



# EN Core Tool Status

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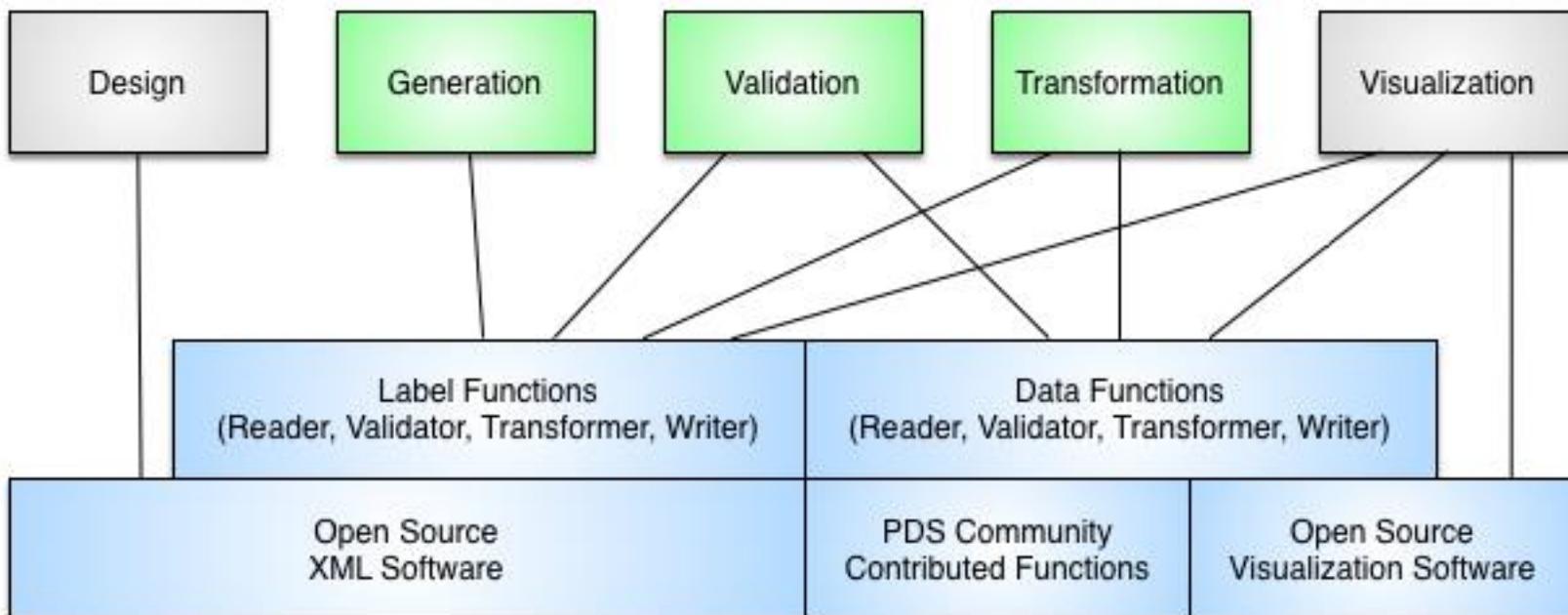
# Topics



- Architecture
- Preparation Tools
  - Generate, Validate, Transform
- Wrap Up



# Tool Architecture





# Generate Tool

- This tool provides functionality for generating PDS4 Labels from either a PDS3 Label or a PDS-specific Document Object Model (DOM) object.
- Initially developed by the Imaging Node.
- Provides command-line and Java library interfaces for utilizing the functionality.



# Generate Tool

## Current Functionality

- Reads a PDS3 product label, transforms the keyword values as specified in a template and write out the corresponding PDS4 product label.
  - Utilizes Apache Velocity for template support.
- Although packaged as a command-line tool, it can be incorporated into pipelines as a Java library.
  - Currently utilized by AMMOS APPS for PDS4 product label generation.



# Generate Tool

## Planned Functionality

- Streamline the Java library for better integration with product generation pipelines.
- Add more convenience functions for common PDS transformations.
  - Certain transformations result in complex Velocity template code.
  - Although the tool is intended for software developers, this is an attempt to make it more user friendly.



# Validate Tool

- This tool provides functionality for validating product labels.
- The associated XML Schema(s) and Schematron(s) for the product label specify syntactic and semantic constraints.
- Provides command-line and Java library interfaces for utilizing the functionality.



# Validate Tool

## Current Functionality

- Validates PDS4 product labels based on the Information Model.
  - IM in the form of XML Schemas and Schematrons.
  - Specified via internal package, command-line, XML Catalog file and from product label.
- Verifies existence of referenced data product file(s) and checksums if provided.
- Performs referential integrity checking for bundle and collection products.
- Support for multiple report formats.



# Validate Tool Report Formats

```
validate — bash — 90x22
<?xml version="1.0" encoding="UTF-8"?>
<validateReport>
  <configuration>
    <version>1.6.0</version>
    <date>2015-02-22T18:53:39Z</date>
  </configuration>
  <parameters>
    <targets>[file:/Users/shardman/Desktop/validate/data/ele_mom_tblChar.xml]
    <userSpecifiedSchemas>[schema/PDS4_PDS_1300.xsd, schema/dph_example_dict_1300.xsd]
    <userSpecifiedSchematrons>[schema/PDS4_PDS_1300.sch]
    <severityLevel>WARNING</severityLevel>
    <recurseDirectories>true</recurseDirectories>
    <fileFiltersUsed>[*.*xml, *.XML]</fileFiltersUsed>
    <forceMode>off</forceMode>
    <referentialIntegrityCheck>off</referentialIntegrityCheck>
  </parameters>
  <label target="file:/Users/shardman/Desktop/validate/data/ele_mom_tblChar.xml" status="PASS">
  </label>
</validateReport>
avatar:validate shardman$
```

```
validate — bash — 90x23
{
  "title": "PDS Validation Tool Report",
  "configuration": {
    "version": "1.6.0",
    "date": "2015-02-22T18:53:39Z"
  },
  "parameters": {
    "targets": "[file:/Users/shardman/Desktop/validate/data/ele_mom_tblChar.xml]",
    "userSpecifiedSchemas": "[schema/PDS4_PDS_1300.xsd, schema/dph_example_dict_1300.xsd]",
    "userSpecifiedSchematrons": "[schema/PDS4_PDS_1300.sch]",
    "severityLevel": "WARNING",
    "recurseDirectories": true,
    "fileFiltersUsed": "[*.xml, *.XML]",
    "forceMode": "off",
    "referentialIntegrityCheck": "off"
  },
  "status": "PASS",
  "label": "file:/Users/shardman/Desktop/validate/data/ele_mom_tblChar.xml",
  "messages": [],
  "fragments": []
}
avatar:validate shardman$
```

```
validate — bash — 98x28
PDS Validate Tool Report

Configuration:
  Version      1.6.0
  Date         2015-02-22T18:53:39Z

Parameters:
  Targets      [file:/Users/shardman/Desktop/validate/data/ele_mom_tblChar.xml]
  User Specified Schemas [schema/PDS4_PDS_1300.xsd, schema/dph_example_dict_1300.xsd]
  User Specified Schematrons [schema/PDS4_PDS_1300.sch]
  Severity Level      WARNING
  Recurse Directories true
  File Filters Used   [*.*xml, *.XML]
  Force Mode          off
  Referential Integrity Check off

Validation Details:
PASS: file:/Users/shardman/Desktop/validate/data/ele_mom_tblChar.xml

Summary:
  1 of 1 file(s) processed, 0 skipped
  1 of 1 file(s) passed validation

End of Report
avatar:validate shardman$
```



# Validate Tool

## Planned Functionality

- Working with Ames to expand validation requirements to incorporate data product validation based on corresponding label description.
  - These requirements will be reviewed and augmented by interested PDS staff.
- This new functionality will be added to the Core Library for use in multiple application front ends.
  - Development to be coordinated between EN and Ames.

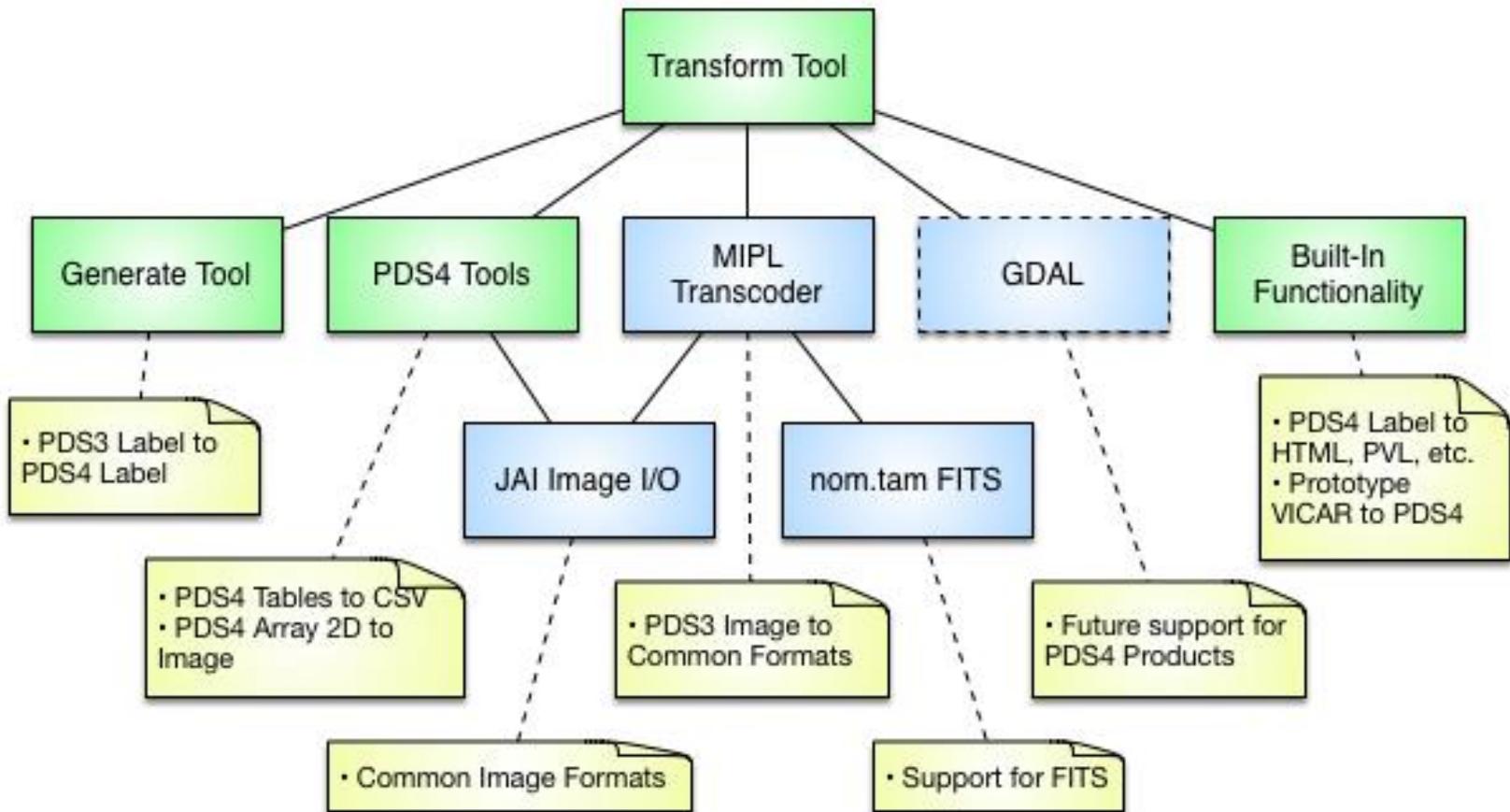


# Transform Tool

- This tool provides functionality for transforming PDS3 and PDS4 product labels and product data into other formats.
- Provides command-line and Java library interfaces for utilizing the functionality.
- Designed to be the interface to multiple transformation libraries.



# Transform Tool Dependencies





# Transform Tool

## Current Functionality

Input Format	Output Format
PDS3 Image	BMP, GIF, JPEG, JPEG2000, PNG, PNM, RAW, TIFF, WBMP
PDS4 Binary Table	CSV
PDS4 Character Table	CSV
PDS4 Delimited Table	CSV
PDS4 2D Image	BMP, GIF, JPEG, JPEG2000, PNG, PNM, RAW, TIFF, WBMP
PDS4 Label	PVL, HTML



# Transform Tool

## Planned Functionality

- Add support for FITS transformations.
- Add support for transformations from PDS3 and PDS4 products containing multiple data objects.
- Continue to add support for additional transformations based on prioritization.



# Wrap Up

- The core tools continue to evolve with the Information Model and new requirements.
- EN will continue to work with the DN's to expand core tool functionality.
- EN will continue to integrate core tool functionality with PDS4 services.

# Questions/Comments