



Tool Overview

PDS Technical Session
Sean Hardman

February 13, 2018



Topics



- Overview
- TWG Activities
- Architecture
- Tool Status and Plans
- Wrap Up



Overview

- EN focuses on developing and maintaining core PDS tools
 - This includes generation, validation, transformation and inspection of PDS products
- Updates are released every six months
- Tool Working Group (TWG) is prioritizing development activities

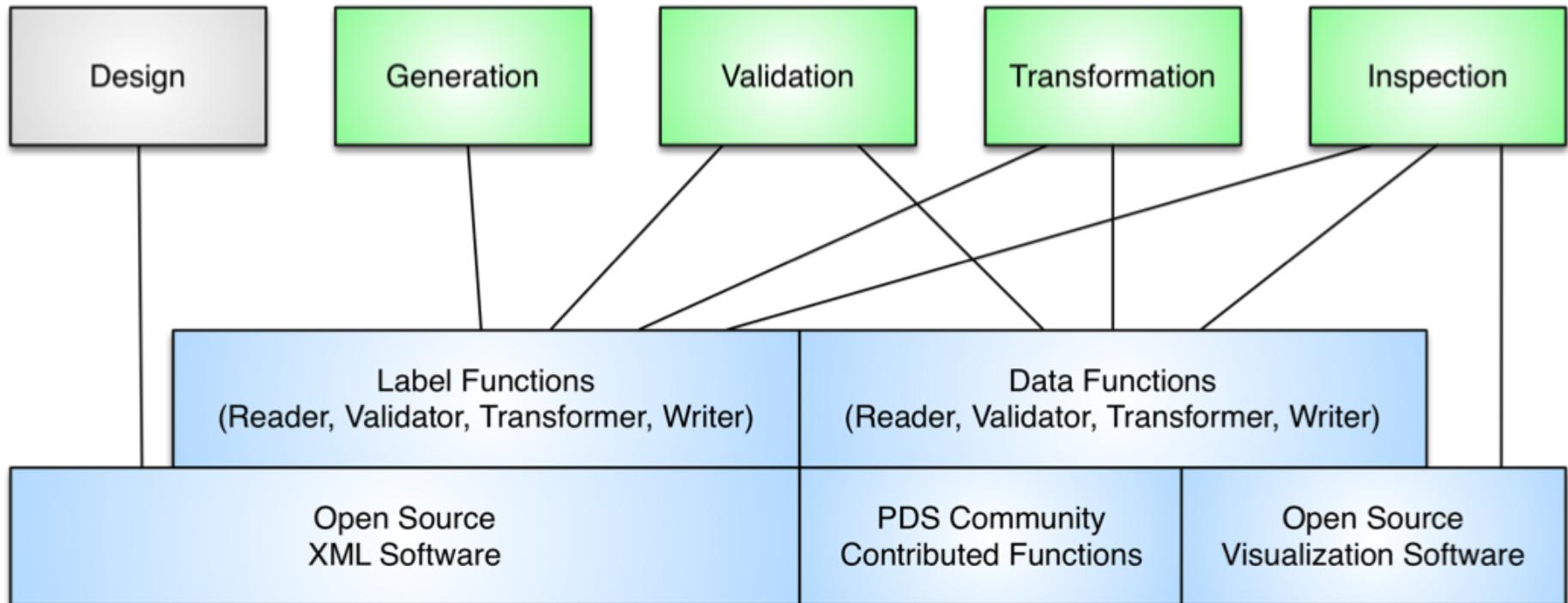


TWG Activities

- The group is tracking status for actively developed tools at the EN and the DNs
- A traceability matrix is maintained to map Level 3 requirements to tools
- Prioritizations for validation and transformation determined
- New requirements and functionality will be run by the group
- All of the above is captured in the following Google doc:
 - <https://docs.google.com/spreadsheets/d/18oqtg3DEo2KrgvBOWLSOuqF2uZtq2XmByJwUknYSZUQ/edit#gid=1340660799>
- The group has begun beta testing of the core tools
 - Plan to incorporate these tests into the regression test suite where appropriate



Architecture





Generate Tool

Status and Plans

- Creates PDS4 labels from PDS3 metadata using the Velocity template engine
- Mostly focused on maintenance of the tool for the last couple of releases
- There are a couple of feature requests in the queue to expand metadata input options
- Still have plans to merge with IGPP Docgen
 - Working on getting permission to open source the code



Validate Tool Status

- The tool supports the following as of the Build 8a release:
 - Syntactic and semantic validation via the XML Schema and 350+ Schematron rules pertaining to PDS4 label structure and content
 - Bundle and Collection referential integrity checking
 - Data content validation of tables against the label description
- Continue to develop new features based on prioritizations from the TWG
- Next release (Build 8b) includes:
 - Content validation of arrays
 - Flag to disable content validation
 - Improved support for XML Catalog files



Validate Tool

Status cont.

- All software related to validation has been approved for release to open source.
 - This includes the PDS3 and PDS4 validation libraries as well as the PDS4 Tools library.
- These packages will be migrated to the nasa-pds project [1] on GitHub.
 - The plan was to have source code migrated by now
 - The new plan is to migrate after the Build 8b release

[1] <https://github.com/orgs/nasa-pds/>



Validate Tool Plans



- Build 9a (Oct 2018)
 - Verify that complex elements defined in a schema file conform to naming rules
 - Verify that simple elements defined in a schema file conform to naming rules
 - Verify file naming rules
- Build 9b (Apr 2019)
 - Verify that local identifiers referenced within a label, exist in that label
 - Verify that table fields match the field statistics, if defined within their associated label
 - Verify that array elements match the object statistics defined within their associated label
 - Verify that table fields and array elements utilize special constants defined within their associated label
 - Verify, to the extent possible, that objects with an external parsing standard match that standard



Transform Tool

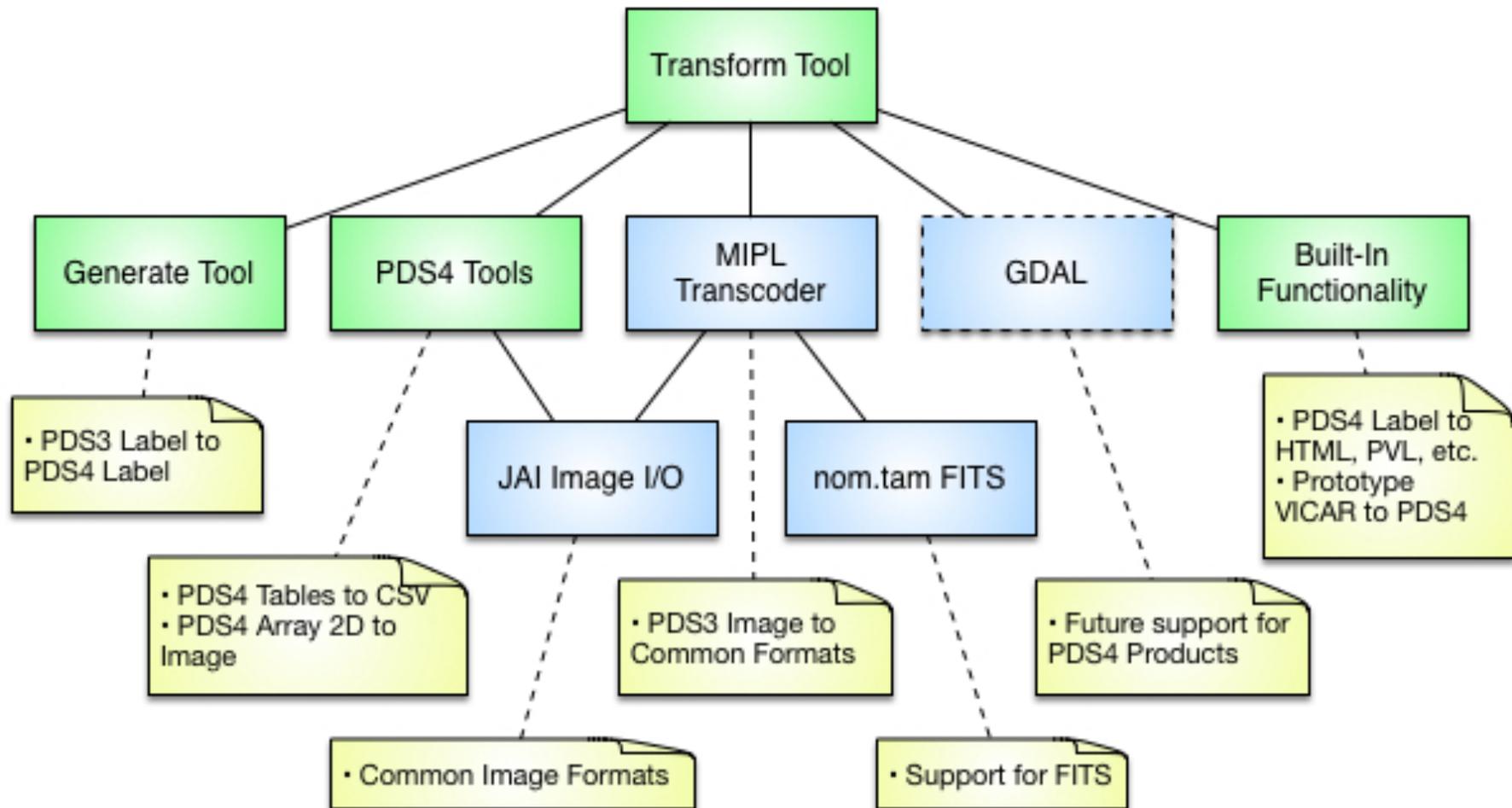
Status



- The tool supports approximately 29 transformations as of the Build 8a release
- Continue to develop new features based on prioritizations from the TWG
- Next release (Build 8b) includes:
 - PDS3 labeled tables to PDS4 labeled tables
 - PDS4 labeled tables to PDS4 labeled tables (e.g., binary to character)
- Leverages a number of underlying libraries
 - Complicates the open source option



Transform Tool Dependencies





Transform Tool Plans



- Build 9a (Oct 2018)
 - Array 2D Map to GeoTIFF
 - Array 3D Spectrum to ENVI Cube
 - Array 2D Image to FITS
- Build 9b (Apr 2019)
 - PDS3 labeled images to PDS4 labeled images
 - Array 2D Image to PDS3 Image



Inspect Tool

Status and Plans

- The tool will provide support for visualizing PDS4 and PDS3 products
 - PDS4 functionality built on SBN's Python PDS4 Tools library
 - Eventually planned to replace NASAView
- Requirements have been reviewed by the TWG
- Plan on making a development release available to the TWG before the end of February
- Work on PDS3 support planned for Build 9a



Wrap Up

- EN will continue to work with the TWG to prioritize development and maintenance of the core tools
- Anomalies and feature requests may be submitted via JIRA [1] by PDS staff (with accounts)
 - The public is directed to email the PDS Operator
- Where appropriate, we will focus our open sourcing efforts on these tools and their underlying libraries

[1] <https://pds-jira.jpl.nasa.gov/>

Questions/Comments