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1 Introduction

This document presents the PDS4 Information Model Specification for all components of the Planetary Data System (PDS).

2 Audience

This specification is intended for use by programmers and data engineers who require formal definitions of various parts of the Planetary Data System in order to support development of data sets, archiving utilities, and interfaces involving PDS holdings or operations.

3 Acknowledgements

The PDS4 Data Dictionary and the PDS4 Information Model is a joint effort involving representatives from each of the PDS nodes functioning as the PDS4 Data Design Working Group.

4 Scope

This document defines all classes in use in the PDS, including those classes used to define archival elements as well as classes used for high-level descriptions and operational support. It also documents the associations among classes. Figure 1 illustrates a few of the main classes using a Concept Map diagram.

5 Applicable Documents

The starting point for this document was the PDS3 Information Model Specification (version 0.070916t, 8 September 2008). Deficiencies in PDS3 were a major motivation in developing PDS4, however; so the relationship between the two specifications is largely of historical interest. Relevant to both documents is: Reference Model for an Open Archival Information System (OAIS), CCSDS 650.0-B-1, Blue Book, January 2002.

6 Terminology

This document uses very specific engineering terminology to describe the various structures involved. It is particularly important that readers who have absorbed the PDS Standards Reference bear in mind that terms which are familiar in that context can have very different meanings in the present document. Please consult the Glossary for definitions whenever there is
any possibility of confusion.

Following are some definitions of essential terms used throughout this document.

An "attribute" is a property or characteristic that allows both identification and distinction.

A "class" is the set of attributes which identifies a family. A class is generic – a template from which individual members of each family may be constructed.

An "object" is a specific instance of a class.

For example, an electromagnetic wave may be represented mathematically as

\[ i_x A \cos(\omega t - k r - \varphi) \]

where there are five explicit attributes: polarization \( i_x \), amplitude \( A \), frequency \( \omega \), wave vector \( k \) (which defines the propagation direction), and phase \( \varphi \). Although shown here as constants, these attributes may be complex functions of other variables; for example, there is an implicit
sixth attribute "time" which defines both the beginning and end of the electromagnetic wave. Together these six attributes identify the class (i.e., the family) of all electromagnetic waves. If we then define a coordinate system, specify values for the attributes above, and impose time constraints, we would have an electromagnetic wave object. We would need a different list of attributes to identify a river, a musical score, or a television set, thus these would be different classes.

For this document we identify two special types of objects – the "data object" and the "description object." The data object contains "data," and (by itself) is not otherwise constrained. The description object contains information about another object, such as a data object. By linking a data object with a description object we create a pair which includes both the data and enough information that we can start to read and interpret the bits.

A description object can (and often does) exist without being physically accompanied by another object. The object it describes may not be physical (e.g., a space mission which, although it has physical components, is itself a concept) or it may not be practical to include the physical object (e.g., the planet Saturn).

An "association" is a defined relationship between classes. It has one direction. The association in the opposite direction is called an inverse relation.

"Cardinality" is the number of values allowed to an attribute or association in a single class. Cardinality in general is stated as a range with a minimum and maximum. For example, an attribute that may be multi-valued will have a cardinality of "1..*". A cardinality where the minimum and maximum are the same is often shown as the single value. For example, an attribute required to have exactly one value will have a cardinality of "1". When a value is required the minimum cardinality is at least 1. At least one value is always required.

"Entity" is a generic term used to refer to specific attributes or associations listed in a class definition.

Within this document, the term "model" is used to refer to a collection of classes and associations that describe a functional subsection of the Planetary Data System.
7 Document Contents

Sections 8 through 16 contain the specification for PDS4. The lowest level building blocks (classes) are defined first, then these are used to construct classes at higher levels; for active users of PDS4, the material in Section 9 should seem familiar, but the terminology may be new. The classes in section 12 provide context (instrument, mission, node, etc.).

Section 8: the basic component classes

Section 9: the data description classes

Section 10: the "tagged" classes, the data objects with their descriptions

Section 11: product classes, which are formed from combinations of the above

Section 12: context classes (commonly associated with the PDS Catalog)

Section 13: packaging classes

Section 14: classes needed for operating and maintaining the PDS

Section 15: data type classes

Section 16: the information object class

Each section begins with a brief outline, including a hierarchy of the definitions which follow. In some cases a class is defined to group several subclasses when the class itself never appears in PDS (a "phantom" class). To facilitate cross-referencing, the classes are listed alphabetically within each section. Subsections begin with a note on the position within the hierarchy and a brief description of the class. The heart of each subsection is the class definition table. Sections are often accompanied by a UML diagram which shows the relationships among classes graphically.

Class definition tables comprise five columns. The left column is used to separate the table into functional blocks of contiguous rows. The "hierarchy" block restates the position of the class within the definitional hierarchy, and the "subclass" block identifies any subclasses which may exist (be derived from the current class). Attribute and Association blocks list the properties, characteristics, and relationships of the class, some of
which may be inherited from parent classes. The "referenced from" block lists classes which may "call" the class being defined.

Within Attribute blocks, the "entity" column lists the properties and characteristics which identify the class and distinguish it from others. The "Indicator" column (far right) tells whether the attribute is optional (O), restricted (R), or both; a restricted attribute has been inherited from a parent class but its use is more narrow than the parent would allow. The "Cardinality" column (middle) shows the number of values allowed. A required attribute for which only one value is allowed will have cardinality "1". A required attribute for which one or more values is allowed will have cardinality "1..*". If a parent’s attribute has cardinality "1..*" but the child’s cardinality is "1", the Indicator column should show "R". The "Value" column (fourth) includes the indicator Data Dictionary (DD) when a set of valid values for the attribute are provided in the dictionary. A few attributes that represent types have their valid values included in this column.

The Association blocks are handled similarly. The "Entity" column lists relationships among classes using fabricated, but intuitive, names which are unique and consistent across the Specification. The "Value" column (fourth), which is rarely used in the Attribute blocks, lists the class to which the relationship is made.

During construction of the Specification some classes have been subsumed. In particular, any subclass which does nothing more than provide multiple values for a single attribute (e.g., data_set_target) or any subclass which merely grouped non-repeating attributes (e.g., data_set_information) was subsumed. Only subclasses that grouped several attributes and that repeated were defined explicitly as separate classes (e.g., software_online).

Sections 17-19 contain supplementary information which may be useful in interpreting the remainder of the Specification.

8 Observational Data Products

This section provides the observational product classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

```
+ Product
+  + Product_File_Text
```
The class hierarchy above includes 4 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

8.1 Product

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* A Product is a uniquely identified object that is managed by a registry/repository. It consists of one or more tagged data objects.
### 8.2 Product_File_Text

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product File Text consists of a single text file with ASCII character encoding.
8.3 Product_Observational

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* A Product_Observational is a set of one or more information objects produced by an observing system.

8.4 Product_Update

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* The Product_Update class defines a product consisting of update information and optional references to other products.
<table>
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<th>Value/Class</th>
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<td></td>
</tr>
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<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
9 Observational Digital Objects

This section provides the observational product classes and their fundamental data structure classes.

The class hierarchy for Tagged Digital Objects is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format and provides a visual representation of the classes in relation to their parent classes.

```plaintext
+  + Axis_Array
+  + Element_Array
+  + Field
  +  + Field_Binary
  +  + Field_Bit
  +  + Field_Character
  +  + Field_Delimited
+  + Group
  +  + Group_Field_Binary
  +  + Group_Field_Character
  +  + Group_Field_Delimited
+  + Packed_Data_Fields
+  + Record
  +  + Record_Binary
  +  + Record_Character
  +  + Record_Delimited
+  + Byte_Stream
  +  + Array
    +  + Array_1D
    +  + Array_2D
      +  + Array_2D_Image
      +  + Array_2D_Map
      +  + Array_2D_Spectrum
    +  + Array_3D
      +  + Array_3D_Image
      +  + Array_3D_Movie
      +  + Array_3D_Spectrum
    +  + Encoded_Bit_Stream
    +  + Encoded_Header
    +  + Parsable_Bit_Stream
    +  + Header
    +  + Stream_Text
    +  + Table_Delimited
    +  + Table_Base
```
The class hierarchy above includes 38 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

9.1 Array

*Root Class:* Tagged_Digital_Object

*Role:* Concrete

*Class Description:* The Array class defines a homogeneous N-dimensional array of scalars. The Array class is the parent class for all n-dimensional arrays of scalars.
<table>
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<tr>
<th>Entity</th>
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<th>Value/Class</th>
<th>Ind</th>
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</tr>
<tr>
<td>. Byte_Stream</td>
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<td></td>
</tr>
<tr>
<td>. Array</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Array_2D</td>
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<td></td>
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<td>Array_3D</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>axis_index_order.Array</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>description.Array</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>offset.Array</td>
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<td></td>
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<td>name.Byte_Stream</td>
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<td>has_Element_Array.Array</td>
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<td>Element_Array</td>
<td></td>
</tr>
<tr>
<td>local_internal_reference.Array</td>
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<td>Local_Internal_Reference</td>
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</tr>
<tr>
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<tr>
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</table>

### 9.2 Array_1D

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 1D class is the parent class for all one dimensional array based classes.
<table>
<thead>
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</tr>
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<td>Byte_Stream</td>
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<td><strong>Subclass</strong></td>
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</tr>
<tr>
<td><strong>Attribute</strong></td>
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</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td>axis_index_order.Array</td>
<td>description.Array</td>
</tr>
<tr>
<td><strong>Association</strong></td>
<td>has_Axis_Array.Array_ID</td>
<td>1</td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td>associated_Special_Constant...</td>
<td>associated_Special_Constant...</td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
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<td>File_Area_Observational</td>
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</tbody>
</table>

### 9.3 Array_2D

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 2D class is the parent class for all two dimensional array based classes.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
</table>
| **Hierarchy** | Tagged_Digital_Object  
  . Byte_Stream  
  . . Array  
  . . . Array_2D | | |
| **Subclass** | Array_2D_Image  
  Array_2D_Map  
  Array_2D_Spectrum | | |
| **Attribute** | axes.Array_2D | 1 | 2 |
| **Inherited Attribute** | axis_index_order.Array  
  description.Array  
  offset.Array  
  local_identifier.Byte_Stream  
  name.Byte_Stream | 1 | 0..1  
  1  
  0..1  
  0..1 |
| **Association** | has_Axis_Array.Array_2D | 2 | Axis_Array |
| **Inherited Association** | associated_Special_Constant.Array  
  associated_Statistics.Array  
  data_object.Array  
  has_Element_Array.Array  
  local_internal_reference.Array | 0..1  
  0..1  
  1  
  1  
  0..* |
| **Referenced from** | File_Area_Browse  
  File_Area_Observational  
  File_Area_Observational_Supplemental | | |

### 9.4 Array_2D_Image

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 2D Image class is an extension of the Array 2D class and defines a two dimensional image.
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</tr>
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<tbody>
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</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>axis_index_order.Array</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>description.Array</td>
<td>0..1</td>
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<tr>
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<td>offset.Array</td>
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<td>name.Byte_Stream</td>
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</tr>
<tr>
<td>Inherited Association</td>
<td>associated_Special_Constant...</td>
<td>0..1</td>
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<td>data_object.Array</td>
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<td>has_Element_Array.Array</td>
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<tr>
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<td>local_internal_reference.Array</td>
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</table>

### 9.5 Array_2D_Map

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 2D Map class is an extension of the Array 2D class and defines a two dimensional map.
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</tr>
<tr>
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</tr>
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<td>offset.Array</td>
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<td></td>
</tr>
<tr>
<td>name.Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td><strong>Association</strong></td>
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<td>data_object.Array</td>
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<tr>
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</tbody>
</table>

### 9.6 Array_2D_Spectrum

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 2D Spectrum class is an extension of the Array 2D class and defines a two dimensional spectrum.
<table>
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<tr>
<td>axes.Array_2D</td>
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<td>2</td>
</tr>
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<td></td>
</tr>
<tr>
<td>name.Byte_Stream</td>
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<tr>
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</tr>
</tbody>
</table>

### 9.7 Array_3D

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 3D class is the parent class for all three dimensional array based classes.
<table>
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<td></td>
<td>offset.Array</td>
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</tr>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>File_Area_Observational_Supplemental</td>
<td></td>
</tr>
</tbody>
</table>

### 9.8 Array_3D_Image

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Array 3D Image class is an extension of the Array 3D class and defines a three dimensional image.
9.9 Array_3D_Movie

**Root Class:** Tagged_Digital_Object

**Role:** Concrete

**Class Description:** The Array 3D Movie class is an extension of the Array 3D class and defines a movie as a set of two dimensional images in a time series.
<table>
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</tr>
</thead>
<tbody>
<tr>
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<td>offset.Array</td>
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<td>axes.Array_3D</td>
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</table>

### 9.10 Array_3D_Spectrum

**Root Class:** Tagged_Digital_Object

**Role:** Concrete

**Class Description:** The Array 3D Spectrum class is an extension of the Array 3D class and defines a three dimensional spectrum.
<table>
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</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>axis_index_order.Array</td>
<td>1</td>
<td>Last Index Fastest</td>
</tr>
<tr>
<td>description.Array</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>offset.Array</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>axes.Array_3D</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>local_identifier.Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>name.Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td><strong>Association</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>associated_Special_Constant...</td>
<td>0..1</td>
<td>Special_Constants</td>
</tr>
<tr>
<td>associated_Statistics.Array</td>
<td>0..1</td>
<td>Object_Statistics</td>
</tr>
<tr>
<td>data_object.Array</td>
<td>1</td>
<td>Digital_Object</td>
</tr>
<tr>
<td>has_Element_Array.Array</td>
<td>1</td>
<td>ElementArrayType</td>
</tr>
<tr>
<td>local_internal_reference.Array</td>
<td>0..*</td>
<td>Local_Internal_Reference</td>
</tr>
<tr>
<td>has_Axis.Array_3D</td>
<td>3</td>
<td>Axis_Array</td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File_Area_Browse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File_Area_Observational</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File_Area_Observational_Supplemental</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 9.11 Axis_Array

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete  
**Class Description:** The Axis Array class is used as a component of the array class and defines an axis of the array.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>. Axis_Array</td>
<td>Tagged_Digital_Child</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass          | none                    |

| Attribute         | axis_name.Axis_Array    | 1    |             |     |
|                   | elements.Axis_Array     | 1    |             |     |
|                   | local_identifier.Axis_Array | 0..1 |           |     |
|                   | sequence_number.Axis_Array | 1  |           |     |
|                   | unit.Axis_Array *Deprecated* | 0..1|           |     |

| Inherited Attribute | none                    |

| Association        | has_Band_Bin_Set.Axis_Array | 0..1 | Band_Bin_Set |

| Inherited Association | none                    |

| Referenced from    | Array                   |
|                    | Array_1D                |
|                    | Array_2D                |
|                    | Array_2D_Image          |
|                    | Array_2D_Map            |
|                    | Array_2D_Spectrum       |
|                    | Array_3D                |
|                    | Array_3D_Image          |
|                    | Array_3D_Movie          |
|                    | Array_3D_Spectrum       |

### 9.12 Band_Bin

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.
9.13 Band_Bin_Set

**Root Class:** Tagged_NonDigital_Object

**Role:** Concrete

**Class Description:** The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a cube.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tagged_NonDigital_Object</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>. TNDO_Supplemental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . Band_Bin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>band_number.Band_Bin</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>band_width.Band_Bin</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>center_wavelength.Band_Bin</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>detector_number.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>filter_number.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>grating_position.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>original_band.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>scaling_factor.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard_deviation.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>value_offset.Band_Bin</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Band_Bin_Set</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9.14 Byte_Stream

**Root Class:** Tagged_Digital_Object

**Role:** Abstract

**Class Description:** The Byte Stream class defines a stream of bytes.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**9.15 Element_Array**

*Root Class:* Tagged_Digital_Child  
*Role:* Concrete  
*Class Description:* The Element Array class is used as a component of the array class and defines an element of the array.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Child . Element_Array</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>data_type.Element_Array</td>
<td>1</td>
<td>ComplexLSB16 ComplexLSB8 ComplexMSB16 ComplexMSB8 IEEE754LSBDouble IEEE754LSBSingle IEEE754MSBDouble IEEE754MSBSingle SignedBitString SignedByte SignedLSB2 SignedLSB4 SignedLSB8 SignedMSB2 SignedMSB4 SignedMSB8 UnsignedBitString UnsignedByte UnsignedLSB2 UnsignedLSB4 UnsignedLSB8 UnsignedMSB2 UnsignedMSB4 UnsignedMSB8</td>
</tr>
<tr>
<td></td>
<td>scaling_factor.Element_Array</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>unit.Element_Array</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>value_offset.Element_Array</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Array Array_1D Array_2D Array_2D_Image Array_2D_Map Array_2D_Spectrum Array_3D Array_3D_Image Array_3D_Movie Array_3D_Spectrum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9.16 Encoded Byte Stream

**Root Class:** Tagged Digital Object  
**Role:** Concrete  
**Class Description:** The Encoded Byte Stream class defines byte streams that must be decoded by software before use. These byte streams must only use standard encodings. The Encoded Byte Stream class is the parent class for all encoded byte streams.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Object . Byte_Stream . Encoded_Binary_Stream</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Subclass | Encoded_Binary  
Encoded_Header  
Encoded_Image | | |
| Attribute | description.Encoded_Binary_Stream  
encoding_standard_id.Encoded_Binary_Stream  
object_length.Encoded_Binary_Stream  
offset.Encoded_Binary_Stream | 0..1 | 1 | 0..1 | 1 |
| Inherited Attribute | local_identifier.Byte_Stream  
nname.Byte_Stream | 0..1 | 1 | 0..1 | |
| Association | data_object.Encoded_Binary_Stream | 1 | Digital_Object |
| Inherited Association | none | | |
| Referenced from | File_Area_Observational_Supplemental | | |

9.17 Encoded Header

**Root Class:** Tagged Digital Object  
**Role:** Concrete  
**Class Description:** The Encoded Header class describes a header that has been encoded using an encoding scheme that is compliant to an external standard.
### 9.18 Field

**Root Class:** Tagged_Digital_Child  
**Role:** Abstract  
**Class Description:** The Field class defines a field of a record and is the parent class of all specific field classes. The Field class defines a field of a record or a field of a group and is the parent class of all specific field classes.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
</table>
| Hierarchy | Tagged_Digital_Object  
  . Byte_Stream  
  . . Encoded_BYTE_Stream  
  . . . Encoded_Header | | |

<table>
<thead>
<tr>
<th>Subclass</th>
<th>none</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>encoding_standard_id.Encode...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inherited Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>local_identifier.Byte_Stream</td>
</tr>
<tr>
<td>name.Byte_Stream</td>
</tr>
<tr>
<td>description.Encoded_BYTE_Stream</td>
</tr>
<tr>
<td>object_length.Encoded_BYTE_Stream</td>
</tr>
<tr>
<td>offset.Encoded_BYTE_Stream</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Association</th>
<th>none</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inherited Association</td>
<td>data_object.Encoded_BYTE_Stream</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Referenced from</th>
</tr>
</thead>
<tbody>
<tr>
<td>File_Area_Browse</td>
</tr>
<tr>
<td>File_Area_Observational</td>
</tr>
<tr>
<td>File_Area_Observational_Supplemental</td>
</tr>
</tbody>
</table>

### 9.19 Field_Binary

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete
Class Description: The Field_Binary class defines a field of a binary record or a field of a binary group.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged</td>
<td>Digital Child Field</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Field Binary</td>
</tr>
</tbody>
</table>

| Subclass | none |

9.20  Field.Bit

*Root Class:* Tagged_Digital_Child  
*Role:* Concrete  
*Class Description:* The Field.Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td>Tagged_Digital_Child. Field</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>. Field.Bit</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td>data_type.Field.Bit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>description.Field.Bit</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>field_format.Field.Bit</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>name.Field.Bit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>scaling_factor.Field.Bit</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>start_bit.Field.Bit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>stop_bit.Field.Bit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>unit.Field.Bit</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>value_offset.Field.Bit</td>
<td>0..1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td></td>
<td>field_number.Field</td>
<td>0..1</td>
</tr>
<tr>
<td>Association</td>
<td></td>
<td>associated_Special_Constant..</td>
<td>0..1</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td></td>
<td>Packed_Data.Fields</td>
<td></td>
</tr>
</tbody>
</table>

9.21  Field.Character

*Root Class:* Tagged_Digital_Child  
*Role:* Concrete  
*Class Description:* The Field.Character class defines a field of a character record or a field of a character group.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Child</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>data_type.Field_Character</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>name.Field_Character</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>description.Field_Character</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>field_format.Field_Character</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>field_length.Field_Character</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>field_location.Field_Character</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>name.Field_Character</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>scaling_factor.Field_Character</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>unit.Field_Character</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>value_offset.Field_Character</td>
<td>0..1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>field_number.Field</td>
<td>0..1</td>
</tr>
<tr>
<td>Association</td>
<td>associated_Special_Constant...</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>associated_Statistics.Field...</td>
<td>0..1</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Group_Field_Character</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Record_Character</td>
<td></td>
</tr>
</tbody>
</table>
9.22 Field_Delimited

*Root Class:* Tagged_Digital_Child

*Role:* Concrete

*Class Description:* The Field_Delimited class defines a field of a delimited record or a field of a delimited group.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Child . Field . . Field_Delimited</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>data_type.Field_Delimited</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>description.Field_Delimited</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>field_format.Field_Delimited</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>maximum_field_length.Field....</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>name.Field_Delimited</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>scaling_factor.Field_Delimited</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>unit.Field_Delimited</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>value_offset.Field_Delimited</td>
<td>0..1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>field_number.Field</td>
<td>0..1</td>
</tr>
<tr>
<td>Association</td>
<td>associated.Special_Constant...</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>associated.Statistics.Field...</td>
<td>0..1</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Group_Field_Delimited Record_Delimited</td>
<td></td>
</tr>
</tbody>
</table>
9.23 Group

Root Class: Tagged_Digital Child
Role: Abstract
Class Description: The Group class defines a group of (repeating) fields and, possibly, (sub) groups; it is the parent class of all specific group classes.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital.Child.Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>Group_Field_Binary Group_Field_Character Group_Field_Delimited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>fields.Group group_number.Group groups.Group repetitions.Group</td>
<td>1 0..1 1 1</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9.24 Group_Field_Binary

Root Class: Tagged_Digital Child
Role: Concrete
Class Description: The Group_Field_Binary class allows a group of table fields.
9.25 Group_Field_Character

Root Class: Tagged_Digital_Child
Role: Concrete
Class Description: The Group_Field_Character class allows a group of table fields.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tagged_Digital_Child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>. Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . Group_Field_Character</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>group_length.Group_Field_Binary</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>group_location.Group_Field_Binary</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fields.Group</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>group_number.Group</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>groups.Group</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>repetitions.Group</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>has_Group_Field_Character.Group_Field_Binary</td>
<td>1..*</td>
<td>Field_Binary</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group_Field_Character</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record_Character</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

45
9.26 Group_Field_Delimited

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete  
**Class Description:** The Field_Group_Delimited class allows a group of delimited fields.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged_Digital_Child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . Group_Field_Delimited</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass        | none                          |      |               |     |
| Attribute       | none                          |      |               |     |
| Inherited Attribute | fields.Group                 | 1    |               |     |
|                 | group_number.Group           | 0..1 |               |     |
|                 | groups.Group                 | 1    |               |     |
|                 | repetitions.Group            | 1    |               |     |

| Association     | has_Delimited_Field_Grouped... | 1..* | Field_Delimited |     |
|                 |                               |      | Group_Field_Delimited |     |

| Inherited Association | none                          |      |               |     |
| Referenced from      | Group_Field_Delimited         |      |               |     |
|                      | Record_Delimited              |      |               |     |

9.27 Header

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Header class describes a data object header.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
</table>
| **Hierarchy** | Tagged_Digital_Object  
.  Byte_Stream  
. . Parsable_Byte_Stream  
. . . Header | | |
| **Subclass** | none | | |
| **Attribute** | object_length.Header  
  parsing_standard_id.Header | 1 | 7-Bit ASCII Text  
  CDF 3.4 ISTP/IACG  
  FITS 3.0  
  ISIS2  
  ISIS3  
  PDS DSV 1  
  PDS ODL 2  
  PDS3  
  Pre-PDS3  
  UTF-8 Text  
  VICAR1  
  VICAR2 |
| **Inherited Attribute** | local_identifier.Byte_Stream  
  name.Byte_Stream  
  description.Parsable_Byte_Stream  
  offset.Parsable_Byte_Stream | 0..1  
  0..1  
  0..1  
  1 | |
| **Association** | none | | |
| **Inherited Association** | data_object.Parsable_Byte_Stream | 1 | Digital_Document |
| **Referenced from** | File_Area_Browse  
  File_Area_Observational  
  File_Area_Observational_Supplemental | | |

9.28  Packed_Data_Fields

*Root Class:* Tagged_Digital_Child  
*Role:* Concrete  
*Class Description:* The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Child</td>
<td>. Packed_Data_Fields</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>bit_fields.Packed_Data_Fields 1</td>
<td>description.Packed_Data_Fields 0..1</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>has_Field_Bit.Packed_Data_Fields 1..* Field_Bit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Field_Binary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9.29  Parsable_Braye_Stream

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Parsable Byte Stream class defines byte streams that have standard parsing rules. The Parsable Byte Stream class is the parent class for all parsable byte streams.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
</table>
| Hierarchy | Tagged_Digital_Object  
. Byte_Stream  
. . Parsable_Braye_Stream | |
| Subclass | Header  
. SPICE_Kernel  
. Service_Description  
. Stream_Text  
. Table_Delimited  
. XML_Schema | |
| Attribute | description.Parsable_Braye_Stream 0..1  
. object_length.Parsable_Braye_Stream 0..1  
. offset.Parsable_Braye_Stream 1  
. parsing_standard_id.Parsable_Braye_Stream 1 | |
| Inherited Attribute | local_identifier.Byte_Stream 0..1  
. name.Byte_Stream 0..1 | |
| Association | data_object.Parsable_Braye_Stream 1 Digital_Object | |
| Inherited Association | none | | |
| Referenced from | File_Area_Observational_Supplemental | | |

9.30  Record

**Root Class:** Tagged_Digital_Child  
**Role:** Abstract  
**Class Description:** The Record class defines a record of a file and is the

48
parent class of all specific record classes.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged_Digital_Child . Record</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass           | Record_Binary  
|--------------------| Record_Character  
|                    | Record_Delimited |

| Attribute          | fields.Record  
|--------------------| groups.Record  
|                    | 1               
|                    | 1               |

| Inherited Attribute| none            |
| Association        | none            |
| Inherited Association| none           |
| Referred from      | none            |

### 9.31 Record_Binary

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete  
**Class Description:** The Record_Binary class is a component of the table class and defines a record of the table.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged_Digital_Child . Record . . Record_Binary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass           | none                        |
| Attribute          | record_length.Record_Binary  | 1    |             |     |
| Inherited Attribute| fields.Record               
|                    | groups.Record               | 1    |
| Association        | has_Table_Field.Record_Binary 1..* Field_Binary  
|                    |                             | Group_Field_Binary |
| Inherited Association| none                       |
| Referred from      | Table_Binary                |

### 9.32 Record_Character

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete  
**Class Description:** The Record_Character class is a component of the table class and defines a record of the table.
### 9.33 Record_Delimited

**Root Class:** Tagged_Digital_Child

**Role:** Concrete

**Class Description:** The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td>record_length</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Record_Character</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td>fields</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>groups</td>
<td>1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td></td>
<td>has_Character_Field</td>
<td>1..*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Record</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Field_Character</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group_Field_Character</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Table_Character</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transfer_Manifest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 9.34 Stream_Text

**Root Class:** Tagged_Digital_Object

**Role:** Concrete

**Class Description:** The Stream text class defines a text object.
9.35 Table_Base

**Root Class:** Tagged_Digital_Object

**Role:** Abstract

**Class Description:** The Table Base class defines a heterogeneous repeating record of scalars. The Table Base class is the parent class for all heterogeneous repeating record of scalars.
9.36 Table_Binary

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Table Binary class is an extension of table base and defines a simple binary table.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Parent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged_Digital_Object</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Byte_Stream</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . Table_Base</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . . Table_Binary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attribute</strong></td>
<td>record_delimiter.Table_Binary</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td>local_identifier.Byte_Stream</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>name.Byte_Stream</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>description.Table_Base</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>offset.Table_Base</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>records.Table_Base</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Association</strong></td>
<td>has_Record.Table_Binary</td>
<td>1</td>
<td>Record_Binary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>uniformly_sampled.Table_Binary</td>
<td>0..1</td>
<td>Uniformly_Sampled</td>
<td></td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td>data_object.Table_Base</td>
<td>1</td>
<td>Digital_Object</td>
<td></td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
<td>File_Area_Browse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>File_Area_Observational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>File_Area_Observational_Supplemental</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9.37 Table_Character

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Table Character class is an extension of table base and defines a simple character table.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Tagged_Digital_Object</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>. Byte_Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . Table_Base</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . . Table_Character</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass           | Transfer_Manifest       |      |             |

| Attribute          | record_delimiter.Table_Character | 1 | carriage-return line-feed |

| Inherited Attribute| local_identifier.Byte_Stream | 0..1 |             |
|                   | name.Byte_Stream            | 0..1 |             |
|                   | description.Table_Base      | 0..1 |             |
|                   | offset.Table_Base           | 1    |             |
|                   | records.Table_Base          | 1    |             |

| Association        | has_Record.Table_Character  | 1    | Record_Character |
|                   | uniformly_sampled.Table_Character | 0..1 | Uniformly_Sampled |

| Inherited Association | data_object.Table_Base | 1 | Digital_Object |

| Referenced from     | File_Area_Browse         |      |             |
|                     | File_Area_Observational  |      |             |
|                     | File_Area_Observational_Supplemental | |             |

**9.38 Table_Delimited**

*Root Class:* Tagged_Digital_Object  
*Role:* Concrete  
*Class Description:* The Table_Delimited class defines a simple table (spreadsheet) with delimited fields and records.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hierarchy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tagged_Digital_Object</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. Byte_Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . Parsable_Byte_Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . Table_Delimited</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subclass</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attribute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>field_delimiter.Table_Delimited</td>
<td>1</td>
<td>comma</td>
</tr>
<tr>
<td>parsing_standard_id.Table_Delimited</td>
<td>1</td>
<td>horizontal tab</td>
</tr>
<tr>
<td>record_delimiter.Table_Delimited</td>
<td>1</td>
<td>semicolon</td>
</tr>
<tr>
<td>records.Table_Delimited</td>
<td>1</td>
<td>vertical bar</td>
</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>local_identifier.Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>name.Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>description.Parsable_Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>object_length.Parsable_Byte_Stream</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>offset.Parsable_Byte_Stream</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Association</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>has_delimited_record.Table_Delimited</td>
<td>1</td>
<td>Record_Delimited</td>
</tr>
<tr>
<td>uniformly_sampled/Table_Delimited</td>
<td>0..1</td>
<td>Uniformly_Sampled</td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>data_object.Parsable_Byte_Stream</td>
<td>1</td>
<td>Digital_Object</td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File_Area_Browse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File_Area_Observational</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File_Area_Observational_Supplemental</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10 Observational Data Component

This section provides the observational product classes and their component classes.

The digital product class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

```
+ Product_Components
  + Alias
  + Alias_List
  + Citation_Information
  + Context_Area
  + + Observation_Area
  + + Discipline_Area
  + + Discipline_Facets
  + + External_Reference
  + + File_Area
  + + + File_Area_Observational
  + + + File_Area_Observational_Supplemental
  + + + File_Area_SPICE_Kernel
  + + + File_Area_Text
  + + Group_Facet1
  + + Group_Facet2
  + + Identification_Area
  + + Internal_Reference
  + + Investigation_Area
  + + Mission_Area
  + + Modification_Detail
  + + Modification_History
  + + Primary_Result_Summary
  + + Reference_List
  + + Science_Facets
  + + Target_Identification
  + + Time_Coordinates
  + + Update_Entry
  + + Special_Constants
  + + Uniformly_Sampled
  + + File
  + + Observing_System_Component
  + + Vector_Component
  + + + Observing_System
```
The class hierarchy above includes 44 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

10.1 Alias

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product_Components</td>
<td>. Alias</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>alternate_id.Alias</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>alternate_title.Alias</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>comment.Alias</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Alias_List</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10.2 Alias_List

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Alias_List class provides a list of paired alternate
Figure 4: Product UML Class Diagram
names and identifications for this product in this or some other archive or
data system.

<table>
<thead>
<tr>
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<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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<td>Attribute</td>
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<tr>
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<td>alias.Alias_List</td>
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<td>Inherited Association</td>
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<tr>
<td>Referenced from</td>
<td>Identification_Area</td>
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</tr>
</tbody>
</table>

10.3 Citation Information

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Citation Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.

<table>
<thead>
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<th>Value/Class</th>
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<td>author_list.Citation_Information</td>
<td>0..1</td>
<td>1</td>
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<tr>
<td></td>
<td>description.Citation_Information</td>
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<td></td>
<td>editor_list.Citation_Information</td>
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<td>keyword.Citation_Information</td>
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<td>Referenced from</td>
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</table>

10.4 Context Area

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Context Area provides context information for a product.
### 10.5 Discipline_Area

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Discipline area allows the insertion of discipline-specific metadata.

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<td>0..1 Mission_Area</td>
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<td>has_observing_system.Contex...</td>
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<td>has_primary_result_descript...</td>
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</table>
| Referenced from         | Product_Bundle  
                         | Product_Collection  
                         | Product_Document  
                         | Product_SPICE_Kernel |

### 10.6 Discipline_Facets

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Discipline_Facets class contains the discipline-related search facets. It is required and may not be repeated. Note
that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.

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<tr>
<td>Discipline_Facets</td>
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<td></td>
</tr>
</tbody>
</table>

| Subclass | None |

| Attribute | discipline_name.Discipline_... | 1 | Atmospheres Fields Flux Measurements Imaging Particles Ring-Moon Systems Small Bodies Spectroscopy |

| Inherited Attribute | None |

| Association | has_Group_Facet1.Discipline_... | 0..* | Group_Facet1 |
|             | has_Group_Facet2.Discipline_... | 0..* | Group_Facet2 |

| Inherited Association | None |

| Referenced from | Science_Facets |

### 10.7 Display_2D_Image

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.

| Hierarchy       | Tagged_NonDigital_Object  
|-----------------|---------------------------|
|                 | . TND0_Supplemental  
|                 | . . Display_2D_Image     |

| Subclass | None |

| Attribute | line_display_direction.Disp... | 1 | Down |
|          | sample_display_direction.Di... | 1 | Up  |

| Inherited Attribute | None |

| Association | None |

| Inherited Association | None |

| Referenced from | Array_2D_Image  
|                 | Array_2D_Map  
|                 | Array_2D_Spectrum |

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10.8 External_Reference

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The External_Reference class is used to reference a source outside the PDS registry system.

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10.9 Field_Statistics

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Field_Statistics class provides a set of metrics for a column formed by a field in a repeating record.
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<td>. . Field_Statistics</td>
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<td>Field_Delimited</td>
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</table>

10.10 File

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The File class consists of attributes that describe a file in a data store.
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<th>Ind</th>
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<td>Referenced from</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

10.11 **File_Area**

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The File_Area class defines a File and its component data objects.
### 10.12 File_Area_Observational

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The File Area Observational class describes, for an observational product, a file and one or more tagged data objects contained within the file.
10.13 File_Area_Observational_Supplemental

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The File Area Observational Supplemental class describes, for an observational product, additional files and one or more tagged_data_objects contained within the file.
<table>
<thead>
<tr>
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<th>Card</th>
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</tr>
</thead>
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10.14 File_Area_SPICE_Kernel

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The File Area SPICE Kernel class describes a file that contains a SPICE Kernel object.
10.15 File_Area_Text

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The File_Area_Text class describes a file that contains a text stream object.

<table>
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</table>

10.16 Group_Facet1

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Group_Facet1 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.

<table>
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| Association | none | |
| Inherited Association | none | |
| Referenced from | Discipline_Facets | |
10.17  Group_Facet2

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The Group_Facet2 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.

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10.18  Identification_Area

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The identification area consists of attributes that identify and name an object.
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**Inherited Attribute**

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**Association**

| alias_list.Identification_Area | 0..1 | Alias_List |
| citation_information.Identification_Area | 0..1 | Citation_Information |
| modification_history.Identification_Area | 0..1 | Modification_History |

**Inherited Association**

| none | |

**Referenced from**

| Product | |
| Product_AIP | |
| Product_Attribute_Definition | |
| Product_Browse | |
| Product_Bundle | |
| Product_Class_Definition | |
| Product_Collection | |
| Product_Context | |
| Product_DIP | |
| Product_DIP_Deep_Archive | |
10.19 Internal_Reference

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The Internal_Reference class is used to cross-reference other products in the PDS registry system.

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Referenced from:  
- DD_Attribute  
- DD_Class  
- Information_Package_Component  
- Investigation_Area  
- Observing_System_Component  
- Product_Zipped  
- Reference_List  
- Target_Identification  
- Update_Entry

10.20 Investigation_Area

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).
10.21 Mission_Area

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The mission area allows the insertion of mission specific metadata.

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10.22 Modification_Detail

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.

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### 10.23 Modification_History

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Modification_History class tracks the history of changes made to the product once it enters the registry system.

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### 10.24 Object_Statistics

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Object_Statistics class provides a set of values that provide metrics about the object.
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10.25 **Observation_Area**

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The observation area consists of attributes that provide information about the circumstances under which the data were collected.
10.26 Observing_System

**Root Class:** Tagged_NonDigital_Object

**Role:** Concrete

**Class Description:** The Observing System class describes the entire suite used to collect the data.

---

### Observing_System Component

**Root Class:** Tagged_NonDigital_Child

**Role:** Concrete

**Class Description:** The Observing System Component class references one or more subsystems used to collect data. A subsystem can be an...
instrument_host, instrument, or any other similar product. Each subsystem is categorized as either a sensor or a source. If the observing system includes both a sensor and a source, Observing System Component occurs twice (once for each type) otherwise it only occurs once.

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10.28 Primary_Result_Summary

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle
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10.29  **Product.Components**

**Root Class:** Product.Components  
**Role:** Abstract  
**Class Description:** The Product Component class is an abstract class for the components of the Product class.

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10.30 Reference_List

Root Class: Product_Components
Role: Concrete
Class Description: The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.
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10.31 Science_Facets

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Science_Facets class contains the science-related
search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.

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10.32 Special_Constants

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete  
**Class Description:** The Special Constants class provides a set of values used to indicate special cases that occur in the data.
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10.33 Target_Identification

Root Class: Product_Components
Role: Concrete
Class Description: The Target_Identification class provides detailed target identification information.

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| Association             | internal_reference.Target_I... | 0..1 | Internal_Reference              |
| Inherited Association   | none                          |      |                                 |
| Referenced from         | Context_Area                  |      |                                 |
|                         | Observation_Area              |      |                                 |
10.34 Time_Coordinates

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* The Time_Coordinates class provides a list of time coordinates.

<table>
<thead>
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<th>Value/Class</th>
<th>Ind</th>
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<td>local_true_solar_time.Time_...</td>
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<td>solar_longitude.Time_Coordi...</td>
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<td></td>
<td>Observation_Area</td>
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10.35 Uniformly_Sampled

*Root Class:* Tagged_Digital_Child  
*Role:* Concrete  
*Class Description:* The Uniformly_Sampled class provides parameters for a uniformly sampled table.
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<th>Hierarchy</th>
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<td>last_sampling_parameter_value 1</td>
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<td>sampling_parameter_interval 1</td>
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<td>sampling_parameter_name.Uniformly_Sampled</td>
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<td>sampling_parameter_scale.Uniformly_Sampled</td>
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<td></td>
<td>sampling_parameter_unit.Uniformly_Sampled</td>
</tr>
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</tr>
<tr>
<td>Association</td>
<td>none</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
</tr>
<tr>
<td>Referenced from</td>
<td>Inventory</td>
</tr>
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<td></td>
<td>Table_Binary</td>
</tr>
<tr>
<td></td>
<td>Table_Character</td>
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<tr>
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<td>Table_Delimited</td>
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<tr>
<td></td>
<td>Transfer_Manifest</td>
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</table>

### 10.36 Update

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Update class consists of update information.

<table>
<thead>
<tr>
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<th>Tagged_NonDigital_Object . TNDO_Supplemental . Update</th>
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</thead>
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<tr>
<td>Subclass</td>
<td>none</td>
</tr>
<tr>
<td>Attribute</td>
<td>description.Update 0..1</td>
</tr>
<tr>
<td></td>
<td>local_identifier.Update 0..1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Update 1</td>
</tr>
<tr>
<td></td>
<td>update_entry.Update 1..*</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Update</td>
</tr>
</tbody>
</table>

### 10.37 Update_Entry

**Root Class:** Product_Components  
**Role:** Concrete
**Class Description:** The Update Entry class provides the date and description of an update.

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<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
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<td>Product.Components</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>. Update_Entry</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass            |      |             |     |
| none                |      |             |     |

<table>
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<th>Attribute</th>
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<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>date.time.Update_Entry</td>
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<tr>
<td>description.Update_Entry</td>
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</tr>
<tr>
<td>full_name.Update_Entry</td>
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| Inherited Attribute |      |             |     |
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<table>
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<th>Ind</th>
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<tbody>
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<td>internal_reference.Update_Entry</td>
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<td>Internal_Reference</td>
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</table>

| Referenced from     |      |             |     |
| Update             |      |             |     |

10.38 Vector

**Root Class:** Tagged_NonDigital_Object

**Role:** Concrete

**Class Description:** The Vector class provides the components of either a velocity or position vector.

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<th>Ind</th>
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<tr>
<td>. TNDO.Supplemental</td>
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<tr>
<td>. . Vector</td>
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| Subclass            |      |             |     |
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</tr>
<tr>
<td>local_identifier.Vector</td>
<td>0..1</td>
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<td></td>
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<tr>
<td>name.Vector</td>
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<td></td>
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<tr>
<td>reference_frame_id.Vector</td>
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| Inherited Attribute |      |             |     |
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| Referenced from     |      |             |     |
| Geometry            |      |             |     |
10.39 Vector_Cartesian_3

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Vector_Cartesian_3_Base class is the parent class of 3 element Cartesian vectors.

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<td>Vector_Cartesian_3_Position</td>
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<td>y.Vector_Cartesian_3</td>
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<tr>
<td></td>
<td>z.Vector_Cartesian_3</td>
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| Inherited Attribute | none |
| Association | none |
| Inherited Association | none |
| Referenced from | none |

10.40 Vector_Cartesian_3_Acceleration

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Vector_Cartesian_3_Acceleration class is a 3 element Cartesian vector for acceleration coordinates.
### 10.41 Vector_Cartesian_3_Pointing

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Vector_Cartesian_3_Pointing class is a 3 element normalized Cartesian vector for pointing.

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### 10.42 Vector_Cartesian_3_Position

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Vector_Cartesian_3_Position class is a 3 element
Cartesian vector for position coordinates.

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| Attribute | none | |

Inherited Attribute

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<tr>
<td>z.Vector_Cartesian_3</td>
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Association

| Association | none | |
| Inherited Association | none | |
| Referenced from | none | |

### 10.43 Vector_Cartesian_3_Velocity

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Vector_Cartesian_3_Velocity class is a 3 element Cartesian vector for velocity coordinates.

<table>
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| Attribute | none | |

Inherited Attribute

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<td>y.Vector_Cartesian_3</td>
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<td>z.Vector_Cartesian_3</td>
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Association

| Association | none | |
| Inherited Association | none | |
| Referenced from | none | |

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## 10.44 Vector_Component

**Root Class:** Tagged_NonDigital_Child  
**Role:** Concrete  
**Class Description:** The Vector_Component class provides a component of a vector.

<table>
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<tr>
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<th>Value/Class</th>
<th>Ind</th>
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<td>. Vector_Component</td>
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<td></td>
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</table>

| Subclass        | none                        |      |             |     |

| Attribute       | description.Vector_Component| 0..1 |              |     |
|                 | name.Vector_Component       | 0..1 |              |     |
|                 | sequence_number.Vector_Component| 1 |             |     |
|                 | unit.Vector_Component       | 0..1 |              |     |
|                 | value.Vector_Component      | 1    |              |     |

| Inherited Attribute | none                        |      |             |     |
| Association         | none                        |      |             |     |
| Inherited Association| none                        |      |             |     |
| Referenced from     | Vector                      |      |             |     |
11 Document and Support Products

This section provides the document and support product classes.

The context class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each class in a hierarchical (tree) format and provides a visual representation of the classes in relation to their parent classes.

+ + Product_Browse
+ + Product_Document
+ + Product_SPICE_Kernel
+ + Product_Thumbnail
+ + Product_XML_Schema
+ + Product_Zipped

The class hierarchy above includes 6 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the context classes in a table format. The table
includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

11.1 Product_Browse

Root Class: Product
Role: Concrete
Class Description: The Product Browse class defines a product consisting of one encoded byte stream digital object.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_Browse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>file_area.Product_Browse</td>
<td>1..*</td>
<td>File_Area_Browse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_Browse</td>
<td>0..1</td>
<td>Reference_List</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Product_B...</td>
<td>1</td>
<td>Identification_Area</td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11.2 Product_Document

Root Class: Product
Role: Concrete
Class Description: A Product Document is a product consisting of a single logical document that may be comprised of one or more document formats.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_Document</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>context_area.Product_Document</td>
<td>0..1</td>
<td>Context_Area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>document_format_set.Product_Docu...</td>
<td>1..*</td>
<td>Document_Format_Set</td>
<td></td>
</tr>
<tr>
<td></td>
<td>product_description.Product_Docu...</td>
<td>1</td>
<td>Document</td>
<td></td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_Docu...</td>
<td>0..1</td>
<td>Reference_List</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Product_Doc...</td>
<td>1</td>
<td>Identification_Area</td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11.3 Product_SPICE_Kernel

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* The Product SPICE Kernel class defines a SPICE kernel product.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Card</th>
<th>Value/Class</th>
<th>Inherited from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product . Product_SPICE_Kernel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Attribute</th>
<th>Inherited Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Association</th>
<th>Card</th>
<th>Value/Class</th>
<th>Inherited from</th>
</tr>
</thead>
<tbody>
<tr>
<td>context_area.Product_SPICE_Kernel . Product_SPICE_Kernel</td>
<td>1</td>
<td>Context_Area Reference_List</td>
<td></td>
</tr>
<tr>
<td>file_area.Product_SPICE_Kernel . Product_SPICE_Kernel</td>
<td>1</td>
<td>File_Area_SPICE_Kernel Reference_List</td>
<td></td>
</tr>
<tr>
<td>reference_list.Product_SPICE_Kernel . Product_SPICE_Kernel</td>
<td>0..1</td>
<td>Reference_List</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inherited Association</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>has_identification_area.Product_SPICE_Kernel . Product_SPICE_Kernel</td>
<td>1</td>
<td>Identification_Area</td>
</tr>
</tbody>
</table>

Referenced from: none

11.4 Product_Thumbnail

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* The Product Thumbnail class defines a product consisting of one encoded byte stream digital object.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Card</th>
<th>Value/Class</th>
<th>Inherited from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product . Product_Thumbnail</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Attribute</th>
<th>Inherited Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Association</th>
<th>Card</th>
<th>Value/Class</th>
<th>Inherited from</th>
</tr>
</thead>
<tbody>
<tr>
<td>file_area.Product_Thumbnail . Product_Thumbnail</td>
<td>1</td>
<td>File_Area_Encoded_Image Reference_List</td>
<td></td>
</tr>
<tr>
<td>reference_list.Product_Thumbnail . Product_Thumbnail</td>
<td>0..1</td>
<td>Reference_List</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inherited Association</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>has_identification_area.Product_Thumbnail . Product_Thumbnail</td>
<td>1</td>
<td>Identification_Area</td>
</tr>
</tbody>
</table>

Referenced from: none

11.5 Product_XML_Schema

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* The Product_XML_Schema describes a resource used for the PDS4 implementation into XML.
### 11.6 Product_Zipped

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product_Zipped is a product with references to other products. The referenced products and all associated products and files are packaged into a single ZIP file.
12 Document and Support Components

This section provides the document and support product classes and their component classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ + Document_Format_Set
  + + File_Area_Browse
  + + File_Area_Encoded_Image
  + + Document_Format
    + + Encoded_Binary
    + + Encoded_Image
    + + SPICE_Kernel
    + + XML_Schema
    + + Document_File
    + + Document
    + + Zip

The class hierarchy above includes 11 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

12.1 Document

*Root Class:* Tagged_NonDigital_Object

*Role:* Concrete

*Class Description:* The Document class describes a document.
Figure 6: Product UML Class Diagram
### Table

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tagged_NonDigital_Object . TNDO_Supplemental . . Document</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass | none |           |     |

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>acknowledgement_text.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>author_list.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>copyright.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>description.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>document_name.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>doi.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>editor_list.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>publication_date.Document</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>revision_id.Document</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Inherited Attribute | none |           |     |

<table>
<thead>
<tr>
<th>Association</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>data_object.Document</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Inherited Association | none |           |     |

| Referenced from           | Product_Document |           |     |

#### 12.2 Document_File

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Document File class describes a file which is a part of a document.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Inherited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>directory_path_name.Document...</td>
<td>document_standard_id.Document...</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>7-Bit ASCII Text Encapsulated Postscript GIF HTML 2.0 HTML 3.2 HTML 4.0 HTML 4.01 JPEG LaTeX Microsoft Word PDF PDF/A PNG Postscript Rich Text TIFF UTF-8 Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>comment.File</td>
<td>creation_date_time.File</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>file_name.File</td>
<td>file_size.File</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>local_identifier.File</td>
<td>md5_checksum.File</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>records.File</td>
<td></td>
<td>0..1</td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>data_object.File</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Referenced from</td>
<td>Document_Format_Set</td>
<td></td>
<td>Digital_Object</td>
</tr>
</tbody>
</table>

### 12.3 Document_Format

**Root Class:** Tagged_Digital_Child  
**Role:** Concrete  
**Class Description:** The Document Format provides a description of a variant of a logical document that is stored in a specific format. For example the PDS Standards Reference has HTML and PDF formatted versions.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged_Digital_Child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Document_Format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>description.Document_Format</td>
<td>0..1</td>
<td>multiple file</td>
<td></td>
</tr>
<tr>
<td></td>
<td>format_type.Document_Format</td>
<td>1</td>
<td>single file</td>
<td></td>
</tr>
<tr>
<td></td>
<td>starting_point_identifier.Document_Format</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Document_Format_Set</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.4 Document_Format_Set

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Document Format Set class is a set consisting of a document format and associated files.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product_Components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Document_Format_Set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>document_format.Document_Format</td>
<td>1</td>
<td>Document_Format</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Document</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.5 Encoded_Binary

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Encoded Binary class describes a binary encoded byte stream. This class is used to describe files in the repository that are being registered using Product_File_Repository.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hierarchy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tagged_Digital_Object</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. Byte_Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . Encoded_Byte_Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . Encoded_Binary</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subclass</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Attribute</strong></td>
<td>encoding_standard_id.Encode...</td>
<td>1</td>
</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td>local_identifier.Byte_Stream</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>name.Byte_Stream</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>description.Encoded_Binary</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>object_length.Encoded_Binary</td>
<td>0..1</td>
</tr>
<tr>
<td></td>
<td>offset.Encoded_Binary</td>
<td>1</td>
</tr>
<tr>
<td><strong>Association</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td>data_object.Encoded_Binary</td>
<td>1</td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
<td>File_Area_Binary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>File_Area_Observational_Supplemental</td>
<td></td>
</tr>
</tbody>
</table>

12.6 Encoded_Image

*Root Class:* Tagged_Digital_Object  
*Role:* Concrete  
*Class Description:* The Encoded Image class is used for ancillary images in standard formats, such as JPEG.
| Hierarchy | Tagged_Digital_Object  
|          | . Byte_Stream  
|          | . . Encoded(Byte_Stream  
|          | . . . Encoded(Image  
| Subclass | none  
| Attribute | encoding_standard_id_Encode...  
|          | 1  
|          | GIF  
|          | J2C  
|          | JPEG  
|          | PDF  
|          | PDF/A  
|          | PNG  
|          | TIFF  
| Inherited Attribute | local_identifier.Byte_Stream  
|                    | name.Byte_Stream  
|                    | description.Encoded(Byte_Stream  
|                    | object_length.Encoded(Byte_Stream  
|                    | offset.Encoded(Byte_Stream  
|          | 0..1  
|          | 0..1  
|          | 0..1  
|          | 1  
| Association | none  
| Inherited Association | data_object.Encoded(Byte_Stream  
|                    | 1  
|          | Digital_Object  
| Referenced from | File_Area_Browse  
|          | File_Area_Encoded_Image  
|          | File_Area_Observational_Supplemental  

12.7 File_Area_Browse

**Root Class**: Product_Components  
**Role**: Concrete  
**Class Description**: The File Area Browse class describes a file and one or more tagged data objects contained within the file.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product_Components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. File_Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . File_Area_Browse</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass | none |
| Attribute | none |

| Inherited Attribute | none |

| Association | has_File.File_Area_Browse | 1 | File |
|             | has_tagged_data_object.File... | 1..* | Array_1D |
|             |                              |     | Array_2D |
|             |                              |     | Array_2D_Image |
|             |                              |     | Array_2D_Map |
|             |                              |     | Array_2D_Spectrum |
|             |                              |     | Array_3D |
|             |                              |     | Array_3D_Image |
|             |                              |     | Array_3D_Movie |
|             |                              |     | Array_3D_Spectrum |
|             |                              |     | Encoded_Header |
|             |                              |     | Encoded_Image |
|             |                              |     | Header |
|             |                              |     | Stream_Text |
|             |                              |     | Table_Binary |
|             |                              |     | Table_Character |
|             |                              |     | Table_Delimited |

| Inherited Association | none |
| Referred from | Product_Browse |

### 12.8 File_Area_Encoded_Image

**Root Class:** Product_Components

**Role:** Concrete

**Class Description:** The File Area Encoded Image class describes a file that contains an Encoded Image object.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product_Components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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12.9 SPICE_Kernel

*Root Class:* Tagged_Digital_Object  
*Role:* Concrete  
*Class Description:* The SPICE Kernel class describes a SPICE object.
<table>
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<th>Value/Class</th>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
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<td>SPK</td>
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<td>name.Byte_Stream</td>
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<td>description.Parsable.Byte_Stream</td>
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<td></td>
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<td></td>
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</table>

12.10 XML_SCHEMA

**Root Class:** Tagged_Digital_Object

**Role:** Concrete

**Class Description:** The XML Schema class defines a resource used for the PDS4 implementation into XML.
12.11 Zip

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Zip class describes a zip file.

<table>
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<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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<tr>
<td>. TNDO_Supplemental</td>
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<td>. Zip</td>
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</tr>
<tr>
<td>Subclass</td>
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<td></td>
</tr>
</tbody>
</table>
| Attribute | container_type.Zip | 1 | GZIP  
|  | description.Zip | 1 | LZIP  
|  |  |  | TAR  
|  |  |  | ZIP |
| Inherited Attribute | none |  | |
| Association | none |  | |
| Inherited Association | none |  | |
| Referenced from | Product_Zipped |  | |
13 Context Products

This section provides the context product classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ + Product_Context
+ + + Geometry

The class hierarchy above includes 2 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

13.1 Geometry

Root Class: Tagged_NonDigital_Object
Role: Concrete
Class Description: The Geometry class groups geometry information.
13.2 Product_Context

*Root Class:* Product

*Role:* Concrete

*Class Description:* The Product_Context class describes something that provides context and provenance for an observational product.
14 Context Components

This section provides the context product classes and their component classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ + + Facility
+ + + Instrument
+ + + Instrument_Host
+ + + Investigation
+ + + Other
+ + + Resource
+ + + Target
+ + + Telescope

The class hierarchy above includes 8 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.
14.1 Facility

*Root Class:* Tagged\_NonDigital\_Object

*Role:* Concrete

*Class Description:* The Facility class provides a name and address for a terrestrial observatory or laboratory.

<table>
<thead>
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<th>Value/Class</th>
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<table>
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<td></td>
<td>Observatory</td>
<td></td>
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<td>description.Facility</td>
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<td></td>
<td></td>
<td>Observatory</td>
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</tr>
</tbody>
</table>

| Inherited Attribute |          |      |             |     |
| Inherited Association | data\_object.Facility | 1 | Physical\_Object |     |

| Referenced from |          |      |             |     |

14.2 Instrument

*Root Class:* Tagged\_NonDigital\_Object

*Role:* Concrete

*Class Description:* The Instrument class provides a description of a physical object that collects data.
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<td>.  .  Instrument</td>
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14.3 Instrument_Host

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Instrument Host class provides a description of the physical object upon which an instrument is mounted.

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</table>

14.4 Investigation

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Investigation class provides a description of activities involved in the collection of data.
### 14.5 Other

**Root Class:** Tagged\_NonDigital\_Object  
**Role:** Concrete  
**Class Description:** The Other class provides a description of activities involved in the collection of data which are not otherwise modeled.

<table>
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<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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</thead>
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<td>1 0..1 1 1 1</td>
<td>Individual Investigation Mission Observing Campaign Other Investigation</td>
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</tr>
<tr>
<td>Referenced from</td>
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</tr>
</tbody>
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### 14.6 Resource

**Root Class:** Tagged\_NonDigital\_Object  
**Role:** Concrete  
**Class Description:** The Resource class provides a description of a web resource.

<table>
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<th>Value/Class</th>
<th>Ind</th>
</tr>
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<td>name.Resource</td>
<td>0..1</td>
<td>data_object.Resource</td>
</tr>
<tr>
<td>url.Resource</td>
<td>1</td>
<td>1</td>
<td>Conceptual_Object</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td>Referenced from</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Product_Context</td>
</tr>
</tbody>
</table>

### 14.7 Target

**Root Class:** Tagged_NonDigital_Object

**Role:** Concrete

**Class Description:** The Target class provides a description of a physical object that is the object of data collection.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged_NonDigital_Object . TNDO_Context . . Target</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>description.Target</td>
<td>1</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>name.Target</td>
<td></td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Target</td>
<td>1</td>
<td>Physical_Object</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Context</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14.8 Telescope

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Telescope class provides coordinates and parameters for terrestrial, ground-based telescopes.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hierarchy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tagged NonDigital_Object</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. TNDO_Context</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . Telescope</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subclass</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Attribute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>altitude.Telescope</td>
<td>1</td>
<td>Aerial survey - North American</td>
</tr>
<tr>
<td>aperture.Telescope</td>
<td>1</td>
<td>Astronomical</td>
</tr>
<tr>
<td>coordinate_source.Telescope</td>
<td>1</td>
<td>Doppler determined - WGS 72 datum</td>
</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td></td>
<td>Geodetic - Adindan datum</td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td></td>
<td>Geodetic - Australian datum</td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
<td></td>
<td>Geodetic - Campo Inchauspe (Argentina)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Cape (South Africa)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Corregio Alegre (Brazil)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - European 1979 datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - European datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - GRS 80 datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Hermannskogel datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Indian datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - La Canoa (Venezuela)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - New Zealand datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - North American (1927)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Old Hawaiian datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Ordnance Survey of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Ordnance Survey of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Potsdam datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Puerto Rican (1940)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - South American datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - Tokyo datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - WGS 84 datum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geodetic - datum unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unknown</td>
</tr>
<tr>
<td>description.Telescope</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>telescope_latitude.Telescope</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>telescope_longitude.Telescope</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td><strong>Inherited Attribute</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Association</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Inherited Association</strong></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td><strong>Referenced from</strong></td>
<td>Product_Context</td>
<td></td>
</tr>
</tbody>
</table>
15 Aggregate Products

This section provides aggregate product classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

```
+ + Product_Bundle
+ + Product_Collection
```

The class hierarchy above includes 2 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.
### 15.1 Product_Bundle

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** A Product_Bundle is an aggregate product and has a table of references to one or more collections.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_Bundle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>context_area.Product_Bundle 0..1 Context_Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>file_area.Product_Bundle 0..1 File_Area_Text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>member_entry.Product_Bundle 1..* Bundle_Member_Entry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>product_data_object.Product... 1 Bundle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_Bundle 0..1 Reference_List</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Product... 1 Identification_Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 15.2 Product_Collection

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** A Product_Collection has a table of references to one or more basic products. The references are stored in a table called the inventory.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>context_area.Product_Collection... 0..1 Context_Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>file_area_inventory.Product... 1 File_Area_Inventory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>product_data_object.Product... 1 Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_Collection... 0..1 Reference_List</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Product... 1 Identification_Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16 Aggregate Components

This section provides aggregate product classes and their component classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

```
+ + Bundle_Member_Entry
+ + + File_Area_Inventory
+ + + + + Inventory
+ + + Bundle
+ + + Collection
```

The class hierarchy above includes 5 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are
provided where appropriate.

16.1 Bundle

Root Class: Tagged NonDigital_Object
Role: Concrete
Class Description: The Bundle class describes a collection of collections.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tagged NonDigital_Object</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. TNDO Supplemental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. . Bundle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>bundle_type.Bundle</td>
<td>1</td>
<td>Archive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>description.Bundle</td>
<td>0..1</td>
<td>Supplemental</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Bundle</td>
<td>1</td>
<td>Conceptual_Object</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referred from</td>
<td>Product_Bundle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16.2 Bundle_Member_Entry

Root Class: Product_Components
Role: Concrete
Class Description: The Bundle Member Entry class provides a member reference to a collection.
### 16.3 Collection

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Collection class provides a description of a set of products.
### File_Area_Inventory

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The File Area Inventory class describes a file and an inventory consisting of references to members.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Product_Components</td>
<td>. File_Area</td>
<td>. . File_Area_Inventory</td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>has_File.File_Area_Inventory</td>
<td>has_tagged_data_object.File...</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Collection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Inventory

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Inventory class defines the inventory for mem-

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bers of a collection.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Object . Byte_Stream . . Parsable_Byte_Stream . . . Table_Delimited . . . . Inventory</td>
<td></td>
</tr>
</tbody>
</table>

| Subclass | none |
| Attribute | reference_type.Inventory 1 inventory_has_member_product |

| Inherited Attribute | local_identifier.Byte_Stream 0..1 name.Byte_Stream 0..1 description.Parsable_Byte_Stream 0..1 object_length.Parsable_Byte_Stream 0..1 offset.Parsable_Byte_Stream 1 field_delimiter.Table_Delimited 1 comma horizontal tab semicolon vertical bar parsing_standard_id.Table_Delimited 1 PDS DSV 1 record_delimiter.Table_Delimited 1 carriage-return line-feed records.Table_Delimited 1 |

| Association | none |

| Inherited Association | data_object.Parsable_Byte_Stream 1 Digital_Object has_delimited_record.Table_Delimited 1 Record_Delimited uniformly_sampled.Table_Delimited 0..1 Uniformly_Sampled |

| Referenced from | File_Area_Inventory |
17 Operational Products

This section provides the set of product classes used for PDS operations.

The operations class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each class using a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

The class hierarchy above includes 18 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the operations classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

17.1 Product_AIP

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* The Product AIP class defines a product for the Archival Information Package.
### 17.2 Product_Attribute_Definition

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product Attribute Definition provides an attribute definition in XML encoding.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>has_information_package_component product_data_object.product reference_list.product_AIP</td>
<td>1..*</td>
<td>Information_Package_Component</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Archival_Information_Package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0..1</td>
<td>Reference_List</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.product</td>
<td>1</td>
<td>Identification_Area</td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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17.3 Product_Class_Definition

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product Class Definition provides a class definition in XML encoding.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_Class_Definition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>product_data_object.Product...</td>
<td>1</td>
<td>DD_Class_Full</td>
<td></td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_Cl...</td>
<td>0..1</td>
<td>Reference_List</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Pro...</td>
<td>1</td>
<td>Identification_Area</td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17.4 Product_DIP

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product DIP class defines a product for the Dissemination Information Package.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_DIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>has_information_package_Component...</td>
<td>1..*</td>
<td>Information_Package_Component...</td>
</tr>
<tr>
<td></td>
<td>product_data_object.Product...</td>
<td>1</td>
<td>Dissemination_Information_Package...</td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_DIP</td>
<td>0..1</td>
<td>Reference_List</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Pro...</td>
<td>1</td>
<td>Identification_Area</td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17.5 Product_DIP_Deep_Archive

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product DIP_Deep_Archive class defines a product for the Dissemination Information Package for the deep archive.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_DIP_Deep_Archive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>has_Information_Package_Com...</td>
<td>1..*</td>
<td>Information_Package_Component</td>
</tr>
<tr>
<td></td>
<td>product_data_object.Product...</td>
<td>1</td>
<td>DIP_Deep_Archive</td>
</tr>
<tr>
<td></td>
<td>reference_list.Product_DIP...]</td>
<td>0..1</td>
<td>Reference_List</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Pro...</td>
<td>1</td>
<td>Identification_Area</td>
</tr>
<tr>
<td>Referred from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 17.6 Product_Data_Set_PDS3

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Data Set PDS3 product is used to create proxy labels for the data sets in the PDS3 Data Set catalog.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Product_Data_Set_PDS3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
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<td>Attribute</td>
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</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
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<td>Association</td>
<td>product_data_object.Product...</td>
<td>1</td>
<td>Data_Set_PDS3</td>
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<tr>
<td></td>
<td>reference_list.Product_Data...</td>
<td>0..1</td>
<td>Reference_List</td>
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<tr>
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<td>has_identification_area.Pro...</td>
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<td>Identification_Area</td>
</tr>
<tr>
<td>Referred from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 17.7 Product_File_Repository

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product File Repository class consists of a single text file. This product is used to register a file in a repository.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
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<td>Subclass</td>
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<td>Association</td>
<td>file_area.Product_File_Repository reference_list.Product_File...</td>
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<td>has_identification_area.Product...</td>
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<td>Referenced from</td>
<td>none</td>
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<td></td>
</tr>
</tbody>
</table>

17.8  Product_Instrument_Host_PDS3

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* An Instrument Host product describes an instrument host. This product captures the PDS3 catalog instrument host information.

<table>
<thead>
<tr>
<th>Entity</th>
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<th>Value/Class</th>
<th>Ind</th>
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<td></td>
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<tr>
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<td></td>
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</tr>
<tr>
<td>Association</td>
<td>product_data_object.Product... reference_list.Product_Instr...</td>
<td>1</td>
<td>Instrument_Host_PDS3 Reference_List</td>
</tr>
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<td>Inherited Association</td>
<td>has_identification_area.Product...</td>
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<td>Identification_Area</td>
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<tr>
<td>Referenced from</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

17.9  Product_Instrument_PDS3

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* An Instrument product describes an instrument. This product captures the PDS3 catalog instrument information.
<table>
<thead>
<tr>
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<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Product_Instrument_PDS3</td>
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<tr>
<td>Association</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>product_data_object Produkt...</td>
<td>1</td>
<td>Instrument_PDS3</td>
<td></td>
</tr>
<tr>
<td>reference_list.Product_Instance</td>
<td>0..1</td>
<td>Reference_List</td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
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</table>

### 17.10 Product_Mission_PDS3

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** An Mission product describes a mission. This product captures the PDS3 catalog mission information.

<table>
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<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
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<tbody>
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<tr>
<td>Product_Mission_PDS3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>product_data_object Produkt...</td>
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<td>Mission_PDS3</td>
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<td>reference_list.Product_Mission...</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>has_identification_area Produto...</td>
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<td>Identification_Area</td>
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</tr>
<tr>
<td>Referenced from</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### 17.11 Product_Propxy_PDS3

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** The Product Proxy PDS3 class defines a product with enough information to register a PDS3 data product.
17.12 Product_SIP

*Root Class*: Product

*Role*: Concrete

*Class Description*: The Product SIP class defines a product for the Submission Information Package.

```
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>. Product_SIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td></td>
<td></td>
</tr>
<tr>
<td>file_area.Product_Proxy_PDS3</td>
<td>1:*</td>
<td>File_Area_Binary</td>
</tr>
<tr>
<td>reference_list.Product_Prox...</td>
<td>0..1</td>
<td>Reference_List</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Pro...</td>
<td>1</td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
</tr>
</tbody>
</table>
```

17.13 Product_Service

*Root Class*: Product

*Role*: Concrete

*Class Description*: The Product Service class defines a product for registering services. Service descriptions from this product are used to register services as intrinsic registry objects.

```
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. Product_SIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td></td>
<td></td>
</tr>
<tr>
<td>has_Information_Package_Com...</td>
<td>1:*</td>
<td>Information_Package_Compon...</td>
</tr>
<tr>
<td>product_data_object.Product...</td>
<td>1</td>
<td>Submission_Information_Pack...</td>
</tr>
<tr>
<td>reference_list.Product_SIP</td>
<td>0..1</td>
<td>Reference_List</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>has_identification_area.Pro...</td>
<td>1</td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
</tr>
</tbody>
</table>
```
17.14 Product_Software

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* Product Software is a product consisting of a set of one or more software formats.

17.15 Product_Subscription_PDS3

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* The Product_Subscription_PDS3 class provides the list of subscriptions for a PDS3 subscriber.
17.16 Product_Target_PDS3

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* A target product describes a target. This product captures a reduced set of the PDS3 catalog target information.

17.17 Product_Volume_PDS3

*Root Class:* Product  
*Role:* Concrete  
*Class Description:* A Product Volume PDS3 product captures the PDS3 volume information.
17.18  Product Volume Set PDS3

**Root Class:** Product  
**Role:** Concrete  
**Class Description:** A Product Volume Set PDS3 product captures the PDS3 volume set information.
18 Operational Components

This section provides the set of product classes used for PDS operations and their component classes.

The class hierarchy is illustrated in the following diagram. This diagram presents the subclass relation for each class in a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

```
+ Data_Object
  + Conceptual_Object
  + + Digital_Object
  + + Physical_Object
  + + + External_Reference_Extended
  + + + File_Area_Binary
  + + + File_Area_Checksum_Manifest
  + + + File_Area_Service_Description
  + + + File_Area_Transfer_Manifest
  + + + File_Area_XML_Schema
+ Tagged_Digital_Child
+ Tagged_Digital_Object
  + + + Service_Description
  + + + + Checksum_Manifest
  + + + + Transfer_Manifest
+ Tagged_NonDigital_Child
  + + DD_Association
  + + DD_Association_External
  + + DD_Permissible_Value
  + + DD_Permissible_Value_Full
  + + DD_Value_Domain
  + + DD_Value_Domain_Full
  + + NSSDC
  + + Terminological_Entry
  + Tagged_NonDigital_Object
  + + TNDO_Context
  + + + Agency
  + + + Node
  + + + PDS_Foreign
  + + PDS_Guest
  + + TNDO_Context_PDS3
  + + + Data_Set_PDS3
  + + + Instrument_Host_PDS3
  + + + Instrument_PDS3
```
The class hierarchy above includes 56 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the data product classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

18.1 Agency

**Root Class:** Tagged_NonDigital_Object

**Role:** Concrete

**Class Description:** The Agency class provides a description of an entity that provides regional or national level governance over nodes within the federated Planetary Data System.
Figure 12: Product UML Class Diagram

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. DNDO_Context</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
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<td></td>
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<td></td>
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<td>Agency</td>
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</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Context</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18.2 Archival\_Information\_Package

**Root Class:** Tagged\_NonDigital\_Object  
**Role:** Concrete  
**Class Description:** The Archival Information Package (AIP) class defines an Information Package consisting of the Content Information and the associated Preservation Description Information (PDI), which is preserved within an archive that conforms to the Open Archive Information System (OAIS) Reference Model.
### Checksum_Manifest

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Checksum_Manifest class defines a two column table for file references and checksums. The table structure is compatible with the output from an MD5 checksum utility.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
</table>
| Hierarchy | Tagged_Digital_Object  
  . TNDO_Supplemental  
  . . Information_Package  
  . . . Archival_Information_Package | | |
| Subclass | none | | |
| Attribute | none | | |
| Inherited Attribute | description.Information_Pac... | 1 | |
| Association | none | | |
| Inherited Association | none | | |
| Referenced from | Product_AIP | | |

### Conceptual_Object

**Root Class:** Data_Object  
**Role:** Concrete  
**Class Description:** The Conceptual Object class defines a non-tangible object that is also not a digital object.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
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<td>Subclass</td>
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<tr>
<td>Attribute</td>
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</tr>
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</table>

18.5 DD_Association

**Root Class:** Tagged_NonDigital_Child  
**Role:** Concrete  
**Class Description:** The DD_Association class defines the association between two classes or a class and an attribute in a data dictionary.
### 18.6 DD_Association_External

**Root Class:** Tagged_Digital_Da
c
**Role:** Concrete

**Class Description:** The DD_Association_External class defines the association between classes and attributes within the local data dictionary and those external to the local data dictionary.
18.7 DD_Attribute

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The DD_Attribute class defines an attribute for a data dictionary.

| Hierarchy                  | Tagged_NonDigital_Object  
|                           | . TNDO_Supplemental        
|                           | . . DD_Attribute           |

| Subclass                   | none                       |

| Attribute                  | comment.DD_Attribute       
|                           | definition.DD_Attribute    
|                           | local_identifier.DD_Attribute 
|                           | name.DD_Attribute          
|                           | nillable_flag.DD_Attribute 
|                           | submitter_name.DD_Attribute|
|                           | version_id.DD_Attribute    |

| Inherited Attribute        | none                       |

| Association                | data_object.DD_Attribute   
|                           | internal_reference.DD_Attri... |
|                           | terminological_entry.DD_Attri... |
|                           | value_domain_entry.DD_Attri... |

| Inherited Association      | none                       |

| Referenced from            | Ingest_LDD                 |

18.8 DD_Attribute_Full

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The DD_Attribute_Full class provides a more complete definition of an attribute in the data dictionary.
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18.9 DD_Class

**Root Class:** Tagged_NonDigital_Object
**Role:** Concrete
**Class Description:** The DD_Class class defines a class for a data dictionary.

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| Subclass                      | none                             |      |             |                     |

| Attribute                     | abstract_flag/DD_Class           | 0..1 |             |                     |
|                                | definition/DD_Class              | 1    |             |                     |
|                                | local_identifier/DD_Class        | 1    |             |                     |
|                                | name/DD_Class                    | 1    |             |                     |
|                                | submitter_name/DD_Class          | 1    |             |                     |
|                                | version_id/DD_Class              | 1    |             |                     |

| Inherited Attribute           | none                             |      |             |                     |

| Association                   | data_object/DD_Class             | 1    |             | Conceptual_Object   |
|                                | dd_association/DD_Class          | 1..* |             | DD_Association      |
|                                | internal_reference/DD_Class      | 0..* |             | DD_Association_External |
|                                | terminological_entry/DD_Class    | 0..* |             | Internal_Reference  |
|                                |                                  |      |             | Terminological_Entry |

| Inherited Association         | none                             |      |             |                     |

| Referenced from               | Ingest_LDD                       |      |             |                     |

18.10 DD_Class_Full

**Root Class:** Tagged_NonDigital_Object
**Role:** Concrete
**Class Description:** The DD_Class_Full class provides a more complete definition of a class for a data dictionary.
## DD_Permissible_Value

**Root Class:** Tagged_NonDigital_Child  
**Role:** Concrete  
**Class Description:** The DD_Permissible_Value class lists permissible values and their meanings.

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### 18.12 DD_Permissible_Value_Full

**Root Class:** Tagged_NonDigital_Child  
**Role:** Concrete  

**Class Description:** The DD_Permissible_Value_Full class lists permissible values, their meanings, and the dates when active.

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### 18.13 DD_Value_Domain

**Root Class:** Tagged_NonDigital_Child  
**Role:** Concrete  

**Class Description:** The DD_Value_Domain class defines an attribute’s permissible values and their constraints.
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18.14   DD_Value_Domain_Full

**Root Class:** Tagged_NonDigital_Child

**Role:** Concrete

**Class Description:** The DD_Value_Domain_Full class provides a more complete definition of an attribute’s value domain.
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</table>

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18.15 DIP_Deep_Archive

*Root Class:* Tagged_NonDigital_Object

*Role:* Concrete

*Class Description:* The Dissemination Information Package Deep Archive class is an Information Package derived from one or more AIPs and is received by the National Space Science Data Center (NSSDC).

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18.16 Data_Object

*Root Class:* Data_Object

*Role:* Abstract

*Class Description:* The Data_Object class defines a thing about which almost nothing is known.

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18.17 Data_Set_PDS3

*Root Class:* Tagged_NonDigital_Object

*Role:* Concrete

*Class Description:* The Data Set PDS3 class is used to capture the data set information from the PDS3 Data Set Catalog.
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18.18 Digital\_Object

*Root Class:* Data\_Object  
*Role:* Concrete  
*Class Description:* The Digital Object class defines a sequence of digital bits.
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</table>

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18.19 Dissemination Information Package

Root Class: Tagged_NonDigital_Object
Role: Concrete
Class Description: The Dissemination Information Package (DIP) class defines an Information Package, derived from one or more AIPs, that is received by a consumer.

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18.20 External Reference_Extended

Root Class: Product_Components
Role: Concrete
Class Description: The External Reference_Extended class is used to reference a source outside the PDS registry system. This extension is used in the local data dictionary.

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18.21 File_Area_Binary

*Root Class:* Product_Components
*Role:* Concrete
*Class Description:* The File Area Binary class describes a file that contains an encoded byte stream.

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18.22 File_Area_Checksum_Manifest

*Root Class:* Product_Components
*Role:* Concrete
*Class Description:* The File Area Checksum Manifest class describes a file that contains a two column table for file references and checksums.

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<td></td>
<td>has_tagged_data_object.File...</td>
<td>1</td>
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<tr>
<td>Referenced from</td>
<td>Information_Package_Component</td>
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</tr>
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</table>

18.23 File_Area_Service_Description

*Root Class:* Product_Components
*Role:* Concrete
*Class Description:* The File Area Service Description class describes a file that contains a service description.
18.24 File_Area_Transfer_Manifest

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The File Area Transfer Manifest class describes a file that contains a two column table that maps the logical identifiers and version ids of products to their file specification names.

---

18.25 File_Area_XML_Schema

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The File Area XML Schema class describes a file that contains a resource used for the PDS4 implementation into XML.
### 18.26 Information Package

**Root Class**: Tagged_NonDigital_Object  
**Role**: Abstract  
**Class Description**: The Information Package class defines the Information Package as described in the OAIS Reference Model and is the parent class of all specific IP classes.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
</table>

| Subclass | none |      |             |     |
| Attribute | none |      |             |     |
| Inherited Attribute | none |      |             |     |
| Association | has_File.File.Area.XML_Schema  
has_tagged_data_object.File... | 1 | File  
XML_Schema |     |
| Inherited Association | none |      |             |     |
| Referenced from | Product.XML_Schema |      |             |     |

### 18.27 Information.Package_Component

**Root Class**: Tagged_NonDigital_Object  
**Role**: Concrete  
**Class Description**: The Information.Package_Component class associates a Bundle, Collections or Basic Products with Checksum and Storage Manifests.
### 18.28 Ingest_LDD

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Ingest_LDD class provides a form for collecting class and attribute definitions.

<table>
<thead>
<tr>
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<th>Value/Class</th>
</tr>
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<td>Information_Package_Component</td>
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<table>
<thead>
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<th>Attribute</th>
<th>Card</th>
<th>Value/Class</th>
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</thead>
<tbody>
<tr>
<td>checksum_manifest_checksum</td>
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<td></td>
</tr>
<tr>
<td>checksum_type.Information_Package_Component</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>transfer_manifest_checksum</td>
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<tr>
<th>Inherited Attribute</th>
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<th>Association</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
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<td>has_Checksum_Manifest.Information_Package_Component</td>
<td>0..1</td>
<td>File_Area_Checksum_Manifest.Information_Package_Component</td>
</tr>
<tr>
<td>has_Transfer_Manifest.Information_Package_Component</td>
<td>0..1</td>
<td>File_Area_Transfer_Manifest.Information_Package_Component</td>
</tr>
<tr>
<td>internal_reference.Information_Package_Component</td>
<td>1..*</td>
<td>Internal_Reference.Information_Package_Component</td>
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<table>
<thead>
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<tr>
<td>Product_DIP</td>
<td></td>
</tr>
<tr>
<td>Product_DIP.Deep_Archive</td>
<td></td>
</tr>
<tr>
<td>Product_SIP</td>
<td></td>
</tr>
</tbody>
</table>
18.29 Instrument_Host_PDS3

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Instrument_Host class provides a description of the physical object upon which an instrument is mounted. This class captures the PDS3 catalog Instrument_Host information.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
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</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>Attribute</td>
<td>instrument_host_desc.Instrument 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>instrument_host_id.Instrument   1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>instrument_host_name.Instrument 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>instrument_host_type.Instrument 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Instrument_Host... 1 Physical_Object</td>
<td></td>
<td></td>
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<tr>
<td>Inherited Association</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Instrument_Host_PDS3</td>
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<td></td>
</tr>
</tbody>
</table>

18.30 Instrument_PDS3

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Instrument class provides a description of a physical object that collects data. This class captures the PDS3 catalog Instrument information.
18.31 Mission_PDS3

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Mission PDS3 class describes an activity involved in the collection of data. This class captures the PDS3 catalog Mission information.

18.32 NSSDC

*Root Class:* Tagged_NonDigital_Child  
*Role:* Concrete  
*Class Description:* The NSSDC Information class provides identification
information for data submitted to the NSSDC.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Subclass</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>medium_type.NSSDC nssdc_collection_id.NSSDC</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Data_Set_PDS3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18.33 Node

*Root Class:* Tagged_NonDigital_Object

*Role:* Concrete

*Class Description:* The Node class provides a description of an entity that provides local governance within the federated Planetary Data System.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
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<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>description.Node institution_name.Node name.Node</td>
<td>1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Node</td>
<td>1</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Context</td>
<td></td>
</tr>
</tbody>
</table>
18.34 PDS_Affiliate

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  

**Class Description:** The PDS Affiliate class provides a description of a person who has an association with the planetary science community and has access to PDS resources not normally allowed to the general public.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
</tr>
</thead>
</table>
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|                             |      | . TNDO_Context  
|                             |      | . PDS_Affiliate |
| Subclass                    | none |                     |
| Attribute                   |      | affiliation_type.PDS_Affiliate 1  
|                             |      | alternate_telephone_number.... 0..1  
|                             |      | description.PDS_Affiliate 1  
|                             |      | electronic_mail_address.PDS... 0..*  
|                             |      | institution_name.PDS_Affiliate 1  
|                             |      | name.PDS_Affiliate 0..1  
|                             |      | phone_book_flag.PDS_Affiliate 1  
|                             |      | postal_address_text.PDS_Aff... 1  
|                             |      | registration_date.PDS_Affil... 1  
|                             |      | sort_name.PDS_Affiliate 1  
|                             |      | team_name.PDS_Affiliate 0..*  
|                             |      | telephone_number.PDS_Affiliate 0..1  
|                             |      |                     |
| Inherited Attribute         | none |                     |
| Association                 |      | data_object.PDS_Affiliate 1  
| Inherited Association       | none |                     |
| Referenced from             |      | Product_Context     |

Inherited Association: none  
Association: data_object.PDS_Affiliate 1  
Referenced from: Product_Context
18.35 PDS_Guest

**Root Class:** Tagged_NonDigital_Object

**Role:** Concrete

**Class Description:** The PDS_Guest class is the default description of a person who has an association with the planetary science community and who has the most limited access to PDS resources.

<table>
<thead>
<tr>
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<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>description.PDS_Guest 1 0..*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>electronic_mail_address.PDS... 0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>name.PDS_Guest 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>registration_date.PDS_Guest 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sort_name.PDS_Guest 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>data_object.PDS_Guest 1 Physical_Object</td>
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</tr>
<tr>
<td>Inherited Association</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>Product_Context</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18.36 Physical_Object

**Root Class:** Data_Object

**Role:** Concrete

**Class Description:** The Physical Object class defines a tangible object.
18.37 Service_Description

Root Class: Tagged_Digital_Object
Role: Concrete
Class Description: The Service_Description class defines a file that contains a standardized service specification.
18.38 Software

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Software class describes a software product
18.39  Software_Binary

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Software Script class provides a description of a software code that is stored as a compiled binary file.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.  TNDO_Supplemental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.  .  Software_Binary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass                  | none                                        |      |             |     |

| Attribute                 | files.Software_Binary                       | 1    |             |     |
|                          | os_version.Software_Binary                 | 1    |             |     |
|                          | program_notes_id.Software_Binary           | 1    |             |     |
|                          | software_format_type.Software_Binary       | 1    |             |     |
|                          | supported_architecture_note...             | 1    |             |     |
|                          | supported_operating_system...              | 1    |             |     |
|                          | system_requirements_note.Software_Binary   | 1    |             |     |

| Inherited Attribute       | none                                        |      |             |     |

| Association               | data_object.Software_Binary                | 1    | Digital_Object |     |

18.40  Software_Script

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Software Script class provides a description of a software code that is stored as a script.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
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<td></td>
<td>.  TNDO_Supplemental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.  .  Software_Script</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass                  | none                                        |      |             |     |

| Attribute                 | files.Software_Script                       | 1    |             |     |
|                          | install_note.Software_Script               | 1    |             |     |
|                          | supported_environment_note...             | 1    |             |     |
|                          | system_requirements_note.Software_Script   | 1    |             |     |

| Inherited Attribute       | none                                        |      |             |     |

| Association               | data_object.Software_Script                | 1    | Digital_Object |     |

| Inherited Association     | none                                        |      |             |     |

| Referenced from           | Product.Software                           |      |             |     |

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18.41 Software_Source

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Software Script class provides a description of a software code that is stored as source code.

<table>
<thead>
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<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
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<td>. TNDO_Supplemental</td>
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<tr>
<td></td>
<td>. . Software_Source</td>
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</tr>
<tr>
<td>Subclass</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Attribute</td>
<td>compile_note.Software_Source</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>files.Software_Source</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>os_version.Software_Source</td>
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</tr>
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<td></td>
<td>program_notes_id.Software_Source</td>
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<td>software_dialect.Software_Source</td>
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<td>software_format_type.Software_Source</td>
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</tr>
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<td>software_language.Software_language</td>
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<td>supported_architecture_note...</td>
<td>1..*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>supported_operating_system...</td>
<td>1..*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>system_requirements_note.Software_Source</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Software_Source</td>
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<td>Digital_Object</td>
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<tr>
<td>Referenced from</td>
<td>Product.Software</td>
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</tr>
</tbody>
</table>

18.42 Submission_Information_Package

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Submission Information Package (SIP) class is an Information Package that is delivered by a Data Provider to an archive that conforms to the Open Archive Information System (OAIS) Reference Model for use in the construction of one or more AIPs.
18.43 Subscriber_PDS3

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Subscriber PDS3 class provides the name of the subscriber and their subscription list.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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</thead>
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<td>Tagged_NonDigital_Object . TNDO_Supplemental . . Information_Package . . Submission_Information_Package</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass | none |
| Attribute | none |
| Inherited Attribute | description.Information_Pac... 1 |
| Association | none |
| Inherited Association | none |
| Referenced from | Product_SIP |

18.44 Symbolic_Literals_PDS

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Symbolic_Literals_PDS class is used to collect orphan attributes for the pds namespace. These attributes are members by default of the USER class but not members of any domain class.
### 18.45 TNDO_Context

**Root Class:** Tagged_NonDigital_Object  
**Role:** Abstract  
**Class Description:** The Tagged NonDigital Object (TNDO) Context class is an abstract class for the context class hierarchy.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>nil_reason.Symbolic_Literal...</td>
<td>0..1</td>
<td>anticipated, inapplicable, missing, unknown</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
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</tr>
<tr>
<td>Inherited Association</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Tagged NonDigital Object (TNDO) Context class is an abstract class for the context class hierarchy.
18.46 TNDO_Context_PDS3

*Root Class:* Tagged_NonDigital_Object
*Role:* Concrete
*Class Description:* The Tagged NonDigital Object (TNDO) Context PDS3 class is an abstract class for the PDS3 context class hierarchy.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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</thead>
<tbody>
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<td>TNDO_Context_PDS3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>Dataset_PDS3</th>
<th>Instrument_Host_PDS3</th>
<th>Instrument_PDS3</th>
<th>Mission_PDS3</th>
<th>Subscriber_PDS3</th>
<th>Target_PDS3</th>
<th>Volume_PDS3</th>
<th>Volume_Set_PDS3</th>
</tr>
</thead>
</table>

| Attribute       | none         | Inherited Attribute  | none            | Association  | none            | Inherited Association | none         | Referenced from | none         |

18.47 TNDO_Supplemental

*Root Class:* Tagged_NonDigital_Object
*Role:* Abstract
*Class Description:* The Tagged NonDigital Object (TNDO) Supplemental class is an abstract class for the supplemental class hierarchy.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td></td>
<td>.  TNDO_Supplemental</td>
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<tr>
<td>Subclass</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Band_Bin_Set</td>
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</tr>
<tr>
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<td></td>
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</tr>
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<td></td>
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</tr>
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<td>DD_Attribute</td>
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</tr>
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<td></td>
<td>DD_Attribute_Full</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>DD_Class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DD_Class_Full</td>
<td></td>
<td></td>
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</tr>
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<td></td>
<td>Display_2D_Image</td>
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</tr>
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<td></td>
<td>Field_Statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
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</tr>
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<td></td>
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<td>Information_Package_Component</td>
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<td></td>
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</tr>
<tr>
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<td>Ingest_LDD</td>
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</tr>
<tr>
<td></td>
<td>Object_Statistics</td>
<td></td>
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<td>Software_Binary</td>
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<td>Software_Source</td>
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<td></td>
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<td></td>
<td>Update</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Vector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vector_Cartesian_3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zip</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Attribute       | none                                        |      |             |     |
| Inherited Attribute | none                                      |      |             |     |
| Association     | none                                        |      |             |     |
| Inherited Association | none                                 |      |             |     |
| Referenced from | none                                        |      |             |     |

18.48  Tagged_Digital_Child

**Root Class:** Tagged_Digital_Child

**Role:** Abstract

**Class Description:** The Tagged Digital Child class is an abstract class for the components of classes in the tagged digital object class hierarchy.
### Tagged_Digital_Object

**Root Class:** Tagged_Digital_Object  
**Role:** Abstract  
**Class Description:** The Tagged Digital Object class is an abstract class for the digital class hierarchy. A tagged object is an information object.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subclass</td>
<td>Tagged_Digital_Object</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Attribute         | none                           |      |             |     |
| Inherited Attribute | none                           |      |             |     |
| Association       | none                           |      |             |     |
| Inherited Association | none                           |      |             |     |
| Referenced from   | none                           |      |             |     |

### Tagged_NonDigital_Child

**Root Class:** Tagged_NonDigital_Child  
**Role:** Abstract  
**Class Description:** The Tagged NonDigital Child class is an abstract class for the components of classes in the tagged nondigital object class hierarchy.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subclass</td>
<td>Tagged_NonDigital_Child</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Attribute         | none                           |      |             |     |
| Inherited Attribute | none                           |      |             |     |
| Association       | none                           |      |             |     |
| Inherited Association | none                           |      |             |     |
| Referenced from   | none                           |      |             |     |
18.51 Tagged_NonDigital_Object

**Root Class:** Tagged_NonDigital_Object  
**Role:** Abstract  
**Class Description:** The Tagged NonDigital Object class is an abstract class for the physical and conceptual class hierarchy. A tagged object is an information object.

18.52 Target_PDS3

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Target class provides a description of a physical object that is the object of data collection. This class captures the PDS3
catalog Target information.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Tagged NonDigital_Object</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>. TNDO_Context_PDS3</td>
</tr>
<tr>
<td></td>
<td>. . Target_PDS3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subclass</th>
<th>none</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>orbit_direction.Target_PDS3</td>
</tr>
<tr>
<td></td>
<td>primary_body_name.Target_PDS3</td>
</tr>
<tr>
<td></td>
<td>rotation_direction.Target_PDS3</td>
</tr>
<tr>
<td></td>
<td>target_desc.Target_PDS3</td>
</tr>
<tr>
<td></td>
<td>target_name.Target_PDS3</td>
</tr>
<tr>
<td></td>
<td>target_type.Target_PDS3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inherited Attribute</th>
<th>none</th>
</tr>
</thead>
<tbody>
<tr>
<td>Association</td>
<td>data_object.Target_PDS3</td>
</tr>
</tbody>
</table>

| Inherited Association | none                       |
| Referenced from      | Product_Target_PDS3        |

18.53 Terminological_Entry

**Root Class:** Tagged NonDigital Child

**Role:** Concrete

**Class Description:** The terminological_entry class provides the name (designation) and definition of the attribute in a specified natural language.
18.54 Transfer_Manifest

**Root Class:** Tagged_Digital_Object  
**Role:** Concrete  
**Class Description:** The Transfer_Manifest class defines a table that maps product LIDVIDs to the file specification names of the products’ XML label files.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Inherited Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Tagged_Digital_Object . Byte_Stream . . Table_Base . . . Table_Character . . . . Transfer_Manifest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>local_identifier.Byte_Stream 0..1 name.Byte_Stream 0..1 description.Table_Base 0..1 offset.Table_Base 1 records.Table_Base 1 record_delimiter.Table_Character 1 carriage-return line-feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>data_object.Table_Base 1 Digital_Object has_Record.Table_Character 1 Record_Character uniformly_sampled.Table_Character 0..1 Uniformly_Sampled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18.55 Volume_PDS3

**Root Class:** Tagged_NonDigital_Object  
**Role:** Concrete  
**Class Description:** The Volume_PDS3 class is used to capture the volume information from the PDS3 Data Set Catalog.
<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Tagged_NonDigital_Object . TNDO_Context_PDS3 . . Volume_PDS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subclass</td>
<td>none</td>
</tr>
<tr>
<td>Attribute</td>
<td>archive_status.Volume_PDS3 1 ARCHIVED</td>
</tr>
<tr>
<td></td>
<td>archive_status_note.Volume_... 1</td>
</tr>
<tr>
<td></td>
<td>curating_node_id.Volume_PDS3 0..*</td>
</tr>
<tr>
<td></td>
<td>description.Volume_PDS3 0..1</td>
</tr>
<tr>
<td></td>
<td>medium_type.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>publication_date.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_de_fullname.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_format.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_id.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_name.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_set_id.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_size.Volume_PDS3 1</td>
</tr>
<tr>
<td></td>
<td>volume_version_id.Volume_PDS3 1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
</tr>
<tr>
<td>Association</td>
<td>data_object.Volume_PDS3 1 Conceptual_Object</td>
</tr>
<tr>
<td></td>
<td>Physical_Object</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
</tr>
<tr>
<td>Referred from</td>
<td>Product_Volume_PDS3</td>
</tr>
</tbody>
</table>

### 18.56 Volume\_Set\_PDS3

**Root Class:** Tagged\_NonDigital\_Object  
**Role:** Concrete  
**Class Description:** The Volume\_Set\_PDS3 class is used to capture the volume set information from the PDS3 Data Set Catalog.
| **Hierarchy** | Tagged_NonDigital_Object  
. TNDO_Context_PDS3  
. . Volume_Set_PDS3 |
| **Subclass** | none |
| **Attribute** | description.Volume_Set_PDS3  
volume_series_name.Volume_Set_PDS3  
volume_set_id.Volume_Set_PDS3  
volume_set_name.Volume_Set_PDS3  
volumes.Volume_Set_PDS3 |
| **Inherited Attribute** | none |
| **Association** | data_object.Volume_Set_PDS3 |
| **Inherited Association** | none |
| **Referenced from** | Product_Volume_Set_PDS3 |
19 Imaging Discipline Classes

This section provides the sets of classes associated with the imaging discipline.

The image discipline class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each class using a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ + Telemetry_Parameters
+ + Quaternion_Component
+ + + Cartography
+ + + Quaternion

The class hierarchy above includes 4 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the discipline classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

19.1 Cartography

Root Class: Tagged_NonDigital_Object
Role: Concrete
Class Description: The Cartography class is a placeholder for soon forthcoming Imaging cartography classes.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
<td>Tagged_NonDigital_Object . TNDO_Supplemental . . Cartography</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 13: Imaging Discipline UML Class Diagram
19.2 Quaternion

*Root Class:* Tagged_NonDigital_Object  
*Role:* Concrete  
*Class Description:* The Quaternion class models a mathematical construct that consists of four individual numeric components. Quaternions are a convenient mechanism for encapsulating orientation information since they require only four units of numeric storage, as opposed to the nine needed for a rotation matrix.

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Tagged_NonDigital_Object . TNDO_Supplemental . Quaternion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subclass</td>
<td>none</td>
</tr>
<tr>
<td>Attribute</td>
<td>description.Quaternion 1, local_identifier.Quaternion 0..1, name.Quaternion 1, type.Quaternion 1</td>
</tr>
<tr>
<td>Inherited Attribute</td>
<td>none</td>
</tr>
<tr>
<td>Inherited Association</td>
<td>none</td>
</tr>
<tr>
<td>Referred from</td>
<td>none</td>
</tr>
</tbody>
</table>

19.3 Quaternion_Component

*Root Class:* Tagged_NonDigital_Child  
*Role:* Concrete  
*Class Description:* The Quaternion_Component class provides a component of a quaternion.
### 19.4 Telemetry_Parameters

**Root Class:** Product_Components  
**Role:** Concrete  
**Class Description:** The Telemetry_Parameters class contains downlink-related attributes used primarily during mission operations.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value/Class</th>
<th>Ind</th>
<th>Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>data_type</td>
<td>ASCII_Real</td>
<td>1</td>
<td>1</td>
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<tr>
<td>description</td>
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<td>0..1</td>
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<td>name</td>
<td>Quaternion_Component</td>
<td>0..1</td>
<td>1</td>
</tr>
<tr>
<td>sequence_number</td>
<td>Quaternion_Component</td>
<td>0..1</td>
<td>1</td>
</tr>
<tr>
<td>value</td>
<td>Quaternion_Component</td>
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<td>1</td>
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</table>

**Hierarchy**

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<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
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<td>. Quaternion_Component</td>
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<tr>
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**Inherited Attribute**

<table>
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</tr>
</thead>
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</table>

**Association**

<table>
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<th>Ind</th>
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**Inherited Association**

<table>
<thead>
<tr>
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<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
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<td></td>
</tr>
</tbody>
</table>

**Referenced from**

<table>
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<tr>
<th>Entity</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quaternion</td>
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<td></td>
</tr>
</tbody>
</table>
20 Rings Discipline Classes

This section provides the sets of classes associated with the rings discipline.

The rings discipline class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each class using a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ Radio_Occultation
  + Radio_Occultation_Support
  + Rings_Supplement
  + Stellar_Occultation

The class hierarchy above includes 4 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the discipline classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The
class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

20.1 Radio_Occultation

*Root Class:* Product_Components
*Role:* Concrete
*Class Description:* This class is required for all radio ring occultations
<table>
<thead>
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<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
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<td>Product_Components</td>
<td>. Radio_Occultation</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Subclass</td>
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<td></td>
<td></td>
</tr>
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<td>Attribute</td>
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<td>0..1</td>
<td></td>
<td>0.1</td>
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<td>SCLK_stop_time.Radio_Occult...</td>
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<td></td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>along_track_timing_offset.Radio_Occultation</td>
<td>0..1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>dsn_station_number.Radio_Occultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>earth_received_start_time_utc.Radio_Occultation</td>
<td>0..1</td>
<td></td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>earth_received_stop_time_utc.Radio_Occultation</td>
<td>0..1</td>
<td></td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>frequency_band.Radio_Occultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>highest_detectable_opacity.Radio_Occultation</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>light_source_incidence_angle.Radio_Occultation</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>lowest_detectable_opacity.Radio_Occultation</td>
<td>0..1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>maximum_light_source_incidence.Radio_Occultation</td>
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<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>maximum_observed_ring_azimuth.Radio_Occultation</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>maximum_observed_ring_elevation.Radio_Occultation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>maximum_radial_sampling_interval.Radio_Occultation</td>
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<td></td>
<td>maximum_ring_longitude.Radio_Occultation</td>
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</tr>
<tr>
<td></td>
<td>maximum_ring_radius.Radio_Occultation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>maximum_wavelength.Radio_Occultation</td>
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20.2 Radio_Occultation_Support

*Root Class:* Product_Components

*Role:* Concrete

*Class Description:* This class is required for all radio ring occultation calibration and geometry supplemental files.
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20.3 Rings_Supplement

*Root Class:* Product_Components  
*Role:* Concrete  
*Class Description:* This class is required for all Rings Node curated data products

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20.4 Stellar_Occultation

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*Role:* Concrete  
*Class Description:* This class is required for all stellar ring occultations
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| Association               | none                          |      |             |     |
| Inherited Association     | none                          |      |             |     |
| Referenced from           | none                          |      |             |     |
21 Data Type Classes

This section defines the PDS4 data types.

The Data Type class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each class using a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ + + Complex
  + + + ComplexLSB16
  + + + ComplexLSB8
  + + + ComplexMSB16
  + + + ComplexMSB8
  + + + Decimal_Integer
  + + + + SignedBitString
  + + + + SignedByte
  + + + + SignedLSB2
  + + + + SignedLSB4
  + + + + SignedLSB8
  + + + + SignedMSB2
  + + + + SignedMSB4
  + + + + SignedMSB8
  + + + + UnsignedBitString
  + + + + UnsignedByte
  + + + + UnsignedLSB2
  + + + + UnsignedLSB4
  + + + + UnsignedLSB8
  + + + + UnsignedMSB2
  + + + + UnsignedMSB4
  + + + + UnsignedMSB8
  + + + + Decimal_Real
  + + + + IEEE754LSBDouble
  + + + + IEEE754LSBSingle
  + + + + IEEE754MSBDouble
  + + + + IEEE754MSBSingle
  + + Character_Data_Type
  + + + ASCII_AnyURI
  + + + ASCII_Boolean
  + + + ASCII_DOI
  + + + ASCII_Date
  + + + ASCII_Date_DOY
  + + + ASCII_Date_Time
  + + + ASCII_Date_Time_DOY
The class hierarchy above includes 62 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class and those inherited from parent classes. Cardinalities are provided where appropriate.

### 21.1 ASCII AnyURI

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII AnyURI class indicates a URI or its subclasses URN and URL.
Figure 15: Data Type UML Class Diagram
21.2 ASCII_Boolean

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* The ASCII_Boolean class indicates a boolean. The allowed values are 'true' and 'false'.
21.3 ASCII_DOI

**Root Class:** Data_Type

**Role:** Concrete

**Class Description:** The ASCII DOI class indicates a digital object identifier (DOI).

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|                   | formation_rule.ASCII.DOI       | 1 | nn.nnn.nn | R |
|                   | maximum_characters.ASCII.DOI  | 1 |        | R |
|                   | minimum_characters.ASCII.DOI  | 1 |        | R |
|                   | pattern.ASCII.DOI              | 1 | 10    |    |

| S+/S+               | xml_schema_base_type.ASCII.DOI | 1 | xsd:string | R |

| Inherited Attribute | character_encoding.Character_Dat... | 1 | UTF-8 |
|                     | maximum_value.Character_Dat...    | 1 |
|                     | minimum_value.Character_Dat...    | 1 |

21.4 ASCII_Date

**Root Class:** Data_Type

**Role:** Concrete

**Class Description:** The ASCII_Date class indicates a date in either YMD or DOY format.
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</thead>
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### 21.5 ASCII_Date_DOY

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Date_DOY class indicates a date in DOY format.
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<th>Value/Class</th>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

| Subclass        | none                                        |      |             |
| Attribute       | character_constraint.ASCII_Date_DOY         | 1    | ASCII       |
|                 | formation_rule.ASCII_Date_DOY              | 1    | YYYY-DOY    |
|                 | maximum_characters.ASCII_Date_DOY          | 1    |             |
|                 | minimum_characters.ASCII_Date_DOY          | 1    |             |
|                 | pattern.ASCII_Date_DOY                     | 1    | (-)?[0-9]{4}|
|                 |                                           |      | (-)?[0-9]{4}-(00[1-9]|0[1-9][0-9]|1[0-2][0-9]|3((0[0-5][0-9]|0[1-9]|1[0-6])))
|                 | xml_schema_base_type.ASCII_Date_DOY        | 1    | xsd:string  |

| Inherited Attribute | character_encoding.Character_Date_Time     | 1    | UTF-8       |
|                     | maximum_value.Character_Date_Time          | 1    |             |
|                     | minimum_value.Character_Date_Time          | 1    |             |

| Association        | none                                        |      |             |
| Inherited Association | none                                       |      |             |
| Referenced from    | none                                        |      |             |

### 21.6 ASCII_Date_Time

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Date_Time class indicates a date in either YMD or DOY format and time.
<table>
<thead>
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<td>. . ASCII_Date_Time</td>
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<table>
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<tr>
<td></td>
<td>formation_rule.ASCII_Date_Time</td>
</tr>
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<td>maximum_characters.ASCII_Date_Time</td>
</tr>
<tr>
<td></td>
<td>maximum_value.ASCII_Date_Time</td>
</tr>
<tr>
<td></td>
<td>minimum_characters.ASCII_Date_Time</td>
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<td></td>
<td>minimum_value.ASCII_Date_Time</td>
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<td>pattern.ASCII_Date_Time</td>
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<tr>
<td>.([0-9]{1,4}))?(Z)?</td>
<td>1</td>
</tr>
<tr>
<td>.([0-9]{1,4}))?(Z)?</td>
<td>1</td>
</tr>
<tr>
<td>.0+)?))?(Z)?</td>
<td>(-)?[0-9]{4}-(00[1-9])—(0[0-9])</td>
</tr>
<tr>
<td>.0+)?))?(Z)?</td>
<td>(-)?[0-9]{4}-(00[1-9])—(0[0-9])</td>
</tr>
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<td>.([0-9]{1,4}))?(Z)?</td>
<td>(-)?[0-9]{4}-(00[1-9])—(0[0-9])</td>
</tr>
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<td>.([0-9]{1,4}))?(Z)?</td>
<td>(-)?[0-9]{4}-(00[1-9])—(0[0-9])</td>
</tr>
<tr>
<td>.0+)?))?(Z)?</td>
<td>xml_schema_base_type.ASCII_Date_Time</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

| Inherited Attribute | character_encoding.Character... |
|                    | 1 | UTF-8 |
| Association | none |
| Inherited Association | none |
| Referenced from | none |

### 21.7 ASCII_Date_Time_DOY

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Date_Time_DOY class indicates a date in DOY format and time.
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<thead>
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<td>. ASCII_Date_Time_DOY</td>
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<td>Subclass</td>
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<td>formation_rule.ASCII_Date_Time_DOY</td>
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<td>maximum_characters.ASCII_Date_Time_DOY</td>
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</tr>
<tr>
<td></td>
<td>maximum_value.ASCII_Date_Time_DOY</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>minimum_characters.ASCII_Date_Time_DOY</td>
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</tr>
<tr>
<td></td>
<td>minimum_value.ASCII_Date_Time_DOY</td>
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<tr>
<td></td>
<td>pattern.ASCII_Date_Time_DOY</td>
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</tr>
<tr>
<td></td>
<td>.([0-9]{1,4}))?(Z)?</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>.0+)?(Z)?</td>
<td>0</td>
</tr>
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</tr>
<tr>
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</tbody>
</table>

### 21.8 ASCII_Date_Time.UTC

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Date_Time.UTC class indicates a date and time in UTC format.
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>Character_Data_Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. ASCII_Date_Time.UTC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>character_constraint.ASCII_Date_Time</td>
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<td>ASCII</td>
</tr>
<tr>
<td>formation_rule.ASCII_Date_Time</td>
<td>1</td>
<td>YYYY-MM-DDTHH:MM:SSZ/YYYY-DOYTHH:MM:SS.Z</td>
</tr>
<tr>
<td>maximum_characters.ASCII_Date_Time</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>maximum_value.ASCII_Date_Time</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>minimum_characters.ASCII_Date_Time</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>minimum_value.ASCII_Date_Time</td>
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<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>.([0-9]{1,4})?)?(Z)</td>
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<td></td>
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<tr>
<td>.([0-9]{1,4})?)?(Z)</td>
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<td></td>
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<tr>
<td>.([0-9]{1,4})?)?(Z)</td>
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<td></td>
</tr>
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</tr>
<tr>
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</tr>
</tbody>
</table>

### 21.9 ASCII_Date_Time_YMD

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Date_Time_YMD class indicates a date in YMD format and time.
### Root Class: Data_Type

| Role: | Concrete |

### Class Description: The ASCII_Date_YMD class indicates a date in YMD format.
<table>
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<tr>
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<th>Card</th>
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<td>. . ASCII_Date_YMD</td>
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<tr>
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<td>formation_rule.ASCII_Date_YMD</td>
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<td></td>
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<tr>
<td></td>
<td>minimum_value.Character_Data_Type</td>
<td>1</td>
<td></td>
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</table>

| Association | none |      |             |
| Inherited Association | none |      |             |
| Referenced from | none |      |             |

21.11 ASCII_Directory_Path_Name

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII Directory Path Name class indicates a system directory path.

<table>
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<td>R</td>
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<tr>
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<td>dir1/dir2/</td>
<td>R</td>
</tr>
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<td>maximum_characters.ASCII_Directory_Path_Name</td>
<td>1</td>
<td>255</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>minimum_characters.ASCII_Directory_Path_Name</td>
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<td>1</td>
<td>R</td>
</tr>
<tr>
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<td>xml_schema_base_type.ASCII_Directory_Path_Name</td>
<td>1</td>
<td>xsd:token</td>
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</tr>
<tr>
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<td>maximum_value.Character_Data_Type</td>
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<td></td>
</tr>
<tr>
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<td>minimum_value.Character_Data_Type</td>
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21.12 ASCII_File_Name

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII File Name class indicates a system file name.

<table>
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<td>R</td>
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<td>file_name.file_extension</td>
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<td>255</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>minimum_characters.ASCII_Fi...</td>
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<td>1</td>
<td>R</td>
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<tr>
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</table>

21.13 ASCII_File_Specification_Name

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII File Specification Name class indicates a system file including directory path, file name, and file extension.
### ASCII_Integer

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Integer class indicates an integer.

<table>
<thead>
<tr>
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<th>Value/Class</th>
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<td></td>
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<tr>
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<td>formation_rule.ASCII_File_S...</td>
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<td>dir1/dir2/file_name.file_extension</td>
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<td></td>
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<tr>
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<td>minimum_characters.ASCII_Fi...</td>
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<td></td>
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<td>minimum_value.Character_Data...</td>
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</tr>
</tbody>
</table>

21.14 ASCII_Integer

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Integer class indicates an integer.
### 21.15 ASCII_LID

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_LID class indicates a logical identifier.

<table>
<thead>
<tr>
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<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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| Subclass | none |  |

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| Association | none |  |

| Inherited Association | none |  |

| Referenced from | none |  |

### 21.16 ASCII_LIDVID

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_LIDVID class indicates a logical identifier and version identifier.

- Referenced from: none
21.17 ASCII_LIDVID_LID

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_LIDVID_LID class indicates a logical identifier and version identifier or simply the logical identifier.
### 21.18 ASCII_MD5_Checksum

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII MD5 Checksum class indicates a checksum computed by the Message-Digest algorithm 5 (MD5).

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### 21.19 ASCII_NonNegative_Integer

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_NonNegative_Integer class indicates a non-negative integer.
21.20 ASCII_Numeric_Base16

*Root Class:* Data_Type  
*Role:* Concrete  

*Class Description:* The ASCII Numeric Base16 class indicates a ASCII encoded string constrained to hexadecimal digits.
21.21 ASCII_Numeric_Base2

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* The ASCII Numeric Base2 class indicates a ASCII encoded string constrained to binary digits.

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21.22 ASCII_Numeric_Base8

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* The ASCII Numeric Base8 class indicates a ASCII encoded string constrained to octal digits.
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| Subclass                                      | none |             |     |

| Attribute                                     |      |             |     |
| character_constraint.ASCII                   | 1    | ASCII       | R   |
| maximum_characters.ASCII_Numeric_Base8       | 1    | 255         | R   |
| minimum_characters.ASCII_Numeric_Base8       | 1    | 1           | R   |
| pattern.ASCII_Numeric_Base8                  | 1    | [0-7]{1,255}| R   |
| xml_schema_base_type.ASCII                   | 1    | xsd:string  | R   |

| Inherited Attribute                          |      |             |     |
| character_encoding.CharacterEncoding.Rule    | 1    | UTF-8       | R   |
| formation_rule.Character_Data_Type.Rules     | 1    |             |     |
| maximum_value.Character_Data_Type.Rules       | 1    |             |     |
| minimum_value.Character_Data_Type.Rules       | 1    |             |     |

| Association                                   | none |             |     |
| Inherited Association                         | none |             |     |
| Referenced from                               | none |             |     |

### 21.23 ASCII_Real

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Real class indicates a real.

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| Subclass                                      | none |             |     |

| Attribute                                     |      |             |     |
| character_constraint.ASCII                   | 1    |             | R   |
| maximum_characters.ASCII_Real                | 1    |             | R   |
| maximum_value.ASCII_Real                     | 1    |             | R   |
| minimum_characters.ASCII_Real                | 1    |             | R   |
| minimum_value.ASCII_Real                     | 1    |             | R   |
| xml_schema_base_type.ASCII                   | 1    | xsd:double  | R   |

| Inherited Attribute                          |      |             |     |
| character_encoding.CharacterEncoding.Rule    | 1    | UTF-8       | R   |
| formation_rule.Character_Data_Type.Rules     | 1    |             |     |
| pattern.Character_Data_Type                  | 1    |             |     |

| Association                                   | none |             |     |
| Inherited Association                         | none |             |     |
| Referenced from                               | none |             |     |
21.24 ASCII_Short_String_collapsed

Root Class: Data_Type
Role: Concrete
Class Description: The ASCII_Short_String_collapsed class indicates a limited length, whitespace-collapsed string.

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21.25 ASCII_Short_String_Preserved

Root Class: Data_Type
Role: Concrete
Class Description: The ASCII_Short_String_Preserved class indicates a limited length, whitespace-preserved string.
21.26 ASCII_String

Root Class: Data_Type
Role: Concrete
Class Description: The ASCII_String class indicates a limited length ASCII text string with whitespaces removed.
### 21.27 ASCII_Text_Collapsed

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Text_Collapsed class indicates an unlimited length, whitespace-collapsed text string.

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### 21.28 ASCII_Text_Preserved

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Text_Preserved class indicates an unlimited length, whitespace-preserved text string.

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| Inherited Association | none |      |                 |     |
| Referenced from | none |      |                 |     |</p>
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| Association | |
|-------------| |
| none        | |

| Inherited Association | |
|-----------------------| |
| none                  | |

| Referenced from | |
|-----------------| |
| none            | |

### 21.29 ASCII_Time

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** The ASCII_Time class indicates a time value.
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21.30  ASCII_VID

**Root Class:** Data_Type

**Role:** Concrete

**Class Description:** The ASCII_VID class indicates a version identifier.

209
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### 21.31 Character_Data_Type

**Root Class:** Data_Type  
**Role:** Abstract  
**Class Description:** The Character Data Type class is the parent class for data types used to classify the values of attributes in class descriptions, i.e., product labels and character digital objects.
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21.32 Complex

*Root Class:* Data_Type  
*Role:* Abstract  
*Class Description:* Complex Binary Data Types

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| Association         | none                                        |      |             |     |
| Inherited Association| none                                       |      |             |     |
| Referenced from     | none                                        |      |             |     |

21.33 ComplexLSB16

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* Complex number consisting of two LSB 8 byte decimal reals.

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21.34 ComplexLSB8

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* Complex number consisting of two LSB 4 byte decimal reals.
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21.35 ComplexMSB16

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*Role:* Concrete  
*Class Description:* Complex number consisting of two MSB 8 byte decimal reals.

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21.36 ComplexMSB8

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*Class Description:* Complex number consisting of two MSB 4 byte decimal reals.
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21.37 Decimal_Integer

**Root Class:** Data_Type  
**Role:** Abstract  
**Class Description:** Decimal Integer Binary Data Types

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21.38  Decimal_Real

*Root Class:* Data_Type  
*Role:* Abstract  
*Class Description:* Floating Point Binary Data Types

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|          | IEEE754MSBDouble |      |             |     |
|          | IEEE754MSBSingle |      |             |     |

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| Association | none |
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21.39  IEEE754LSBDouble

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* IEEE 754 LSB double precision floating point

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21.40  IEEE754LSBSingle

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* IEEE 754 LSB single precision floating point
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## 21.41 IEEE754MSBDouble

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* IEEE 754 MSB double precision floating point

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## 21.42 IEEE754MSBSingle

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* IEEE 754 MSB single precision floating point
21.43 SignedBitString

*Root Class:* Data_Type

*Role:* Concrete

*Class Description:* Signed Bit String

21.44 SignedByte

*Root Class:* Data_Type

*Role:* Concrete

*Class Description:* Signed 8-bit byte
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21.45 SignedLSB2

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Signed 2’s-complement LSB 2-byte integer

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21.46 SignedLSB4

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Signed 2’s-complement LSB 4-byte integer
21.47 SignedLSB8

*Root Class:* Data_Type
*Role:* Concrete
*Class Description:* Signed 2’s-complement LSB 8-byte integer

21.48 SignedMSB2

*Root Class:* Data_Type
*Role:* Concrete
*Class Description:* Signed 2’s-complement MSB 2-byte integer
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### 21.49 SignedMSB4

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Signed 2’s-complement MSB 4-byte integer

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### 21.50 SignedMSB8

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Signed 2’s-complement MSB 8-byte integer

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21.51 UTF8-short-string-collapsed

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* The UTF8-short-string-collapsed class indicates a limited length, whitespace-collapsed string constrained to the UTF-8 character encoding.

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21.52 UTF8-short-string-preserved

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* The UTF8-short-string-preserved class indicates a limited length, whitespace-preserved string constrained to the UTF-8
character encoding.

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21.53 UTF8_String

**Root Class:** Data_Type

**Role:** Concrete

**Class Description:** The UTF8_String class indicates a limited length UTF8 text string with whitespaces removed.

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21.54 UTF8_Text_Preserved

Root Class: Data_Type
Role: Concrete

Class Description: The UTF8_Text_Preserved class indicates an unlimited length, whitespace-preserved text string constrained to the UTF-8 character encoding.

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21.55 UnsignedBitString

Root Class: Data_Type
Role: Concrete

Class Description: Unsigned Bit String

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### 21.56 UnsignedByte

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Unsigned 8-bit byte

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### 21.57 UnsignedLSB2

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Unsigned 2’s-complement LSB 2-byte integer

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### 21.58 UnsignedLSB4

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Unsigned 2’s-complement LSB 4-byte integer
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21.59 UnsignedLSB8

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* Unsigned 2’s-complement LSB 8-byte integer

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21.60 UnsignedMSB2

*Root Class:* Data_Type  
*Role:* Concrete  
*Class Description:* Unsigned 2’s-complement MSB 2-byte integer

225
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### 21.61 UnsignedMSB4

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Unsigned 2’s-complement MSB 4-byte integer

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### 21.62 UnsignedMSB8

**Root Class:** Data_Type  
**Role:** Concrete  
**Class Description:** Unsigned 2’s-complement MSB 8-byte integer
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22 Unit of Measure Classes

This section defines the PDS4 units of measure.

The units of measure class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each class using a hierarchical (tree) format, providing a visual representation of the classes in relation to their parent classes.

+ Unit_Of_Measure
  + Units_of_Acceleration
  + Units_of_Amount_Of_Substance
  + Units_of_Angle
  + Units_of_Angular_Velocity
  + Units_of_Area
  + Units_of_Frame_Rate
  + Units_of_Frequency
  + Units_of_Length
  + Units_of_Map_Scale
  + Units_of_Mass
  + Units_of_Misc
  + Units_of_None
  + Units_of_Optical_Path_Length
  + Units_of_Pressure
  + Units_of_Radiance
  + Units_of_Rates
  + Units_of_Solid_Angle
  + Units_of_Spectral_Irradiance
  + Units_of_Spectral_Radiance
  + Units_of_Storage
  + Units_of_Temperature
  + Units_of_Time
  + Units_of_Velocity
  + Units_of_Voltage
  + Units_of_Volume
  + Units_of_Wavenumber

The class hierarchy above includes 27 unique classes.

The classes in this section are illustrated using a Unified Modeling Language (UML) class hierarchy diagram in the following figure. The following sections present the classes in a table format. The table includes the class hierarchy, class attributes, and class associations. The class attributes and associations listed include both those used to define the class
Figure 16: DataTypes UML Class Diagram
and those inherited from parent classes. Cardinalities are provided where appropriate.

22.1 Unit_Of_Measure

*Root Class:* Unit_Of_Measure  
*Role:* Abstract  
*Class Description:* The Unit_Of_Measure is a definite magnitude of a quantity.
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### 22.2 Units_of_Acceleration

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Acceleration is a magnitude of acceleration.
### 22.3 Units_of_Amount_Of_Substance

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Amount_Of_Substance is a magnitude of mass.

### 22.4 Units_of_Angle

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Angle is a magnitude of angle.
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</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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</tr>
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<td>mrad</td>
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<tr>
<td></td>
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Inherited Attribute: none
Association: none
Inherited Association: none
Referenced from: none

22.5 Units_of_Angular_Velocity

*Root Class:* Unit_Of_Measure

*Role:* Concrete

*Class Description:* Units_of_Angular_Velocity is a magnitude of speed of rotation.

<table>
<thead>
<tr>
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<th>Value/Class</th>
<th>Ind</th>
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<tr>
<td></td>
<td>. Units_of_Angular_Velocity</td>
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<td>1</td>
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<td></td>
<td>unit_id.Units_of_Angular_Velocity</td>
<td>1</td>
<td>deg/day</td>
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<tr>
<td></td>
<td></td>
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<td>deg/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rad/s</td>
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Inherited Attribute: none
Association: none
Inherited Association: none
Referenced from: none

22.6 Units_of_Area

*Root Class:* Unit_Of_Measure

*Role:* Concrete

*Class Description:* Units_of_Area is a magnitude of area.
<table>
<thead>
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<th>Hierarchy</th>
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<th>Value/Class</th>
<th>Ind</th>
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<td>m**2</td>
<td>R</td>
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</tr>
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<td>R</td>
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<td>R</td>
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<tr>
<td>Inherited Association</td>
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<tr>
<td>Referenced from</td>
<td>none</td>
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### 22.7 Units_of_Frame_Rate

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Frame_Rate is a magnitude of change.

<table>
<thead>
<tr>
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<th>Entity</th>
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<th>Value/Class</th>
<th>Ind</th>
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<td>frames/s</td>
<td>R</td>
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<td>type.Units_of_Frame_Rate 1</td>
<td>Frame_Rate</td>
<td>R</td>
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</tr>
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<td>unit_id.Units_of_Frame_Rate 1</td>
<td>frames/s</td>
<td>R</td>
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<tr>
<td>Referenced from</td>
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### 22.8 Units_of_Frequency

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Frequency is a magnitude of frequency.
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<th>Value/Class</th>
<th>Ind</th>
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<td>Frequency</td>
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<td>unit_id.Units_of_Frequency</td>
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<tr>
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### 22.9 Units_of_Length

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Length is a magnitude of length.

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<td>Subclass</td>
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<td>m</td>
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<td></td>
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### 22.10 Units_of_Map_Scale

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Map_Scale is a proportional representation.

235
<table>
<thead>
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<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
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<tr>
<td>Subclass</td>
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<td>specified_unit_id.Units_of_Map_Scale</td>
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<td>pixel/deg Scale</td>
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<td>km/pixel m/pixel mm/pixel pixel/deg</td>
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<tr>
<td>Association</td>
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<tr>
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</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
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</table>

### 22.11 Units_of_Mass

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Mass is a magnitude of mass.

<table>
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<th>Value/Class</th>
<th>Ind</th>
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</thead>
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<td></td>
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<tr>
<td>Subclass</td>
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<td>g</td>
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<td>unit_id.Units_of_Mass</td>
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</tr>
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<td>Inherited Attribute</td>
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<td>Association</td>
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<td>Inherited Association</td>
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</tr>
<tr>
<td>Referenced from</td>
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</table>

### 22.12 Units_of_Misc

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Misc provides an assortment of derived units.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Subclass</td>
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<td>unit_id.Units_of.Misc</td>
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<td>Association</td>
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</tr>
<tr>
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### 22.13 Units_of_None

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_None indicates that no unit of measure applies.

<table>
<thead>
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<th>Value/Class</th>
<th>Ind</th>
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<tr>
<td>Attribute</td>
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</tr>
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</tr>
<tr>
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### 22.14 Units_of_Optical_Path_Length

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Optical_Path_Length is a magnitude of optical path length.
### 22.15 Units_of_Pressure

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Pressure is a magnitude of pressure.

### 22.16 Units_of_Radiance

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Radiance is a magnitude of radiance.
<table>
<thead>
<tr>
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<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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<td>Attribute</td>
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<td>W*m**-2 sr**-1</td>
<td>R</td>
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<td>R</td>
</tr>
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<td></td>
<td>unit_id.Units_of_Radiance</td>
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<td>W*m**-2 sr**-1</td>
<td>R</td>
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### 22.17 Units_of_Rates

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Rate is a magnitude of change.

<table>
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<tr>
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<th>Entity</th>
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<th>Value/Class</th>
<th>Ind</th>
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<td></td>
<td>. Units_of_Rates</td>
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<td>Attribute</td>
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<tr>
<td></td>
<td>specified_unit_id.Units_of...</td>
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<td>counts/bin</td>
<td>R</td>
</tr>
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<td>type.Units_of_Rates</td>
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<td>Rates</td>
<td>R</td>
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<td>unit_id.Units_of_Rates</td>
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<td>counts/bin</td>
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### 22.18 Units_of_Solid_Angle

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Solid_Angle is a magnitude of a solid angle.
<table>
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<th>Value/Class</th>
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<tr>
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</table>

**22.19 Units_of_Spectral_Irradiance**

*Root Class:* Unit_Of_Measure

*Role:* Concrete

*Class Description:* A measure of the power of radiation at a particular frequency or wavelength that passes through a unit area.

<table>
<thead>
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<th>Card</th>
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<th>Ind</th>
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<tr>
<td>Unit_Of_Measure</td>
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<td></td>
<td></td>
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<tr>
<td>. Units_of_Spectral_Irradiance</td>
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<td>specified_unit_id.Units_of_Spectral_Irradiance</td>
<td>1</td>
<td>W*m**-3</td>
<td>R</td>
</tr>
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<td></td>
<td>type.Units_of_Spectral_Irradiance</td>
<td>1</td>
<td>Spectral_Irradiance</td>
<td>R</td>
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<tr>
<td></td>
<td>unit_id.Units_of_Spectral_Irradiance</td>
<td>1</td>
<td>SFU</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>W<em>m**-2</em>Hz**-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>W<em>m**-2</em>nm**-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>W*m**-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>uW<em>cm**-2</em>um**-1</td>
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<td></td>
<td></td>
</tr>
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<tr>
<td>Referenced from</td>
<td>none</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**22.20 Units_of_Spectral_Radiance**

*Root Class:* Unit_Of_Measure

*Role:* Concrete

*Class Description:* A measure of the power of radiation at a particular frequency or wavelength that passes through a unit area and a unit solid angle in a specified direction.
### 22.21 Units_of_Storage

**Root Class:** Unit Of Measure

**Role:** Concrete

**Class Description:** Units_of_Storage is an amount of computer storage.

### 22.22 Units_of_Temperature

**Root Class:** Unit Of Measure

**Role:** Concrete

**Class Description:** Units_of_Temperature is a magnitude of temperature.
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
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<td></td>
<td>. Units_of_Temperature</td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
</tr>
<tr>
<td>Attribute</td>
<td>specified_unit_id.Units_of_Temperature</td>
</tr>
<tr>
<td></td>
<td>type.Units_of_Temperature</td>
</tr>
<tr>
<td></td>
<td>unit_id.Units_of_Temperature</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>degC</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Temperature</td>
</tr>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>K</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>degC</td>
</tr>
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<tr>
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<tr>
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<td>none</td>
</tr>
<tr>
<td>Referenced from</td>
<td>none</td>
</tr>
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</table>

22.23 Units_of_Time

**Root Class:** Unit_Of_Measure

**Role:** Concrete

**Class Description:** Units_of_Time is a magnitude of time.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>. Units_of_Time</td>
</tr>
<tr>
<td>Subclass</td>
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</tr>
<tr>
<td>Attribute</td>
<td>specified_unit_id.Units_of_Time</td>
</tr>
<tr>
<td></td>
<td>type.Units_of_Time</td>
</tr>
<tr>
<td></td>
<td>unit_id.Units_of_Time</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>s</td>
</tr>
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<td></td>
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<td></td>
<td>Time</td>
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<td></td>
<td>day</td>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>hr</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>julian day</td>
</tr>
<tr>
<td></td>
<td>1</td>
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<td></td>
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</tr>
<tr>
<td></td>
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<tr>
<td></td>
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</tr>
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<td></td>
<td>ms</td>
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</tr>
<tr>
<td></td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
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</tr>
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22.24 Units_of_Velocity

**Root Class:** Unit_Of_Measure

**Role:** Concrete

**Class Description:** Units_of_Velocity is a magnitude of velocity.
### 22.25 Units_of_Voltage

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Voltage is a magnitude of voltage.

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<thead>
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<th>Card</th>
<th>Value/Class</th>
<th>Ind</th>
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<th>Ind</th>
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<td>R</td>
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<tr>
<td>type.Units_of_Voltage</td>
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<td>R</td>
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<td>unit_id.Units_of_Voltage</td>
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<td></td>
<td></td>
<td>km/s</td>
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</tr>
<tr>
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<td>m/s</td>
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</tr>
</thead>
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</tbody>
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### 22.26 Units_of_Volume

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Volume is a magnitude of volume.

<table>
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<th>Ind</th>
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<td>R</td>
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<td>Voltage</td>
<td>R</td>
</tr>
<tr>
<td>unit_id.Units_of_Volume</td>
<td>1</td>
<td>V</td>
<td>R</td>
</tr>
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<td></td>
<td></td>
<td>mV</td>
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</thead>
<tbody>
<tr>
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<td></td>
</tr>
</tbody>
</table>

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### Units_of_Wavenumber

**Root Class:** Unit_Of_Measure  
**Role:** Concrete  
**Class Description:** Units_of_Wavenumber is the number of waves that occur per unit distance, i.e., inverse length

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Entity</th>
<th>Card</th>
<th>Value/Class</th>
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<td></td>
</tr>
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<td>specified_unit_id.Units_of...</td>
<td>1</td>
<td>L</td>
<td>R</td>
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<tr>
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<td>type.Units_of_Wavenumber</td>
<td>1</td>
<td>Volume</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>unit_id.Units_of_Wavenumber</td>
<td>1</td>
<td>L m**3</td>
<td>R</td>
</tr>
<tr>
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22.27 Units_of_Wavenumber

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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Units_of_Wavenumber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>specified_unit_id.Units_of...</td>
<td>1</td>
<td>cm**-1</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>type.Units_of_Wavenumber</td>
<td>1</td>
<td>Wavenumber</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>unit_id.Units_of_Wavenumber</td>
<td>1</td>
<td>cm**-1 m**-1</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>unit_id.Units_of_Wavenumber</td>
<td>1</td>
<td>m**-1 nm**-1</td>
<td>R</td>
</tr>
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<td></td>
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<tr>
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</tbody>
</table>

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23 Unification

This section presents the data model for the Information Object, a fundamental component of the Open Archival Information System (OAIS) Reference Model. The Information Object provides a model for the unification of PDS Objects under the PDS defined extensions, the PDS\_Information\_Object, the Tagged\_Data\_Object, and two Context classes.

24 Specification Dictionary

The Specification Dictionary provides the definitions of data elements and associations. The data elements are those that are used as class attributes in this specification. They represent a subset of those in the Planetary Science Data Dictionary. The associations are those that are defined and used in this specification.

*SCLK\_start\_time in Radio\_Occultation* SCLK\_start\_time is the value of the spacecraft clock corresponding to the start\_date\_time given in the label.
Type: ASCIIShort_String_COLLAPSED

Class Name: Radio_Occultation

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: rings

Namespace Id: rings

SCLK_start_time in Stellar_Occultation SCLK_start_time is the value of the spacecraft clock corresponding to the start_date_time given in the label.

Type: ASCIIShort_String_COLLAPSED

Class Name: Stellar_Occultation

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: rings

Namespace Id: rings

SCLK_stop_time in Radio_Occultation SCLK_stop_time is the value of the spacecraft clock corresponding to the stop_date_time given in the label.

Type: ASCIIShort_String_COLLAPSED

Class Name: Radio_Occultation

Minimum Characters: 1
**Maximum Characters:** 255

**Nillable:** false

**Steward:** rings

**Namespace Id:** rings

**SCLK_stop_time in Stellar_Occultation** SCLK_stop_time is the value of the spacecraft clock corresponding to the stop_date_time given in the label.

**Type:** ASCIIShort_String_Collapsed

**Class Name:** Stellar_Occultation

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Steward:** rings

**Namespace Id:** rings

**abstract_desc in Data_Set_PDS3** The abstract desc attribute provides a summary of a text, scientific article, or document.

**Type:** ASCII_Text_Preserved

**Class Name:** Data_Set_PDS3

**Minimum Characters:** 1

**Nillable:** false

**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** ops
Abstract Flag in DD Class

The abstract flag attribute indicates whether or not the class can be instantiated. Abstract flag is only included if a value of 'true' is desired and indicates that the class is abstract and cannot be used in a label.

*Type:* ASCII Boolean

*Class Name:* DD_Class

*Nillable:* false

*Attribute Concept:* Flag

*Conceptual Domain:* Boolean

*Steward:* ops

Acknowledgement Text in Document

The acknowledgement_text attribute is a character string which recognizes another’s contribution, authority, or right.
address in Facility  The address attribute provides a mailing address.

Type: UTF8_Text_Preserved

Class Name: Facility

Minimum Characters: 1

Nullable: false

Attribute Concept: Address

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

affiliation_type in PDS_Affiliate  The affiliation type data attribute describes the type of relationship an individual has with the PDS.

Type: ASCII_Short_String_Collapsed

Class Name: PDS_Affiliate
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: Affiliate, Data Provider, Manager, Technical Staff

**alias in Alias_List**  The alias association is a relationship to Alias, an alternate name and identification.

_Type: Association_

**alias_list in Identification_Area**  The alias_list association is a relationship to Alias_List, a list of alternate names and identifications.

_Type: Association_

**along_track_timing_offset in Radio_Occultation**

along_track_timing_offset is a timing offset to the along track spacecraft position. It is the value that minimizes differences in radii of matching circular ring features observed on the ingress and egress sides of the occultation track. Optional in labels for radio occultation. Nillable in which case the nil_reason should be 'inapplicable'.

_Type: ASCII_Real_

_Unit of Measure Type: Units_of_Time_

_Valid Units: day, hr, julian day, microseconds, min, ms, s, yr_

_Class Name: Radio_Occultation_

_Nillable: false_
alternate_designation in Target_Identification The alternate_designation attribute provides aliases.

Type: ASCII, Short, String, Collapsed

Class Name: Target_Identification

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short, String

Steward: pds

Namespace Id: pds

alternate_id in Alias The alternate_id attribute provides an additional identifier supplied by the data provider.

Type: ASCII, Short, String, Collapsed

Class Name: Alias

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short, String
alternate_telephone_number in PDS_Affiliate The telephone_number attribute provides a telephone number in international notation in compliance with the E.164 telephone number format recommendation.

Type: ASCII_Short_String_Collapsed

Class Name: PDS_Affiliate

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Number

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

alternate_title in Alias The alternate_title attribute provides an alternate title for the product.

Type: ASCII_Short_String_Collapsed

Class Name: Alias

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Title

Conceptual Domain: Short_String
altitude in Telescope The altitude attribute provides the height of anything above a given reference plane.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Specified Unit Id: m

Class Name: Telescope

Nullable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

aperture in Telescope The aperture attribute provides the diameter of an opening, usually circular, that limits the quantity of light that can enter an optical instrument.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Specified Unit Id: m

Class Name: Telescope

Minimum Value: 0
Nillable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**application_process_id in Telemetry_Parameters** The application_process_id attribute identifies the process, or source, which created the data.

Type: ASCII_Integer

Class Name: Telemetry_Parameters

Minimum Value: 0

Nillable: false

Attribute Concept: ID

Conceptual Domain: Integer

Steward: img

Namespace Id: img

**application_process_name in Telemetry_Parameters** The application_process_name attribute provides the name associated with the source or process which created the data.

Type: ASCII_Short_String_Collapsed

Class Name: Telemetry_Parameters

Minimum Characters: 1

Maximum Characters: 127
archive_status in Data_Set_PDS3  The ARCHIVE_STATUS attribute indicates the stage to which a data set has progressed in the archiving process, from IN QUEUE through ARCHIVED. It can also take on the values SUPERSEDED or SAFED, which indicate that the data set is not part of the active archive. ACCUMULATING can be appended to some values to indicate that the data set is incomplete and/or that not all components have reached the stage given by the root value; ACCUMULATING would be used, for example, when the archive is being delivered incrementally, as from a mission that lasts many months or years.

Type: ASCII_Short_String_Collapsed

Class Name: Data_Set_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Status

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds
Value: ARCHIVED, ARCHIVED_ACCUMULATING, IN_LIEN_RESOLUTION, IN_LIEN_RESOLUTION_ACCUMULATING, IN_PEER_REVIEW, IN_PEER_REVIEW_ACCUMULATING, IN_QUEUE, IN_QUEUE_ACCUMULATING, LOCALLY_ARCHIVED, LOCALLY_ARCHIVED_ACCUMULATING, PRE_PEER_REVIEW, PRE_PEER_REVIEW_ACCUMULATING, SAFED, SUPERSEDED

archive_status in Volume_PDS3 The ARCHIVE_STATUS attribute indicates the stage to which a data set has progressed in the archiving process, from IN QUEUE through ARCHIVED. It can also take on the values SUPERSEDED or SAFED, which indicate that the data set is not part of the active archive. ACCUMULATING can be appended to some values to indicate that the data set is incomplete and/or that not all components have reached the stage given by the root value; ACCUMULATING would be used, for example, when the archive is being delivered incrementally, as from a mission that lasts many months or years.

Type: ASCII_Short_String_Collapsed

Class Name: Volume_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Status

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: ARCHIVED, ARCHIVED_ACCUMULATING, IN_LIEN_RESOLUTION, IN_LIEN_RESOLUTION_ACCUMULATING, IN_PEER_REVIEW, IN_PEER_REVIEW_ACCUMULATING, IN_QUEUE, IN_QUEUE_ACCUMULATING, LOCALLY_ARCHIVED, LOCALLY_ARCHIVED_ACCUMULATING, PRE_PEER_REVIEW, PRE_PEER_REVIEW_ACCUMULATING, SAFED, SUPERSEDED

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archive_status_note in Volume_PDS3 The archive status note attribute provides a comment about the archive status.

_Type: ASCII_Text_Preserved

_Class Name: Volume_PDS3

_Minimum Characters: 1

_Maximum Characters: 255

_Nillable: false

_Attribute Concept: Note

_Conceptual Domain: Text

_Steward: ops

_Namespace Id: pds

associated_Special_Constants in Array The associated_Special_Constants association is a relationship to special constants.

_Type: Association

associated_Special_Constants in Field_Binary The associated_Special_Constants association is a relationship to special constants.

_Type: Association

associated_Special_Constants in Field_Bit The associated_Special_Constants association is a relationship to special constants.

_Type: Association

associated_Special_Constants in Field_Character The associated_Special_Constants association is a relationship to special constants.

_Type: Association
Type: Association

associated_Special_Constants in Field_Delimited The associated_Special_Constants association is a relationship to special constants.

Type: Association

associated_Statistics in Array The associated_Object_Statistics association is a relationship to object statistics.

Type: Association

associated_Statistics in Field_Binary The associated_Object_Statistics association is a relationship to object statistics.

Type: Association

associated_Statistics in Field_Character The associated_Object_Statistics association is a relationship to object statistics.

Type: Association

associated_Statistics in Field_Delimited The associated_Object_Statistics association is a relationship to object statistics.

Type: Association

attribute_concept in DD_Attribute_Full The attribute_concept attribute provides the type of information (classification) conveyed by the attribute – e.g., stop_date_time has attribute_concept = date_time.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Attribute_Full

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID
Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: Address, Angle, Attribute, Bit, Checksum, Collection, Constant, Cosine, Count, DOI, Delimiter, Description, Deviation, Direction, Distance, Duration, Factor, Flag, Format, Group, Home, ID, Latitude, Length, List, Location, Logical, Longitude, Mask, Maximum, Mean, Median, Minimum, Name, Note, Number, Offset, Order, Parallel, Password, Path, Pattern, Pixel, Quaternion, Radius, Ratio, Reference, Resolution, Role, Rotation, Scale, Sequence, Set, Size, Status, Summary, Syntax, Temperature, Text, Title, Type, Unit, Unknown, Value, Vector

**author_list in Software** The author_list attribute provides a list of people to be cited as the authors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as ”J.-P.” Each person’s full name is separated from the next by a semi-colon. There is no ”and” before the last name. If there is no author list, editor_list must be present and non-null.

Type: UTF8_Text_Preserved

Class Name: Software

Minimum Characters: 1

Nillable: false

Attribute Concept: List

Conceptual Domain: Text

Steward: ops

Namespace Id: pds
**author_list in Citation Information** The author_list attribute provides a list of people to be cited as the authors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person’s full name is separated from the next by a semi-colon. There is no "and" before the last name. If there is no author list, editor_list must be present and non-null.

*Type:* UTF8_Text_Preserved

*Class Name:* Citation Information

*Minimum Characters:* 1

*Nilable:* false

*Attribute Concept:* List

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**author_list in Document** The author_list attribute provides a list of people to be cited as the authors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person’s full name is separated from the next by a semi-colon. There is no "and" before the last name. If there is no author list, editor_list must be present and non-null.

*Type:* UTF8_Text_Preserved

*Class Name:* Document

*Minimum Characters:* 1
Nilable: false

Attribute Concept: List

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**axes in Array** The axes attribute provides a count of the axes.

Type: ASCII_Integer

Class Name: Array

Minimum Value: 1

Maximum Value: 16

Nilable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**axes in Array_1D** The axes attribute provides a count of the axes.

Type: ASCII_Integer

Class Name: Array_1D

Minimum Value: 1

Maximum Value: 16

Nilable: false
*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds

*Value:* 1

**axes in Array_2D** The axes attribute provides a count of the axes.

*Type:* ASCII_Integer

*Class Name:* Array_2D

*Minimum Value:* 1

*Maximum Value:* 16

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds

*Value:* 2

**axes in Array_3D** The axes attribute provides a count of the axes.

*Type:* ASCII_Integer

*Class Name:* Array_3D

*Minimum Value:* 1

*Maximum Value:* 16

*Nillable:* false
**Attribute Concept:** Count

**Conceptual Domain:** Integer

**Steward:** pds

**Namespace Id:** pds

**Value:** 3

**axis_index_order in Array** The axis_index_order attribute provides the axis index that varies fastest with respect to storage order.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Array

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Order

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** Last Index Fastest

**axis_name in Axis_Array** The axis_name attribute provides a word or combination of words by which the axis is known.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Axis_Array

**Minimum Characters:** 1
Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Schematron Rule: The name of the first axis of an Array_2D Image must be set to either Line or Sample.

Schematron Rule: The name of the second axis of an Array_2D Image must be set to either Line or Sample.

Schematron Rule: In an Array_3D Spectrum, if the axis name is ’Band’, then the Band_Bin_Set class must be present.

**band_number in Band_Bin** The band_number attribute provides a number corresponding to the band in the spectral qube. The band number is equivalent to the instrument band number.

Type: ASCII_Integer

Class Name: Band_Bin

Minimum Value: 1

Maximum Value: 512

Nillable: false

Attribute Concept: Number

Conceptual Domain: Integer

Steward: img

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*Namespace Id: pds*

**band_width in Band_Bin** The _band_width_ attributes provides the width, at half height, of the band.

*Type: ASCII_Real*

*Unit of Measure Type: Units_of_Length*

*Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm*

*Class Name: Band_Bin*

*Minimum Value: 0*

*Nillable: false*

*Conceptual Domain: Real*

*Steward: img*

*Namespace Id: pds*

**bit_fields in Packed_Data_Fields** The _bit_fields_ attribute provides the number of defined bit fields (Field.Bit definitions) within the Packed_Data_Field.

*Type: ASCII_Integer*

*Class Name: Packed_Data_Fields*

*Minimum Value: 1*

*Nillable: false*

*Attribute Concept: Count*

*Conceptual Domain: Integer*

*Steward: pds*

*Namespace Id: pds*
**bit_mask in Object_Series** The bit_mask attribute is a series of binary digits identifying the active bits in a value; it has exactly the same number of bits as the array element to which it is applied.

*Type:* ASCII_Numeric_Base2

*Class Name:* Object_Series

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Mask

*Conceptual Domain:* Numeric

*Steward:* pds

*Namespace Id:* pds

**bit_string in Digital_Object** The bit string attribute is a sequence of digital bits. It is the content of a digital object.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Digital_Object

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

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bundle_type in Bundle The bundle_type attribute provides a classification for the bundle.

Type: ASCIIShort_String_Collapsed

Class Name: Bundle

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Archive, Supplemental

center_wavelength in Band_Bin The center_wavelength attribute provides the wavelength or frequency describing the center of a bin along the band axis of a spectral cube. When describing data from a spectrometer, the value corresponds to the peak of the response function for a particular detector and/or grating position.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Band_Bin

Minimum Value: 0

Nullable: false

Conceptual Domain: Real
character_constraint in ASCII_AnyURI The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_AnyURI

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_Doi The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Doi

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Date** The character_constraint attribute limits the characters allowed.

Type: ASCIIShort_String_Collapsed

Class Name: ASCII_Date

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Date_DOY** The character_constraint attribute limits the characters allowed.

Type: ASCIIShort_String_Collapsed

Class Name: ASCII_Date_DOY

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Date_Time** The character_constraint attribute limits the characters allowed.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_Date_Time*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: ASCII*

**character_constraint in ASCII_Date_Time_DOY** The character_constraint attribute limits the characters allowed.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_Date_Time_DOY*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Conceptual Domain: Short_String*

*Steward: pds*
Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Date_Time.Utc** The character_constraint attribute limits the characters allowed.

_Type: ASCII.Short_String.Collapsed_

*Class Name:* ASCII_Date_Time.Utc

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

_NAMESPACE Id: pds

Value: ASCII

**character_constraint in ASCII_Date_Time.YMD** The character_constraint attribute limits the characters allowed.

_Type: ASCII.Short_String.Collapsed_

*Class Name:* ASCII_Date_Time.YMD

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Date_YMD** The `character_constraint` attribute limits the characters allowed.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Date_YMD

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: pds

Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Directory_Path_Name** The `character_constraint` attribute limits the characters allowed.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Directory_Path_Name

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: pds
Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_File_Name** The character_constraint attribute limits the characters allowed.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_File_Name

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_File_Specification_Name** The character_constraint attribute limits the characters allowed.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_File_Specification_Name

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

Value: ASCII

**character_constraint in ASCII,Integer** The character_constraint attribute limits the characters allowed.

*Type: ASCII,Short_String,Collapsed

*Class Name: ASCII,Integer

*Minimum Characters: 1

*Maximum Characters: 255

*Nillable: false

*Conceptual Domain: Short_String

*Steward: pds

Namespace Id: pds

**character_constraint in ASCII,LID** The character_constraint attribute limits the characters allowed.

*Type: ASCII,Short_String,Collapsed

*Class Name: ASCII,LID

*Minimum Characters: 1

*Maximum Characters: 255

*Nillable: false

*Conceptual Domain: Short_String

*Steward: pds

Namespace Id: pds
Value: ASCII

character_constraint in ASCII:LIDVID The character_constraint attribute limits the characters allowed.

Type: ASCII:Short_String:Collapsed

Class Name: ASCII:LIDVID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII:LIDVID:LID The character_constraint attribute limits the characters allowed.

Type: ASCII:Short_String:Collapsed

Class Name: ASCII:LIDVID:LID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

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Value: ASCII

character_constraint in ASCII_MD5_Checksum The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_MD5_Checksum

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_NonNegative_Integer The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_NonNegative_Integer

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
character_constraint in ASCII_Numeric_Base16  The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base16

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

character_constraint in ASCII_Numeric_Base2 The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base2

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_Numeric_Base8 The character_constraint attribute limits the characters allowed.
Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base8

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Real** The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Real

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**character_constraint in ASCII_Short_String_Collapsed** The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed
Class Name: ASCII_Short_String_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_Short_String_Preserved** The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

**character_constraint in ASCII_String** The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed
Class Name: ASCII_String

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_Text_Collapsed The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Text_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_Text_Preserved The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed
Class Name: ASCII_Text_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_Time The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Time

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

character_constraint in ASCII_VID The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed
Class Name: ASCII_VID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII

**character_constraint in Character_Data_Type** The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: Character_Data_Type

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**character_constraint in UTF8_Short_String_Collapsed** The character_constraint attribute limits the characters allowed.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_Short_String_Collapsed

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Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**character_constraint in UTF8.Short_String_Preserved** The character_constraint attribute limits the characters allowed.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: UTF8.Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**character_constraint in UTF8.Text_Preserved** The character_constraint attribute limits the characters allowed.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: UTF8.Text_Preserved

Minimum Characters: 1

Maximum Characters: 255
Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

code attribute identifies the standard that maps a set of allowed characters to their machine readable code.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_AnyURI

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: UTF-8

code attribute identifies the standard that maps a set of allowed characters to their machine readable code.

Type: ASCII_Short_String_Collapsed

Class Name: Character_Data_Type

Minimum Characters: 1

Maximum Characters: 255
Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: UTF-8

checksum_manifest_checksum in Information_Package_Component
The checksum manifest checksum provides the checksum for the checksum manifest file.

Type: ASCII_MD5_Checksum

Class Name: Information_Package_Component

Minimum Characters: 32

Maximum Characters: 32

Format: 0123456789abcdef

Nullable: false

Attribute Concept: Checksum

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

checksum_type in Information_Package_Component The checksum type attribute provides the name of the checksum algorithm used to calculate the checksum value.

Type: ASCII_Short_String_Collapsed

Class Name: Information_Package_Component
**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**citation_information in Identification_Area** The citation_information is a relationship to Citation Information, fields often used in citing the product.

**Type:** Association

**citation_text in Data_Set_PDS3** The citation_text attribute provides a character string containing a literature or other citation in sufficient detail that the material could be located in PDS or elsewhere.

**Type:** ASCII_Text_Preserved

**Class Name:** Data_Set_PDS3

**Minimum Characters:** 1

**Nillable:** false

**Attribute Concept:** Text

**Conceptual Domain:** Text

**Steward:** ops

**Namespace Id:** pds

**class_name in DD_Attribute_Full** The class_name attribute provides the common name by which the class is identified, as well as the class within which the attribute is used.
**collection_type in Collection** The `collection_type` attribute provides a classification for the collection.

*Type: ASCII Short StringCollapsed*

*Class Name: Collection*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Type*

*Conceptual Domain: Short String*

*Steward: pds*

*Namespace Id: pds*

*Value: Browse, Calibration, Context, Data, Document, Geometry, Miscellaneous, SPICE Kernel, XML Schema*
**comment in DD_Attribute** The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* DD_Attribute  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* ops  
*Namespace Id:* pds

**comment in DD_Attribute_Full** The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* DD_Attribute_Full  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* ops  
*Namespace Id:* pds

**comment in DD_Class_Full** The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.
Type: ASCII_Text_Preserved

Class Name: DD_Class_Full

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

comment in Ingest_LDD The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Ingest_LDD

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

comment in Alias The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Alias
Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**comment in Context.Area** The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Context.Area

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**comment in File** The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.

Type: ASCII_Text_Preserved

Class Name: File

Minimum Characters: 1

Nullable: false
Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**comment in Internal Reference** The comment attribute provides one or more remarks or thoughts relevant to the object.

*Type: ASCII_Text_Preserved*

*Class Name: Internal_Reference*

*Minimum Characters: 1*

*Nillable: false*

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**compile_note in Software_Source** The compile note attribute provides a brief statement giving particulars about the compilation of the software source.

*Type: ASCII_Text_Preserved*

*Class Name: Software_Source*

*Minimum Characters: 1*

*Nillable: false*

Attribute Concept: Note

Conceptual Domain: Text
conceptual_domain in DD_Value_Domain_Full The conceptual_domain attribute provides the domain to which the value has been assigned.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: Boolean, Integer, Name, Numeric, Real, Short_String, Text, Time, Type, Unknown

confidence_level_note in Data_Set_PDS3 The confidence_level_note attribute is a text field which characterizes the reliability of data within a data set or the reliability of a particular programming algorithm or software component. Essentially, this note discusses the level of confidence in the accuracy of the data or in the ability of the software to produce accurate results.

Type: ASCII_Text_Preserved

Class Name: Data_Set_PDS3

Minimum Characters: 1
constant_value in DD_Association The constant value attribute provides the value to be used if an attribute is static.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Association

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

container_type in Zip The container type attribute indicates the method used to package the components.

Type: ASCII_Short_String_Collapsed

Class Name: Zip

Minimum Characters: 1

Maximum Characters: 255
Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: GZIP, LZIP, TAR, ZIP

context_area in Product_Bundle The context_area association is a relationship to Context_Area.

Type: Association

context_area in Product_Collection The context_area association is a relationship to Context_Area.

Type: Association

context_area in Product_Document The context_area association is a relationship to Context_Area.

Type: Association

context_area in Product_SPICE_Kernel The context_area association is a relationship to Context_Area.

Type: Association

coordinate_source in Telescope The coordinate_source provides the name of the source of a set of coordinates.

Type: ASCII_Short_String_Collapsed

Class Name: Telescope

Minimum Characters: 1

Maximum Characters: 255

copyright in Document  The copyright attribute is a character string giving information about the exclusive right to make copies, license, and otherwise exploit an object, whether physical or digital.

Type: ASCII_Text_Preserved

Class Name: Document

Minimum Characters: 1

Nulllable: false

Attribute Concept: Text

Conceptual Domain: Text
Steward: pds

Namespace Id: pds

country in Facility  country

Type: ASCII_Short_String_Collapsed

Class Name: Facility

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Text

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

creation_date_time in File The creation_date_time attribute provides a date and time when the object was created.

Type: ASCII_Date_Time

Class Name: File

Format: YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)

Nillable: false

Attribute Concept: Time

Conceptual Domain: Time

Steward: pds
Namespace Id: pds

curating_node_id in Volume_PDS3 The curating_node_id attribute provides the id of the node currently maintaining the data set or volume and is responsible for maintaining catalog information.

Type: ASCII_Short_String_Collapsed

Class Name: Volume_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

data_object in DD_Attribute The data_object association is a relationship to Data Object.

Type: Association

data_object in DD_Attribute_Full The data_object association is a relationship to Data Object.

Type: Association

data_object in DD_Class The data_object association is a relationship to Data Object.

Type: Association

data_object in DD_Class_Full The data_object association is a relationship to Data Object.

Type: Association

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**data_object in Data_Set_PDS3** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Ingest_LDD** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Instrument_Host_PDS3** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Instrument_PDS3** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Mission_PDS3** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Software** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Software_Binary** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Software_Script** The data_object association is a relationship to Data Object.

*Type:* Association

**data_object in Software_Source** The data_object association is a relationship to Data Object.

*Type:* Association
**data_object in Target_PDS3**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Volume_PDS3**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Volume_Set_PDS3**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Agency**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Array**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Bundle**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Document**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Encoded_Byte_Stream**  The data_object association is a relationship to Data Object.

_Type: Association_

**data_object in Facility**  The data_object association is a relationship to Data Object.

_Type: Association_
**data_object in Field_Statistics** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in File** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Geometry** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Instrument** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Instrument_Host** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Investigation** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Node** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Object_Statistics** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Observing_System** The data_object association is a relationship to Data Object.

*Type: Association*
**data_object in Other** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in PDS_Affiliate** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in PDS_Guest** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Parsable_Byte_Stream** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Quaternion** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Resource** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Table_Base** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Target** The data_object association is a relationship to Data Object.

*Type: Association*

**data_object in Update** The data_object association is a relationship to Data Object.

*Type: Association*
**data_object in Vector**  The data_object association is a relationship to Data Object.

*Type:* Association

**data_regime - *Deprecated* in Primary_Result_Summary**  The data_regime attribute provides the wavelength (or an analogous concept for things like particle detectors) of the observations, stated as a category.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Primary_Result_Summary

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* Dust, Electric Field, Electrons, Far Infrared, Gamma Ray, Infrared, Ions, Magnetic Field, Microwave, Millimeter, Near Infrared, Particles, Pressure, Radio, Sub-Millimeter, Temperature, Ultraviolet, Visible, X-Ray

**data_set_desc in Data_Set_PDS3**  The data_set_desc attribute describes the content and type of a data set and provides information required to use the data (such as binning information).

*Type:* ASCII_Text_Preserved

*Class Name:* Data_Set_PDS3

*Minimum Characters:* 1
**Nillable:** false

**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** ops

**Namespace Id:** pds

**data_set_id in Data_Set_PDS3** The data set id provides a formal name used to refer to a data set.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Data_Set_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**data_set_name in Data_Set_PDS3** The data_set_name attribute provides the full name given to a data set or a data product. The data_set_name typically identifies the instrument that acquired the data of that instrument. Example value data_set_id. Note: This attribute is defined in the AMMOS Magellan catalog as an alias for file_name to provide backward compatibility.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Data_Set_PDS3
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

data_set_release_date in Data_Set_PDS3  The data_set_release_date attribute provides the date when a data set is released by the data producer for archive or publication. In many systems this represents the end of a proprietary or validation period. Formation rule In AMMOS identify the date at which a product may be released to the general public from proprietary access. AMMOS-related systems should apply this attribute only to proprietary data.

Type: ASCII_Short_String_Collapsed

Class Name: Data_Set_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Time

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

data_set_terse_desc in Data_Set_PDS3 A one line description of the data set
*Type:* ASCII_Text_Preserved

*Class Name:* Data_Set_PDS3

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds

**data_type in Element_Array** The data_type attribute provides the hardware representation used to store a value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Element_Array

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8
**data_type in Field_Binary** The data_type attribute provides the hardware representation used to store a value.

*Type:* ASCII, Short, String, Collapsed

*Class Name:* Field_Binary

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short, String

*Steward:* pds

*Namespace Id:* pds

*Value:* ASCII, AnyURI, ASCII, Boolean, ASCII, DOI, ASCII, Date, ASCII, Date, DOY, ASCII, Date, Time, ASCII, Date, Time, DOY, ASCII, Date, Time, UTC, ASCII, Date, Time, YMD, ASCII, Directory, Path, Name, ASCII, File, Name, ASCII, File, Specification, Name, ASCII, Integer, ASCII, LID, ASCII, LIDVID, ASCII, LIDVID, LID, ASCII, LIDVID, LID, ASCII, MD5, ASCII, Checksum, ASCII, NonNegative, Integer, ASCII, Numeric, Base16, ASCII, Numeric, Base2, ASCII, Numeric, Base8, ASCII, Real, ASCII, String, ASCII, Time, ASCII, VID, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSB, Double, IEEE754LSBSingle, IEEE754MSB, Double, IEEE754MSBSingle, SignedBit, String, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8, String, UnsignedBit, String, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8

**data_type in Field_Bit** The data_type attribute provides the hardware representation used to store a value.

*Type:* ASCII, Short, String, Collapsed
Class Name: Field_Bit

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: SignedBitString, UnsignedBitString

data_type in Field_Character The data_type attribute provides the hardware representation used to store a value.

Type: ASCII_Short_String_Collapsed

Class Name: Field_Character

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
The `data_type` attribute provides the hardware representation used to store a value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Field_Delimited

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds


**data_type in Field_Delimited**

The `data_type` attribute provides the hardware representation used to store a value.


**data_type in Quaternion_Component**

The `data_type` attribute provides the hardware representation used to store a value.
Type: ASCII

Class Name: Quaternion_Component

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ASCII_Real

data_type in Vector The data_type attribute provides the hardware representation used to store a value.

Type: ASCII

Class Name: Vector

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
Value: ASCII_Real

date_time in Update_Entry The date_time attribute provides the date and time of an event.

Type: ASCII_Date_Time

Class Name: Update_Entry

Format: YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)

Nullable: false

Attribute Concept: Time

Conceptual Domain: Time

Steward: pds

Namespace Id: pds

dd_association in DD_Class The local_association_attribute association provides a relationship to an attribute.

Type: Association

dd_association in DD_Class_Full The local_association_attribute association provides a relationship to an attribute.

Type: Association

definition in DD_Attribute The definition attribute provides a statement, picture in words, or account that defines the term.

Type: ASCII_Text_Preserved

Class Name: DD_Attribute

Minimum Characters: 1

Nullable: false
Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

definition in DD_Attribute_Full The definition attribute provides a statement, picture in words, or account that defines the term.

Type: ASCII_Text_Preserved

Class Name: DD_Attribute_Full

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

definition in DD_Class The definition attribute provides a statement, picture in words, or account that defines the term.

Type: ASCII_Text_Preserved

Class Name: DD_Class

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text
**Steward:** ops

**Namespace Id:** pds

**definition in DD_Class_Full** The definition attribute provides a statement, picture in words, or account that defines the term.

**Type:** ASCII_Text_Preserved

**Class Name:** DD_Class_Full

**Minimum Characters:** 1

**Nillable:** false

**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** ops

**Namespace Id:** pds

**definition in Terminological_Entry** The definition attribute provides a statement, picture in words, or account that defines the term.

**Type:** UTF8_Text_Preserved

**Class Name:** Terminological_Entry

**Minimum Characters:** 1

**Nillable:** false

**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** pds

**Namespace Id:** pds
**description in Information Package**  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Information_Package

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds

**description in Node**  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Node

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds

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description in PDS_Affiliate The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: PDS_Affiliate

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

description in PDS_Guest The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: PDS_Guest

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

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**description in Software**  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Software

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds

**description in Volume_PDS3**  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Volume_PDS3

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds
description in Volume_Set_PDS3  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Volume_Set_PDS3

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

description in Agency  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Agency

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds
**description in Array**  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* Array  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* pds  
*Namespace Id:* pds

**description in Bundle**  The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* Bundle  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* pds  
*Namespace Id:* pds

**description in Citation Information**  The description attribute provides a short (5KB or less) description of the product as a whole.
Type: UTF8_Text_Preserved

Class Name: Citation_Information

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

Schematron Rule: The description in Citation_Information must be greater than 1 and less than 5000 bytes (not counting spaces).

Schematron Rule: In Product_Bundle a description is required in Citation_Information.

Schematron Rule: In Product_Collection a description is required in Citation_Information.

Schematron Rule: In Product_Document a description is required in Citation_Information.

Schematron Rule: In Product_File_Text a description is required in Citation_Information.

description in Collection The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Collection

Minimum Characters: 1

Nillable: false
Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Document

The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Document

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Document_Format

The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Document_Format

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

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Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Encoded.Byte_Stream: The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Encoded.Byte_Stream

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in External_Reference: The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: External_Reference

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text
description in Facility

The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Facility

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

description in Field_Binary

The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Field_Binary

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds
**Namespace Id:** pds

**description in Field_Bit** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Field_Bit

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**description in Field_Character** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Field_Character

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds
**description in Field_Delimited** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* Field_Delimited  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* pds  
*Namespace Id:* pds

**description in Field_Statistics** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* Field_Statistics  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* pds  
*Namespace Id:* pds
**description in Instrument** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Instrument

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**description in Instrument_Host** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Instrument_Host

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds
**description in Investigation** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Investigation

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**description in Modification_Detail** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Modification_Detail

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds
**description in Object_Statistics** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* Object_Statistics  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* pds  
*Namespace Id:* pds

**description in Observing_System** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name:* Observing_System  
*Minimum Characters:* 1  
*Nillable:* false  
*Attribute Concept:* Description  
*Conceptual Domain:* Text  
*Steward:* pds  
*Namespace Id:* pds
**description in Observing System Component** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII Text Preserved

*Class Name:* Observing System Component

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**description in Other** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII Text Preserved

*Class Name:* Other

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds
**description in Packed_Data_Fields** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name: Packed_Data_Fields*  
*Minimum Characters: 1*  
*Nillable: false*  
*Attribute Concept: Description*  
*Conceptual Domain: Text*  
*Steward: pds*  
*Namespace Id: pds*

**description in Parsable_Byte_Stream** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved  
*Class Name: Parsable_Byte_Stream*  
*Minimum Characters: 1*  
*Nillable: false*  
*Attribute Concept: Description*  
*Conceptual Domain: Text*  
*Steward: pds*  
*Namespace Id: pds*
description in Primary_Result_Summary The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Short_String_Preserved

Class Name: Primary_Result_Summary

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Description

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

description in Quaternion The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Quaternion

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds
description in Quaternion_Component The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Quaternion_Component

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Resource The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Resource

Minimum Characters: 1

Nillable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds
**description in Table_Base** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Table_Base

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**description in Target** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

*Type:* ASCII_Text_Preserved

*Class Name:* Target

*Minimum Characters:* 1

*Nullable:* false

*Attribute Concept:* Description

*Conceptual Domain:* Text

*Steward:* pds

*Namespace Id:* pds

**description in Target_Identification** The description attribute provides additional information or clarification, as needed.
Type: ASCII_Text_Preserved

Class Name: Target_Identification

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Telescope The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Short_String_Collapsed

Class Name: Telescope

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds

description in Update The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Update
Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Update.Entry The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Update_Entry

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

description in Vector The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

Type: ASCII_Text_Preserved

Class Name: Vector

Minimum Characters: 1
**Nullable:** false

**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** pds

**Namespace Id:** pds

**description in Vector_Component** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

**Type:** ASCII_Text_Preserved

**Class Name:** Vector_Component

**Minimum Characters:** 1

**Nullable:** false

**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** pds

**Namespace Id:** pds

**description in Zip** The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.

**Type:** ASCII_Text_Preserved

**Class Name:** Zip

**Minimum Characters:** 1

**Nullable:** false
**Attribute Concept:** Description

**Conceptual Domain:** Text

**Steward:** pds

**Namespace Id:** pds

**detector_number in Band_Bin** The detector_number attribute provides the spectrometer detector number corresponding to a band of a spectral qube. Detector numbers are usually assigned consecutively from 1, in order of increasing wavelength.

**Type:** ASCII_Integer

**Class Name:** Band_Bin

**Minimum Value:** 1

**Nillable:** false

**Attribute Concept:** Number

**Conceptual Domain:** Integer

**Steward:** img

**Namespace Id:** pds

**directory_path_name in Document_File** The directory_path_name attribute provides a sequence of names that locates a directory in a hierarchy of directories.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Document_File

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false
Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

discipline_name in Discipline_Facets The discipline_name attribute describes the observing discipline (as opposed to a PDS Discipline Node Name, though the concepts and values are similar). Some of these values are, with respect to the PDS Nodes, inter-disciplinary and should be used when they are applicable in preference to the more restrictive values.

Type: ASCII Short_String_Collapsed

Class Name: Discipline_Facets

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds

Value: Atmospheres, Fields, Flux Measurements, Imaging, Particles, Ring-Moon Systems, Small Bodies, Spectroscopy

document_file in Document_Format_Set The document_file association is a relationship to a document file.

Type: Association

document_format in Document_Format_Set The document_format attribute associates a Document_Format with the Document_Format_Set.

Type: Association
**document_format_set in Product_Document**  The document_format_set association is a relationship to a set of one or more document formats.

*Type: Association*

**document_name in Document**  The document_title attribute provides the full name of the published document. This optional attribute is used only if the title in the identification area of the document product is not sufficient.

*Type: UTF8_Text_Preserved*

*Class Name: Document*

*Minimum Characters: 1*

*Nillable: false*

*Attribute Concept: Name*

*Conceptual Domain: Text*

*Steward: pds*

*Namespace Id: pds*

**document_standard_id in Document_File**  The document_standard_id attribute provides the formal name of a standard used for the structure of a document file.

*Type: ASCII_Short_String_Collapsed*

*Class Name: Document_File*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: ID*
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 7-Bit ASCII Text, Encapsulated Postscript, GIF, HTML 2.0, HTML 3.2, HTML 4.0, HTML 4.01, JPEG, LaTeX, Microsoft Word, PDF, PDF/A, PNG, Postscript, Rich Text, TIFF, UTF-8 Text

doi in Document
The doi attribute provides the Digital Object Identifier for an object, assigned by the appropriate DOI System Registration Agency.

Type: ASCII_Short_String_Collapsed

Class Name: Document

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: DOI

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

doi in External_Reference
The doi attribute provides the Digital Object Identifier for an object, assigned by the appropriate DOI System Registration Agency.

Type: ASCII_Short_String_Collapsed

Class Name: External_Reference

Minimum Characters: 1
domain in Science_Facets The radial "zone' or "shell' of the target for which the observations were collected or which are represented in the product(s). The value may depend on wavelength range and size of the target.

Type: ASCII.Short_String.Collapsed

Class Name: Science_Facets

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds

Value: Atmosphere, Heliosphere, Interior, Interstellar, Ionosphere, Magnetosphere, Surface

dsn_station_number in Radio_Occultation dsn_station_number identifies the receiving DSN station. Required in labels for radio occultations; not used for stellar occultations. Nullable in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Integer

Class Name: Radio_Occultation
Nillable: false

Steward: rings

Namespace Id: rings

dsn_station_number in Radio_Occultation_Support

dsn_station_number identifies the receiving DSN station. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Integer

Class Name: Radio_Occultation_Support

Nillable: false

Steward: rings

Namespace Id: rings

earth_received_start_date_time in Telemetry_Parameters

The earth_received_start_date_time attribute provides the earliest time at which any component telemetry data for a particular product was received.

Type: ASCII_Date_Time.UTC

Class Name: Telemetry_Parameters

Format:
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

Nillable: false

Attribute Concept: Time

Conceptual Domain: Time

Steward: img

Namespace Id: img
**earth_received_start_time_utc in Radio_Occlusion**

`earth_received_start_time_utc` gives the UTC time corresponding to the earliest time for the data product at which telemetry or other photons were received on Earth. Optional for occultation data. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Date_Time.UTC

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Radio_Occlusion


*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

**earth_received_stop_date_time in Telemetry_Parameters** The `earth_received_stop_date_time` attribute provides the latest time at which any component telemetry data for a particular product was received.

*Type:* ASCII_Date_Time.UTC

*Class Name:* Telemetry_Parameters


*Nillable:* false

*Attribute Concept:* Time

*Conceptual Domain:* Time
earth_received_stop_time_utc in Radio_Occultation

earth_received_stop_time_utc gives the UTC time corresponding to the latest time for the data product at which telemetry or other photons were received on Earth. Optional for occultation data. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Date_Time.UTC

Unit of Measure Type: Units_of_Time

Valid Units: day, hr, julian day, microseconds, min, ms, s, yr

Class Name: Radio_Occultation

Format:
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

Nillable: false

Steward: rings

Namespace Id: rings

editor_list in Citation_Information The editor_list attribute provides a list of people to be cited as the editors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person’s full name is separated from the next by a semi-colon. There is no "and" before the last name.

Type: UTF8_Text_Preserved

Class Name: Citation_Information

Minimum Characters: 1
 Nullable: false

Attribute Concept: List

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**editor_list in Document** The editor_list attribute provides a list of people to be cited as the editors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P.” Each person’s full name is separated from the next by a semi-colon. There is no "and" before the last name.

Type: UTF8_Text_Preserved

Class Name: Document

Minimum Characters: 1

Nullable: false

Attribute Concept: List

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**electronic_mail_address in PDS_Affiliate** The electronic mail address attribute provides a multi-part email address: the first part (the user name), which identifies a unique user, is separated by an "at sign" from the host name, which uniquely identifies the mail server.

Type: ASCII_Short_String_Collapsed
Class Name: PDS_Affiliate

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Address

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**electronic_mail_address in PDS_Guest** The electronic mail address attribute provides a multi-part email address: the first part (the user name), which identifies a unique user, is separated by an "at sign" from the host name, which uniquely identifies the mail server.

Type: ASCII_Short_String_Collapsed

Class Name: PDS_Guest

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Address

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**elements in Axis_Array** The elements attribute provides the count of the number of elements along an array axis.
Type: ASCII_Integer

Class Name: Axis_Array

Minimum Value: 1

Nullable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

encoding_standard_id in Encoded_Binary The `encoding_standard_id` attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.

Type: ASCII_Short_String_Collapsed

Class Name: Encoded_Binary

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: CCSDS Communication Protocols
encoding_standard_id in Encoded_Byte_Stream The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.

Type: ASCII Short_String_Collapsed

Class Name: Encoded_Byte_Stream

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

encoding_standard_id in Encoded_Header The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.

Type: ASCII Short_String_Collapsed

Class Name: Encoded_Header

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds
**Namespace Id:** pds

**Value:** TIFF

**encoding_standard_id in Encoded_Image** The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Encoded_Image

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**Value:** GIF, J2C, JPEG, PDF, PDF/A, PNG, TIFF

**encoding_type in SPICE_Kernel** The encoding_type attribute provides the storage format (binary or character).

*Type:* ASCII.Short_String.Collapsed

*Class Name:* SPICE_Kernel

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Steward:* pds
Namespace Id: pds

Value: Binary, Character

enumeration_flag in DD_Value_Domain

The enumeration_flag attribute indicates whether there is an enumerated set of permissible values.

Type: ASCII_Boolean

Class Name: DD_Value_Domain

Nillable: false

Attribute Concept: Flag

Conceptual Domain: Boolean

Steward: ops

Namespace Id: pds

enumeration_flag in DD_Value_Domain_Full

The enumeration_flag attribute indicates whether there is an enumerated set of permissible values.

Type: ASCII_Boolean

Class Name: DD_Value_Domain_Full

Nillable: false

Attribute Concept: Flag

Conceptual Domain: Boolean

Steward: ops

Namespace Id: pds

error_constant in Special_Constants

The error_constant attribute provides a value that indicates the original value was in error.
expected_packets in Telemetry_Parameters The expected_packets attribute provides the total number of telemetry packets which constitute a complete data product, i.e., a data product without missing data.

Type: ASCII_Integer

Class Name: Telemetry_Parameters

Minimum Value: 0

Nillable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: img

Namespace Id: img

external_reference in Observing_System_Component The external_reference association is a relationship to External_Reference.
Type: Association

**external_reference in Reference_List** The external_reference association is a relationship to External_Reference.

Type: Association

**facet1 in Group_Facet1** The facet1 attribute provides a subcategorization under the discipline name. The values are restricted according to the value of discipline name.

Type: ASCII_Short_String_Collapsed

**Class Name:** Group_Facet1

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Steward:** pds

**Namespace Id:** pds

**Value:** 2D (Spectroscopy), Color (Imaging), Color Movie (Imaging), Dust Study (Small Bodies), Dynamical Properties (Small Bodies), Electric (Fields), Electrons (Particles), Gas Study (Small Bodies), Grayscale (Imaging), Historical Reference (Small Bodies), Ions (Particles), Lightcurve (Small Bodies), Linear (Spectroscopy), Magnetic (Fields), Meteoritics (Small Bodies), Meteorology (Atmospheres), Movie (Imaging), Neutrals (Particles), Photometry (Flux Measurements), Physical Properties (Small Bodies), Polarimetry (Flux Measurements), Production Rates (Small Bodies), Ring Compositional Map (Ring-Moon Systems), Ring Occultation Profile (Ring-Moon Systems), Ring Thermal Map (Ring-Moon Systems), Satellite Astrometry (Ring-Moon Systems), Shape Model (Small Bodies), Spectral Cube (Spectroscopy), Spectral Image (Spectroscopy), Structure (Atmospheres), Tabulated (Spectroscopy), Taxonomy (Small Bodies)

**facet2 in Group_Facet2** The facet2 attribute provides a subcategorization under the discipline name. The values are restricted according to the value of discipline name.
Type: ASCII_Short_String_Collapsed

Class Name: Group_Facet2

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds

Value: Background (Fields), Cosmic Ray (Particles), Energetic (Particles), Plasma (Particles), Solar Energetic (Particles), Waves (Fields)

**field_delimiter in Table_Delimited** The *field_delimiter* attribute provides the character or characters that indicate the end of a character string.

Type: ASCII_Short_String_Collapsed

Class Name: Table_Delimited

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Delimiter

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: comma, horizontal tab, semicolon, vertical bar
field_format in Field_Binary  The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Field_Binary

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Format

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

field_format in Field_Bit  The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Field_Bit

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Format

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

field_format in Field_Character The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.

Type: ASCII_Short_String_Collapsed

Class Name: Field_Character

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Format

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

field_format in Field_Delimited The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.

Type: ASCII_Short_String_Collapsed

Class Name: Field_Delimited

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Format

Conceptual Domain: Short_String
Steward: pds

Namespace Id: pds

**field_length in Field_Binary** The field_length attribute provides the number of bytes in the field.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte

*Class Name:* Field_Binary

*Minimum Value:* 1

*Nillable:* false

*Attribute Concept:* Length

*Conceptual Domain:* Integer

Steward: pds

Namespace Id: pds

**field_length in Field_Character** The field_length attribute provides the number of bytes in the field.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte

*Class Name:* Field_Character
Minimum Value: 1

Nullable: false

Attribute Concept: Length

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

field_location in Field_Binary The field_location attribute provides the starting byte for a field within a record or group, counting from '1'.

Type: ASCII_Integer

Unit of Measure Type: Units_of_Storage

Valid Units: byte

Specified Unit Id: byte

Class Name: Field_Binary

Minimum Value: 1

Nullable: false

Attribute Concept: Location

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

field_location in Field_Character The field_location attribute provides the starting byte for a field within a record or group, counting from '1'.

Type: ASCII_Integer
Unit of Measure Type: Units_of_Storage

Valid Units: byte

Specified Unit Id: byte

Class Name: Field_Character

Minimum Value: 1

Nillable: false

Attribute Concept: Location

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

field_number in Field  The field_number attribute provides the position of a field, within a series of fields, counting from 1. If two fields within a record are physically separated by one or more groups, they have consecutive field numbers; the fields within the intervening group(s) are numbered separately. Fields within a group separated by one or more (sub)groups, will also have consecutive field numbers.

Type: ASCII_Integer

Class Name: Field

Minimum Value: 1

Nillable: false

Attribute Concept: Number

Conceptual Domain: Integer

Steward: pds
**fields in Group** The fields attribute provides a count of the total number of scalar fields directly associated with a group. Fields within (sub) groups of the group are not included in this count.

*Type:* ASCII

*Class Name:* Group

*Minimum Value:* 0

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds

**fields in Record** The fields attribute provides a count of the total number of scalar fields directly associated with a table record. Fields within groups within the record are not included in this count.

*Type:* ASCII

*Class Name:* Record

*Minimum Value:* 0

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds
file in **Product_Zipped**  The file association is a relationship to File.

*Type:* Association

**file_area in Product_File_Repository**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_Proxy_PDS3**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_Service**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_Browse**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_Bundle**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_File_Text**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_Observational**  The file_area association is a relationship to File Area

*Type:* Association

**file_area in Product_SPICE_Kernel**  The file_area association is a relationship to File Area

*Type:* Association
file_area in Product_Thumbnail  The file_area association is a relationship to File Area

Type: Association

file_area in Product_XML_Schema  The file_area association is a relationship to File Area

Type: Association

file_area_inventory in Product_Collection  The file_area association is a relationship to File Area

Type: Association

file_area_supplemental in Product_Observational  The file_area_supplemental association is a relationship to File Area Supplemental.

Type: Association

file_name in File  The file_name attribute provides the name of a file.

Type: ASCII.Short_String.Collapsed

Class Name: File

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

file_size in File  The file_size attribute provides the size of the file.
files in Software_Binary The files attribute provides the number of files.

Type: ASCII_Integer

Class Name: Software_Binary

Minimum Value: 1

Nullable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: ops

Namespace Id: pds
files in Software_Source The files attribute provides the number of files.

Type: ASCII_Integer

Class Name: Software_Script

Minimum Value: 1

Nullable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: ops

Namespace Id: pds

filter_number in Band_Bin The filter_number attribute of a spectral qube describes the physical location of a band (identified by the band_number) in a detector array. Filter 1 is on the leading edge of the array.

Type: ASCII_Integer

Class Name: Band_Bin
Minimum Value: 1

Nillable: false

Attribute Concept: Number

Conceptual Domain: Integer

Steward: img

Namespace Id: pds

**first_sampling_parameter_value in Uniformly_Sampled** The first_sampling_parameter_value element provides the first value in an ascending series and is therefore the minimum value at which a given data item was sampled.

Type: ASCII_REAL

Class Name: Uniformly_Sampled

Nillable: false

Attribute Concept: Value

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**format_type in Document_Format** The format type attribute indicates the digital format used.

Type: ASCII_SHORT_STRING_COLLAPSED

Class Name: Document_Format

Minimum Characters: 1

Maximum Characters: 255
**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** multiple file, single file

**formation_rule in DD_Value_Domain** The formation_rule attribute provides a 'user friendly' instruction for forming values.

**Type:** ASCII_Text_Collapsed

**Class Name:** DD_Value_Domain

**Minimum Characters:** 1

**Nullable:** false

**Conceptual Domain:** Text

**Steward:** ops

**Namespace Id:** pds

**formation_rule in DD_Value_Domain_Full** The formation_rule attribute provides a 'user friendly' instruction for forming values.

**Type:** ASCII_Text_Collapsed

**Class Name:** DD_Value_Domain_Full

**Minimum Characters:** 1

**Nullable:** false

**Conceptual Domain:** Text
*Steward:* ops

*Namespace Id:* pds

**formation_rule in ASCII.DOI** The formation_rule attribute provides a ‘user friendly’ instruction for forming values.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* ASCII.DOI

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* nn.nnnn/nm

**formation_rule in ASCII.Date** The formation_rule attribute provides a ‘user friendly’ instruction for forming values.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* ASCII.Date

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

364
Namespace Id: pds

Value: YYYY-MM-DD/YYYY-DOY

**formation_rule in ASCII_Date_DOY** The `formation_rule` attribute provides a ’user friendly’ instruction for forming values.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: ASCII_Date.DOY

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: pds

Namespace Id: pds

Value: YYYY-DOY

**formation_rule in ASCII_Date_Time** The `formation_rule` attribute provides a ’user friendly’ instruction for forming values.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: ASCII_Date_Time

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: pds
Namespace Id: pds

Value: YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)

**formation** _**rule in ASCII_Date_Time_DOY**_ The **formation_rule** attribute provides a 'user friendly' instruction for forming values.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* ASCII_Date_Time_DOY

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* YYYY-DOYTHH:MM:SS.SSS(Z)

**formation** _**rule in ASCII_Date_Time.UTC**_ The **formation_rule** attribute provides a 'user friendly' instruction for forming values.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* ASCII_Date_Time.UTC

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

Value:
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

formation_rule in ASCII_Date_Time_YMD The formation_rule attribute provides a 'user friendly' instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Date_Time_YMD

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: YYYY-MM-DDTHH:MM:SS.SSS(Z)

formation_rule in ASCII_Date_YMD The formation_rule attribute provides a 'user friendly' instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Date_YMD

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

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Namespace Id: pds

Value: YYYY-MM-DD

**formation_rule in ASCII_Directory_Path_Name** The formation_rule attribute provides a 'user friendly' instruction for forming values.

Type: ASCII Short String Collapsed

Class Name: ASCII Directory Path Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short String

Steward: pds

Namespace Id: pds

Value: dir1/dir2/

**formation_rule in ASCII_File_Name** The formation_rule attribute provides a 'user friendly' instruction for forming values.

Type: ASCII Short String Collapsed

Class Name: ASCII File Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short String

Steward: pds
Namespace Id: pds

Value: file_name.file_extension

**formation_rule in ASCII_File_Specification_Name** The formation_rule attribute provides a 'user friendly' instruction for forming values.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_File_Specification_Name*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Conceptual Domain: Short_String*

*Steward: pds*

Namespace Id: pds

Value: dir1/dir2/file_name.file_extension

**formation_rule in ASCII_LID** The formation_rule attribute provides a 'user friendly' instruction for forming values.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_LID*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Conceptual Domain: Short_String*

*Steward: pds*
Namespace Id: pds

Value: urn:nasa:pds:xxxx

**formation_rule in ASCII_LIDVID** The formation_rule attribute provides a 'user friendly' instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_LIDVID

Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: urn:nasa:pds:xxxx::M.n

**formation_rule in ASCII_LIDVID_LID** The formation_rule attribute provides a 'user friendly' instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_LIDVID_LID

Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Value: urn:nasa:pds:xxxx, urn:nasa:pds:xxxx::M.n

**formation_rule in ASCII_MD5_Checksum** The formation_rule attribute provides a 'user friendly' instruction for forming values.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_MD5_Checksum*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: 0123456789abcdef*

**formation_rule in ASCII_Time** The formation_rule attribute provides a 'user friendly' instruction for forming values.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_Time*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Conceptual Domain: Short_String*

*Steward: pds*
Namespace Id: pds

Value: HH:MM:SS.SSS

**formation_rule in ASCII_VID** The formation_rule attribute provides a 'user friendly' instruction for forming values.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_VID*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: M.m*

**formation_rule in Character_Data_Type** The formation_rule attribute provides a 'user friendly' instruction for forming values.

*Type: ASCII_Short_String_Collapsed*

*Class Name: Character_Data_Type*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Conceptual Domain: Short_String*

*Steward: pds*
Namespace Id: pds

**frequency_band in Radio_Occultation** frequency_band is the one or two letter identifier of the frequency band. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Short_String_Collapsed  
*Class Name:* Radio_Occultation  
*Minimum Characters:* 1  
*Maximum Characters:* 255  
*Nillable:* false  
*Steward:* rings  

Namespace Id: rings  


**frequency_band in Radio_Occultation_Support** frequency_band is the one or two letter identifier of the frequency band. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Short_String_Collapsed  
*Class Name:* Radio_Occultation_Support  
*Minimum Characters:* 1  
*Maximum Characters:* 255  
*Nillable:* false  
*Steward:* rings  

Namespace Id: rings

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**full_name in Ingest_LDD** The full_name attribute provides the complete name for a person and includes titles and suffixes.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Ingest_LDD

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

**full_name in Subscriber_PDS3** The full_name attribute provides the complete name for a person and includes titles and suffixes.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Subscriber_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short_String

*Steward:* ops
**full_name in Update_Entry** The full_name attribute provides the complete name for a person and includes titles and suffixes.

*Type:* ASCII, Short_String, Collapsed

*Class Name:* Update_Entry

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**grating_position in Band_Bin** The grating_position attribute of a spectral qube describes the grating position which corresponds to the band. Grating positions are usually assigned consecutively from 0, and increasing position causes increasing wavelength for each detector.

*Type:* ASCII, Integer

*Class Name:* Band_Bin

*Minimum Value:* 0

*Nullable:* false

*Conceptual Domain:* Integer

*Steward:* img

*Namespace Id:* pds
**group_length in Group_Field_Binary** The `group_length` attribute provides the total length, in bytes, of a repeating field and/or group structure. It is the number of bytes in the repeating fields/groups plus any embedded unused bytes that are also repeated multiplied by the number of repetitions.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte

*Class Name:* Group_Field_Binary

*Minimum Value:* 1

*Nillable:* false

*Attribute Concept:* Length

*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds

**group_length in Group_Field_Character** The `group_length` attribute provides the total length, in bytes, of a repeating field and/or group structure. It is the number of bytes in the repeating fields/groups plus any embedded unused bytes that are also repeated multiplied by the number of repetitions.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte
Class Name: Group_Field_Character

Minimum Value: 1

Nillable: false

Attribute Concept: Length

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

group_location in Group_Field_Binary The group_location attribute provides the starting position for a Group_Field_Binary within the containing Record_Binary or Group_Field_Binary class, in bytes. Location "1" denotes the first byte of the containing class.

Type: ASCII_Integer

Unit of Measure Type: Units_of_Storage

Valid Units: byte

Specified Unit Id: byte

Class Name: Group_Field_Binary

Minimum Value: 1

Nillable: false

Attribute Concept: Location

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds
**group_location in Group_Field_Character** The group_location attribute provides the starting position for a Group_Field_Character within the containing Record_Character or Group_Field_Character class, in bytes. Location "1" denotes the first byte of the containing class.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte

*Class Name:* Group_Field_Character

*Minimum Value:* 1

*Nillable:* false

*Attribute Concept:* Location

*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds

**group_number in Group** The group_number attribute provides the position of a group, within a series of groups, counting from 1. If two groups within a record are physically separated by one or more fields, they have consecutive group numbers; the intervening fields are numbered separately. Groups within a parent group, but separated by one or more fields, will also have consecutive group numbers.

*Type:* ASCII_Integer

*Class Name:* Group

*Nillable:* false

*Attribute Concept:* Number
**Conceptual Domain:** Integer

**Steward:** pds

**Namespace Id:** pds

**groups in Group** The groups attribute provides a count of the number of (sub)groups within the repeating structure of a group. (Subsub)groups within (sub)groups within the group are not included in this count.

**Type:** ASCIIInteger

**Class Name:** Group

**Minimum Value:** 0

**Nullable:** false

**Attribute Concept:** Count

**Conceptual Domain:** Integer

**Steward:** pds

**Namespace Id:** pds

**groups in Record** The groups attribute provides a count of the total number of groups directly associated with a table record. Groups within groups within the record are not included in this count.

**Type:** ASCIIInteger

**Class Name:** Record

**Minimum Value:** 0

**Nullable:** false

**Attribute Concept:** Count

**Conceptual Domain:** Integer
**Steward:** pds

**Namespace Id:** pds

**has.Axis.Array in Array** The has.Axis.Array association is a relationship to Axis.Array.

*Type:* Association

**has.Axis.Array in Array_1D** The has.Axis.Array association is a relationship to Axis.Array.

*Type:* Association

**has.Axis.Array in Array_2D** The has.Axis.Array association is a relationship to Axis.Array.

*Type:* Association

**has.Axis.Array in Array_3D** The has.Axis.Array association is a relationship to Axis.Array.

*Type:* Association


*Type:* Association

**has.Character.Field in Record_Character** The has.Character.Field association is a relationship to the field types.

*Type:* Association


*Type:* Association

**has.Delimited.Field in Record_Delimited** The has.Delimited.Field association is a relationship to field.

*Type:* Association
**has_Delimited_Field_Grouped in Group_Field_Delimited**  The
has_Delimited_Field_Grouped association is a relationship to the field
types for a group.

_Type:_ Association

**has_Discipline_Facets in Science_Facets**  The has_Discipline_Facets asso-
ciation is a relationship to Discipline_Facets.

_Type:_ Association

**has_Display_2d_IMAGE in Array_2D_IMAGE**  The display_2d_image asso-
ciation is a relationship to display_2d_image.

_Type:_ Association

**has_Display_2d_IMAGE in Array_2D_Map**  The has_Display_2d_IMAGE asso-
ciation is a relationship to Display_2d_Image.

_Type:_ Association

**has_Display_2d_IMAGE in Array_2D_Spectrum**  The
has_Display_2d_IMAGE association is a relationship to Dis-
play_2d_Image.

_Type:_ Association

**has_Element_Array in Array**  The has_Element_Array association is a
relationship to Element_Array

_Type:_ Association

**has_Field_Bit in Packed_Data_Fields**  The has_Field_Bit association is
a relationship to Field_Bits.

_Type:_ Association

**has_File in File_Area_Binary**  The has_File association is a relationship
to File.

_Type:_ Association

**has_File in File_Area_Checksum_Manifest**  The has_File association is
a relationship to File.
**Type:** Association

**has_File in File_Area_Service_Description**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Transfer_Manifest**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Browse**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Encoded_Image**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Inventory**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Observational**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Observational_Supplemental**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_SPICE_Kernel**  The has_File association is a relationship to File.

**Type:** Association

**has_File in File_Area_Text**  The has_File association is a relationship to File.
**Type:** Association

**has_File in File_Area_XML_Schema** The has_File association is a relationship to File.

**Type:** Association

**has_Group_Facet1 in Discipline_Facets** The has_Group_Facet1 association is a relationship to Group_Facet1.

**Type:** Association

**has_Group_Facet2 in Discipline_Facets** The has_Group_Facet2 association is a relationship to Group_Facet2.

**Type:** Association

**has_Group_Field_Binary in Group_Field_Binary** The has_Group_Field_Binary association is a relationship to the Group_Field_Binary.

**Type:** Association

**has_Group_Field_Character in Group_Field_Character** The has_Group_Field_Character association is a relationship to the Group_Field_Character.

**Type:** Association

**has_Information_Package_Component in Product_AIP** The has_Information_Package_Component association is a relationship to a Information_Package_Component.

**Type:** Association

**has_Information_Package_Component in Product_DIP** The has_Information_Package_Component association is a relationship to a Information_Package_Component.

**Type:** Association

**has_Information_Package_Component in Product_DIP_Deep_Archive** The has_Information_Package_Component association is a relationship to a Information_Package_Component.
Type: Association

has Information Package_Component in Product_SIP The has_Information Package_Component association is a relationship to a Information Package_Component.

Type: Association

has Packed Data_Fields in Field_Binary The has_Packed Data_Fields association is a relationship to Packed Data_Fields.

Type: Association

has Record in Table_Binary The has_Record association is a relationship to record.

Type: Association

has Record in Table_Character The has_Record association is a relationship to record.

Type: Association

has Science_Facet in Primary_Result_Summary The has_Science_Facet association is a relationship Science_Facet.

Type: Association

has Table_Field in Record_Binary The has_Table_Field association is a relationship to the field types.

Type: Association

has Transfer_Manifest in Information Package_Component The has_Transfer_Manifest association is a relationship to Transfer_Manifest.

Type: Association

has band_bin in Band_Bin_Set The has_band_bin association is a relationship to band bin.

Type: Association
has_delimited_record in Table_Delimited  The has_delimited_record
association is a relationship to record.

Type: Association

has_discipline_area in Context_Area  The has_discipline_area association is a relationship to Discipline Area.

Type: Association

has_discipline_area in Product_Context  The has_discipline_area association is a relationship to Discipline Area.

Type: Association

has_identification_area in Product  The has_identification_area association is a relationship to Identification Area.

Type: Association

has_investigation_area in Context_Area  The has_investigation_area association is a relationship to Investigation_Area.

Type: Association

has_investigation_area in Observation_Area  The has_investigation_area association is a relationship to Investigation_Area.

Type: Association

has_mission_area in Context_Area  The has_mission_area association is a relationship to Mission Area.

Type: Association

has_observing_system in Context_Area  The has_observing_system association is a relationship to Observing_System.

Type: Association

has_observing_system in Observation_Area  The has_observing_system association is a relationship to Observing_System.
Type: Association

has_primary_result_description in Context_Area The has_primary_result_description association is a relationship to Primary_Result_Description.

Type: Association

has_tagged_data_object in File_Area_Binary The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_ChecksumManifest The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Service_Description The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Transfer_Manifest The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Browse The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Encoded_Image The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association
has_tagged_data_object in File_Area_Inventory  The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Observational  The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Observational_Supplemental  The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_SPICE_Kernel  The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_Text  The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_tagged_data_object in File_Area_XML_Schema  The has_tagged_data_object association is a relationship to any tagged_digital_object or tagged_nondigital_object.

Type: Association

has_target_identification in Context_Area  The has_target_identification association is a relationship to Target_Identification.

Type: Association

has_target_identification in Observation_Area  The has_target_identification association is a relationship to Target_Identification.
Type: Association

**has_time_coordinates in Context_Area** The *has_time_coordinates* association is a relationship to *TimeCoordinates*.

Type: Association

**has_time_coordinates in Observation_Area** The *has_time_coordinates* association is a relationship to *TimeCoordinates*.

Type: Association

**has_zip in Product_Zipped** The *has_ZIP* association is a relationship to *ZIP*

Type: Association

**high_instrument_saturation in Special_Constants** The *high_instrument_saturation* attribute specifies a special value whose presence indicates the measuring instrument was saturated at the high end. The value must be less than the value of the *valid_minimum* attribute or more than the value of the *valid_maximum* attribute. Values of this attribute should be represented in the same data type as the elements in the object with which the *Special_Constants* class is associated.

Type: ASCIIShort_String_Collapsed

*Class Name*: Special_Constants

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

*Value*: -32765, 255, 3, 65534, FF7FFFFE, FFFCFFFFF
**high_representation_saturation in Special_Constants** The high_representation_saturation attribute specifies a special value whose presence indicates the true value cannot be represented in the chosen data type and length – in this case being above the allowable range – which may happen during conversion from another data type. The value must be less than the value of the valid_minimum attribute or more than the value of the valid_maximum attribute. Values of this attribute should be represented in the same data type as the elements in the object with which the Special_Constants class is associated.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Special_Constants

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* -32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF

**highest_detectable_opacity in Radio_Occlusion**

highest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the largest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

*Type:* ASCII_Real

*Class Name:* Radio_Occlusion
highest\_detectable\_opacity in Stellar\_Occultation

highest\_detectable\_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the largest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil\_reason should be ‘inapplicable’. Not intended as a value for a table field.

Type: ASCII\_Real

Class Name: Stellar\_Occultation

Nillable: false

Steward: rings

Namespace Id: rings

information\_model\_version in Identification\_Area

The information\_model\_version attribute provides the version identification of the PDS Information Model on which the label and schema are based.

Type: ASCII\_Short\_String\_Collapsed

Class Name: Identification\_Area

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1.1.0.1

install_note in Software_Script The install note attribute provides a brief statement giving particulars about the installation of the software.

Type: ASCII_Text_Preserved

Class Name: Software_Script

Minimum Characters: 1

Nillable: false

Attribute Concept: Note

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

institution_name in Node The institution name attribute provides the name of the associated institution.

Type: ASCII_Short_String_Collapsed

Class Name: Node

Minimum Characters: 1

Maximum Characters: 255

Pattern: [a-zA-Z]\{1\}([-/,.a-zA-Z0-9]*)

Nillable: false
Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**institution_name in PDS_Affiliate** The institution_name attribute provides the name of the associated institution.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* PDS_Affiliate

*Minimum Characters:* 1

*Maximum Characters:* 255

*Pattern:* [a-zA-Z]{1}([-/_.a-zA-Z0-9]*)

*Nillable:* false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**instrument_desc in Instrument_PDS3** The instrument_desc attribute describes a given instrument.

*Type:* ASCII_Text_Preserved

*Class Name:* Instrument_PDS3

*Minimum Characters:* 1

*Nillable:* false
**attribute concept**: description

**conceptual domain**: text

**steward**: ops

**namespace id**: pds

**instrument_host_desc in Instrument_Host_PDS3** The instrument_host_desc provides a description of an instrument host

**type**: ascii_text_preserved

**class name**: Instrument_Host_PDS3

**minimum characters**: 1

**nillable**: false

**attribute concept**: description

**conceptual domain**: text

**steward**: ops

**namespace id**: pds

**instrument_host_id in Instrument_Host_PDS3** The instrument_host_id attribute provides a unique identifier for the host on which an instrument is located. This host can be either a spacecraft or an earth base (e.g. earth).

**type**: ascii_short_string.Collapsed

**class name**: Instrument_Host_PDS3

**minimum characters**: 1

**maximum characters**: 255

**nillable**: false
instrument_host_name in Instrument_Host_PDS3 The instrument_host_name attribute provides the full name of the platform or facility upon which an instrument or other device is mounted. For example, the host can be a spacecraft, a ground-based telescope, or a laboratory.

Type: ASCII Short_String_Collapsed

Class Name: Instrument_Host_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

instrument_host_type in Instrument_Host_PDS3 The instrument_host_type attribute provides the type of host on which an instrument is based. For example instrument is located on a spacecraft instrument_host_type attribute would have the value SPACECRAFT.

Type: ASCII Short_String_Collapsed

Class Name: Instrument_Host_PDS3

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Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**instrument_id in Instrument_PDS3** The instrument id provides a formal name used to refer to an instrument.

Type: ASCII_Short_String_Collapsed

Class Name: Instrument_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**instrument_name in Instrument_PDS3** The instrument_name attribute provides a unique name for an instrument.

Type: ASCII_Short_String_Collapsed

Class Name: Instrument_PDS3
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**instrument_serial_number in Instrument_PDS3** The instrument serial number element provides the manufacturer’s serial number assigned to an instrument. This number may be used to uniquely identify a particular instrument for tracing its components or determining its calibration history, for example.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Instrument_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Number

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**instrument_type in Instrument_PDS3** The instrument_type attribute identifies the type of an instrument. Example values: POLARIMETER SPECTROMETER.
**Type:** ASCII Short String Collapsed

**Class Name:** Instrument_PDS3

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short String

**Steward:** ops

**Namespace Id:** pds

### instrument_version_id in Instrument_PDS3

The *Instrument_Version_Id* element identifies the specific model of an instrument used to obtain data. For example, this keyword could be used to distinguish between an engineering model of a camera used to acquire test data, and a flight model of a camera used to acquire science data during a mission.

**Type:** ASCII Short String Collapsed

**Class Name:** Instrument_PDS3

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short String

**Steward:** ops

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Namespace Id: pds

**internal_reference in DD_Attribute** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in DD_Class** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Information_Package_Component** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Product_Zipped** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Investigation_Area** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Observing_System_Component** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Reference_List** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Target_Identification** The internal_reference association is a relationship to Internal_Reference.

*Type: Association*

**internal_reference in Update_Entry** The internal_reference association is a relationship to Internal_Reference.
**invalid_constant in Special_Constants** The `invalid_constant` attribute provides a value that indicates the original value was outside the valid range for the parameter.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Special_Constants

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Constant

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**kernel_type in SPICE_Kernel** The `kernel_type` attribute identifies the type of SPICE kernel.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* SPICE_Kernel

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

Value: CK, DBK, DSK, EK, FK, IK, LSK, MK, PCK, SCLK, SPK

**keyword in Citation Information** The keyword attribute provides one or more words to be used for keyword search.

*Type: UTF8 Short String Collapsed*

*Class Name: Citation Information*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Text*

*Conceptual Domain: Short String*

*Steward: pds*

*Namespace Id: pds*

**language in Terminological Entry** The language attribute provides the language used for definition and designation of the term.

*Type: ASCII Short String Collapsed*

*Class Name: Terminological Entry*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Text*

*Conceptual Domain: Short String*
Steward: pds

Namespace Id: pds

Value: English, Russian

**last_modification_date_time in Ingest_LDD** The last_modification_date_time attribute gives the most recent date and time that a change was made.

*Type:* ASCII_Date_Time_YMD

*Class Name:* Ingest_LDD

*Format:* YYYY-MM-DDTHH:MM:SS.SSS(Z)

*Nillable:* false

*Attribute Concept:* Time

*Conceptual Domain:* Time

Steward: ops

Namespace Id: pds

**last_sampling_parameter_value in Uniformly_Sampled** The last_sampling_parameter_value element provides the last value in an ascending series and is therefore the maximum value at which a given data item was sampled.

*Type:* ASCII_Real

*Class Name:* Uniformly_Sampled

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Real

Steward: pds
Namespace Id: pds

**ldd_version_id in Ingest_LDD** The ldd_version_id attribute provides the version of the Local Data Dictionary.

*Type*: ASCII, Short_String, Collapsed

*Class Name*: Ingest_LDD

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: ID

*Conceptual Domain*: Short_String

*Steward*: ops

Namespace Id: pds

**ldd_version_id in XML_Schema** The ldd_version_id attribute provides the version of the Local Data Dictionary.

*Type*: ASCII, Short_String, Collapsed

*Class Name*: XML_Schema

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Steward*: pds

Namespace Id: pds

**lid_reference in Bundle_Member_Entry** The lid_reference attribute provides the logical_identifier for a product.
Type: ASCII_LID

Class Name: Bundle Member Entry

Minimum Characters: 14

Maximum Characters: 255

Format: urn:nasa:pds:xxxx

Nillable: false

Attribute Concept: Reference

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**lid_reference in Internal Reference** The `lid_reference` attribute provides the logical identifier for a product.

Type: ASCII_LID

Class Name: Internal Reference

Minimum Characters: 14

Maximum Characters: 255

Format: urn:nasa:pds:xxxx

Nillable: false

Attribute Concept: Reference

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Schematron Rule: The number of colons found in the lid_reference is valid.

Schematron Rule: The value of the attribute lid_reference must start with 'urn:nasa:pds:

Schematron Rule: The value of the attribute lid_reference must not include a value that contains '::' followed by version id

Schematron Rule: The value of the attribute lid_reference must not include a value that contains '::' followed by version id

Schematron Rule: The number of colons found in lid_reference is validated.

Schematron Rule: The value of the attribute lid_reference must start with 'urn:nasa:pds:

**lidvid_reference in Bundle_Member_Entry** The lidvid_reference attribute provides the logical_identifier plus version_id, which uniquely identifies a product.

*Type:* ASCII_LIDVID

*Class Name:* Bundle_Member_Entry

*Minimum Characters:* 19

*Maximum Characters:* 255

*Format:* urn:nasa:pds:xxxx::M.n

*Nillable:* false

*Attribute Concept:* Reference

*Conceptual Domain:* Short_String

*Steward:* pds
**Namespace Id:** pds

**lidvid_reference in Internal_Reference** The `lidvid_reference` attribute provides the logical identifier plus version id, which uniquely identifies a product.

**Type:** ASCII_LIDVID

**Class Name:** Internal_Reference

**Minimum Characters:** 19

**Maximum Characters:** 255

**Format:** urn:nasa:pds:xxxx::M.n

**Nillable:** false

**Attribute Concept:** Reference

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Schematron Rule:** The number of colons found in the `lidvid_reference` is valid.

**Schematron Rule:** The value of the attribute `lidvid_reference` must start with 'urn:nasa:pds:'

**Schematron Rule:** The value of the attribute `lidvid_reference` must include a value that contains '::' followed by version id

**Schematron Rule:** The number of colons found in `lidvid_reference` is validated.

**Schematron Rule:** The value of the attribute `lidvid_reference` must start with 'urn:nasa:pds:'
**Schematron Rule:** The value of the attribute lidvid_reference must include a value that contains '::' followed by version id.

**light_source_incidence_angle in Radio_Occultation**

Light source incidence angle is an angle measured from the local surface normal vector to the direction of a photon arriving from the light source. For rings, the normal vector is that on the same side of the rings as the light source, so values always range between 0 and 90 in units of degrees. The value is always equal to 90 - \( \frac{\text{observed_rings_elevation}}{\text{degrees}} \) This will enable users to perform database searches based on the effective ring opening angle when they are not concerned about the distinction between north-side and southside viewpoints. We have included the 'light source' prefix to the term so that this quantity is not confused with 'incidence angle', a term that is generally associated with sunlight rather than stars or radio transmitters. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label. Optional as a field in the data table. Nillable, in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Angle

*Valid Units:* arcmin, arcsec, deg, hr, mrad, rad

*Class Name:* Radio_Occultation

*Minimum Value:* -90

*Maximum Value:* 90

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

**light_source_incidence_angle in Stellar_Occultation**

Light source incidence angle is an angle measured from the local surface normal vector to the direction of a photon arriving from
the light source. For rings, the normal vector is that on the same side of the rings as the light source, so values always range between 0 and 90 in units of degrees. The value is always equal to 90 - |observed_ring_elevation| This will enable users to perform database searches based on the effective ring opening angle when they are not concerned about the distinction between north-side and southside viewpoints. We have included the 'light source' prefix to the term so that this quantity is not confused with 'incidence angle', a term that is generally associated with sunlight rather than stars or radio transmitters. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label. Optional as a field in the data table. Nillable, in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Stellar_Occultation

Minimum Value: -90

Maximum Value: 90

Nullable: false

Steward: rings

Namespace Id: rings

**line_display_direction in Display_2D_Image** The line_direction element is the preferred orientation of lines within an image for viewing on a display device. Note that if this keyword is present in a label, the sample_direction_keyword keyword must also be present and must contain a value orthogonal to the value selected for this keyword.

Type: ASCII_Short_String_Collapsed

Class Name: Display_2D_Image
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Direction

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Down, Up

**local_attribute in Ingest_LDD** The local_attribute association is a relationship to Local_Attribute.

Type: Association

**local_class in Ingest_LDD** The local_class association is a relationship to Local_Class.

Type: Association

**local_identifier in DD_Association** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

Type: ASCII_Short_String_Collapsed

**Class Name:** DD_Association

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String
local_identifier in DD_Attribute  The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Attribute

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

local_identifier in DD_Attribute_Full  The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Attribute_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds
Namespace Id: pds

**local_identifier in DD_Class** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: DD_Class

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: ops

Namespace Id: pds

**local_identifier in DD_Class_Full** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: DD_Class_Full

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Conceptual Domain*: Short_String

*Steward*: ops

Namespace Id: pds

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**local_identifier in Subscriber_PDS3** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Subscriber_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

**local_identifier in Axis_Array** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Axis_Array

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Steward:* pds

*Namespace Id:* pds

**local_identifier in Byte_Stream** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.
**local_identifier in Field_Statistics** The `local_identifier` attribute provides a character string which uniquely identifies the containing object within the label.

- **Type**: ASCII, Short, String, Collapsed
- **Class Name**: Field_Statistics
- **Minimum Characters**: 1
- **Maximum Characters**: 255
- **Nillable**: false
- **Conceptual Domain**: Short, String
- **Steward**: pds
- **Namespace Id**: pds

**local_identifier in File** The `local_identifier` attribute provides a character string which uniquely identifies the containing object within the label.

- **Type**: ASCII, Short, String, Collapsed
- **Class Name**: File
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**local_identifier in Geometry** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

Type: ASCII_Short_String_Collapsed

Class Name: Geometry

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**local_identifier in Object_Statistics** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

Type: ASCII_Short_String_Collapsed

Class Name: Object_Statistics

Minimum Characters: 1
Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**local_identifier in Quaternion** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

*Type: ASCII_Short_String_Collapsed*

*Class Name: Quaternion*

*Minimum Characters: 1*

*Maximum Characters: 255*

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**local_identifier in Update** The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.

*Type: ASCII_Short_String_Collapsed*

*Class Name: Update*

*Minimum Characters: 1*

*Maximum Characters: 255*
Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**local_identifier in Vector** The `local_identifier` attribute provides a character string which uniquely identifies the containing object within the label.

Type: ASCIIShort_String_Collapsed

Class Name: Vector

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**local_internal_reference in Array** The `local_internal_reference` association is a relationship to the class Local_Internal_Reference.

Type: Association

**local_mean_solar_time in Time_Coordinates** The `local_mean_solar_time` attribute provides the hour angle of the fictitious mean Sun at a fixed point on a rotating solar system body.

Type: ASCIIShort_String_Collapsed

Class Name: Time_Coordinates

Minimum Characters: 8
**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Time

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**local_true_solar_time in Time_Coordinates** The `local_true_solar_time` (LTST) attribute provides the local time on a rotating solar system body where LTST is 12 h at the sub-solar point (SSP) and increases 1 h for each 15 degree increase in east longitude away from the SSP for prograde rotation.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Time_Coordinates

**Minimum Characters:** 8

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Time

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**logical_identifier in Identification_Area** A logical identifier identifies the set of all versions of an object. It is an object identifier without a version.

**Type:** ASCII_Short_String_Collapsed
Class Name: Identification_Area

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Schematron Rule: In the number of colons found in logical_identifier is validated.

Schematron Rule: The attribute pds:product_class must match parent product class name.

Schematron Rule: The value of the attribute logical_identifier must only contain lower-case letters'

Schematron Rule: The value of the attribute logical_identifier must start with 'urn:nasa:pds:'

Schematron Rule: The value of the attribute logical_identifier must not include a value that contains '::'

Schematron Rule: In Product_Bundle the number of colons in logical_identifier is valid.

Schematron Rule: In Product_Collection, the number of colons found in logical_identifier is validated.

low_instrument_saturation in Special_Constants The
low_instrument_saturation attribute specifies a special value whose presence indicates the measuring instrument was saturated at the low end. The value must be less than the value of the valid_minimum attribute. Values of this attribute should be represented in the same data_type as the elements in the object with which the Special_Constants class is associated.
Type: ASCII_Short_String_Collapsed

Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: -32766, 0, 2, FF7FFFFD, FFFDFFFF

**low_representation_saturation in Special_Constants** The low_representation_saturation attribute specifies a special value whose presence indicates the true value cannot be represented in the chosen data type and length – in this case being below the allowable range – which may happen during conversion from another data type. The value must be less than the value of the valid_minimum attribute. Values of this attribute should be represented in the same data_type as the elements in the object with which the Special_Constants class is associated.

Type: ASCII_Short_String_Collapsed

Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Value: -32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#

**lowest_detectable_opacity in Radio_Occlusion**

lowest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the smallest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

**Type:** ASCII_Real

**Class Name:** Radio_Occlusion

**Nillable:** false

**Steward:** rings

Namespace Id: rings

**lowest_detectable_opacity in Stellar_Occlusion**

lowest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the smallest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

**Type:** ASCII_Real

**Class Name:** Stellar_Occlusion

**Nillable:** false

**Steward:** rings
Namespace Id: rings

**maximum in Field_Statistics** The maximum attribute provides the largest stored value which appears in the field over all records (empty fields and Special_Constants values are excluded).

*Type*: ASCII_Real

*Class Name*: Field_Statistics

*Nullable*: false

*Attribute Concept*: Number

*Conceptual Domain*: Real

*Steward*: pds

*Namespace Id*: pds

**maximum in Object_Statistics** The maximum attribute provides the largest value which appears in the stored array after application of any bit mask (Special_Constants values are excluded).

*Type*: ASCII_Real

*Class Name*: Object_Statistics

*Nullable*: false

*Attribute Concept*: Number

*Conceptual Domain*: Real

*Steward*: pds

*Namespace Id*: pds

**maximum_characters in DD_Value_Domain** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.
**Type:** ASCII_Short_String_Collapsed

**Class Name:** DD_Value_Domain

**Minimum Characters:** 1

**Maximum Characters:** 255

** Nullable:** false

**Attribute Concept:** Count

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**maximum_characters in DD_Value_Domain_Full** The `maximum_characters` attribute provides the upper, inclusive bound on the number of characters.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** DD_Value_Domain_Full

**Minimum Characters:** 1

**Maximum Characters:** 255

** Nullable:** false

**Attribute Concept:** Count

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds
**maximum_characters in ASCII AnyURI** The `maximum_characters` attribute provides the upper, inclusive bound on the number of characters.

*Type:* ASCII Short_String_Collapsed

*Class Name:* ASCII AnyURI

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**maximum_characters in ASCII DOI** The `maximum_characters` attribute provides the upper, inclusive bound on the number of characters.

*Type:* ASCII Short_String_Collapsed

*Class Name:* ASCII DOI

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

**maximum_characters in ASCII_Date** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Date

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

Namespace Id: pds

**maximum_characters in ASCII_Date_DOY** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Date_DOY

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String
**Steward:** pds

**Namespace Id:** pds

**maximum_characters in ASCII_Date_Time** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Count

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**maximum_characters in ASCII_Date_Time_DOY** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time_DOY

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Count
**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**maximum_characters in ASCII_Date_Time.Utc** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time.Utc

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Count

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**maximum_characters in ASCII_Date_Time.YMD** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time.YMD

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false
Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**maximum_characters in ASCII_Date_YMD** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Date_YMD

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**maximum_characters in ASCII_Directory_Path_Name** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Directory_Path_Name

Minimum Characters: 1

Maximum Characters: 255
Nilable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

**maximum_characters in ASCII_File_Name** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_File_Name*

*Minimum Characters: 1*

*Maximum Characters: 255*

Nilable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

**maximum_characters in ASCII_File_Specification_Name** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type: ASCII_Short_String_Collapsed*
Class Name: ASCII_File_Specification_Name

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

**maximum_characters in ASCII_Integer** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Integer

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
maximum_characters in ASCII_LID The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII Short String Collapsed

Class Name: ASCII_LID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short String

Steward: pds

Namespace Id: pds

Value: 255

maximum_characters in ASCII_LIDVID The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII Short String Collapsed

Class Name: ASCII_LIDVID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short String
maximum_characters in ASCII_LIDVID_LID The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_LIDVID_LID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

maximum_characters in ASCII_MD5_Checksum The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_MD5_Checksum

Minimum Characters: 1

Maximum Characters: 255
Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 32

**maximum_characters in ASCII_NonNegative_Integer** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_NonNegative_Integer

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**maximum_characters in ASCII_Numeric_Base16** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base16

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Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Numeric_Base2

Class Name: ASCII_Numeric_Base2

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255
**maximum_characters in ASCII_Numeric_Base8** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type: ASCIIShort_String_Collapsed*

*Class Name: ASCII_Numeric_Base8*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Count*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: 255*

**maximum_characters in ASCII_Real** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type: ASCIIShort_String_Collapsed*

*Class Name: ASCII_Real*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Count*

*Conceptual Domain: Short_String*
maximum_characters in ASCII_Short_String_Collapsed The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Short_String_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

maximum_characters in ASCII_Short_String_Preserved The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false
Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

maximum_characters in ASCII_Text_Collapsed The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Text_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

maximum_characters in ASCII_Text_Preserved The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Text_Preserved

Minimum Characters: 1

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Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**maximum_characters in ASCII_Time** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Time

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**maximum_characters in ASCII_VID** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_VID
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 100

**maximum_characters in Character_Data_Type** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: Character_Data_Type

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**maximum_characters in UTF8_Short_String_Collapsed** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.
Type: ASCII.Short_String.Collapsed

Class Name: UTF8.Short_String.Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 255

**maximum_characters in UTF8.Short_String_Preserved** The maximum_characters attribute provides the upper, inclusive bound on the number of characters.

Type: ASCII.Short_String.Collapsed

Class Name: UTF8.Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

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**Value:** 255

**maximum_characters in UTF8_Text_Preserved** The `maximum_characters` attribute provides the upper, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* UTF8_Text_Preserved

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**maximum_field_length in Field_Delimited** The `maximum_field_length` attribute sets an upper, inclusive bound on the number of bytes in the field.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte

*Class Name:* Field_Delimited

*Minimum Value:* 1

*Nillable:* false
Attribute Concept: Length

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**maximum_light_source_incidence_angle in Radio_Occultation**

maximum_light_source_incidence_angle specifies the largest value for observed_ring_elevation in the observation. Only used if the value is not constant over the observation. Values range from 0 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'.

*Type: ASCII_Real*

*Unit of Measure Type: Units_of_Angle*

*Valid Units: arcmin, arcsec, deg, hr, mrad, rad*

*Class Name: Radio_Occultation*

*Minimum Value: 0*

*Maximum Value: 90*

*Nillable: false*

*Steward: rings*

*Namespace Id: rings*

**maximum_observed_event_time in Radio_Occultation_Support**

maximum_observed_event_time indicates the value for latest time in the described data, and is given in observed_event_tdb format.

*Type: ASCII_Real*

*Unit of Measure Type: Units_of_Time*

*Valid Units: day, hr, julian day, microseconds, min, ms, s, yr*
Class Name: Radio_Occultation_Support

Nillable: false

Steward: rings

Namespace Id: rings

maximum_observed_ring_azimuth in Radio_Occultation

maximum_observed_ring_azimuth specifies the largest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Radio_Occultation

Minimum Value: 0

Maximum Value: 360

Nillable: false

Steward: rings

Namespace Id: rings

maximum_observed_ring_azimuth in Stellar_Occultation

maximum_observed_ring_azimuth specifies the largest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real
**Unit of Measure Type:** Units_of_Angle

**Valid Units:** arcmin, arcsec, deg, hr, mrad, rad

**Class Name:** Stellar_Occultation

**Minimum Value:** 0

**Maximum Value:** 360

**Nillable:** false

**Steward:** rings

**Namespace Id:** rings

**maximum_observed_ring_elevation in Radio_Occultation**

maximum_observed_ring_elevation specifies the largest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to 90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'.

**Type:** ASCII_Real

**Unit of Measure Type:** Units_of_Angle

**Valid Units:** arcmin, arcsec, deg, hr, mrad, rad

**Class Name:** Radio_Occultation

**Minimum Value:** -90

**Maximum Value:** 90

**Nillable:** false

**Steward:** rings

**Namespace Id:** rings
**maximum_observed_ring_elevation in Stellar_Occultation**

maximum_observed_ring_elevation specifies the largest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to 90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'.

*Type: ASCII_REAL*

*Unit of Measure Type: Units_of_Angle*

*Valid Units: arcmin, arcsec, deg, hr, mrad, rad*

*Class Name: Stellar_Occultation*

*Minimum Value: -90*

*Maximum Value: 90*

*Nillable: false*

*Steward: rings*

*Namespace Id: rings*

**maximum_occurrences in DD_Association** The maximum occurrences attribute indicates the number of times something may occur. It is also called the maximum cardinality. The asterisk character is used as a value to indicate that no upper bound exists.

*Type: ASCII_SHORT_STRING_COLLAPSED*

*Class Name: DD_Association*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Count*
Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**maximum_occurrences in DD_Association_External** The maximum occurrences attribute indicates the number of times something may occur. It is also called the maximum cardinality. The asterisk character is used as a value to indicate that no upper bound exists.

*Type:* ASCII Short_String_Collapsed

*Class Name:* DD_Association_External

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**maximum_radial_sampling_interval in Radio_Occultation**

maximum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Length

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Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Radio_Occultation

Nillable: false

Steward: rings

Namespace Id: rings

**maximum_radial_sampling_interval in Stellar_Occultation**

maximum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Stellar_Occultation

Nillable: false

Steward: rings

Namespace Id: rings

**maximum_record_length in Record_Delimited**

The maximum_record_length attribute provides the maximum length of a record, including the record delimiter.

Type: ASCII_Integer

Unit of Measure Type: Units_of_Storage

Valid Units: byte
Specified Unit Id: byte

Class Name: Record_Delimited

Minimum Value: 1

Nullable: false

Attribute Concept: Length

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**maximum_ring_longitude in Radio_Occultation**

maximum_ring_longitude specifies one boundary for the ring longitude range in the data; normally the largest value. However, for ranges that cross the prime meridian, the maximum ring longitude will have a value less than the minimum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Radio_Occultation

Minimum Value: 0

Maximum Value: 360

Nullable: false

Steward: rings

Namespace Id: rings
maximum\_ring\_longitude in Stellar\_Occultation

maximum\_ring\_longitude specifies one boundary for the ring longitude range in the data; normally the largest value. However, for ranges that cross the prime meridian, the maximum ring longitude will have a value less than the minimum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil\_reason should be 'inapplicable'.

Type: ASCII\_Real

Unit of Measure Type: Units\_of\_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Stellar\_Occultation

Minimum Value: 0

Maximum Value: 360

Nillable: false

Steward: rings

Namespace Id: rings

maximum\_ring\_radius in Radio\_Occultation maximum\_ring\_radius indicates the largest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil\_reason should be 'inapplicable'.

Type: ASCII\_Real

Unit of Measure Type: Units\_of\_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Radio\_Occultation

Nillable: false
**Steward:** rings

**Namespace Id:** rings

**maximum_ring_radius in Stellar_Occultation** maximum_ring_radius indicates the largest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be ‘inapplicable’.

**Type:** ASCII_Real

**Unit of Measure Type:** Units_of_Length

**Valid Units:** AU, Angstrom, cm, km, m, micrometer, mm, nm

**Class Name:** Stellar_Occultation

**Nillable:** false

**Steward:** rings

**Namespace Id:** rings

**maximum_scaled_value in Object_Statistics** The maximum_scaled_value attribute provides the maximum value after application of scaling_factor and value_offset (see their definitions; maximum_scaled_value is the maximum of Ov).

**Type:** ASCII_Real

**Class Name:** Object_Statistics

**Nillable:** false

**Attribute Concept:** Number

**Conceptual Domain:** Real

**Steward:** pds

**Namespace Id:** pds
**maximum_value in DD_Value_Domain** The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type:* ASCII\_Short\_String\_Collapsed

*Class Name:* DD\_Value\_Domain

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short\_String

*Steward:* ops

*Namespace Id:* pds

**maximum_value in DD_Value_Domain\_Full** The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type:* ASCII\_Short\_String\_Collapsed

*Class Name:* DD\_Value\_Domain\_Full

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short\_String

*Steward:* ops

*Namespace Id:* pds
**maximum_value in ASCII_Date_Time** The maximum_value attribute provides the upper, inclusive bound on the value.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* ASCII_Date_Time

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**maximum_value in ASCII_Date_Time_DOY** The maximum_value attribute provides the upper, inclusive bound on the value.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* ASCII_Date_Time_DOY

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

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**maximum_value in ASCII_Date_Time.Utc** The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type*: ASCII.Short.String.Collapsed

*Class Name*: ASCII_Date_Time.UTC

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short.String

*Steward*: pds

*Namespace Id*: pds

**maximum_value in ASCII_Date_Time.YMD** The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type*: ASCII.Short.String.Collapsed

*Class Name*: ASCII_Date_Time.YMD

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short.String

*Steward*: pds

*Namespace Id*: pds
**maximum_value in ASCIIInteger** The `maximum_value` attribute provides the upper, inclusive bound on the value.

- **Type:** ASCIIShort_String_Collapsed
- **Class Name:** ASCIIInteger
- **Minimum Characters:** 1
- **Maximum Characters:** 255
- **Nillable:** false
- **Attribute Concept:** Value
- **Conceptual Domain:** Short_String
- **Steward:** pds
- **Namespace Id:** pds

**maximum_value in ASCII_LID** The `maximum_value` attribute provides the upper, inclusive bound on the value.

- **Type:** ASCIIShort_String_Collapsed
- **Class Name:** ASCII_LID
- **Minimum Characters:** 1
- **Maximum Characters:** 255
- **Nillable:** false
- **Attribute Concept:** Value
- **Conceptual Domain:** Short_String
- **Steward:** pds
- **Namespace Id:** pds

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maximum_value in ASCII_NonNegative_Integer The maximum_value attribute provides the upper, inclusive bound on the value.

Type: ASCII.Short_String.Collapsed

Class Name: ASCII_NonNegative_Integer

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

maximum_value in ASCII_Numeric_Base16 The maximum_value attribute provides the upper, inclusive bound on the value.

Type: ASCII.Short_String.Collapsed

Class Name: ASCII_Numeric_Base16

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
**maximum_value in ASCII_Numeric_Base2**  The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Numeric_Base2

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

**maximum_value in ASCII_Real**  The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Real

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds
maximum_value in ASCII_Short_String_Collapsed The maximum_value attribute provides the upper, inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Short_String_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

maximum_value in ASCII_Short_String_Preserved The maximum_value attribute provides the upper, inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

**maximum_value in ASCII_Text_Preserved** The maximum_value attribute provides the upper, inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Text_Preserved

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

Namespace Id: pds

**maximum_value in ASCII_Time** The maximum_value attribute provides the upper, inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Time

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

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Namespace Id: pds

**maximum_value in ASCII_VID** The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type: ASCII Short String_Collapsed*

*Class Name: ASCII_VID*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Value*

*Conceptual Domain: Short String*

*Steward: pds*

Namespace Id: pds

**maximum_value in Character_Data_Type** The `maximum_value` attribute provides the upper, inclusive bound on the value.

*Type: ASCII Short String_Collapsed*

*Class Name: Character_Data_Type*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Value*

*Conceptual Domain: Short String*

*Steward: pds*
Namespace Id: pds

**maximum_value in UTF8_Short_String_Collapsed** The maximum_value attribute provides the upper, inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* UTF8_Short_String_Collapsed

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**maximum_value in UTF8_Short_String_Preserved** The maximum_value attribute provides the upper, inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* UTF8_Short_String_Preserved

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

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maximum_value in UTF8_Text_Preserved

The maximum_value attribute provides the upper, inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_Text_Preserved

Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

maximum_wavelength in Radio_Occultation

maximum_wavelength is the largest wavelength used in the observation. Optional in labels. Used with minimum_wavelength when the observation is over a wavelength range. Nullable in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Radio_Occultation

Nullable: false

Steward: rings

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Namespace Id: rings

**maximum_wavelength in Stellar_Occultation** maximum_wavelength is the largest wavelength used in the observation. Optional in labels. Used with minimum_wavelength when the observation is over a wavelength range. Nullable in which case the nil_reason should be 'inapplicable'.

*Type: ASCII_Real*

*Unit of Measure Type: Units_of_Length*

*Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm*

*Class Name: Stellar_Occultation*

*Nullable: false*

*Steward: rings*

*Namespace Id: rings*

**md5_checksum in File** The md5_checksum attribute is the 32-character hexadecimal number computed for a file using the MD5 algorithm.

*Type: ASCII_MD5_Checksum*

*Class Name: File*

*Minimum Characters: 32*

*Maximum Characters: 32*

*Format: 0123456789abcdef*

*Pattern: ([a-f0-9]{32})*

*Nullable: false*

*Attribute Concept: Checksum*

*Conceptual Domain: Short_String*
Steward: pds
Namespace Id: pds

**md5_checksum in Object_Statistics** The md5_checksum attribute is the 32-character hexadecimal number computed for a file using the MD5 algorithm.

*Type:* ASCII_MD5_Checksum

*Class Name:* Object_Statistics

*Minimum Characters:* 32

*Maximum Characters:* 32

*Format:* 0123456789abcdef

*Pattern:* ([a-f0-9]{32})

* Nullable: false

*Attribute Concept:* Checksum

*Conceptual Domain:* Short_String

Steward: pds
Namespace Id: pds

**mean in Field_Statistics** The mean attribute provides the sum of the stored field values divided by the number of values in all records (empty fields and Special_Consstants values are excluded from both the sum and the count).

*Type:* ASCII_Real

*Class Name:* Field_Statistics

*Nullable: false*

*Attribute Concept:* Number
Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**mean in Object_Statistics** The mean attribute provides the sum of the stored array element values (after application of any bit mask) divided by the number of elements (Special_Constants values are excluded from both the sum and the count).

Type: ASCII_Real

Class Name: Object_Statistics

Nilable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**median in Field_Statistics** The median attribute provides the number separating the larger half of stored field values from the algebraically smaller half over all records (empty fields and Special_Constants values are excluded from the sort).

Type: ASCII_Real

Class Name: Field_Statistics

Nilable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds
.median in Object_Statistics The median attribute provides the number separating the larger half of stored array element values from the algebraically smaller half after application of any bit mask (Special_Constants values are excluded from the sort).

Type: ASCII_Real

Class Name: Object_Statistics

Nullable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

medium_type in NSSDC The medium_type attribute identifies the physical storage medium for a data volume. Examples: CD-ROM, CARTRIDGE TAPE.

Type: ASCII_Short_String_Collapsed

Class Name: NSSDC

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds
**medium_type in Volume_PDS3** The medium_type attribute identifies the physical storage medium for a data volume. Examples: CD-ROM, CARTRIDGE TAPE.

*Type:* ASCIIShort_StringCollapsed

*Class Name:* Volume_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

**member_entry in Product_Bundle** The member_entry association is a relationship to Member_Entry.

*Type:* Association

**member_status in Bundle_Member_Entry** The member_status attribute indicates whether the collection is primary and whether the file_specification_name has been provided for the product_collection label.

*Type:* ASCIIShort_StringCollapsed

*Class Name:* Bundle_Member_Entry

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false
Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Primary, Secondary

**minimum in Field_Statistics** The minimum attribute provides the algebraically smallest stored value which appears in the field over all records (empty fields and SpecialConstants values are excluded).

Type: ASCII_Real

Class Name: Field_Statistics

Nullable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**minimum in Object_Statistics** The minimum attribute provides the algebraically smallest value which appears in the stored array after application of any bit mask (SpecialConstants values are excluded).

Type: ASCII_Real

Class Name: Object_Statistics

Nullable: false

Attribute Concept: Number

Conceptual Domain: Real
minimum_characters in DD_Value_Domain  The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

minimum_characters in DD_Value_Domain_Full  The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain_Full

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count
Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**minimum_characters in ASCII<AnyURI** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII*Short_*String*Collapsed

*Class Name: ASCII*AnyURI*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Count*

*Conceptual Domain: Short_*String*

*Steward: pds*

*Namespace Id: pds*

**minimum_characters in ASCII*DOI** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII*Short_*String*Collapsed

*Class Name: ASCII*DOI*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*
**Attribute Concept:** Count

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**minimum_characters in ASCII_Date** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Date

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

**Attribute Concept:** Count

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**minimum_characters in ASCII_Date_DOY** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Date_DOY

*Minimum Characters:* 1

*Maximum Characters:* 255
**Nullable**: false

**Attribute Concept**: Count

**Conceptual Domain**: Short_String

**Steward**: pds

**Namespace Id**: pds

**minimum_characters in ASCII_Date_Time** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

**Type**: ASCII_Short_String_Collapsed

**Class Name**: ASCII_Date_Time

**Minimum Characters**: 1

**Maximum Characters**: 255

**Nullable**: false

**Attribute Concept**: Count

**Conceptual Domain**: Short_String

**Steward**: pds

**Namespace Id**: pds

**minimum_characters in ASCII_Date_Time_DOY** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

**Type**: ASCII_Short_String_Collapsed

**Class Name**: ASCII_Date_Time_DOY

**Minimum Characters**: 1
Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**minimum_characters in ASCII_Date_Time.UTC** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_Date_Time.UTC*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Count*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

**minimum_characters in ASCII_Date_Time_YMD** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_Date_Time_YMD*
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**minimum_characters in ASCII_Date_YMD** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Date_YMD

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**minimum_characters in ASCII_Directory_Path_Name** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed
Class Name: ASCII_Directory_Path_Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

minimum_characters in ASCII_File_Name The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_File_Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1
minimum_characters in ASCII_File_Specification_Name  The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_File_Specification_Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

minimum_characters in ASCII_Integer  The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Integer

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String
Steward: pds

Namespace Id: pds

**minimum_characters in ASCII_LID** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_LID

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

Steward: pds

Namespace Id: pds

*Value:* 14

**minimum_characters in ASCII_LIDVID** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_LIDVID

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false
Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 19

**minimum_characters in ASCII:LIDVID:LID** The **minimum_characters** attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII:Short_String:Collapsed*

*Class Name: ASCII:LIDVID:LID*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 14

**minimum_characters in ASCII:MD5_Checksum** The **minimum_characters** attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII:Short_String:Collapsed*

*Class Name: ASCII:MD5_Checksum*
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 32

minimum_characters in ASCII_NonNegative_Integer The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_NonNegative_Integer

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

minimum_characters in ASCII_Numeric_Base16 The minimum_characters attribute provides the lower, inclusive bound on the number of characters.
Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base16

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

**minimum_characters in ASCII_Numeric_Base2** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base2

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
**Value:** 1

**minimum_characters in ASCII_Numeric_Base8** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Numeric_Base8

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* 1

**minimum_characters in ASCII_Real** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Real

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**minimum_characters in ASCII_Short_String_Collapsed**  The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Short_String_Collapsed

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

*Value:* 1

**minimum_characters in ASCII_Short_String_Preserved**  The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Short_String_Preserved

*Minimum Characters:* 1

*Maximum Characters:* 255
Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

**minimum_characters in ASCII_String** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_String*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Count*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: 1*

**minimum_characters in ASCII_TextCollapsed** The `minimum_characters` attribute provides the lower, inclusive bound on the number of characters.

*Type: ASCII_Short_String_Collapsed*
Class Name: ASCII_Text_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

minimum_characters in ASCII_Text_Preserved The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Text_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1
**minimum_characters in ASCII_Time** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Time

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**minimum_characters in ASCII_VID** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_VID

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds
Namespace Id: pds

Value: 3

**minimum_characters in Character_Data_Type** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Character_Data_Type

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* pds

Namespace Id: pds

**minimum_characters in UTF8_Short_String_Collapsed** The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* UTF8_Short_String_Collapsed

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Count

483
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

minimum_characters in UTF8_Short_String_Preserved The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Count

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 1

minimum_characters in UTF8_String The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_String

Minimum Characters: 1
Maximum Characters: 255
Nillable: false
Attribute Concept: Count
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds
Value: 1

minimum_characters in UTF8_Text_Preserved The minimum_characters attribute provides the lower, inclusive bound on the number of characters.

Type: ASCII.Short_String.Collapsed
Class Name: UTF8_Text_Preserved

Minimum Characters: 1
Maximum Characters: 255
Nillable: false
Attribute Concept: Count
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds
Value: 1

minimum_light_source_incidence_angle in Radio_Occultation
minimum_light_source_incidence_angle specifies the smallest value for observed_ring_elevation in the observation. Only used if the value is not constant over the observation. Values range from 0 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'.

485
Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Radio_Occlusionation

Minimum Value: 0

Maximum Value: 90

Nillable: false

Steward: rings

Namespace Id: rings

**minimum_observed_event_time in Radio_Occlusionation_Support**

minimum_observed_event_time indicates the value for earliest time in the described data, and is given in observed_event_tdb format.

Type: ASCII_Real

Unit of Measure Type: Units_of_Time

Valid Units: day, hr, julian day, microseconds, min, ms, s, yr

Class Name: Radio_Occlusionation_Support

Nillable: false

Steward: rings

Namespace Id: rings

**minimum_observed_ring_azimuth in Radio_Occlusionation**

minimum_observed_ring_azimuth specifies the smallest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.
Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Radio_Occultation

Minimum Value: 0

Maximum Value: 360

Nillable: false

Steward: rings

Namespace Id: rings

**minimum_observed_ring_azimuth in Stellar_Occultation**

minimum_observed_ring_azimuth specifies the smallest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Stellar_Occultation

Minimum Value: 0

Maximum Value: 360

Nillable: false

Steward: rings
Namespace Id: rings

**minimum_observed_ring_elevation in Radio_Occultation**

minimum_observed_ring_elevation specifies the smallest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to 90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'.

*Type*: ASCII_Real

*Unit of Measure Type*: Units_of_Angle

*Valid Units*: arcmin, arcsec, deg, hr, mrad, rad

*Class Name*: Radio_Occultation

*Minimum Value*: -90

*Maximum Value*: 90

*Nillable*: false

*Steward*: rings

Namespace Id: rings

**minimum_observed_ring_elevation in Stellar_Occultation**

minimum_observed_ring_elevation specifies the smallest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to 90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'.

*Type*: ASCII_Real

*Unit of Measure Type*: Units_of_Angle

*Valid Units*: arcmin, arcsec, deg, hr, mrad, rad

*Class Name*: Stellar_Occultation
Minimum Value: -90

Maximum Value: 90

Nullable: false

Steward: rings

Namespace Id: rings

**minimum_occurrences in DD_Association** The minimum occurrences attribute indicates the number of times something may occur. It is also called the minimum cardinality.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* DD_Association

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* Count

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

**minimum_occurrences in DD_Association.External** The minimum occurrences attribute indicates the number of times something may occur. It is also called the minimum cardinality.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* DD_Association.External

*Minimum Characters:* 1
**minimum_radial_sampling_interval in Radio_Occultation**

minimum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Length

*Valid Units:* AU, Angstrom, cm, km, m, micrometer, mm, nm

*Class Name:* Radio_Occultation

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

**minimum_radial_sampling_interval in Stellar_Occultation**

minimum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field.
Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Stellar_Occultation

Nullable: false

Steward: rings

Namespace Id: rings

**minimum_ring_longitude in Radio_Occultation**

minimum_ring_longitude specifies one boundary for the ring longitude range in the data; normally the smallest value. However, for ranges that cross the prime meridian, the minimum ring longitude will have a value greater than the maximum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nullable if the observation is not a ring occultation in which case the nil_reason should be ‘inapplicable’.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Radio_Occultation

Minimum Value: 0

Maximum Value: 360

Nullable: false

Steward: rings

Namespace Id: rings
**minimum_ring_longitude in Stellar_Occultation**

minimum_ring_longitude specifies one boundary for the ring longitude range in the data; normally the smallest value. However, for ranges that cross the prime meridian, the minimum ring longitude will have a value greater than the maximum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type: ASCII Real*

*Unit of Measure Type: Units_of_Angle*

*Valid Units: arcmin, arcsec, deg, hr, mrad, rad*

*Class Name: Stellar_Occultation*

*Minimum Value: 0*

*Maximum Value: 360*

*Nillable: false*

*Steward: rings*

*Namespace Id: rings*

**minimum_ring_radius in Radio_Occultation** minimum_ring_radius indicates the smallest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type: ASCII Real*

*Unit of Measure Type: Units_of_Length*

*Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm*

*Class Name: Radio_Occultation*

*Nillable: false*
Steward: rings

Namespace Id: rings

**minimum_ring_radius in Stellar_Occlusion**  
minimum_ring_radius indicates the smallest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be ‘inapplicable’.

*Type: ASCII_Real*

*Unit of Measure Type: Units_of_Length*

*Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm*

*Class Name: Stellar_Occlusion*

*Nillable: false*

*Steward: rings*

*Namespace Id: rings*

**minimum_scaled_value in Object_Statistics** The minimum_scaled_value attribute provides the minimum value after application of scaling_factor and value_offset (see their definitions; minimum_scaled_value is the minimum of Ov).

*Type: ASCII_Real*

*Class Name: Object_Statistics*

*Nillable: false*

*Attribute Concept: Number*

*Conceptual Domain: Real*

*Steward: pds*

*Namespace Id: pds*
**minimum_value in DD_Value_Domain** The *minimum_value* attribute provides the lower inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* DD_Value_Domain

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

**minimum_value in DD_Value_Domain_Full** The *minimum_value* attribute provides the lower inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* DD_Value_Domain_Full

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds
**minimum_value in ASCII_Date_Time**  The minimum_value attribute provides the lower inclusive bound on the value.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Date_Time

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nullable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

**minimum_value in ASCII_Date_Time_DOY**  The minimum_value attribute provides the lower inclusive bound on the value.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Date_Time_DOY

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nullable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds
minimum_value in ASCII_Date_Time.UTC The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII.Short_StringCollapsed

Class Name: ASCII_Date_Time.UTC

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

minimum_value in ASCII_Date_Time.YMD The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII.Short_StringCollapsed

Class Name: ASCII_Date_Time.YMD

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
**minimum_value in ASCII_Integer** The minimum_value attribute provides the lower inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Integer

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**minimum_value in ASCII_LID** The minimum_value attribute provides the lower inclusive bound on the value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_LID

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

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**minimum_value in ASCII_NonNegative_Integer** The minimum_value attribute provides the lower inclusive bound on the value.

*Type: ASCII.Short_String.Collapsed*

*Class Name: ASCII_NonNegative_Integer*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Value*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: 0*

**minimum_value in ASCII_Numeric_Base16** The minimum_value attribute provides the lower inclusive bound on the value.

*Type: ASCII.Short_String.Collapsed*

*Class Name: ASCII_Numeric_Base16*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Value*

*Conceptual Domain: Short_String*

*Steward: pds*
Namespace Id: pds

minimum_value in ASCII_Numeric_Base2 The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base2

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

minimum_value in ASCII_Real The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Real

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds
**Namespace Id:** pds

**minimum_value in ASCII_Short_String_Collapsed** The minimum_value attribute provides the lower inclusive bound on the value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Short_String_Collapsed

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Value

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**minimum_value in ASCII_Short_String_Preserved** The minimum_value attribute provides the lower inclusive bound on the value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Short_String_Preserved

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Value

**Conceptual Domain:** Short_String
minimum_value in ASCII_Text_Preserved The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Text_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

minimum_value in ASCII_Time The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Time

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String
minimum_value in ASCII VID The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII,Short_String,Collapsed

Class Name: ASCII VID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

minimum_value in Character_Data_Type The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII,Short_String,Collapsed

Class Name: Character_Data_Type

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String
minimum_value in UTF8_Short_StringCollapsed The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_Short_String_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

minimum_value in UTF8_Short_String_Preserved The minimum_value attribute provides the lower inclusive bound on the value.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_Short_String_Preserved

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**minimum_value in UTF8_Text_Preserved** The minimum_value attribute provides the lower inclusive bound on the value.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: UTF8_Text_Preserved

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Value

*Conceptual Domain*: Short_String

Steward: pds

Namespace Id: pds

**minimum_wavelength in Radio_Occlution** minimum_wavelength is the smallest wavelength used in the observation. Optional in labels. Used with maximum_wavelength when the observation is over a wavelength range. Nillable in which case the nil_reason should be 'inapplicable'.

*Type*: ASCII_Real

*Unit of Measure Type*: Units_of_Length

*Valid Units*: AU, Angstrom, cm, km, m, micrometer, mm, nm

*Class Name*: Radio_Occlution

*Nillable*: false
minimum_wavelength in Stellar_Occlusion** minimum_wavelength is the smallest wavelength used in the observation. Optional in labels. Used with maximum_wavelength when the observation is over a wavelength range. Nillable in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Stellar_Occlusion

Nillable: false

Steward: rings

Namespace Id: rings

missing_constant in Special_Constants** The missing_constant attribute provides a value that indicates the original value was missing, such as due to a gap in coverage.

Type: ASCII_Short_String_Collapsed

Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Constant

Conceptual Domain: Short_String
mission_desc in Mission_PDS3 The mission_desc attribute summarizes major aspects of a planetary mission or project, including the number and type of spacecraft, the target body or bodies and major accomplishments.

Type: ASCII_Text_Preserved

Class Name: Mission_PDS3

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

mission_name in Mission_PDS3 The mission_name attribute identifies a major planetary mission or project. A given planetary mission may be associated with one or more spacecraft.

Type: ASCII_Short_String_Collapsed

Class Name: Mission_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String
mission_objectives_summary in Mission_PDS3  The mission_objectives_summary attribute describes the major scientific objectives of a planetary mission or project.

_Type: ASCII_Text_Preserved_

_Class Name: Mission_PDS3_

_Minimum Characters: 1_

_Nillable: false_

_Attribute Concept: Summary_

_Conceptual Domain: Text_

_Steward: ops_

_Namespace Id: pds_

mission_start_date in Mission_PDS3  The mission_start_date attribute provides the date of the beginning of a mission in UTC system format.

_Type: ASCII_Short_String_Collapsed_

_Class Name: Mission_PDS3_

_Minimum Characters: 1_

_Maximum Characters: 255_

_Nillable: false_

_Attribute Concept: Time_

_Conceptual Domain: Short_String_

_Steward: ops_
**Namespace Id: pds**

**mission_stop_date in Mission_PDS3** The mission_stop_date attribute provides the date of the end of a mission in UTC system format.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Mission_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Time

*Conceptual Domain:* Short_String

*Steward:* ops

**Namespace Id: pds**

**model_id in Instrument** The model_id attribute helps discriminate instrument hardware. For example "flight", "engineering", or "proto" have been used.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Instrument

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

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**Namespace Id:** pds

**modification_date in Modification_Detail** The `modification_date` attribute provides date the modifications were completed

*Type:* ASCII_Date_YMD

*Class Name:* Modification_Detail

*Format:* YYYY-MM-DD

*Nillable:* false

*Attribute Concept:* Time

*Conceptual Domain:* Time

*Steward:* pds

**Namespace Id:** pds

**modification_detail in Modification_History** The `modification_detail` association is a relationship to Modification_Detail, the details of one round of modification for the product.

*Type:* Association

**modification_history in Identification_Area** The `modification_history` association is a relationship to Modification_History, a history of changes made to the product.

*Type:* Association

**naif_host_id in Instrument_Host** The `naif_instrument_id` element provides the numeric ID used within the SPICE system to identify the spacecraft, spacecraft structure or science instrument.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Instrument_Host

*Minimum Characters:* 1
naif_instrument_id in Instrument The naif_instrument_id element provides the numeric ID used within the SPICE system to identify the spacecraft, spacecraft structure or science instrument.

Type: ASCII_Short_String_Collapsed

Class Name: Instrument

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in DD_Association_External The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Association_External

Minimum Characters: 1
Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**name in DD_Attribute** The name attribute provides a word or combination of words by which the object is known.

*Type:* ASCII Short_String_Collapsed

*Class Name:* DD_Attribute

*Minimum Characters:* 1

*Maximum Characters:* 255

 Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**name in DD_Attribute_Full** The name attribute provides a word or combination of words by which the object is known.

*Type:* ASCII Short_String_Collapsed

*Class Name:* DD_Attribute_Full

*Minimum Characters:* 1
The name attribute provides a word or combination of words by which the object is known.

Type: ASCII Short_String_Collapsed

Class Name: DD_Class

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**name in DD_Class**

The name attribute provides a word or combination of words by which the object is known.

Type: ASCII Short_String_Collapsed

Class Name: DD_Class

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**name in DD_Class_Full**

The name attribute provides a word or combination of words by which the object is known.

Type: ASCII Short_String_Collapsed

Class Name: DD_Class_Full

Minimum Characters: 1
The name attribute provides a word or combination of words by which the object is known.

Type: ASCII.Short_String.Collapsed

Class Name: External_Reference_Extended

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

name in External_Reference_Extended The name attribute provides a word or combination of words by which the object is known.

Type: ASCII.Short_String.Collapsed

Class Name: External_Reference_Extended

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

name in Ingest_LDD The name attribute provides a word or combination of words by which the object is known.

Type: ASCII.Short_String.Collapsed

Class Name: Ingest_LDD

Minimum Characters: 1
Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

name in Node The name attribute provides a word or combination of words by which the object is known.

Type: ASCIIShort_String_Collapsed

Class Name: Node

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds


name in PDS_Affiliate The name attribute provides a word or combination of words by which the object is known.

Type: ASCIIShort_String_Collapsed
Class Name: PDS_Affiliate

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

name in PDS_Guest The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: PDS_Guest

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

name in Software The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed
Class Name: Software

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**name in Agency** The name attribute provides a word or combination of words by which the object is known.

*Type: ASCII*Short_String_Collapsed

Class Name: Agency

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

*Value:* European Space Agency, National Aeronautics and Space Administration

**name in Byte_Stream** The name attribute provides a word or combination of words by which the object is known.
Type: ASCII.Short_String.Collapsed

Class Name: Byte_Stream

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Facility  The name attribute provides a word or combination of words by which the object is known.

Type: ASCII.Short_String.Collapsed

Class Name: Facility

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Field  The name attribute provides a word or combination of words by which the object is known.
Type: ASCII_Short_String_Collapsed

Class Name: Field

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Field_Binary** The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Field_Binary

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Field_Bit** The name attribute provides a word or combination of words by which the object is known.
Type: ASCII Short String Collapsed

Class Name: Field_Bit

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Field_Character** The name attribute provides a word or combination of words by which the object is known.

Type: ASCII Short String Collapsed

Class Name: Field_Character

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Field_Delimited** The name attribute provides a word or combination of words by which the object is known.
Type: ASCII_Short_String_Collapsed

Class Name: Field_Delimited

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Instrument  The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Instrument

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Instrument_Host  The name attribute provides a word or combination of words by which the object is known.
The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Instrument_Host

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Investigation The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Investigation

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Investigation_Area The name attribute provides a word or combination of words by which the object is known.
Type: ASCII_Short_String_Collapsed

Class Name: Investigation_Area

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Observing_System** The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Observing_System

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Observing_System_Component** The name attribute provides a word or combination of words by which the object is known.
Type: ASCII_Short_String_Collapsed

Class Name: Observing_System_Component

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Quaternion** The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Quaternion

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Quaternion_Component** The name attribute provides a word or combination of words by which the object is known.
Type: ASCII_Short_String_Collapsed

Class Name: Quaternion_Component

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Resource** The name attribute provides a word or combination of words by which the object is known.

Type: ASCII_Short_String_Collapsed

Class Name: Resource

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**name in Target** The name attribute provides a word or combination of words by which the object is known.

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Type: ASCIIShort_String_Collapsed

Class Name: Target

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

name in Target_Identification  The name attribute provides a human-readable primary name/identification in the standard format for the target type.

Type: ASCIIShort_String_Collapsed

Class Name: Target_Identification

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
**name in Terminological_Entry** The name attribute provides a word or combination of words by which the object is known.

*Type: UTF8_SHORT_STRING_Collapsed*

*Class Name: Terminological_Entry*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Name*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

**name in Vector** The name attribute provides a word or combination of words by which the object is known.

*Type: ASCII_SHORT_STRING_Collapsed*

*Class Name: Vector*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Name*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*
**name in Vector_Component**  The name attribute provides a word or combination of words by which the object is known.

*Type:* ASCII|Short|String|Collapsed

*Class Name:* Vector_Component

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**namespace_id in DD_Association_External**  The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.

*Type:* ASCII|Short|String|Collapsed

*Class Name:* DD_Association_External

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* ops
Namespace Id: pds

namespace_id in DD_Attribute_Full The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.

Type: ASCII, Short_String, Collapsed

Class Name: DD_Attribute_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

namespace_id in DD_Class_Full The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.

Type: ASCII, Short_String, Collapsed

Class Name: DD_Class_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID
**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**namespace_id in Ingest_LDD** The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Ingest_LDD

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**nil_reason in Symbolic_Literals_PDS** The nil_reason attribute provides the permissible values allowed as reasons when an attribute assigned a nil value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Symbolic_Literals_PDS

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

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**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**Value:** anticipated, inapplicable, missing, unknown

**nillable_flag in DD_Attribute** The nillable_flag attribute indicates whether an attribute is allowed to take on nil as a value.

**Type:** ASCII_Boolean

**Class Name:** DD_Attribute

**Nillable:** false

**Attribute Concept:** Flag

**Conceptual Domain:** Boolean

**Steward:** ops

**Namespace Id:** pds

**nillable_flag in DD_Attribute_Full** The nillable_flag attribute indicates whether an attribute is allowed to take on nil as a value.

**Type:** ASCII_Boolean

**Class Name:** DD_Attribute_Full

**Nillable:** false

**Attribute Concept:** Flag

**Conceptual Domain:** Boolean

**Steward:** ops

**Namespace Id:** pds
**not_applicable_constant in Special_Constants** The not_applicable_constant attribute provides a value that indicates the parameter is not applicable.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Special_Constants

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Constant

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**nssdc in Data_Set_PDS3** The nssdc association is a relationship to NSSDC.

*Type:* Association

**nssdc_collection_id in NSSDC** An NSSDC Collection ID is an NSSDC assigned identifier for a collection of PDS datasets.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* NSSDC

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID
Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**object_length in Encoded_Body_Stream** The object_length attribute provides the length of the digital object in bytes.

*Type*: ASCII_Integer

*Unit of Measure Type*: Units_of_Storage

*Valid Units*: byte

*Specified Unit Id*: byte

*Class Name*: Encoded_Body_Stream

*Minimum Value*: 1

*Nillable*: false

*Attribute Concept*: Length

*Conceptual Domain*: Integer

*Steward*: pds

*Namespace Id*: pds

**object_length in Header** The object_length attribute provides the length of the digital object in bytes.

*Type*: ASCII_Integer

*Unit of Measure Type*: Units_of_Storage

*Valid Units*: byte

*Specified Unit Id*: byte
Class Name: Header

Minimum Value: 1

Nillable: false

Attribute Concept: Length

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**object_length in Parsable_Body_Stream** The `object_length` attribute provides the length of the digital object in bytes.

*Type:* ASCII_Integer

*Unit of Measure Type:* Units_of_Storage

*Valid Units:* byte

*Specified Unit Id:* byte

Class Name: Parsable_Body_Stream

Minimum Value: 1

Nillable: false

Attribute Concept: Length

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**observation_area in Product_Observational** The `observation_area` association is a relationship to Observation_Area.
Type: Association

**observed_event_start_tdb in Radio_Occultation**

`observed_event_start_tdb` indicates the value for earliest time in the described data, and is given in `observed_event_tdb` format. Optional in labels; not intended for use as a table field.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Radio_Occultation

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings

**observed_event_start_tdb in Stellar_Occultation**

`observed_event_start_tdb` indicates the value for earliest time in the described data, and is given in `observed_event_tdb` format. Optional in labels; not intended for use as a table field.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Stellar_Occultation

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings
**observed_event_stop_tdb in Radio_Occultation**

`observed_event_stop_tdb` indicates the value for latest time in the described data, and is given in `observed_event_tdb` format. Optional in labels; not intended for use as a table field. Nullable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Radio_Occultation

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

**observed_event_stop_tdb in Stellar_Occultation**

`observed_event_stop_tdb` indicates the value for latest time in the described data, and is given in `observed_event_tdb` format. Optional in labels; not intended for use as a table field. Nullable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Stellar_Occultation

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings
**observed_ring_elevation in Radio_Occultation**

observed_ring_elevation is an angle measured at a point in the ring plane, starting from the ring plane to the direction of a photon heading to the observer. This angle is positive on the side of the ring plane defined by positive angular momentum, and negative on the opposite side. Values range from -90 to +90 in units of degrees. This angle is constant for stellar occultations, but may vary significantly during radio occultations. Note: The direction of positive angular momentum points toward the IAU-defined north side of the ring plane for Jupiter, Saturn and Neptune, but IAU-defined south side of the ring plane for Uranus. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label, and observed_ring_elevation is strongly recommended as a field in the data table. Nillable, in which case the nil_reason should be ‘inapplicable’. The above definition of observed_ring_elevation is equivalent to the most common usage of the term ‘ring open angle’, B.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Angle

*Valid Units:* arcmin, arcsec, deg, hr, mrad, rad

*Class Name:* Radio_Occultation

*Minimum Value:* -90

*Maximum Value:* 90

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

**observed_ring_elevation in Stellar_Occultation**

observed_ring_elevation is an angle measured at a point in the ring plane, starting from the ring plane to the direction of a photon heading to the observer. This angle is positive on the side of the ring plane defined by positive angular momentum, and negative on the opposite side. Values range from -90 to +90 in units of
degrees. This angle is constant for stellar occultations, but may vary significantly during radio occultations. Note: The direction of positive angular momentum points toward the IAU-defined north side of the ring plane for Jupiter, Saturn and Neptune, but IAU-defined south side of the ring plane for Uranus. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label, and observed_ring_elevation is strongly recommended as a field in the data table. Nillable, in which case the nil_reason should be ‘inapplicable’. The above definition of observed_ring_elevation is equivalent to the most common usage of the term ‘ring open angle’, B.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Stellar_Occultation

Minimum Value: -90

Maximum Value: 90

Nillable: false

Steward: rings

Namespace Id: rings

observing_system_component in Observing_System The observing_system_component association is a relationship to Observing_System_Component.

Type: Association

occultation_type in Radio_Occultation occultation_type distinguishes between three types of occultation experiments: Stellar, Solar, and Radio. Stellar occultations involve observing a star as a targeted ring or body passes in front, as seen from either a spacecraft or Earth-based observatory. Solar occultations are similar to stellar occultations except that the Sun is used in place of a star. Radio occultations typically involve observing the continuous-wave radio transmissions from a
spacecraft as it passes behind the target as seen from a radio telescope on Earth or another spacecraft. Required in labels of occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be ‘inapplicable’. Normally not intended as a value for a table field.

_Type_: ASCII_Half_String_Collapsed

_Class Name_: Radio_Occultation

_Minimum Characters_: 1

_Maximum Characters_: 255

_Nillable_: false

_Steward_: rings

_Namespace Id_: rings

_Value_: Radio, Solar, Stellar

occultation_type in Radio_Occultation_Support occultation_type distinguishes between three types of occultation experiments: Stellar, Solar, and Radio. Stellar occultations involve observing a star as a targeted ring or body passes in front, as seen from either a spacecraft or Earth-based observatory. Solar occultations are similar to stellar occultations except that the Sun is used in place of a star. Radio occultations typically involve observing the continuous-wave radio transmissions from a spacecraft as it passes behind the target as seen from a radio telescope on Earth or another spacecraft. Required in labels of occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be ‘inapplicable’. Normally not intended as a value for a table field.

_Type_: ASCII_Half_String_Collapsed

_Class Name_: Radio_Occultation_Support

_Minimum Characters_: 1

_Maximum Characters_: 255
**occultation_type in Stellar_Occultation** occultation_type distinguishes between three types of occultation experiments: Stellar, Solar, and Radio. Stellar occultations involve observing a star as a targeted ring or body passes in front, as seen from either a spacecraft or Earth-based observatory. Solar occultations are similar to stellar occultations except that the Sun is used in place of a star. Radio occultations typically involve observing the continuous-wave radio transmissions from a spacecraft as it passes behind the target as seen from a radio telescope on Earth or another spacecraft. Required in labels of occultation observations. Nullable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field.

*Type: ASCII, Short, String, Collapsed*

*Class Name: Stellar_Occultation*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Steward: rings*

*Namespace Id: rings*

*Value: Radio, Solar, Stellar*

**offset in Array** The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.

*Type: ASCII, Integer*
**Unit of Measure Type:** Units_of_Storage

**Valid Units:** byte

**Specified Unit Id:** byte

**Class Name:** Array

**Minimum Value:** 0

**Nillable:** false

**Attribute Concept:** Offset

**Conceptual Domain:** Integer

**Steward:** pds

**Namespace Id:** pds

**offset in Encoded.Byte_Stream** The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.

**Type:** ASCII_Integer

**Unit of Measure Type:** Units_of_Storage

**Valid Units:** byte

**Specified Unit Id:** byte

**Class Name:** Encoded.Byte_Stream

**Minimum Value:** 0

**Nillable:** false

**Attribute Concept:** Offset

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**Conceptual Domain:** Integer

**Steward:** pds

**Namespace Id:** pds

**offset in Parsable(Byte_Stream)** The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.

**Type:** ASCII,Integer

**Unit of Measure Type:** Units_of_Storage

**Valid Units:** byte

**Specified Unit Id:** byte

**Class Name:** Parsable(Byte_Stream)

**Minimum Value:** 0

**Nillable:** false

**Attribute Concept:** Offset

**Conceptual Domain:** Integer

**Steward:** pds

**Namespace Id:** pds

**offset in Table_Base** The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.

**Type:** ASCII,Integer

**Unit of Measure Type:** Units_of_Storage

**Valid Units:** byte
Specified Unit Id: byte

Class Name: Table_Base

Minimum Value: 0

Nullable: false

Attribute Concept: Offset

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

orbit_direction in Target_PDS3 The orbit_direction element provides the direction of movement along the orbit about the primary as seen from the north pole of the 'invariable plane of the solar system', which is the plane passing through the center of mass of the solar system and perpendicular to the angular momentum vector of the solar system orbit motion. PROGRADE for positive rotation according to the right-hand rule, RETROGRADE for negative rotation.

Type: ASCII_Short_String_Collapsed

Class Name: Target_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Direction

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

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**orbit_number in Radio_Occultation** orbit_number if present is the value assigned by the mission for the orbit number associated with the observation. Optional in labels of occultation observations and may be used multiple times. Nullable, the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Radio_Occultation

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* true

*Steward:* rings

*Namespace Id:* rings

**orbit_number in Radio_Occultation_Support** orbit_number if present is the value assigned by the mission for the orbit number associated with the observation. Optional in labels of occultation observations and may be used multiple times. Nullable, the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Radio_Occultation_Support

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* true

*Steward:* rings

*Namespace Id:* rings
**orbit_number in Stellar_Occultation** orbit_number if present is the value assigned by the mission for the orbit number associated with the observation. Optional in labels of occultation observations and may be used multiple times. Nullable, the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field.

_Type: ASCII_Short_String_Collapsed_

**Class Name:** Stellar_Occultation

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** true

**Steward:** rings

**Namespace Id:** rings

**original_band in Band_Bin** The original_band attribute of a spectral qube provides the sequence of band numbers in the qube relative to some original qube. In the original qube, the values are just consecutive integers beginning with 1. In a qube which contains a subset of the bands in the original qube, the values are the original sequence numbers from that qube.

_Type: ASCII_Integer_

**Class Name:** Band_Bin

**Minimum Value:** 1

**Maximum Value:** 512

**Nullable:** false

**Conceptual Domain:** Integer

**Steward:** img

**Namespace Id:** pds
**os_version in Software_Binary** The OS version attribute indicates the version of an operating system.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Software_Binary

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

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**os_version in Software_Source** The OS version attribute indicates the version of an operating system.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Software_Source

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds
packet_map_mask in Telemetry_Parameters The packet_map_mask attribute is a binary or hexadecimal number identifying which of a data file’s expected packets were actually received. The digits correspond positionally with the relative packet numbers of the data file. The bits are to be read left to right; i.e., the first (left-most) digit of the number corresponds to the first packet of the data file. A bit value of 1 indicates that the packet was received; a value of 0 indicates that it was not received.

Type: ASCII_Numeric_Base16

Class Name: Telemetry_Parameters

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Mask

Conceptual Domain: Numeric

Steward: img

Namespace Id: img

parsing_standard_id in Checksum_Manifest The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.

Type: ASCII_Short_String_Collapsed

Class Name: Checksum_Manifest

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID
Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: MD5Deep 4.n

**parsing_standard_id in Service_Description** The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Service_Description

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

*Value:* WADL, WSDL 2.n

**parsing_standard_id in Header** The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Header

*Minimum Characters:* 1
Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 7-Bit ASCII Text, CDF 3.4 ISTP/IACG, FITS 3.0, ISIS2, ISIS3, PDS DSV 1, PDS ODL 2, PDS3, Pre-PDS3, UTF-8 Text, VICAR1, VICAR2

**parsing_standard_id in Parsable_Byte_Stream** The `parsing_standard_id` attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.

Type: ASCII_Short_String_Collapsed

Class Name: Parsable_Byte_Stream

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**parsing_standard_id in SPICE_Kernel** The `parsing_standard_id` attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.
**Type:** ASCII_Short_String_Collapsed

**Class Name:** SPICE_Kernel

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** SPICE

**parsing_standard_id in Table_Delimited** The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Table_Delimited

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

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Value: PDS DSV 1

**parsing_standard_id in XML_Schema** The `parsing_standard_id` attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* XML_Schema

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds


**pattern in DD_Value_Domain** The pattern attribute provides a symbolic instruction for forming values.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* DD_Value_Domain

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* Pattern

*Conceptual Domain:* Short_String
pattern in DD_Value_Domain_Full The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

pattern in ASCII.DOI The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII.DOI

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String
The pattern attribute provides a symbolic instruction for forming values.

**Type:** ASCII Short String Collapsed

**Class Name:** ASCII Date

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short String

Steward: pds
Namespace Id: pds
Value: (-)?[0-9]{4}, (-)?[0-9]{4}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—([3][0-1]), (-)?[0-9]{4}-(0[1-9])—(1[0-2]), (-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—([1-2][0-9])—([3][0-1])

**pattern in ASCII_Date**

The pattern attribute provides a symbolic instruction for forming values.

**Type:** ASCII Short String Collapsed

**Class Name:** ASCII Date DOY

**Minimum Characters:** 1

**Maximum Characters:** 255

Steward: pds
Namespace Id: pds
Value: (-)?[0-9]{4}, (-)?[0-9]{4}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—([3][0-1]), (-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—([1-2][0-9])—([3][0-1])

**pattern in ASCII_Date_DOY**

The pattern attribute provides a symbolic instruction for forming values.
**Nullable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** \((-)?[0-9]\{4\}, (-)?[0-9]\{4\}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3(([0-5][0-9])—(6[0-6]))))

**pattern in ASCII_Date_Time** The pattern attribute provides a symbolic instruction for forming values.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** \((-)?[0-9]\{4\}, (-)?[0-9]\{4\}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3(([0-5][0-9])—(6[0-6])))),
\((-)?[0-9]\{4\}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3(([0-5][0-9])—(6[0-6])))(T)(([0-1][0-9])—(2[0-3])):[0-5][0-9](Z)?,
\((-)?[0-9]\{4\}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3(([0-5][0-9])—(6[0-6]))))(T)(([0-1][0-9])—(2[0-3])):[0-5][0-9]:([0-5][0-9])—60)(([0-9][1,4]))?(Z)?,
The pattern attribute provides a symbolic instruction for forming values.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time_DOY

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** (-)?[0-9]{4}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3([[0-5][0-9])—(6[0-6]))));(T)((0-1)[0-9])—(2[0-4]));(Z)?,
(-)?[0-9]{4}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3([[0-5][0-9])—(6[0-6]))));(T)24:00(:00((0+)?))?(Z)?,
(-)?[0-9]{4}—(0[1-9])—(1[0-2]),
(-)?[0-9]{4}—(0[1-9])—(1[0-2])—((0[1-9])—([1-2][0-9])—(3[0-1]))(T)(([0-1][0-9])—(2[0-3])):05:[0-9]:((0-5)[0-9])—60);((0-9){1,4})]?(Z)?,
(-)?[0-9]{4}—(0[1-9])—(1[0-2])—((0[1-9])—([1-2][0-9])—(3[0-1]))(T)((0-1)[0-9])—(2[0-4]));(Z)?,
(-)?[0-9]{4}—(0[1-9])—(1[0-2])—((0[1-9])—([1-2][0-9])—(3[0-1]))(T)24:00(:00((0+)?))?(Z)?

**Pattern in ASCII_Date_Time_DOY**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>DOY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time_DOY

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** (-)?[0-9]{4}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3([[0-5][0-9])—(6[0-6]))));(T)((0-1)[0-9])—(2[0-4]));(Z)?,
(-)?[0-9]{4}-(00[1-9])—(0[1-9][0-9])—([1-2][0-9][0-9])—(3([[0-5][0-9])—(6[0-6]))));(T)24:00(:00((0+)?))?(Z)?,
**pattern in ASCII_Date_Time.UTC** The pattern attribute provides a symbolic instruction for forming values.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: ASCII_Date_Time.UTC

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Pattern

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

*Value*: , (-)?[0-9]{4}(Z), (-)?[0-9]{4}-(0[0-9][1-9])—(0[1-9][0-9])—((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])—(0[1-9][0-9])—((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])—(0[1-9][0-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])—(0[1-9][0-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z), (-)?[0-9]{4}-(0[0-9][1-9])--((1[0-9][0-9])—(2[0-3]))(T)((0-5)[0-9]:00((0+)?))?)(Z)
pattern in ASCII_Date_Time_YMD The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Date_Time_YMD

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: (-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—(1-2)[0-9])—(3[0-9]-1]))(T)((0-1][0-9])—(2[0-3])):[0-5][0-9][0-9](Z)?,
(-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—(1-2][0-9])—(3[0-9]-1]))(T)((0-1][0-9])—(2[0-3])):[0-5][0-9]:((0-5)[0-9])—60)((0-9][1,4]))?(Z)?,
(-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—(1-2][0-9])—(3[0-9]-1]))(T)((0-1][0-9])—(2[0-4]))(Z)?,
(-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—(1-2][0-9])—(3[0-9]-1]))(T)24:00((00(0+))?)(Z)?

pattern in ASCII_Date_YMD The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Date_YMD

Minimum Characters: 1

Maximum Characters: 255
**Nillable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** (-)?[0-9]{4}, (-)?[0-9]{4}-((0[1-9])—(1[0-2])), (-)?[0-9]{4}-(0[1-9])—(1[0-2])-(0[1-9])—([1-2][0-9])—(3[0-1])

**pattern in ASCII_LID** The pattern attribute provides a symbolic instruction for forming values.

**Type:** ASCII.Short_String.Collapsed

**Class Name:** ASCII_LID

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Pattern

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**pattern in ASCII_MD5_Checksum** The pattern attribute provides a symbolic instruction for forming values.

**Type:** ASCII.Short_String.Collapsed

**Class Name:** ASCII_MD5_Checksum

**Minimum Characters:** 1
Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: [0-9a-fA-F]{32}

**pattern in ASCII_Numeric_Base16** The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Numeric_Base16_Collapsed

Class Name: ASCII_Numeric_Base16

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**pattern in ASCII_Numeric_Base2** The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Numeric_Base2_Collapsed

Class Name: ASCII_Numeric_Base2

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Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: [0-1]{1,255}

**pattern in ASCII_Numeric_Base8** The pattern attribute provides a symbolic instruction for forming values.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Numeric_Base8

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: [0-7]{1,255}

**pattern in ASCII_Time** The pattern attribute provides a symbolic instruction for forming values.
Type: ASCIIShort_String_Collapsed

Class Name: ASCII_Time

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ((([0-1][0-9])—(2[0-3])):[0-5][0-9]([Z—]),
((([0-1][0-9])—(2[0-3])):[0-5][0-9]:((([0-5][0-9])—60)((([0-9]+)—)(Z—)),
(((([0-1][0-9])—(2[0-4]))(Z—), 24:00((00((0+)—))—)(Z—)

pattern in ASCII_VID The pattern attribute provides a symbolic instruction for forming values.

Type: ASCIIShort_String_Collapsed

Class Name: ASCII_VID

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Pattern

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Value: 0([1-9]([0-9]+), [1-9][0-9]*, [1-9][0-9]*[0-9]+

**pattern in Character_Data_Type** The pattern attribute provides a symbolic instruction for forming values.

*Type: ASCII, Short_String, Collapsed*

*Class Name: Character_Data_Type*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Pattern*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

**permissible_value in DD_Value_Domain** The permissible_value association is a relationship to Permissible_Value.

*Type: Association*

**permissible_value in DD_Value_Domain_Full** The permissible_value association is a relationship to Permissible_Value.

*Type: Association*

**phone_book_flag in PDS_Affiliate** The phone_book_flag attribute indicates whether or not this person should be included in the phone book.

*Type: ASCII, Boolean*

*Class Name: PDS_Affiliate*
Nillable: false

Attribute Concept: Flag

Conceptual Domain: Boolean

Steward: ops

Namespace Id: pds

planetary_occultation_flag in Radio_Occultation The planetary_occultation_flag is a yes-or-no flag that indicates whether a ring occultation track also intersects the planet. Required in labels of ring occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be ‘inapplicable’. Normally not intended as a value for a table field.

Type: ASCII Short String_Collapsed

Class Name: Radio_Occultation

Minimum Characters: 1

Maximum Characters: 1

Nillable: false

Steward: rings

Namespace Id: rings

Value: N, Y

planetary_occultation_flag in Radio_Occultation_Support The planetary_occultation_flag is a yes-or-no flag that indicates whether a ring occultation track also intersects the planet. Required in labels of ring occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be ‘inapplicable’. Normally not intended as a value for a table field.

Type: ASCII Short String_Collapsed
Class Name: Radio_Occultation_Support

Minimum Characters: 1

Maximum Characters: 1

Nullable: false

Steward: rings

Namespace Id: rings

Value: N, Y

**planetary_occultation_flag in Stellar_Occultation** The planetary_occultation_flag is a yes-or-no flag that indicates whether a ring occultation track also intersects the planet. Required in labels of ring occultation observations. Nullable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field.

Type: ASCII_Short_String_Collapsed

Class Name: Stellar_Occultation

Minimum Characters: 1

Maximum Characters: 1

Nullable: false

Steward: rings

Namespace Id: rings

Value: N, Y

**postal_address_text in PDS_Affiliate** The postal_address_text attribute provides a mailing address.

Type: ASCII_Text_Preserved
Class Name: PDS_Affiliate

Minimum Characters: 1

Nullable: false

Attribute Concept: Text

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

preferred_flag in Terminological_Entry The preferred_flag indicates whether this entry is preferred over all other entries.

Type: ASCII_Boolean

Class Name: Terminological_Entry

Nullable: false

Attribute Concept: Flag

Conceptual Domain: Boolean

Steward: ops

Namespace Id: pds

primary_body_name in Target_PDS3 The primary_body_name attribute identifies the primary body with which a given target body is associated as a secondary body.

Type: ASCII_Short_String_Collapsed

Class Name: Target_PDS3

Minimum Characters: 1

Maximum Characters: 255
Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**processing_level in Primary_Result_Summary**  The processing_level attribute provides a broad indication of data processing level.

*Type*: ASCII|Short_String|Collapsed

*Class Name*: Primary_Result_Summary

*Minimum Characters*: 1

*Maximum Characters*: 255

Nullable: false

Steward: pds

Namespace Id: pds

*Value*: Calibrated, Derived, Partially Processed, Raw, Telemetry

**processing_level_id - *Deprecated* in Primary_Result_Summary**  The processing_level_id attribute provides a broad indication of data processing level.

*Type*: ASCII|Short_String|Collapsed

*Class Name*: Primary_Result_Summary

*Minimum Characters*: 1

*Maximum Characters*: 255

Nullable: false
**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** Calibrated, Derived, Partially Processed, Raw, Telemetry

**producer_full_name in Data_Set_PDS3** The `producer_full_name` attribute provides the full_name of the individual mainly responsible for the production of the data set. This individual does not have to be registered with the PDS.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Data_Set_PDS3

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Name

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**product_class in Identification_Area** The `product_class` attribute provides the name of the product class. For example, the value of the attribute `product_class` must be Product_Document for any Product_Document.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Identification_Area

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Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds


Schematron Rule: The ROOT element must be one of the allowed types.

product_data_object in Product_AIP The product_data_object association is a relationship to a data object.

Type: Association

product_data_object in Product_Attribute_Definition The product_data_object association is a relationship to a data object.

Type: Association

product_data_object in Product_Class_Definition The product_data_object association is a relationship to a data object.
Type: Association

product.data.object in Product.DIP The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.DIP.Deep_Archive The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.Data.Set.PDS3 The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.Instrument.Host.PDS3 The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.Instrument.PDS3 The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.Mission.PDS3 The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.SIP The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.Target.PDS3 The product.data.object association is a relationship to a data object.

Type: Association

product.data.object in Product.Volume.PDS3 The product.data.object association is a relationship to a data object.
Type: Association

product_data_object in Product_Volume_Set_PDS3 The product_data_object association is a relationship to a data object.

Type: Association

product_data_object in Product_Bundle The product_data_object association is a relationship to a data object.

Type: Association

product_data_object in Product_Collection The product_data_object association is a relationship to a data object.

Type: Association

product_data_object in Product_Context The product_data_object association is a relationship to a data object.

Type: Association

product_data_object in Product_Update The product_data_object association is a relationship to a data object.

Type: Association

product_description in Product_Software Description at the identifiable layer.

Type: Association

product_description in Product_Document Description at the identifiable layer.

Type: Association

program_notes_id in Software_Binary The program notes id attribute provides an identifier to a brief statement giving particulars about a software program.

Type: ASCII_Short_String_Collapsed

Class Name: Software_Binary
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**program_notes_id in Software_Source** The program notes id attribute provides an identifier to a brief statement giving particulars about a software program.

Type: ASCII_Short_String_Collapsed

Class Name: Software_Source

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**programmers_manual_id in Software** The programmers manual id attribute provides an identifier to a document giving instruction about the programming of the software.

Type: ASCII_Short_String_Collapsed
**Class Name:** Software

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**publication_date in Volume_PDS3** The publication_date attribute provides the date on which an item was published.

**Type:** ASCII_Date_YMD

**Class Name:** Volume_PDS3

**Format:** YYYY-MM-DD

**Nullable:** true

**Attribute Concept:** Time

**Conceptual Domain:** Time

**Steward:** ops

**Namespace Id:** pds

**publication_date in Document** The publication_date attribute provides the date on which an item was published.

**Type:** ASCII_Date_YMD

**Class Name:** Document
Format: YYYYY-MM-DD

Nillable: true

Attribute Concept: Time

Conceptual Domain: Time

Steward: pds

Namespace Id: pds

**publication_year in Citation_Information** The publication_year attribute provides the year in which the product should be considered as published. Generally, this will be the year the data were declared "Certified" or "Archived".

Type: ASCII_Date

Class Name: Citation_Information

Format: YYYYY-MM-DD/YYYY-DOY

Nillable: false

Attribute Concept: Time

Conceptual Domain: Time

Steward: pds

Namespace Id: pds

**purpose in Primary_Result_Summary** The purpose attribute provides an indication of the primary purpose of the observations included.

Type: ASCII_Short_String_Collapsed

Class Name: Primary_Result_Summary

Minimum Characters: 1
Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Calibration, Checkout, Engineering, Navigation, Science

**quaternion_component in Quaternion** The quaternion_component association is a relationship to Quaternion_Component.

*Type*: Association

**radial_resolution in Radio_Occltuation** radial_resolution indicates the nominal radial distance over which changes in ring properties can be detected within a data product. Note: this value may be larger than the radial_sampling_interval value, because a data product can be over-sampled. Required in labels if the value is fixed, as it is for stellar occultations. If the value varies, the corresponding minimum and maximum attributes must be used instead. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field.

*Type*: ASCII_Real

*Unit of Measure Type*: Units_of_Length

*Valid Units*: AU, Angstrom, cm, km, m, micrometer, mm, nm

*Class Name*: Radio_Occltuation

*Nullable*: false

*Steward*: rings

*Namespace Id*: rings
radial_resolution in Stellar_Occlusion
d radial_resolution indicates the nominal radial distance over which changes in ring properties can be detected within a data product. Note: this value may be larger than the radial_sampling_interval value, because a data product can be over-sampled. Required in labels if the value is fixed, as it is for stellar occultations. If the value varies, the corresponding minimum and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be ‘inapplicable’. Not intended to be used as a table field.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Stellar_Occlusion

Nillable: false

Steward: rings

Namespace Id: rings

radial_sampling_interval in Radio_Occlusion

d radial_sampling_interval indicates the radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. Required in labels if the value is fixed. If the value varies, the corresponding minimum and and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be ‘inapplicable’. Not intended to be used as a table field.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Radio_Occlusion
radial_sampling_interval in Stellar_Occultation

radial_sampling_interval indicates the radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. Required in labels if the value is fixed. If the value varies, the corresponding minimum and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field.

Type: ASCII_Real

Unit of Measure Type: Units_of_Length

Valid Units: AU, Angstrom, cm, km, m, micrometer, mm, nm

Class Name: Stellar_Occultation

Nillable: false

Steward: rings

Namespace Id: rings

received_packets in Telemetry_Parameters

The received_packets attribute provides the total number of telemetry packets which constitute a reconstructed data product, cf. expected_packets.

Type: ASCII_Integer

Class Name: Telemetry_Parameters

Minimum Value: 0

Nillable: false
Attribute Concept: Count

Conceptual Domain: Integer

Steward: img

Namespace Id: img

**record_delimiter in Stream_Text** The record_delimiter attribute provides the character or characters used to indicate the end of a record.

Type: ASCII.Short_String.Collapsed

Class Name: Stream_Text

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Delimiter

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: carriage-return line-feed

**record_delimiter in Table_Binary** The record_delimiter attribute provides the character or characters used to indicate the end of a record.

Type: ASCII.Short_String.Collapsed

Class Name: Table_Binary

Minimum Characters: 1

Maximum Characters: 255
**Nullable:** false

**Attribute Concept:** Delimiter

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**record_delimiter in Table_Character** The *record_delimiter* attribute provides the character or characters used to indicate the end of a record.

**Type:** ASCIIShort_String_Collapsed

**Class Name:** Table_Character

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Delimiter

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** carriage-return line-feed

**record_delimiter in Table_Delimited** The *record_delimiter* attribute provides the character or characters used to indicate the end of a record.

**Type:** ASCIIShort_String_Collapsed

**Class Name:** Table_Delimited
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Delimiter

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: carriage-return line-feed

**record_length in Record_Binary** The record_length attribute provides the length of a record, including a record delimiter, if present.

*Type: ASCII_Integer*

*Unit of Measure Type: Units_of_Storage*

*Valid Units: byte*

*Specified Unit Id: byte*

*Class Name: Record_Binary*

*Minimum Value: 1*

*Nillable: false*

*Attribute Concept: Length*

*Conceptual Domain: Integer*

*Steward: pds*

*Namespace Id: pds*
**record_length in Record_Character** The `record_length` attribute provides the length of a record, including the record delimiter.

*Type:* `ASCIIInteger`

*Unit of Measure Type:* `Units_of_Storage`

*Valid Units:* byte

*Specified Unit Id:* byte

*Class Name:* `Record_Character`

*Minimum Value:* 1

*Nillable:* false

*Attribute Concept:* Length

*Conceptual Domain:* `Integer`

*Steward:* `pds`

*Namespace Id:* `pds`

**records in File** The `records` attribute provides a count of records.

*Type:* `ASCIIInteger`

*Class Name:* `File`

*Minimum Value:* 1

*Nillable:* false

*Attribute Concept:* Count

*Conceptual Domain:* `Integer`

*Steward:* `pds`
records in Table_Base  The records attribute provides a count of records.

Type: ASCII_Integer

Class Name: Table_Base

Minimum Value: 1

Nullable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

records in Table_Delimited  The records attribute provides a count of records.

Type: ASCII_Integer

Class Name: Table_Delimited

Minimum Value: 1

Nullable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds
**reference_frame_id in Vector** The reference frame id attribute identifies a reference frame, an origin and set of axes, the physical realization of a reference system, i.e., the reference frame orientation and axes are established by the reported coordinates of datum points in the reference system.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Vector

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* true

*Attribute Concept:* ID

*Conceptual Domain:* Short.String

*Steward:* pds

*Namespace Id:* pds

*Value:* ICRF, MOON_ME_DE421

**reference_frame_id in Vector.Cartesian_3** The reference frame id attribute identifies a reference frame, an origin and set of axes, the physical realization of a reference system, i.e., the reference frame orientation and axes are established by the reported coordinates of datum points in the reference system.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Vector.Cartesian_3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false
Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: ICRF, MOON_ME_DE421

reference_list in Product_AIP The reference_list association is a relationship to Reference_List.

Type: Association

reference_list in Product_Attribute_Definition The reference_list association is a relationship to Reference_List.

Type: Association

reference_list in Product_Class_Definition The reference_list association is a relationship to Reference_List.

Type: Association

reference_list in Product_DIP The reference_list association is a relationship to Reference_List.

Type: Association

reference_list in Product_DIP_Deep_Archive The reference_list association is a relationship to Reference_List.

Type: Association

reference_list in Product_Data_Set_PDS3 The reference_list association is a relationship to Reference_List.

Type: Association

reference_list in Product_File_Repository The reference_list association is a relationship to Reference_List.

Type: Association

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**reference_list in Product_Instrument_Host_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Instrument_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Mission_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Proxy_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_SIP** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Service** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Software** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Subscription_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Target_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*
**reference_list in Product_Volume_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Volume_Set_PDS3** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Browse** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Bundle** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Collection** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Context** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Document** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_File_Text** The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Observational** The reference_list association is a relationship to Reference_List.

*Type: Association*
**reference_list in Product_SPICE_Kernel**  The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Thumbnail**  The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_Update**  The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_list in Product_XML_Schema**  The reference_list association is a relationship to Reference_List.

*Type: Association*

**reference_text in External_Reference**  The reference_text attribute provides a complete bibliographic citation for a published work.

*Type: ASCII_Text_Preserved*

*Class Name: External_Reference*

*Minimum Characters: 1*

*Nillable: false*

*Attribute Concept: Text*

*Conceptual Domain: Text*

*Steward: pds*

*Namespace Id: pds*

**reference_time_utc in Radio_Ocultation**  reference_time_utc provides a date and time in UTC format. Given in a label when time values in a table are given as elapsed seconds offset from a reference time. Specifically required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data, or anytime spacecraft_event_time is a table field. Not used for stellar occultations. Nillable, the nil_reason should be 'inapplicable'.

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**Type:** ASCII_Date_Time.UTC

**Class Name:** Radio_Occlusionation

**Format:**
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

**Nillable:** true

**Steward:** rings

**Namespace Id:** rings

**reference_time_utc in Radio_Occlusionation_Support**
reference_time_utc provides a date and time in UTC format. Given in a label when time values in a table are given as elapsed seconds offset from a reference time. Specifically required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data, or anytime spacecraft_event_time is a table field. Not used for stellar occultations. Nillable, the nil_reason should be ‘inapplicable’.

**Type:** ASCII_Date_Time.UTC

**Class Name:** Radio_Occlusionation_Support

**Format:**
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

**Nillable:** true

**Steward:** rings

**Namespace Id:** rings

**reference_type in DD_Association**
The reference_type attribute provides the name of the association.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** DD_Association
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: attribute_of, component_of, extension_of, restriction_of, subclass_of

**reference_type in DD_Association_External** The `reference_type` attribute provides the name of the association.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Association_External
**reference_type in Bundle_Member_Entry** The reference_type attribute provides the name of the association.

*Type:* ASCII, Short_String, Collapsed

*Class Name:* Bundle_Member_Entry

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* bundle_has_browse_collection, bundle_has_calibration_collection, bundle_has_context_collection, bundle_has_data_collection, bundle_has_document_collection, bundle_has_geometry_collection, bundle_has_member_collection, bundle_has_schema_collection, bundle_has_spice_kernel_collection

**reference_type in Internal_Reference** The reference_type attribute provides the name of the association.

*Type:* ASCII, Short_String, Collapsed

*Class Name:* Internal_Reference

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

reference_type in Inventory The reference_type attribute provides the name of the association.

Type: ASCII_Short_String_Collapsed

Class Name: Inventory

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: inventory_has_member_product

registered_by in DD_Attribute_Full The registered_by attribute provides the name of the person or organization that registered the object.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Attribute_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Text

Conceptual Domain: Short_String
registered_by in DD_Class_Full The \textit{registered_by} attribute provides the name of the person or organization that registered the object.

\textit{Type:} ASCII\_Short\_String\_Collapsed

\textit{Class Name:} DD\_Class\_Full

\textit{Minimum Characters:} 1

\textit{Maximum Characters:} 255

\textit{Nullable:} false

\textit{Attribute Concept:} Text

\textit{Conceptual Domain:} Short\_String

Steward: ops

Namespace Id: pds

registration_authority_id in DD\_Attribute\_Full The \textit{registration_authority_id} attribute provides the name of the organization that registered the object.

\textit{Type:} ASCII\_Short\_String\_Collapsed

\textit{Class Name:} DD\_Attribute\_Full

\textit{Minimum Characters:} 1

\textit{Maximum Characters:} 255

\textit{Nullable:} false

\textit{Attribute Concept:} ID

\textit{Conceptual Domain:} Short\_String
registration_authority_id in DD_Class_Full  The registration_authority_id attribute provides the name of the organization that registered the object.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Class_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

registration_date in PDS_Affiliate  The registration_date attribute provides the date of registration within the PDS system.

Type: ASCII_Date_YMD

Class Name: PDS_Affiliate

Format: YYYY-MM-DD

Nullable: false

Attribute Concept: Time

Conceptual Domain: Time
**registration_date in PDS_Guest** The registration_date attribute provides the date of registration within the PDS system.

*Type*: ASCII_Date_YMD

*Class Name*: PDS_Guest

*Format*: YYYY-MM-DD

*Nullable*: false

*Attribute Concept*: Time

*Conceptual Domain*: Time

**repetitions in Group** The repetitions attribute provides the number of times a set of repeating fields and, possibly, (sub)groups is replicated within a group.

*Type*: ASCII_Integer

*Class Name*: Group

*Minimum Value*: 1

*Nullable*: false

*Attribute Concept*: Count

*Conceptual Domain*: Integer

*Steward*: pds

*Namespace Id*: pds
**revision_id in Document** The revision_id attribute provides the revision level of a document, which may be set outside PDS and may be different from its version_id.

*Type:* ASCII, Short_String, Collapsed

*Class Name:* Document

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

**ring_event_start_tdb in Radio_Ocultation** ring_event_start_tdb indicates the value for earliest time in the described data, and is given in ring_event_tdb format. Optional in labels; not intended for use as a table field. Nullable if the observation is not a ring occultation in which case the nil_reason should be ‘inapplicable’.

*Type:* ASCII, Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Radio_Ocultation

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings
**ring_event_start_tdb in Stellar_Occultation**  
`ring_event_start_tdb` indicates the value for earliest time in the described data, and is given in `ring_event_tdb` format. Optional in labels; not intended for use as a table field. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Stellar_Occultation

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

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**ring_event_start_time_utc in Radio_Occultation**  
`ring_event_start_time_utc` gives the UTC time corresponding to the earliest time given by `ring_event_time` or `ring_event_tdb` in the data table. `ring_event_start_time_utc` is required for all ring occultation data. `ring_event_start_time_utc` is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Date_Time.UTC

*Class Name:* Radio_Occultation

*Format:*  
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

*Nillable:* true

*Steward:* rings

*Namespace Id:* rings
**ring_event_start_time_utc in Stellar_Occluation**

`ring_event_start_time_utc` gives the UTC time corresponding to the earliest time given by `ring_event_time` or `ring_event_tdb` in the data table. `ring_event_start_time_utc` is required for all ring occultation data. `ring_event_start_time_utc` is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Date_Time.UTC

*Class Name:* Stellar_Occlusion

*Format:*
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

*Nillable:* true

*Steward:* rings

*Namespace Id:* rings

**ring_event_stop_tdb in Radio_Occlusion**

`ring_event_stop_tdb` indicates the value for latest time in the described data, and is given in `ring_event_tdb` format. Optional in labels; not intended for use as a table field. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Radio_Occlusion

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings
**ring_event_stop_tdb in Stellar_Occultation**

ring_event_stop_tdb indicates the value for latest time in the described data, and is given in ring_event_tdb format. Optional in labels; not intended for use as a table field. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Time

*Valid Units:* day, hr, julian day, microseconds, min, ms, s, yr

*Class Name:* Stellar_Occultation

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings

**ring_event_stop_time_utc in Radio_Occultation**

ring_event_stop_time_utc gives the UTC time corresponding to the latest time given by ring_event_time or ring_event_tdb in the data table. ring_event_stop_time_utc is required for all ring occultation data. ring_event_stop_time_utc is required label attribute for all ring occultation data. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Date_Time.UTC

*Class Name:* Radio_Occultation

*Format:*

YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

*Nullable:* true

*Steward:* rings

*Namespace Id:* rings
**ring_event_stop_time_utc in Stellar_Occlusion**

`ring_event_stop_time_utc` gives the UTC time corresponding to the latest time given by `ring_event_time` or `ring_event_tdb` in the data table. `ring_event_stop_time_utc` is required for all ring occultation data. `ring_event_stop_time_utc` is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Date_Time.UTC

*Class Name:* Stellar_Occlusion


*Nillable:* true

*Steward:* rings

*Namespace Id:* rings

**ring_observation_id in Radio_Occlusion** The `ring_observation_id` uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g. raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g. a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR
**Type:** ASCII_Short_String_Collapsed

**Class Name:** RadioOccultation

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** true

**Steward:** rings

**Namespace Id:** rings

**ring_observation_id in Radio_Occultation_Support** The ring_observation_id uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g., raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g., a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nullable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR

**Type:** ASCII_Short_String_Collapsed

**Class Name:** RadioOccultation_Support

**Minimum Characters:** 1
The ring Observation ID uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common ID by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g., raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g., a single WFPC2 image file containing four different images). A ring Observation ID is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet ID (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host ID, inst is the instrument ID; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR

Type: ASCII_Short_String_Collapsed

Class Name: Rings_Supplement

Minimum Characters: 1

Maximum Characters: 255

Nillable: true

Steward: rings
Namespace Id: rings

ring_observation_id in Stellar_Occultation The ring_observation_id uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g., raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g., a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR

Type: ASCII Short_String_Collapsed

Class Name: Stellar_Occultation

Minimum Characters: 1

Maximum Characters: 255

Nillable: true

Steward: rings

Namespace Id: rings

ring_occultation_direction in Radio_Occultation

ring_occultation_direction indicates the radial direction of an occultation track. This refers to the observed occultation track overall,
not to the subset that might appear in a particular file. Permitted values are 'Ingress', 'Egress', 'Both', and 'Multiple'. The value 'multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Radio_Occultation

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

*Value:* Both, Egress, Ingress, Multiple

**ring_occultation_direction in Radio_Occultation_Support**

ring_occultation_direction indicates the radial direction of an occultation track. This refers to the observed occultation track overall, not to the subset that might appear in a particular file. Permitted values are 'Ingress', 'Egress', 'Both', and 'Multiple'. The value 'multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Radio_Occultation_Support

*Minimum Characters:* 1

*Maximum Characters:* 255
Nillable: false

Steward: rings

Namespace Id: rings

Value: Both, Egress, Ingress, Multiple

**ring_occultation_direction in Stellar_Occultation**
	ring_occultation_direction indicates the radial direction of an occultation track. This refers to the observed occultation track overall, not to the subset that might appear in a particular file. Permitted values are 'Ingress', 'Egress', 'Both', and 'Multiple'. The value 'multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

Type: ASCII_Short_String_Collapsed

Class Name: Stellar_Occultation

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Steward: rings

Namespace Id: rings

Value: Both, Egress, Ingress, Multiple

**ring_profile_direction in Radio_Occultation** ring_profile_direction indicates the radial direction of a ring occultation within a particular data product. Possible values are 'Ingress', 'Egress', or 'Multiple'. The value 'Multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

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Type: ASCII_Short_String_Collapsed

Class Name: Radio_Occultation

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: rings

Namespace Id: rings

Value: Egress, Ingress, Multiple

**ring_profile_direction in Radio_Occultation_Support**

ring_profile_direction indicates the radial direction of a ring occultation within a particular data product. Possible values are 'Ingress', 'Egress', or 'Multiple'. The value 'Multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

Type: ASCII_Short_String_Collapsed

Class Name: Radio_Occultation_Support

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: rings

Namespace Id: rings

Value: Egress, Ingress, Multiple
**ring_profile_direction in Stellar_Occlusion** ring_profile_direction indicates the radial direction of a ring occultation within a particular data product. Possible values are 'Ingress', 'Egress', or 'Multiple'. The value 'Multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Stellar_Occlusion

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Steward:* rings

*Namespace Id:* rings

*Value:* Egress, Ingress, Multiple

**rotation_direction in Target_PDS3** The rotation_direction element provides the direction of rotation as viewed from the north pole of the 'invariable plane of the solar system', which is the plane passing through the center of mass of the solar system and perpendicular to the angular momentum vector of the solar system. The value for this element is PROGRADE for counter-clockwise rotation, RETROGRADE for clockwise rotation and SYNCHRONOUS for satellites which are tidally locked with the primary. Sidereal_rotation_period and rotation_direction_type are unknown for a number of satellites, and are not applicable (N/A) for satellites which are tumbling.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Target_PDS3

*Minimum Characters:* 1
The sample display direction attribute provides the preferred orientation of samples within a line for viewing on a display device. The attribute must be used with line display direction.

**Type:** ASCII-Short-String-Collapsed

**Class Name:** Display_2D_Image

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Direction

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**Value:** Right

The sampling parameter interval element identifies the spacing of points at which data are sampled and at which a value for an instrument or dataset parameter is available. This sampling interval can be either the original (raw) sampling or the result of some resampling process. For example, in 48-second magnetometer data the sampling interval is 48. The sampling parameter (time, in the example) is identified by the sampling parameter name element.
Type: ASCII_Real

Class Name: Uniformly_Sampled

Nillable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**sampling_parameter_interval in Radio_Occultation_Support**

sampling_parameter_interval specifies the spacing of points at which data are sampled and at which a value for an instrument or dataset parameter is available. Used in labels for radio occultation supplemental files. Nillable in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Real

Class Name: Radio_Occultation_Support

Nillable: true

Steward: rings

Namespace Id: rings

**sampling_parameter_name in Uniformly_Sampled**
The sampling_parameter_name element provides the name of the parameter which determines the sampling interval of a particular instrument or dataset parameter. For example, magnetic field intensity is sampled in time increments, and a spectrum is sampled in wavelength or frequency.

Type: ASCII_Short_String_Collapsed

Class Name: Uniformly_Sampled
Sampling Parameter Name in Radio Occultation Support

Sampling parameter name provides the name of the parameter which determines the sampling interval for uniformly sampled data. Used in labels for radio occultation supplemental files. Nullable in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Short_String_Collapsed

Class Name: Radio_Occultation_Support

Minimum Characters: 1

Maximum Characters: 255

Nullable: true

Steward: rings

Namespace Id: rings

Sampling Parameter Scale in Uniformly Sampled

The sampling parameter scale element specifies whether the sampling interval is linear or something other such as logarithmic.

Type: ASCII_Short_String_Collapsed

Class Name: Uniformly_Sampled
Minimum Characters: 1
Maximum Characters: 255
Nillable: false
Attribute Concept: Scale
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds
Value: Exponential, Linear, Logarithmic

**sampling_parameter_unit in Uniformly_Sampled**
The `sampling_parameter_unit` element specifies the unit of measure of associated data sampling parameters.

*Type: ASCII_Short_String_Collapsed*
*Class Name: Uniformly_Sampled*

Minimum Characters: 1
Maximum Characters: 255
Nillable: false
Attribute Concept: Unit
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds

**sampling_parameter_unit in Radio_Occultation_Support**
`sampling_parameter_unit` provides the units of the parameter which determines the sampling interval for uniformly sampled data. Used in labels for radio occultation supplemental files. Nillable in which case the nil_reason should be 'inapplicable'.
Type: ASCII.Short_String.Collapsed

Class Name: Radio_Occultation_Support

Minimum Characters: 1

Maximum Characters: 255

Nullable: true

Steward: rings

Namespace Id: rings

**saturated_constant in Special_Constants** The saturated constant attribute provides a value that indicates the original value was invalid because of sensor saturation.

Type: ASCII.Short_String.Collapsed

Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Constant

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**scaling_factor in Band_Bin** The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.
Type: ASCII_Real

Class Name: Band_Bin

Nillable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: img

Namespace Id: pds

**scaling_factor in Element_Array** The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.

Type: ASCII_Real

Class Name: Element_Array

Nillable: false

Attribute Concept: Factor

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**scaling_factor in Field_Binary** The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.

Type: ASCII_Real

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Class Name: Field_Binary

Nillable: false

Attribute Concept: Factor

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

scaling_factor in Field_Bit  The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.

Type: ASCII_Real

Class Name: Field_Bit

Nillable: false

Attribute Concept: Factor

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

scaling_factor in Field_Character  The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.

Type: ASCII_REAL

Class Name: Field_Character
scaling_factor in Field_Delimited The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.

Type: ASCII Real

Class Name: Field_Delimited

sequence_number in Axis_Array The sequence_number attribute provides a number that is used to order axes in an array.

Type: ASCII Integer

Class Name: Axis_Array

Minimum Value: 1

Maximum Value: 16

Nullable: false
Attribute Concept: Number

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

Schematron Rule: The sequence number of the first axis of an Array_2D_Image must be set to 1.

Schematron Rule: The sequence number of the second axis of an Array_2D_Image must be set to 2.

sequence_number in Quaternion_Component The sequence_number attribute provides a number that is used to order axes in an array.

Type: ASCII_INTEGER

Class Name: Quaternion_Component

Minimum Value: 1

Maximum Value: 16

Nullable: false

Attribute Concept: Number

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

sequence_number in Vector_Component The sequence_number attribute provides a number that is used to order axes in an array.

Type: ASCII_INTEGER

Class Name: Vector_Component
Minimum Value: 1

Maximum Value: 16

Nullable: false

Attribute Concept: Number

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**serial_number in Instrument** The serial number element provides the assigned manufacturer’s serial number.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Instrument

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* Number

*Conceptual Domain:* Short/String

*Steward:* pds

*Namespace Id:* pds

**serial_number in Instrument_HOST** The serial number attribute provides the manufacturer’s serial number assigned to an instrument host.

*Type:* ASCII.Short_String.Collapsed

*Class Name:* Instrument_HOST
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Number

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**software_dialect in Software_Source** The software dialect attribute indicates the variety of a language used to write the software.

Type: ASCII_Short_String_Collapsed

Class Name: Software_Source

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Text

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**software_format_set in Product_Software** The software_format_set association is a relationship to a set of one or more software formats.

Type: Association

**software_format_type in Software_Binary** The software format type attribute classifies the format of the software.
The software format type attribute classifies the format of the software.

**software_format_type in Software_Source** The software format type attribute classifies the format of the software.

**software_id in Software** The software id attribute provides a formal name used to refer to the software.
Type: ASCII_Short_String_Collapsed

Class Name: Software

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

software_language in Software_Source The software language attribute identifies the language used to write the software.

Type: ASCII_Short_String_Collapsed

Class Name: Software_Source

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Text

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

software_type in Software The software type attribute identifies the class of which the software is a member.
solar_longitude in Time_Coordinates The solar_longitude attribute provides the angle between the body-Sun line at the time of interest and the body-Sun line at its vernal equinox.

Type: ASCII Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Specified Unit Id: deg

Class Name: Time_Coordinates

Minimum Value: 0

Maximum Value: 360

Nullable: false

Attribute Concept: Longitude

Conceptual Domain: Real
sort_name in PDS_Affiliate  The sort name attribute provides a string to be used in ordering. For people, the last name (surname) is typically first, followed by a comma and then other names.

Type: ASCII.Short_String.Collapsed

Class Name: PDS.Affiliate

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

sort_name in PDS_Guest  The sort name attribute provides a string to be used in ordering. For people, the last name (surname) is typically first, followed by a comma and then other names.

Type: ASCII.Short_String.Collapsed

Class Name: PDS.Guest

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name
Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**source in Terminological Entry** The bibliographic_reference association is a relationship to bibliographic reference.

**Type:** Association

**source_pds3_id in Radio_Ocultation** source_pds3_id is the PDS3 product identifier for the source product. If the source product has been archived under PDS4, use the Internal_Reference class in the Investigation_Area. source_pds3_id is required in occultation labels and may be used multiple times. The acceptable nil_reasons are 'inapplicable' and 'unknown'.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Radio_Ocultation

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** true

Steward: rings

Namespace Id: rings

**source_pds3_id in Rings_Supplement** source_pds3_id is the PDS3 product identifier for the source product. If the source product has been archived under PDS4, use the Internal_Reference class in the Investigation_Area. source_pds3_id is required in occultation labels and may be used multiple times. The acceptable nil_reasons are 'inapplicable' and 'unknown'.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Rings_Supplement

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source_pds3_id in Stellar_Occultation

source_pds3_id is the PDS3 product identifier for the source product. If the source product has been archived under PDS4, use the Internal_Reference class in the Investigation_Area. source_pds3_id is required in occultation labels and may be used multiple times. The acceptable nil_reasons are 'inapplicable' and 'unknown'.

Type: ASCII_Short_String_Collapsed

Class Name: Stellar_Occultation

Minimum Characters: 1

Maximum Characters: 255

Nullable: true

Steward: rings

Namespace Id: rings

spacecraft_event_start_time_utc in Radio_Occultation

spacecraft_event_start_time_utc gives the UTC time corresponding to the earliest time given by spacecraft_event_time in the data table. However, while spacecraft_event_time is given as seconds offset from a reference time, spacecraft_event_start_time_utc is given as a UTC date time. spacecraft_event_start_time_utc is required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data. Not used for stellar occultations. Nullable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'.
Type: ASCII_Date_Time.UTC

Class Name: Radio_Occultation

Format:
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

Nullable: true

Steward: rings

Namespace Id: rings

**spacecraft_event_stop_time_utc in Radio_Occultation**

*spacecraft_event_stop_time_utc* gives the UTC time corresponding to the latest time given by *spacecraft_event_time* in the data table. However, while *spacecraft_event_time* is given as seconds offset from a reference time, *spacecraft_event_stop_time_utc* is given as a UTC date time. *spacecraft_event_stop_time_utc* is required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data. Not used for stellar occultations. Nullable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'.

Type: ASCII_Date_Time.UTC

Class Name: Radio_Occultation

Format:
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

Nullable: true

Steward: rings

Namespace Id: rings

**specified_unit_id in DD_Value_Domain** The *specified_unit_id* attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed
**Class Name:** DD_Value_Domain

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**specified_unit_id in DD_Value_Domain_Full** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** DD_Value_Domain_Full

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**specified_unit_id in Unit_Of_Measure** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.
Type: ASCII Short String Collapsed

Class Name: Unit Of Measure

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short String

Steward: pds

Namespace Id: pds

specified_unit_id in Units_of_Acceleration The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII Short String Collapsed

Class Name: Units_of_Acceleration

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short String

Steward: pds

Namespace Id: pds

Value: m/s**2
**specified_unit_id** in **Units_of_Amount_Of_Substance** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Units_of_Amount_Of_Substance

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* mol

**specified_unit_id** in **Units_of_Angle** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Units_of_Angle

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

626
The specified unit id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Units_of_Angular_Velocity

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

Steward: pds

Namespace Id: pds

Value: deg/s

The specified unit id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Units_of_Area

**Minimum Characters:** 1

**Maximum Characters:** 255
**Nillable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** m**2

**specified_unit_id in Units_of_Frame_Rate** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Units_of_Frame_Rate

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** frames/s

**specified_unit_id in Units_of_Frequency** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

**Type:** ASCII_Short_String_Collapsed
Class Name: Units_of_Frequency

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Hz

**specified_unit_id in Units_of_Length** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Length

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: m
specified_unit_id in Units_of_Map_Scale The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII Short_String_Collapsed

Class Name: Units_of_Map_Scale

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: pixel/deg

specified_unit_id in Units_of_Mass The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII Short_String_Collapsed

Class Name: Units_of_Mass

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String
specified_unit_id in Units_of_Misc The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

*Type:* ASCII Short_String_Collapsed

*Class Name:* Units_of_Misc

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* DN

specified_unit_id in Units_of_None The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

*Type:* ASCII Short_String_Collapsed

*Class Name:* Units_of_None

*Minimum Characters:* 1

*Maximum Characters:* 255
Nilable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: none

specified_unit_id in Units_of_Optical_Path_Length The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Optical_Path_Length

Minimum Characters: 1

Maximum Characters: 255

Nilable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: airmass

specified_unit_id in Units_of_Pressure The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

632
**Class Name:** Units_of_Pressure

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** bar

**specified_unit_id in Units_of_Radiance** The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

**Type:** ASCII.Short_String.Collapsed

**Class Name:** Units_of_Radiance

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** W*m**-2*sr**-1
specified_unit_id in Units_of_Rates The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Rates

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: counts/bin

specified_unit_id in Units_of_Solid_Angle The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Solid_Angle

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String
specified_unit_id in Units_of_Spectral_Irradiance The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Spectral_Irradiance

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Steward: pds

Namespace Id: pds

Value: sr

specified_unit_id in Units_of_Spectral_Radiance The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Spectral_Radiance

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Steward: pds

Namespace Id: pds

Value: W*m**-3
Namespace Id: pds

Value: W*m**-3*sr**-1

specified_unit_id in Units_of_Storage The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Storage

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: byte

specified_unit_id in Units_of_Temperature The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Temperature

Minimum Characters: 1

Maximum Characters: 255

Nillable: false
Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: degC

specified_unit_id in Units_of_Time  The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Time

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: s

specified_unit_id in Units_of_Velocity  The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Velocity
Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

 Attribute Concept: ID

 Conceptual Domain: Short_String

 Steward: pds

 Namespace Id: pds

 Value: m/s

**specified_unit_id in Units_of_Voltage** The `specified_unit_id` attribute provides the units chosen for `maximum_value`, `minimum_value`, and `permissible_value`.

 Type: ASCII_Short_String_Collapsed

 Class Name: Units_of_Voltage

 Minimum Characters: 1

 Maximum Characters: 255

 Nullable: false

 Attribute Concept: ID

 Conceptual Domain: Short_String

 Steward: pds

 Namespace Id: pds

 Value: V
specified_unit_id in Units_of_Volume The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Volume

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: L

specified_unit_id in Units_of_Wavenumber The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Wavenumber

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Steward: pds

Namespace Id: pds
**Value:** cm**-1**

**spice_file_name in Telemetry_Parameters** The *spice_file_name* attribute provides the names of the SPICE files used in processing the data.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Telemetry_Parameters

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short_String

*Steward:* img

*Namespace Id:* img

**spice_filename in Radio_Occultation_Support** *spice_filename* gives the file name(s) of SPICE files used in the analysis. Only used if the SPICE files can not be identified using a LID or LIDVID. Otherwise the association is made in the Reference_Class using the Internal_REFERENCE class. Optional in labels for radio occultation. Nillable in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Radio_Occultation_Support

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Steward:* rings

640
**Namespace Id:** rings

**standard_deviation in Band_Bin** The standard deviation attribute provides the standard deviation of values in the associated object; empty and Special_Constants values are excluded.

*Type:* ASCII_REAL

*Class Name:* Band_Bin

*Nillable:* false

*Attribute Concept:* Number

*Conceptual Domain:* Real

*Steward:* img

**Namespace Id:** pds

**standard_deviation in Field_Statistics** The standard_deviation attribute provides the standard deviation of the stored field over all records (empty fields and Special_Constants values are excluded from the computation).

*Type:* ASCII_REAL

*Class Name:* Field_Statistics

*Minimum Value:* 0

*Nillable:* false

*Attribute Concept:* Number

*Conceptual Domain:* Real

*Steward:* pds

**Namespace Id:** pds
**standard_deviation in Object_Statistics** The standard deviation attribute provides the standard deviation of the stored array element values after application of any bit mask (Special_Constants values are excluded from the computation).

*Type:* ASCII_Real

*Class Name:* Object_Statistics

*Minimum Value:* 0

*Nullable:* false

*Attribute Concept:* Number

*Conceptual Domain:* Real

*Steward:* pds

*Namespace Id:* pds

**star_name in Stellar_Occultation** star_name provides the identifying name of star, including the catalog name if necessary. Examples include 'sigma Sgr' and 'SAO 123456' (for star number 123456 in the Smithsonian Astrophysical Observatory catalog). Use 'Sun' for solar occultations. Required in labels for stellar and solar occultations. Nullable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not used for radio occultations.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Stellar_Occultation

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings
**start_bit in Field_Bit**  The start_bit attribute provides the position of the first bit within an ordered sequence of bits.

*Type*: ASCII_Integer

*Class Name*: Field_Bit

*Minimum Value*: 1

*Nullable*: false

*Attribute Concept*: Bit

*Conceptual Domain*: Integer

*Steward*: pds

*Namespace Id*: pds

**start_date in Investigation**  The start_date attribute provides the date when an activity began.

*Type*: ASCII_Date_YMD

*Class Name*: Investigation

*Format*: YYYY-MM-DD

*Nullable*: false

*Attribute Concept*: Time

*Conceptual Domain*: Time

*Steward*: pds

*Namespace Id*: pds

**start_date_time in Data_Set_PDS3**  The start_date_time attribute provides the date and time at the beginning of the data set.

*Type*: ASCII_Date_Time
Class Name: Data_Set_PDS3

Format: YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)

Nullable: true

Attribute Concept: Time

Conceptual Domain: Time

Steward: ops

Namespace Id: pds

**start_date_time in Time_Coordinates** The start_date_time attribute provides the date and time appropriate to the beginning of the product being labeled.

Type: ASCII_Date_Time.UTC

Class Name: Time_Coordinates


Nullable: true

Attribute Concept: Time

Conceptual Domain: Time

Steward: pds

Namespace Id: pds

**starting_point_identifier in Document_Format** The starting_point attribute provides the local_identifier of the object to be accessed first.

Type: ASCII_Short_String_Collapsed

Class Name: Document_Format
Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

 Attribute Concept: ID

 Conceptual Domain: Short_String

 Steward: pds

 Namespace Id: pds

**steward_id in DD_Attribute_Full** The steward attribute indicates the person or organization who manages a set of registered attributes and classes.

 *Type:* ASCII_Short_String_Collapsed

 *Class Name:* DD_Attribute_Full

 Minimum Characters: 1

 Maximum Characters: 255

 Nullable: false

 Attribute Concept: ID

 Conceptual Domain: Short_String

 Steward: ops

 Namespace Id: pds

 Value: atm, geo, img, naif, ops, pds, ppi, rings, rs, sbn

**steward_id in DD(Class_Full** The steward_id attribute provides the abbreviation of the organization that manages the set of registered attributes and classes.
Type: ASCII_Short_String_Collapsed

Class Name: DD_Class_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: atm, geo, img, naif, ops, pds, ppi, rings, rs, sbn

**steward_id in Ingest_LDD** The steward_id attribute provides the abbreviation of the organization that manages the set of registered attributes and classes.

Type: ASCII_Short_String_Collapsed

Class Name: Ingest_LDD

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

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**stop_bit in Field.Bit** The stop-bit attribute provides the location of the last bit in this bit field relative to the first bit in the packed_data field. Bits are numbered continuously across byte boundaries. The first bit location in the packed data field is "1".

*Type:* ASCII_Integer

*Class Name:* Field.Bit

*Minimum Value:* 1

*Nullable:* false

*Attribute Concept:* Bit

*Conceptual Domain:* Integer

*Steward:* pds

*Namespace Id:* pds

**stop_date in Investigation** The stop_date attribute provides the date when an activity ended.

*Type:* ASCII_Date_YMD

*Class Name:* Investigation

*Format:* YYYY-MM-DD

*Nullable:* true

*Attribute Concept:* Time

*Conceptual Domain:* Time

*Steward:* pds

*Namespace Id:* pds

**stop_date_time in Data_Set_PDS3** The stop_date_time attribute provides the date and time at the end of the data set.
Type: ASCII_Date_Time

Class Name: Data_Set_PDS3

Format: YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)

Nillable: true

Attribute Concept: Time

Conceptual Domain: Time

Steward: ops

Namespace Id: pds

**stop_date_time in Time_Coordinates** The *stop_date_time* attribute provides the date and time appropriate to the end of the product being labeled.

Type: ASCII_Date_Time.UTC

Class Name: Time_Coordinates

Format:
YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ

Nillable: true

Attribute Concept: Time

Conceptual Domain: Time

Steward: pds

Namespace Id: pds
**sub_stellar_clock_angle in Stellar_Occultation**

sub_stellar_clock_angle is an angle measured at a point in the ring plane, from the direction toward a star to the local radial direction. This angle is projected into the ring plane and measured in the clockwise (retrograde) direction. Equivalently, this is the prograde angle from the local radial direction to the direction toward the star. For stellar occultation data, this angle is equal to \((180 - \text{OBSERVED_RING_AZIMUTH}) \mod 360\). It is available only for backward compatibility with previously published Cassini VIMS occultation data analysis; observed_ring_azimuth is the preferred quantity for archiving. sub_stellar_clock_angle is an optional data table field for Cassini VIMS occultation data; not recommended for other occultation data. In a label, the min and max variation attributes are optional for Cassini VIMS occultation data; not recommended for other occultation data.

*Type*: ASCII_\_Real

*Unit of Measure Type*: Units_\_of_\_Angle

*Valid Units*: arcmin, arcsec, deg, hr, mrad, rad

*Class Name*: Stellar_Occultation

*Minimum Value*: 0

*Maximum Value*: 360

*Nillable*: false

*Steward*: rings

*Namespace Id*: rings

**sub_stellar_ring_azimuth in Stellar_Occultation**

sub_stellar_ring_azimuth is an angle measured at a point in the ring plane, starting from the direction of a photon arriving from a star, and ending at the direction of a local radial vector. This angle is projected into the ring plane and measured in the prograde direction. Values range from 0 to 360 in units of degrees. For stellar occultation data, this angle is equal to \((\text{observed_ring_azimuth} + 180) \mod 360\). It is available only for backward compatibility with previously published Cassini UVIS occultation data analysis; observed_ring_azimuth
is the preferred quantity for archiving. sub_stellar_ring_azimuth is an optional data table field for Cassini UVIS occultation data; not recommended for other occultation data. In a label, the min and max variation attributes are optional for Cassini UVIS occultation data; not recommended for other occultation data.

Type: ASCII Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Class Name: Stellar_Occultation

Minimum Value: 0

Maximum Value: 360

Nullable: false

Steward: rings

Namespace Id: rings

**subfacet1 in Group_Facet1** The subfacet1 attribute provides a subcategorization under the facet1 value. The allowed values are restricted according to the value of facet1.

Type: ASCII Short_String_Collapsed

Class Name: Group_Facet1

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds

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**subfacet2 in Group_Facet2** The subfacet2 attribute provides a subcategorization under the facet2 value. The allowed values are restricted according to the value of facet2.

*Type:* ASCII, Short, String, Collapsed

*Class Name:* Group_Facet2

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Steward:* pds

*Namespace Id:* pds

**submitter_name in DD_Attribute** The submitter_name attribute provides the name of the author, who submits the item to the steward.

*Type:* ASCII, Short, String, Collapsed

*Class Name:* DD_Attribute

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short, String

*Steward:* ops

*Namespace Id:* pds

**submitter_name in DD_Attribute_Full** The submitter_name attribute provides the name of the author, who submits the item to the steward.
submitter_name in DD: The submitter_name attribute provides the name of the author, who submits the item to the steward.

submitter_name in DD_Class: The submitter_name attribute provides the name of the author, who submits the item to the steward.
**subscriber in Product_Subscription_PDS3** The subscriber association is a relationship to a Subscriber_PDS3 class.

*Type:* Association

**subscription_id in Subscriber_PDS3** The subscriber_id provides the identification of a PDS subscription.

*Type:* ASCII_Short_String_Collapsed

**Class Name:** Subscriber_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nullable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds
supported_architecture_note in Software_Binary The supported architecture note attribute identifies the hardware architecture that can process the software.

Type: ASCII_Text_Preserved

Class Name: Software_Binary

Minimum Characters: 1

Nullable: false

Attribute Concept: Note

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

supported_architecture_note in Software_Source The supported architecture note attribute identifies the hardware architecture that can process the software.

Type: ASCII_Text_Preserved

Class Name: Software_Source

Minimum Characters: 1

Nullable: false

Attribute Concept: Note

Conceptual Domain: Text

Steward: ops

Namespace Id: pds
**supported_environment_note in Software_Script** The supported environment note attribute identifies the environment that can process the software.

*Type: ASCII_Text_Preserved*

*Class Name: Software_Script*

*Minimum Characters: 1*

*Nillable: false*

*Attribute Concept: Note*

*Conceptual Domain: Text*

*Steward: ops*

*Namespace Id: pds*

**supported_operating_system_note in Software_Binary** The supported operating system note attribute identifies the Operating System that supports the software.

*Type: ASCII_Text_Preserved*

*Class Name: Software_Binary*

*Minimum Characters: 1*

*Nillable: false*

*Attribute Concept: Note*

*Conceptual Domain: Text*

*Steward: ops*

*Namespace Id: pds*
supported operating system note in Software_Source The supported operating system note attribute identifies the Operating System that supports the software.

Type: ASCII_Text_Preserved

Class Name: Software_Source

Minimum Characters: 1

Nillable: false

Attribute Concept: Note

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

system_requirements_note in Software_Binary The system requirements note attribute identifies what is necessary to process the software.

Type: ASCII_Text_Preserved

Class Name: Software_Binary

Minimum Characters: 1

Nillable: false

Attribute Concept: Note

Conceptual Domain: Text

Steward: ops

Namespace Id: pds
**system_requirements_note in Software_Script** The system requirements note attribute identifies what is necessary to process the software.

*Type*: ASCII_Text_Preserved

*Class Name*: Software_Script

*Minimum Characters*: 1

*Nullable*: false

*Attribute Concept*: Note

*Conceptual Domain*: Text

*Steward*: ops

*Namespace Id*: pds

**system_requirements_note in Software_Source** The system requirements note attribute identifies what is necessary to process the software.

*Type*: ASCII_Text_Preserved

*Class Name*: Software_Source

*Minimum Characters*: 1

*Nullable*: false

*Attribute Concept*: Note

*Conceptual Domain*: Text

*Steward*: ops

*Namespace Id*: pds

**target_desc in Target_PDS3** The target_desc attribute describes the characteristics of a particular target.
Type: ASCII_Text_Preserved

Class Name: Target_PDS3

Minimum Characters: 1

Nullable: false

Attribute Concept: Description

Conceptual Domain: Text

Steward: ops

Namespace Id: pds

target_name in Target_PDS3 The target_name attribute provides a name by which the target is formally known.

Type: ASCII_Short_String_Collapsed

Class Name: Target_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

target_type in Target_PDS3 The target_type attribute identifies the type of a named target.

Type: ASCII_Short_String_Collapsed
Class Name: Target_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**team_name in PDS_Affiliate** The team_name attribute provides the name of a group of individuals.

Type: ASCII_Short_String_Collapsed

Class Name: PDS_Affiliate

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: Engineering, Geosciences, Headquarters, Imaging, Management, National Space Science Data Center, Navigation Ancillary Information Facility, Planetary Atmospheres, Planetary Plasma Interactions, Planetary Rings, Radio Science, Small Bodies
telemetry_format_id in Telemetry_Parameters The telemetry_format_id attribute supplies a telemetry format code.

Type: ASCII Short_String_Collapsed

Class Name: Telemetry_Parameters

Minimum Characters: 1

Maximum Characters: 4

 Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: img

Namespace Id: img

telemetry_provider_id in Telemetry_Parameters The telemetry_provider_id attribute identifies the provider and or version of the telemetry data used in the generation of this data.

Type: ASCII Short_String_Collapsed

Class Name: Telemetry_Parameters

Minimum Characters: 1

Maximum Characters: 20

 Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: img

Namespace Id: img
telemetry_source_name in Telemetry_Parameters The telemetry_source_name attribute identifies the telemetry source used in creation of a data set.

Type: ASCII.Short_String.Collapsed

Class Name: Telemetry_Parameters

Minimum Characters: 1

Maximum Characters: 60

Nillable: false

Attribute Concept: Name

Conceptual Domain: Short_String

Steward: img

Namespace Id: img

telemetry_source_type in Telemetry_Parameters The telemetry_source_type attribute classifies the source of the telemetry used in creation of this data collection.

Type: ASCII.Short_String.Collapsed

Unit of Measure Type: Units_of_None

Valid Units: none

Class Name: Telemetry_Parameters

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type
Conceptual Domain: Short_String

Steward: img

Namespace Id: img

Value: DATA_PRODUCT, SFDU

**telephone_number in PDS_Affiliate** The telephone_number attribute provides a telephone number in international notation in compliance with the E.164 telephone number format recommendation.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: PDS_Affiliate

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Number

*Conceptual Domain*: Short_String

*Steward*: ops

*Namespace Id*: pds

**telescope_latitude in Telescope** The latitude attribute provides the angular distance north or south from the equator of a point on the object’s surface, measured on the meridian of the point.

*Type*: ASCII_Real

*Unit of Measure Type*: Units_of_Angle

*Valid Units*: arcmin, arcsec, deg, hr, mrad, rad

*Specified Unit Id*: deg
Class Name: Telescope

Minimum Value: -90

Maximum Value: 90

Nullable: false

Attribute Concept: Latitude

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

telescope_longitude in Telescope The longitude attribute provides the angular distance east or west on the object’s surface, measured by the angle contained between the meridian of a particular place and some prime meridian.

Type: ASCII_Real

Unit of Measure Type: Units_of_Angle

Valid Units: arcmin, arcsec, deg, hr, mrad, rad

Specified Unit Id: deg

Class Name: Telescope

Nullable: false

Attribute Concept: Longitude

Conceptual Domain: Real

Steward: pds

Namespace Id: pds
**terminological_entry in DD_Attribute** The terminological_entry association is a relationship to Terminological_Entry.

*Type: Association*

**terminological_entry in DD_Attribute_Full** The terminological_entry association is a relationship to Terminological_Entry.

*Type: Association*

**terminological_entry in DD_Class** The terminological_entry association is a relationship to Terminological_Entry.

*Type: Association*

**terminological_entry in DD_Class_Full** The terminological_entry association is a relationship to Terminological_Entry.

*Type: Association*

**title in Identification_Area** The name given to the resource. Typically, a Title will be a name by which the resource is formally known. Dublin Core - The title is used to refer to an object in a version independent manner.

*Type: UTF8.Short_String.Collapsed*

*Class Name: Identification_Area*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Title*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*
transfer_manifest_checksum in Information_Package_Component
The transfer manifest checksum provides the checksum for the transfer manifest file.

Type: ASCII_MD5_Checksum

Class Name: Information_Package_Component

Minimum Characters: 32

Maximum Characters: 32

Format: 0123456789abcdef

Nillable: false

Attribute Concept: Checksum

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

type in DD_Attribute_Full The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Attribute_Full

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops
Namespace Id: pds

Value: PDS3, PDS4

type in DD\_Class\_Full The type attribute provides a classification for the resource.

Type: ASCII\_Short\_String\_Collapsed

Class Name: DD\_Class\_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short\_String

Steward: ops

Namespace Id: pds

Value: PDS3, PDS4

type in Facility The type attribute provides a classification for the resource.

Type: ASCII\_Short\_String\_Collapsed

Class Name: Facility

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Laboratory, Observatory

**type in Instrument** The type attribute provides a classification for the resource.

Type: ASCII Short_String Collapsed

Class Name: Instrument

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**type in Instrument_Host** The type attribute classifies the instrument host. When more than one value is correct, the value with the finest granularity should be selected. That is, choose "rover" rather than "spacecraft" when both would be correct since rover more narrowly defines the type of instrument host.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: Instrument_Host

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Type

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

*Value*: Earth Based - *Deprecated*, Earth-based, Lander, Rover, Spacecraft

**type in Investigation** The type attribute provides a classification for the resource.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: Investigation

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Type
**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** Individual Investigation, Mission, Observing Campaign, Other Investigation

**type in Investigation_Area** The type attribute provides a classification for the resource.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Investigation_Area

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** Individual Investigation, Mission, Observing Campaign, Other Investigation

**type in Observing_System_Component** The type attribute provides a classification for the resource.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** Observing_System_Component

**Minimum Characters:** 1
Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Artificial Illumination, Instrument, Laboratory, Literature Search, Naked Eye, Observatory, Spacecraft, Telescope

**type - *Deprecated* in Primary_Result_Summary** The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Primary_Result_Summary

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Altimetry, Astrometry, Count, E/B-Field Vectors, Gravity Model, Image, Lightcurves, Map, Meteorology, Null Result, Occultation, Photometry, Physical Parameters, Polarimetry, Radiometry, Reference, Shape Model, Spectrum
**type in Quaternion** The type attribute provides a classification for the resource.

*Type*: ASCII\_Short\_String\_Collapsed

*Class Name*: Quaternion

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nullable*: false

*Attribute Concept*: Type

*Conceptual Domain*: Short\_String

*Steward*: pds

*Namespace Id*: pds

*Value*: SPICE, Spacecraft Telemetry

**type in Resource** The type attribute provides a classification for the resource.

*Type*: ASCII\_Short\_String\_Collapsed

*Class Name*: Resource

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nullable*: false

*Attribute Concept*: Type

*Conceptual Domain*: Short\_String

*Steward*: pds
Namespace Id: pds


type in Target The type attribute provides a classification for the resource.

Type: ASCII.Short_String.Collapsed

Class Name: Target

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds


type in Target_Identification The type attribute provides a target’s type, used to determine correct nomenclature for the name field.

Type: ASCII.Short_String.Collapsed

Class Name: Target_Identification
type in Unit_Of_Measure  The type attribute provides a classification for
the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Unit_Of_Measure

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**type in Units_of_Acceleration**  The type attribute provides a classification for the resource.

*Type: ASCIIShort_String_Collapsed*

*Class Name: Units_of_Acceleration*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Type*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: Acceleration*

**type in Units_of_Amount_Of_Substance**  The type attribute provides a classification for the resource.

*Type: ASCIIShort_String_Collapsed*

*Class Name: Units_of_Amount_Of_Substance*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Type*

*Conceptual Domain: Short_String*

*Steward: pds*
Namespace Id: pds

Value: Amount_Of_Substance

**type in Units_of_Angle** The type attribute provides a classification for the resource.

*Type*: ASCII Short_StringCollapsed

*Class Name*: Units_of_Angle

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Type

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

*Value*: Angle

**type in Units_of_Angular_Velocity** The type attribute provides a classification for the resource.

*Type*: ASCII Short_StringCollapsed

*Class Name*: Units_of_Angular_Velocity

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Type
Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Angular_Velocity

type in Units_of_Area The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Area

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Area

type in Units_of_Frame_Rate The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Frame_Rate

Minimum Characters: 1

Maximum Characters: 255
The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Frequency

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Frequency

The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Length
The type attribute provides a classification for the resource.

**Type**: ASCII.Short_String.Collapsed

**Class Name**: Units_of_Map_Scale

**Minimum Characters**: 1

**Maximum Characters**: 255

**Nullable**: false

**Attribute Concept**: Type

**Conceptual Domain**: Short_String

**Steward**: pds

**Namespace Id**: pds

**Value**: Scale
Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Mass

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Mass

type in Units_of_Misc The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Misc

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds
Value: Miscellaneous

**type in Units of None** The type attribute provides a classification for the resource.

*Type: ASCII Short String Collapsed*

*Class Name: Units of None*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Type*

*Conceptual Domain: Short String*

*Steward: pds*

*Namespace Id: pds*

*Value: None*

**type in Units of Optical Path Length** The type attribute provides a classification for the resource.

*Type: ASCII Short String Collapsed*

*Class Name: Units of Optical Path Length*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nillable: false*

*Attribute Concept: Type*

*Conceptual Domain: Short String*
The type attribute provides a classification for the resource.

Type: ASCIIShort_String_Collapsed

Class Name: Units_of_Pressure

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Pressure

The type attribute provides a classification for the resource.

Type: ASCIIShort_String_Collapsed

Class Name: Units_of_Radiance

Minimum Characters: 1

Maximum Characters: 255

Nullable: false
Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Radiance

type in Units_of_Rates The type attribute provides a classification for the resource.

Type: ASCII.Short_String.Collapsed

Class Name: Units_of_Rates

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Rates

type in Units_of_Solid_Angle The type attribute provides a classification for the resource.

Type: ASCII.Short_String.Collapsed

Class Name: Units_of_Solid_Angle

Minimum Characters: 1
Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Solid_Angle

type in Units_of_Spectral_Irradiance The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Spectral_Irradiance

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Steward: pds

Namespace Id: pds

Value: Spectral_Irradiance

type in Units_of_Spectral_Radiance The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Spectral_Radiance

Minimum Characters: 1
Maximum Characters: 255

Nillable: false

Steward: pds

Namespace Id: pds

Value: Spectral_Radiance

type in Units_of_Storage The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Storage

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Storage

type in Units_of_Temperature The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Temperature

Minimum Characters: 1
Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Temperature

**type in Units_of_Time** The type attribute provides a classification for the resource.

*Type*: ASCII.Short_String.Collapsed

*Class Name*: Units_of_Time

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Type

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

*Value*: Time

**type in Units_of_Velocity** The type attribute provides a classification for the resource.

*Type*: ASCII.Short_String.Collapsed

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Class Name: Units_of_Velocity

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Velocity

type in Units_of_Voltage  The type attribute provides a classification for the resource.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Voltage

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Voltage
**type in Units_of_Volume** The type attribute provides a classification for the resource.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: Units_of_Volume

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Attribute Concept*: Type

*Conceptual Domain*: Short_String

*Steward*: pds

*Namespace Id*: pds

*Value*: Volume

**type in Units_of_Wavenumber** The type attribute provides a classification for the resource.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: Units_of_Wavenumber

*Minimum Characters*: 1

*Maximum Characters*: 255

*Nillable*: false

*Steward*: pds

*Namespace Id*: pds

*Value*: Wavenumber
**type in Vector** The type attribute provides a classification for the resource.

*Type: ASCIIShort_String_COLLAPSED*

*Class Name: Vector*

*Minimum Characters: 1*

*Maximum Characters: 255*

*Nullable: false*

*Attribute Concept: Type*

*Conceptual Domain: Short_String*

*Steward: pds*

*Namespace Id: pds*

*Value: Acceleration, Pointing, Position, Velocity*

**uniformly_sampled in Table_Binary** The uniformly_sampled association is a relationship to Uniformly_Sampled.

*Type: Association*

**uniformly_sampled in Table_Character** The uniformly_sampled association is a relationship to Uniformly_Sampled.

*Type: Association*

**uniformly_sampled in Table_Delimited** The uniformly_sampled association is a relationship to Uniformly_Sampled.

*Type: Association*

**unit - *Deprecated* in Axis_Array** The unit attribute provides the unit of measurement.

*Type: UTF8Short_String_COLLAPSED*
Class Name: Axis_Array

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Text

Steward: pds

Namespace Id: pds

**unit in Element_Array** The unit attribute provides the unit of measurement.

Type: UTF8_Short_String_Collapsed

Class Name: Element_Array

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Unit

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**unit in Field_Binary** The unit attribute provides the unit of measurement.

Type: UTF8_Short_String_Collapsed

Class Name: Field_Binary
Minimum Characters: 1
Maximum Characters: 255
Nullable: false
Attribute Concept: Unit
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds

**unit in Field_Bit**  The unit attribute provides the unit of measurement.

Type: UTF8_Short_String_Collapsed

Class Name: Field_Bit
Minimum Characters: 1
Maximum Characters: 255
Nullable: false
Attribute Concept: Unit
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds

**unit in Field_Character**  The unit attribute provides the unit of measurement.

Type: UTF8_Short_String_Collapsed

Class Name: Field_Character
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Unit

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**unit in Field_Delimited**  The unit attribute provides the unit of measurement.

*Type*: UTF8,Short_String,Collapsed

*Class Name*: Field_Delimited

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Unit

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**unit in Vector_Component**  The unit attribute provides the unit of measurement.

*Type*: UTF8,Short_String,Collapsed

*Class Name*: Vector_Component

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Minimum Characters: 1
Maximum Characters: 255
Nullable: false
Attribute Concept: Unit
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds

unit_id in Unit_Of_Measure The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Unit_Of_Measure
Minimum Characters: 1
Maximum Characters: 255
Nullable: false
Attribute Concept: ID
Conceptual Domain: Short_String
Steward: pds
Namespace Id: pds

unit_id in Units_of_Acceleration The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed
Class Name: Units_of_Acceleration

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: cm/s**2, km/s**2, m/s**2

**unit_id in Units_of_Amount_Of_Substance** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Amount_Of_Substance

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: mol
**unit_id in Units_of_Angle** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

*Type:* ASCII Short_StringCollapsed

*Class Name:* Units_of_Angle

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* arcmin, arcsec, deg, hr, mrad, rad

**unit_id in Units_of_Angular_Velocity** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

*Type:* ASCII Short_StringCollapsed

*Class Name:* Units_of_Angular_Velocity

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String
The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

**Type:** ASCII Short String Collapsed

**Class Name:** Units_of_Area

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short String

**Steward:** pds

**Namespace Id:** pds

**Value:** m**2**

**unit_id in Units_of_Area** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

**Type:** ASCII Short String Collapsed

**Class Name:** Units_of_Frame_Rate

**Minimum Characters:** 1

**Maximum Characters:** 255
Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: frames/s

unit_id in Units_of_Frequency The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Frequency

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Hz

unit_id in Units_of_Length The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed
Class Name: Units_of_Length

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: AU, Angstrom, cm, km, m, micrometer, mm, nm

**unit_id in Units_of_Map_Scale** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Map_Scale

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: km/pixel, m/pixel, mm/pixel, pixel/deg
**unit_id in Units_of_Mass** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Units_of_Mass

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* g, kg

**unit_id in Units_of_Misc** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* Units_of_Misc

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* ID

*Conceptual Domain:* Short_String
Steward: pds
Namespace Id: pds
Value: DN, electron/DN, pixel

unit_id in Units_of_None The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII Short_String_Collapsed

Class Name: Units_of_None

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds
Value: none

unit_id in Units_of_Optical_Path_Length The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII Short_String_Collapsed

Class Name: Units_of_Optical_Path_Length

Minimum Characters: 1

Maximum Characters: 255
Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: airmass

**unit_id in Units_of_Pressure** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Pressure

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: Pa, bar, hPa, mbar

**unit_id in Units_of_Radiance** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed
Class Name: Units_of_Radiance

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: W*m**-2*sr**-1

**unit_id in Units_of_Rates** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Rates

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: counts/bin, kilobits/s
unit_id in Units_of_Solid_Angle  The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Solid_Angle

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: sr

unit_id in Units_of_Spectral_Irradiance  The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Spectral_Irradiance

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds
unit_id in Units_of_Spectral_Radiance The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Spectral_Radiance

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Steward: pds

Namespace Id: pds

Value: W*m**-2*Hz**-1, W*m**-2*nm**-1, W*m**-3, uW*cm**-2*um**-1

unit_id in Units_of_Storage The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Storage

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String
Steward: pds

Namespace Id: pds

Value: byte

unit_id in Units_of_Temperature The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Temperature

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: K, degC

unit_id in Units_of_Time The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Time

Minimum Characters: 1

Maximum Characters: 255
Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: day, hr, julian day, microseconds, min, ms, s, yr

**unit_id in Units_of_Velocity** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII.Short_String.Collapsed

Class Name: Units_of_Velocity

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: cm/s, km/s, m/s

**unit_id in Units_of_Voltage** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII.Short_String.Collapsed
**Class Name:** Units_of_Voltage

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** V, mV

**unit_id in Units_of_Volume** The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

**Type:** ASCII | Short_String | Collapsed

**Class Name:** Units_of_Volume

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** ID

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** L, m**3**
unit_id in Units_of_Wavenumber The unit_id attribute provides a character or character string which serves as an abbreviation for, or symbol representing, a unit of measure.

Type: ASCII_Short_String_Collapsed

Class Name: Units_of_Wavenumber

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Steward: pds

Namespace Id: pds

Value: cm⁻¹, m⁻¹, nm⁻¹

unit_of_measure_type in DD_Value_Domain The unit_of_measure_type attribute provides the named grouping of units to be used for this attribute - for example Units_of_Length and Units_of_Time.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

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unit_of_measure_type in DD_Value_Domain_Full The
unit_of_measure_type attribute provides the named grouping of
units to be used for this attribute - for example Units_of_Length and
Units_of_Time.

Type: ASCII.Short_String.Collapsed

Class Name: DD_Value_Domain_Full

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

unknown_constant in Special_Constants  The unknown_constant attribute provides a value that indicates the original value was unknown.

Type: ASCII_Long_String_Collapsed

Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Constant

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

update_entry in Update  The update_entry association is a relationship to Update_Entry.

Type: Association

url in External_Reference_Extended  The url attribute provides a Uniform Resource Identifier (URI) that specifies where a resource is available and the mechanism for retrieving it.

Type: ASCII_AnyURI

Class Name: External_Reference_Extended

Nillable: false

Steward: ops

Namespace Id: pds

url in Resource  The url attribute provides a Uniform Resource Identifier (URI) that specifies where a resource is available and the mechanism for retrieving it.

709
users_manual_id in Software  The users manual id attribute provides a formal name used to refer to a manual that describes how to use the software.

Type: ASCII.Short_String.Collapsed

Class Name: Software

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short.String

Steward: ops

Namespace Id: pds

valid_maximum in Special_Constants  The valid_maximum attribute specifies the maximum valid value in the field or digital object with which the Special_Constants class is associated. Values above the valid_maximum have a special meaning. Values of this attribute should be represented in the same data_type as the elements in the object or field described. (Note that PDS3 had no qube-related valid_maximum values because all special constants were set below the valid_minimum.)

Type: ASCII.Short_String.Collapsed
Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Maximum

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: 254, 32767, 65522

**valid_minimum in Special_Constants** The valid_minimum attribute specifies the minimum valid value in the field or digital object with which the Special_Constants class is associated. Values below the valid_minimum have a special meaning. Values of this attribute should be represented in the same data type as the elements in the object or field described.

Type: ASCII_Short_String_Collapsed

Class Name: Special_Constants

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Minimum

Conceptual Domain: Short_String

Steward: pds
Namespace Id: pds

Value: -32752, 1, 3, 5, FF7FFFFA, FFEFFFFF

**value in DD_Permissible_Value** The value attribute provides a single, allowed numerical or character string value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* DD_Permissible_Value

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String

*Steward:* ops

Namespace Id: pds

**value in DD_Permissible_Value_Full** The value attribute provides a single, allowed numerical or character string value.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* DD_Permissible_Value_Full

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Value

*Conceptual Domain:* Short_String
value in Quaternion_Component The value attribute provides a single, allowed numerical or character string value.

Type: ASCIIShort_String_Collapsed

Class Name: Quaternion_Component

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String

value in Vector_Component The value attribute provides a single, allowed numerical or character string value.

Type: ASCIIShort_String_Collapsed

Class Name: Vector_Component

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Value

Conceptual Domain: Short_String
Steward: pds

Namespace Id: pds

**value_begin_date in DD_Permissible_Value_Full** The value_begin_date attribute provides the first date on which the permissible value is in effect.

Type: ASCII_Date_Time_YMD

Class Name: DD_Permissible_Value_Full

Format: YYYY-MM-DDTHH:MM:SS.SSS(Z)

Nillable: false

Attribute Concept: Time

Conceptual Domain: Time

Steward: ops

Namespace Id: pds

**value_data_type in DD_Value_Domain** The value_data_type attribute provides the data type used to represent the value.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops
Namespace Id: pds

Value: ASCII_AnyURI, ASCII_Boolean, ASCII.DOI, ASCII_Date.DOY, ASCII_Date.Time, ASCII_Date_Time.DOY, ASCII_Date_Time.UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_Short_String_Collapsed, ASCII_Short_String_Preserved, ASCII_Text_Collapsed, ASCII_Text_Preserved, ASCII_Time, ASCII_VID, UTF8_Short_String_Collapsed, UTF8_Short_String_Preserved, UTF8_Text_Preserved, Vector_Cartesian_3, Vector_Cartesian_3_Acceleration, Vector_Cartesian_3_Pointing, Vector_Cartesian_3_Position, Vector_Cartesian_3_Velocity

value_data_type in DD_Value_Domain_Full  The value_data_type attribute provides the data type used to represent the value.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Value_Domain_Full

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

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Value: ASCII_AnyURI, ASCII_Boolean, ASCII_DOI,
ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY,
ASCII_Date_Time.UTC, ASCII_Date_Time_YMD,
ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name,
ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID,
ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum,
ASCII_NonNegative_Integer, ASCII_Numeric_Base16,
ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real,
ASCII_Short_String_Collapsed, ASCII_Short_String_Preserved,
ASCII_Text_Collapsed, ASCII_Text_Preserved, ASCII_Time,
ASCII_VID, UTF8_Short_String_Collapsed,
UTF8_Short_String_Preserved, UTF8_Text_Preserved

value_domain_entry in DD_Attribute The value_domain_entry association is a relationship to Value_Domain.

Type: Association

value_domain_entry in DD_Attribute_Full The value_domain_entry association is a relationship to Value_Domain.

Type: Association

value_end_date in DD_Permissible_Value_Full The value_end_date attribute provides the last date on which the permissible value is in effect.

Type: ASCII_Date_Time_YMD

Class Name: DD_Permissible_Value_Full

Format: YYYY-MM-DDTHH:MM:SS.SSS(Z)

Nillable: false

Attribute Concept: Time

Conceptual Domain: Time

Steward: ops

Namespace Id: pds

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**value_meaning in DD_Permissible_Value**  
The value_meaning attribute provides the meaning, or semantic content, of the associated permissible value.

*Type:* ASCII_Text_Preserved

*Class Name:* DD_Permissible_Value

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Text

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds

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**value_meaning in DD_Permissible_Value_Full**  
The value_meaning attribute provides the meaning, or semantic content, of the associated permissible value.

*Type:* ASCII_Text_Preserved

*Class Name:* DD_Permissible_Value_Full

*Minimum Characters:* 1

*Nillable:* false

*Attribute Concept:* Text

*Conceptual Domain:* Text

*Steward:* ops

*Namespace Id:* pds
value_offset in Band_Bin  The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.

Type: ASCII_Real

Class Name: Band_Bin

Nillable: false

Attribute Concept: Offset

Conceptual Domain: Real

Steward: img

Namespace Id: pds

value_offset in Element_Array  The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.

Type: ASCII_Real

Class Name: Element_Array

Nillable: false

Attribute Concept: Offset

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

value_offset in Field_Binary  The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.
Type: ASCII_Real

Class Name: Field_Binary

Nillable: false

Attribute Concept: Offset

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**value_offset in Field_Bit** The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.

Type: ASCII_Real

Class Name: Field_Bit

Nillable: false

Attribute Concept: Offset

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**value_offset in Field_Character** The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.

Type: ASCII_Real

Class Name: Field_Character
*Nillable: false*

*Attribute Concept: Offset*

*Conceptual Domain: Real*

*Steward: pds*

*Namespace Id: pds*

**value_offset in Field_Delimited** The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: \( Ov = (Sv \times \text{scaling_factor}) + \text{value_offset} \). The default value is 0.

*Type: ASCII_Real*

*Class Name: Field_Delimited*

*Nillable: false*

*Attribute Concept: Offset*

*Conceptual Domain: Real*

*Steward: pds*

*Namespace Id: pds*

**vector in Geometry** The vector association is a relationship to Vector objects.

*Type: Association*

**vector_component in Vector** The vector_component association is a relationship to the vector_component.

*Type: Association*

**vector_components in Vector** The vector_components attribute provides a count of vector components.

*Type: ASCII_Integer*
Class Name: Vector

Nillable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: pds

Namespace Id: pds

**version_id in DD_Attribute** The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.

*Type:* ASCII_Short_String_Collapsed

Class Name: DD_Attribute

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**version_id in DD_Attribute_Full** The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.

*Type:* ASCII_Short_String_Collapsed

Class Name: DD_Attribute_Full

Minimum Characters: 1
version_id in DD_Class The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Class

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

version_id in DD_Class_Full The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.

Type: ASCII_Short_String_Collapsed

Class Name: DD_Class_Full

Minimum Characters: 1
Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**version_id in Software** The `version_id` attribute provides the version of the product, expressed in the PDS [m.n] notation.

Type: ASCII_Short_String_Collapsed

Class Name: Software

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**version_id in Identification_Area** The `version_id` attribute provides the version of the product, expressed in the PDS [m.n] notation.

Type: ASCII_Short_String_Collapsed

Class Name: Identification_Area

Minimum Characters: 1
Maximum Characters: 255

Pattern: (\[0-9\]+)(\d\{1\}\[0-9\]+)

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**version_id in Instrument_Host** The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Instrument_Host

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**version_id in Modification_Detail** The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.

*Type:* ASCIIShort_String_Collapsed

*Class Name:* Modification_Detail

724
Minimum Characters: 1

Maximum Characters: 255

Pattern: ([0-9]+)(\{1\})([0-9]+)

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**volume_de_fullname in Volume_PDS3** The `volume_de_fullname` attribute provides the full name of the data engineer.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: Volume_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**volume_format in Volume_PDS3** The `volume_format` attribute identifies the logical format used in writing a data volume.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: Volume_PDS3
Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: Format

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds


Type: ASCII.Short_String.Collapsed

Class Name: Volume_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

**volume_name in Volume_PDS3** The volume_name attribute contains the name of a data volume.

Type: ASCII.Short_String.Collapsed

Class Name: Volume_PDS3
Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

 Attribute Concept: Name

 Conceptual Domain: Short_String

 Steward: ops

 Namespace Id: pds

 volume_series_name in Volume_Set_PDS3 The volume_series_name element provides a full, formal name that describes a broad categorization of data products or data sets related to a planetary body or a research campaign (e.g. International Halley Watch). A volume series consists of one or more volume sets that represent data from one or more missions or campaigns.

 Type: ASCII_Short_String_Collapsed

 Class Name: Volume_Set_PDS3

 Minimum Characters: 1

 Maximum Characters: 255

 Nullable: false

 Attribute Concept: Name

 Conceptual Domain: Short_String

 Steward: ops

 Namespace Id: pds

 volume_set_id in Volume_PDS3 The volume_set_id attribute identifies a data volume or a set of volumes. Volume sets are normally considered as a single orderable entity. Examples: USA_NASA_PDS_MG_1001, USA_NASA_PDS_GR_0001_TO_GR_0009

727
Type: ASCIIShort_String_Collapsed

Class Name: Volume_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

volume_set_id in Volume_Set_PDS3 The volume_set_id attribute identifies a data volume or a set of volumes. Volume sets are normally considered as a single orderable entity. Examples: USA_NASA_PDS_MG_1001, USA_NASA_PDS_GR_0001_TO_GR_0009

Type: ASCIIShort_String_Collapsed

Class Name: Volume_Set_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds
**volume_set_name in Volume_Set_PDS3** The `volume_set_name` element provides the full, formal name of one or more data volumes containing a single data set or a collection of related data sets. Volume sets are normally considered as a single orderable entity.

*Type:* ASCII Short String Collapsed

*Class Name:* Volume_Set_PDS3

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Name

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

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**volume_size in Volume_PDS3** The `volume_size` attribute provides the number of bytes in the volume.

*Type:* ASCII NonNegative Integer

*Class Name:* Volume_PDS3

*Minimum Value:* 0

*Nillable:* false

*Attribute Concept:* Size

*Conceptual Domain:* Integer

*Steward:* ops

*Namespace Id:* pds
volume_version_id in Volume_PDS3 The volume_version_id attribute identifies the version of a data volume. All original volumes should use a volume_version_id of 'Version 1'.

Type: ASCII,Short_String,Collapsed

Class Name: Volume_PDS3

Minimum Characters: 1

Maximum Characters: 255

Nullable: false

Attribute Concept: ID

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

volumes in Volume_Set_PDS3 The volumes element provides the number of physical data volumes contained in a volume set.

Type: ASCII,Integer

Class Name: Volume_Set_PDS3

Minimum Value: 0

Nullable: false

Attribute Concept: Count

Conceptual Domain: Integer

Steward: ops

Namespace Id: pds

730
**wavelength in Radio_Occultation** wavelength of the observation. Optional in labels. If the observation is over a wavelength range, use the corresponding minimum and maximum attributes instead. Nullable in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Length

*Valid Units:* AU, Angstrom, cm, km, m, micrometer, mm, nm

*Class Name:* Radio_Occultation

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings

**wavelength in Stellar_Occultation** wavelength of the observation. Optional in labels. If the observation is over a wavelength range, use the corresponding minimum and maximum attributes instead. Nullable in which case the nil_reason should be 'inapplicable'.

*Type:* ASCII_Real

*Unit of Measure Type:* Units_of_Length

*Valid Units:* AU, Angstrom, cm, km, m, micrometer, mm, nm

*Class Name:* Stellar_Occultation

*Nullable:* false

*Steward:* rings

*Namespace Id:* rings

**wavelength_range in Science_Facets** The wavelength range within which the data collection occurred or which otherwise characterizes the observation(s). Boundaries are vague, and there is overlap.
Type: ASCII\_Short\_String\_Collapsed

Class Name: Science\_Facets

Minimum Characters: 1

Maximum Characters: 255

 Nullable: false

Steward: pds

Namespace Id: pds

Value: Far Infrared, Gamma Ray, Infrared, Microwave, Millimeter, Near Infrared, Radio, Submillimeter, Ultraviolet, Visible, X-ray

**x in Vector\_Cartesian\_3** The x attribute provides the value of the x coordinate in a position vector.

Type: ASCII\_Real

Class Name: Vector\_Cartesian\_3

Nullable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

**xml\_schema\_base\_type in ASCII\_AnyURI** The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII\_Short\_String\_Collapsed

Class Name: ASCII\_AnyURI

732
Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:anyURI

**xml_schema_base_type in ASCII_DOI** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type: ASCII_Short_String_Collapsed*

*Class Name: ASCII_DOI*

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:string
**xml_schema_base_type in ASCII_Date_DOY** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* `ASCII_Short_String_Collapsed`

*Class Name:* `ASCII_Date_DOY`

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* `Short_String`

*Steward:* ops

*Namespace Id:* pds

*Value:* `xsd:string`

**xml_schema_base_type in ASCII_Date_Time** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* `ASCII_Short_String_Collapsed`

*Class Name:* `ASCII_Date_Time`

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* `Short_String`
Steward: ops

Namespace Id: pds

Value: xsd:string

xml_schema_base_type in ASCII_Date_Time DOY The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII Short String_Collapsed

Class Name: ASCII_Date_Time_DOY

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short String

Steward: ops

Namespace Id: pds

Value: xsd:string

xml_schema_base_type in ASCII_Date_Time.UTC The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII Short String_Collapsed

Class Name: ASCII_Date_Time.UTC

Minimum Characters: 1

Maximum Characters: 255

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**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**Value:** xsd:string

**xml_schema_base_type in ASCII_Date_Time_YMD** The xml schema base type attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Date_Time_YMD

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**Value:** xsd:string

**xml_schema_base_type in ASCII_Date_Time_YMD** The xml schema base type attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII_Short_String_Collapsed

736
**Class Name:** ASCII_Date_YMD

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**Value:** xsd:string

**xml_schema_base_type in ASCII_Directory_Path_Name** The xml schema base type attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Directory_Path_Name

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** ops

**Namespace Id:** pds

**Value:** xsd:token
xml_schema_base_type in ASCII_File_Name The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_File_Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:token

xml_schema_base_type in ASCII_File_Specification_Name The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_File_Specification_Name

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String
xml_schema_base_type in ASCII_Integer The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Integer

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:int

xml_schema_base_type in ASCII_LID The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_LID

Minimum Characters: 1

Maximum Characters: 255
Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:string

**xml_schema_base_type in ASCII_LIDVID** The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_LIDVID

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:string

**xml_schema_base_type in ASCII_MD5_Checksum** The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

740
Class Name: ASCII_MD5_Checksum

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:string

xml_schema_base_type in ASCII_NonNegative_Integer The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_NonNegative_Integer

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:long
xml_schema_base_type in ASCII_Real The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII Short_String_Collapsed

Class Name: ASCII_Real

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:double

xml_schema_base_type in ASCII_Short_String_Collapsed The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_Short_String_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String
The `xml_schema_base_type` attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII\_Short\_String\_Collapsed

**Class Name:** ASCII\_Short\_String\_Preserved

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nillable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short\_String

**Steward:** ops

**Namespace Id:** pds

**Value:** xsd:string

The `xml_schema_base_type` attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII\_Short\_String\_Collapsed

**Class Name:** ASCII\_Text\_Preserved

**Minimum Characters:** 1

**Maximum Characters:** 255
Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:string

**xml_schema_base_type in ASCII_Time** The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII Short_String_Collapsed

Class Name: ASCII_Time

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: ops

Namespace Id: pds

Value: xsd:string

**xml_schema_base_type in ASCII_VID** The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII Short_String_Collapsed
Class Name: ASCII VID

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short String

Steward: ops

Namespace Id: pds

Value: xsd:string

**xml_schema_base_type in UTF8_Short_String_Collapsed** The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: UTF8_Short_String_Collapsed

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short String

Steward: ops

Namespace Id: pds

Value: xsd:token
**xml_schema_base_type in UTF8_Short_String_Preserved** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* UTF8_Short_String_Preserved

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

*Steward:* ops

*Namespace Id:* pds

*Value:* xsd:string

**xml_schema_base_type in UTF8_Text_Preserved** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* UTF8_Text_Preserved

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String
**xml_schema_base_type in ASCII_Boolean** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Boolean

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

**xml_schema_base_type in ASCII_Date** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Date

*Minimum Characters:* 1

*Maximum Characters:* 255
Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: xsd:string

xml_schema_base_type in ASCII_LIDVID_LID The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

Class Name: ASCII_LIDVID_LID

Minimum Characters: 1

Maximum Characters: 255

Nillable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: xsd:string

xml_schema_base_type in ASCII_Numeric_Base16 The xml schema base type attribute provides the data type needed for the XML schema implementation.

Type: ASCII_Short_String_Collapsed

748
**Class Name:** ASCII_Numeric_Base16

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** xsd:hexBinary

**xml_schema_base_type in ASCII_Numeric_Base2** The xml schema base type attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII_Short_String_Collapsed

**Class Name:** ASCII_Numeric_Base2

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

**Steward:** pds

**Namespace Id:** pds

**Value:** xsd:string

749
**xml_schema_base_type in ASCII_Numeric_Base** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Numeric_Base

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

*Steward:* pds

*Namespace Id:* pds

*Value:* xsd:string

**xml_schema_base_type in ASCII_Short** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type:* ASCII_Short_String_Collapsed

*Class Name:* ASCII_Short

*Minimum Characters:* 1

*Maximum Characters:* 255

*Nillable:* false

*Attribute Concept:* Type

*Conceptual Domain:* Short_String

Value: xsd:string

750
The xml schema base type attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII.Short_String.Collapsed

**Class Name:** ASCII.Text.Collapsed

**Minimum Characters:** 1

**Maximum Characters:** 255

**Nullable:** false

**Attribute Concept:** Type

**Conceptual Domain:** Short_String

Steward: pds

Namespace Id: pds

Value: xsd:token

**xml_schema_base_type in Character_Data_Type** The xml schema base type attribute provides the data type needed for the XML schema implementation.

**Type:** ASCII.Short_String.Collapsed

**Class Name:** Character_Data_Type

**Minimum Characters:** 1

**Maximum Characters:** 255
Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

**xml_schema_base_type in UTF8_String** The xml schema base type attribute provides the data type needed for the XML schema implementation.

*Type*: ASCII_Short_String_Collapsed

*Class Name*: UTF8_String

*Minimum Characters*: 1

*Maximum Characters*: 255

Nullable: false

Attribute Concept: Type

Conceptual Domain: Short_String

Steward: pds

Namespace Id: pds

Value: xsd:token

**y in Vector_CARTESIAN_3** The y attribute provides the value of the y coordinate in a position vector.

*Type*: ASCII_Real

*Class Name*: Vector_CARTESIAN_3

Nullable: false
Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

z in Vector.Cartesian.3 The z attribute provides the value of the z coordinate in a position vector.

Type: ASCII,Real

Class Name: Vector.Cartesian.3

Nillable: false

Attribute Concept: Number

Conceptual Domain: Real

Steward: pds

Namespace Id: pds

25 Glossary

The following glossary contains a list of terms used within this specification and the definitions for those terms.

Archive A place in which public records or historical documents are preserved; also the material preserved - often used in plural. Sometimes capitalized when referring to all of PDS holdings - the PDS Archive.

Array An N-dimensional data structure in which every element has an identical data type. For example, a structure with 5 rows and 3 columns in which each element is a 2-byte signed integer would be an array.

Association An attribute that establishes a unidirectional relationship between two classes. For example, a table has records; 'has record’ is the relationship between one entity (the table) and another (a record).

Attribute A property or characteristic that provides a unit of information. For example, 'color’ and 'length’ are possible attributes.
Basic Product  The simplest product in PDS4; one or more data objects (and their description objects), which constitute (typically) a single observation, document, etc. The only PDS4 products that are not basic products are Product_Collection and Product_Bundle. Every basic product must be a primary member of one (and only one) collection. Basic products may be secondary members of any number of collections.

Bundle  A list of collections. Product_Bundle, the bundle’s manifestation, is itself a product (because it is simply a list embedded within a label); but it is not a basic product. For example, a bundle could list a collection of raw data obtained by an instrument during its mission lifetime, a collection of the calibration products associated with the instrument, and a collection of all documentation relevant to the first two collections.

Cardinality  The number of values allowed to an attribute or association in a single class. Cardinality in general is stated as a range with a minimum and maximum. For example, an optional attribute that may be multi-valued will have a cardinality of ”0..*”. A cardinality where the minimum and maximum are the same is often shown as the single value; for example, an attribute required to have exactly one value will have a cardinality of ”1”. When a value is required, the minimum cardinality is at least 1.

Class  The set of attributes (including a name) which defines a family. A class is generic - a template from which individual members of the family may be constructed. If the class ‘rope’ (its name) is defined by attributes ‘color’ and ‘length’, we can construct a family of ropes - e.g., red and 3 m long, red and 4 m long, blue and 2 m long, ...

Class_Hierarchy  An ordering of classes which shows parent-child relationships.

Collection  A list of basic products, all of which are closely related in some way. The collection’s manifestation, Product_Collection, is itself a product (because it is simply a list, with its label); but it is not a basic product.

Conceptual_Object  An object which is intangible (and, because it is intangible, does not fit into a digital archive). Examples of ‘conceptual objects’ include the Cassini mission and NASA’s strategic plan for solar system exploration. Note that a PDF describing the Cassini mission is a digital object, not a conceptual object (nor a component of a conceptual object).
**Consulting_Node** A PDS discipline node assigned as the contact for a mission, instrument, or project.

**Container** The physical equivalent of a package (see below); the product manifest and all related files wrapped together for transfer - for example, in a ZIP, GZIP, or TAR file.

**Data_Dictionary** A repository for definitions of classes and attributes

**Data_Object** A physical, conceptual, or digital object.

**Data_Preparer** Same as data provider

**Data_Provider** A person or organization that assembles archival data for delivery to PDS.

**Data_Structure** A particular way of storing data in a computer that facilitates efficient use.

**Description_Object** Something that describes an object. As appropriate, it will have structural and descriptive components. Technically speaking, a 'description object' in PDS4 is a 'digital object' - a string of bits; but we assume that we can read it and, on that basis, give it a special name.

**Digital_Object** An object which is real data - for example, a binary image of a redwood tree or an ASCII table of atmospheric composition versus altitude.

**Discipline_Area** That part of a label which is specified by a discipline.

**Encoded_Byte_Stream** A byte stream that may only be interpreted after it has been 'decoded' according to some well known standard

**Entity** Something that has a distinct, separate existence.

**Extension** (1) See subclass. (2) The character string following the last period in a file name.

**Identifier** A unique character string by which a product, object, or other entity may be identified and located. Identifiers can be global, in which case they are unique across all of PDS (and its federation partners). A local identifier must be unique within a label.

**Information_Model** A representation of concepts, relationships, constraints, rules, and operations to specify data semantics for a chosen domain of discourse. Specifically, the PDS Information Model (IM) is the representation that specifies PDS4.
**Information_Object** A data object paired with its description

**Inventory** An itemized list of current assets or holdings

**Label** The aggregation of one or more description objects such that the aggregation describes a single PDS product. In the PDS4 implementation, labels are constructed using XML, which imposes a small amount of overhead.

**Label_Template** A text file which serves as a pattern for constructing labels.

**Lead_Node** One of several consulting nodes designated as the PDS coordinator and primary contact with a mission.

**Local** (1) Within a single label. (2) Within an archiving entity - e.g., local data dictionary.

**Local_Data_Dictionary_(LDD)** A data dictionary for classes and attributes which are not defined across the entire PDS. Examples include data dictionaries for discipline nodes, missions, and individual archiving projects.

**Logical_Identifier_(LID)** An identifier which identifies the set of all versions of an object

**Manifest** A list of contents

**Meta-Attribute** An attribute of an attribute - that is, a 'dictionary' attribute, which is used to define one or more attributes in the PDS4 Information Model. For example, 'conceptual_domain' and 'maximum_value' are used in defining some attributes.

**Metadata** Data about data - for example, a 'description object' contains information (metadata) about an 'object.'

**Mission** A task with which a group of people have been charged, usually by a government agency and including priority (if not exclusive) use of one or more spacecraft (see attribute type within class Investigation_Area)

**Mission_Area** That part of a label which is specified by a mission

**Model** A representation or description designed to show an entity and its composition.

**Namespace** A context for defining classes and attributes. Two items with the same name but from different namespaces generally have different definitions. For example, "title" has a very different meaning in a movie namespace compared with its meaning in an automobile namespace.
Object The realization of a single member of a family defined by a class. If the class 'rope' has attributes 'color' and 'length', we can construct a 'rope' family with three members - red and 3 m long, red and 4 m long, and blue and 2 m long. Each member is an object.

Observational Data Raw measurements from one or more instruments, or the results from processing such raw measurements.

Observing Campaign An observational assignment with which a group of people have been charged (sometimes voluntarily) which extends over some period of time and which can be accomplished without significant construction of new equipment. (see attribute type within class Investigation_Area)

Package A product manifest and all related files logically grouped together for transfer.

Parsable Byte Stream A byte stream which can be parsed with standard rules - e.g., comma separated entries or standard punctuation; 'decoding software' is not needed.

Physical Object An object which is physical or tangible (and, therefore, does not itself fit into a digital archive). Examples of 'physical objects' include the planet Saturn and the Venus Express magnetometer. Note that an ASCII file describing Saturn is a digital object, not a physical object (nor a component of a physical object).

Primary Member A basic product is a primary member of the collection within which it first enters PDS4. Every basic product must be a primary member of one (and only one) collection. A product’s member status (primary or secondary) is based on its first association with the collection. Although the product may be omitted from a later version of the collection, it retains its primary or secondary member status through all subsequent versions of the collection based on its initial association. In a similar way, collections are categorized as having either primary or secondary ‘member status’ in their bundles.

Product One or more tagged objects (digital, non-digital, or both) grouped together and having a single PDS-unique identifier. In the PDS4 implementation, the descriptions are combined into a single XML label. Although it may be possible to locate individual objects within PDS (and to find specific bit strings within digital objects), PDS4 defines 'products' to be the smallest granular unit of addressable data within its complete holdings.
**Registration_Authority** An organization responsible for maintaining a registry - in this case, the PDS4 Information Model and its components. The registration authority for the Planetary Data System is 'PDS'.

**Registry** A data base that provides services for sharing content and metadata.

**Repository** A place, room, or container where something is deposited or stored (often for safety or preservation)

**Resource** The target (referent) of any Uniform Resource Identifier; the thing to which a URI points.

**Restored_Data** Data which have been recovered from storage and successfully prepared for archive in PDS

**Restriction** A limit placed on the range of a variable; specifically, the narrowing of possible choices for a class or attribute. For example, attribute axes may have values between 1 and 16 in the definition of Array, but it is restricted to the value '2' in Array_2D.

**Schema** A structural definition given in a formal language which serves as a blueprint for construction.

**Science_Bundle** Observational data from a science investigation, documentation, and other supplementary data organized into a bundle structure for delivery to PDS.

**Secondary_Member** A basic product may be a secondary member of any number of collections. A collection which lists references to basic products already registered in PDS would identify those products as its secondary members. For example, if all Voyager images were in one primary collection, an analyst could define a new (subset) collection containing images which had Saturn’s rings within the field of view; each of those image products would be a secondary member of the new collection. A product’s member status (primary or secondary) is based on its first association with the collection. Although the product may be omitted from a later version of the collection, it retains its primary or secondary member status through all subsequent versions of the collection based on its initial association. In a similar way, collections are categorized as having either primary or secondary 'member status' in their bundles.

**Steward** A person or organization that manages a set of registered attributes and classes, typically as an agent for another or others. A registration authority must have at least one steward; it may have
many. Stewards for PDS4 include PDS, the discipline nodes, and any mission wishing to conform to the PDS4 Information Model.

**Subclass** In PDS4 a subclass is a class extension. Subclasses are more specialized versions of a class. They inherit attributes and behaviors from their parent classes, and they can have attributes of their own. For example, Array.2D is a PDS4 subclass of Array_Base.

**Supplementary Data** Additional archival material which is useful in understanding observational data. Examples include browse products, descriptions of instruments and other facilities important to data acquisition, information about observing geometry, calibrations, and observing and command logs.

**Table** A two-dimensional data structure composed of records, which themselves are heterogeneous but which repeat throughout the table. For example, a table could have 20 ASCII records, each of which has a 10-character date field, a comma, an 8-character time field, a comma, a 3-digit integer temperature field, and a 'carriage-return line-feed' record delimiter.

**Tag** Fundamental syntax in XML; a tag is a character string delimited by "¡" and "¿". For example ¡date¿ is a tag.

**Tagged Digital Object** A digital object paired with its companion description object. [Note: In the OAIS RM this pair is known as an 'information object']

**Tagged Non-Digital Object** A physical object or a conceptual object paired with its companion description object. [Note: In the OAIS RM this pair is known as an 'information object']

**Version Identifier (VID)** An identifier which identifies the version of something else.

**Versioned Identifier (LIDVID)** The concatenation of a logical identifier (LID) with a version identifier (VID).

**XML Attribute** An attribute-value pair that is inserted into an XML element to provide additional information, such as units; the value is always enclosed in double quotes. For example ¡date unit="year"¿2009¡/date¿.

**XML Document** A file that contains syntactically correct XML-formatted text.

**XML Editor** An editor, which has special features allowing XML tag completion, XML validation, etc.
XML Element  An XML structure that begins with `<tag>`, contains ‘content’, and ends with `</tag>`. For example, `<date>2009</date>` is an XML element establishing the date as 2009. The allowed 'content' is specified in the PDS4 Information Model, which is propagated to the PDS4 Data Dictionary.

XML Label  A label written using XML

XML Root Tag  The first (and highest-level) XML tag in an XML document

XML Schema  The definition of an XML document, specifying required and optional XML elements, their order, and parent-child relationships.

XML Tag  Same as tag.

XML Template  A text file which serves as a pattern for constructing XML documents