

ISO/IEC 11179-31:2023-01 (E)

Information technology - Metadata registries (MDR) - Part 31: Metamodel for data specification registration

Contents		Page
Foreword		vii
Introduction		viii
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Abbreviated terms	6
5	Conformance	6
5.1	Overview of conformance	6
5.2	Degree of conformance	6
5.2.1	General	6
5.2.2	Strictly conforming implementations	7
5.2.3	Conforming implementations	7
5.3	Conformance by feature	7
5.4	Registry conformance	8
5.4.1	Standard profiles for edition 4 registries	8
5.4.2	Conformance labels	8
5.5	Implementation conformance statement (ICS)	8
5.6	Obligation	8
6	Relationship to ISO/IEC 11179-3	9
6.1	Metamodel for a metadata registry	9
6.2	Specification of the metamodel	9
6.3	Use of UML Class diagrams and textual description	9
6.4	Package dependencies	10
6.5	Subclassing the Constraint_Set class	10
7	Data_Specification package	11
7.1	Overview of the Data_Specification package	11
7.2	High-level Data Specification metamodel region	12
7.2.1	Overview of the high-level metamodel region	12
7.2.2	Classes in the High-level Data Specification metamodel region	13
7.2.3	Associations of the High-Level Data Specification metamodel region	16
7.2.4	Constraints of the High Level metamodel region	17
7.3	Data Element Concept metamodel region	18
7.3.1	Overview of the Data Element Concept metamodel region	18
7.3.2	Classes in the Data Element Concept metamodel region	19
7.3.3	Associations in the Data Element Concept metamodel region	22
7.4	Conceptual Domain and Value Domain metamodel region	22
7.4.1	Overview of the Conceptual Domain and Value Domain metamodel region	22
7.4.2	Classes in the Conceptual Domain and Value Domain metamodel region	24
7.4.3	Association Classes in the Conceptual Domain and Value Domain metamodel region	41
7.4.4	Associations in the Conceptual Domain and Value Domain metamodel region	44
7.4.5	Additional Constraints of the Conceptual Domain and Value Domain metamodel region	45
7.5	Measurement metamodel region	46
7.5.1	Overview of the Measurement metamodel region	46

7.5.2	Classes in the Measurement metamodel region	47
7.5.3	Associations in the Measurement metamodel region	50
7.6	Data Element metamodel region	51
7.6.1	Overview of the Data Element metamodel region	51
7.6.2	Classes in the Data Element metamodel region	52
7.6.3	Associations in the Data Element metamodel region	56
7.7	Value Domain Subset metamodel region	57
7.7.1	Overview of the Value Domain Subset metamodel region	57
7.7.2	Classes in the Value Domain Subset metamodel region	57
7.7.3	Association classes in the Value Domain Subset metamodel region	61
7.7.4	Associations in the Value Domain Subset metamodel region	62
7.7.5	Constraints in the Value Domain Subset metamodel region	63
7.8	Conceptual Domain Subset metamodel region	63
7.8.1	Overview of the Conceptual Domain Subset metamodel region	63
7.8.2	Classes in the Conceptual Domain Subset metamodel region	64
7.8.3	Association classes in the Conceptual Domain Subset metamodel region	66
7.8.4	Associations in the Conceptual Domain Subset metamodel region	67
7.8.5	Constraints in the Conceptual Domain Subset metamodel region	68
7.9	Composite Data Elements and Datatypes metamodel region	68
7.9.1	Overview of the Composite Data Elements and Datatypes metamodel region	68
7.9.2	Classes in the Composite Data Elements and Datatypes metamodel region	69
7.9.3	Association Class in the Composite Data Elements and Datatypes metamodel region	71
7.9.4	Associations in the Composite Data Elements and Datatypes metamodel region	72
Annex A (informative) Consolidated class hierarchy		73
Annex B (informative) Example of Address as Composite Data Element and Datatype		74
Annex C (informative) Partial consolidated data specification metamodel		75
Bibliography		76

List of Figures

Figure 1 — Package dependencies	10
Figure 2 — Subclasses of Constraint_Set	11
Figure 3 — High-level Data Specification metamodel	12
Figure 4 — Data Element Concept metamodel region	18
Figure 5 — Conceptual Domain and Value Domain metamodel region	23
Figure 6 — Measurement metamodel region	46
Figure 7 — Data Element metamodel region	51
Figure 8 — Value Domain Subset metamodel region	57
Figure 9 — Conceptual Domain Subset metamodel region	63
Figure 10 — Composite Data Elements and Datatypes metamodel region	69
Figure A.1 — Consolidated Class Hierarchy	73
Figure B.1 — Object diagram of Address as Composite Datatype and Data Element	74
Figure C.1 — Partial Consolidated Data Specification metamodel	75

List of Tables

Table 1 — Attributes of Data_Element_Constraint_Set class	21
Table 2 — Attributes of Conceptual_Domain class	24
Table 3 — Attributes of Enumerated_Conceptual_Domain class	26
Table 4 — Attributes of Enumerated_Conceptual_Domain_Definition class	29
Table 5 — Attributes of Value_Domain class	30
Table 6 — Attributes of Permissible_Value class	33
Table 7 — Attributes of Reference_Enumerated_Value_Domain class	34
Table 8 — Attributes of Datatype class	35
Table 9 — Example 1 of Datatype class	35
Table 10 — Example 2 of Datatype class	35
Table 11 — Attributes of Datatype_Scheme class	36
Table 12 — Attributes of Reference_Enumerated_CD_Constraint_Set class	37
Table 13 — Attributes of Local_Enumerated_CD_Constraint_Set class	38
Table 14 — Attributes of Value_Domain_Constraint_Set class	38
Table 15 — Attributes of Described_Value_Domain_Constraint_Set class	39
Table 16 — Attributes of Reference_Enumerated_VD_Constraint_Set class	40
Table 17 — Attributes of Local_Enumerated_VD_Constraint_Set class	40
Table 18 — Attributes of Permissible_Value_Constraint_Set class	41
Table 19 — Attributes of Value_Meaning_Set association class	42
Table 20 — Attributes of Permissible_Value_Meaning association class	43
Table 21 — Attributes of Permissible_Value_Set association class	44
Table 22 — Attributes of Dimensionality class	50
Table 23 — Attributes of Data_Element class	52
Table 24 — Attributes of Data_Element_Example class	53
Table 25 — Attributes of Data_Element_Derivation_Rule class	54
Table 26 — Attributes of Data_Element_Constraint_Set class	55
Table 27 — Attributes of Local_Enumerated_Value_Domain_Subset class	60
Table 28 — Attributes of Local_Enumerated_VD_Subset_Constraint_Set class	61
Table 29 — Attributes of Subset_Values association class	62
Table 30 — Attributes of Local_Enumerated_Conceptual_Domain_Subset class	65
Table 31 — Attributes of Local_Enumerated_CD_Subset_Constraint_Set class	66
Table 32 — Attributes of Subset_Value_Meanings association class	67
Table 33 — Attributes of Data_Element_Collection class	70
Table 34 — Attributes of Data_Element_Sequence association class	71