Function	Category	Tool Name	Comments	8/26/2014 MC Discussion	Requested By	Status
Label Design Intended to be a GUI-based tool for designing PDS4 label templates that conform to the PDS master schema and any included Mission/Discipline-specific schemas. This tool is not intended for bulk population of labels. (Removed the Archive Design portion of this tool. It is not clear at this point whether archive design is appropriate for a tool.)	Preparation	Oxygen/Eclipse	Current label design efforts are performed using Oxygen (COTS) or Eclipse (Open Source).	The MC discussed that investments are already being made in this area. Two efforts are underway from AMMOS and ARC. There is no additional gaps identified.		Commercial and Open Source tools available for download, respectively.
		TBD	Planned capabilities for new Label Design tool: - web-based - will allow design of label templates, and export of both the template and constraints (not yet sure whether just more Schematron or also XML Schema) - form-based approach, rather than a text editor, so will preclude creating an invalid label template - will allow import of a valid label to start a new template - some label components, such as tables, will have specialized UI to make it easier to set number of fields, e.g. More planned features, probably not for first release: - "give me a label to describe this data" - allows user to upload a table or image, e.g., and designs an initial template to describe it, which the user can then edit - ability to deal with foreign schemas, for mission- and discipline-specific areas of the template - ability to share template over the web for review and/or shared editing			In Development by Ames (LACE); APPS for Pipelines being developed by AMMOS
Label Generation Software for generating PDS4 labels from existing PDS3 labels in bulk. Although initially intended for migration, it should be adaptable to generating labels for new PDS4 data products.	Preparation	Generate Tool	Command-line based tool that generates a PDS4 label from a PDS3 label or a PDS3-specific DOM object. http://pds.nasa.gov/pds4/software/generate/	The MC suggested that these two tools could be ultimately brought together and integrated into the a common PDS4 tool.	IMG	Tool released as part of regular PDS4 builds (inherited from IMG)
		pds.docgen	Very similar to the Generate Tool, in that it is based on Apache Velocity. http://ppi.pds.nasa.gov/software/igpp-docgen/		PPI	Software available from PPI
Local Data Dictionary Generation Software for generating a Local Data Dictionary in the form of an XML Schema file that can be referenced by product labels.	Preparation	LDDTool	Currently generates an Local Data Dictionary XML Schema from a populated template. This tool has been made available to the DDWG for beta testing.	The MC discussed that the LDD tool should ultimately be harded and delivered as a production tool. The orignial version was developed as a stopgap, however, it is now part of a core process for generating LDDs.	DDWG	Software available from EN for Beta Testing as part of regular builds; planned to be integrated into operational release
Label and Data Validation Software for validating PDS4 product labels and product data. The associated specific schema for the product label specifies syntactic and semantic constraints. The product label itself specifies the constraints for the data.	Preparation	Validate Tool	Currently validates PDS4 product labels. Plans include adding support for validating the data along with collection and bundle structures. http://pds.nasa.gov/pds4/software/validate/	The MC discussed that one cannonical tool should be developed. There is interest internationlly in using validate tool as the tool. PDS will need to ensure that gaps in supporting different types of validation are addressed in FY15.		Software available from EN
		Web-based Validator	Currently supports validation of PDS3 volumes. Future functionality will include PDS4 bundles and archives. http://pdstools.arc.nasa.gov/pdsWeb/ManageDataSets.action	The MC discussed a GUI-based interface with different options that would integrate with the validate tool.		Software available from Ames Support for PDS4 planned
Label and Data Transformation Software for reading and writing PDS4 data products that also includes transforming data and label files into various formats. See the Format Transformation sheet of this document for the list of requested transformations. (The Format Transformation list will be revisited including adding transformations from the System Services Requirements Discussion wiki page: https://oodt.jpl.nasa.gov/wiki/display/pdscollaboration/System+Services+Requirements+Discussion)	Preparation Use	PDS4 Tools	Java library for reading and writing PDS4 data, including support for Array 2D Image, Binary Table, Character Table and Delimited Table. http://pds.nasa.gov/pds4/software/pds4-tools/			Software available from EN
		Transform Tool	Command-line based tool for transforming PDS3 and PDS4 product labels and data into common formats, including PDS4 to PDS3. This tool calls the transformation functions from the PDS4 Tools and Transcoder libraries. http://pds.nasa.gov/pds4/software/transform/	The MC discussed the need to begin identifying different transformations beyond the current set that is provided for imaging and a few other basic data formats. It was also suggested that nodes work with EN to integrate other data formats into these tools. There was also some discussion about ensuring that XSLT and other transformation capabilities for making XML easier to read be made more readily available to the nodes.		Software available from EN Support for additional transformations in development by EN

Visualization Software for displaying and visualizing PDS data products. Intended to include functionality currently provided by NASAView and TBTool for PDS3 data products. See the Quick-look Display section on the System Services Requirements Discussion wiki page: https://oodt.jpl.nasa.gov/wiki/display/pdscollaboration/System+Services+Requirements+Discussion.	Test Review Use	TBD	Planned for web based and desktop deployment of PDS4 products that are compliant with the policy on required data formats.	The MC felt that PDS should not develop its own visualization platform, but rather look to support the NASAView functionality by taking a PDS4 product and then ensuring that it can be displayed off the shelf tools. It was also suggested that ImageMagick could be used to provide this functionality. Most feel that havnig the functionality is important for supporting peer reviews and mechanims to do a quality check on the data.		Initial discussions.
Bundle Browser Software for browsing labels and data within a bundle. Includes incorporating capabilities for transforming labels and data to viewable formats from the Label and Data Transformation software.	Test Review Use	TBD	Planned for web based and desktop deployment.	This was considered a low priority tool.		Initial discussions.
Node-Specific Tools						
Mac OSX DSN output reader	Support	TBD	Read DSN output file		RS	
Search-and-Replace Mac OSX scripts to create XML labels	Preparation	TBD	Can possibly include this in Generate Tool? Can be a requirement for Bundle and Collection Generation Tool.		RS	
Update to MKLABEL	Preparation	TBD	Can possibly include this in Generate Tool?		NAIF	
Update to NAIF archive assembly scripts	Preparation	TBD	Can possibly include this as part of Bundle and Collection Generation function?for NAIF? Would need NAIF to identify requirements.		NAIF	
Atmosphere data migration tool	Data Migration	TBD	Tools to support ATMOS data migration pipeline		ATMOS	In Development by ATMOS
Imaging data migration tool	Data Migration	TBD	Tools to support IMG data migration pipeline		IMG	In Development by IMG
SBN data migration tool	Data Migration	pds3to4	Converts datasets generated by OLAF to pds4		SBN-PSI	In development by SBN
Label Generation	Preparation	OLAF	Update olaf to generate PDS4 data natively		SBN-PSI	In development by SBN