

DIN EN ISO 19109:2025-11 (E)

Geographic information - General feature model and rules for application schema (ISO 19109:2025); English version EN ISO 19109:2025

Contents

Page

Foreword..... vi

Introduction..... vii

1 Scope..... 1

2 Normative references..... 1

3 Terms, definitions, and abbreviated terms..... 1

3.1 Terms and definitions..... 1

3.2 Abbreviated terms..... 4

4 Conformance..... 4

4.1 General..... 4

4.2 Meta-Model..... 4

4.3 Spatial..... 4

4.4 Temporal..... 4

4.5 Quality..... 5

4.6 Spatial referencing by identifiers..... 5

4.7 Coverages..... 5

4.8 UML application schema..... 5

4.9 Profile existing conceptual schema..... 5

5 Presentation and abbreviations..... 6

5.1 Presentation..... 6

5.1.1 General..... 6

5.1.2 Conformance class..... 6

5.1.3 Requirements class..... 6

5.1.4 Provisions..... 6

5.1.5 Identifiers..... 7

5.1.6 Conceptual schemas..... 7

5.1.7 Descriptions of concepts..... 7

5.2 Package abbreviations..... 7

6 Context..... 8

6.1 Purpose of an application schema..... 8

6.2 Rationale for defining the rules for application schemas..... 8

6.3 Application schemas supporting data interchange..... 9

7 General feature model..... 10

7.1 Principle for defining features..... 10

7.1.1 Features, coverages and properties..... 10

7.1.2 Essential properties of features..... 11

7.2 The Concept of the General Feature Model..... 12

7.2.1 Introduction..... 12

7.2.2 The purpose of the GFM..... 12

7.3 Conceptual Schema of the General Feature Model..... 13

7.3.1 The structure of the GFM..... 13

7.3.2 The main part of the GFM..... 14

7.3.3 Metaclass IdentifiedType..... 15

7.3.4 Metaclass FeatureType..... 16

7.3.5 Metaclass PropertyType..... 16

7.3.6 Metaclass AttributeType..... 16

7.3.7 Metaclass FeatureAssociationRole..... 17

7.3.8 Metaclass ValueAssignment..... 17

	7.3.9	Metaclass FeatureAssociationType	18
	7.3.10	Metaclass InheritanceRelation	18
7.4		Attributes of feature types	18
	7.4.1	Introduction	18
	7.4.2	Metaclass SpatialAttributeType	19
	7.4.3	Metaclass TemporalAttributeType	19
	7.4.4	Metaclass QualityAttributeType	19
	7.4.5	Metaclass LocationAttributeType	19
	7.4.6	Metaclass MetadataAttributeType	20
	7.4.7	Metaclass ThematicAttributeType	20
	7.4.8	Metaclass CoverageFunctionAttributeType	20
7.5		Relationships between feature types	20
	7.5.1	Introduction	20
	7.5.2	Metaclass InheritanceRelation	20
	7.5.3	Metaclass FeatureAssociationType	21
7.6		Constraints	21
8		Rules for application schemas	22
8.1		The application modelling process	22
	8.1.1	Introduction	22
	8.1.2	Features and the application schema	22
8.2		General rules for application schemas	23
	8.2.1	Rule for using CSLs	24
	8.2.2	Rule for integration	24
	8.2.3	Rules for modelling features	24
	8.2.4	Rule for property names	25
	8.2.5	Rule for attributes	25
	8.2.6	Rule for association roles	25
	8.2.7	Rule for value assignments	26
	8.2.8	Rule for feature associations	26
	8.2.9	Rule for inheritance relations	26
8.3		Rules for use of spatial schemas	26
	8.3.1	Rules for modelling applications with spatial properties	26
	8.3.2	Use of standard spatial schemas	26
	8.3.3	Rule for spatial attributes	27
	8.3.4	Use of geometric collections and spatial complexes to represent the values of spatial attributes of features	28
	8.3.5	Spatial associations between features	28
	8.3.6	Features sharing geometry	29
	8.3.7	Point features, line features and area features	30
	8.3.8	Defining interpolation methods	30
	8.3.9	Independent spatial complexes	31
8.4		Rules for use of temporal schemas	33
	8.4.1	Rules for modelling applications with temporal properties	33
	8.4.2	Use of temporal conceptual schema	34
	8.4.3	Rule for temporal attributes	34
	8.4.4	Temporal associations between features	34
8.5		Rules for use of quality schemas	35
	8.5.1	Introduction	35
	8.5.2	Data quality rules	35
8.6		Rule for use of geographic identifiers	37
8.7		Use of metadata	39
8.8		Rule for use of coverage functions	39
8.9		Use of observations	41
8.10		Rules for application schemas in UML	44
	8.10.1	General	44
	8.10.2	Rules for conceptual schema language for application schemas	44
	8.10.3	Rule for packaging and identification of an application schema	47
	8.10.4	Documentation of an application schema	48
	8.10.5	Rules for integration of application schemas and abstract schemas	48
	8.10.6	Rules for modelling structures in UML	50
	8.10.7	Linguistic adaptation	52
- 2 -	8.11	Rules for domain profiles of existing conceptual schemas in UML	53
	8.11.1	Introduction	53

8.11.2 Rule for adding information to an existing conceptual schema..... 54

8.11.3 Rule for tailored use of an existing conceptual schema..... 55

Annex A (normative) Abstract test suite..... 57

Annex B (informative) The modelling approach and the General Feature Model..... 63

Annex C (informative) Application schema examples..... 66

Annex D (informative) Backward compatibility..... 71

Bibliography..... 76