TECHNICAL REPORT

ISO/IEC TR 19583-21

First edition
2022-08

Information technology — Concepts and usage of metadata —

Part 21: 11179-3 Data model in SQL

Reference number
ISO/IEC TR 19583-21:2022(E)

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Published in Switzerland

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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.

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

ISO/IEC 11179-3[1] provides a specification for a registry in which information about metadata can be recorded and maintained.

The metamodel to instantiate such a registry is expressed in text as a conceptual model. This conceptual model is illustrated with a series of diagrams which use the class diagram notation from the Unified Modeling Language (UML)[2][3].

Instantiaters and users of the registries described in ISO/IEC 11179-3 require further guidance to turn the conceptual models into concrete instantiations. This document provides a possible instantiation of the registry metamodel specified in ISO/IEC 11179-3 using the SQL database language as specified in ISO/IEC 9075[4].

This specimen instantiation is provided to increase the understanding of ISO/IEC 11179-3 and, hence, to promote its adoption.

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1 Scope

This document provides a possible instantiation of the registry metamodel specified in ISO/IEC 11179-3 using the SQL database language as specified in ISO/IEC 9075-2.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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/

4 Overview of the relationship between UML Class Diagrams and SQL

The Unified Modeling Language (UML) provides a family of graphical notations that can be used in the analysis and design of software systems. The UML is under the control of the Object Management Group (OMG) and, as such, it is (a) a relatively 'open' standard, and (b) firmly rooted in the object-oriented paradigm for software engineering. The UML is now at Version 2 and is the subject of two international standards: ISO/IEC 19505-1 and ISO/IEC 19505-2.

Within the UML, the Class Diagram notation is used to represent information (and, hence, data) requirements for a particular 'universe of discourse', a business area or the scope of a proposed information system.

A UML Object is often defined as a:

> ***construct within a system for which a set of attributes and operations can be specified.***

Whilst this is a reasonable definition within the context of object-oriented system development, a more appropriate definition of an Object for the purposes of this document is a:

> ***representation of something of interest within the universe of discourse about which information needs to be recorded.***

An Object Class in both contexts can then defined as a:

> ***definition of a set of Objects that share the same attributes, associations, and operations.***

The Database Language SQL is a, largely, declarative language used to manage structured data held in a database under the control of a Relational Database Management System (RDBMS). As such, it