

# DIN EN ISO 19109:2016-05 (E)

Geographic information - Rules for application schema (ISO 19109:2015); English  
version EN ISO 19109:2015

---

<b>Contents</b>		<b>Page</b>
	<b>Foreword</b> .....	<b>vi</b>
	<b>Introduction</b> .....	<b>vii</b>
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Conformance</b> .....	<b>1</b>
	2.1 General .....	1
	2.2 Meta-model .....	1
	2.3 UML application schema .....	2
	2.4 Profiling standard schema .....	2
	2.5 Metadata .....	2
	2.6 Quality .....	2
	2.7 Temporal .....	2
	2.8 Spatial .....	3
	2.9 Coverages .....	3
	2.10 Observations .....	3
	2.11 Spatial referencing by identifiers .....	3
	2.12 Code list .....	3
	2.13 Multi-lingual support .....	4
<b>3</b>	<b>Normative references</b> .....	<b>4</b>
<b>4</b>	<b>Terms and definitions</b> .....	<b>4</b>
<b>5</b>	<b>Presentation and abbreviations</b> .....	<b>7</b>
	5.1 Presentation .....	7
	5.1.1 General .....	7
	5.1.2 Conformance class .....	7
	5.1.3 Requirements class .....	7
	5.1.4 Rules .....	7
	5.1.5 Identifiers .....	8
	5.1.6 Conceptual schemas .....	8
	5.1.7 Descriptions of concepts .....	8
	5.2 Abbreviations .....	8
	5.3 Package abbreviations .....	8
<b>6</b>	<b>Context</b> .....	<b>9</b>
	6.1 Purpose of an application schema .....	9
	6.2 Rules for application schema .....	9
	6.3 Application schema supporting data interchange .....	10
	6.3.1 Introduction .....	10
	6.3.2 Data interchange by transfer .....	10
	6.3.3 Data interchange by transactions .....	11
<b>7</b>	<b>Principles for defining features</b> .....	<b>12</b>
	7.1 General .....	12
	7.2 Features, Coverages and Properties .....	13
	7.2.1 Features .....	13
	7.2.2 Coverages .....	13
	7.2.3 Properties and observations .....	14
	7.3 Features and the application schema .....	14
	7.4 The General Feature Model .....	16
	7.4.1 Introduction .....	16
	7.4.2 The purpose of the GFM .....	16
	7.4.3 The main structure of the GFM .....	16
	7.4.4 IdentifiedType .....	18

7.4.5	FeatureType	18
7.4.6	PropertyType	19
7.4.7	AttributeType	19
7.4.8	Operation	20
7.4.9	FeatureAssociationRole	21
7.4.10	ValueAssignment	21
7.4.11	FeatureAssociationType	23
7.4.12	InheritanceRelation	23
7.5	Attributes of feature types	24
7.5.1	Introduction	24
7.5.2	SpatialAttributeType	24
7.5.3	TemporalAttributeType	24
7.5.4	QualityAttributeType	25
7.5.5	LocationAttributeType	25
7.5.6	MetadataAttributeType	25
7.5.7	ThematicAttributeType	25
7.5.8	CoverageFunctionAttributeType	25
7.6	Relationships between feature types	25
7.6.1	Introduction	25
7.6.2	InheritanceRelation	25
7.6.3	FeatureAssociationType	26
7.7	Constraints	27
<b>Rules for application schema in UML</b>		<b>27</b>
8.1	The application modelling process	27
8.2	The application schema	28
8.2.1	General	28
8.2.2	Conceptual schema language for application schemas	28
8.2.3	Packaging and identification of an application schema	30
8.2.4	Documentation of an application schema	30
8.2.5	Integration of application schemas and standard schemas	30
8.2.6	Modelling structures in UML	32
8.3	Domain profiles of standard schemas in UML	37
8.3.1	Introduction	37
8.3.2	Adding information to a standard schema	37
8.3.3	Tailored use of standard schemas	38
8.4	Rules for use of metadata schema	39
8.4.1	Introduction	39
8.4.2	Metadata for features, feature attributes, and feature associations	40
8.5	Rules for use of quality schema	40
8.5.1	Introduction	40
8.5.2	Data quality rules	41
8.6	Temporal rules	44
8.6.1	Rules for modelling applications with temporal properties	44
8.6.2	Use of the temporal conceptual schema	44
8.6.3	Temporal attributes	44
8.6.4	Temporal associations between features	46
8.7	Spatial rules	48
8.7.1	Rules for modelling applications with spatial properties	48
8.7.2	Use of standard spatial schema	49
8.7.3	Spatial attributes	50
8.7.4	Use of geometric aggregates and spatial complexes to represent the values of spatial attributes of features	51
8.7.5	Spatial associations between features	55
8.7.6	Features sharing geometry	57
8.7.7	Point features, line features and area features	58
8.7.8	Defining interpolation methods	58
8.7.9	Independent spatial complexes	59
8.8	Rules for use of coverage functions	61
8.9	Rules for the use of observations	63
8.10	Spatial referencing using geographic identifiers	66
8.11	Code lists, vocabularies, lexicons	68

8.12 Linguistic adaptation.....	69
<b>Annex A (normative) Abstract test suite .....</b>	<b>70</b>
<b>Annex B (informative) The modelling approach and the General Feature Model .....</b>	<b>82</b>
<b>Annex C (informative) Application schema examples .....</b>	<b>85</b>
<b>Bibliography.....</b>	<b>91</b>