



# Technical Report

**ISO/IEC TR  
19583-24**

## Information technology — Concepts and usage of metadata —

### Part 24: **11179-3:2013 Metamodel in RDF**

*Technologies de l'information — Concepts et utilisation des  
métadonnées —*

*Partie 24: Métamodèle dans RDF ISO/IEC 11179-3:2013*

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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](http://www.iso.org/directives) or [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs)).

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

A list of all parts in the ISO/IEC 19583 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](http://www.iso.org/members.html) and [www.iec.ch/national-committees](http://www.iec.ch/national-committees).

## Introduction

The ISO/IEC 11179 series on Metadata registries (MDR) addresses the semantics of data, the representation of data, and the registration of the descriptions of that data. The semantic and representational components are described through attributes contained in the conceptual model of a metadata registry as specified in ISO/IEC 11179-3. ISO/IEC 11179-3 provides the basic conceptual model, including the basic attributes and relationships, for a metadata registry.

ISO/IEC 11179-3 defines a common conceptual model, but not a physical implementation. Therefore, the metamodel need not be physically implemented exactly as specified. However, it must be possible to unambiguously map between the implementation and the metamodel in both directions. If implementers can ensure such a mapping, it only partially addresses the issue of interoperability, even between registry products that can claim the same conformance level.

ISO/IEC 11179-3:2013 Metamodel in RDF addresses interoperability from multiple perspectives. It defines a semantic and formal representation of the ISO/IEC 11179-3:2013 conceptual model based on the W3C Resource Description Framework (RDF). This model constitutes a machine readable representation, and can therefore be easily exchanged and explored using RDF based software tools. It can be used by implementers as a common target model for mapping between a specific implementation and the metamodel. Hence, implementers can use this to map against a common target model and more easily identify interoperability issues. A formal RDF model can also be instantiated and therefore serve as a direct exchange format between registry products.

ISO/IEC 11179-3:2013 has been withdrawn and replaced by ISO/IEC 11179-3:2023. The terms used in this document are those defined in ISO/IEC 11179-3:2013 and ISO/IEC 11179-6:2015.

[Annex A](#) provides a summary of the differences between ISO/IEC 11179-3:2013 and its successors ISO/IEC 11179-3:2023, ISO/IEC 11179-31:2023 and ISO/IEC 11179-32:2023.

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# Information technology — Concepts and usage of metadata —

## Part 24: 11179-3:2013 Metamodel in RDF

### 1 Scope

This document specifies the structure of ISO/IEC 11179-3:2013. It defines a mapping of the ISO/IEC 11179-3:2013 conceptual model to a formal schema representation based on the W3C Resource Description Framework (RDF). The schema is available as a separate artefact. This document specifies the principles and conventions that were followed to map classes, attributes, and associations of the conceptual model to a formal RDF schema.

This document does not provide detailed explanatory details about the ISO/IEC 11179 series or RDF. For more information, refer to References [7] to [9].

### 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/IEC 11179-3:2013<sup>1)</sup>, *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 11179-3:2013 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 and definitions of metamodel constructs

##### 3.1.1

##### class

(metamodel) description of a set of *objects* (3.2.1) that share the same *attributes* (3.1.7), operations, methods, *relationships* (3.1.2), and semantics

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.5]

1) Withdrawn and replaced by ISO/IEC 11179-3:2023, ISO/IEC 11179-30:2023, ISO/IEC 11179-31:2023 and ISO/IEC 11179-32:2023.

### 3.1.2

#### **relationship**

<metamodel> connection among model elements

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.15]

### 3.1.3

#### **association**

<metamodel> semantic *relationship* (3.1.2) between two *classes* (3.1.1)

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.2]

### 3.1.4

#### **association class**

<metamodel> *association* (3.1.3) that is also a *class* (3.1.1)

Note 1 to entry: An association class not only connects a set of classes, but also defines a set of features that belong to the association itself.

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.3]

### 3.1.5

#### **superclass**

*class* (3.1.1) that is a generalization of one or more other classes, its *subclasses* (3.1.6)

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.18]

### 3.1.6

#### **subclass**

*class* (3.1.1) that is a specialization of another class, its *superclass* (3.1.5)

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.17]

### 3.1.7

#### **attribute**

<metamodel> *characteristic* (3.2.4) of an *object* (3.2.1) or set of objects

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.4]

### 3.1.8

#### **datatype**

set of distinct values, characterized by properties of those values and by operations on those values

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.9]

### 3.1.9

#### **identifier**

<metamodel> sequence of characters, capable of uniquely identifying that with which it is associated, within a specified context

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.11]

### 3.1.10

#### **package**

grouping of metadata objects that provides a *namespace* (3.2.13) for the grouped objects, and allows them to be referenced as a group

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.13]



**3.1.11**

**metamodel region**

sub-division of a *package* (3.1.10) used to organize metadata objects for ease of explanation

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.1.12]

**3.2 Terms and definitions of concepts**

**3.2.1**

**object**

anything perceivable or conceivable

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.87]

**3.2.2**

**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 ISO 11179-3:2013, 3.2.88]

**3.2.3**

**property**

quality common to all members of an *object class* (3.2.2)

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.100]

**3.2.4**

**characteristic**

abstraction of a *property* (3.2.3) of an *object* (3.2.1) or of a set of objects

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.14]

**3.2.5**

**classification scheme**

descriptive information for an arrangement or division of *objects* (3.2.1) into groups based on criteria such as *characteristics* (3.2.4), which the objects have in common

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

**3.2.6**

**concept**

unit of knowledge created by a unique combination of *characteristics* (3.2.4)

Note 1 to entry: A concept is independent of its representation.

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.18]

**3.2.7**

**relation**

sense in which *concepts* (3.2.6) may be connected, via constituent roles

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.119]

**3.2.8**

**concept system**

set of *concepts* (3.2.6) structured according to the *relations* (3.2.7) among them

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.19]

### 3.2.9

#### **namespace**

scoping mechanism used for grouping related identifiers and for avoiding naming collisions between multiple identifiers that share the same name

### 3.2.10

#### **namespace prefix**

scoping identifier that is bound to a namespace

### 3.2.11

#### **language**

system of signs for communication, usually consisting of a vocabulary and rules

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.68]

### 3.2.12

#### **language tag**

tag used to indicate the language of a text or term

### 3.2.13

#### **vocabulary**

body of words used in a particular *language* ([3.2.11](#))

### 3.2.14

#### **definition**

representation of a *concept* ([3.2.6](#)) by a descriptive statement which serves to differentiate it from related concepts

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.39]

### 3.2.15

#### **data**

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

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.27] [ISO/IEC TR 19583-24:2025](#)

### 3.2.16

#### **metadata**

*data* ([3.2.15](#)) that defines and describes other data

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

### 3.2.17

#### **metadata object**

object type defined by a *metamodel* ([3.2.19](#))

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

### 3.2.18

#### **data model**

graphical and/or lexical representation of *data* ([3.2.15](#)), specifying their properties, structure and inter-relationships

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.36]

### 3.2.19

#### **metamodel**

model that specifies one or more other models

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.80]

**3.2.20**

**metamodel construct**

unit of *notation* ([3.2.21](#)) for modeling

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.81]

**3.2.21**

**notation**

formal syntax and associated semantics

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.86]

**3.2.22**

**registry**

information system for *registration* ([3.2.23](#))

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

**3.2.23**

**registration**

inclusion of an item in a *registry* ([3.2.22](#))

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

**3.2.24**

**registry product**

particular implementation system for implementing a *registry* ([3.2.22](#))

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.117]

**3.2.25**

**registry metamodel**

*metamodel* ([3.2.19](#)) specifying the model for a *registry* ([3.2.22](#))

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.116]

**3.2.26**

**metadata registry**

information system for registering *metadata* ([3.2.19](#))

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

**3.2.27**

**role**

specified responsibilities

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

**3.2.28**

**typed literal**

literal with a defined range of possible values

**3.2.29**

**boolean**

mathematical *datatype* ([3.1.8](#)) associated with two-valued logic

[SOURCE: ISO/IEC ISO 11179-3:2013, 3.2.12]