A Registry for Planetary Data Tools and Services. S. Hardman¹, M. Cayanan¹, J.S. Hughes¹, R. Joyner¹, D. Crichton¹, E. Law¹, ¹Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Dr, Pasadena, CA 91109, <u>Sean.Hardman@jpl.nasa.gov</u>, <u>John.S.Hughes@jpl.nasa.gov</u>, <u>Ronald.Joyner@jpl.nasa.gov</u>, <u>Daniel.J.Crichton@jpl.nasa.gov</u>, <u>Emily.S.Law@jpl.nasa.gov</u>.

Introduction: During the 2015 Planetary Data Workshop, the PDS Engineering Node team presented a plan [1] for taking the prototype Tool Registry developed by the International Planetary Data Alliance (IPDA) and upgrading it by increasing the visibility and enhancing its functionality along with incorporating the registered tools into PDS data search results. This work has been completed with the application deployed into operations by the PDS Engineering Node [2]. Figure 1 below, is a screenshot of the front page of the Tool Registry.

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Mars Science Laboratory Mercury Venus Mars	This interface enables search a from the broad PDS community allows the user to search for an	The interface enables exect in discovery of tools, enclose, and APIs for working with data following the PDS stockeds. Two have been submitted for the back PDS company, and multiple statubions, including the form members of the interactional Paraway Data Aliases (PDS). The interface allows the user to search for and discover these tools. The interface also allows tool provides to submit their software for inclusion in the registry.						
Jupiter Satum Uranus, Neptune, Pluto	Search for Tools	Submit a To	ol					
Rings Asteroids Comets Planetary Dust	Browse or search the PDS tool registry. Select a tool below to view the details.							
Earth's Moon	Search							
Solar Wind	Category:			Interface Type:		Support:		
DDO Martin	Al Obesign	Planning	Validation	IA O	🔿 GUI	 Both 		
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Geosciences Cartography and Imaging	O Reader O Generation	Transformation		Command-Line		O PDS4		
Sciences Navigational & Ancillary								
Planetary Plasma Interactions (PPI)	Tools							
Ring-Moon Systems Small Bodies	Displaying 1 to 60 of 60 results.							
PDS Support	Name Name						PDS Version	
Management Engineering	2001 Mars Odyssey Image Search Use the Planetary Image Allas to search for images from the 2001 Mars Odyssey mission.						PDS3	
	Annex The Annex is a Web-based data portal that allows planetary scientists who use PDS image data to create derived peospatial products to submit them for review by PDS for possible online delivery						PDS3	
Cassini Image Search Use the Planetary Image Atlas to search for images from the Cassini mission.							PDS3	
	Catalog Templat An online tool that allows	Catalog Template Search An online tool that advase users to view and retrieve PDS3 catalog templates.						

Figure 1: Tool Registry Screenshot

The application enables search and discovery of tools, services, and APIs for working with data following the PDS standards. Tools have been submitted from the broad PDS community and multiple institutions, including those from members of the International Planetary Data Alliance (IPDA). This interface allows the user to search for and discover these tools. The interface also allows tool providers to submit their software for inclusion in the registry.

Along with introducing the planetary data community to the Tool Registry, this presentation will describe and demonstrate how users interact with the application. For those users interested in the details, we will also take a brief dive into the architecture and design behind the application which is built on PDS4 software and the PDS4 information model [3]. The information model provides the framework for capturing metadata that describes the tools and services and the software provides the framework for making this information accessible in the PDS4 data system. Figure 2 below, details the architecture of the PDS4 software utilized to support the Tool Registry.



Figure 2: Tool Registry Architecture

References: [1] Hardman S., Hughes J.S., Joyner R., Crichton D., Law E., *Deploying a Planetary Data Tool Registry*, In Proceedings of the 2nd Planetary Data Workshop. Flagstaff, Arizona. June 8-11, 2015. [2] PDS Tool Registry, <u>https://pds.nasa.gov/tools/tool-registry/</u>. [3] PDS4 Information Model https://pds.nasa.gov/pds4/doc/im/current/.