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# Geographic information — Conceptual schema language

*Information géographique — Langage de schéma conceptuel*



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## 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](http://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](http://www.iso.org/patents)

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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 first edition of ISO 19103:2015 cancels and replaces the first edition (ISO/TS 19103:2005).

## Introduction

This International Standard of the ISO geographic information suite of standards is concerned with the adoption and use of a conceptual schema language (CSL) for developing computer interpretable models, or schemas, of geographic information. Standardization of geographic information requires the use of a formal CSL to specify unambiguous schemas that can serve as a basis for data interchange and the definition of interoperable services. An important goal of the ISO geographic information suite of standards is to create a framework in which data interchange and service interoperability can be realized across multiple implementation environments. The adoption and consistent use of a CSL to specify geographic information is of fundamental importance in achieving this goal.

There are two aspects to this International Standard. First, a CSL is selected that meets the requirements for rigorous representation of geographic information. This International Standard identifies the combination of the Unified Modeling Language (UML) static structure diagram with its associated Object Constraint Language (OCL) and a set of basic type definitions as the conceptual schema language for specification of geographic information. Secondly, this International Standard provides guidelines on how UML should be used to create geographic information models that are a basis for achieving the goal of interoperability.

One goal of the ISO geographic information suite of standards using UML models is that they will provide a basis for model based mapping to encoding schemas like the ones defined in ISO 19118, as well as a basis for creating implementation specifications for implementation profiles for various other environments.

This International Standard describes the general metamodel for use of UML in the context of the ISO geographic information series of standards. Aspects specifically dealing with the modelling of application schemas are described in ISO 19109.

This International Standard is a revision of a previous version from 2005. Changes are documented in [Clause 5](#).