AS ISO 19109:2018
ISO 10109:2015

AS ISO 19109:2018

Australian STANDARD

Geographic information—Rules for application schema

STANDARDS Australia

AS ISO 19109:2018

This Australian Standard® was prepared by IT-004, Geographical Information/Geomatics. It was approved on behalf of the Council of Standards Australia on 5 June 2018.

This Standard was published on 29 June 2018.

The following are represented on Committee IT-004:

ANZLIC - the Spatial Information Council
Australian Antarctic Division
Australian Bureau of Statistics
Australian Hydrographic Office
Bureau of Meteorology (Australian Government)
CSIRO
Curtin University of Technology
Department of Defence (Australian Government)
Department of Human Services (Australian Government)
Geoscience Australia
InterGovernmental Committee on Surveying and Mapping
Spatial Industries Business Association

This Standard was issued in draft form for comment as DR AS/NZS ISO 19109:2018.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:
www.standards.org.au

www.saiglobal.com (sales and distribution)

ISBN 978 1 76072 095 7

Australian STANDARD

Geographic information—Rules for application schema

First published as AS/NZS ISO 19109:2006.
Revised and redesignated as AS ISO 19109:2018.

Published by SAI Global Pty Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001.

Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee IT-004, Geographical Information/Geomatics, to supersede AS/NZS ISO 19109:2006, *Geographic information — Rules for application schema.*

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to define rules for creating and documenting application schemas, including principles for the definition of features.

This Standard includes the following:

(a) conceptual modelling of features and their properties from a universe of discourse;

(b) definition of application schemas;

(c) use of the conceptual schema language for application schemas;

(d) transition from the concepts in the conceptual model to the data types in the application schema; and

(e) integration of standardized schemas from other ISO geographic information standards with the application schema.

This Standard is identical with, and has been reproduced from, ISO 19109:2015, *Geographic information — Rules for application schema*.

As this document has been reproduced from an International Standard, the following applies—

(i) In the source text 'this International Standard' should read 'this Australian Standard'.

(ii) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms 'normative' and 'informative' are used in Standards to define the application of the appendices or annexes to which they apply. A 'normative' appendix or annex is an integral part of a Standard, whereas an 'informative' appendix or annex is only for information and guidance.

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 211, *Geographic information/Geomatics.*

This second edition cancels and replaces the first edition (ISO 19109:2005).

Introduction

Any description of reality is always an abstraction, always partial, and always just one of many possible "views", depending on the application field.

The widespread application of computers and geographic information systems (GIS) has led to an increased use of geographic data within multiple disciplines. With current technology as an enabler, society's reliance on such data is growing. Geographic datasets are increasingly being shared and exchanged. They are also used for purposes other than those for which they were produced.

To ensure that data will be understood by both computer systems and users, the data structures for data access and exchange must be fully documented. The interfaces between systems, therefore, need to be defined with respect to data and operations, using the methods standardized in this International Standard. For the construction of internal software and data storage within proprietary systems, any method may be used that enables the standardized interfaces to be supported.

An application schema provides the formal description of the data structure and content required by one or more applications. An application schema contains the descriptions of both geographic data and other related data. A fundamental concept of geographic data is the feature.

Australian Standard®

Geographic information—Rules for application schema

1 Scope

This International Standard defines rules for creating and documenting application schemas, including principles for the definition of features.

The scope of this International Standard includes the following:

— conceptual modelling of features and their properties from a universe of discourse;

— definition of application schemas;

— use of the conceptual schema language for application schemas;

— transition from the concepts in the conceptual model to the data types in the application schema;

— integration of standardized schemas from other ISO geographic information standards with the application schema.

The following are outside the scope:

— choice of one particular conceptual schema language for application schemas;

— definition of any particular application schema;

— representation of feature types and their properties in a feature catalogue;

— representation of metadata;

— rules for mapping one application schema to another;

— implementation of the application schema in a computer environment;

— computer system and application software design;

— programming.

2 Conformance

2.1 General

This International Standard defines 12 conformance classes shown in Tables 1 to 12, matching the 12 requirements classes described in Clauses 7 and 8. Any application schema claiming conformance to any requirements class in this International Standard shall pass all of the tests listed in the corresponding conformance class, which are described in detail in the abstract test suites in Annex A. Each test relates to one or more specific requirements, which are explicitly indicated in the description of the test.

2.2 Meta-model

Table 1 — Meta-model conformance class

Conformance class	/conf/general
Requirements	/req/general (Clause 7, Table 15)
Tests	All tests in A.2