PD ISO/IEC TR 19583-24:2025

BSI Standards Publication

Information technology — Concepts and usage of metadata

Part 24: 11179-3:2013 Metamodel in RDF

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Full document details: PD ISO/IEC TR 19583-24:2025

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This Published Document is the UK implementation of ISO/IEC TR 19583-24:2025.

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

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2025

ISBN 978 0 539 15467 2

ICS 35.040.50

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 28 February 2025.

Amendments/corrigenda issued since publication

Date	Text affected

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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

First edition
2025-02

Reference number
ISO/IEC TR 19583-24:2025(en)

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Foreword

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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.

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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 11179-3:2013Metamodel 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[1)], *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.

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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]

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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]

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