



SLOVENSKI STANDARD
oSIST prEN ISO 19126:2020
01-julij-2020

Geografske informacije - Slovarji in registri konceptov o pojavih (ISO/DIS 19126:2020)

Geographic information - Feature concept dictionaries and registers (ISO/DIS 19126:2020)

Geoinformation - Verzeichnisse und Register für Featurekonzepte (ISO/DIS 19126:2020)

Information géographique - Dictionnaires de concepts de caractéristiques et registres (ISO/DIS 19126:2020)

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Ta slovenski standard je istoveten z: prEN ISO 19126

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ICS:

01.040.07	Naravoslovne in uporabne vede (Slovarji)	Natural and applied sciences (Vocabularies)
07.040	Astronomija. Geodezija. Geografija	Astronomy. Geodesy. Geography
35.240.70	Uporabniške rešitve IT v znanosti	IT applications in science

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en,fr,de

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DRAFT INTERNATIONAL STANDARD

ISO/DIS 19126

ISO/TC 211

Secretariat: SIS

Voting begins on:
2020-05-22Voting terminates on:
2020-08-14

Geographic information — Feature concept dictionaries and registers

Information géographique — Dictionnaires de concepts de caractéristiques et registres

ICS: 35.240.70

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Reference number
ISO/DIS 19126:2020(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*.

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

- Improved the UML diagrams to conform to the current style and added the UML to the ISO/TC 211 Harmonized Model for both the 2009 version and this version of ISO 19126.
- Made minor updates to take into account changes to other standards, particularly ISO 19135-1:2015, *Geographic information — Procedures for item registration — Part 1: Fundamentals*.

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Introduction

This International Standard specifies a schema for geographic feature concept dictionaries managed as registers. As described in ISO 19101-1, geographic features are abstractions of real world phenomena associated with a location relative to the surface of the earth, about which data are collected, maintained and disseminated.

A feature concept dictionary provides basic definitions and related information about a set of concepts that may be used to describe geographic features and shared across multiple application areas. Elements from a feature concept dictionary may be reused in one or more feature catalogues. A feature catalogue is often associated with a particular application schema, product specification and data set. It provides a complete textual specification of a set of feature types and their properties and relationships. See [Annex A](#) for further discussion of the relationships between feature concept dictionaries, feature catalogues, application schemas and product specifications.

ISO 19135-1 specifies procedures for the registration of items of geographic information. Items of geographic information that may be registered are members of object classes specified in technical standards such as those developed by ISO/TC 211. This International Standard defines object classes and specifies rules used to establish and maintain feature concept dictionaries as ISO 19135-1 conformant register schemas.

ISO 19135-1 specifies the structure of a hierarchical register in which the principal register holds a set of items that describe the subregisters. This International Standard specifies a schema for a hierarchical register where the subregisters are feature concept dictionaries and/or feature catalogues. This International Standard specifies an accompanying schema. The resulting hierarchical register may be used as a basis for harmonization and the establishment of interoperability between different geographic information communities. (standards.iteh.ai)

Feature concept dictionaries and feature catalogues maintained as registers may serve as sources of reference for similar registers established by other geographic information communities as part of a system of cross-referencing. Cross-referencing between respective items in registers of items of geographic information may be difficult in cases where the structure of registers differs between information communities. This International Standard may serve as a guide for different information communities to develop compatible registers that can support a system of geographic information cross-referencing.

Geographic information — Feature concept dictionaries and registers

1 Scope

This International Standard specifies a schema for feature concept dictionaries to be established and managed as registers. It does not specify schemas for feature catalogues or for the management of feature catalogues as registers. However, because feature catalogues are often derived from feature concept dictionaries, this International Standard does specify a schema for a hierarchical register of feature concept dictionaries and feature catalogues. These registers are in accordance with ISO 19135-1.

2 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 19103:2015, *Geographic information — Conceptual schema language*

ISO 19110:2016, *Geographic information — Methodology for feature cataloguing*

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

ISO 19131:2007, *Geographic information — Data product specifications*

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

3 Terms, definitions and abbreviations

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:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1.1

compound registry

registry (3.1.20) containing multiple *registers* (3.1.19) that share the same *item classes* (3.1.17) and coordinated management of a common characteristic

Note 1 to entry: The common characteristic may be a shared namespace for the assignment of names and/or codes.

3.1.2

data product

data set or data set series that conforms to a *data product specification* (3.1.3)

[SOURCE: ISO 19131:2007, 4.6]

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3.1.3

data product specification

detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party

[SOURCE: ISO 19131:2007, definition 4.7]

3.1.4

data type

specification of a *value domain* (3.1.22) with operations allowed on values in this domain

[SOURCE: ISO 19103:2015, definition 4.14]

3.1.5

feature

abstraction of real world phenomena

Note 1 to entry: A feature may occur as a type or an instance. In this International Standard, feature type is meant unless otherwise specified.

Note 2 to entry: This International Standard does not address real world phenomena directly; it addresses only their abstractions (feature concepts and feature types) and feature instances (data collected to represent a feature in conformance with a specified feature type).

[SOURCE: ISO 19101-1:2014, definition 4.11]

EXAMPLE The phenomenon named “Eiffel Tower” may be classified with other similar phenomena into a feature type named “tower”.

3.1.6

feature association

relationship that links instances of one *feature* (3.1.5) type with instances of the same or a different feature type

Note 1 to entry: A feature association may occur as a type or an instance. In this International Standard, feature association type is meant unless otherwise specified.

[SOURCE: ISO 19110:2016, definition 3.3]

3.1.7

feature association concept

concept that may be specified in detail as one or more *feature association* (3.1.6) types

EXAMPLE A “supports” feature association concept describes a relationship between real world phenomena such as “highways” and “bridges” where the role of one **feature** is that it is *supported-by* the other feature (whose role is *supporter-of*).

3.1.8

feature attribute

characteristic of a **feature**

Note 1 to entry: A feature attribute may occur as a type or an instance. In this International Standard, feature attribute type is meant unless otherwise specified.

Note 2 to entry: A feature attribute has a name, a data type and a value domain associated to it. A feature attribute for a feature instance also has an attribute value taken from the value domain.

[SOURCE: ISO 19101-1:2014, definition 4.12]

EXAMPLE 1 A feature attribute named “colour” may have an attribute value “green” which belongs to the data type “text”.

EXAMPLE 2 A feature attribute named “length” may have an attribute value “82,4” which belongs to the data type “real”.

3.1.9**feature attribute concept**

concept that may be specified in detail as one or more *feature attribute* (3.1.8) types

EXAMPLE A “height” feature attribute concept describes length in the vertical direction as a characteristic that may be shared by real world phenomena such as “human”, “tree” and “building.”

3.1.10**feature catalogue**

catalogue containing definitions and descriptions of the *feature* (3.1.5) types, *feature attributes* (3.1.8), and feature relationships occurring in one or more sets of geographic data, together with any *feature operations* (3.1.13) that may be applied

[SOURCE: ISO 19101-1:2014, definition 4.13]

3.1.11**feature concept**

concept that may be specified in detail as one or more *feature* (3.1.5) types

EXAMPLE The feature concept “road” may be used to specify several different feature types, each with a different set of properties appropriate for a particular application. For a travel planning application, it might have a limited set of attributes such as name, route number, location and number of lanes, while for a maintenance application it might have an extensive set of attributes detailing the structure and composition of each of the layers of material for which it is composed.

3.1.12**feature concept dictionary**

dictionary that contains definitions of, and related descriptive information about, concepts that may be specified in detail in a *feature catalogue* (3.1.10)

3.1.13**feature operation**

operation that every instance of a *feature* (3.1.7) type may perform

Note 1 to entry: The values of **feature attributes** of feature instances are affected by feature operations.

[SOURCE: ISO 19110:2016, definition 3.7]

EXAMPLE A feature operation upon a “dam” is to raise the dam. The results of this operation are to raise the height of the “dam” and the level of water in a “reservoir”.

3.1.14**feature operation concept**

concept that may be specified in detail as one or more *feature operation* (3.1.13) types

EXAMPLE A “traffic flow” operation might return the number of persons or vehicles expected to move on or through some kind of transportation **feature** during a period of time specified as input to the operation.

3.1.15**hierarchical register**

structured set of *registers* (3.1.19) for a domain of register items, composed of a principal register and a set of *subregisters* (3.1.21)

[SOURCE: ISO 19135-1:2015, definition 4.1.4]

EXAMPLE ISO 6523 is associated with a hierarchical register. The principal register contains organization identifier schemes and each subregister contains a set of organization identifiers that comply with a single organization identifier scheme.

ISO/DIS 19126:2020(E)**3.1.16****identifier**

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

[SOURCE: ISO 19135-1:2015, definition 4.1.5]

3.1.17**item class**

set of items with common properties

Note 1 to entry: Class is used in this context to refer to a set of instances, not the concept abstracted from that set of instances.

Note 2 to entry: To avoid potential ambiguity in this International Standard, the expression “register item class” is used.

[SOURCE: ISO 19135-1:2015, definition 4.1.7]

3.1.18**nominal value**

name of an object, type, or category

Note 1 to entry: Many **feature attributes** take nominal rather than numerical values. The **value domain** of such an attribute is usually specified as an enumeration or a code list.

EXAMPLE “Deciduous needle leaf” is a nominal value that identifies a vegetation type.

3.1.19**register**

set of files containing *identifiers* ([3.1.16](#)) assigned to items with descriptions of the associated items

[SOURCE: ISO 19135-1:2015, definition 4.1.9]
<https://www.iso.org/standard/826ed3c5-cb3a-4606-8a36-f4967d946ed9/ksist-fpren-iso-19126-2021>

3.1.20**registry**

information system on which a *register* ([3.1.19](#)) is maintained

[SOURCE: ISO 19135-1:2015, definition 4.1.13]

3.1.21**subregister**

part of a *hierarchical register* ([3.1.15](#)) that contains items from a partition of a domain of information

[SOURCE: ISO 19135-1:2015, definition 4.1.16]

3.1.22**value domain**

set of accepted values

[SOURCE: ISO 19103:2015, definition 4.37]

3.2 Abbreviations

IEC	International Electrotechnical Commission
IHO	International Hydrographic Organization
TC	Technical Committee
UML	Unified Modelling Language

4 Conformance

4.1 Introduction

To conform to this International Standard, all of the conditions specified for at least one of the two conformance classes described below shall be satisfied.

4.2 Conformance for a feature concept dictionary

Any feature concept dictionary that claims conformance to this International Standard shall satisfy all of the conditions specified in the following abstract test suites:

- a) ISO 19135-1, A.1, for general conformance to ISO 19135-1, and
- b) [B.2](#) of this International Standard.

4.3 Conformance for a register of feature concept dictionaries and/or feature catalogues

Any register of feature concept dictionaries and/or feature catalogues that claims conformance to this International Standard shall satisfy all of the conditions specified in the following abstract test suites:

- a) ISO 19135-1, A.1, for general conformance to ISO 19135-1,
- b) ISO 19135-1, A.3, for conformance to ISO 19135-1 as a hierarchical register, and
- c) [B.3](#) of this International Standard.

5 Concepts

5.1 Introduction

A feature concept dictionary describes concepts that may be used to characterize real world phenomena. Feature types and feature property types may then be specified using these concepts and documented in a feature catalogue. This International Standard specifies a feature concept dictionary schema ([5.2](#) and [Clause 6](#)).

ISO 19135-1 specifies procedures to be followed in preparing and maintaining registers of items of geographic information. Such registers may be used to support discovery of, access to, and use of the contents of feature concept dictionaries and feature catalogues. This International Standard specifies a schema for feature concept dictionaries as registers and information to be included in item registration proposals (Annex C).

A single authority may need to establish a suite of coordinated feature concept dictionary registers and feature catalogue registers that share a common structure, coding scheme and/or community of interest. This International Standard specifies a compound registry mechanism to support such requirements ([5.3.3](#)).

Feature concept dictionaries and feature catalogues maintained as registers may serve as sources of reference for similar registers established by other geographic information communities as part of a system of cross-referencing. Feature concept dictionary registers and feature catalogue registers from different communities may be organized as partitions of a hierarchical register. Based on ISO 19135-1, this International Standard specifies a schema for a hierarchical register of feature concept dictionaries and feature catalogues ([5.5](#) and [Clause 8](#)) and information to be included in item registration proposals (Annex C).