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Second edition
2019-02

Geographic information — Spatial referencing by geographic identifiers

*Information géographique — Système de références spatiales par
identificateurs géographiques*



Reference number
ISO 19112:2019(E)

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Published in Switzerland

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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 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

This second edition cancels and replaces the first edition (ISO 19112:2003), which has been technically revised.

The main changes compared to the first edition are as follows:

- revision of the conceptual schema to meet current standards and harmonise with other ISO/TC 211 standards;
- introduction of the class `LocationClass` to replace the class `SI_LocationType`;
- introduction of the class `Location` to replace the class `SI_LocationInstance`;
- introduction of the class `SpatialReferenceSystemUsingGeographicIdentifiers` to replace the class `SI_SpatialReferenceSystemUsingGeographicIdentifiers`;
- introduction of the class `Gazetteer` to replace the class `SI_Gazetteer`;
- introduction of the class `GeographicIdentifier`;
- recognition that a gazetteer is a sub-type of `Register` as defined in ISO 19135-1, and that `LocationClass` is an `ItemClass` and `Location` a `RegisterItem` in that context;
- changes to package identifiers.

The changes are elaborated in [Annex D](#).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Geographic information contains spatial references that relate information represented in data or text to positions in geographic space.

Spatial references fall into two categories:

- a) those using coordinates;
- b) those using geographic identifiers.

This document deals only with spatial referencing by geographic identifiers. This type of spatial reference is sometimes called "indirect". Spatial referencing by coordinates is the subject of ISO 19111.

Spatial reference systems using geographic identifiers are based not explicitly on coordinates but on a relationship with a location defined by a geographic feature or features. The relationship of the position to the feature may be as follows:

- containment, where the position is within the geographic feature, for example in a country;
- local measurements, where the position is defined relative to a fixed point or points in the geographic feature or features, for example at a given distance along a street from a junction with another street. This aspect, known as linear referencing, is the subject of ISO 19148;
- loosely related, where the position has a fuzzy relationship with the geographic feature or features, for example adjacent to a building or between two buildings.

The purpose of this document is to specify ways to define and describe systems of spatial references using geographic identifiers. It only covers the definition and recording of the referencing feature, and does not consider the forms of the relationship of the position relative to that feature.

A spatial reference system using geographic identifiers is a collection of Location classes of different sub-types, while a gazetteer is a collection of Location instances (of one or more Location sub-types).

A common form of spatial referencing system using geographic identifiers is addressing. This is the subject of ISO 19160-1.