Label Template Design Tool (LTDT)

Technical Face-to-Face

Pasadena, California

Oct 24, 2006

http://pds.nasa.gov

Agenda - Wednesday October 25

Check-in Visitor Control	8:15 AM
Agenda review	8:30 AM – 8:45 AM
Label design tool – continue use case/capabilities discussion	8:45 AM – 9:30 AM
Label design tool – requirements identification and discussion	9:30 AM – 10:30 PM
BREAK	10:30 AM – 10:45 AM
Label design tool – Summary actions, decisions, timeline and release scoping	10:45 PM – 12:00 PM
LUNCH	12:00 PM – 1:30 PM
Data Integrity WG Report (Use Cases, Requirements, PDS Needs)	1:30 PM – 3:30 PM
BREAK	3:30 PM – 3:45 PM
Data Integrity – Implementation planning Policy recommendation Standards/implementation plan	3:45 PM – 4:30 PM
Data Integrity – Summary actions, decisions, timeline	4:30 PM – 5:00 PM
Adjourn	5:00 PM

Topics

- Background / Scope
- Summary of Level 4 Requirements
- Level 4 Requirements
- Level 4 Requirements – Discussion

Background

- The PDS Management Council identified the development of a Data Product Label Design Tool as a key Engineering Node task for 2007.
- A working group was tasked to write a Design Tool Use Case document to outline the scope of the tool. The use cases were derived from PDS Level 3 requirements and early PDS node input, especially a straw-man set of design tool requirements written by the Geosciences Node.
- The use cases will be used to drive the development of level 4 and 5 requirements.

Scope

- The scope of this document is to:
  - Present a draft set of Level 4 requirements, and
  - Ensure the requirements identify the correct set of objectives, and
  - Ensure the requirements are complete and accurately describe (at a high level) the functionality to be built into the tool

- The following questions are relevant to ensuring the tool, as designed from the requirements, will meet user expectations:
  - Are these requirements representative of the way your node would like to see the label design tool function?
  - In terms of functionality, does anything need to be added, deleted, or clarified?

Summary of Level 4 Requirements

- The Level 4 Requirements pertain to the general operations of using a tool to design a data product label template:
  - **Label Template** – An ODL specification that represents a model for a data product label and that can be used for the creation of data product labels either manually or using an automated tool.

- The Level 4 requirements specify criteria for a tool that data providers can use to design a PDS label template based on the latest PDS standards and data dictionary, without the user needing to be a PDS expert.
  - The tool is envisioned as an interactive label editor that gets input from the user, the PDS data dictionary, and the PDS standards.
  - The tool will help ensure a valid label design by interacting with the user and in real time indicate what parts of the label are non-compliant.
  - The tool will also assist the user in adjusting the errant portions, or to generate a report indicating what needs to be adjusted.

Level 4 Requirements

- The Level 4 Functional Requirements are derived directly from the PDS level 3 requirements and the higher level use cases documented in the Data Product Design Tool Use Cases.
  - The Tool shall assist the user in designing a label template in one of the following modes:
    - Without using an existing data product label or an existing data product as a reference for the design of the new label template.
    - By using an existing data product label as a reference for the design of the new label template.
    - By using an existing data object as a reference for the design of the new label template.
    - By analyzing an existing data object in conjunction with using a data product label as a reference for the design of the new label template.
  - The Tool shall allow the user to continue a label template design session using information stored in a Project File.
  - The Tool shall allow the user to request a report indicating the parts of the label template that are non-compliant.

Level 4 Requirements – Discussion

- Discussion questions:
  - Did we capture the right set of requirements ?
  - Have we addressed PDS' needs for a label template design tool?
- What We Should have Accomplished At This Meeting
  - Do the [Draft?] Requirements identify the correct set of objectives ?
  - Are the [Draft?] Requirements complete ?
  - Do the [Draft?] Requirements accurately describe (at a high level) the functionality to be built into the tool ?
  - Is there consensus to take the next step (in developing a Draft set of Level 5 Requirements) ?

Backup

Level 3 Requirements

- The following level three requirements relate to PDS data product label design and are referenced in the use cases.
  - 1.2.1 PDS will provide examples and suggestions on organization of data products, metadata, documentation and software
  - 1.2.2 PDS will provide expertise in applying PDS standards
  - 1.2.3 PDS will provide expertise to support the design of scientifically useful archival data sets
  - 1.3.3 PDS will provide criteria for validating archival products.
  - 1.4.1 PDS will define a standard for organizing, formatting, and documenting planetary science data
  - 1.4.2 PDS will maintain a dictionary of terms, values, and relationships for standardized description of planetary science data
  - 1.4.3 PDS will define a standard grammar for describing planetary science data
  - 1.5.1 PDS will provide tools to assist data producers in generating PDS compliant products
  - 1.5.2 PDS will provide tools to assist data producers in validating products against PDS standards
  - 1.5.3 PDS will provide tools to assist data producers in submitting products to the PDS archive

Level 5 Requirements

- The Level 5 Functional Requirements will be derived from the Level 4 Requirements above and use cases from the Data Product Design Tool Use Cases document.

- The Level 5 Requirements will address the following categories:
  - General requirements
  - Data Dictionary requirements
  - Syntactic requirements
  - Semantic requirements
  - Object requirements
  - Keyword requirements
  - Group requirements
  - Partial Label requirements
  - SFDU requirements
  - Implicit FILE OBJECT requirements
  - POINTER requirements

Use Case Actors

Data Archivist – A staff member of a PDS Discipline Node, Data Node, or the Engineering Node who reviews, accepts, and archives data sets and volumes into the PDS.

Data Designer – A Planetary Scientist or a member of a Mission Proposal Team, Mission Flight Project, Campaign, or Experiment who contributes to the design of data sets and volumes.

Data Preparer – A Planetary Scientist or a member of a Mission Proposal Team, Mission Flight Team, Campaign, or Experiment who prepares data sets and volumes for submission to the PDS.

Definitions

The following definitions are used in the use case scenarios.

- **Actors**. An actor is a person, organization, or external system that plays a role in one or more interactions with your system
- **Data Element** – A term that has been defined for use in PDS data product labels or catalog templates and that has been defined in a PDS data dictionary. Also known in the PDS as a keyword.
- **Data File** – A storage entity containing one or more data objects; for example, an image or an image plus a header.
- **Data Object** – A contiguous sequence of bits, e.g., an image.
- **Data Object Description** – An ODL description of a data object.
- **Data Product** – A data product label and one or more data objects.
- **Data Product Label** – One or more data object descriptions. Also known as a PDS Label.
- **Keyword** – A term that has been defined for use in PDS data product labels or catalog templates and that has been defined in a PDS data dictionary. Also known as a data element.
- **Label Template** – An ODL specification that represents a model for a data product label and that can be used for the creation of data product labels either manually or using an automated tool.
- **PDS Node** – Any PDS node including science discipline nodes, support nodes, or data nodes.
- **Project File** – A file in which the design tool saves the state of the user's work so that it can be resumed in a later session. The state includes the locations of label templates and data dictionaries in use, including local and working data dictionaries.
- **Sequence** - An imagined or projected sequence of events, esp. any of several detailed plans or possibilities.
- **Specific Label Object Definition** – A PSDD definition to be used for label validation that defines a product label as a specific object with no optional sub-objects or keywords allowed.
- **Use cases** - A use case describes a sequence of actions that provide something of measurable value to an actor.
- **Working Data Dictionary** - A data dictionary with the same structure as a local data dictionary that is created and managed by the design tool for the purpose of collecting objects, keywords, and keyword values that are not present in either the PSDD or a local data dictionary.