INTERNATIONAL STANDARD

ISO/IEC 11179-1

Fourth edition
2023-01

Information technology — Metadata registries (MDR) —

Part 1: **Framework**

Technologies de l'information — Registres de métadonnées (RM) — Partie 1: Cadre de référence

Reference number
ISO/IEC 11179-1:2023(E)

© ISO/IEC 2023



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO/IEC 2023 – All rights reserved

Contents

Page

Foreword ..... **v**
Introduction ..... **vii**
1 Scope **1**
2 Normative references **1**
3 Terms, definitions and abbreviated terms **1**
3.1 Terms related to modelling constructs 1
3.2 General terms 2
3.3 Terms used in the 11179 metamodel 7
3.4 Abbreviated terms 11
4 Theory of terminology **12**
5 Metadata **12**
5.1 General 12
5.2 Concepts 13
5.2.1 General 13
5.2.2 Management 13
5.3 Fundamental model of data elements 13
5.4 Data elements in data management and interchange 15
6 Metadata registries **15**
6.1 General 15
6.2 Fundamentals of registration 16
7 Overview of ISO/IEC 11179 ..... **17**
7.1 General 17
7.2 ISO/IEC 11179-1 — Part 1: Framework 17
7.3 ISO/IEC TR 11179-2 — Part 2: Classification 17
7.4 ISO/IEC 11179-3 — Part 3: Metamodel for registry common facilities 17
7.5 ISO/IEC 11179-30 — Part 30: Basic attributes of metadata 18
7.6 ISO/IEC 11179-31 — Part 31: Metamodel for data specification registration 18
7.7 ISO/IEC 11179-32 — Part 32: Metamodel for concept system registration 18
7.8 ISO/IEC 11179-33 — Part 33: Metamodel for data set registration 19
7.9 ISO/IEC 11179-34 — Part: 34 Metamodel for computable data registration 20
7.10 ISO/IEC 11179-35 — Part 35: Metamodel for model registration 20
7.11 ISO/IEC 11179-4 — Part 4: Formulation of data definitions 20
7.12 ISO/IEC 11179-5 — Part 5: Naming principles 20
7.13 ISO/IEC 11179-6 — Part 6: Registration 21
8 Relationship to other JTC 1/SC 32 standards, TRs and TSs on metadata **21**
8.1 ISO/IEC 19763 series — Metamodel framework for interoperability (MFI) 21
8.1.1 General 21
8.1.2 ISO/IEC 19763-1 — Part 1: Framework 22
8.1.3 ISO/IEC 19763-10 — Part 10: Core model and basic mapping 22
8.1.4 ISO/IEC 19763-6 — Part 6: Registry summary 23
8.1.5 ISO/IEC 19763-3 — Part 3: Metamodel for ontology registration 23
8.1.6 ISO/IEC 19763-5 — Part 5: Metamodel for process model registration 23
8.1.7 ISO/IEC 19763-7 — Part 7: Metamodel for service model registration 24
8.1.8 ISO/IEC 19763-8 — Part 8: Metamodel for role and goal model registration 24
8.1.9 ISO/IEC TR 19763-9 — Part 9: On-demand model selection 24
8.1.10 ISO/IEC 19763-12 — Part 12: Metamodel for information model registration 24
8.1.11 ISO/IEC TS 19763-13 — Part 13: Metamodel for form design registration 25
8.1.12 ISO/IEC 19763-16 — Part 16: Metamodel for document model registration 25
8.2 ISO/IEC 19773 Metadata Registries (MDR) modules 25
8.3 ISO/IEC 20943 series — Procedures for achieving metadata registry content consistency 26

© ISO/IEC 2023 – All rights reserved

8.3.1 General ... 26
8.3.2 ISO/IEC TR 20943-1 — Part 1: Data elements ... 26
8.3.3 ISO/IEC TR 20943-3 — Part 3: Value domains ... 27
8.3.4 ISO/IEC TR 20943-5 — Part 5: Metadata mapping procedure ... 27
8.3.5 ISO/IEC TR 20943-6 — Part 6: Framework for generating ontologies ... 27
8.4 ISO/IEC 20944 series — Metadata Registries Interoperability and Bindings (MDR-IB) ... 27
8.4.1 General ... 27
8.4.2 ISO/IEC 20944-1 — Part 1: Framework, common vocabulary and common provisions for conformance ... 28
8.4.3 ISO/IEC 20944-2 — Part 2: Coding bindings ... 28
8.4.4 ISO/IEC 20944-3 — Part 3: API bindings ... 28
8.4.5 ISO/IEC 20944-4 — Part 4: Protocol bindings ... 28
8.4.6 ISO/IEC 20944-5 — Part 5: Profiles ... 28
8.5 ISO/IEC 19583 series — Concepts and uses of metadata ... 28
8.5.1 General ... 28
8.5.2 ISO/IEC TR 19583-1 — Part 1: Metadata concepts ... 28
8.5.3 ISO/IEC TR 19583-21 — Part 21: 11179-3 data model in SQL ... 29
8.5.4 ISO/IEC TR 19583-22 — Part 22: Registering and mapping processes using ISO/IEC 19763 ... 29
8.5.5 ISO/IEC TR 19583-23 — Part 23: Data element exchange (DEX) ... 29
8.6 ISO/IEC 14957 Representation of data element values — Notation of the format ... 29
8.7 ISO/IEC 5218 Codes for the representation of human sexes ... 29
8.8 ISO/IEC 11404 General purpose datatypes ... 29
8.9 ISO/IEC 24707 Common Logic (CL) ... 29
8.10 ISO/IEC 21838 series — Top level ontologies ... 30
8.10.1 General ... 30
8.10.2 ISO/IEC 21838-1 — Part 1: Requirements ... 30
8.10.3 ISO/IEC 21838-2 — Part 2: Basic Formal Ontology (BFO) ... 30
8.10.4 ISO/IEC 21838-3 — Part 3: Descriptive ontology for linguistic and cognitive engineering (DOLCE) ... 31
8.10.5 ISO/IEC 21838-4 — Part 4: TUpper ... 31
9 Conformance ... 31
Bibliography ... 32

© ISO/IEC 2023 – All rights reserved

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.

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 or www.iec.ch/members_experts/refdocs).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see https://patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

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

This fourth edition cancels and replaces the third edition (ISO/IEC 11179-1:2015), which has been technically revised.

The main changes are as follows:

— some of the detailed descriptions from the Introduction and Clause 5 have been removed to avoid duplication with other parts;

— Clause 7 has been updated to:

  — revise the description for ISO/IEC 11179-3 to reflect its focus on the core metamodel of a metadata registry, and the creation of separate parts to handle other aspects;

  — add a description for ISO/IEC 11179-30;

  — add a description for ISO/IEC 11179-31;

  — add a description for ISO/IEC 11179-32;

  — add a description for ISO/IEC 11179-33;

  — add a description for ISO/IEC 11179-34;

  — add a description for ISO/IEC 11179-35;

— Clause 8 has been added to describe the relationship of other ISO/IEC JTC 1/SC 32 standards on metadata to the ISO/IEC 11179 series;

— references to other standards have been updated, especially ISO 1087, to the latest edition.

© ISO/IEC 2023 – All rights reserved

A list of all parts in the ISO/IEC 11179 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

© ISO/IEC 2023 – All rights reserved

Introduction

The ISO/IEC 11179 series addresses the semantics of data, the representation of data and the registration of the descriptions of that data. It is through these descriptions that an accurate understanding of the semantics and a useful depiction of the data are found.

The purposes of ISO/IEC 11179 are to promote the following:

— standard description of data;

— common understanding of data across organizational elements and between organizations;

— re-use and standardization of data over time, space, and applications;

— harmonization and standardization of data within an organization and across organizations;

— management of the components of descriptions of data;

— re-use of the components of descriptions of data.

Each part of ISO/IEC 11179 is devoted to addressing a different aspect of these needs, as described in Clause 7.

Generally, descriptive data are known as metadata. Metadata can describe books, phone calls, data, etc. ISO/IEC 11179 focuses upon metadata that describe data.

A metadata registry (MDR) is a system for maintaining a database of metadata. Registration is one possible function of that system. Registration accomplishes three main goals: identification, provenance, and monitoring quality. Identification is accomplished by assigning a unique identifier (within the registry) to each object registered there. Provenance addresses the source of the metadata and the object described. Monitoring quality ensures that the metadata does the job it is designed to do.

An MDR may contain the semantics of data. An understanding of data is fundamental to their design, harmonization, standardization, use, re-use and interchange. The underlying model for an MDR is designed to capture all the basic components of the semantics of data, independent of any application or subject matter area.

MDRs, typically, are organized so that those designing applications can ascertain whether a suitable object described in the MDR already exists. Where it is established that a new object is essential, its derivation from an existing description with appropriate modifications is encouraged, thus avoiding unnecessary variations in the way similar objects are described. Registration will also allow two or more administered items describing identical objects to be identified, and more importantly, it will help to identify situations where similar or identical names are in use for administered items that are significantly different in one or more respects.

The names, definitions, datatype and related attributes that are associated with the description of an object in an MDR give that object meaning. The depth of this meaning is limited, because names and definitions convey limited information about the object. The relationships object descriptions have with semantically related object descriptions in a registry provide additional information, but this additional information is dependent on how many semantically related object descriptions there are.

A metadata registry that conforms to ISO/IEC 11179 can describe a wide variety of data. In fact, the attributes described in ISO/IEC 11179 are data elements, and they can be registered in an ISO/IEC 11179 metadata registry. Moreover, any set of descriptors or metadata attributes may be interpreted as data elements and registered in the metadata registry.

There are two main consequences to this:

— the metadata registry can describe itself;

— metadata layers or levels are not defined in ISO/IEC 11179.

© ISO/IEC 2023 – All rights reserved

As a result, ISO/IEC 11179 is a general description framework for data of any kind, in any organization and for any purpose. ISO/IEC 11179 does not address other data management needs, such as data models, application specifications, programming code, program plans, business plans and business policies. These need to be addressed elsewhere. ISO/IEC 19763 specifies facilities to extend a metadata registry so that information about models can be registered. Such models include information (or data) models, ontologies, process models, role and goal models, and form designs.

The increased use of data processing and electronic data interchange heavily relies on accurate, reliable, controllable and verifiable data recorded in databases. One of the prerequisites for a correct and proper use and interpretation of data is that both users and owners of data have a common understanding of the meaning and descriptive characteristics (e.g. representation) of that data, guaranteed by the definition of several basic attributes.

The basic attributes specified are applicable for the definition and specification of the contents of data dictionaries and interchanging or referencing among various collections of administered items. The "basic" in basic attributes means that the attributes are commonly needed in specifying administered items completely enough to ensure that they will be applicable for a variety of functions, such as:

— design of information processing systems;

— retrieval of data from databases;

— design of messages for data interchange;

— maintenance of metadata registries;

— data management;

— dictionary design;

— dictionary control;

— use of information processing systems.

Basic also implies that they are independent of any:

— application environment;

— function of an object described by an administered item;

— level of abstraction;

— grouping of administered items;

— method for designing information processing systems or data interchange messages;

— MDR system.

Basic does not imply that all attributes specified in ISO/IEC 11179 are required in all cases. Distinction is made between those attributes that are mandatory, conditional, or optional.

© ISO/IEC 2023 – All rights reserved

Information technology — Metadata registries (MDR) —

Part 1: Framework

1 Scope

This document provides the means for understanding and associating the individual parts of ISO/IEC 11179 and is the foundation for a conceptual understanding of metadata and metadata registries. This document also describes the relationship of ISO/IEC 11179 to other JTC 1/SC 32 standards, technical specifications and technical reports on metadata.

In all parts of ISO/IEC 11179, metadata refers to descriptions of data. It does not contain a general treatment of metadata.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 704, *Terminology work — Principles and methods*

ISO 1087, *Terminology work and terminology science — Vocabulary*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in ISO 704, ISO 1087 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 Terms related to modelling constructs

3.1.1
attribute
characteristic (3.2.6) of an *object* (3.2.4) or set of objects

[SOURCE: ISO/IEC 11179-3:2023, 3.1.11]

3.1.2
class
description of a set of *objects* (3.2.4) that share the same *attributes* (3.1.1), operations, methods, *relationships* (3.1.4) and semantics

Note 1 to entry: Adapted from ISO/IEC 19505-2:2012, 7.3.7.

© ISO/IEC 2023 – All rights reserved

3.1.3
identifier
<metadata registry> sequence of characters, capable of uniquely identifying that with which it is associated, within a specified *context* (3.3.3)

Note 1 to entry: Unlike a *name* (3.2.17), an identifier is linguistically neutral.

Note 2 to entry: It is possible to define an identifier from the point of view of terminology as defined in ISO 1087 and described in ISO 704, as follows: representation of an object by a sign which denotes it, and is intended for dereferencing that object. Note the parallel with the definition of *designation* (3.2.16), except this applies to any object rather than just for concepts.

[SOURCE: ISO/IEC 11179-3:2023, 3.1.16, modified — Note 2 to entry has been added.]

3.1.4
relationship
<UML> semantic connection among model elements

[SOURCE: ISO 19103:2015, 4.30]

3.2 General terms

3.2.1
subject
area of interest or expertise

[SOURCE: ISO 1087:2019, 3.1.5]

3.2.2
domain
subject field
field of special knowledge

Note 1 to entry: The borderlines and the granularity of a domain are determined from a purpose-related point of view. If a domain is sub-divided, the result is again a domain.

[SOURCE: ISO 1087:2019, 3.1.4]

3.2.3
entity
any concrete or abstract thing that exists, did exist, or might exist, including associations among these things

EXAMPLE A person, object, event, idea, process, etc.

Note 1 to entry: An entity exists whether data about it are available or not.

[SOURCE: ISO/IEC 2382:2015, 2121433, modified — some Notes to entry have been deleted.]

3.2.4
object
anything perceivable or conceivable

Note 1 to entry: Objects can be material (e.g. 'engine', 'sheet of paper', 'diamond'), immaterial (e.g. 'conversion ratio', 'project plan') or imagined (e.g. 'unicorn', 'scientific hypothesis').

[SOURCE: ISO 1087:2019, 3.1.1]

3.2.5
property
<terminology> feature of an *object* (3.2.4)

EXAMPLE 1 'Being made of wood' as a property of a given 'table'.

© ISO/IEC 2023 – All rights reserved

EXAMPLE 2 'Belonging to person A' as a property of a given 'pet'.

EXAMPLE 3 'Having been formulated by Einstein' as a property of the equation 'E = mc^2'.

EXAMPLE 4 'Being compassionate' as a property of a given 'person'.

EXAMPLE 5 'Having a given cable' as a property of a given 'computer mouse'.

Note 1 to entry: One or more objects can have the same property.

Note 2 to entry: See also 3.3.2.

[SOURCE: ISO 1087:2019, 3.1.3, modified — Note 2 to entry added.]

3.2.6
characteristic
abstraction of a *property* (3.2.5)

EXAMPLE 'Having a cable for connecting with a computer' as a characteristic of the concept 'cord mouse'.

Note 1 to entry: Characteristics are used for describing *concepts* (3.2.8).

[SOURCE: ISO 1087:2019, 3.2.1]

3.2.7
essential characteristic
characteristic (3.2.6) of a *concept* (3.2.8) which is indispensable to understanding that concept

[SOURCE: ISO 1087:2019, 3.2.3]

3.2.8
concept
unit of knowledge created by a unique combination of *characteristics* (3.2.6)

Note 1 to entry: Concepts are not necessarily bound to particular natural languages. They are, however, influenced by the social or cultural background which often leads to different categorizations.

Note 2 to entry: A concept is independent of its representation.

[SOURCE: ISO 1087:2019, 3.2.7, modified — Note 2 to entry has been changed.]

3.2.9
general concept
concept (3.2.8) that corresponds to a potentially unlimited number of *objects* (3.2.4), which form a group by reason of shared *properties* (3.2.5)

EXAMPLE 'planet', 'tower', 'Nobel Prize in Physics', 'moon'.

Note 1 to entry: For a general concept it is essential that a number of corresponding objects greater than 1 can be perceived or conceived of. For example 'spaceship' has been a general concept before such a material object existed, at the time when there existed only 1 such object, and later when there existed several such objects.

[SOURCE: ISO 1087:2019, 3.2.9]

3.2.10
individual concept
concept (3.2.8) which corresponds to only one *object* (3.2.4)

EXAMPLE ‘Saturn’, ‘Eiffel Tower’, 'Moon', 'serial number FRHR603928', '2016 Nobel Prize in Physics'.

Note 1 to entry: Individual concepts are represented by *proper names* (3.2.18).

[SOURCE: ISO 1087:2019, 3.2.8]

© ISO/IEC 2023 – All rights reserved

3.2.11
definition
representation of a *concept* (3.2.8) by an expression that describes it and differentiates it from related concepts

[SOURCE: ISO 1087:2019, 3.3.1]

3.2.12
extension
<terminology> set of all of the *objects* (3.2.4) to which a *concept* (3.2.8) corresponds

Note 1 to entry: This term has a different meaning in ISO/IEC 11179-3.

[SOURCE: ISO 1087:2019, 3.1.2, modified — Note 1 to entry added.]

3.2.13
intension
set of *characteristics* (3.2.6) that make up a *concept* (3.2.8)

[SOURCE: ISO 1087:2019, 3.2.6]

3.2.14
concept relation
relation between two *concepts* (3.2.8)

[SOURCE: ISO 1087:2019, 3.2.11]

3.2.15
concept system
set of *concepts* (3.2.8) structured in one or more related *domains* (3.2.2) according to the *concept relations* (3.2.14) among its concepts

[SOURCE: ISO 1087:2019, 3.2.28]

3.2.16
designation
designator
representation of a *concept* (3.2.8) by a sign which denotes it in a *domain* (3.2.2) or *subject* (3.2.1)

Note 1 to entry: A designation can be linguistic or non-linguistic. It can consist of various types of characters, but also punctuation marks such as hyphens or parentheses, governed by domain-, subject-, or language specific conventions.

Note 2 to entry: A designation can be a *term* (3.2.19) including *appellations* (3.2.20), a *proper name* (3.2.18) or a *symbol* (3.2.21).

[SOURCE: ISO 1087:2019, 3.4.1]

3.2.17
name
designation (3.2.16) of an *object* (3.2.4) by a linguistic expression

[SOURCE: ISO/IEC 15944-1:2011, 3.35]

3.2.18
proper name
designation (3.2.16) that represents an *individual concept* (3.2.10)

[SOURCE: ISO 1087:2019, 3.4.4]

© ISO/IEC 2023 – All rights reserved

3.2.19
term
designation (3.2.16) that represents a *general concept* (3.2.9) by linguistics means

EXAMPLE "laser printer", "planet", "pacemaker", "chemical compound", "¾ time", "Influenza A virus", "oil painting".

Note 1 to entry: Terms may be partly or wholly verbal.

[SOURCE: ISO 1087:2019, 3.4.2, modified — EXAMPLE changed to EXAMPLES.]

3.2.20
appellation
term (3.2.19) that is applied to a group of *objects* (3.2.4) whose relevant *properties* (3.2.5) are identical

EXAMPLE "Nokia 7 Plus®" (mobile phone), “Adobe® Acrobat® X Pro” (software), “Road King®” (motorcycle)[1)]

[SOURCE: ISO 1087:2019, 3.4.3]

3.2.21
symbol
designation (3.2.16) that represents a *concept* (3.2.8) by non-linguistic means

Note 1 to entry: There are several types of symbols such as graphical symbols [see ISO 3864 (all parts)] and letter symbols [see ISO 80000[35] (all parts)].

[SOURCE: ISO 1087:2019, 3.4.5]

3.2.22
terminological system
concept system (3.2.15) with *designations* (3.2.16) for each *concept* (3.2.8)

3.2.23
data
reinterpretable representation of information in a formalized manner suitable for communication, interpretation or processing

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

Note 2 to entry: Data can also be described using the terminological notions defined in ISO 1087 and the computational notions defined in ISO/IEC 11404. A datum is a designation of a concept with a notion of equality defined for that concept.

[SOURCE: ISO/IEC 2382:2015, 2121272 — Notes to entry have been modified.]

3.2.24
data model
graphical, lexical or combined representation of *data* (3.2.23), specifying their *properties* (3.2.5), structure, and interrelationships

3.2.25
conceptual model
conceptual data model
data model (3.2.24) that represents an abstract view of the real world

Note 1 to entry: A conceptual model represents the human understanding of a system, which can be anywhere from a paper-based system to a complex database in an IT system.

1) Nokia 7 Plus® is a trademark of Nokia Corporation, Adobe® Acrobat® X Pro is a trademark of Adobe Systems, Road King® is a trademark of Harley-Davidson. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the products named.

© ISO/IEC 2023 – All rights reserved

3.2.26
metadata
data (3.2.23) that define and describe other data

3.2.27
metamodel
data model (3.2.24) that specifies one or more other models, such as data models, process models, ontologies, etc.

3.2.28
metadata object
object type defined by a *metamodel* (3.2.27)

Note 1 to entry: In all parts of ISO/IEC 11179, this term is applied only to metadata objects described by the metamodels in those parts of ISO/IEC 11179 which specify potential registry content, including *data elements* (3.3.4) in ISO/IEC 11179-31, *concept systems* (3.2.15) in ISO/IEC 11179-32, data sets in ISO/IEC 11179-33, computable data in ISO/IEC 11179-34, and models in ISO/IEC 11179-35.

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

[SOURCE: ISO/IEC 11179-3:2023, 3.2.31]

3.2.29
metadata item
instance of a *metadata object* (3.2.28) in a *metadata registry* (3.2.31)

Note 1 to entry: In all parts of ISO/IEC 11179, this term is applied only to instances of metadata objects described by the metamodels in parts of ISO/IEC 11179 which specify potential registry content, including *data elements* (3.3.4) in ISO/IEC 11179-31, *concept systems* (3.2.15) in ISO/IEC 11179-32, data sets in ISO/IEC 11179-33, computable data in ISO/IEC 11179-34, and models in ISO/IEC 11179-35.

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.

Note 3 to entry: A metadata item has associated *attributes* (3.1.1), as appropriate for the *metadata object* it instantiates.

[SOURCE: ISO/IEC 11179-3:2023, 3.2.58]

3.2.30
basic attribute
attribute (3.1.1) of a *metadata item* (3.2.29) commonly needed in its specification

3.2.31
metadata registry
MDR
information system for registering *metadata* (3.2.26)

3.2.32
registry metamodel
metamodel (3.2.27) specifying a *metadata registry* (3.2.31)

3.2.33
registration
set of rules, operations, and procedures for inclusion of an item in a *registry* (3.2.34)

Note 1 to entry: A detailed description of registration as it applies in ISO/IEC 11179 is found in ISO/IEC 11179-6.

3.2.34
registry
information system for *registration* (3.2.32)

© ISO/IEC 2023 – All rights reserved

3.2.35
registry item
item recorded in a *registry* (3.2.34)

Note 1 to entry: A *registry item* is recorded in the *registry*, but is not necessarily identified, named, defined, classified, registered or administered. Specific information needs to be provided for each of these categories which might or might not be provided when the item is initially recorded. C.f. *registered item* (3.3.20).

[SOURCE: ISO/IEC 11179-3:2023, 3.2.54]

3.2.36
stewardship
<metadata> responsibility for the maintenance of *administrative information* (3.3.22) applicable to one or more *administered items* (3.3.21)

Note 1 to entry: The responsibility for the registration of metadata may be different from the responsibility for stewardship of metadata.

[SOURCE: ISO/IEC 11179-3:2023, 3.2.102]

3.2.37
stewardship organization
organization (3.3.15) that maintains *stewardship* (3.2.36) of an *administered item* (3.3.21)

Note 1 to entry: In the second edition of ISO/IEC 11179-6, this was called *responsible organization*.

[SOURCE: ISO/IEC 11179-3:2023, 3.2.104]

3.2.38
submitting organization
submission organization
organization (3.3.15) that submits a *registry item* (3.2.35) for *registration* (3.2.32)

[SOURCE: ISO/IEC 11179-3:2023, 3.2.108]

3.2.39
data construct
object (3.2.4) that a *metadata item* (3.2.29) describes

Note 1 to entry: Individual *data elements* (3.3.4), *value domains* (3.3.9), *data element concepts* (3.3.5), *conceptual domains* (3.3.11), *object classes* (3.3.1), and *properties* (3.3.2) are data constructs.

3.3 Terms used in the 11179 metamodel

3.3.1
object class
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

[SOURCE: ISO/IEC 11179-31:2023, 3.1]

3.3.2
property
<metamodel>quality common to all members of an *object class* (3.3.1)

Note 1 to entry: See also 3.2.5.

[SOURCE: ISO/IEC 11179-31:2023, 3.2, modified — Domain and Note 1 to entry added.]

3.3.3
context
circumstance, purpose, and perspective under which an *object* (3.2.4) is defined or used

© ISO/IEC 2023 – All rights reserved

3.3.4
data element
<organization of data> unit of *data* (3.2.23) that is considered in *context* (3.3.3) to be indivisible

EXAMPLE The data element "age of a person" with values consisting of all combinations of 3 decimal digits.

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

[SOURCE: ISO/IEC 2382:2015, 2121599, modified — Notes to entry replaced.]

3.3.5
data element concept
DEC
concept (3.2.8) that can be represented in the form of a *data element* (3.3.4), described independently of any particular representation

Note 1 to entry: A data element concept is implicitly associated with both the *property* (3.3.2) and the *object class* (3.3.1) whose combination it expresses.

Note 2 to entry: A data element concept may also be associated with zero or more *conceptual domains* (3.3.11) each of which expresses its *value meanings* (3.3.7).

Note 3 to entry: A data element concept may also be associated with zero or more *data elements* (3.3.4) each of which provides representation for the data element concept via its associated *value domain* (3.3.9).

[SOURCE: ISO/IEC 11179-31:2023, 3.25]

3.3.6
value
<ISO 704> sign, used to represent *data* (3.2.23)

Note 1 to entry: A value is a sign as used in ISO 1087:2019 and ISO 704:2022.

Note 2 to entry: A value may be a character string, bitmap, or some other symbol.

3.3.7
value meaning
semantic content of a *value* (3.3.6)

Note 1 to entry: The representation of value meanings in a *registry* (3.2.34) shall be independent of (and shall not constrain) their representation in any corresponding *value domain* (3.3.9).

[SOURCE: ISO/IEC 11179-31:2023, 3.10]

3.3.8
datatype
named set of distinct *values* (3.3.6), characterized by properties of those values and by operations on those values

[SOURCE: ISO/IEC 11404:2007, 3.12, modified — Inserted 'named' before 'set' in the definition.]

3.3.9
value domain
VD
set of *permissible values* (3.3.10)

Note 1 to entry: The *value domain* provides representation but has no implication as to what *data element concept* (3.3.5) the values might be associated with nor what the values mean.

Note 2 to entry: The *permissible values* can either be enumerated, expressed via a description, or a combination of the two.

© ISO/IEC 2023 – All rights reserved

[SOURCE: ISO/IEC 11179-31:2023, 3.13]

3.3.10
permissible value
designation (3.2.16) of a *value meaning* (3.3.7)

Note 1 to entry: Permissible values may be specified either as part of a *value domain* (3.3.9) or only associated with a *value meaning* (3.3.7).

Note 2 to entry: Within a value domain, permissible values may either be enumerated or described.

Note 3 to entry: Explicit mapping of a single permissible value to a single value meaning is possible only when both the value meaning and permissible value are enumerated, e.g. for code sets. For described permissible values, the described meaning might be associated with a range of values, e.g. weight in kilograms.

Note 4 to entry: As a *designation*, the value is the sign and the *value meaning* is the *concept* (3.2.8).

[SOURCE: ISO/IEC 11179-31:2023, 3.19, modified — Note 4 to entry added.]

3.3.11
conceptual domain
CD
concept (3.2.8) whose meaning is expressed as an enumerated set, a description of subordinate concepts or both, which are *value meanings* (3.3.7)

[SOURCE: ISO/IEC 11179-31:2023, 3.5]

3.3.12
classification scheme
descriptive information for an arrangement or division of *objects* (3.2.4) into groups based on criteria such as *characteristics* (3.2.6), which the objects have in common

Note 1 to entry: A classification scheme is a *concept system* (3.2.15) used for classifying some objects.

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

[SOURCE: ISO/IEC 11179-3:2023, 3.2.5.]

3.3.13
classification scheme item
CSI
item of content in a *classification scheme* (3.3.12)

Note 1 to entry: This may be a node in a taxonomy or ontology, a term in a thesaurus, etc.

[SOURCE: ISO/IEC 11179-3:2023, 3.2.6.]

3.3.14
representation class
classification of types of representations

3.3.15
organization
unique framework of authority within which a person or persons act, or are designated to act, towards some purpose

[SOURCE: ISO/IEC 6523-1:1998, 3.1, modified — Edited to conform to ISO/IEC Directives, and NOTE with examples deleted.]

© ISO/IEC 2023 – All rights reserved

3.3.16
registration authority
RA
organization (3.3.15) responsible for maintaining a register

[SOURCE: ISO/IEC 11179-3:2023, 3.2.92]

3.3.17
registration authority identifier
RA identifier
identifier (3.1.3) assigned to a *registration authority* (3.3.16)

[SOURCE: ISO/IEC 11179-3:2023, 3.2.93]

3.3.18
registrar
representative of a *registration authority* (3.3.16)

[SOURCE: ISO/IEC 11179-3:2023, 3.2.90]

3.3.19
identified item
registry item (3.2.35) identified in a *registry* (3.2.31)

[SOURCE: ISO/IEC 11179-3:2023, 3.2.61]

3.3.20
registered item
identified item (3.3.19) that is recorded and managed in a *registry* (3.2.34)

[SOURCE: ISO/IEC 11179-3:2023, 3.2.65, modified — Notes to entry deleted.]

3.3.21
administered item
registered item (3.2.20) for which *administrative information* (3.3.22) is recorded

[SOURCE: ISO/IEC 11179-3:2023, 3.2.66]

3.3.22
administrative information
<registry> information about the administration of an item in a *registry* (3.2.34)

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

[SOURCE: ISO/IEC 11179-3:2023, 3.2.67]

3.3.23
administrative status
designation (3.2.16) of the status in the administrative process of a *registration authority* (3.3.16) for handling registration requests

Note 1 to entry: The values and associated meanings of “administrative status” are determined by each *registration authority*. C.f. *registration status* (3.3.24).

[SOURCE: ISO/IEC 11179-3:2023, 3.2.71]

3.3.24
registration status
designation (3.2.16) of the status in the registration life-cycle of an *administered item* (3.3.21)

Note 1 to entry: Designation values are specified in ISO/IEC 11179-3:2023, 9.6.1 and described more fully in ISO/IEC 11179-6:2023, 4.3.2.

© ISO/IEC 2023 – All rights reserved

[SOURCE: ISO/IEC 11179-3:2023, 3.2.70]

3.3.25
version
unique form differing in certain aspects from an earlier or later form

3.4 Abbreviated terms

API	application programming interface
ASN.1	abstract syntax notation 1
BFO	basic formal ontology
BMM	business motivation model (see Reference [39])
BPMN	business process model and notation (see Reference [40])
CIR	coding-independent representation
CL	common logic
CSR	coding-specific representation
DDL	database definition language
DIVP	dotted identifier value pair
DOLCE	descriptive ontology for linguistic and cognitive engineering (see Reference [43])
EPC	event-driven process chain (see Reference [45])
GPD	general purpose datatypes
HTML	hyper text markup language
HTTP	hyper text transfer protocol
IDEF1X	integration definition for information modeling (see Reference [47])
JSON	JavaScript object notation
KAOS	keep all objects satisfied (see Reference [37])
MDR	metadata registry
MFI	metamodel framework for interoperability
NFRF	non-functional requirement framework (see Reference [42])
NIAM	natural language information analysis method
OPI	organization part identifier
ORM	object role modeling
OWL	web ontology language
OWL-S	semantic markup for web services (see Reference [48])
RA	registration authority
RGPS	role and goal, process, and service (see 8.1.9)
RM-ODP	reference model of open distributed processing (see Reference [27])
SA-REST	semantic annotation of web resources (see Reference [49])
SAWSDL	semantic annotation for WSDL and XML Schema (see Reference [50])
SSADM	structured systems analysis and design method (see Reference [38])
SWRL	semantic web rule language (see Reference [51])
SWSL	semantic web service language (see Reference [52])
TLO	top-level ontology
UML	unified modeling language (see References [22] and [23])
UPU	Universal Postal Union
URI	uniform resource identifier

© ISO/IEC 2023 – All rights reserved