

International Planetary Data Alliance (IPDA) Data Dictionary Model

IPDA Data Dictionary Model Team

July 9, 2008

DRAFT

Version 0.080425

Contents

1	Introduction	5
1.1	Background	5
1.2	Scope	5
1.3	Approach	5
1.4	Document Contents	7
2	Upper Level Object Classes	9
2.1	AdministeredItem	11
2.2	AdministrationRecord	12
2.3	ClassificationScheme	14
2.4	ClassificationSchemeItem	14
2.5	ClassificationSchemeItemRelationship	15
2.6	Component	16
2.7	Concept	16
2.8	ConceptRelationship1	17
2.9	ConceptRelationship2	18
2.10	ConceptualDomain	19
2.11	ConceptualDomainRelationship	19
2.12	Contact	20
2.13	Context	20
2.14	DataElement	21
2.15	DataElementConcept	22
2.16	DataElementConceptRelationship	23
2.17	DataElementDerivation	24
2.18	DataElementExample	24
2.19	Datatype	25
2.20	Definition	25
2.21	DerivationRule	26
2.22	Designation	26
2.23	EnumeratedConceptualDomain	26
2.24	EnumeratedValueDomain	27
2.25	ISO_IEC_11179_2003	28
2.26	Identifier	29
2.27	Individual	30
2.28	LanguageIdentification	30
2.29	LanguageSection	30
2.30	NonEnumeratedConceptuaDomain	31
2.31	NonEnumeratedValueDomain	32
2.32	ObjectClass	33
2.33	Organization	34
2.34	PermissibleValue	35
2.35	Property	35

2.36	ReferenceDocument	36
2.37	Registrar	37
2.38	RegistrationAuthority	38
2.39	RegistrationAuthorityIdentifier	39
2.40	Relationship	40
2.41	RepresentationClass	41
2.42	Steward	42
2.43	Submitter	43
2.44	TerminologicalEntry	44
2.45	UnitOfMeasure	45
2.46	ValueDomain	46
2.47	ValueDomainRelationship	47
2.48	ValueMeaning	48
3	Data Dictionary	49
4	Glossary	54

List of Figures

1	IPDA Reference System Architecture	6
2	Existing PSDD Attribute Mappings to 11179	7
3	New ISO/IEC 11179 Attributes	8
4	Upper Level UML Class Diagram	11

1 Introduction

This document is a data model specification for the IPDA Data Dictionary. It provides a detailed description of the data model and is the third deliverable of the International Planetary Data Alliance (IPDA) Data Dictionary Model project. The prior deliverables were data model use cases and requirements documents.

1.1 Background

The International Planetary Data Alliance (IPDA) is a joint effort by national space exploration agencies, research institutions, and universities to enable global access and exchange of high quality planetary science data, and to establish archive standards that make it easier to share the data across international boundaries.

The IPDA has defined a Reference System Architecture that will provide a set of best practice specifications to be used for guiding the implementation of archive data systems. This reference architecture, outlined in Figure 1, consists of three core components, namely the process, data, and technology architecture standards. These standards will provide the means for enabling interoperability between planetary science archive data systems. This figure also illustrates where the Data Dictionary fits as a component in the Architecture Standards.

1.2 Scope

This document describes the data model for the IPDA Data Dictionary. This is a conceptual model that includes the object classes, their attributes, and the relationships on the classes that are required to capture the terms and their definitions that are used in the IPDA Information Model. This document does not address the content of the data dictionary. This document also contains its own data dictionary. This data dictionary defines the term used in the data dictionary data model.

1.3 Approach

The ISO/IEC 11179 Metadata Registry (MDR) Standard (2003) is used as the basis for the data dictionary model in this specification. The Planetary Science Data Dictionary (PSDD) data model is being mapped to the ISO/IEC 11179 model since it is assumed that portions of the PSDD content will be adopted in concert with the core PDS Information Model. The Planetary Science Data Dictionary (PSDD) attributes have been mapped to the ISO.IEC 11179 Metadata Registry attributes as shown in Figure 2.

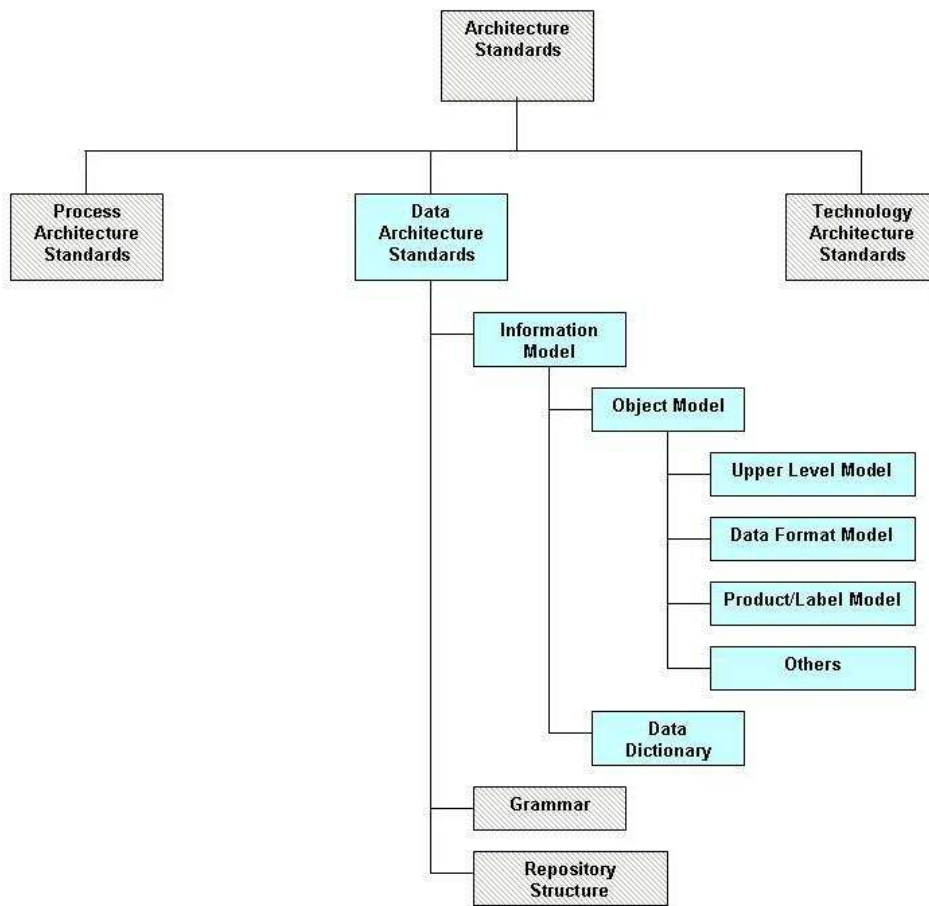


Figure 1: IPDA Reference System Architecture

Planetary Science Data Dictionary Attribute	ISO/IEC 11179 Attribute	Disposition	Comment
alias_name	SynonymousName	Mapped	Part of SynonymGroup
available_value_type			
bl_name		Deprecated	
bl_sql_format		Deprecated	
change_date			
column_description	Definition	Mapped	
column_name	Name	Mapped	Part of NameGroup
column_value			
column_value_node_id			
column_value_type			
display_format	RepresentationalGroup	Mapped	
format	RepresentationalGroup	Mapped	
general_classification_type			
general_data_type	DataTypeOfDataElementValues	Mapped	Part of RepresentationalGroup
identifier	Identifier	Mapped	Part of IdentificationGroup
maximum_column_value	MaximumSizeOfDataElementValues	Mapped	Part of RepresentationalGroup
maximum_length			
measurement_quantity_name			
minimum_column_value	MinimumSizeOfDataElementValues		Part of RepresentationalGroup
minimum_length			
namespace_id			
object_class			
output_flag		Deprecated	
revision_date			
source_name			
sql_format		Deprecated	
standard_default			
standard_value_formation_rule			
standard_value_output_flag		Deprecated	
standard_value_type			
status_note			
status_type			
system_classification_id			
terse_name	SynonymousName	Mapped	
text_flag			
title	Name	Mapped	
unit			
unit_id			
usage_note			
user_id			

Figure 2: Existing PSDD Attribute Mappings to 11179

In many cases there are one-to-one mappings between PSDD and 11179 attributes. Often however the 11179 attributes are members of a group of attributes, where the additional attributes provide additional information. This is apparent in the class diagrams and is noted in Figure 2. Some PSDD attributes have been deprecated since they were created for specific implementation platforms. The ISO/IEC 11179 attributes that do not seem to have a mapping are listed in Figure 3. These attributes provide additional information, often in logical groups of attributes. In most cases, values that are implicit in the PSDD can be provided.

1.4 Document Contents

This document uses Object-Oriented class diagrams to present the information model. Formally a class diagram is a type of structure diagram that describes classes and their attributes. It also describes the relationships between the classes.

Planetary Science Data Dictionary Attribute	ISO/IEC 11179 Attribute	Disposition	Comment
	version	New	Part of IdentificationGroup
	regAuthId	New	Part of IdentificationGroup
	Context	New	Part of NameGroup and SynonymGroup
	FormOfRepresentation	New	Part of RepresentationalGroup
	RepresentationCategory	New	Part of RepresentationalGroup
	admDate	New	Part of AdmGroup
	admId	New	Part of AdmGroup
	admNote	New	Part of AdmGroup
	admStatus	New	Part of AdmGroup
	admVersion	New	Part of AdmGroup
	Comments	New	Part of AdministrativeAttributes
	RegistrationStatus	New	Part of AdministrativeAttributes
	ResponsibleOrganization	New	Part of AdministrativeAttributes
	SubmittingOrganization	New	Part of AdministrativeAttributes
	regAuthId	New	Part of RegistrationAuthority
	regAuthName	New	Part of RegistrationAuthority
	ClassificationScheme	New	Part of RelationalAttributes
	Keyword	New	Part of RelationalAttributes
	RelatedDataReference	New	Part of RelationGroup
	TypeOfRelationship	New	Part of RelationGroup

Figure 3: New ISO/IEC 11179 Attributes

A relationship is a general term covering the specific types of logical connections found on classes. In this document the relationship primarily used is the association. It has a name, cardinality, and is uni-directional. For example, a data element has standard values. This uni-directional association is named "has_standard_values" and is from data element to standard value. Cardinality, also called multiplicity, can be one (1), zero or one (0..1), zero or more (0..*), or one or more (1..*). The cardinality of "has_standard_values" is one (0..*) meaning that the data element can have zero or more standard values.

Sometimes an association relationship has an inverse relationship which effectively creates a bi-directional association. For example, a standard value can be used by one or more data elements. A uni-directional association for this relationship might be named "used by data element", is the inverse of "has standard value", is from standard value to data element, and has a cardinality of zero or more (0..*).

Associations are actually a family of relationships. The more specific types of association relationships carry addition meaning that become important in physical implementation.

Generalization is another type of relationship used in this document and indicates that one of the two related classes (the subtype) is considered to be a specialized form of the other (the supertype). Supertype is considered as Generalization of subtype. Since there are currently no Generalization relationships used in either of our data models, we will use an example from the Planetary Science. For example, a Spacecraft is a subtype of Instrument_Host or another way of saying this is that an Instrument_Host is a generalization of Spacecraft.

The generalization relationship is also known as the inheritance or "is a" relationship. The supertype in the generalization relationship is also known as the "parent", superclass, base class, or base type. The subtype in the generalization relationship is also known as the "child", subclass, derived class, derived type, inheriting class, or inheriting type.

An important result of object-oriented modeling is the set of class hierarchies formed by the generalization relationship. Even though a model might not be hierarchical overall, it can contain several class hierarchies. In each of these hierarchies the subclass inherits the attributes and associations from its parent class. Therefore each subclass is defined as having certain attributes and associations. The subclass then inherits the attributes and associations from its superclass. For example, Spacecraft inherits all attributes and associations from its parent class, Instrument_Host. A subclass does not necessarily have to define its own attributes or associations since just being a subclass provides useful information.

2 Upper Level Object Classes

The data dictionary object model describes the object classes that exist for the data dictionary. For example, " These objects and their relationships are used to capture the data dictionary content.

The upper level object class hierarchy is illustrated in the following diagram. This diagram presents the subclassOf relation for each object class in a hierarchical (tree) format and provides a visual representation of the object classes in relation to their parent classes. As currently modeled the upper level class hierarchy is flat however it will become more complex as we continue to develop the model.

```
+ ISO_IEC_11179_2003
+ + AdministeredItem
+ + + ClassificationScheme
+ + + ConceptualDomain
```

- + + + EnumeratedConceptualDomain
- + + + NonEnumeratedConceptuaDomain
- + + Context
- + + DataElement
- + + DataElementConcept
- + + ObjectClass
- + + + Concept
- + + + ConceptRelationship1
- + + Property
- + + RepresentationClass
- + + ValueDomain
- + + + EnumeratedValueDomain
- + + + NonEnumeratedValueDomain
- + AdministrationRecord
- + Component
- + + ClassificationSchemeItem
- + + LanguageSection
- + DataElementDerivation
- + DataElementExample
- + Datatype
- + Definition
- + DerivationRule
- + Designation
- + Identifier
- + + RegistrationAuthorityIdentifier
- + Individual
- + + Contact
- + LanguageIdentification
- + Organization
- + + RegistrationAuthority
- + PermissibleValue
- + ReferenceDocument
- + Registrar
- + Relationship
- + + ClassificationSchemeItemRelationship
- + + ConceptRelationship2
- + + ConceptualDomainRelationship
- + + DataElementConceptRelationship
- + + ValueDomainRelationship
- + Steward
- + Submitter
- + TerminologicalEntry
- + UnitOfMeasure
- + ValueMeaning

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem		
Subclass	RepresentationClass ObjectClass ConceptualDomain Context DataElementConcept ClassificationScheme Property ValueDomain DataElement		
Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Inherited Attribute	none		
Association	administrationRecord classification reference registeredBy registrationAuthorityIdentifi... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Inherited Association	none		
Referenced from	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority Relationship TerminologicalEntry		

2.2 AdministrationRecord

Root Class: ISO_IEC_11179_2003

Class Description: Administration Record - a collection of administrative information for an Administered Item NOTE Metamodel construct is: Composite datatype.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . AdministrationRecord			
Subclass	none			
Attribute	URI administrativeNote administrativeStatus changeDescription creationDate effectiveDate explanatoryComment lastChangeDate origin registrationStatus unresolvedIssue untilDate	0..1 0..1 1 0..1 1 0..1 0..1 0..1 0..1 1 0..1 0..1	Preferred Standard Standard Qualified Recorded Candidate Incomplete Retired Superseded Historical Application	
Inherited Attribute	none			
Association	administeredItem	0..1	AdministeredItem	
Inherited Association	none			
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptRelationship2 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RepresentationClass ValueDomain			

2.3 ClassificationScheme

Root Class: ISO_IEC_11179_2003

Class Description: Classification Scheme - the descriptive information for an arrangement or division of objects into groups based on characteristics, which the objects have in common EXAMPLE Origin, composition, structure, application, function, etc.; See ISO/IEC 11179-2. NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ClassificationScheme		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	contained_in	0..*	ClassificationSchemeItem
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdentifi... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifi... Steward Submitter TerminologicalEntry
Referenced from	ClassificationSchemeItem ClassificationSchemeItemRelationship Component Relationship		

2.4 ClassificationSchemeItem

Root Class: ISO_IEC_11179_2003

Class Description: Classification Scheme Item -I an item of content in a Classification Scheme. NOTE 1 Metamodel construct is: Class. NOTE 2 This may be a node in a taxonomy or ontology, a term in a thesaurus, etc.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . Component . . ClassificationSchemeItem		
Subclass	none		
Attribute	typeName value	0..1 0..1	
Inherited Attribute	none		
Association	member relationship	0..1 0..*	AdministeredItem Relationship ClassificationSchemeItem
Inherited Association	aggregate	1	ClassificationScheme
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptRelationship2 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RepresentationClass ValueDomain		

2.5 ClassificationSchemeItemRelationship

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . Relationship . . ClassificationSchemeItemRelationship		
Subclass	none		
Attribute	none		
Inherited Attribute	typeDescription	1	
Association	none		
Inherited Association	item	0..2	ClassificationSchem
Referenced from	ClassificationSchemeItem ConceptualDomain DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ValueDomain		

2.6 Component

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Component			
Subclass	ClassificationSchemeItem LanguageSection			
Attribute	none			
Inherited Attribute	none			
Association	aggregate	1	ClassificationScheme TerminologicalEntry	
Inherited Association	none			
Referenced from	none			

2.7 Concept

Root Class: ISO_IEC_11179_2003

Class Description: Concept - unit of knowledge created by a unique combination of characteristics NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ObjectClass . . . Concept		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	none		
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	ConceptRelationship2		

2.8 ConceptRelationship1

Root Class: ISO_IEC_11179_2003

Class Description: Concept Relationship - concept relationship a semantic link among two or more Concepts NOTE 1 Metamodel construct is: Association Class. NOTE 2 An association class is both an association and a class. The name of the association uses lowercase. The name of the class is capitalized.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ObjectClass . . . ConceptRelationship1		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	none		
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	none		

2.9 ConceptRelationship2

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Relationship . . ConceptRelationship2			
Subclass	none			
Attribute	none			
Inherited Attribute	typeDescription	1		
Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	0..1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument Steward Submitter TerminologicalEntry	
Inherited Association	item	0..2	Concept	R
Referenced from	none			

2.10 ConceptualDomain

Root Class: ISO_IEC_11179_2003

Class Description: Conceptual Domain - a set of valid Value Meanings

NOTE 1 Metamodel construct is: Class. NOTE 2 The Value Meanings may either be enumerated or expressed via a description.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ConceptualDomain		
Subclass	EnumeratedConceptualDomain NonEnumeratedConceptuaDomain		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	having relationship representing2	0..* 0..* 0..*	DataElementConcept Relationship ClassificationSchemeItemE ValueDomain PermissibleValue DataElement
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIden Steward Submitter TerminologicalEntry
Referenced from	ConceptualDomainRelationship DataElementConcept EnumeratedValueDomain NonEnumeratedValueDomain ValueDomain		

2.11 ConceptualDomainRelationship

Root Class: ISO_IEC_11179_2003

Class Description: Conceptual Domain Relationship - conceptual domain relationship a relationship among two or more Conceptual Domains
NOTE 1 Metamodel construct is: Association Class. NOTE 2 An association class is both an association and a class. The name of the association

uses lowercase. The name of the class is capitalized.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Relationship . . ConceptualDomainRelationship			
Subclass	none			
Attribute	none			
Inherited Attribute	typeDescription	1		
Association	none			
Inherited Association	item	0..2	ConceptualDomain	R
Referenced from	none			

2.12 Contact

Root Class: ISO_IEC_11179_2003

Class Description: Contact - an instance of a role of an individual or an organization (or organization part or organization person) to whom an information item(s), a material object(s) and/or person(s) can be sent to or from in a specified context NOTE Metamodel construct is: Composite Datatype.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Individual . . Contact			
Subclass	none			
Attribute	URI contactTitle information mailingAddress phone	0..1 0..1 1 0..1 1		
Inherited Attribute	individualName	1		
Association	none			
Inherited Association	none			
Referenced from	Registrar Steward Submitter			

2.13 Context

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . Context		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	contextEntry	0..*	TerminologicalEntry
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	TerminologicalEntry		

2.14 DataElement

Root Class: ISO_IEC_11179_2003

Class Description: Data Element - a unit of data for which the definition, identification, representation and Permissible Values are specified by means of a set of attributes NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . DataElement		
Subclass	none		
Attribute	dataElementPrecision representationClassQualifier	0..1 0..1	
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	derivation exemplifiedBy expressedBy representing1 typeBy	0..1 1..* 1 1 0..1	DataElementDerivation DataElementExample DataElementConcept ValueDomain RepresentationClass
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	ConceptualDomain DataElementConcept DataElementDerivation EnumeratedValueDomain NonEnumeratedValueDomain RepresentationClass ValueDomain		

2.15 DataElementConcept

Root Class: ISO_IEC_11179_2003

Class Description: Data Element Concept - a concept that can be represented in the form of a Data Element, described independently of any particular representation NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . DataElementConcept		
Subclass	none		
Attribute	objectClassQualifier propertyQualifier	0..1 0..1	
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	expressing objectClass property relationship specifying	0..* 0..1 0..1 0..* 1	DataElement ObjectClass Property Relationship ClassificationSchemeItem ConceptualDomain
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdentifi... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIden... Steward Submitter TerminologicalEntry
Referenced from	ConceptualDomain DataElement DataElementConceptRelationship EnumeratedConceptualDomain NonEnumeratedConceptuaDomain		

2.16 DataElementConceptRelationship

Root Class: ISO_IEC_11179_2003

Class Description: Data Element Concept Relationship - data element concept relationship the relationship among two or more Data Element Concepts NOTE 1 Metamodel construct is: Association Class. NOTE 2 An association class is both an association and a class. The name of the association uses lowercase. The name of the class is capitalized.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . Relationship . . DataElementConceptRelationship		
Subclass	none		
Attribute	none		
Inherited Attribute	typeDescription	1	
Association	none		
Inherited Association	item	0..2	DataElementConcept
Referenced from	none		

2.17 DataElementDerivation

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . DataElementDerivation			
Subclass	none			
Attribute	none			
Inherited Attribute	none			
Association	derviedElement input rule	1 1..* 1	DataElement DataElement DerivationRule	
Inherited Association	none			
Referenced from	DataElement			

2.18 DataElementExample

Root Class: ISO_IEC_11179_2003

Class Description: Data Element Example representative illustration of the Data Element NOTE Metamodel construct is: Class.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . DataElementExample			
Subclass	none			
Attribute	none			
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	DataElement			

2.19 Datatype

Root Class: ISO_IEC_11179_2003

Class Description: Datatype - a set of distinct values, characterized by properties of those values and by operations on those values NOTE Metamodel construct is: Composite Datatype.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Datatype			
Subclass	none			
Attribute	URI annotation dataTypeName datatypeSchemeReference description	0..1 0..1 1 1 0..1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	EnumeratedValueDomain NonEnumeratedValueDomain ValueDomain			

2.20 Definition

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Definition			
Subclass	none			
Attribute	isPreferred text	0..1 1		
Inherited Attribute	none			
Association	aggregate source specificDesignation	0..1 0..1 0..1	LanguageSection ReferenceDocument Designation	
Inherited Association	none			
Referenced from	Designation LanguageSection			

2.21 DerivationRule

Root Class: ISO_IEC_11179_2003

Class Description: Derivation Rule - the logical, mathematical, and/or other operations specifying derivation NOTE Metamodel construct is: Class.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . DerivationRule			
Subclass	none			
Attribute	RuleSpecification	1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	DataElementDerivation			

2.22 Designation

Root Class: ISO_IEC_11179_2003

Class Description: Designation (of Administered Item) - the designation of an Administered Item within a Context NOTE 1 Metamodel construct is: Class. NOTE 2 See also designation (3.2.13).

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Designation			
Subclass	none			
Attribute	designationName isPreferred	1 0..1		
Inherited Attribute	none			
Association	aggregate specificDefinition	0..1 0..1	LanguageSection Definition	
Inherited Association	none			
Referenced from	Definition LanguageSection			

2.23 EnumeratedConceptualDomain

Root Class: ISO_IEC_11179_2003

Class Description: Enumerated Conceptual Domain - a Conceptual Domain that is specified by a list of all its Value Meanings NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ConceptualDomain . . . EnumeratedConceptualDomain		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	memberValue	0..*	ValueMeaning
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry having relationship representing2	1 0..* 0..* 0..* 1 1 1 1..* 0..* 0..* 0..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdenti... Steward Submitter TerminologicalEntry DataElementConcept Relationship ClassificationSchemeItem EnumeratedValueDomain
Referenced from	none		

2.24 EnumeratedValueDomain

Root Class: ISO_IEC_11179_2003

Class Description: Enumerated Value Domain - a Value Domain that is specified by a list of all its Permissible Values NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ValueDomain . . . EnumeratedValueDomain		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier maximumCharacterQuantity valueDomainFormat	0..1 1 1 0..1 0..1	
Association	contained_in	0..*	PermissibleValue
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry datatype relationship representedBy1 representedBy2 typeBy unitOfMeasure	1 0..* 0..* 0..* 1 1 1 1..* 1 0..* 1 0..* 0..1 0..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifi... Steward Submitter TerminologicalEntry Datatype Relationship ClassificationSchemeItemRela... ConceptualDomain DataElement RepresentationClass UnitOfMeasure
Referenced from	EnumeratedConceptualDomain PermissibleValue ValueMeaning		

2.25 ISO_IEC_11179_2003

Root Class: ISO_IEC_11179_2003

Class Description: Information technology ” Metadata Registries (MDR) ” Part 3 - Registry metamodel and basic attributes

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003			
Subclass	Steward Submitter DerivationRule Designation LanguageIdentification Individual DataElementExample PermissibleValue Organization UnitOfMeasure Identifier Datatype ValueMeaning Definition AdministeredItem DataElementDerivation ReferenceDocument Registrar Component TerminologicalEntry AdministrationRecord Relationship			
Attribute	none			
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	none			

2.26 Identifier

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Identifier			
Subclass	RegistrationAuthorityIdentifier			
Attribute	URI	0..1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	none			

2.27 Individual

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Individual			
Subclass	Contact			
Attribute	individualName	1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	none			

2.28 LanguageIdentification

Root Class: ISO_IEC_11179_2003

Class Description: Language Identification - the collection of identifiers required to identify a language or language variation for a particular purpose NOTE Metamodel construct is: Composite datatype.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . LanguageIdentification			
Subclass	none			
Attribute	URI countryIdentifier languageIdentifier	0..1 0..1 1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	LanguageSection ReferenceDocument RegistrationAuthority			

2.29 LanguageSection

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Component . . LanguageSection			
Subclass	none			
Attribute	none			
Inherited Attribute	none			
Association	definition designation sectionLanguage	0..* 0..* 1	Definition Designation LanguageIdentification	
Inherited Association	aggregate	1	TerminologicalEntry	R
Referenced from	Definition Designation TerminologicalEntry			

2.30 NonEnumeratedConceptuaDomain

Root Class: ISO_IEC_11179_2003

Class Description: Non-enumerated Conceptual Domain - a Conceptual Domain that is not specified by a list of all valid Value Meanings NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ConceptualDomain . . . NonEnumeratedConceptuaDomain		
Subclass	none		
Attribute	description	1	
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	none		
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry having relationship representing2	1 0..* 0..* 0..* 1 1 1 1..* 0..* 0..* 0..*	AdministrationRecord ClassificationSchemel ReferenceDocument RegistrationAuthorit RegistrationAuthorit Steward Submitter TerminologicalEntry DataElementConcept Relationship ClassificationSchemel NonEnumeratedValu
Referenced from	none		

2.31 NonEnumeratedValueDomain

Root Class: ISO_IEC_11179_2003

Class Description: Non-enumerated Value Domain - a Value Domain that is specified by a description rather than a list of all Permissible Values
NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ValueDomain . . . NonEnumeratedValueDomain		
Subclass	none		
Attribute	description	1	
Inherited Attribute	URI dataIdentifier versionIdentifier maximumCharacterQuantity valueDomainFormat	0..1 1 1 0..1 0..1	
Association	none		
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry datatype relationship representedBy1 representedBy2 typeBy unitOfMeasure	1 0..* 0..* 0..* 1 1 1 1..* 1 0..* 1 0..* 0..1 0..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIden... Steward Submitter TerminologicalEntry Datatype Relationship ClassificationSchemeItemF... ConceptualDomain DataElement RepresentationClass UnitOfMeasure
Referenced from	NonEnumeratedConceptuaDomain		

2.32 ObjectClass

Root Class: ISO_IEC_11179_2003

Class Description: Object Class - a set of ideas, abstractions, or things in the real world that are identified with explicit boundaries and meaning and whose properties and behaviour follow the same rules NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ObjectClass		
Subclass	ConceptRelationship1 Concept		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	none		
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdentifi... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	DataElementConcept		

2.33 Organization

Root Class: ISO_IEC_11179_2003

Class Description: Organization - a unique framework of authority within which a person or persons act, or are designated to act, towards some purpose NOTE 1 Metamodel construct is: Class. NOTE 2 The kinds of organizations covered by ISO/IEC 6523-1 include the following examples: a) an organization incorporated under law; b) an unincorporated organization or activity providing goods and/or services including: 1) partnerships; 2) social or other non-profit organizations or similar bodies in which ownership or control is vested in a group of individuals; 3) sole proprietorships 4) governmental bodies . c) groupings of the above types of organizations where there is a need to identify these in information interchange.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Organization			
Subclass	RegistrationAuthority			
Attribute	URI organizationMailingAddress organizationName	0..1 1 1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	Steward Submitter			

2.34 PermissibleValue

Root Class: ISO_IEC_11179_2003

Class Description: Permissible Value - an expression of a Value Meaning allowed in a specific Value Domain NOTE Metamodel construct is: Class.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . PermissibleValue			
Subclass	none			
Attribute	URI beginDate endDate value	0..1 1 0..1 1		
Inherited Attribute	none			
Association	aggregate containingDomain meaning	0..1 1 0..1	EnumeratedValueDomain EnumeratedValueDomain ValueMeaning	
Inherited Association	none			
Referenced from	ConceptualDomain EnumeratedValueDomain ValueMeaning			

2.35 Property

Root Class: ISO_IEC_11179_2003

Class Description: Property - a characteristic common to all members of an Object Class NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . Property		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	none		
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	DataElementConcept		

2.36 ReferenceDocument

Root Class: ISO_IEC_11179_2003

Class Description: Reference Document - a document that provides pertinent details for consultation about a subject NOTE Metamodel construct is: Class.

	Entity	Card	Value	I
Hierarchy	ISO_IEC_11179.2003 . ReferenceDocument			
Subclass	none			
Attribute	URI documentIdentifier documentTitle referenceDocumentTypeDescri...	0..1 1 0..1 0..1		
Inherited Attribute	none			
Association	describing languageUsed	0..1 1..*	AdministeredItem LanguageIdentification	
Inherited Association	none			
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptRelationship2 ConceptualDomain Context DataElement DataElementConcept Definition EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RepresentationClass ValueDomain			

2.37 Registrar

Root Class: ISO_IEC_11179.2003

Class Description: Registrar - a representative of a Registration Authority NOTE Metamodel construct is: Class.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Registrar			
Subclass	none			
Attribute	URI registrarIdentifier	0..1 1		
Inherited Attribute	none			
Association	contact represents	1 1..*	Contact RegistrationAuthority	
Inherited Association	none			
Referenced from	RegistrationAuthority			

2.38 RegistrationAuthority

Root Class: ISO_IEC_11179_2003

Class Description: Registration Authority - an Organization responsible for maintaining a register NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . Organization . . RegistrationAuthority		
Subclass	none		
Attribute	none		
Inherited Attribute	URI organizationMailingAddress organizationName	0..1 1 1	
Association	documentationLanguageIdenti... languageUsed registering registrar registrationAuthorityIdenti...	1..* 1..* 1..* 1 1	LanguageIdentification LanguageIdentification AdministeredItem Registrar RegistrationAuthorityIden...
Inherited Association	none		
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property Registrar RepresentationClass ValueDomain		

2.39 RegistrationAuthorityIdentifier

Root Class: ISO_IEC_11179_2003

Class Description: identifier of the Registration Authority registering the item

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Identifier . . RegistrationAuthorityIdentifier			
Subclass	none			
Attribute	internationalCodeDesignator opiSource organizationIdentifier organizationPartIdentifier	1 0..1 1 0..1		
Inherited Attribute	URI	0..1		
Association	none			
Inherited Association	none			
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RegistrationAuthority RepresentationClass ValueDomain			

2.40 Relationship

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . Relationship		
Subclass	ConceptRelationship2 ClassificationSchemeItemRelationship DataElementConceptRelationship ConceptualDomainRelationship ValueDomainRelationship		
Attribute	typeDescription	1	
Inherited Attribute	none		
Association	item	0..2	ClassificationScheme AdministeredItem
Inherited Association	none		
Referenced from	ClassificationSchemeItem ConceptualDomain DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ValueDomain		

2.41 RepresentationClass

Root Class: ISO_IEC_11179_2003

Class Description: Representation Class - the classification of types of representations NOTE Metamodel construct is: Class.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . RepresentationClass		
Subclass	none		
Attribute	none		
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	instance	0..*	ValueDomain DataElement
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	DataElement EnumeratedValueDomain NonEnumeratedValueDomain ValueDomain		

2.42 Steward

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Steward			
Subclass	none			
Attribute	URI	0..1		
Inherited Attribute	none			
Association	contact organization	1 1	Contact Organization	
Inherited Association	none			
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptRelationship2 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RepresentationClass ValueDomain			

2.43 Submitter

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Submitter			
Subclass	none			
Attribute	URI	0..1		
Inherited Attribute	none			
Association	contact organization	1 1	Contact Organization	
Inherited Association	none			
Referenced from	AdministeredItem ClassificationScheme Concept ConceptRelationship1 ConceptRelationship2 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RepresentationClass ValueDomain			

2.44 TerminologicalEntry

Root Class: ISO_IEC_11179_2003

Class Description: Terminological Entry - an entry containing information on terminological units for a specific Administered Item within a Context (subject field) NOTE Metamodel construct is: Class.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . TerminologicalEntry			
Subclass	none			
Attribute	none			
Inherited Attribute	none			
Association	contained_in entryContext entryItem	1..* 1 1	LanguageSection Context AdministeredItem	
Inherited Association	none			
Referenced from	AdministeredItem ClassificationScheme Component Concept ConceptRelationship1 ConceptRelationship2 ConceptualDomain Context DataElement DataElementConcept EnumeratedConceptualDomain EnumeratedValueDomain LanguageSection NonEnumeratedConceptuaDomain NonEnumeratedValueDomain ObjectClass Property RepresentationClass ValueDomain			

2.45 UnitOfMeasure

Root Class: ISO_IEC_11179_2003

Class Description: Unit of Measure - the actual units in which the associated values are measured

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . UnitOfMeasure			
Subclass	none			
Attribute	URI measureName precision	0..1 1 1		
Inherited Attribute	none			
Association	none			
Inherited Association	none			
Referenced from	EnumeratedValueDomain NonEnumeratedValueDomain ValueDomain			

2.46 ValueDomain

Root Class: ISO_IEC_11179_2003

Class Description: Value Domain - a set of Permissible Values NOTE 1 Metamodel construct is: Class. NOTE 2 The Value Domain provides representation, but has no implication as to what Data Element Concept the Values may be associated with nor what the Values mean NOTE 3 The Permissible Values may either be enumerated or expressed via a description.

	Entity	Card	Value
Hierarchy	ISO_IEC_11179_2003 . AdministeredItem . . ValueDomain		
Subclass	NonEnumeratedValueDomain EnumeratedValueDomain		
Attribute	maximumCharacterQuantity valueDomainFormat	0..1 0..1	
Inherited Attribute	URI dataIdentifier versionIdentifier	0..1 1 1	
Association	datatype relationship representedBy1 representedBy2 typeBy unitOfMeasure	1 0..* 1 0..* 0..1 0..*	Datatype Relationship ClassificationSchemeItemRelati ConceptualDomain DataElement RepresentationClass UnitOfMeasure
Inherited Association	administrationRecord classification reference registeredBy registrationAuthorityIdenti... steward submitter terminologicalEntry	1 0..* 0..* 0..* 1 1 1 1..*	AdministrationRecord ClassificationSchemeItem ReferenceDocument RegistrationAuthority RegistrationAuthorityIdentifier Steward Submitter TerminologicalEntry
Referenced from	ConceptualDomain DataElement RepresentationClass ValueDomainRelationship		

2.47 ValueDomainRelationship

Root Class: ISO_IEC_11179_2003

Class Description: Value Domain Relationship - a relationship among two or more Value Domains NOTE 1 Metamodel construct is: Association Class. NOTE 2 An association class is both an association and a class. The name of the association uses lowercase. The name of the class is capitalized.

	Entity	Card	Value	Ind
Hierarchy	ISO_IEC_11179_2003 . Relationship . . ValueDomainRelationship			
Subclass	none			
Attribute	none			
Inherited Attribute	typeDescription	1		
Association	none			
Inherited Association	item	0..2	ValueDomain	R
Referenced from	none			

2.48 ValueMeaning

Root Class: ISO_IEC_11179_2003

Class Description: TBD description

	Entity	Card	Value	I
Hierarchy	ISO_IEC_11179_2003 . ValueMeaning			
Subclass	none			
Attribute	URI beginDate description endDate valueMeaningIdentifier	0..1 1 0..1 0..1 1		
Inherited Attribute	none			
Association	containingDomain representing2	1 0..*	EnumeratedValueDomain PermissibleValue	
Inherited Association	none			
Referenced from	EnumeratedConceptualDomain PermissibleValue			

3 Data Dictionary

The primary purpose of the Data Dictionary is to allow members of the planetary science community to benefit from standards work done in the area of data product description. The work that supports it was originally done at the Jet Propulsion Laboratory by individuals who participate in U.S. and international standards efforts. As a result this data dictionary should serve as a guide to other data systems still in development, or to science data archives that wish to interoperate.

RuleSpecification TBD description

URI TBD description

administeredItem Associated AdministeredItem

administrationRecord conceptual domain administration record the Administration Record for a Conceptual Domain NOTE Metamodel construct is: Attribute of Conceptual Domain.

administrativeNote administrative note - any general note about the Administered Item NOTE Metamodel construct is: Attribute of Administration Record.

administrativeStatus designation of the status in the administrative process of a Registration_Authority

aggregate TBD description

annotation TBD description

beginDate effective_date of this Value_Meaning in the Conceptual_Domain

changeDescription change description - the description of what has changed in the Administered Item since the prior version of the Administered Item NOTE Metamodel construct is: Attribute of Administration Record.

classification administered item classification - the relationship where an Administered Item is classified based on a specified Classification Scheme NOTE Metamodel construct is: Relationship.

contact the contact information associated with a Submission

contactTitle title the name of the position held

contained_in TBD description

containingDomain TBD description

contextEntry TBD description

countryIdentifier a country identifier further specifying the geopolitical area associated with the language

creationDate the date the Administered Item was created

dataElementPrecision TBD description

dataIdentifier the unique identifier for an Administered Item within a Registration Authority

dataTypeName TBD description

datatype TBD description

datatypeSchemeReference TBD description

definition TBD description

derivation TBD description

derviedElement TBD description

describing TBD description

description TBD description

designation TBD description

designationName TBD description

documentIdentifier TBD description

documentTitle TBD description

documentationLanguageIdentifier the identifier of the language used for documentation by the Registration Authority

effectiveDate the date an administered item became/becomes available to registry users

endDate date this Value_Meaning became/becomes invalid

entryContext TBD description

entryItem TBD description

exemplifiedBy TBD description

explanatoryComment descriptive comments about the Administered Item

expressedBy TBD description

expressing TBD description

having TBD description

individualName TBD description

information contact information - information to enable a Contact to be located or communicated with NOTE Metamodel construct is: Attribute of Contact.

input TBD description

instance TBD description

internationalCodeDesignator the identifier of an organization identification scheme

isPreferred TBD description

item TBD description

languageIdentifier TBD description

languageUsed TBD description

lastChangeDate the date the Administered Item was last changed

mailingAddress the physical, postal or delivery address of the Organization

maximumCharacterQuantity TBD description

meaning data element concept expression the relationship between a Data Element and a Data Element Concept NOTE Metamodel construct is: Relationship.

measureName TBD description

member TBD description

memberValue TBD description

objectClass TBD description

objectClassQualifier TBD description

opiSource the source for the organization part identifier

organization TBD description

organizationIdentifier the identifier assigned to an Organization within an organization identification scheme, and unique within that scheme

organizationMailingAddress TBD description

organizationName TBD description

organizationPartIdentifier an identifier allocated to a particular organization part

origin the source (document, project, discipline or model) for the Administered Item

phone TBD description

precision TBD description

property TBD description

propertyQualifier TBD description

reference reference from one metadata item to another - NOTE A Registration_Authority could choose to use a Reference_Document, an administrative_note or an explanatory_comment to record a related metadata reference.

referenceDocumentTypeDescription TBD description

registeredBy an Organization responsible for maintaining a register

registering TBD description

registrar association between a Registrar and the Registration_Authority s/he represents

registrarIdentifier TBD description

registrationAuthorityIdentifier an identifier assigned to a Registration Authority

registrationAuthorityIdentifier_v identifier assigned to a Registration_Authority

registrationStatus designation of the status in the registration life-cycle of an Administered_Item

relationship TBD description

representationClassQualifier TBD description

representedBy1 TBD description

representedBy2 TBD description

representing1 TBD description

representing2 TBD description

represents TBD description

rule TBD description

sectionLanguage TBD description

source TBD description

specificDefinition TBD description

specificDesignation TBD description

specifying TBD description

steward TBD description

submitter TBD description

terminologicalEntry TBD description

text TBD description

typeBy TBD description

typeDescription TBD description

typeName TBD description

unitOfMeasure TBD description

unresolvedIssue any problem that remains unresolved regarding proper documentation of the Administered Item

untilDate the date an Administered Item is no longer effective in the registry

value TBD description

valueDomainFormat TBD description

valueMeaningIdentifier TBD description

versionIdentifier the unique version identifier of the Administered Item

4 Glossary

The following glossary contains a list of terms used within this specification and the definitions for those terms.

Aggregation Aggregation is the act of gathering something together

Associations Associations are the relationships to indicate that the two variables are related.

Attributes Attributes control the context in which elements are defined. Attributes can be related to element identification, or identify one or more context in which the element applies, or one or more options to be used, etc.

Cardinality Cardinality defines the relationship between the entities in terms of numbers. In mathematics, the cardinality of a set is a measure of the 'number of elements of the set'.

Class Class or object class is a template definition of the methods and variables in a particular kind of object. An object is a specific instance of a class. Object contains real values instead of variables. A class can have subclasses that can inherit all or some of the characteristics of the class.

Class_Hierarchy Class hierarchy is a classification of object types, denoting objects as the instantiations of classes inter-relating the various classes by relationships such as 'inherits', 'extends', 'is an abstraction of', and 'an interface definition'

Concept Concept is an abstract idea associated with a corresponding representation that denotes all of the objects in a given class of entities, interactions, or relationships between them.

Conceptualization Conceptualization is an abstract, simplified view of the world that we wish to represent for some purpose.

Context Context is the background and specific circumstances of a subject.

Core_Metadata Core metadata is the metadata common across all domains. The purpose of core metadata is for information discovery across the shared space, to support, at a minimum, the initial data discovery.

Data_Element_Attributes Data element attributes are descriptors of a descriptor. They are the meta-metadata.

Data_Elements Data elements are discrete units of data or metadata. They are an elementary piece of information in a data dictionary. A data element is a data descriptor for which the definition, identification, representation and permissible values are specified by means of a set of data element attributes.

Data_Model Data model is the analysis of data objects that are used in a context and the identification of the relationships among these data objects. The modeling of representations of the data objects in an information system

Data_Object_Description Data Object Description - A Data Object Description is an object class that is used to provide a description for a data object.

Data_Types Data types indicate the types of data that are either number types, composite types (integer numbers, real numbers, strings), numeric data type ranges, abstract data type (associative array, complex number, container, deque, list, multimap, priority queue, queue, set, stack, string, tree).

Data_object Data object is anything that exists in storage and on which operations can be performed. A sequence of digital bits.

Domain_Metadata Domain metadata is the metadata that is specific within a given domain.

Entity Entity is a person, object, place or event for which information is collected.

Information_Model Information model is typically a data model that has a richer set of relationships that add 'meaning' and 'change data into information', for example, the relationship of associating an image data structure with an image map projection. The model uses classifiers to collect properties.

Information_Object Information Object comprises two parts, an internal data object and the metadata that describes the structure and prescribes the nature of the internal data object with semantic information.

Knowledge_Representation Knowledge representation is a method used to code knowledge in an expert system, typically a series of IF-THEN rules.

Labeled_Data_Object A labeled data object consists of a data object in association with a data object description and optionally a pointer to the data object.

Meta-Metadata Meta-Metadata is the information about the metadata.

Metadata Metadata is a structured data that contains a definition or description about an object or resource, whether it is physical or electronic. It adds layers of meaning to data or information, it is data about data, or data about information, is sometimes referred to as pure semantics.

Model Model is a formalized description.

Object-Oriented Methodology Object-Oriented methodology centers on the concept of classes. The methodology organized around objects rather than actions and data rather than logic rather than actions

Object_Class Class or object class is a template definition of the methods and variables in a particular kind of object. An object is a specific instance of a class. Object contains real values instead of variables. A class can have subclasses that can inherit all or some of the characteristics of the class.

Object_Model Object model is an abstract model that describes how data is represented in object-oriented concepts.

Objects Objects are the units that are derived from the process.

Ontology Ontology defines the common words and concepts used to describe and represent an area of knowledge. Taxonomy can portray the equivalent of two-dimensional space, while ontology can portray the equivalent of three or more dimensions, since ontology adds semantics, at varying levels of complexity.

Relationship Relationship is a particular type of interaction existing between classes/entities, It involves one or more classes/entities Relations have direction.

Schema A schema designates a set of semantic units along with their attributes, such as name, identifier, definition, or relationship to other semantic units. Metadata element sets are called schema.

Semantics Semantics is the study of meaning.

Taxonomy Taxonomy is a tree structure that represents information entities in a hierarchical manner. It is a classification system or an organization of related keywords or concepts that is of great explanatory value and meets the established rules of existing model(s). Creating taxonomy requires considerable domain expertise.