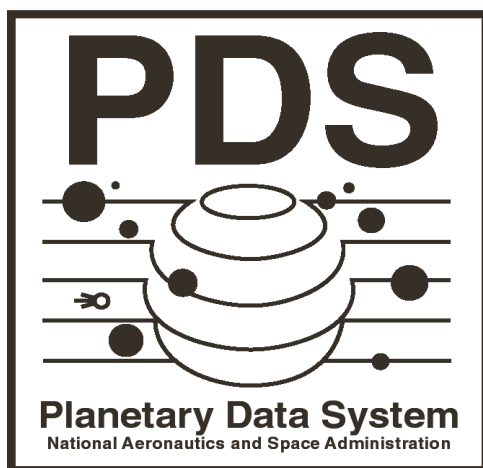


Planetary Data System

PDS Website

User Interface Use Cases

DRAFT
January 03, 2007
Version 0.7



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JPL D-xxxxx

CHANGE LOG

Revision	Date	Description	Author
Start Draft	2006-08-15	First Draft	E. Law
0.1	2006-08-21	Added scenarios (existing & new)	M. Rose
0.2	2006-08-22	Added additional use cases and scenarios	E. Law
0.3	2006-08-24	Reformatted to use styles	M. Rose
0.4	2006-09-01	Added more information on roles, reformatted use-cases to be easier to follow, added requirement references	M. Rose, E. Law
0.5	2006-09-08	Added use case map. Cleaned up formatting. Added more details to some use cases. Added requirements matrix. Combined existing and new use cases, since the distinction no longer made sense.	M. Rose
0.6	2006-12-19	Incorporated Sean Hardman's comments. Added Announcement, Archive Standards, Interoperability and ROSES DAP use cases.	E. Law
0.7	2007-01-03	Fixed Requirements Matrix	E. Law

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1 Introduction

The purpose of this document is to capture the use cases for PDS web interfaces. These use scenarios will be used to aid formulation of the PDS home website requirements.

The use cases are grouped into two categories. The first group “Current Use Cases” is comprised of cases that are covered by the existing interface. The second group captures the “New Use Cases” could be useful to add to the interface.

2 Roles

Users of the PDS web interfaces play a variety of different roles. Use cases described in this document represent the major tasks of the following roles:

<i>Data Provider</i>	Someone who prepares data for archiving within the PDS, usually a member of a mission instrument team or a staff member of a science discipline node.
<i>Researcher</i>	A scientist who uses the PDS to retrieve data for scientific analysis. Usually, these scientists are not on an instrument team, since instrument teams often have their own local repository of data and retain exclusive rights to the data for 6–12 months.
<i>Proposer</i>	A scientist who wants to create a proposal for a mission instrument or data analysis.
<i>Educator</i>	A teacher or adviser who either uses the PDS to create educational materials or advises students in the use of the PDS for research.
<i>Student</i>	A student, at any level, who uses the PDS and data within the PDS to gain knowledge or aid in research. Usually, students will be undergraduate level or higher.
<i>PDS Curator</i>	A staff member of a PDS Node who is responsible for accepting PDS data for archiving or maintaining data archives.
<i>PDS Node Manager</i>	The manager of a PDS node. Often, this person will serve as <i>PDS Curator</i> as well.
<i>Data Reviewer</i>	A scientist who is reviewing a data set or volume for accuracy, organization, and relevance prior to accepting the data into the PDS at some PDS Node.
<i>Member of the Public</i>	A member of the general public who uses the PDS to gain knowledge or find interesting images. They may find their way into the PDS through the use of a search engine or by following a link from the NASA web site.
<i>NASA Management User</i>	A member of NASA management who uses the PDS to gain knowledge and to monitor PDS activities.
<i>International Archivist</i>	A staff member of an International Agency who is responsible for preparing PDS compliant data for archiving or maintaining PDS compliant data archives.

3 Use Case Map

This map shows the relationships between the use cases considered in this document. Closely related use-cases are indicated by overlapping them.



4 Use Cases

This section describes those use cases used by the roles identified earlier. Information in the notes for each use case describes whether the use case is currently supported well by the existing web interface of the PDS web site.

UC-1 Searching for Data

Roles: Researchers and Proposers, primarily; any other roles

Description

Search by Mission/Instrument. (Most common except for Small Bodies researchers) The user wants to find data sets/volumes for a particular instrument and mission. The user will specify the mission and instrument, then narrow down the search by target, if it is a multi-target mission. Search results are likely data sets and volumes, and contain links to the science discipline node to further narrow the search and access the data.

Search by Target. (Common for Small Bodies users and those doing cross-mission comparison studies) The user wants to find available data sets and volumes for a target. S/he will specify the target and, optionally, the type of instrument when searching. Search results will lead the user to the discipline node.

Getting Help with Searching. The user wants to understand how to modify the query to get different search results. The user should be able to request help while searching and see help information that is relevant.

Notes

The PDS currently provides several parameter based search services for users to access data sets and associated data products, documents and software:

- Data set quick search using standard parameters
- Advanced search using additional parameters for experienced users
- Power search using comprehensive parameters for those familiar with PDS data model

The PDS already provides help via a link within the main search page.

UC-2 Browsing a Data Volume

Roles: Researchers and Proposers, primarily; any other roles

Description

Browse to Data Products. The user wants to view or download data products from a data volume. S/he will navigate to the DATA or other directories using the web interface.

Find Documentation About the Volume. The user wants to find documentation about the mission, instrument, or data. S/he will navigate to the DOCUMENT or other directories using the web interface.

Browse Ancillary Products/Files. The user wants to view or download information deemed essential to understand, interpret or process the data products on the volume (e.g., calibration, software, etc).

Notes

The PDS Explorer allows the user to browse within a volume to find appropriate products.

UC-3 Searching Within a Volume

Roles: Researchers and Proposers, primarily; any other roles

Description

Find specific products within a Volume. The user wants to find user specific product from a Volume using a tailored set of parameters.

Notes

PDS provides a forms-based search service to find specific products.

UC-4 Learning How to Submit Data

Roles: Data Providers, International Archivists

Description

Planning for Data Archiving. A Data Provider needs to understand how to create PDS-compliant data volumes. The user will come to the PDS web site expecting to find information quickly about how to go about designing and creating data sets and data volumes. The user will need information about:

- The general structure and requirements of PDS volumes
- PDS label format
- Whom to contact within the appropriate discipline node
- What tools are available to help with preparing and validating data volumes
- Where to go for additional information

Finding Keywords and Values. The user needs to add a keyword to a product label and is not sure of the keyword to use. The user should be able to find possible candidates based on the purpose of the keyword and see examples of their use.

Notes

PDS currently provides a number of informational pages for users to learn about:

- How to submit data
- How to prepare PDS compliant data

UC-5 **Creating a Data Archiving Plan**

Roles: Proposers, International Archivists

Description

Creating a Data Management and Archiving Plan for an Instrument. The user wants to complete a proposal for an instrument on a mission and needs to know how to create a plan for archiving the instrument data in the PDS. The user will come to the PDS web site to get information about:

- The responsibilities of the instrument team in data archiving
- The approval process for the Data Management and Archiving Plan
- The archiving process
- How to design good archive formats
- How to estimate the cost of data preparation and archiving

Creating a Data Management and Archiving Plan for a Data Analysis Proposal. The user wants to create a proposal for analyzing archived PDS data to create new scientific results. The analysis may cover a single data set or multiple data sets. The user will visit the PDS web site in order to find information about:

- PDS data that support existing Data Analysis Program solicitations (DAPs)
- Archiving requirements for Data Analysis Proposals
- The archiving process
- How to design good archive formats
- How to estimate the cost of data preparation and archiving

Notes

The PDS currently has information for proposers available at *Home→Information for Proposers*. The information is slanted toward instrument teams right now. What's missing is a good one-page overview of what the proposer should do. The PDS also has links on the home page to pages which summarize the data coverage for the DAPs.

UC-6 Learning How to Review Data

Roles: Data Reviewers

Description

The user has been selected as a peer reviewer of a data set or volume. S/he must understand the requirements that archival products must meet in order to do a good job of reviewing the data. The user will visit the PDS web site in order to find information about:

- The peer review process and the responsibilities of peer reviewers
- What makes a data set or volume acceptable to the PDS
- Tools and documentation to help with the peer review process

Notes

The PDS web site has a page describing the peer review process. It is a general page that covers three roles, Data Preparer, Data Curator, and Data Reviewer. It might be more effective if it were split and rewritten to have separate pages for each role.

UC-7 Viewing Data Set Status

Roles: PDS Data Curator, PDS Node Manager

Description

Find Data Set Status. The user wants to find the status of a particular data set.

Find Holdings at a Node. The user wants to list all data sets held by a particular science discipline node.

Generate report. The user wants to generate a custom report of data set status.

View active mission data set. The user wants to see the data sets associated with active missions only.

Notes

PDS provides services to view data set status as well as active mission data set list.

UC-8 Keeping Informed of New Releases

Roles: Researchers, primarily; any other roles

Description

Get Notified When Data is Released or Updated. The user wants to keep current with a particular data set. S/he asks to be notified when any new data is released or any existing data is updated.

Get Notified When Documentation is Revised. The user wants to keep current with PDS standards and documentation.

Get Notified When Tools are Released or Updated. The user wants to keep current with PDS tools.

Finding New Data Releases. The user is interested in determining the latest data sets to be available. S/he navigates to the PDS home page to see the list of recent releases.

Finding New Standards. The user wants to ensure s/he has the latest PDS standards and dictionary. The user navigates to the PDS home page to ensure that no new releases of these data have occurred.

Notes

PDS provides a subscription service for user to receive an e-mail notification when either data set, software or documentation of Cassini, Odyssey or MER1/MER2 is updated or modified. In addition to providing a release summary of past releases, PDS home page also highlights the most recent release of:

- Mission data
- Data Dictionary
- Standard References

UC-9 Providing Feedback & Support

Roles: Any roles

Description

Provide Web-Site Feedback. The user notices a problem or error on the PDS web site and wants to report it to the webmaster.

Provide Data or Documentation Feedback. The user has a comment about a PDS data set or PDS documentation and wants to report it to PDS staff.

Ask a Question. The user needs more information about PDS data, standards, or documentation and wants to ask PDS staff.

Enlist Help Finding Information. The user has had difficulty finding data, documents, or tools and wants to enlist help from PDS staff.

Order data. The user asks for a hard media copy of specific data.

Notes

PDS provides a feedback web page for user to submit questions, comments and inquiries.

UC-10 Finding Contact Information

Roles: Any roles

Description

A user needs to find someone to contact to solicit help or get a question answered. It should be easy to determine who is the best contact based on the user's need and scientific interest. There are various reasons one might need to contact someone within the PDS community, including:

- **Connect with Other PDS Users.** The user needs to find contact information for someone affiliated with the PDS to answer questions or supply help.
- **Cite a PDS Data Set or Volume in a Paper.** The user has employed some PDS data products in a scientific study and wants to include a bibliographic reference to the data. S/he needs to learn the correct format for referencing the data and wants to talk to someone to make sure the citation is correct.
- **Overview of the PDS Organization.** The user wants to view the various components within the PDS Project Organization and those who manage those components.
- **Contacting a Node Manager.** The user needs to contact the Node Manager for one of the PDS disciplines. The user will visit the PDS web site and expect to find easily the contact information for the desired node.
- **Look up contact info by name.** The user already knows who s/he wants to contact, but doesn't have contact information. S/he will want to specify some portion of the user's name and institution, and possibly the PDS node, and find the right contact info.

Notes

The PDS currently provides a lookup tool to find staff contact info. Currently, the only search path supported is to look up contact info by name.

UC-11 Creating a Citation

Roles: Researchers

Description

A researcher needs to include a reference to a PDS data set in a paper or talk s/he is preparing. There should be an easy way of finding out what citation should be used.

Notes

The citation information is usually given in the AAREADME.TXT file in the root of each volume in a data set. However, this data is not easily found using the search or browser interface from the PDS main web site.

UC-12 Finding Related Papers and Articles

Roles: Researchers, Educators

Description

A researcher needs to find papers related to the topic of his/her research. There should be an easy way of finding out what citation should be used.

Notes

The PDS currently provides an on-line tool that allows users to look up bibliographic references from a data set. However, the location of the tool is far removed from the location of the data set.

UC-13 Finding Keywords and Values

Roles: Data Suppliers, Researchers, Node Staff, , International Archivists

Description

The user is designing a label format for a data set and needs to determine what keywords and values to use for some instrument metadata.

Notes

The PDS currently provides an on-line tool that allows users to look up PDS keywords and objects, but this is just by name, not by purpose or category. The recommended strategy is to contact Node personnel instead. However, some instrument team members have suggested that a better way to look up keywords and values would be useful as well.

UC-14 Obtaining Tools

Roles: Any roles

Description

The user needs to find tools to help in working with data or creating data for the PDS. The system should make it easy to find appropriate tools for the user's task. There are various reasons a user might want to find available tools, including:

- **Validating Volumes.** The user is supplying volumes to the PDS or receiving volumes at a science node and needs to validate whether the volumes are PDS-compliant. S/he will browse among the tools to those that are helpful in validating volumes, then download them for use locally.
- **Working with Data.** The user needs tools to assist in working with special data formats.
- **Data Product Visualization.** The user wants to see the graphical pictures of Mars. A scientist wants to visually scan through a table containing a number of objects of interest.
- **Preparing data.** The user has a table of data and wants to create a PDS Compliant label.
- **Building new tools.** The user wants some software libraries to use in creating a new data analysis or visualization tool.

Notes

The PDS web site provides online download capability in the *Tools* section for users to get software tools that aid data archiving and analysis. However, it is not always easy to find appropriate tools and documentation that are relevant to a users needs. For example, if a user is trying to create new data volumes for submission to the PDS, there should be one place that catalogs validation tools, relevant PDS standards, data dictionaries, etc. (Right now, the user has to try both Documentation and Tools, and there's little explanation within either section to guide the user through the available items. For example, if the APG is the place to start, the page should say so. Also, within the Tools section, there is neither categorization nor adequate explanation of what the tools are for.)

UC-15 Finding “Cool” Images

Roles: Members of the Public, Academics and Students

Description

The user wants to find interesting images or news about space missions. It should be easy to find interesting images for a particular target. Various reasons one might want such data include:

- **Getting “Cool” Pictures.** (General public) The user wants to view or download images for their aesthetic quality. S/he may have a particular target in mind, or may be interested in the latest pictures available from a current mission.
- **Images to Support Coursework.** (Academics and Students) The user wants to find appropriate images to aid in the presentation of coursework (lectures or papers). The user may have a particular target or phenomenon in mind, or may be interested in representative images from a particular mission.

Notes

The PDS home page provides a link to the Planetary Photojournal which holds images selected for interest to the general public.

UC-16 Finding News About a Mission

Roles: Members of the Public, primarily

Description

The user wants to find news or press releases about a current mission.

Notes

It will be helpful to include links to missions for the info the user is interested in.

UC-17 Monitoring Engineering Activities

Roles: PDS Node Manager, NASA Management

Description

The user wants to keep abreast of the engineering activities within the PDS.

Notes

The PDS main web site currently supports this use case by providing a link to the Engineering Node web site.

UC-18 Finding Engineering Practices and Activities

Roles: Any roles

Description

The user wants a basic understanding of the engineering practices, processes and activities within the PDS.

Notes

The PDS main web site currently supports this use case by providing a link to the Engineering Node web site.

UC-19 Finding Data by Scientific Goal

Roles: Researcher

Description

A researcher has a particular model or hypothesis already in mind. (For example, an Earth-atmospheres researcher may have developed a particular model of atmospheric circulation that works for the Earth's atmosphere, and wants to apply the model to the Martian atmosphere.) The user needs to find data that will server to test that model or hypothesis. Accordingly, s/he may need to search among all atmospheric data, e.g., to find out whether appropriate data exist, whether they are adequate, and for which targets.

Notes

Many of these queries may result in a failure to find adequate data. It's important that it's quick to find out this negative result, so that the PDS doesn't waste researchers' time.

UC-20 Giving a Link to Data

Roles: Researchers

Description

A researcher is giving a presentation that uses data from the PDS. S/he wants to have a slide at the end of the talk that tells how to get the data from the PDS. There should be a way to get to the data in a short set of steps, so that the instructions on how to get the data are concise, easy to understand, and memorable. (For example, if it's obvious how to get to Mars data from the PDS main page, one could just use pds.nasa.gov as a URL. Or, if there were a page for Mars, then maybe pds.nasa.gov/mars. There may be other ways of achieving the goal, too.)

Notes

The PDS web site does have a way of searching for data by data set ID or product ID, but it's not immediately clear how to do that. (It's on the Advanced Search page, but not the Quick Search page.)

UC-21 Finding Data by Target

Roles: Researchers, primarily; any other roles

Description

There should be an easy way of getting a summary of all the data available for a target, with explanations of what the missions were and what kind of data they returned. The user should be able to link from there to places where the data are further described, and where they can browse or search to get data volumes or products. Since recent missions are probably of the most interest, it should be especially easy to get to data from those missions.

Notes

The PDS web site doesn't currently support this use case very well. The only way to get an overview of data by a target is to search. The search results page doesn't have sufficient organization or explanatory text to guide the user through the results.

UC-22 Finding Data by Mission

Roles: Researchers, primarily; any other roles

Description

There should be an easy way of getting a summary of all the instruments and data from a mission, including international missions. From there, it should be easy to get to places and links where the data from an instrument are stored at local or remote repositories, are further described, and where the user can browse or search for volumes or products. Since recent missions are probably of most interest, it should be especially easy to find those missions.

Notes

The PDS web site doesn't support this use case very well, today. The only way to get an overview of data by a mission is to do a search, which doesn't have enough explanatory text to guide you through the information found.

UC-23 Obtain Answers to Common Questions

Roles: Any roles

Description

There should be an easy way for users to search and find the answers of questions commonly asked by all roles.

Notes

The PDS currently has a menu item to support this use case, but there is not a good way to facilitate user contribution of new questions and answers.

UC-24 Finding PDS Publications

Roles: Researchers, primarily; any other roles

Description

There should be a central place and an easy way for users to browse a catalog of available PDS presentations and publications. There should be a service provided to search and find these documents.

Notes

The PDS main web site currently has some publications about the PDS, but they are not organized in a way to support this use case.

UC-25 Alerting users about system downtime

Roles: PDS EN staff

Description

PDS EN staff needs to alert PDS users that the PDS portal and services will be unavailable at certain time period due to system or facility maintenance.

Notes

The PDS main web site currently has an area that allows alert to be posted. It may be useful to have an area for general announcements if needed.

UC-26 Learning about PDS Data Model and Structure

Roles: Any Roles

Description

A user wants to understand PDS data model and standards to see if it can be leveraged upon data model being built for earth science data.

Notes

Currently, the PDS Standard Reference is placed under the Document page, but the data model is not.

UC-27 Learning about International Planetary Data Alliance (IPDA)

Roles: Any roles

Description

Getting IPDA information. A user wants to learn about IPDA organization and its current activities, the staff s/he can contact about how to participate.

Accessing International mission data. A user wants to find data archived by an international agency.

Learning about International planetary data standards. A user wants to understand what the IPDA data model and standards are.

Notes

The PDS main web site can provide a link to the IPDA web site, a direct link to data standards, and can provide search to find links to international data systems.

UC-28 Learning about Data Analysis Program Opportunities

Roles: Researchers, Proposers

Description

The user is preparing a proposal for data analysis and needs to determine what data analysis programs are currently available for funding, and what data within the PDS is applicable to those programs.

Notes

The PDS main web site provides links to ROSES Cassini DAPs pages provided by Atmospheres and RINGS Nodes, as well as Discovery DAP page provided by Small Bodies Node.

5 Requirements Matrix

This section documents the mapping between the use-cases and the PDS Level 1, 2, and 3 requirements.

Use Case or Other Requirement	Relevant PDS Requirements
UC-1 Searching for Data	3.1.1, 3.1.2, 3.1.3
UC-2 Browsing a Data Volume	3.1.1
UC-3 Searching Within a Volume	3.1.1
UC-4 Learning How to Submit Data	2.1.3
UC-5 Creating a Data Archiving Plan	1.2.1, 1.3.1, 2.1.4, 2.2.1, 2.3.1, 2.4.1, 2.5.1, 2.6.1
UC-6 Learning How to Review Data	2.3.1, 2.4.1, 2.5.1
UC-7 Viewing Data Set Status	2.6.3
UC-8 Keeping Informed of New Releases	3.3.6
UC-9 Providing Feedback & Support	3.3.7
UC-10 Finding Contact Information	1.1.1, 1.1.2
UC-11 Creating a Citation	3.3.1
UC-12 Finding Related Papers and Articles	3.3.1
UC-13 Finding Keywords and Values	1.2.2, 1.2.3
UC-14 Obtaining Tools	1.5
UC-15 Finding “Cool” Images	Unclear; General Public use case
UC-16 Finding News About a Mission	Unclear; General Public use case
UC-17 Monitoring Engineering Activities	2.10.1, 2.10.2
UC-18 Finding Engineering Practices and Activities	2.10.2
UC-19 Finding Data by Scientific Goal	3.1.1, 3.1.2, 3.1.3
UC-20 Giving a Link to Data	3.3.1
UC-21 Finding Data by Target	3.1.1, 3.1.2, 3.1.3
UC-22 Finding Data by Mission	3.1.1, 3.1.2, 3.1.3
UC-23 Obtain Answers to Common Questions	3.3.1
UC-24 Finding PDS Publications	3.3.1
UC-25 Alerting users about system downtime	General Public user case
UC-26 Learning about PDS Data Model and Structure	1.4
UC-27 Learning about International Planetary Data Alliance (IPDA) Learning about International Planetary Data Alliance (IPDA)	2.8.4
UC-28 Learning about Data Analysis Program Opportunities	2.1.4