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Information technology —
Metadata Interoperability and Bindings (MDIB) —
Part 81: Attribute mapping for 11179-3 metadata registry metamodel

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Contents

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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ISO/IEC 20944-81 was prepared by Technical Committee ISO/IEC JTC1, *Information Technology*, Subcommittee SC32, *Data Management and Interchange*.

ISO/IEC 20944 consists of the following parts, under the general title *Information technology — Metadata Interoperability and Bindings (MDIB)*:

— *Part 01: Framework*

— *Part 02: Common vocabulary*

— *Part 03: Common provisions for conformance*

— *Part 04: Generic usage*

— *Part 05: Common data structures and services*

— *Part 06: Semi-structured aggregation*

— *Part 20: Common provisions for coding bindings*

— *Part 21: XML coding binding*

— *Part 22: DIVP coding binding*

— *Part 23: ASN.1 coding binding*

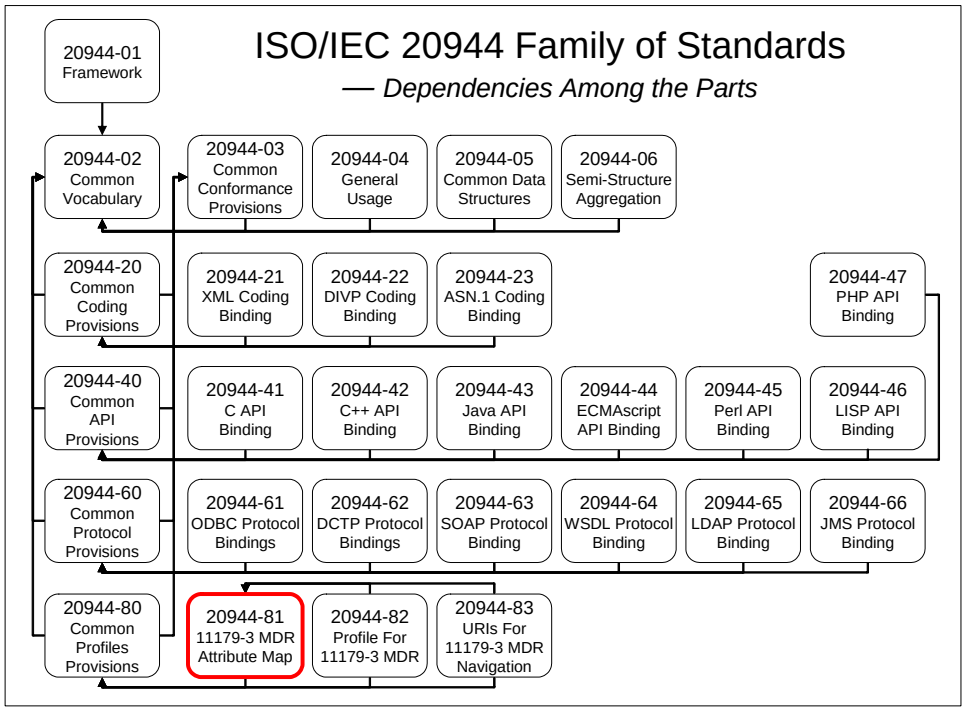
— *Part 40: Common provisions for application programming interface (API) bindings*

— *Part 41: C API binding*

- Part 42: C++ API binding
- Part 43: Java API binding
- Part 44: ECMAscript API binding
- Part 45: Perl binding
- Part 46: LISP binding
- Part 47: PHP binding
- Part 60: Common provisions for protocol bindings
- Part 61: ODBC protocol binding
- Part 62: DCTP protocol binding
- Part 63: SOAP protocol binding
- Part 64: WSDL protocol binding
- Part 65: LDAP protocol binding
- Part 66: JMS protocol binding
- Part 80: Common provisions for profiles
- Part 81: Attribute mapping for 11179-3 metadata registry metamodel
- Part 82: Profile for 11179-3 metadata registry metamodel
- Part 83: Uniform Resource Identifier (URI) suffixes for 11179-3 metadata registry metamodel navigation

Introduction

The following diagram shows the organization of the ISO/IEC 20944 family of standards with this Part highlighted.



Organization of ISO/IEC 20944 family of standards.

This Part provides the common provisions for conformance that are referenced in other parts of this International Standard.

Information technology — Metadata Interoperability and Bindings (MDIB) — Part 81: Attribute mapping for 11179-3 metadata registry metamodel

Editor's Note: Each part of 20944 is marked with a common sequence number ("**[Release Sequence #N]**") to indicate they are synchronized and harmonized among themselves. The mark "**[Release Sequence #N]**" does *not* imply that there are a complete set of N-1 prior drafts for any particular Part.

1 Scope

This part specifies mapping of metamodel attributes, as specified in ISO/IEC 11179-3, to identifiers for the purpose of navigating metadata registries.

NOTE This document is written in a form that conforms to (proposed) ISO/IEC 11179-5, Information technology — Metadata Registries (MDR) — Part 5: Requirements and recommendations for designation conventions.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC Guide 2, *Standardization and related activities — General vocabulary*

ISO/IEC 2382 (parts 1, 4, 5), *Information technology — Vocabulary*

ISO/IEC 11179-1 (in revision), *Information technology — Metadata Registries (MDR) — Framework*

ISO/IEC 11179-3:2003, *Information technology — Metadata Registries (MDR) — Registry metamodel and basic attributes*

ISO/IEC 11179-5 (proposal), *Information technology — Metadata Registries (MDR) — Part 5: Requirements and recommendations for designation conventions*

ISO/IEC 11404:1996, *Information technology — Programming languages, their environments, and system software interfaces — Language-independent datatypes*

ISO/IEC 20944-01:—[1], *Information technology — Metadata Interoperability and Bindings (MDIB) — Overview*[2]

ISO/IEC 20944-02:—[3], *Information technology — Metadata Interoperability and Bindings (MDIB) — Common vocabulary*

3 Terms and definitions

The 20944 family of standards consolidates its terminology into a single part. The terminology of Part 02 is included via normative reference.

3.1
referenced data interchange specification
data model that is being used for a defined interoperability binding

NOTE The term *referenced data interchange specification*, defined in 20944-02, is used throughout the 20944 family of standards to reference the data model that is being used for the bindings. The *referenced data interchange specification* is tied to the bindings via normative reference, e.g., some other standard defines a data model and uses 20944, via normative reference, to provide some coding, API, or protocol bindings. For Part 82, the *referenced data interchange specification* refers to the 11179-3 metamodel. Part 04 of this International Standard, explains how other standards and specifications may use or re-use portions of the 20944 family of standards.

4 Value space

The value space of possible designations (i.e., navigable identifiers) is the value space defined by the 11404 datatype:

```
type character_based_multiple_identifier =
    array (0..*) of ( characterstring(iso-10646-1) )
```

NOTE The `characterstring` datatype is used for representing labels, such as metamodel attribute identifiers (e.g., "units_of_measure"), and used for representing array indexes (e.g., the string "0" represents the index of the first element of an array).

5 Available designations

The value space is the set of **`characterstring`**s.

6 Designation formation

The ISO/IEC 11179-3 registry metamodel describes a data model (for metadata) in UML notation. The following conventions apply with respect to mapping 11179-3 metamodel attributes to navigable identifiers that may be used to access the data of the metamodel attribute (i.e., metadata).

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[1] To be published.

[2] The current drafts of the 20944 series are available at "http://metadata-standards.org/20944".

[3] To be published.

6.1 Semantic provisions

The 11179-3 metamodel uses a limited set of UML metaobjects (UML features) from the UML notation. The 11179-3 metamodel employs the following constraints or assumptions:

— A limited set of UML metaobjects are used: classes, attributes, containment, relations, objectified relations, specialization.

— Classes only have attributes and relations; classes do not have methods.

— All attributes are public.

— Specialized classes only use single inheritance.

These UML notational features are transformed as follows:

— UML class notation: UML classes are comprised of UML attributes and UML relations. From the class, this Part describes navigation to the attributes and, if navigable, navigation to the relationship.

— UML attributes: An attribute is navigated according to the access operations supported by its datatype. For example, an array is accessed by its index; a record is accessed by the labels of its components.

— UML relations: A relation may be navigated from its roles (sides) that support navigation. Objectified relations may be navigated from the relation's roles that support navigation.

— UML containment relations: A containment relation may be navigated from its parent.

— UML relations' role's multiplicity: A cardinality of 0..1 or 1..1 may be navigated directly by the relation role. A cardinality of 0..* or 1..* may be navigated as an array of relations for the particular role.

Other constraints and provisions of the 11179-3 metamodel are contained in the normative wording of the 11179-3 standard.

Inheritance is simulated by copying all the attributes and relationships of the base type to the subtype, e.g. if "Y" is derived from the base type "X", and "X" has attributes "A" and "B", and relation "C", and "Y" has attributes "D" and "E", then an instance of "Y" has the navigable identifiers "a", "b", "c_relation", "d", and "e".

6.2 Syntactic provisions

The following are syntax requirements

— All identifiers that refer to classes have the suffix "_class" added to the identifier, e.g., the "Representation Class" class, becomes "representation_class_class".

— All identifiers that refer to navigable relations have the suffix "_relation" added to the identifier (e.g., "classifying_relation", "classified_by_relation").

— Containment relationships are represented by the component name (and not "Containing"), e.g., the "Classification Scheme" class contains a "Classification Scheme Item" class which is represented by "classification_scheme_membership"; in other words, if "X" represents an instance of the "Classification Scheme" class, then "X.classification_scheme_membership" represents an instance(s) of the "Classification Scheme Item" (see below for more information on indexing notation for this particular class).

— Attributes of objectified relationships are accessed via the "_relation" access token, e.g., if "X" is an instance of an "administered_item_class", then "X.having_relation.P._relation.terminological_entry_languages" represents a component of the "terminological_entry" objectified relation class.

— Attributes and relationships with cardinality "[1..1]" are represented without indexing.

— Attributes and relationships with cardinality "[0..1]" are represented without indexing. Note: In the case of zero instances, it is assumed that the implementation will have some technique for determining whether or not the optional feature is present.

— Attributes and relationships with other cardinalities (e.g., "[0..*]", "[1..*]") are accessed via an indexing mechanism, e.g., if "X" is an instance of the "language_section_class", then "X.name_entry.0", "X.name_entry.1", "X.name_entry.2", etc., may represent the identifiers associated with each of the "name_entry"s.

— The full stop character "." is used to separate components of a navigation identifier. Note that individual bindings may use different component separators and other syntax conventions.

6.3 Lexical provisions

The following are lexical provisions

— All identifier are transformed to lower case, spaces are transformed to underscores, and other punctuation is removed, e.g., "Context (for administered item)" becomes "context_for_administered_item".

— All identifiers that refer to classes have the suffix "_class" added to the identifier, e.g., the "Representation Class" class, becomes "representation_class_class".

— Containment relationships are represented by the component name (and not "Containing"), e.g., the "Classification Scheme" class contains a "Classification Scheme Item" class which is represented by "classification_scheme_membership"; in other words, if "X" represents an instance of the "Classification Scheme" class, then "X.classification_scheme_membership" represents an instance(s) of the "Classification Scheme Item" (see below for more information on indexing notation for this particular class).

— Navigable relationships are represented by their relationship names (e.g., "Classifying", "Classified By") and not their relationship type (e.g., "administered_item_classification").

— All identifiers that refer to navigable relations have the suffix "_relation" added to the identifier (e.g., "classifying_relation", "classified_by_relation").

7 Lifecycle

Not applicable.

8 Re-use

Not applicable.

9 Resolving conflicts

Not applicable.

10 Additional provisions

10.1 Top level access identifiers

10.1.1 Mandatory top level identifiers

The following identifiers shall be accessible at the top level navigation of an administered item within a registry; these identifiers represent starting points for navigating the registry metamodel.

```
administered_item_class
classification_scheme_class
conceptual_domain_class
enumerated_conceptual_domain_class
non_enumerated_conceptual_domain_class
context_for_administered_item_class
data_element_class
derivation_rule_class
data_element_concept_class
object_class_class
property_class
representation_class
value_domain_class
enumerated_value_domain_class
non_enumerated_value_domain_class
registration_authority_class
organization_class
```

Example

If "X" represents the navigation starting point of an administered item, then the following sample navigation identifiers may be used:

```
X.administered_item_class.administered_item_administration_record.
administered_item_identifier

X.value_domain_class.value_domain_unit_of_measure.unit_of_measure_precision
```

10.1.2 Optional top level identifiers

The following identifiers may be accessible (i.e., they are optional) at the top level navigation of an administered item within a registry.

```
administered_item_relationship_class
stewardship_class
submission_class
registrar_class
reference_document_class
registration_authority_identifier_class
language_identification_class
```

```
contact_class
item_identifier_class
administration_record_class
terminological_entry_class
language_section_class
designation_of_administered_item_class
definition_of_administered_item_class
classification_scheme_item_class
conceptual_domain_relationship_class
conceptual_domain_class
concept_class
concept_relationship_class
value_domain_relationship_class
value_meaning_class
permissible_value_class
unit_of_measure_class
datatype_class
data_element_concept_relationship_class
data_element_example_class
data_element_derivation_class
data_element_derivation_rule_class
```

10.1.3 5.3 Subclasses of top level identifiers

*** TO BE SUPPLIED ***

10.2 Identifier mappings

The follow subclauses are the identifier mappings for each class defined in ISO/IEC 11179-3. The notation "#index" indicates a parameter that is to be replaced with an index. The notation "// optional" indicates a navigation identifier that is optional with respect to conformance.

Note: The ordering of this Clause is intended to approximate the ordering of definitions in ISO/IEC 11179-3 Clause 4.

10.2.1 Administered item class

```
administered_item_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
```

10.2.2 Registration authority class

```
registration_authority_class:
registration_authority_identifier
```

```
documentation_language
represented_by_relation
registering_relation.#index  // optional
```

10.2.3 Organization class

```
organization_class:
registration_authority_identifier
documentation_language
represented_by_relation
organizational_name
organizational_mail_address
administering_relation.#index // optional
submitting_relation.#index // optional
providing_relation.#index // optional
```

10.2.4 Administered item class

```
administered_item_relationship_class:
administered_item_relationship_type_description
```

10.2.5 Stewardship class

```
stewardship_class:
stewardship_contact
```

10.2.6 Submission class

```
submission_class:
submission_contact
```

10.2.7 Registrar class

```
registrar_class:
registrar_identifier
registrar_represents_relation  // optional
```

10.2.8 Reference document class

```
reference_document_class:
reference_document_identifier
reference_document_type_description
reference_document_language.#index
reference_document_title
provided_by_relation.#index
describing_relation.#index  // optional
```

10.2.9 Registration authority identifier class

```
registration_authority_identifier_class:
international_code_designator
organizational_identifier
organizational_part_identifier
```

```
opi_source
```

10.2.10 Language identification class

```
language_identification_class:
language_identifier
country_identifier
```

10.2.11 Contact class

```
contact_class:
contact_name
contact_title
contact_information
```

10.2.12 Item identifier class

```
item_identifier_class:
item_registration_authority_identifier
data_identifier
version
```

10.2.13 Administration record class

```
administration_record_class:
administered_item_identifier
registration_status
administrative_status
creation_date
last_change_date
unit_date
change_description
administrative_note
explanatory_comment
unresolved_issue
origin
```

10.2.14 Terminological entry class

```
terminological_entry_class:
terminological_entry_languages.#index
```

10.2.15 Context for administered item class

```
context_for_administered_item_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
```

```
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
context_administration_record
context_description
context_description_language_identifier
```

10.2.16 Language section class

```
language_section_class:
language_section_identifier
name_entry.#index
definition_entry.#index
```

10.2.17 Designation of administered item class

```
designation_of_administered_item_class:
name
pererred_designation
specifically_using_relation  // optional
```

10.2.18 Definition of administered item class

```
definition_of_administered_item_class:
definition_text
preferred_definition
definition_source_reference
specifically_referencing_relation  // optional
```

10.2.19 Classification scheme class

```
classification_scheme_class:
administered_item_administration_record_class
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
classification_scheme_administration_record
classification_scheme_type_name
classification_scheme_membership.#index
```

10.2.20 Classification scheme item class

```
classification_scheme_item_class:
classification_scheme_item_type_name
classification_scheme_item_value
classification_scheme_association_relation.#index
classification_scheme_association_relation.#index._relation.classification_scheme_item
_relationship_type_description
```

```
classifying_relation.#index
```

10.2.21 Conceptual domain class

```
conceptual_domain_class:
administered_item_administration_record_class
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
having_relation.#index
```

10.2.22 Data element concept class

```
data_element_concept_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
data_element_concept_administration_record
data_element_concept_object_class
object_class_qualifier
data_element_concept_property
property_qualifier
specifying_relation
expressed_by_relation  // optional
```

10.2.23 Property class

```
property_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
property_administration_record
```

10.2.24 Object class class

```
object_class_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
object_class_administration_record
```

10.2.25 Concept class

```
concept_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
object_class_administration_record
using_relation.#index
using_relation.#index._relation.administered_item_administration_record
using_relation.#index._relation.associates_relation.#index
using_relation.#index._relation.associates_relation.#index._relation.administered_item
_relationship_type_using_relation.#index._relation.description
using_relation.#index._relation.registered_by_relation.#index
using_relation.#index._relation.administered_by_relation.#index
using_relation.#index._relation.administered_by_relation.#index._relation.stewardship_
contact
using_relation.#index._relation.submitted_by_relation.#index
using_relation.#index._relation.submitted_by_relation.#index._relation.submission_cont
act
using_relation.#index._relation.having_relation.#index
using_relation.#index._relation.having_relation.#index._relation.terminological_entry_
languages.#index
using_relation.#index._relation.classified_by_relation.#index  // optional
using_relation.#index._relation.object_class_administration_record
using_relation.#index._relation.concept_relationship_type_description
used_in_relation.#index // optional
used_in_relation.#index._relation.administered_item_administration_record
used_in_relation.#index._relation.associates_relation.#index
used_in_relation.#index._relation.associates_relation.#index._relation.administered_it
em_relationship_type_using_relation.#index._relation.description
```

```
used_in_relation.#index._relation.registered_by_relation.#index
used_in_relation.#index._relation.administered_by_relation.#index
used_in_relation.#index._relation.administered_by_relation.#index._relation.stewardshi
p_contact
used_in_relation.#index._relation.submitted_by_relation.#index
used_in_relation.#index._relation.submitted_by_relation.#index._relation.submission_co
ntact
used_in_relation.#index._relation.having_relation.#index
used_in_relation.#index._relation.having_relation.#index._relation.terminological_entr
y_languages.#index
used_in_relation.#index._relation.classified_by_relation.#index  // optional
used_in_relation.#index._relation.object_class_administration_record
used_in_relation.#index._relation.concept_relationship_type_description
```

10.2.26 Concept relationship class

```
concept_relationship_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
object_class_administration_record
concept_relationship_type_description
```

10.2.27 Conceptual domain class

```
conceptual_domain_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
conceptual_domain_administration_record
dimensionality
represented_by_value_domain_relation.#index  // optional
```

10.2.28 Enumerated conceptual domain class

```
enumerated_conceptual_domain_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
```

```
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
conceptual_domain_administration_record
dimensionality
represented_by_value_domain_relation.#index  // optional
value_meaning_set.#index
```

10.2.29 Value meaning class

```
value_meaning_class:
value_meaning_identifier
value_meaning_description
value_meaning_begin_date
value_meaning_end_date
used_in_relation  // optional
```

10.2.30 Permissible value class

```
permissible_value_class:
permissible_value_begin_date
permissible_value_end_date
permissible_value_has_value_meaning_relation
permissible_value_has_value_relation
```

10.2.31 Value domain class

```
value_domain_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
value_domain_administration_record
value_domain_datatype
value_domain_unit_of_measure
value_domain_minimum_character_quantity
value_domain_data_format
representing_conceptual_domain_relation
typed_by_relation
representing_by_data_element_relation
```

10.2.32 Enumerated value domain class

```
enumerated_value_domain_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
value_domain_administration_record
value_domain_datatype
value_domain_unit_of_measure
value_domain_minimum_character_quantity
value_domain_data_format
representing_conceptual_domain_relation
typed_by_relation
representing_by_data_element_relation
permissible_value_set.#index
```

10.2.33 Non enumerated value domain class

```
non_enumerated_value_domain_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
value_domain_administration_record
value_domain_datatype
value_domain_unit_of_measure
value_domain_minimum_character_quantity
value_domain_data_format
typed_by_relation
representing_by_data_element_relation
representing_conceptual_domain_relation
representing_non_enumerated_conceptual_domain_relation
```

10.2.34 Non enumerated conceptual domain class

```
non_enumerated_conceptual_domain_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
```

```
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
conceptual_domain_administration_record
dimensionality
represented_by_value_domain_relation.#index  // optional
non_enumerated_conceptual_domain_description
represented_by_non_enumerated_value_domain_relation.#index  // optional
```

10.2.35 Representation class class

```
representation_class_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
representation_class_administration_record
typing_value_domain_relation.#index  // optional
typing_data_element_relation.#index  // optional
```

10.2.36 Unit of meaure class

```
unit_of_measure_class:
unit_of_measure_name
unit_of_measure_precision
```

10.2.37 Datatype class

```
datatype_class:
datatype_name
datatype_description
datatype_scheme_reference
datatype_annotation
```

10.2.38 Data element class

```
data_element_class:
administered_item_administration_record
associates_relation.#index
associates_relation.#index._relation.administered_item_relationship_type_description
registered_by_relation.#index
administered_by_relation.#index
administered_by_relation.#index._relation.stewardship_contact
```

```
submitted_by_relation.#index
submitted_by_relation.#index._relation.submission_contact
having_relation.#index
having_relation.#index._relation.terminological_entry_languages.#index
classified_by_relation.#index  // optional
expressed_by_relationship  // optional
data_element_administration_record
representation_class_qualifier
data_element_precision
expressing_relation
representing_relation
typed_by_relation
exemplified_by_relation.#index
derived_from_relation.#index
input_to_relation.#index  // optional
```

10.2.39 Data element example class

```
data_element_example_class:
data_element_example_item
```

10.2.40 Data element derivation class

```
data_element_derivation_class:
applying_relation
inputing_relation.#index
```

10.2.41 Data element derivation rule class

```
data_element_derivation_rule_class:
derivation_rule_administration_record
derivation_rule_specification
applied_to_relation.#index  // optional
```

11 Other information

Not applicable.

12 Conformance

A conforming implementation shall:

— map the designations defined in this Part to a conforming ISO/IEC 11179-3 metadata registry

13 Examples

*** TO BE SUPPLIED ***