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Information technology — Procedures for achieving metadata registry content consistency —

Part 3: Value domains

Technologies de l'information — Procédures pour réaliser la consistance du contenu de l'enregistrement des métadonnées —

Partie 3: Domaines de valeur

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 20943-2, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange.*

ISO/IEC 20943 consists of the following parts, under the general title *Information technology — Procedures for achieving metadata registry content consistency*:

— *Part 1: Data elements* [Technical Report]

— *Part 3: Value domains* [Technical Report]

The following parts are under preparation:

— *Part 2: XML structured data*

— *Part 4: Overview*

Introduction

The exchange of metadata between metadata registries based on ISO/IEC 11179, *Information technology — Metadata registries* (all parts), depends not only on registry software that conforms to the standard, but also on metadata contents that are comparable between registries. While the standard has provisions for data specification and registration, there are pragmatic issues pertaining to populating the registries with content. Based on the experiences of organizations that are implementing the standard, technical reports to explore content issues will help current and future users.

Metadata registries can be used to register data elements, value domains, other objects, and associated attributes for many kinds of organizational data resource collections. Metadata registries can store information describing value domains used to specify the allowed values of a data element, the codes in a standard list, and classification schemes.

This technical report is based on ISO/IEC 11179-3:2003 of the six-part ISO/IEC 11179 International Standard that describes the organization of a registry for managing the semantics of data. The standard specifies the structure of a registry in the form of a conceptual model. The conceptual model is not intended to be a logical or physical data model for a computer system.

ISO/IEC 11179-3:2003, models a value domain and an associated conceptual domain. Conceptualization and articulation of rules and relationships are needed in the creation of conceptual domains and value domains. Reuse of value domains should be enabled and regularized. *Elementarily equivalent domains* have a relationship between their values that needs to be captured in a metadata registry. Some *conceptually equivalent domains* have relationships between their values, too. These also need to be captured. This Technical Report describes how this can be accomplished.

While metadata registries can be used for storing information about a variety of metadata items, this Technical Report addresses only value domains, conceptual domains, and their associated attributes and relationships. The goal of this paper is to ensure that there is a common understanding of the content of the value domain attributes so that metadata can be shared between registries, despite their differences.

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1 Scope

1.1 Background

An ISO/IEC 11179 metadata registry (MDR) is a tool for the management of shareable data; a comprehensive, authoritative source of reference information about data. It supports the standardization and harmonization processes by recording and disseminating descriptions of data, which facilitates data sharing among organizations and users. It provides links to documents that refer to specific data elements, value domains, and classification schemes and to information systems where those objects are used. When used in conjunction with a database, the registry enables users to understand any information obtained from the database better.

A registry does not contain data itself. It contains the metadata that is necessary to clearly describe, inventory, analyse, and classify data. It provides an understanding of the meaning, representation, and identification of units of data. This International Standard identifies the information elements that need to be available for determining the meaning of data to be shared between systems.

1.2 Purpose

The purpose of this Technical Report is to describe a set of procedures for the consistent registration of value domains and their attributes in a registry. This Technical Report is not a data entry manual, but a user's guide for conceptualizing a value domain and its components for the purpose of consistently establishing good quality metadata. An organization may adapt and/or add to these procedures as necessary.

1.3 Limits of this Technical Report

The scope of this Technical Report is limited to value domains, conceptual domains, and their associated attributes and relationships. Examples are used throughout the TR to illustrate the concepts described.

1.4 Registration approach — value domains and data elements

There is a choice when registering value domains in an MDR. Some Registration Authorities treat these sets as value domains, and others treat them as data elements. For the purposes of this Technical Report, the choice will always be to treat the sets as value domains unless explicitly stated. This choice is made to help illustrate the way to register many different kinds of value domains.

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 11179-1, *Information technology — Metadata registries (MDR) — Part 1: Framework for the specification and standardization of data elements*

ISO/IEC 11179-2, *Information technology — Specification and standardization of data elements — Part 2: Classification for data elements*

ISO/IEC 11179-3, *Information technology — Metadata registries — Part 3: Registry metamodel and basic attributes*

ISO/IEC 11179-4, *Information technology — Metadata registries (MDR) — Part 4: Rules and guidelines for the formulation of data definitions*

ISO/IEC 11179-5, *Information technology — Specification and standardization of data elements — Part 5: Naming and identification principles for data elements*

ISO/IEC 11179-6, *Information technology — Metadata registries (MDR) — Part 6: Registration of data elements*