Australian Standard™

Information technology—Metadata registries (MDR)

Part 4: Formulation of data definitions

STANDARDS AUSTRALIA

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Information technology—Meta data registries (MDR)

Part 4: Formulation of data definitions

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-027, Data Management and Interchange.

This Standard is identical with, and has been reproduced from, ISO/IEC 11179-4:2004, *Information technology—Metadata registries(MDR)—*Part 4: *Formulation of data definitions*.

The objective of this Standard is to provide rules and guidelines for data element definitions to facilitate electronic data interchange and data sharing for use by electronic commerce and database designers.

This Standard is Part 4 of AS 11179, *Information technology—Metadata registries (MDR)*, which is published in parts as follows:

Part 1: Framework
Part 2: Classification for data elements
Part 3: Registry metamodel and basic attributes
Part 4: Formulation of data definitions (this Standard)
Part 5: Naming and identification principles for data elements
Part 6: Registration

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text 'this part of ISO/IEC 11179' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

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INTRODUCTION

Data processing and electronic data interchange rely heavily on accurate, reliable, controllable and verifiable data recorded in databases. A prerequisite for correct and proper use and interpretation of data is that both users and owners of data have a common understanding of the meaning and representation of the data. To facilitate this common understanding, a number of characteristics, or attributes of the data have to be defined. These characteristics of data are known as "metadata", that is, "data that describes data". This part of ISO/IEC 11179 specifies requirements and recommendations on the formulation of data definitions that are specified in Metadata Registries. The purpose of these definitions is to specify, describe, explain, and clarify the meaning of data, to promote the standardization or reuse of data elements, and to promote data sharing and integration of information systems.

The structure of a *Metadata Registry* is specified in the form of a conceptual data model. The *Metadata Registry* is used to keep information 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.

The definitional requirements and recommendations specified in this part of ISO/IEC 11179 do not always apply to terminological definitions found in glossaries and language dictionaries. Differences exist between the requirements that apply in a language dictionary, and the requirements that apply in a metadata registry. The requirements for ISO/IEC 11179 are more restrictive than those for a natural language dictionary. For example, a language dictionary may have multiple definitions covering multiple senses of a term or word, whereas data definitions are developed for particular contexts and should not have multiple senses within any context. Data definitions are intended to explicate the concept or concepts which are represented by a collection of data, a data value, a data element, or other metadata item. A single definition may be established as the reference definition, with other definitions asserted to be equivalent (e.g., a definition in one language may be established as a reference definition, with definitions in other languages asserted to be equivalent). Metadata items may have a single preferred definition within a particular context, with other deprecated definitions.

Many data definitions include terms that themselves need to be defined (e.g., "charge", "allowance", "delivery"). Some of these terms may have different definitions in different industrial sectors. Therefore, there is a need for most metadata registries to establish an associated *glossary or terminology reference* of terms used in the definitions.

AUSTRALIAN STANDARD

Information technology—Metadata registries (MDR)

Part 4:
Formulation of data definitions

1 Scope

This part of ISO/IEC 11179 specifies requirements and recommendations for constructing definitions for data and metadata. Only semantic aspects of definitions are addressed; specifications for formatting the definitions are deemed unnecessary for the purposes of ISO/IEC 11179. While especially applicable to the content of metadata registries as specified in ISO/IEC 11179-3, this part of ISO/IEC 11179 is useful broadly for developing definitions for data and metadata.

These definitional requirements and recommendations pertain to formulating definitions for data elements and other types of data constructs such as entity types, entities, relationships, attributes, object types (or classes), objects, composites, code entries, metadata items, and the data referred to by XML tags.

2 Conformance

This part of ISO/IEC 11179 may be used independently, e.g. for defining data elements outside the context of a metadata registry. In such cases, compliance may be claimed if the requirements and recommendations have been followed in developing the definitions.

Where used in the context of an ISO/IEC 11179 metadata registry, this part of ISO/IEC 11179 shall constitute the criteria for definitions when establishing the registration status as specified in ISO/IEC 11179-6.

3 Terms and definitions

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

3.1
Conceptual Domain
set of valid value meanings

NOTE The value meanings may either be enumerated or expressed via a description.

[ISO/IEC 11179-3:2003, 3.3.21]

3.2
Concept
unit of knowledge created by a unique combination of characteristics

[ISO 1087-1:2000, 3.2.1]

3.3
Data
re-interpretable representation of information in a formalized manner suitable for communication, interpretation or processing

NOTE Data can be processed by human or automatic means.

[ISO/IEC 2382-1:1993, 01.01.02]