Requirements for PDS PDS4 Visualization Tool and Library

Purpose

This provides requirements for the PDS4 Visualization Tool and PDS4 data access library. The prospective PDS4 user community is expected to want access to tools allowing easy viewing and browsing of PDS4 archives and their collections. This documents will capture the near term requirements for this functionality.

Scope

This document specifically focuses on PDS4 visualization and object access library.

Applicable Documents and References

Engineering Node PDS 2010 [http://pds-engineering.jpl.nasa.gov/index.cfm?pid=145]

PDS 2010: Build 1c Review [http://pds-engineering.jpl.nasa.gov/index.cfm?pid=145 \&cid=168]

Link to Prototype

A prototype is at this link, which requires Ames VPN: http://aweb3:8080/visualizer/

Level 4 Requirements

- L4.PTOOL.FR.1 – The tool shall assist users in browsing a PDS4 archive and its collections.
- L4.PTOOL.FR.2 – The tool shall provide a PDS4 data access library for developer API that can be used to parse PDS4 data.
- L4.PTOOL.FR.3 – The tool shall assist users in searching through PDS4 archives and its collections.
- L4.PTOOL.FR.4 – The tool shall allow users to visualize PDS4 data products for preview.
- L4.PTOOL.FR.5 – The tool shall allow users to download selected products, collections, or bundles.
- L4.PTOOL.FR.6 – The tool shall be able to be integrated with a Node's web site.

Level 5 Requirements

Requirements in this section are derived from the level 4 requirements above. Associated issues in the Ames issue tracking system are shown as "PTOOL-*nnn*".

Functional Requirements

(Derived from L4.PTOOL.FR.1 – browsing a PDS4 archive)

- L5.PTOOL.FR.11 – The tool shall allow users to browse among available PDS4 bundles.
- L5.PTOOL.FR.12 – The tool shall show collections contained in a bundle.
- L5.PTOOL.FR.13 – The tool shall show products contained in a collection.
- L5.PTOOL.FR.14 – The tool shall display metadata attributes associated with bundles, collections, and products.
- L5.PTOOL.FR.15 – The tool shall allow the user to navigate along links to other bundles, collections, or products.

(Derived from L4.PTOOL.FR.2 – PDS4 data access library)

- L5.PTOOL.FR.21 – The PDS4 library shall allow discovery of available bundles, collections within the bundles, and products within a collection.
- L5.PTOOL.FR.22 – The PDS4 library shall allow examination of metadata associated with bundles, collections, and products.
- L5.PTOOL.FR.23 – The tool shall provide a Java API allowing developers to parse PDS4 products.
    - PTOOL-52 The API shall provide public methods that returns child data associate with a parent collection, returns image data associated with an image product and processes PDS4 images. The API also creates web-viewable images and documents.
- L5.PTOOL.FR.24 – The PDS4 library shall integrate with a well known logging library like log4j.

(Derived from L4.PTOOL.FR.3 – search)

- L5.PTOOL.FR.31 – The tool shall allow the user to search for data products.
- L5.PTOOL.FR.32 – The tool shall utilize the product search capability provided by the PDS4 system architecture.

(Derived from L4.PTOOL.FR.4 – visualizing PDS4 products)

- L5.PTOOL.FR.41 – The tool shall assist users in viewing several PDS4 products. Associated attributes shall be displayed along with the products.
    - PTOOL-53 The tool shall display PDS4 Table Character product

- PTOOL-54 The tool shall display PDS4 2D Array Image product
- PTOOL-55 The tool shall display PDS4 Document product

(Derived from L4.PTOOL.FR.6 – integrating with Node's web site)

- L5.PTOOL.FR.61 – The tool shall be deployed as a web application.
- L5.PTOOL.FR.62 Browser support for IE and Firefox.

Non Functional Requirements

Performance and Scalability

- The tool shall support viewing tables with thousands of rows. The application load time and viewing experience shall be reasonable for large tables and images.
- The tool shall support viewing hundreds of bundles.

Quality and Maintenance

- The tool shall be tested and maintained by Ames.
- The source code shall be NASA-public accessible from a source code repository.