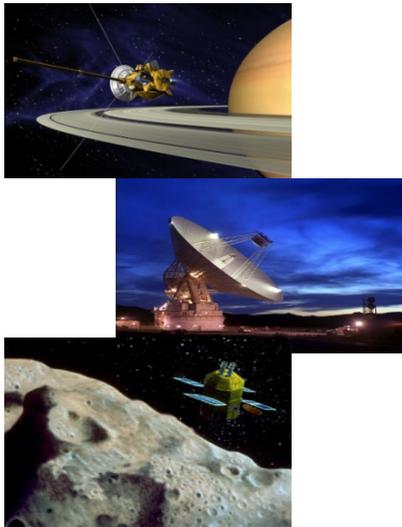




Cross Agency Registration and Search Project



8th IPDA
Steering Committee Meeting

July 17, 2013



Topics

- Project Overview and Goals
 - An overview of the IPDA Registry Project.
- Approach/Architecture
 - The approach and architecture guiding the project effort.
- Status and Future Work
 - Progress to date and future plans.
- Demonstration
 - Demonstrate the Search Service functionality.

Overview

- This project was initiated at the 7th IPDA Steering Committee meeting in July 2012.
 - Formerly known as the Registry Deployment Project.
- Intent was to build on the progress made by the Registry Development and Coordination project and expand the content and usage of the IPDA Registry Service.
- That project focused on deploying and documenting the PDS Registry Service for the IPDA.

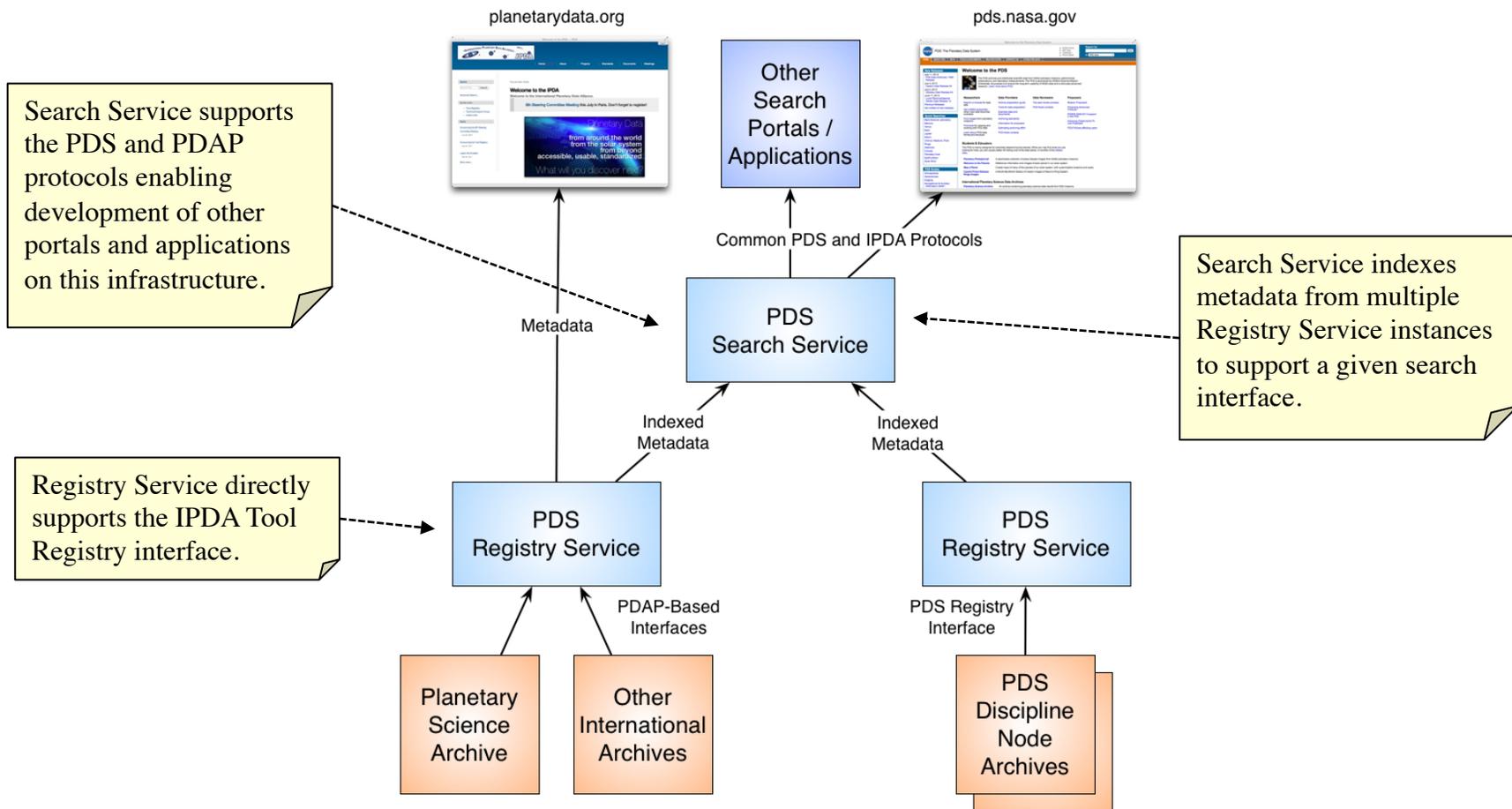
Project Goals

- Original
 - Registration of data, dictionary, tools and services from IPDA members into the common IPDA registry service instance.
 - Work closely with the Tool Registration project to expand the content and usage of the current IPDA Tool Registry.
- Evolved
 - Focus on deploying the PDS4 infrastructure to operations incorporating the PSA data sets along side PDS search results.
 - This project focused on data while the Tool Registration project focused on populating tools and services in the registry.

Approach

- Build the software system based on generic common software and common protocols for accessing that software.
 - PDS Registry Service with its REST-based API is the main component.
 - PDS Search Service based on Apache Solr provides support for high performance facet-based search.
- Utilize the PDS4 data model for data object definitions and to configure the software where appropriate.
 - The model defines the key context objects (i.e., Data Set, Instrument, etc.).

Architecture



Status

- The Registry Service is deployed for IPDA.
 - REST-based API accessible at <http://planetarydata.org/registry/>
 - Populated with IPDA Tools/Services and PSA Data Sets.
- The Registry and Search Services are deployed for PDS.
 - Registry REST-based API accessible at: <http://pds.nasa.gov/services/registry/>
 - Search web-based interface accessible at <http://pds.nasa.gov/tools/data-search/>
 - Search REST-based API accessible at <http://pds.nasa.gov/services/search/>
 - Support for the PDAP protocol coming soon.

Service Usage

- The Registry Service can be queried for the purpose of metadata harvesting.
 - IPDA instance contains tools/services and PSA data sets.
 - PDS instance contains the PDS3 catalog objects (data sets, missions, instruments, etc.)
- The Search Service can be queried for the purpose of content discovery and incorporation into other web interfaces.
 - PDS instance contains the PDS3 catalog objects and PSA data sets.
- Local deployment of the above components may also be an option.

Documentation

- Registry Service API Protocol
 - <http://planetarydata.org/projects/previous-projects/2011-2012-projects/registry-development-and-coordination/registry-service-protocol>
- Search Service API Protocol
 - <http://planetarydata.org/projects/active-projects-2012-2013/Registry%20Deployment/pds-search-protocol/view>

Future Work

- Work with other agencies to gain access to their data set metadata in order to populate the IPDA registry.
- Expand the support beyond data sets to encompass investigation, instrument, etc. information.
- Develop a procedure/process for keeping this extracted metadata up-to-date.
- Expand the IPDA web site interface to support management and search beyond tools and services.

Demonstration

This demonstration exercises the operational PDS instance of the Search Service populated with PDS and PSA data set information.

Search for Venus Express Via Web-Based Interface

The screenshot shows the PDS Search Results page. The search query is "venus express", resulting in 533 results. The page features a navigation bar with links like HOME, ABOUT PDS, DATA, TOOLS & DOCUMENTS, RELATED SITES, CONTACT US, and CITING PDS DATA. A search bar is located in the top right corner. On the left side, there is a "Refine Your Search" section with facets for Agency, Type, Target, Investigation, and Instrument. The main content area displays a list of data sets, each with a title and a brief description. The first data set is "Data Set: VENUS-EXPRESS VENUS MAG 4 EXTENSION2 V1.0".

Refine Your Search

- Agency
 - ESA (504)
 - NASA (29)
- Type
 - Data Set (527)
 - Instrument (4)
 - Instrument Host (1)
 - Investigation (1)
- Target
 - Planet (437)
 - Other (115)
 - Calibration (17)
 - Comet (8)
 - Satellite (2)
 - Asteroid (1)
- Investigation
 - Mars Express (365)
 - Venus Express (115)
 - International Rosetta Mission (47)
 - Magellan (1)
- Instrument
 - Radio Science (363)
 - Magnetometer (12)
 - Other (5)

Search Results

Search for: Go

in PDS data

Search Results

Search: "venus express" [New Search](#)

1-50 of 533 results (0.013 seconds)

Data Sets and Information

Data Set: VENUS-EXPRESS VENUS MAG 4 EXTENSION2 V1.0
Information about VEX-V/Y-MAG-4-EXT2-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-4-EXT2-V1.0 - starting 2008-12-06T00:01:00Z

Data Set: VENUS-EXPRESS VENUS MAG 2 EXTENSION2 V1.0
Information about VEX-V/Y-MAG-2-EXT2-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-2-EXT2-V1.0 - starting 2008-12-06T00:01:00Z

Data Set: VENUS-EXPRESS VENUS MAG 4 V1.0
Information about VEX-V/Y-MAG-4-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-4-V1.0 - starting 2004-10-31T22:00:00Z

Data Set: VENUS-EXPRESS VENUS MAG 4 EXTENSION1 V1.0
Information about VEX-V/Y-MAG-4-EXT1-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-4-EXT1-V1.0 - starting 2006-10-31T00:04:00Z

Data Set: VENUS-EXPRESS VENUS MAG 2 EXTENSION1 V1.0
Information about VEX-V/Y-MAG-2-EXT1-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-2-EXT1-V1.0 - starting 2006-10-31T00:04:00Z

Data Set: VENUS EXPRESS SKY/VENUS SPICAV 3 SOIR EXT1 V3.0
Information about VEX-Y/V-SPICAV-3-SOIR-EXT1-V3.0
VENUS EXPRESS - VEX-Y/V-SPICAV-3-SOIR-EXT1-V3.0 - starting 2006-10-31T00:03:00Z

Data Set: VENUS-EXPRESS VENUS MAG 2 V1.0
Information about VEX-V/Y-MAG-2-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-2-V1.0 - starting 2004-10-31T22:00:00Z

Data Set: VENUS-EXPRESS VENUS MAG 3 EXTENSION2 V1.0
Information about VEX-V/Y-MAG-3-EXT2-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-3-EXT2-V1.0 - starting 2008-12-06T00:01:00Z

Data Set: VENUS-EXPRESS VENUS MAG 3 EXTENSION1 V1.0
Information about VEX-V/Y-MAG-3-EXT1-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-3-EXT1-V1.0 - starting 2004-10-31T22:00:00Z

Data Set: VENUS-EXPRESS VENUS MAG 4 EXTENSION3 V1.0
Information about VEX-V/Y-MAG-4-EXT3-V1.0
VENUS EXPRESS - VEX-V/Y-MAG-4-EXT3-V1.0 - starting 2009-12-07T22:02:00Z

Agency facet allows users to select between ESA and NASA results.

PSA data sets currently link directly to a PSA web-based interface.

Future work includes providing a jump page similar to how PDS data sets are handled.

PSA Interface for Selected Venus Express Data Set

The screenshot shows a web browser window titled "The PSA METADATA Query Service". At the top, there is a banner for the "Planetary Science Archive" by the "European Space Agency". Below the banner, the text reads "The Planetary Science Archive METADATA Query Service".

The main content area displays a search result for "1 Data Sets found". It includes navigation links for "<< Previous" and "Next >>" and indicates "Page 1 of 1".

FTP	Files	DATA_SET_ID	DATA_SET_NAME	PRODUCTS	INSTRUMENT_ID	TARGET_NAME	START_TIME	STOP_TIME
FTP	XML/Tree	VEX-VVY-MAG-4-EXT2-V1.0	VENUS-EXPRESS VENUS MAG 4 EXTENSION2 V1.0	413	MAG	VENUS	2009-06-01 00:00:00.0	1970-01-01 23:00:01.0

Below the table, there are navigation links for "<< Previous" and "Next >>". At the bottom, a "Total" row shows "1 DataSets".

Search for Venus Express Via REST-Based Interface

- Navigate to the API endpoint:
 - [http://pds.nasa.gov/services/search/pds/search?term="venus express"&return-type=xml](http://pds.nasa.gov/services/search/pds/search?term=)

- The following should appear in the browser:

```
<response>
  <lst name="responseHeader">
    <int name="status">0</int>
    <int name="QTime">7</int>
    <lst name="params">
      <str name="term">"venus express"</str>
      <str name="return-type">xml</str>
    </lst>
  </lst>
  <result name="response" numFound="533" start="0" maxScore="1.47908">
    <doc>
      <float name="score">1.47908</float>
      <str name="title">VENUS-EXPRESS VENUS MAG 4 EXTENSION2 V1.0</str>
    ...
```

Wrap Up

- Incorporating IPDA member data sets into PDS search works relatively well.
- Challenges include:
 - Coordination of catalog objects (e.g., missions, instruments, etc.) across systems.
 - Mechanism for keeping the information current.
- Proposal for next year includes addressing the challenges above and working with other agencies for incorporation of their data sets.

Questions / Comments