INTERNATIONAL STANDARD

ISO/IEC 11179-35

First edition
2023-01

Information technology — Metadata registries (MDR) —

Part 35: Metamodel for model registration

Technologies de l'information — Registres de métadonnées (RM) — Partie 35: Métamodèle pour l'enregistrement du modèle

Reference number
ISO/IEC 11179-35:2023(E)

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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.

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).

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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 first edition of ISO/IEC 11179-35 is part of the 4th Edition modularization of ISO/IEC 11179. This document brings into ISO/IEC 11179 the ability to register models and metamodels. As such, it provides alternative facilities to those specified in ISO/IEC 19763 (see References [4] to [14]).

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.

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Introduction

In the ISO/IEC 11179 series, the structure of a Metadata Registry is specified in the form of a conceptual data model. ISO/IEC 11179-3 specifies a metamodel for registry common facilities, which is intended to be extended by other parts of ISO/IEC 11179 for specific purposes.

This document provides a specification of the extensions to the registry metamodel specified in ISO/IEC 11179-3 to enable the registration of metadata about models and their associated metamodels. These models can be information or data models, process models, models of web services or any other type of models used in software engineering or information processing. All such models can be considered as metadata.

In Clauses 6 and 7 and Annex C, this document uses:

— **bold** font to highlight terms which represent metadata objects specified by the metamodel;

— normal font for terms which represent concepts defined in Clause 3.

EXAMPLE **Model_Element** (7.2.2.3) is a class each instance of which models a model element.

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Information technology — Metadata registries (MDR) —

Part 35:
Metamodel for model registration

1 Scope

This document provides a specification for an extension to a Metadata Registry (MDR), as specified in ISO/IEC 11179-3, in which metadata that describes models, and their associated metamodels, can be registered.

The specification in this document, together with the relevant clauses of the specification in ISO/IEC 11179-3, provides the ability to record metadata about:

a) models used in software engineering or information processing, for example, information or data models, process models, models of web services or any other type of models used to develop software systems or the processing of information;

b) the concepts associated with the various elements within the models;

c) the metamodels associated with the models;

d) the mappings identified between the models, between the metamodels, and between the models and their associated metamodels – this is achieved by using the mapping facilities specified in ISO/IEC 11179-3.

This document is applicable to the formulation of models and metamodels to be shared among people and machines, independent of the organization that produces the model or metamodel. It is not applicable to the physical instantiation of any model.

2 Normative references

The following document is 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/IEC 11179-3:2023, *Information technology — Metadata registries (MDR) — Part 3: Metamodel for registry common facilities*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11179-3 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/

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3.1
concept
unit of knowledge created by a unique combination of characteristics

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/IEC 11179-3:2023, 3.2.7]

3.2
modelling language
language or notation that is used to represent some aspect of a universe of discourse

Note 1 to entry: Examples of modelling languages are languages or notations used to express ontologies or to model information requirements, processes, services, forms, roles, goals or some other set of concepts that can be modelled.

[SOURCE: ISO/IEC 19763-10:2014, 3.1.1 modified — "model" replaced by "represent", "domain of interest" replaced by "universe of discourse", and Note 1 added.]

3.3
model
representation of some aspect of a universe of discourse using a recognised *modelling language* (3.2)

Note 1 to entry: Models can be used to express a set of information requirements, processes, services, roles, goals or some other aspect of a universe of discourse.

[SOURCE: ISO/IEC 19763-1:2015, 4.1.12 modified — "normative modelling facility and model constructs" replaced by "recognised modelling language", "domain of interest" replaced by "universe of discourse", and references added.]

3.4
model element
element or component in a *model* (3.3)

Note 1 to entry: Examples of model elements are representations of an entity type in an information model, a representation of an event in a process model, a representation of a service operation in a service model, or a representation of an actor in a role and goal model.

[SOURCE: ISO/IEC 19763-10:2014, 3.1.3]

3.5
model element characteristic
individual characteristic that is used to qualify, identify, classify, quantify or in some other way express the state of a *model element* (3.4)

Note 1 to entry: The state of a model element is the aggregation of the model element characteristics of that model element.

3.6
concept annotation
use of a *concept* (3.1) to annotate a *model* (3.3) or a *model element* (3.4) in order to provide meaning to the *model* or *model element*

4 Abbreviated terms

BPMN	Business Process Model and Notation (see Reference [16])
IDEF1X	Integrated Definition 1 Extended (an information modelling language) (see Reference [15])

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