BS ISO/IEC 11179-6:2015

BSI Standards Publication

Information technology — Metadata registries (MDR)

Part 6: Registration

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee IST/40, Data management and interchange.

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2015-08-01

Information technology — Metadata registries (MDR) —

Part 6: Registration

Technologies de l'information — Registres de métadonnées (RM) — Partie 6: Enregistrement des données

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This third edition cancels and replaces the second edition (ISO/IEC 11179-6:2005), which has been technically revised.

ISO/IEC 11179 consists of the following parts, under the general title *Information technology — Metadata registries (MDR)*:

— *Part 1: Framework*

— *Part 2: Classification*

— *Part 3: Registry metamodel and basic attributes*

— *Part 4: Formulation of data definitions*

— *Part 5: Naming principles*

— *Part 6: Registration*

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Introduction

This part of ISO/IEC 11179 describes the procedure by which *metadata items* required in various application areas could be assigned an internationally unique identifier and registered in a metadata registry maintained by one or more Registration Authorities. This edition of this part of ISO/IEC 11179 supports multiple schemes for ensuring the uniqueness of the identification.

The metamodel of a metadata registry defined in ISO/IEC 11179-3 allows a metadata item to simply be *identified* or to be both *identified* and *registered*. A *registered item* may either be an *administered item*, meaning it has its own *registration state*, or it may be an *attached item*, which means it is attached to an *administered item* and shares the latter's registration state. The registered items are included in Metadata Registries maintained by one or more Registration Authorities, to which the registered items logically and functionally belong. An organization wishing to become a Registration Authority may do so in accordance with the procedure prescribed in Annex A.

The registration process described in this part of ISO/IEC 11179 may be applied to any type of metadata item, such as those specified by ISO/IEC 11179-3: data elements, data element concepts, conceptual domains, value meanings, value domains, classification schemes, and concept systems; those specified by ISO/IEC 19763: ontologies, process models, service models, role and goal models, information models, mappings between models, and form designs; and/or custom types not specified by these standards. Each registered item is represented within a metadata registry by a registration record that documents the common administration and identification, naming and definition details together with their metadata item-specific details.

Within this part of ISO/IEC 11179, the use of "Metadata Registry" denotes an implementation of a metadata registry that is based upon ISO/IEC 11179 and that is managed by one or more Registration Authorities.

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Information technology — Metadata registries (MDR) —

Part 6: Registration

1 Scope

1.1 Statement of scope

This part of ISO/IEC 11179 defines the type of information to be specified, the conditions to be met, and the procedure(s) to be followed for each metadata item to be registered in a metadata registry. The requirements and procedures contained herein apply to all metadata items specified in ISO/IEC 11179-3 and those specified in ISO/IEC 19763. Some Registration Authorities may want to use this part of ISO/IEC 11179 to register and manage locally defined metadata item types that are not defined in ISO/IEC 11179-3 or ISO/IEC 19763.

This part of ISO/IEC 11179 addresses the common metadata that is used to document the common facilities of a metadata registry: administration, identification, naming and definition, details that can apply to any and all types of metadata items.

1.2 Exclusions

This part of ISO/IEC 11179 does not address the metadata that is specific to particular types of metadata items such as data elements and value domains. This part of ISO/IEC 11179 does NOT specify the registry's system design, file organization techniques, storage media, programming languages, etc. to be used in its implementation.

2 Normative references

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

ISO/IEC 11179-1, *Information technology — Metadata registries (MDR) — Part 1: Framework*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
administered item
registered item (3.38) for which *administrative information* (3.2) is recorded

[SOURCE: ISO/IEC 11179-3:2013, 3.2.2]

3.2
administrative information
<metadata registry> information about the administration of an item in a *metadata registry* (3.26)

EXAMPLE Creation date, last change date, origin, change description, and explanatory comment

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[SOURCE: ISO/IEC 11179-3:2013, 3.2.3]

3.3
administrative status
designation (3.10) of the status in the administrative process of a *Registration Authority* (3.42)

[SOURCE: ISO/IEC 11179-3:2013, 8.1.2.6.2.6]

Note 1 to entry: Administrative status is described in 4.4.3. Examples are provided in E.3.

3.4
attached item
registered item (3.38) for which *administrative information* (3.2) is recorded in another registered item

Note 1 to entry: This is often a member of a group of registered items that is managed as a whole.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.6]

3.5
classifiable item
metadata item (3.23) of a type for which classification is supported in a given *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.15]

3.6
classification scheme
descriptive information for an arrangement or division of objects into groups based on criteria such as characteristics, which the objects have in common

EXAMPLE Origin, composition, structure, application, function, etc.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.16]

3.7
contact
instance of a *role* (3.49) of an *individual* (3.16) or *organization* (3.30) or *organization part* (3.33) or *organization Person* (3.35) to or from whom an information item(s), a material object(s) and/or person(s) can be sent in a specified context

[SOURCE: ISO/IEC 11179-3:2013, 3.2.23]

3.8
data
re-interpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

Note 1 to entry: Data can be processed by human or automatic means.

[SOURCE: ISO/IEC 2382-1:1993, 01.01.02]

3.9
data element
<organization of data> unit of *data* (3.8) that is considered in context to be indivisible

EXAMPLE The data element “age of a person” with values consisting of all combinations of three decimal digits.

[SOURCE: ISO/IEC 2382-4:1999, 04.07.01]

Note 1 to entry: The definition states that a data element is “indivisible” in some context. This means that it is possible that a data element considered indivisible in one context (e.g., telephone number) might be divisible in another context (e.g., country code, area code, local number).

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3.10
designation
representation of a concept by a sign which denotes it

[SOURCE: ISO 1087-1:2000, 3.4.1]

3.11
designatable item
identified item (3.12) which can have designations and/or definitions

[SOURCE: ISO/IEC 11179-3:2013, 3.2.50]

3.12
identified item
metadata item (3.23) identified in a *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.64]

3.13
identifier
<metadata registry> string used to unambiguously denote an *identified item* (3.12) within the scope of a specified *namespace* (3.27)

[SOURCE: ISO/IEC 11179-3:2013, 7.2.2.2.2.1]

3.14
identification
assignment of an unambiguous *identifier* (3.13) to an *identified item* (3.12) in a way that makes the assignment available to interested parties

3.15
identification scheme
system allocating *identifiers* (3.13) to registered objects

[SOURCE: ISO/IEC 6523:1998, 3.6]

3.16
individual
single human being

[SOURCE: ISO/IEC 11179-3:2013, 3.2.65]

3.17
International Code Designator
ICD
identifier (3.13) of an *organization identification scheme* (3.31)

[SOURCE: ISO/IEC 6523-1:1998, 3.8 — modified]

3.18
International Code Designator value
ICD value
identifier (3.13) allocated to a particular *organization identification scheme* (3.31)

[SOURCE: ISO/IEC 6523:1998, 3.9]

3.19
international registration data identifier
IRDI
internationally unique *identifier* (3.13) for a *identified item* (3.12) as defined in the framework of ISO/IEC 11179

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3.20
item identifier
identifier (3.13) for an item

Note 1 to entry: ISO/IEC 11179-3:2013 uses the term *scoped identifier* (3.50) because each identifier is defined within the scope of a *namespace* (3.27).

3.21
item registration authority identifier
identifier (3.13) of the *Registration Authority* (3.42) registering the item

3.22
metadata
data (3.8) that defines and describes other data

[SOURCE: ISO/IEC 11179-3:2013, 3.2.74]

3.23
metadata item
instance of a *metadata object* (3.24)

Note 1 to entry: In all parts of ISO/IEC 11179, this term is applied only to instances of metadata objects described by the metamodel in ISO/IEC 11179-3:2013, Clause 5 to Clause 11. Examples include instances of data elements, data element concepts, permissible values, etc.

Note 2 to entry: A metadata item has associated attributes, as appropriate for the metadata object it instantiates.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.75]

3.24
metadata object
object type defined by a metamodel

Note 1 to entry: In all parts of ISO/IEC 11179, this term is applied to metadata objects described by the metamodel in ISO/IEC 11179-3:2013, Clause 5 to Clause 11. Examples include Data Elements, Data Element Concepts, Permissible Values, etc.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.76]

Note 2 to entry: The term also applies to instances of metadata objects described by the metamodels in the various parts of ISO/IEC 19763, which build upon the metamodel in ISO/IEC 11179-3:2013.

3.25
metadata register
information store or database maintained by a *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.77]

3.26
metadata registry
MDR
information system for registering *metadata* (3.22)

Note 1 to entry: The associated information store or database is known as a *metadata register* (3.25).

[SOURCE: ISO/IEC 11179-3:2013, 3.2.78]

3.27
namespace
set of *designations* (3.10) and/or *scoped identifiers* (3.50) for a particular business need

Note 1 to entry: The term namespace is used in this International Standard because it is in common use even though the concept is being applied to identifiers, as well as names.

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3.28
OPI Source Indicator
OPIS
data element (3.9) used to specify the source for the *organization part identifier* (3.34)

[SOURCE: ISO/IEC 6523:1998, 3.12]

3.29
OPIS value
particular value (digit or capital letter) taken by the *OPIS* (3.28) to designate the source of an *organization part identifier* (3.34)

[SOURCE: ISO/IEC 6523:1998, 3.13]

3.30
organization
unique framework of authority within which *individuals* (3.16) act, or are designated to act, towards some purpose

Note 1 to entry: 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 the following:

   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.

[SOURCE: ISO/IEC 6523-1:1998, 3.1 — modified]

3.31
organization identification scheme
identification scheme (3.15) dedicated to the unique identification of *organizations* (3.30)

3.32
organization identifier
identifier (3.13) assigned to an organization within an *organization identification scheme* (3.31) and unique within that scheme

[SOURCE: ISO/IEC 6523:1998, 3.10]

3.33
organization part
any department, service, or other entity within an *organization* (3.30) which needs to be identified for information exchange

[SOURCE: ISO/IEC 6523-1:1998, 3.2]

3.34
organization part identifier
OPI
identifier (3.13) allocated to a particular *organization part* (3.33)

[SOURCE: ISO/IEC 6523:1998, 3.11]

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3.35
organization Person
organization part (3.33) which has the properties of a *Person* (3.36) and thus is able to make commitments on behalf of that *organization* (3.30)

Note 1 to entry: An organization can have one or more organization Persons.

Note 2 to entry: An organization Person is deemed to represent and act on behalf of the organization and to do so in a specified capacity.

Note 3 to entry: An organization Person can be a "natural person" such as an employee or officer of the organization.

Note 4 to entry: An organization Person can be a "legal person", i.e., another organization.

[SOURCE: ISO/IEC 15944-1:2002, 3.46]

3.36
Person
entity, i.e. a natural or legal person, recognized by law as having legal rights and duties, able to make commitment(s), assume and fulfil resulting obligation(s), and able of being held accountable for its action(s)

Note 1 to entry: Synonyms for "legal person" include "artificial person", "body corporate", etc., depending on the terminology used in competent jurisdictions.

Note 2 to entry: Person is capitalized to indicate that it is being utilized as formally defined in the standards and to differentiate it from its day-to-day use.

Note 3 to entry: Minimum and common external constraints applicable to a business transaction often require one to differentiate among three common subtypes of Person, namely "individual", "organization", and "public administration".

[SOURCE: ISO/IEC 15944-1:2002, 3.47]

3.37
register
information store or database maintained by a *registry* (3.46)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.104]

3.38
registered item
metadata item (3.23) that is recorded and managed in a *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.105]

3.39
registrar
representative of a *Registration Authority* (3.42)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.106]

3.40
registration
<metadata registry> inclusion of a *metadata item* (3.23) in a *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.108]

Note 1 to entry: In this part of ISO/IEC 11179, registration also requires that a minimum set of administrative information about the metadata item be specified, such that it becomes a *registered item* (3.38).

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3.41
registration acting body
RAB
type of *organization* (3.30) participating in the *registration* (3.40) process of *administered items* (3.1)

Note 1 to entry: Currently, there are three RABs: *Registration Authority* (RA) (3.42), *Stewardship Organization* (StO) (3.53), and *Submitting Organization* (SuO) (3.56).

3.42
Registration Authority
RA
organization (3.30) responsible for maintaining a *register* (3.37)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.109]

3.43
registration authority identifier
identifier (3.11) assigned to a *Registration Authority* (3.8)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.110]

3.44
registration state
information about the *registration* (3.40) of an *administered item* (3.1)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.111]

3.45
registration status
designation (3.10) of the status in the registration life-cycle of an *administered item* (3.1)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.112]

Note 1 to entry: Registration status is described in 4.4.2.

3.46
registry
information system for *registration* (3.40)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.113]

3.47
registry item
<general> item recorded in a *registry* (3.46)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.115]

3.48
registry item
<metadata registry> *metadata item* (3.23) recorded in a *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.115]

3.49
role
specified responsibilities

[SOURCE: ISO/IEC 11179-3:2013, 3.2.121]

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3.50
scoped identifier
identifier (3.13) of an *identified item* (3.12) within a specified *namespace* (3.27)

Note 1 to entry: A *namespace* (3.27) provides the scope within which the scoped identifier uniquely identifies the identified item.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.122]

3.51
stewardship
<metadata> responsibility for the maintenance of *administrative information* (3.2) applicable to one or more *administered items* (3.1)

Note 1 to entry: The responsibility for the *registration* (3.40) of *metadata* (3.22) can be different from the responsibility for **stewardship** of **metadata**.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.125]

3.52
stewardship contact
steward
contact (3.7) information associated with a *stewardship* (3.51)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.126]

3.53
stewardship organization
StO
organization (3.30) that maintains *stewardship* (3.51) of an *administered item* (3.1)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.127]

Note 1 to entry: In edition 2, this was called responsible organization.

3.54
submission
act of submitting a *metadata item* (3.23) for *registration* (3.40) in a *metadata registry* (3.26)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.130]

3.55
submission contact
submitter
contact (3.7) information associated with a *submission* (3.54)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.131]

3.56
submission organization
submitting organization
SuO
organization (3.30) that submits a *metadata item* (3.23) for *registration* (3.40)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.132]

Note 1 to entry: In edition 2, the abbreviation used was SO. It has been changed in this edition because *responsible organization* was renamed to *stewardship organization* (StO).

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3.57
version
unique version *identifier* (3.11) of the *scoped identifier* (3.50)

[SOURCE: ISO/IEC 11179-3:2013, 3.2.142]

4 Concept of operation

4.1 Metamodel of a Metadata Registry

ISO/IEC 11179-3 provides a conceptual metamodel of a Metadata Registry for describing data. The metamodel specifies a number of metadata items, including: data element, data element concept, value domain, conceptual domain, concept system and others. ISO/IEC 11179-1 provides the means for understanding and associating the individual parts and is the foundation for a conceptual understanding of metadata and metadata registries.

This part of the ISO/IEC 11179 standard addresses the specifics that are common to registration of any metadata item. It is envisioned that an organization may extend its Metadata Registry with additional items that are to be registered. It is also envisioned that the standard may be extended at a later time to specify additional metadata items. Others may want to use this part of ISO/IEC 11179 to register and manage locally defined metadata item types that are not defined in Part 3. This part of ISO/IEC 11179 also applies to the registration of items specified in ISO/IEC 19763, such as models, model elements, and mappings.

4.2 Metadata Items

Figure 1 shows the types of items specified by ISO/IEC 11179-3:2013, 5.5. In the Figure, the notation <<type>> indicates the use of the <<type>> stereotype as specified in ISO/IEC 19505-2:2012 OMG UML Part 2: Superstructure Annex C.1 Standard Profile L2. The names in parentheses below the item names are the names of the region of the metamodel in which the items are defined in ISO/IEC 11179-3.

Any **metadata item** (3.23) entered into a **metadata registry** (3.26) may be extended by one or more of the types shown in Figure 1, and described in 4.3, Common facilities.

A **Registration Authority (RA)** (3.42) responsible for the registry shall determine which metadata items should become identified items, administered items, attached items, designatable items and/or classifiable items, within the constraints of any conformance claim that is made for the registry.

NOTE The precise mechanism by which metadata items are extended by the above types is implementation-defined.

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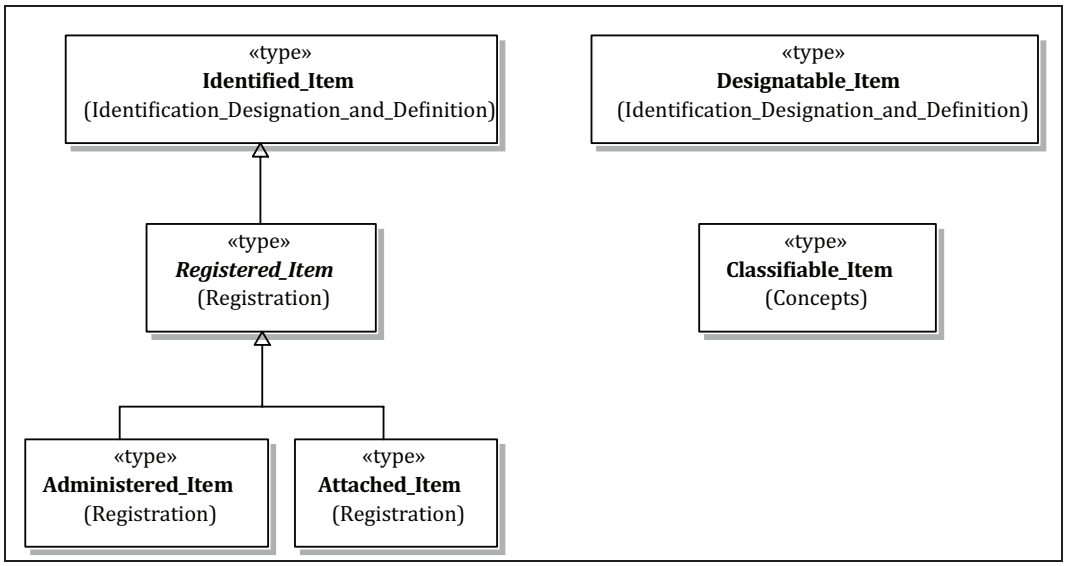

Figure 1 — Types of items

4.3 Common facilities

4.3.1 Identification

Any metadata item that is to be retrieved directly (as opposed to indirectly through a related item), shall be an **identified item** (3.12), so the item can be referenced. Each identified item shall have at least one **identifier** (3.13), and that identifier must be unique within a specified **namespace** (3.27). Prior editions of ISO/IEC 11179 mandated the identification scheme specified by ISO/IEC 6523. This third edition of ISO/IEC 11179 permits any identification scheme that can guarantee uniqueness (e.g. IETF RFC 4122).

Annex A describes the structure of the identifier if the identification scheme specified by ISO/IEC 6523 is used.

4.3.2 Designation and Definition

Any metadata item can be made a **designatable item** (3.11) to allow it to be designated (named) and/or defined in the metadata registry.

ISO/IEC 11179-4 provides guidelines for the formulation of data definitions.

ISO/IEC 11179-5 provides instructions for naming of the following items: concept, data element concept, conceptual domain, data element, and value domain, as defined in ISO/IEC 11179-3. Part 5 describes naming in an MDR; including principles and rules by which naming conventions can be developed; and provides examples of naming conventions.

NOTE The separation of designation and definition from identification has been made because Attached Items are not required to be designated or defined. However, best practice is for both designation and definition to be provided for any metadata item.

4.3.3 Classification

Any metadata item can be made a **classifiable item** (3.5) to allow it to be classified in a **classification scheme** (3.6).

ISO/IEC 11179-3:2013, clause 9.2 Classification Metamodel region describes the registration of classification schemes and their use in classifying metadata items in a metadata registry.

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4.3.4 Registration

Any **identified item** (3.12) can be made a **registered item** (3.38) to allow it to be registered in a metadata registry. Each such item must be instantiated as one of the specializations: **administered item** (3.1), or **attached item** (3.4).

Registration is the primary topic of this part of ISO/IEC 11179.

4.4 Status categories

4.4.1 General

There are two types of status categories. The **registration status** (3.45) is a designation of the level of registration or quality of metadata or progression of an Administered Item. The **administrative status** (3.3) is a designation of the status in the administrative process of a Registration Authority for handling registration requests. Both status categories apply to individual Administered Items that have been registered in the metadata register. Attached Items do not have their own statuses. They inherit the status of the Administered Item to which they are attached.

An administrative status specifies the process that an Administered Item is undergoing within a Registration Status. It identifies the process that is taking place within a registration status. It is very probable that the permissible administrative status values will be dependent upon the current registration status that an Administered Item possesses. A Registration Authority will establish the focus of the use of administrative status. A Registration Authority determines the allowed values of this attribute. It is the responsibility of the Registration Authority to refine, publish, and implement this administrative feature.

Edition 3 of ISO/IEC 11179 allows multiple Registration Authorities to maintain their own **Registration State** (3.44) over a shared Administered Item. The registration state includes both the registration status and the administrative status assigned by the registration authority.

4.4.2 Summary of registration status categories

Registration status specifies the state of an Administered Item that is in the metadata register, in the view of the Registration Authority. Registration status categories shall apply to individual Administered Items that have been registered in the metadata register by the Registration Authority. Registration status categories are of two sub-types: lifecycle and documentation. The lifecycle registration status categories address improvement and progression towards levels of perfection of the quality of the metadata of the item and of the preferences of usage of the Administered Item. The documentation registration status categories are used to denote positions at which there will be no more progression in quality of metadata or use of the Administered Item. The relationships among these status categories, along with the requirements for an Administered Item to achieve a particular registration status level, are presented in Table 1.

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Table 1 — Registration status levels and criteria

Administered Item registration status category	Status criteria
Lifecycle Statuses	
Preferred Standard	The Registration Authority confirms that the Administered Item is — preferred for use within the community that uses this metadata register.
Standard	The Registration Authority confirms that the Administered Item is — of sufficient quality and — of broad interest for use in the community that uses this metadata register.
Qualified	The Registration Authority has confirmed that — the mandatory metadata attributes are complete and — the mandatory metadata attributes conform to applicable quality requirements.
Recorded	The Registration Authority has confirmed that — all mandatory metadata attributes have been completed.
Candidate	The Administered Item has been proposed for progression through the registration levels.
Incomplete	Submitter wishes to make the community that uses this metadata register aware of the existence of an Administered Item in their local domain.
Retired	The Registration Authority has approved the Administered Item as — no longer recommended for use in the community that uses this metadata register and — should no longer be used.
Superseded	The Registration Authority determined that the Administered Item is — no longer recommended for use by the community that uses this metadata register, and — a successor Administered Item is now preferred for use.
Documentation Statuses	
Historical	The Submitter wishes to make the community that uses this metadata register aware of the existence of an Administered Item that was used in the past.
Application	The Registration Authority wishes to make the community that uses this metadata register aware of the existence of an Administered Item in their local domain that is in an application system and is not specified at the logical level. This item may be very well described.

While the general intent is to progress as many Administered Items as possible from "Incomplete" to the "Preferred Standard" registration status, progression to a status higher than "Recorded" or "Qualified" may not be appropriate. That is, necessary metadata attribute documentation for an Administered Item may not be available to establish required documentation for the "Recorded" status, may not be of the quality necessary for the "Qualified" status, or identification as "Preferred Standard" Administered Item may not be appropriate. Such Administered Items shall be held at their current status level in the metadata register to facilitate understanding of and access to these Administered Items by the community that uses this metadata register.

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The lifecycle status category of an Administered Item entry shall be based upon the completeness of the data entered, its accuracy, and its conformance to the established format and syntax. For the documentation status categories, any state of completeness is possible. The registration status category shall be as listed below.

NOTE Since Attached Items do not have a registration status, the following rules do not apply to them, except that once the associated Administered Item reaches "Recorded Status" or above, all mandatory attributes and other constraints are enforced for the Attached Items as well as for the Administered Item.

a) Incomplete - An Administered Item with the "Incomplete" status shall indicate that the Submitter wishes to make the community that uses this metadata register aware of the existence of an Administered Item in their local domain. An Administered Item in the status of "Incomplete" in the metadata register shall not be maintained under version control. The minimum metadata attribute documentation for the "Incomplete" status in the metadata register shall be as follows:

   1) identifier,

   2) submitter organization name,

   3) submitter contact name, and

   4) submitter contact information.

   The registered Administered Item might not contain all mandatory attribute values, and other constraints specified for particular metadata objects in the ISO/IEC 11179-3 metamodel are not enforced.

b) Candidate - An Administered Item with the "Candidate" status shall indicate that it has been proposed for progression through the registration levels. Administered Items in the "Candidate" status are maintained under version control. The minimum metadata attribute documentation for the "Candidate" status includes all attributes required for "Incomplete" status, plus the following:

   1) designation,

   2) definition,

   3) stewardship organization name,

   4) stewardship contact name, and

   5) stewardship contact information.

   The registered Administered Item might not contain all mandatory attribute values, and other constraints specified for particular metadata objects in the ISO/IEC 11179-3 metamodel are not enforced.

c) Recorded - An Administered Item with the "Recorded" status shall mean that all mandatory metadata attributes have been completed, and all associated constraints are to be enforced. The preceding rule also applies to any and all Attached Items attached to the Administered Item. An Administered Item in the "Recorded" status implies that the Administered Item may be shared across domains. The contents of the mandatory metadata attributes may not conform to quality requirements. The Submitter may request the retirement of an Administered Item in the registration status of "Recorded" at any time. Administered Items in "Recorded" registration status or higher are maintained under version control.

d) Qualified - An Administered Item with the "Qualified" status shall mean that the Administration Item had a "Recorded" registration status and the Registration Authority has confirmed that the mandatory metadata attributes are complete and conform to applicable quality requirements. In the event that an Administered Item is not approved by the Registration Authority for the "Qualified" registration status level, it shall remain at the "Recorded" registration status level.

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e) Standard - An Administered Item with the "Standard" status indicates that the Administration Item had a "Qualified" registration status and the Registration Authority confirms that the Administered Item is of sufficient quality and of broad interest for use in the community that uses this metadata register. There may be more than one "Standard" Administered Item that addresses the same function, concept etc.

f) Preferred Standard - An Administered Item with the "Preferred Standard" status means that the Registration Authority confirms that the Administered Item is preferred for use in the community that uses this metadata register.

g) Retired - An Administered Item with the "Retired" status indicates that the Registration Authority has determined the Administered Item is no longer recommended for use in the community that uses this metadata register. A "Retired" Administered Item should no longer be used. Such Administered Items are retained in the metadata register archival storage facility for historic reference and research purposes. "Retired" Administered Items should include a reference to replacement Administered Items when appropriate. Only editorial edits of "Retired" Administered Items are permitted. An Administered Item can move to "Retired" status from "Recorded" status or above, so the quality of the attribution might be no better than in "Recorded" status.

h) Superseded - An Administered Item with the "Superseded" status indicates that the Registration Authority has determined the Administered Item is no longer recommended for use in the community that uses this metadata register. A "Superseded" Administered Item may be used but the successor Administered Item is the preferred for use. Such Administered Items are retained in the metadata register archival storage facility for historic reference purposes. "Superseded" Administered Items should include a reference to replacement Administered Items when appropriate. Only editorial edits of "Superseded" Administered Items are permitted. An Administered Item can move to "Superseded" status from "Recorded" status or above, so the quality of the attribution might be no better than in "Recorded" status.

i) Historical - An Administered Item with the "Historical" status shall indicate that the Submitter wishes to make the community that uses this metadata register aware of the existence of an item that was used in the past and has not been used recently. It is important to record so that related items may be given additional perspective through knowledge of this item. A "Historical" Administered Item has not passed through the dynamic registration levels. The quality of the attribution might be no better than in "Incomplete" status.

j) Application - An Administered Item with the "Application" status shall mean that the Registration Authority wishes to make the community that uses this metadata register aware of the existence of an Administered Item in their local domain that is used by an application system. This item may be very well described. Items with the "Application" status may be from application systems that are in current development. The quality of the attribution might be no better than in "Incomplete" status.

4.4.3 Description of administrative status

There should be administrative statuses that denote the pending changes that are important to the community that uses this metadata register. These status levels forewarn the community that uses this metadata register of changes that may have an impact on their area of interest. The administrative status values are defined and controlled by the Registration Authority responsible for the metadata registry. Annex E.3 provides examples of possible administrative statuses used to record the progress of an Administered Item within each registration status. The example shown is not normative.

4.5 Procedures

The Registration Authority shall establish procedures for necessary activities of the Metadata Registry. Example functional activities that need procedures are:

a) Submission of metadata items for registration - Submitters shall submit metadata items for entry into the metadata register.

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b) Entry of metadata items into the metadata registry - The metadata item must first be identified. This process makes it an Identified Item. The item may also be made a Designatable Item, so it can be designated and defined. Finally, the item may become an Administered Item by providing additional administrative information about the Submitting Organization and Submitter.

c) Specification of registration status - An Administered Item may be recorded as "Incomplete" or "Candidate" registration status, as the Submitter deems appropriate. A registration status of "Incomplete" implies usage restricted to the Submitter's domain while being posted for informational purposes. The "Candidate" status implies that the submitter intends to progress the Administered Item to higher registration status levels. Submitters or Stewards might progress Administered Items in the "Candidate" status to the "Recorded" registration status by completing all mandatory metadata attributes required of that Administered Item.

d) Progression of Administered Items - Submitters shall progress Administered Items to "Recorded" status. Progression of Administered Items to registration status of "Qualified" or higher shall require the sponsorship of a Steward and approval of the Registration Authority.

e) Harmonization of Administered Items - The objective of harmonization is to resolve any potential duplicate or overlapping of Administered Items and to understand the justifiable differences that might exist among the harmonized items. Procedures shall be established to facilitate Administered Item harmonization and reuse.

f) Modification of Administered Items - Procedures shall be established to change Administered Items.

g) Retirement of Administered Items - Procedures shall be established to retire Administered Items.

h) Administrative processing - The Registrar may assign administrative statuses in order to track an interim state of an Administered Item.

Functional operating procedures are needed for those that develop, operate, and/or maintain a Metadata Registry. The ISO/IEC 11179-3:2013 requires organizational participation of certain roles, such as Registration Authority, Registrar, Submission Contact, and Stewardship Contact. Annex C provides a suggested set of roles and responsibilities along with suggested functional operating procedures for the use of the Metadata Registry by role. Annex D provides a suggested concept of operations. Annex E provides suggested procedures to address these functional requirements and the concept of operations. Annex F provides suggested procedures for harmonization of Administered Items.

5 Metadata Registries of Administered Items

5.1 General

The Metadata Registry is for Administered Items that fall under its purview. The Metadata Registry is a system for registering metadata. A particular Metadata Registry may be used to manage any number of metadata registers, the information stores or databases of metadata. Each metadata register is maintained by one or more Registration Authorities. The number of metadata registers and Registration Authorities for any particular implementation of a Metadata Registry is a decision of the implementer and/or operator of a particular Metadata Registry.

Each Administered Item in any metadata register is associated with one or more Registration Authority through the Registration association class. (See ISO/IEC 11179-3:2013, 8.1.5.)

The principal participants of Metadata Registries are Registration Authorities, Submitting Organizations, and Stewardship Organizations. The Registration Authority has one or more Registrars as its contacts. Submitting Organizations submit items for metadata registers. A submitter is a contact for a Submitting Organization for a particular Administered Item. A Submitting Organization may utilize any number of submitters. Each Administered Item may be associated with one or more Submitting Organization, but with exactly one submitter at each organization. Stewardship Organizations are authoritative sources for the attributes of Administered items. A steward is a contact for a Stewardship Organization for an item

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