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Information technology — Metadata Registries (MDR) modules

Technologies de l'information — Modules de registres de métadonnées (MDR)

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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Introduction

This International Standard specifies small modules of data that can be used or reused in applications. These modules have been extracted from ISO/IEC 11179-3, ISO/IEC 19763, and OASIS EBXML, and have been refined further. These modules are intended to harmonize with current and future versions of the ISO/IEC 11179 series and the ISO/IEC 19763 series.

During the development of this International Standard, it was originally presented as a multipart standard consisting of an overview part and other parts, one for each module. However, this presentation approach proved to be too cumbersome for users, with some duplication of text and cross-references across multiple documents. The work was consolidated into a single document that facilitated ongoing additions and amendments, as industry and technology demand.

In the present version of this International Standard, subclauses of Clause 3 and Clause 9 itself are marked “reserved for future use”. Future amendments might insert text into these (currently) reserved areas. Meanwhile, the document as a whole is designed with a parallel structure (terminology in Subclause 3.*X* corresponds to the data structure in Clause *X*), so that the user can quickly locate module-specific terminology for a module-specific data structure. Thus, for the UPU postal data module, the terminology is defined in Subclause 3.*16* and its corresponding data structure is described in Clause *16*.

Information technology — Metadata Registries (MDR) modules

1 Scope

This International Standard specifies the technical interoperability details of metadata modules, which are used in ISO/IEC 11179.

2 Normative references

The following referenced documents are indispensable for the application 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 11404:2007, *Information technology — General-Purpose Datatypes (GPD)*

ISO/IEC 20944-1:—, *Information technology — Metadata Registries Interoperability and Bindings (MDR-IB) — Part 1: Framework, common vocabulary, and common provisions for conformance*

ISO 21090:2011, *Health informatics — Harmonized data types for information interchange*

IETF RFC 2421, *Voice Profile for Internet Mail — Version 2,* September 1998

IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax,* January 2005

IETF RFC 3987, *Internationalized Resource Identifiers (IRIs),* January 2005

IETF RFC 5646, *Tags for Identifying Languages,* September 2009

UPU S42a-6:2009, *International postal address components and templates — Part A: Conceptual hierarchy and template languages*[1)]

3 Terms, definitions, and abbreviations

For the purposes of this document, the following terms, definitions, and abbreviations apply.

3.1 Signifiers, referencing, and their associations

3.1.1
to reference, verb
to create an association with a particular object

[ISO/IEC 20944-1]

EXAMPLE A human pointing at an object.

1) UPU is the Universal Postal Union at http://www.upu.int. UPU S42a-6 is based on EN 14142-1, *Postal services — Address databases — Part 1 — Components of postal addresses*.

3.1.2
reference, noun
association with a particular object (the referent)

[ISO/IEC 20944-1]

NOTE In one context, a *reference* is the opposite of a *literal*: the literal gives the data at hand, while the reference points to the data, which must be subsequently accessed, retrieved, or written.

EXAMPLE An association created by proximity; a computer memory pointer; a database foreign key.

3.1.3
referent, noun
object that is referenced

[ISO/IEC 20944-1]

3.1.4
to dereference
to access the referenced object (the referent)

[ISO/IEC 20944-1]

3.1.5
signifier
sign, noun
general concept, whose extension is perceivable objects that are associated with objects

NOTE A signifier associated via a designating relationship to an object of the variety "concept" is known as a signifier designating a concept, i.e., a designation.

3.1.6
label
reference to an object by a signifier

3.1.7
designation
representation of a concept by a signifier which denotes it

NOTE Adapted from ISO 1087-1, where the word "sign" is used. In this context, both "sign" and "signifier" mean the same, but the word "signifier" is used to avoid confusion with other senses of the word "sign".

3.1.8
identifier
label that is intended to be dereferenced

[ISO/IEC 20944-1]

NOTE 1 An identifier is also a reference.

NOTE 2 This definition is consistent with IETF RFC 3986, which describes the Uniform Resource Identifier (URI) syntax and semantics, and IETF RFC 3987, which describes the Internationalized Resource Identifier (IRI) syntax.

3.1.9
literal
lexical token that, from a syntactic point of view, stands for itself

[ISO/IEC 2382-5]

NOTE In this context, a *literal* is the opposite of a *reference*: the lexical token for a reference does not stand for itself, but standards for something else.

EXAMPLE The names **JANUARY**, **FEBRUARY**, **MARCH**, etc. in the following definition of a datatype are literals:

```
Month_Type is (JANUARY, FEBRUARY, MARCH, APRIL, MAY, JUNE,
        JULY, AUGUST, SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER);
Month : Month_Type;
.....
Month := APRIL;
```

The token **JANUARY** stands for itself (meaning the first month of the year) in contrast to a token **JANUARY** representing a variable that is unconstrained and can stand for other values.

3.1.10
namespace
set of labels with a defined scope of usage

[ISO/IEC 20944-1]

3.1.11
namespace label
label that designates a namespace

[ISO/IEC 20944-1]

3.2 Fundamental datatypes

3.2.1
string
sequence of elements of the same nature, such as characters or bits, considered as a whole

[ISO/IEC 2382-4:1999]

NOTE A string may be empty or contain only one element.

3.2.2
character string
string consisting solely of characters

[ISO/IEC 2382-4:1999]

3.2.3
text
data in the form of characters, symbols, words, phrases, paragraphs, sentences, tables, or other character arrangements, intended to convey a meaning, and whose interpretation is essentially based upon the reader's knowledge of some natural language or artificial language

[ISO/IEC 2382-23:1994]

EXAMPLE A business letter printed on paper or displayed on a screen.

3.2.4
datatype
set of distinct values, characterized by properties of those values, and by operations on those values

[ISO/IEC 11404]

3.2.5
characterizing operations (of a datatype)
collection of operations on, or yielding, values of the datatype that distinguish this datatype from other datatypes with identical value spaces

[ISO/IEC 11404]

3.2.6
value
object whose totality can be used for computation

NOTE In contrast to an object (used in the sense of object-oriented computing), the totality and boundary of a value is known and determinate, whereas the totality or boundary of an (object-oriented) object can be unknown or indeterminate.

3.2.7
value space
set of values for a given datatype

[ISO/IEC 11404]

3.3 Generic implementation-related concepts

3.3.1
execution time
run time
any instant at which the execution of a particular program takes place

[ISO/IEC 2382-7]

3.3.2
context of use
users, tasks, equipment (hardware, software, and materials), and the physical and social environments in which a product, process, or service is used

NOTE Adapted from ISO 9241-11:1998.

3.3.3
smallest permitted maximum
SPM
⟨technical specification⟩ meet-or-exceed provision that specifies a required minimum value for an implementation value describing the maximum value of a sizing parameter

[ISO/IEC 20944-1]

EXAMPLE In the provision “the smallest permitted maximum length of field **X** shall be **17**”, the SPM is **17** (which applies to the field length). This provision means: implementers may implement “field **X**” with a maximum length of **17**, **18**, **19**, etc., but not with a length of **16** or less. Thus, `char X[17]` satisfies the implementation requirements, even though the data itself might be smaller, e.g., a 10-character string stored in a 17-character array.

NOTE An SPM sets a lower bound for an implementation-defined maximum value.

3.3.4
implementation-defined, adj
⟨technical specification⟩ unspecified, yet each implementation documents how the choice among the available alternatives is made

[ISO/IEC 20944-1]

EXAMPLE 1 An implementation-defined feature; an implementation-defined value; an implementation-defined behavior.

EXAMPLE 2 A standard specifies that size of array **X** is implementation-defined with a minimum size of **17**. This provision implies two requirements: (1) the size of the array is greater than or equal to **17**, and (2) the implementation will document the actual size. This example is a meet-or-exceed provision (e.g., a smallest permitted maximum).

NOTE The distinction between "unspecified" and "implementation-defined" is that the latter requires implementation documentation while the former does not require implementation documentation (nor does the former prohibit implementation documentation).

3.4 Terminology applicable to more than one module

3.4.1
metadata module
metadata registries module
unit or grouping of descriptive data which is created, managed, used, or interchanged among autonomous parties as a single discrete set in a specified context

3.5 Reserved for future use

3.6 Reserved for future use

3.7 Reserved for future use

3.8 Reserved for future use

3.9 Reserved for future use

3.10 Module 10-specific terminology: Data structure for reference-or-literal (reflit)

3.10.1
characterstring
ISO/IEC 11404 datatype for representing character strings

NOTE The ISO/IEC 11404 **`characterstring`** datatype takes the parameter **`repertoire`** that indicates the logical set of characters. Typically, **`characterstring(iso-10646-1)`** is be used to portably store text data, i.e., its value will be preserved across all implementations of the datatype.

3.10.2
octet string
string consisting solely of octets

3.10.3
octetstring
ISO/IEC 11404 datatype for representing octet strings

NOTE An **`octetstring`** datatype can be used to portably store binary data, i.e., its value will be preserved across all implementations of the datatype.

3.10.4
reflit
datatype whose value can be accessed directly as a literal value or accessed indirectly via a reference to a value