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# **Product Tools v.2.0.1**

## **for the Planetary Data System**

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## 1.1 Overview

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### About Product Tools

The next generation of Planetary Data System (PDS) Product Tools will support design/generation, validation and submission of archival products to the PDS. These tools are intended to replace the current generation of tools (e.g., lvtool, kwvtool, tbtool, etc.) used by the Discipline Nodes, Engineering Node and the PDS user community as a whole. This project consists of a library of software classes to support the development of the next generation tools.

Please send comments, change requests and bug reports to the [PDS Operator](mailto:pds_operator@jpl.nasa.gov) at [pds\\_operator@jpl.nasa.gov](mailto:pds_operator@jpl.nasa.gov).

## 1.2 Release Notes

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### Release Notes

The purpose of this section is to provide a description of a Product Tools release including any impact that the new or modified capabilities will have on the Discipline Nodes or the PDS user community. A somewhat itemized list of changes for each release can be found on the [Release Changes](#) page. If viewing this document in PDF form, see the appendix for details.

### Release 2.0.1

The operational release of the Product Tools software incorporating the Phase II capability supporting validation of catalog files. This release includes some minor modifications regarding how catalog pointers are handled based on beta testing results.

### Release 2.0.0

This release of the Product Tools software incorporates the Phase II capability supporting validation of catalog files.

The major change for this release is the addition of support for validating catalog files, either standalone or as a set within a CATALOG directory. Modifications to support this capability included a general change with regard to how pointers are handled as well as relaxing some of the PDS Label constraints where catalog files do not conform to those constraints. The result is that catalog files are now validated correctly and the spurious messages that were previously produced have been eliminated.

The other change in this release involved correct validation of quoted date/time strings. Date/time strings may not be quoted when associated with an element that is defined with one of the DATE data types.

## 1.3 Installation

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### Installation

This section describes how to install the tools contained in the *product-tools* package. The following topics can be found in this section:

- [System Requirements](#)
- [Unpacking the Tools Package](#)

### System Requirements

#### Java Requirement

The tools contained in the *product-tools* package were developed using Java and will run on any platform with a supported Java Runtime Environment (JRE). The tools were specifically developed under Sun Java version 1.4, so the tool will execute correctly under versions 1.4 or 1.5.

Since the tools are developed using Sun's Java, this is the preferred Java environment for operation. The Sun Java package can be obtained from the [Sun Java](#) web site. Other Java environments are relatively compatible with Sun's Java. Testing has been performed with GNU's Java environment. The result is that release 4.1.1 at a minimum is required for nominal operations.

#### Data Dictionary Requirement

Release *1r64* or later of the Planetary Science Data Dictionary (PSDD) is required for the tools to function properly. Release *1r66* of the PSDD supports the validation of explicit FILE objects. The latest version of the PDS data dictionary can be retrieved from the [PDS Data Dictionary](#) web page.

### Unpacking the Tools Package

Download the *product-tools* package from the [PDS Software Download](#) web page. The binary and source distributions are available in identical zip or tar/gzip packages. Unpack the selected binary distribution file with one of the following commands:

```
[node: ~] unzip product-tools-2.0.1.zip  
or
```

```
[node: ~] tar -xzf product-tools-2.0.1.tar.gz
```

Unpack the selected source distribution file with one of the following commands:

```
[node: ~] unzip product-tools-2.0.1-src.zip  
or  
[node: ~] tar -xzf product-tools-2.0.1-src.tar.gz
```

**Note:** Depending on the platform, the native version of *tar* may produce an error when attempting to unpack the distribution file because many of the file paths are greater than 100 characters. If available, the GNU version of *tar* will resolve this problem. If that is not available or cannot be installed, the zipped package will work just fine in a UNIX environment.

### Binary Distribution

The binary distribution related commands above result in the creation of the *product-tools-2.0.1* directory with the following directory structure:

- **README.txt**

A README file directing the user to the available documentation for the project.

- **LICENSE.txt**

The copyright notice from the [California Institute of Technology](#) detailing the restrictions regarding the use and distribution of this software. Although the license is strictly worded, the software has been classified as Technology and Software Publicly Available (TSPA) and is available for *anyone* to download and use.

- **docs/**

This document directory contains a local web site with the Product Tools Guide, javadoc, unit test results and other configuration management related information. Just point your favorite browser to the *index.html* file in this directory.

- **lib/**

This directory contains the dependent jar files for the tool along with the jar file (product-tools-2.0.1.jar) containing the product tools software.

### Source Distribution

The source distribution related commands above result in the creation of the *product-tools-2.0.1* directory with



the following directory structure:

- **README.txt**

A README file that will contain useful information on how to build the software in a future release.

- **LICENSE.txt**

The copyright notice from the [California Institute of Technology](#) detailing the restrictions regarding the use and distribution of this software. Although the license is strictly worded, the software has been classified as Technology and Software Publicly Available (TSPA) and is available for *anyone* to download and use.

- **build.xml**

The [Ant](#) script for building the product tools software.

- **maven.xml**

The [Maven](#) goals for the product tools software.

- **project.properties**

The [Maven](#) properties for the product tools software.

- **project.xml**

The [Maven](#) Project Object Model (POM) for the product tools software.

- **defaults/**

This directory contains the [Maven](#) default settings and site layout for building the product tools software.

- **src/**

This directory contains the source code files for the product tools software.

## 1.4 Development

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### Development

This section describes how a user can utilize the Application Program Interface (API) of the *product-tools* package to develop their own tool. The following topics can be found in this section:

- [API Entry Points](#)
- [ODL Grammar](#)

### API Entry Points

We have not had a chance to document the entry points into the API as of the current release. The best source for this information currently is to view the *VTool.java* file from the *vtool* project's source package. Another source of documentation would be the [JavaDocs](#) documentation for this project.

### ODL Grammar

The parsing of PDS labels has been accomplished using the [ANTLR](#) software package. The links below detail the grammar for both the parser and the lexer, which were generated from the *src/resources/grammar/odl.g* source file. If viewing this document in PDF form, see the appendix for the actual grammar.

- Definition of parser [ODLParser](#) .
- Definition of lexer [ODLLexer](#) .

## 1.5 Appendix A - ODL Grammar

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### ODL Grammar

This section details the grammar for both the parser and the lexer, which were generated from the *src/resources/grammar/odl.g* source file.

## 1.5.1 ODLParser

---

### ODLParser Grammar

The following represents the grammar for the *ODLParser* class:

Definition of parser ODLParser, which is a subclass of LLkParser.

```
label
: (
statement
    | . ( ~EOL )* EOL
    )*
( END
|
)
;

statement
:
simple_statement
|
group_statement
|
object_statement
;

simple_statement
: ( COMMENT
    |
    )
EOL
|
assignment_statement
    ( COMMENT
    |
```

```

        )
        EOL

    |
pointer_statement

        ( COMMENT
        |
        )
        EOL

    ;

group_statement

    : "GROUP"
nl
    EQUALS
nl
    IDENTIFIER
        ( COMMENT
        |
        )
        EOL
    (
simple_statement

        | . ( ~EOL )* EOL
        )*
    END_GROUP
    ( EQUALS IDENTIFIER
    |
    )
    ( COMMENT
    |
    )
    EOL

    ;

object_statement

    : "OBJECT"
nl
    EQUALS
nl
    IDENTIFIER
        ( COMMENT
        |
        )
        EOL
    (
statement

        | . ( ~EOL )* EOL
        )*
    END_OBJECT
    ( EQUALS IDENTIFIER

```

```

        |
        )
        ( COMMENT
        |
        )
        EOL
    ;

assignment_statement
    : ( ELEMENT_IDENT
        | IDENTIFIER
        )

nl
    EQUALS
nl
value
    ;

pointer_statement
    : POINT_OPERATOR
assignment_statement
    ;

nl

    : ( EOL ) *
    ;

value
    :
scalar_value
    |
sequence_value
    |
set_value
    ;

scalar_value
    :
numeric_value

```

```

    |
date_time_value

    |
text_string_value

    |
symbol_value

    ;

sequence_value

    :
sequence_2d

    |
sequence_1d

    ;

set_value

    : SET_OPENING
nl
item_list
SET_CLOSING
    ;

numeric_value

    : INTEGER
      ( UNITS
      |
      )

    | BASED_INTEGER
      ( UNITS
      |
      )

    | REAL
      ( UNITS
      |
      )

    ;

date_time_value

    : DATE
    | DATETIME

```

```

        ;

text_string_value

    : QUOTED
    ;

symbol_value

    : IDENTIFIER
    | SYMBOL
    ;

sequence_2d

    : SEQUENCE_OPENING
nl
sequence_list
SEQUENCE_CLOSING
    ;

sequence_1d

    : SEQUENCE_OPENING
nl
scalar_list
SEQUENCE_CLOSING
    ;

scalar_list

    :
    |
scalar_value
nl
( ( LIST_SEPARATOR
nl
        |
        )

scalar_value
nl
)*
    ;

```



```

sequence_list
    :
    |
sequence_id

nl
( ( LIST_SEPARATOR
nl
                                |
                                )

sequence_id

nl
)*
;

item_list
    :
    |
scalar_value

nl
( ( LIST_SEPARATOR
nl
                                |
                                )

scalar_value

nl
)*
;

```

## 1.5.2 ODLLEXER

---

### ODLLEXER Grammar

The following represents the grammar for the *ODLLEXER* class:

```
Definition of lexer ODLLEXER, which is a subclass of CharScanner.

/** Lexer nextToken rule:
 * The lexer nextToken rule is synthesized from all of the user-defined
 * lexer rules. It logically consists of one big alternative block with
 * each user-defined rule being an alternative.
 */

mSET_OPENING

|
mSET_CLOSING

|
mSEQUENCE_OPENING

|
mSEQUENCE_CLOSING

|
mLIST_SEPARATOR

|
mPOINT_OPERATOR

|
mEQUALS

|
mCOMMENT

|
mEOL

|
mWS

|
mELEMENT_IDENT

|
```

```

mUNITS
|
mNUMBER_OR_DATETIME

|
mQUOTED

|
mSYMBOL

mSET_OPENING
    : '{'
    ;

mSET_CLOSING
    : '}'
    ;

mSEQUENCE_OPENING
    : '('
    ;

mSEQUENCE_CLOSING
    : ')'
    ;

mLIST_SEPARATOR
    : ','
    ;

mPOINT_OPERATOR
    : '^'
    ;

mEQUALS
    : '='
    ;

mCOMMENT
    : "/*"
      ( '*'
      |
mEOL
      | ( '*'
        | '\n'
        | '\r'
        )

```

```

        ) *
        "*/"

;

mEOL

: ( '\r'
    | '\n'
    | '\n'
    )

;

mWS

: ( ' '
    | '\t'
    | '\f'
    )

;

protected
mIDENTIFIER

:

mLETTER

(

mLETTER

|

mDIGIT

| '_'
) *

;

protected
mLETTER

: ( 'a'..'z'
    | 'A'..'Z'
    )

;

protected
mDIGIT

: ( '0'..'9' )

;

mELEMENT_IDENT

:

```

```

mIDENTIFIER
    ':'
mIDENTIFIER

    |
mIDENTIFIER

    ;

mUNITS
    : '<'

mWS
    (

    |
    )

mLETTER
    (

mLETTER

    |
mDIGIT

    |
mSPECIALCHAR

    | '('
    | ')'
    | '/'

mWS

    ) *
    '>'

    ;

protected
mSPECIALCHAR
    : ( '_'

        | '$'
        | '#'
        | '.'
        | '-'
        | ':'
        | '+'
        | '*'

    )

    ;

protected
mUNITS_FACTOR
    :

```

```

mIDENTIFIER

(
mEXP_OP
mINTEGER
|
)
;

protected
mEXP_OP
: " *"
;

protected
mINTEGER
: (
mSIGN
|
)
mDIGITS
;

protected
mMULT_OP
: ( '*'
| '/'
)
;

mNUMBER_OR_DATETIME
:
mBASED_INTEGER
|
mDATETIME
|
mREAL
|
mREAL
|
mREAL
|
mREAL

```

```

        |
mINTEGER

        ;

protected
mDIGITS

        : (
mDIGIT
    )+
        ;

protected
mBASED_INTEGER

        :
mDIGITS
    '#'
        ( '+'
        | '-'
        |
        )
        (
mEXTENDED_DIGIT
    )+ '#'
        ;

protected
mDATETIME

        :
mYEAR
    '-'
mMONTH
    '-'
mDAY
    'T'
mTIME

        |
mYEAR
    '-'
mDOY
    'T'
mTIME

        |
mDATE

        ;

protected
mSIGN

        : '+'

```

```

        | '-'
        ;

protected
mREAL

        : (
mSIGN

                |
                )
        (
mDIGITS

                |
                )
        '.'
        (
mDIGITS

                |
                )
        ( ( 'E'
                | 'e'
                )

mINTEGER

                |
                )
        ;

protected
mEXTENDED_DIGIT

        :
mDIGIT

        |
mLETTER

        ;

protected
mYEAR

        :
mDIGIT

mDIGIT

mDIGIT

mDIGIT

        ;

```



```

protected
mMONTH

    :
mDIGIT
mDIGIT

    ;

protected
mDAY

    :
mDIGIT
mDIGIT

    ;

protected
mTIME

    :
mHOUR

        ( ':'
mMINUTE

            ( ':'
mSECOND

                ( '.'
mFRACTION

                    |
                )
            |
        )
    |
    )
    ( 'Z'
    |
    )

    ;

protected
mDOY

    :
mDIGIT
mDIGIT
mDIGIT

    ;

```

```

protected
mDATE

    :
    mYEAR
    '-'
    mDOY

    |
    mYEAR
    ( '-'
    mMONTH
    ( '-'
    mDAY
    |
    )
    |
    )

;

protected
mHOUR

    :
    mDIGIT
    mDIGIT

;

protected
mMINUTE

    :
    mDIGIT
    mDIGIT

;

protected
mSECOND

    :
    mDIGIT
    mDIGIT

;

protected

```

```

mFRACTION
    :
    mDIGIT
        (
            mDIGIT
                (
                    mDIGIT
                        (
                            mDIGIT
                                (
                                    mDIGIT
                                        (
                                            |
                                        )
                                    )
                                )
                            )
                        )
                    )
                )
            )
        )
    ;

mQUOTED
    : '""'
    mEOL
        (
            | ( ( '""'
                | '\r'
                | '\n'
                ) )
            ) *
        '""'
    ;

mSYMBOL
    : '\\'' ( ( '\\''
        | '\\\''
        | '\\r'
        | '\\n'
        ) ) * '\\''
    ;

protected

```


```
mIGNORE
```

```
  : .  
  ;
```


## 1.6 Appendix B - Release Changes

### Release History




Version	Date	Description
<a href="#">2.0.1</a>	2009-02-06	The operational release of the Product Tools software incorporating the Phase II capability supporting validation of catalog files.
<a href="#">2.0.0</a>	2009-01-09	This release of the Product Tools software incorporates the Phase II capability supporting validation of catalog files.
<a href="#">1.2.1</a>	2008-09-09	This is a maintenance release of the Product Tools software to support release 2.0.0 of the Label Template Design Tool.
<a href="#">1.2.0</a>	2008-07-24	This is a maintenance release of the Product Tools software to support release 2.0.0 of the Label Template Design Tool and release 1.2.0 of the Validation Tool.
<a href="#">1.1.2</a>	2008-02-21	This is a maintenance release of the Product Tools software to support release 0.4.0 of the Label Template Design Tool.
<a href="#">1.1.1</a>	2007-11-08	This is a maintenance release of the Product Tools software to support release 0.3.0 of the Label Template Design Tool.
<a href="#">1.1.0</a>	2007-09-28	This is a maintenance release of the Product Tools software including fixes and changes requested by the early adopters of the software.
<a href="#">1.0.0</a>	2007-05-04	This release of the Product Tools software, including the Validation Tool, represents the operational release for the Phase I targeted capabilities.
<a href="#">0.4.0</a>	2007-02-01	Binary release for the beta test phase.
<a href="#">0.3.0</a>	2006-09-12	Binary release for the second phase of alpha testing.
<a href="#">0.2.0</a>	2006-08-01	Binary release for the first phase of alpha testing.
<a href="#">0.1.0</a>	2006-06-16	Source release for the Code Walk-through.

Get the RSS feed of the last changes 





## Release 2.0.1 - 2009-02-06



Type	Changes	By
	Modified how catalog pointers are handled to not include referenced content but to validate the existence of the referenced file. Added check for valid catalog pointer names.	<a href="#">pramirez</a>

## Release 2.0.0 - 2009-01-09












Type	Changes	By
	<b>PDSEN-116-</b> Support validation of catalog files.	<a href="#">pramirez</a>
	<b>PDSEN-107-</b> Inconsistent validation of values with quotation marks based on the associated element's general data type. The issue related to quoted date/time strings has been resolved. The issue related to quoted variables was determined to be a LTDTTool issue and a new issue was created and assigned to that component.	<a href="#">pramirez</a>
	<b>PDSEN-147-</b> VTool exits ungracefully when validating a catalog directory in a GCJ environment. This is believed to be associated with the limitation in catalog file support (PDSEN-116) as opposed to the GCJ environment so it should also be resolved in this release.	<a href="#">pramirez</a>




## Release 1.2.1 - 2008-09-09

Type	Changes	By
	<b>PDSEN-119-</b> Add another constructor to GroupStatement class to initialize the Map used to store the statements.	<a href="#">pramirez</a>
	<b>PDSEN-104-</b> The AttributeStatement.hasNamespace() method returns an incorrect value.	<a href="#">pramirez</a>
	<b>PDSEN-121-</b> Quotes missing for keywords with colon ":" when writing to DD.	<a href="#">pramirez</a>
	<b>PDSEN-124-</b> Need a way to distinguish specific vs. generic object type.	<a href="#">pramirez</a>




Type	Changes	By
	When parsing a label fragment passing the follow pointer property was not being propagated.	<a href="#">pramirez</a>
	Fix spacing issue of the validation report. Seen on the Mac platform.	<a href="#">mcayanan</a>

## Release 1.2.0 - 2008-07-24


Type	Changes	By
	<b>PDSN-146-</b> VTool needs to support microsecond precision in date/time values according to SCR 3-1104.	<a href="#">pramirez</a>
	<b>PDSN-155-</b> Add support to allow required groups to be defined as required objects (via the REQUIRED_OBJECT_SET attribute) within an object definition in the data dictionary. This is a result of the implementation of SCR 3-1037 in the PSDD.	<a href="#">pramirez</a>
	<b>PDSN-100-</b> Reporting needs to be revisited as using XSLT becomes too time consuming on large files.	<a href="#">pramirez</a>
	<b>PDSN-102-</b> Error message not descriptive for numeric elements that contain string values.	<a href="#">pramirez</a>
	<b>PDSN-135-</b> VTool should improve its reporting of values of incorrect data type.	<a href="#">pramirez</a>
	<b>PDSN-101-</b> There is an issue validating date/time strings that contain a DOY with leading 0's.	<a href="#">pramirez</a>
	<b>PDSN-109-</b> There is an issue regarding validation of date/time strings for elements that have a general data type of CHARACTER.	<a href="#">pramirez</a>
	<b>PDSN-114-</b> An error occurs when encountering files without full names (e.g., .lbl) in the target directory.	<a href="#">pramirez</a>
	<b>PDSN-115-</b> Lines in generated report files appear to not be terminated with < CR > < LF > .	<a href="#">mcayanan</a>
	<b>PDSN-124-</b> Need a way to distinguish specific vs. generic object type.	<a href="#">pramirez</a>
	<b>PDSN-134-</b> VTool does not check keywords in undefined GROUPS/OBJECTS.	<a href="#">pramirez</a>

Type	Changes	By
	<b>PDSN-136</b> - Improve messaging when a bad character is found in a label.	<a href="#">mcayanan</a>
	<b>PDSN-151</b> - VTool does not support leap year dates properly.	<a href="#">pramirez</a>
	<b>PDSN-154</b> - VTool does not throw errors for certain values that don't match the element's data type.	<a href="#">pramirez</a>

## Release 1.1.2 - 2008-02-21










Type	Changes	By
	Added a stylesheet for reporting validation results of a template in the Label Template Design Tool.	<a href="#">mcayanan</a>
	Updated the command-line default value separator to be a comma instead of a space in the ToolsOption class.	<a href="#">mcayanan</a>
	When writing data dictionaries out to file, made sure that objects, groups and elements with namespaces are quoted.	<a href="#">pramirez</a>






## Release 1.1.1 - 2007-11-08

Type	Changes	By
	Added handler classes for the tools logging capability.	<a href="#">mcayanan</a>








## Release 1.1.0 - 2007-09-28










Type	Changes	By
	<p>The Validation Tool application has been split out from the <i>product-tools</i> project in order to provide more specific documentation and to turn the <i>product-tools</i> project into a library of classes that can be included by other projects. The following files or directories were moved:</p> <ul style="list-style-type: none"> <li>• <code>src/java/gov/nasa/pds/tools/VTool.java</code></li> <li>• <code>src/java/gov/nasa/pds/tools/flags/VToolFlags.java</code></li> <li>• <code>src/java/gov/nasa/pds/tools/config/</code></li> <li>• <code>src/java/gov/nasa/pds/tools/status/</code></li> <li>• <code>src/resources/scripts/</code></li> <li>• <code>xdocs/install/</code></li> <li>• <code>xdocs/user/</code></li> </ul>	<a href="#">shardman</a>
	Added support for aliases in the dictionary. They are now handled more uniformly and there is an explicit class for dealing with them.	<a href="#">pramirez</a>
	Capability to write a dictionary to a file is now supported using the <code>DictionaryWriter</code> class.	<a href="#">pramirez</a>
	Label class now persists numbers of errors and warnings found during validation. This was added to support some of the return value information that will now be provided.	<a href="#">pramirez</a>
	Added README files to be included with the binary and source distribution packages. The binary version points the user to the documentation provided with the package. The source version informs the user that they are on their own with regard to building the source in their own environment.	<a href="#">shardman</a>
	Added the somewhat human-readable representation of the grammar utilized to parse PDS labels to the Development section of the documentation. This is currently a manual process that is documented in the <code>DEPLOY.txt</code> file, which can be found in the root directory of this project.	<a href="#">shardman</a>
	Added support for namespaces in identifiers. There is now a class that handles parsing out of the namespace in an identifier. This was being done in multiple places in the code before so was a way to clean things up.	<a href="#">pramirez</a>
	Updated fields in definitions to support all that was found in the dictionary. There were some missing fields before now everything read in is preserved.	<a href="#">pramirez</a>
	Times can no longer reside on the right hand side of an attribute statement without being preceded by a date. This was being allowed by the grammar but is not part of the standard.	<a href="#">pramirez</a>





Type	Changes	By
	The map of definitions returned from the dictionary class contained redundant definitions and used a naming convention that was not explicitly called out. This was cleaned up and now the map returns only a single copy of the definitions. In addition the weird naming convention has been tossed.	<a href="#">pramirez</a>
	Aliases in the dictionary were not be correctly read in or handled all the time. There was some errant information found in the dictionary. This has been removed and fixed.	<a href="#">pramirez</a>
	Validation layer now ensures that there is not duplicate attribute identifiers within the same block. For instance, will report an error when multiple "TARGET_NAME"s are found.	<a href="#">pramirez</a>
	GROUP definitions in the data dictionary can now be specified as a SPECIFIC_OBJECT_DEFINITION as well as a GENERIC_OBJECT_DEFINITION.	<a href="#">pramirez</a>
	Messages regarding unknown unit values will now have a severity of WARNING instead of ERROR.	<a href="#">pramirez</a>







## Release 1.0.0 - 2007-05-04

Type	Changes	By
	Added support for validation of label fragments.	<a href="#">pramirez</a>
	Added the capability to return an appropriate exit status value based on validation results or tool application failure.	<a href="#">mcayanan</a>
	Created batch and shell scripts for simpler execution of VTool.	<a href="#">mcayanan</a>
	Added the capability for targets to be specified implicitly.	<a href="#">mcayanan</a>
	Added -f or --force flag option to perform standalone label fragment validation.	<a href="#">mcayanan</a>
	Validation of units is now performed against the master list of unit values. This comparison is case sensitive.	<a href="#">pramirez</a>
	File names referenced by pointers may be in any case and still be discoverable by the tool. File names in mixed case will generate a warning message.	<a href="#">pramirez</a>


Type	Changes	By
	Cleaned up reporting including replacing SEVERE with ERROR in all instances and properly representing fragment messages when they are included in a label validation.	<a href="#">pramirez</a>
	Implemented new log file behavior to allow logs to be written to memory. This allows generation of reports without the need of explicitly specifying the log file flag option.	<a href="#">mcayanan</a>
	Changed the log file flag (-l or --log) option to optionally allow a file specification. See <i>Use and Operation</i> guide for log generation details.	<a href="#">mcayanan</a>
	Added time and date of tool execution in final reports.	<a href="#">mcayanan</a>
	Enhanced user guide with more details regarding command-line flag options, report examples, etc.	<a href="#">mcayanan</a>
	Fixed support for UNC pathnames.	<a href="#">mcayanan</a>
	Fixed the minimal report stylesheet to work correctly on the Linux platform.	<a href="#">mcayanan</a>













## Release 0.4.0 - 2007-02-01


Type	Changes	By
	Added the following capabilities related to semantic validation: <ul style="list-style-type: none"> <li>White space stripping for element value comparison.</li> <li>Support for element and object aliases.</li> <li>Verifying the existence of referenced data objects and files.</li> </ul>	<a href="#">pramirez</a>
	Implemented reporting including generation of an XML formatted log file which can then be transformed via XSLT stylesheets into the specified human-readable report formats.	<a href="#">pramirez</a>
	Implemented progress reporting, which prints to standard error. This feature will report the directory being validated and then represent each file being validated with an asterisk instead of the actual file name.	<a href="#">mcayanan</a>
	Added documentation for Installation and a template for Development along with the capability to generate a PDF of the newly named Product Tools Guide.	<a href="#">shardman</a>

Type	Changes	By
	Added and/or modified the following command-line options:	<a href="#">mcayanan</a>
	-l	Specify paths to look for files referenced by pointers
	-l	Specify a file name for the machine-readable log
	-p	Enable progress reporting
	-r	Specify a file name for the human-readable report
	-s	Specify a format for the human-readable report
	-v	Specify the severity level and above to include in report
	Changed the "p" (patterns) flag to an "e" (regex) flag. Also changed the "l" (local) flag to an "L" flag.	<a href="#">mcayanan</a>
	Updated VTool to validate files in a directory first before moving on to its sub-directories. Before, validation of files in a directory were interleaved with validation of files in its sub-directories.	<a href="#">mcayanan</a>
	Added a <i>Common Errors</i> section to the User Guide as well as clarifying some aspects of setting the <i>CLASSPATH</i> environment variable in the <i>Setup</i> section.	<a href="#">shardman</a>
	Corrected a problem where the tool was not completing syntactic validation on a label.	<a href="#">pramirez</a>
	Fixed to properly handle URLs (for targets, dictionaries, Includes).	<a href="#">mcayanan</a>



## Release 0.3.0 - 2006-09-12

Type	Changes	By
	Added a user guide for VTool.	<a href="#">mcayanan</a>


Type	Changes	By
	Added the following command-line options:	<a href="#">mcayanan</a>
	-p	Specify files/file patterns to include in validation
	-X	Specify files/file patterns to exclude in validation
	-c	Specify a configuration file to set default behavior
	-F	Do not follow STRUCTURE pointers
	Pointers are now followed. This feature can be turned on and off. This will allow arbitrary length nesting of pointers. Object and group statements should not begin and end in different files. Their contents may be in separate files but the open and close should be contained within the same file. This will allow the label to be valid even when semantic validation is done.	<a href="#">pramirez</a>
	Added support for PDS_VERSION_ID. Now files that don't have this in the first line will be skipped and logged as a warning if passed to the parser.	<a href="#">pramirez</a>
	Added support for SFDUs. Now the SFDUs will be logged and then skipped. This has not added validation of SFDUs.	<a href="#">pramirez</a>
	Changed the "f" (file) flag to a "t" (target) flag.	<a href="#">mcayanan</a>
	Dates are now checked to ensure that they are not only properly formed but are actual valid dates. One can now get a Date object through the API for convenience.	<a href="#">pramirez</a>
	More logging information about file being parsed and dictionaries being used.	<a href="#">pramirez</a>
	Fixed multiple dictionary support.	<a href="#">mcayanan</a>
	Properly handle the 'Z' at the end of the date when attempting to create an actual Date object.	<a href="#">pramirez</a>
	Allow group statements to be within object statements.	<a href="#">pramirez</a>
	Allow for objects and groups with the same name to appear at the same level within a label or fragment. This required changes to method signatures on the Label class.	<a href="#">pramirez</a>
	Fixed convenience methods on Label class. This would have only caused a problem if people called the tool directly.	<a href="#">pramirez</a>

Type	Changes	By
	PSDD will now be adhered to properly as an optional element. This essentially allows any element definition to appear within an object or group statement without generating an error.	<a href="#">pramirez</a>

## Release 0.2.0 - 2006-08-01

Type	Changes	By
	A major overhaul to how the grammar was implemented using Antlr was performed as a result of comments from the Code Walk-through. Thanks to <a href="#">Mark Rose</a> .	<a href="#">pramirez</a>
	This release supports validation against the PDS Data Dictionary.	<a href="#">pramirez</a>

## Release 0.1.0 - 2006-06-16

Type	Changes	By
	This release supports syntactic and semantic validation of a single PDS label.	<a href="#">pramirez</a>