

SVENSK STANDARD

SS-EN ISO 19112:2019



Fastställt/Approved: 2019-03-27

Utgåva/Edition: 2

Språk/Language: engelska/English

ICS: 03.240;35.020;35.240.01;35.240.30;35.240.50;35.240.60;35.240.70

Geografisk information – Modell för att beskriva icke koordinatbaserade referenssystem (ISO 19112:2019)

Geographic information – Spatial referencing by geographic identifiers (ISO 19112:2019)

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The European Standard EN ISO 19112:2019 has the status of a Swedish Standard. This document contains the official version of EN ISO 19112:2019.

This standard supersedes the SS-EN ISO 19112:2005, edition 1.

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EUROPEAN STANDARD

EN ISO 19112

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2019

ICS 35.240.70

English Version

Geographic information - Spatial referencing by geographic identifiers (ISO/FDIS 19112:2018)

Information géographique - Système de références
spatiales par identificateurs géographiques (ISO/FDIS
19112:2018)

Geoinformation - Raumbezug mit (geographischen)
Identifikatoren (ISO/FDIS 19112:2018)

This European Standard was approved by CEN on 26 April 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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SS-EN ISO 19112:2019 (E)

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and notation	1
3.1 Terms and definitions.....	1
3.2 Conceptual schema notation.....	2
4 Conformance	2
4.1 General.....	2
4.2 Spatial reference system using geographic identifiers conformance class.....	2
4.3 Gazetteer conformance class.....	3
5 Conceptual schema overview	3
6 Requirements for spatial reference systems using geographic identifiers	4
6.1 Spatial reference system using geographic identifiers.....	4
6.2 Conceptual schema for spatial referencing using geographic identifiers.....	4
6.3 Object Type: SpatialReferenceSystemUsingGeographicIdentifiers.....	5
6.4 Object Type: LocationClass.....	6
7 Requirements for a gazetteer	7
7.1 Overview.....	7
7.2 Conceptual schema for gazetteers.....	7
7.3 Object Type: Gazetteer.....	9
7.4 Object Type: Location.....	10
7.5 Object Type: GeographicIdentifier.....	11
Annex A (normative) Abstract test suites	13
Annex B (informative) Example spatial reference systems using geographic identifiers	14
Annex C (informative) Examples of gazetteer data	16
Annex D (informative) Backward compatibility	17
Bibliography	20

European foreword

This document (EN ISO 19112:2019) has been prepared by Technical Committee ISO/TC 211 "Geographic information/Geomatics" in collaboration with Technical Committee CEN/TC 287 "Geographic Information" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

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The text of ISO 19112:2019 has been approved by CEN as EN ISO 19112:2019 without any modification.

SS-EN ISO 19112:2019 (E)

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.

Geographic information — Spatial referencing by geographic identifiers

1 Scope

This document defines the conceptual schema for spatial references based on geographic identifiers. It establishes a general model for spatial referencing using geographic identifiers and defines the components of a spatial reference system. It also specifies a conceptual scheme for a gazetteer.

Spatial referencing by coordinates is addressed in ISO 19111. However, a mechanism for recording complementary coordinate references is included in this document.

This document enables producers of data to define spatial reference systems using geographic identifiers and assists users in understanding the spatial references used in datasets. It enables gazetteers to be constructed in a consistent manner and supports the development of other standards in the field of geographic information.

This document is applicable to digital geographic data, and its principles may be extended to other forms of geographic data such as maps, charts and textual documents.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19107:2003, *Geographic information — Spatial schema*

ISO 19111:2007, *Geographic information — Spatial referencing by coordinates*

ISO 19115-1:2014, *Geographic information — Metadata — Part 1: Fundamentals*

ISO 19135-1:2015, *Geographic information — Procedures for item registration — Part 1: Fundamentals*

3 Terms, definitions and notation

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at <http://www.electropedia.org/>

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1.1

gazetteer

register of location instances of one or more location sub-types, containing some information regarding position

Note 1 to entry: The positional information need not be coordinates, but could be descriptive.

SS-EN ISO 19112:2019 (E)

3.1.2

geographic identifier

spatial reference in the form of a label or code that identifies a location

EXAMPLE “Spain” is an example of a label (country name); “SW1P 3AD” is an example of a code (postcode).

3.1.3

location

particular place or position

Note 1 to entry: A location identifies a geographic place.

EXAMPLE “Madrid”, “California”.

3.1.4

spatial reference

description of position in the real world

Note 1 to entry: This may take the form of a label, code or coordinate tuple.

[SOURCE: ISO 19111:2007, 4.43]

3.2 Conceptual schema notation

Several model elements used in this document are defined in packages specified in other International Standards; these are listed in [Table 1](#).

Table 1 — Packages defined in other International Standards

Prefix	Package	International standard
EX	Extent	ISO 19115-1
CI	Citation	ISO 19115-1
CRS	Coordinate Reference System	ISO 19111
GM	Geometry	ISO 19107
MD	Metadata	ISO 19115-1
RE	Register	ISO 19135-1

4 Conformance

4.1 General

Two classes of conformance are defined for this document:

- Spatial reference system using geographic identifiers — the minimum requirements for establishing a spatial reference system using geographic identifiers;
- Gazetteer — the minimum requirements for establishing a gazetteer.

4.2 Spatial reference system using geographic identifiers conformance class

[Table 2](#) defines the characteristics of the spatial reference system using geographic identifiers conformance class.

Table 2 — Spatial reference system using geographic identifiers conformance class

Conformance class identifier	< http://standards.iso211.org/19112/-1/2/conf/srs >
Standardization target	Spatial reference system using geographic identifiers
Dependency	None
Requirements	All requirements in Clause 6
Requirements class identifier	< http://standards.iso211.org/19112/-1/2/req/srs >
Tests	All tests in A.1

4.3 Gazetteer conformance class

[Table 3](#) defines the characteristics of the gazetteer conformance class.

Table 3 — Gazetteer conformance class

Conformance class identifier	< http://standards.iso211.org/19112/-1/2/conf/gaz >
Standardization target	Gazetteer
Dependency	None
Requirements	All requirements in Clause 7
Requirements class identifier	< http://standards.iso211.org/19112/-1/2/req/gaz >
Tests	All tests in A.2

5 Conceptual schema overview

[Clauses 6](#) and [7](#) specify a conceptual schema (expressed in UML) for

- a spatial referencing system using geographic identifiers, and
- a gazetteer.

An overview of the schema is provided in [Figure 1](#). The classes originating in this document (depicted by unshaded boxes in [Figures 1, 2](#) and [3](#)) are elaborated in [Figures 2](#) and [3](#) and are fully specified in [6.3](#), [6.4](#), [7.3](#), [7.4](#) and [7.5](#).