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

**Part 31:
Metamodel for data specification
registration**

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

*Partie 31: Métamodèle pour l'enregistrement des spécifications de
données*





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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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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 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.

Introduction

In ISO/IEC 11179-3, 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 data elements and associated concepts, such as “data element concepts”, “conceptual domains” and “value domains”. Generically, these are all referred to as “metadata items”. Such metadata are necessary to clearly describe, record, analyse, classify and administer data.

This document is part of the 4th edition modularization of the ISO/IEC 11179 series. It extracts the Data Description package from ISO/IEC 11179-3:2013 to make it more accessible and renames it “Metamodel for data specification registration”. At the same time, some enhancements have been made as follows:

- support for externally defined “reference enumerated conceptual domains” ([7.4.2.6](#)) and “reference enumerated value domains” ([7.4.2.13](#));
- support for sub-setting of value domains ([7.7](#)) and conceptual domains ([7.8](#)) within a specified context;
- support for composite data elements and data types ([7.9](#));
- finer-grained conformance options (see [5.3](#));
- relaxation of some constraints in the standard, while giving registration authorities the ability to enforce them if they wish (see [6.5](#)).

From [Clause 5](#) onwards, 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 **Conceptual_Domain** ([7.2.2.2](#)) is a class each instance of which models a conceptual domain.

Information technology — Metadata registries (MDR) —

Part 31: Metamodel for data specification 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 data elements and associated concepts, such as “data element concepts”, “conceptual domains” and “value domains” 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) data elements, units of measure and derivation rules;
- b) data element concepts and associated object classes and properties;
- c) conceptual domains, conceptual domain subsets and value meanings;
- d) value domains, value domain subsets, datatypes and permissible values.

This document is applicable to the formulation of data representations, concepts, meanings and relationships to be shared among people and machines, independent of the organization that produces the data. It is not applicable to the physical representation of data as bits and bytes at the machine level.

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 11179-3:2023, *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 terminology 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 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

3.2 property

quality common to all members of an *object class* (3.1)