
**Information technology — Metadata
registries (MDR) —**

**Part 5:
Naming and identification principles**

Technologies de l'information — Registres de métadonnées (RM) —

Partie 5: Principes de dénomination et d'identification

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Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 11179-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This second edition cancels and replaces the first edition (ISO/IEC 11179-5:1995), 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 and identification principles*
- *Part 6: Registration*

Information technology — Metadata registries (MDR) —

Part 5: Naming and identification principles

1 Scope

This part of ISO/IEC 11179 provides instruction for naming and identification of the following administered items: data element concept, conceptual domain, data element, and value domain. It describes the parts and structure of identification. Identification is narrowly defined to encompass only the means to establish unique identification of these administered items within a register. It describes naming in an MDR; includes principles and rules by which naming conventions can be developed; and describes example naming conventions. The naming principles and rules described herein apply primarily to names of data element concepts, conceptual domains, data elements, and value domains. When "administered item" is used in this part of ISO/IEC 11179, it is understood to refer specifically to these four items. This part of ISO/IEC 11179 should be used in conjunction with those that establish rules and procedures for attributing, classifying, defining, and registering administered items.

In Annex A, all of the examples are given with English terminologies. However, there is an intention that those rules be effective in other national languages, even in those languages that use ideographs such as Japanese, Chinese, or Korean, when the terminologies used in the name are controlled properly. Annex B contains a version of the rules for Asian languages.

It is out of scope of the naming rules to establish semantic equivalence of the naming among different languages. Naming must be supplemented by other methods such as ontologies or controlled vocabularies in establishing semantic equivalence.

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

ISO/IEC 11179-2, *Information technology — Metadata registries (MDR) — Part 2: Classification*¹⁾

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

ISO/IEC 11179-6, *Information technology — Metadata registries (MDR) — Part 6: Registration*

1) To be published. Revision of ISO/IEC 11179-2:2000

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11179-1, ISO/IEC 11179-2, ISO/IEC 11179-3, ISO/IEC 11179-6, and the following apply.

- 3.1 administered item**
registry item for which administrative information is recorded in an Administration Record
[ISO/IEC 11179-3:2003]
- 3.2 context**
universe of discourse in which a name or definition is used
[ISO/IEC 11179-3:2003]
- 3.3 lexical**
pertaining to words or the vocabulary of a language as distinguished from its grammar and construction
- 3.4 name**
designation of an object by a linguistic expression
[ISO/IEC 11179-3:2003]
- 3.5 name part**
part of name
discrete term that is used as part of a name of an administered item
- 3.6 naming convention**
set of rules for creating names and their associations
- 3.7 object class term**
part of the name of an administered item which represents the object class to which it belongs, for those administered items containing object classes
- 3.8 principle**
fundamental, primary assertion which constitutes a source of action determining particular objectives or results
- NOTE A principle is usually supported through one or more rules.
- 3.9 property term**
part of the name of an administered item that expresses a property of an object class, for those administered items containing property classes
- 3.10 qualifier term**
word or words that differentiate a concept
- 3.11 representation term**
designation of an instance of a representation class

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3.12**rule**

statement governing conduct, procedure, conditions and/or relations

3.13**semantics**

branch of linguistic science that deals with the meanings of words

3.14**separator**

symbol or space enclosing or separating a part within a name; a delimiter

3.15**structure set**

concepts in an area of discourse, with their relationships to other concepts; examples include data models, taxonomies, and ontologies

3.16**syntax**

relationships among characters or groups of characters, independent of their meanings or the manner of their interpretation and use; the structure of expressions in a language, and the rules governing the structure of a language

4 Data Identifiers within a registry

Each administered item shall have a unique data identifier within the register of a Registration Authority.

The combination of registration authority identifier, data identifier, and version identifier shall constitute a unique identification of an administered item. See ISO/IEC 11179-6 for detailed information.

A data identifier is assigned for any administered item that is registered. Concurrently, or thereafter, the administered item may be

- classified according to ISO/IEC 11179-2,
- specified according to ISO/IEC 11179-3:2003,
- defined according to ISO/IEC 11179-4,
- named according to ISO/IEC 11179-5, and
- registered according to ISO/IEC 11179-6.

5 Identification

The registration authority identifier (RAI), data identifier (DI), and version identifier (VI) constitute the international registration data identifier (IRDI). An IRDI is required for an administered item. Data identifiers are assigned by a Registration Authority; data identifiers shall be unique within the domain of a Registration Authority. Requirements for a Registration Authority, and a discussion of the IRDI, appear in ISO/IEC 11179-6.

As each Registration Authority may determine its own DI assignment scheme, there is no guarantee that the DI by itself will uniquely identify an administered item. For example, if two RAs both use sequential 6-digit numbers, there may be two administered items with the same DI's; however, the administered items will almost certainly not be the same. Both the DI and the RAI are necessary for identification of an administered item.

If particular attributes of an administered item change, then a new version of the administered item shall be created and registered. The registrar shall determine these attributes. In such a case, a VI is required to complete the unique identification of an administered item. For further guidance, see ISO/IEC 11179-6.

An IRDI can serve as a key when exchanging data among information systems, organizations, or other parties who wish to share a specific administered item, but might not utilize the same names or contexts.

ISO/IEC 11179 does not specify the format or content of a unique DI.

6 Names

6.1 Names in a registry

An administered item shall have at least one name within a registry of a Registration Authority. If there are other names by which the administered item is known, preferred names may be identified. Any administered item in the Registry can be subject to naming conventions. The annexes show examples of naming conventions applied to several administered items. Others can be developed by extension of the Principles.

An administered item shall have at least one name within a context. See ISO/IEC 11179-3 for detailed information.

6.2 Naming conventions

Each name for an administered item is specified within a context. A naming convention describes what is known about how names are formulated. A naming convention may be simply descriptive; e.g., where the Registration Authority has no control over the formulation of names for a specific context and merely registers names that already exist. Alternatively, a naming convention may be prescriptive, specifying how names shall be formulated, with the Registration Authority (or an equivalent authority) expected to enforce compliance with the naming convention. The objectives of a prescriptive naming convention may include name consistency, name appearance, and name semantics. An effective naming convention can also enforce the exclusion of irrelevant facts about the administered item from the name, such as the input source of a data element or its field position in a file.

A naming convention may be specified in a reference document. A naming convention shall cover all relevant documentation aspects. This includes, as applicable,

- the scope of the naming convention, e.g. established industry name;
- the authority that establishes names;
- semantic rules governing the source and content of the terms used in a name, e.g. terms derived from data models, terms commonly used in the discipline, etc.;
- syntactic rules covering required term order;
- lexical rules covering controlled term lists, name length, character set, language;
- a rule establishing whether or not names must be unique.

7 Development of naming conventions

7.1 Introduction

This clause lists principles used to develop a naming convention. Rules are derived from the principles; these rules form a naming convention. Syntactic, semantic and lexical rules vary by organizations such as corporations or standards-setting bodies for business sectors; each can establish rules for name formation within its context(s). Annexes A and B contain examples of rules for naming conventions that are consistent with the principles presented in this clause.

Descriptive naming conventions may be applied to administered items which are not under the control of the Registration Authority for the registry, or other authority previous to entry in the registry. At a minimum, the rules for scope and authority should be documented. As appropriate, the semantic, syntactic, lexical, and uniqueness rules may be recorded.

In addition to the scope and authority rules needed to document descriptive naming conventions, prescriptive conventions should be documented by semantic, syntactic, lexical, and uniqueness rules.

- Semantic rules enable meaning to be conveyed.
- Syntactic rules relate items in a consistent, specified order.
- Lexical (word form and vocabulary) rules reduce redundancy and increase precision.
- A uniqueness rule documents how to prevent homonyms occurring within the scope of the naming convention.

The examples in Annex A show how the names of each of the administered items can be formed from a set of items selected from sets of available terms for the naming convention. (The names of other administered items may be formed by rules based on those described in this part of ISO/IEC 11179.) The names of these items can be developed from the names of the administered items from which they are composed, each assigned meaning (semantics) and relative or absolute position (syntax) within a name. They may, but need not, be delimited by a separator symbol. The names may be subject to lexical rules. An authority, e.g., a data manager within a corporation or an approving committee for an international business sector naming standard, should control the set or range of values of each item.

7.2 Scope principle

The scope of a naming convention specifies the range within which it is in effect. In terms of the MDR, the scope of a naming convention may be as broad or narrow as the Registration Authority, or other authority, determines is appropriate. The scope should document whether the naming convention is descriptive or prescriptive.

The scope of each naming convention represented in the MDR shall be documented.

7.3 Authority principle

Identification of the authority that assigns names or enforces the naming convention is necessary for full documentation of the naming convention.

The Authority of each naming convention represented in the MDR shall be documented.

7.4 Semantic principle

Semantics concerns the meanings of name parts and possibly separators that delimit them. The set of semantic rules documents whether or not names convey meaning, and if so, how.

Name parts may be derived from structure sets that identify relationships among (classify) members. See Annex A for examples of semantic rule sets.

The semantic rules of each naming convention represented in the MDR should be documented.

7.5 Syntactic principle

Syntax specifies the arrangement of parts within a name. The arrangement may be specified as relative or absolute, or some combination of the two.

Relative arrangement specifies parts in terms of other parts, e.g., a rule within a convention might require that a qualifier term must always appear before the part being qualified appears.

Absolute arrangement specifies a fixed occurrence of the part, e.g., a rule might require that the property term is always the last part of a name.

The syntactic rules of each naming convention represented in the MDR should be documented.

See Annex A for examples of syntactic rule sets.

7.6 Lexical principle

Lexical issues concern the appearance of names: preferred and non-preferred terms, synonyms, abbreviations, part length, spelling, permissible character set, case sensitivity, etc. The result of applying lexical rules should be that all names governed by a specific naming convention have a consistent appearance.

The lexical rules of each naming convention represented in the MDR should be documented.

See Annex A for examples of lexical rule sets. [ISO/IEC 11179-5:2005
https://standards.iteh.ai/catalog/standards/sist/612b04b9-a967-48ac-a965-6b7403c9bbe2/iso-iec-11179-5-2005](https://standards.iteh.ai/catalog/standards/sist/612b04b9-a967-48ac-a965-6b7403c9bbe2/iso-iec-11179-5-2005)

7.7 Uniqueness principle

There may or may not be requirements for names to be unique within their scope. The uniqueness rules for names represented in the MDR should be documented.

Annex A (informative)

Example naming conventions for names within an MDR registry

A.1 General

The rules are derived from the principles described in clause 7. Examples are included. They show the formation of names within registries, and may be applied to the development of names within contexts at the discretion of the subject area authority. The complete process produces a data element name; other administered item names are developed during the process.

These examples are written as American English. Users of other languages may specify different or additional semantic, syntactic and lexical rules as needed to customize naming conventions to their languages. For example, a rule citing an authority for spelling words within terms might be added to the lexical rules. Annex B shows examples in Asian languages.

A.2 Semantics of name parts

Name parts consist of discrete terms. The terms in this annex are derived from administered items in the MDR metamodel described in ISO/IEC 11179-3. These are: object class terms, property terms, representation terms, and qualifier terms. As these terms are optional in the MDR metamodel, they are presented as examples of the application of semantic principles to name formation.

[ISO/IEC 11179-5:2005](https://standards.iteh.ai/catalog/standards/sist/612b04b9-a967-48ac-a965-6b7403cfbbe2/iso-iec-11179-5-2005)

Object class term <https://standards.iteh.ai/catalog/standards/sist/612b04b9-a967-48ac-a965-6b7403cfbbe2/iso-iec-11179-5-2005>

In the MDR metamodel, an object class is 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. Each object class has a name. The registration of object classes in a registry is optional, but if used, the set of actual and potential object class names provides a taxonomy of object class terms.

An object class term may be a part of the name of the administered items conceptual domain, data element concept and data element, and represents an activity or object in a context. Use of a modelling methodology, as for instance an Entity Relationship Diagram (ERD) or object model, is a way to locate and discretely place administered items in relation to their higher-level model entities. The attributes of entity-relationship model entities equate to administered items that are related to each other through further application of the methodology. In an object model, data elements are expressed as object attributes.

Models provide one kind of classification scheme for administered items. Administered items which contain object classes may be identified with their related modelling entities by mapping the object class term to the model entity name. In ISO/IEC 11179-1:1999, Annex A provides examples of the mapping between object class terms and ERD and object model entities.

In the data element names

Employee Last Name
Cost Budget Period Total Amount
Tree Height Measure
Member Last Name

the terms Employee, Cost, Tree, and Member are object class terms.