ISO/IEC 15474-2:2002-10 (E)

Information technology - CDIF framework - Part 2: Modelling and extensibility

Contents

Page

1 Scope 1

2 Conformance 2

3 Normative references 2

4 Terms and definitions 3
4.1 From other standards 3
4.2 For this standard 3

5 Symbols (and abbreviated terms) 4
5.1 Naming and diagramming conventions 4
5.2 Abbreviations 4

6 CDIF meta-metamodel concepts and facilities 4
6.1 Introduction 4
6.2 Modelling approach 4
6.2.1 Introduction 4
6.2.2 Subject areas 5
6.2.3 Many-to-many meta-relationships 5
6.2.4 Attributed meta-relationships 5
6.2.5 Subtyping of meta-entities 5
6.2.6 Multiple inheritance in meta-entities 6
6.2.7 Subtyping of meta-relationships 7
6.2.8 Multiple inheritance of meta-relationships 8
6.2.9 Arity of meta-relationships 8
6.2.10 Mutual exclusivity of meta-relationships 8
6.3 Subject areas 8
6.3.1 Explicit and implicit use of CollectableMetaObjects in subject areas 8
6.3.2 Rules for defining subject area 9
6.3.3 Working metamodel 10
6.3.4 Subject area diagrams 10
6.4 Metamodel extensibility 10
6.4.1 Introduction 10
6.4.2 Extensibility 11
6.5 Exporter responsibilities 12
6.5.1 Introduction 12
6.5.2 Extensibility 12
6.5.3 Maximum output 12
6.5.4 Meta-attributes 12
6.6 Importer responsibilities 12
6.6.1 Introduction 12
6.6.2 Information retention 12
6.6.3 Working metamodel 12
6.6.4 Meta-attributes 13

7 Modelling conventions 13
7.1 Naming of meta-objects 13
7.1.1 Names 13
7.1.2 Uniqueness of names 13
7.2 Meta-object graphical notation 13
7.2.1 Introduction 13

7.2.2 Meta-entity symbol 14
7.2.3 Meta-relationship symbol 14
7.2.4 Meta-relationship cardinality symbol 15
7.2.5 Meta-entity subtype hierarchy symbol 16
7.2.6 Meta-relationship subtype hierarchy 16
7.2.7 Mutual exclusivity of meta-relationships 17
7.2.8 Instance diagrams 17
7.3 Meta-object definition format 19
7.3.1 Introduction 19
7.3.2 Subject area definition 19
7.3.3 Meta-entity definition 20
7.3.4 Meta-attribute definition 21
7.3.5 Meta-relationship definition 22
7.4 Meta-object reference format 23
7.5 Meta-object summary format 24
7.5.1 Introduction 24
7.5.2 AttributableMetaObject classification hierarchy 24
7.5.3 MetaEntity and MetaRelationship summaries 24

8 Meta-metamodel overview 25
8.1 Introduction 25
8.2 Meta-metamodel description 25
8.3 Meta-metamodel diagram 26

9 Meta-metamodel summary 26
9.1 AttributableMetaObject classification hierarchy 26
9.1.1 Introduction 26
9.1.2 Classification hierarchy 27
9.2 Meta-meta-entity summary 27
9.3 Meta-meta-relationship summary 29

10 Meta-metamodel specification 30
10.1 Data types specification 30
10.1.1 Introduction 30
10.1.2 Boolean 30
10.1.3 Date 30
10.1.4 Enumerated 30
10.1.5 Float 31
10.1.6 Identifier 31
10.1.7 Integer 31
10.1.8 Point 31
10.1.9 String 31
10.1.10 Text 31
10.1.11 Time 31
10.2 Meta-meta-entity and Meta-meta-attribute specifications 32
10.2.1 AttributableMetaObject 32
10.2.2 CollectableMetaObject 33
10.2.3 MetaAttribute 33
10.2.4 MetaEntity 35
10.2.5 MetaObject 36
10.2.6 MetaRelationship 39
10.2.7 SubjectArea 41
10.3 Meta-meta-relationship specifications 42
10.3.1 AttributableMetaObject.HasSubtype.AttributableMetaObject 42
10.3.2 CollectableMetaObject.IsDefinedIn.SubjectArea 43
10.3.3 CollectableMetaObject.IsUsedIn.SubjectArea 44
10.3.4 MetaAttribute.IsLocalMetaAttributeOf.AttributableMetaObject 45
10.3.5 MetaRelationship.HasDestination.MetaEntity 45
10.3.6 MetaRelationship.HasSource.MetaEntity 46