

ISO/IEC 19503:2005-11 (E)

Information technology - XML Metadata Interchange (XMI)

Contents		Page
Foreword		viii
Introduction		ix
1	Scope	1
2	Normative references	1
2.1	Identical Recommendations	International Standards 1
2.2	International Standards	1
3	Abbreviations	2
4	XMI Schema Design Principles	3
4.1	Purpose	3
4.2	Use of XML Schemas	3
4.2.1	XML Validation of XMI documents	4
4.2.2	Requirements for XMI Schemas	4
4.3	Basic Principles	4
4.3.1	Required XML Declarations	4
4.3.2	Metamodel Class Representation	5
4.3.3	Metamodel Extension Mechanism	5
4.4	XMI Schema and Document Structure	5
4.5	XMI Model	6
4.5.1	XML Schema for the XMI Model	6
4.5.2	XMI Model Classes	6
4.5.3	XMI	8
4.5.4	Extension	9
4.5.5	Documentation	10
4.5.6	Add, Replace, and Delete	10
4.6	XMI Attributes	12
4.6.1	Element Identification Attributes	12
4.6.2	Linking Attributes	13
4.6.3	Version Attribute	14
4.6.4	Type Attribute	14
4.7	XMI Type	14
4.8	Metamodel Class Specification	15
4.8.1	Namespace Qualified XML Element Names	15
4.8.2	Metamodel Multiplicities	15
4.8.3	Class Specification	16
4.8.4	Attribute Specification	16
4.8.5	Reference Specification	18
4.8.6	Containment Specification	18
4.8.7	Inheritance Specification	18
4.8.8	Derived Information	18
4.9	Transmitting Incomplete Metadata	18
4.9.1	Interchange of Model Fragments	19
4.9.2	XMI Encoding	19
4.9.3	Example	19
4.10	Linking	19
4.10.1	Design Principles	19
4.10.2	Linking	20
4.10.3	Example from UML	22

4.11	Tailoring Schema Production	23
4.11.1	XMI Tag Values	23
4.11.2	Tag Value Constraints	24
4.11.3	Scope	25
4.11.4	XML element vs XML attribute	25
4.11.5	UML profile for XML and XMI	25
4.11.6	Effects on Document Production	26
4.11.7	Summary of XMI Tag Scope and Affect	27
4.12	Transmitting Metadata Differences	28
4.12.1	Definitions	29
4.12.2	Differences	29
4.12.3	XMI Encoding	29
4.12.4	Example	30
4.13	Document Exchange with Multiple Tools	31
4.13.1	Definitions	31
4.13.2	Procedures	32
4.13.3	Example	32
4.14	General Datatype Mechanism	33
5	XML Schema Production	35
5.1	Purpose	35
5.2	XMI Version 2 Schemas	35
5.2.1	EBNF	35
5.2.2	Fixed Schema Declarations	43
5.2.3	Schema Production Rules for Non-Primitive Data	48
6	XML Document Production	49
6.1	Purpose	49
6.2	Introduction	49
6.3	EBNF Rules Representation	49
6.3.1	Overall Document Structure	50
6.3.2	Overall Content Structure	51
6.3.3	Object Structure	52
6.3.4	References	55
6.3.5	Object Contents	57
6.3.6	Packages	59
6.3.7	Attributes	59
6.3.8	Other Types of Links	60
6.4	Additional Examples	60
6.4.1	Inheritance	60
6.4.2	Nested Packages	61
6.4.3	Derived Types and References	62
6.5	Document Production Rules for Non-Primitive Data	63
6.5.1	Structure Type	63
6.5.2	Enumeration Type	63
6.5.3	Alias Type	63
6.5.4	Collection Type	63
7	Production of MOF from XML	65
7.1	Introduction	65
7.2	DTD to MOF	65
7.3	XML to MOF	66
7.4	XML Schema to MOF	67
8	XML Schema Model	71
8.1	Introduction	71
8.2	XML Schema Structures	71
8.2.1	XSDSchema	83
8.2.2	XSDAttribute	83
8.2.3	XSDElementRef	83
8.2.4	XSDAttributeGroup	83
8.2.5	XSDAttributeGroupRef	83

8.2.6	XSDType	83
8.2.7	XSDBuiltInType	84
8.2.8	XSDComplexType	84
8.2.9	XSDComplexTypeContent	84
8.2.10	XSDSchemaContent	84
8.2.11	XSDElement	84
8.2.12	XSDSimpleBase	85
8.2.13	XSDPattern	85
8.2.14	XSDEnumeration	85
8.2.15	XSDInclude	85
8.2.16	XSDImport	85
8.2.17	XSDGroup	85
8.2.18	XSDGroupKind	86
8.2.19	XSDGroupScope	86
8.2.20	XSDGroupContent	86
8.2.21	XSDGroupRef	86
8.2.22	XSDKey	86
8.2.23	XSDKeyRef	86
8.2.24	XSDUnique	86
8.2.25	XSDUniqueContent	87
8.2.26	XSDSelector	87
8.2.27	XSDField	87
8.2.28	XSDObject	87
8.2.29	XSDAnnotatedElement	87
8.2.30	XSDDocumentation	87
8.2.31	XSDAppInfo	87
8.2.32	XSDAnnotation	87
8.2.33	XSDSimpleContent	88
8.2.34	XSDComplexContent	88
8.2.35	XSDSimpleComplex	88
8.2.36	XSDSimpleTypeContent	88
8.2.37	XSDSimpleRestrict	88
8.2.38	XSDSimpleList	88
8.2.39	XSDSimpleUnion	88
8.2.40	XSDSimpleType	89
8.2.41	XSDFacet	89
8.2.42	XSDLength	89
8.2.43	XSDMinLength	89
8.2.44	XSDMaxLength	89
8.2.45	XSDMinInclusive	89
8.2.46	XSDMaxInclusive	89
8.2.47	XSDMinExclusive	90
8.2.48	XSDMaxExclusive	90
8.2.49	XSDTotalDigits	90
8.2.50	XSDFractionDigits	90
8.2.51	XSDWhiteSpace	90
8.2.52	XSDAny	90
8.2.53	XSDAnyAttribute	90
8.2.54	XSDAttributeRef	91
8.2.55	XSDNamedElement	91
8.2.56	XSDOccurs	91
8.2.57	XSDTopLevelAttribute	91
8.2.58	XSDTopLevelElement	91
8.3	XML Schema Simple Datatypes	91
8.3.1	XSDDate	95
8.3.2	XSDDecimal	95
8.3.3	XSDDecimalType	95
8.3.4	XSDDouble	96
8.3.5	XSDCentury	96
8.3.6	XSDBinary	96
8.3.7	XSDBinaryType	96
8.3.8	XSDBooleanType	96

8.3.9	XSDBoolean	96
8.3.10	XSDByte	96
8.3.11	XSDDoubleType	97
8.3.12	XSDFloat	97
8.3.13	XSDFloatType	97
8.3.14	XSDInt	97
8.3.15	XSDInteger	97
8.3.16	XSDCDATA	97
8.3.17	XSDID	97
8.3.18	XSDIDREF	97
8.3.19	XSDIDREFS	98
8.3.20	XSDListType	98
8.3.21	XSDList	98
8.3.22	XSDLong	98
8.3.23	XSDMonth	98
8.3.24	XSDName	98
8.3.25	XSDNCName	98
8.3.26	XSDNegativeInteger	98
8.3.27	XSDNMTOKEN	99
8.3.28	XSDNonNegativeInteger	99
8.3.29	XSDNonPositiveInteger	99
8.3.30	XSDPositiveInteger	99
8.3.31	XSDQName	99
8.3.32	XSDQNameType	99
8.3.33	XSDRecurringDate	99
8.3.34	XSDRecurringDay	100
8.3.35	XSDRecurringDuration	100
8.3.36	XSDRecurringDurationType	100
8.3.37	XSDShort	100
8.3.38	XSDToken	100
8.3.39	XSDString	100
8.3.40	XSDStringType	100
8.3.41	XSDTime	101
8.3.42	XSDTimeDuration	101
8.3.43	XSDTimeDurationType	101
8.3.44	XSDTimeInstant	101
8.3.45	XSDTimePeriod	101
8.3.46	XSDUnionType	101
8.3.47	XSDUnsignedByte	101
8.3.48	XSDUnsignedInt	102
8.3.49	XSDUnsignedLong	102
8.3.50	XSDUnsignedShort	102
8.3.51	XSDURIReference	102
8.3.52	XSDURIReferenceType	102
8.3.53	XSDValueConstraint	102
8.3.54	XSDYear	102
8.3.55	XSDDecimalRange	103
8.3.56	XSDIntegerRange	103
8.3.57	XSDPatterned	103
Annex A (normative) Conformance Issues		105
Annex B (normative) References		107
Annex C (informative) Legal Information		109
Index		113