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Information technology — XML Metadata Interchange (XMI)

Technologies de l'information — Échange de métadonnées XML (XMI)

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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.

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 19503 was prepared by the Object Mangement Group (OMG) and was adopted, under the PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

ISO/IEC 19503 is related to

— ISO/IEC 19501, *Information technology — Open Distributed Processing — Unified Modeling Language (UML) Version 1.4.2*

— ISO/IEC 19502, *Information technology — Meta Object Facility (MOF)*

Introduction

The main purpose of this International Standard (XML) is to enable easy interchange of metadata between application development lifecycle tools (such as modeling tools based on the Unified Modeling Language (UML), ISO/IEC 19501, and metadata repositories/frameworks based on the Meta Object Facility (MOF), ISO/IEC 19502) in distributed heterogeneous environments. This International Standard integrates three key industry standards:

- XML - eXtensible Markup Language, a W3C standard.
- UML - Unified Modeling Language, an OMG modeling specification, which is now ISO/IEC 19501.
- MOF - Meta Object Facility (ISO/IEC 19502).

The OMG adopted the XMI (version 1.0) in February 1999. It was developed as a response to a request for proposal, issued by the OMG Analysis and Design Task Force, for a model and metadata interchange facility. The purpose of the facility was to support the interchange of metadata (such as ODP UML models). The most recent revision of XMI, 2.0, was submitted by the XMI Revision Task Force in October, 2002, and includes corrections and clarifications to the original specification, and changes to accommodate revisions to the 1.4 version of MOF.

The rapid growth of distributed processing has led to a need for a coordinating framework for this standardization and ITU-T Recommendations X.901-904 | ISO/IEC 10746, *Open Distributed Processing — Reference Model* (RM-ODP) provides such a framework. It defines an architecture in which support of distribution, interoperability, and portability can be integrated. RM-ODP Part 2 (ISO/IEC 10746-2) defines the foundational concepts and modeling framework for describing distributed systems. RM-ODP Part 3 (ISO/IEC 10746-3) specifies a generic architecture of open distributed systems, expressed using the foundational concepts and framework defined in Part 2.

While not limited to this context, this International Standard is relevant to work on the standardization of Open Distributed Processing (ODP).

Information technology — XML Metadata Interchange (XMI)

1 Scope

This International Standard provides specifications for:

a. A set of XML Schema Definitions (XSD) production rules for transforming MOF based metamodels into XML Schemas.

b. A set of XML Document production rules for encoding and decoding MOF based metadata.

c. Design principles for XMI based Schemas and XML documents.

d. A set of production rules for importing XML DTDs to a MOF based metamodel.

This International Standard enhances metadata management and metadata interoperability in distributed object environments in general and in distributed development environments in particular. While this International Standard addresses stream based metadata interoperability in the object analysis and design domain, XMI (in part because it is MOF based) is equally applicable to metadata in many other 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.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.902 (1996) | ISO/IEC 10746-2:1996, *Information technology — Open Distributed Processing — Reference Model: Foundations*
- ITU-T Recommendation X.903 (1996) | ISO/IEC 10746-3:1996, *Information technology — Open Distributed Processing — Reference Model: Architecture*

2.2 International Standards

- ISO/IEC 10646:2003, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*
- ISO/IEC 19501, *Information technology — Open Distributed Processing — Unified Modeling Language (UML) Version 1.4.2*
- ISO/IEC 19502, *Information technology — Meta Object Facility (MOF)*
- W3C XML 1.0 : http://www.w3.org/TR/REC-xml – February, 2004
- W3C XSD 1.0 http://www.w3.org/TR/xmlschema-0/, xmlschema-1, xmlschema-2