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Geografisk information – Register för representation av geografiskt läge (ISO 19145:2013, IDT)

Geographic information – Registry of representations of geographic point location (ISO 19145:2013, IDT)



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The International Standard ISO 19145:2013 has the status of a Swedish Standard. This document contains the official English version of ISO 19145:2013.

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Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Ramverk för geodata, SIS/TK 323.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 19145 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

Introduction

ISO 6709:2008 standardizes the mechanisms for the interoperability of geographic point location representations. However, the representation of geographic point locations takes various schemes (e.g. ISO 6709:1983, DCMI Point encoding scheme, KML, GeoVRML, Natural Area Coding System, ISO 8211, GML Point Profile) depending of the application in which they are used. Accordingly, ISO 6709:2008 recognizes and supports flexibility in the representation of geographic point locations and the requirement for universal interpretation. In order to support the use of a variety of geographic point location representations, ISO 6709:2008 introduces the requirement of a registry of geographic point location representations. A registry of representations of geographic point location gives access to the description of the format in which a geographic point location is encoded and also identifies conversion services to transform the representation of the geographic point location to another representation. As such, knowing in which format a geographic point location is encoded and the format in which it must be encoded for its use by a specific application, it can be possible to perform the appropriate transformation of the representation of a geographic point location. However, this requires that encoding formats and their descriptions need to be made accessible either as part of the geographic point location representation itself or from a registry of representations of geographic point locations. As such, the definition of a standard structure for a registry of representations of geographic point location is required. Such a registry will support the required flexibility identified in ISO 6709:2008 for efficient syntactic interoperability of geographic point location information.

This International Standard defines a standard structure of a register in Unified Modelling Language (UML) that supports the description of geographic point location representation ([Clause 7](#)). It also defines the XML implementation of the register's UML structure by extending ISO/TS 19135-2, [Annex A](#). Although the structure for the description of geographic point location representation takes its roots in ISO 19135, it extends that International Standard with specific requirements to an extent that it goes beyond the definition of a profile of ISO 19135.

Geographic information — Registry of representations of geographic point location

1 Scope

This International Standard specifies the process for establishing, maintaining and publishing registers of representation of geographic point location in compliance with ISO 19135. It identifies and describes the information elements and the structure of a register of representations of geographic point location including the elements for the conversion of one representation to another.

This International Standard also specifies the XML implementation of the required XML extension to ISO/TS 19135-2, for the implementation of a register of geographic point location representations.

A registry of geographic point location representations differs from a coordinate reference system (CRS) registry as it is not intended to describe the parameters of a CRS including datum, projections, units of measure, and order of coordinates but is concerned by the manner a geographic point location according to ISO 6709 is physically represented in a record or part of it.

2 Conformance

To conform to this International Standard, a register of geographic point location representations shall satisfy all of the conditions specified in the abstract test suite ([Annex B](#)).

3 Normative references

The following referenced documents are indispensable for the application 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/TS 19103:2005, *Geographic information — Conceptual schema language*

ISO 19115:2003, *Geographic information — Metadata*

ISO 19118:2011, *Geographic information — Encoding*

ISO 19135:2005, *Geographic information — Procedures for item registration*

ISO/TS 19135-2:2012, *Geographic information - Procedures for item registration — Part 2: XML schema implementation*

ISO/TS 19139:2007, *Geographic information — Metadata — XML schema implementation*

W3C XMLName, *Namespaces in XML 1.0 (Second Edition)*. W3C Recommendation (16 August 2006)

W3C XMLSchema-1, *XML Schema Part 1: Structures Second Edition*. W3C Recommendation (28 October 2004)

W3C XMLSchema-2, *XML Schema Part 2: Datatypes Second Edition*. W3C Recommendation (28 October 2004)

W3C XML, *Extensible Markup Language (XML) 1.0 (Fourth Edition)*, W3C Recommendation (16 August 2006)

W3C XLink, *XML Linking Language (XLink) Version 1.0*. W3C Recommendation (27 June 2001)

4 Terms, definitions and abbreviations

4.1 Terms and definitions

4.1.1

compression

technique used for the reduction of space used by data

4.1.2

compression service

service (4.1.16) that accomplishes *compression* (4.1.1)

4.1.3

conversion

transformation from one *format* (4.1.9) to another

4.1.4

conversion service

service (4.1.16) that invokes a *converter* (4.1.5)

4.1.5

converter

resource that performs *conversion* (4.1.3)

Note 1 to entry: The resource can be a device or software.

4.1.6

coordinate

one of a sequence of n numbers designating the position of a point in n -dimensional space

Note 1 to entry: In a coordinate reference system, the coordinate numbers are qualified by units.

[SOURCE: ISO 19111:2007, 4.5]

4.1.7

coordinate tuple

tuple (4.1.18) composed of a sequence of *coordinates* (4.1.6)

Note 1 to entry: In a coordinate reference system, the coordinate numbers are qualified by units.

[SOURCE: ISO 19111:2007, 4.12, modified — Note 1 to entry has been added.]

4.1.8

dynamic conversion

online and real time *conversion* (4.1.3) of data

4.1.9

format

language construct that specifies the representation, in character form, of data objects in a record, file, message, storage device, or transmission channel

[SOURCE: ISO/IEC 2382-15:1999, 15.04.35]

4.1.10

geographic information

information concerning phenomena implicitly or explicitly associated with a location relative to the Earth

[SOURCE: ISO 19101:2002, 4.16]

4.1.11

geographic point location

well defined geographic place described by one *coordinate tuple* (4.1.7)

4.1.12**geographic point location representation**

syntactic description of a *geographic point location* (4.1.11) in a well known *format* (4.1.9)

4.1.13**identifier**

linguistically independent sequence of characters capable of uniquely and permanently identifying that with which it is associated

[SOURCE: ISO 19135:2005, 4.1.5]

4.1.14**register**

set of files containing *identifiers* (4.1.13) assigned to items with descriptions of the associated items

[SOURCE: ISO 19135:2005, 4.1.9]

4.1.15**registry**

information system on which a *register* (4.1.14) is maintained

[SOURCE: ISO 19135:2005, 4.1.13]

4.1.16**service**

distinct part of the functionality that is provided by an entity through interfaces

[SOURCE: ISO 19119:2005, 4.1]

4.1.17**static conversion**

offline process to perform a global *conversion* (4.1.3) of a large amount of data

4.1.18**tuple**

ordered list of values

[SOURCE: ISO 19136:2007, 4.1.63]