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## Geographic information — Terminology

*Information géographique — Terminologie*

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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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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/TS 19104 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

## Introduction

This Technical Specification, along with a repository of geographic information system (GIS) terminology in the form of a terminological database, is expected to be a central reference for the shared language between participants and users alike. It defines the criteria for including concepts in the vocabulary, specifies the terminological data to be recorded, and, within the electronically processable repository, introduces an initial set of concepts with definitions that will be subject to ongoing maintenance.

This Technical Specification describes the structure of entries and the types of terminological data that are to be recorded. In addition, it includes principles for definition writing as outlined in ISO 10241 and ISO 704. The structure of a terminological record is given in Clause 7.

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# Geographic information — Terminology

## 1 Scope

This Technical Specification is applicable to international communication in the field of geographic information.

This Technical Specification provides the guidelines for collection and maintenance of terminology in the field of geographic information. It establishes criteria for selection of concepts to be included in other standards concerning geographic information, which are developed by ISO/TC 211, specifies the structure of the terminological record, and describes the principles for definition writing.

This Technical Specification also lays down the guidelines for maintenance of a Terminology Repository (see Annex A).

## 2 Conformance

Any product that claims conformance with this Technical Specification shall comply with the requirements described in the normative clauses and annexes.

Where a new term has been created for an existing concept, or an existing term has been incorrectly applied, the candidate document shall not be in conformance. Concepts and their definitions may be included with the candidate terms until conformance is demonstrated.

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## 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 639-2, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO 704, *Terminology work — Principles and methods*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 10241, *International terminology standards — Preparation and layout*

ISO 19108:2002, *Geographic information — Temporal schema*

## 4 Terms and definitions

The core list of terms and definitions from the ISO/TC 211 geographic information International Standards and Technical Specifications is given in Annex B.

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

#### 4.1

##### **abbreviation**

**designation** formed by omitting words or letters from a longer form and designating the same **concept**

[ISO 1087-1:2000]

#### 4.2

##### **admitted term**

**term** rated according to the scale of the term acceptability rating as a synonym for a **preferred term**

[ISO 1087-1:2000]

#### 4.3

##### **concept**

unit of knowledge created by a unique combination of characteristics

[ISO 1087-1:2000]

NOTE Concepts are not necessarily bound to particular languages. They are, however, influenced by the social or cultural background which often leads to different categorizations.

#### 4.4

##### **concept harmonization**

activity leading to the establishment of a correspondence between two or more closely related or overlapping **concepts** having professional, technical, scientific, social, economic, linguistic, cultural or other differences, in order to eliminate or reduce minor differences between them

[ISO 860:2007]

NOTE The purpose of concept harmonization is to improve communication.

#### 4.5

##### **concept system**

set of **concepts** structured according to the relations among them

[ISO 1087-1:2000]

#### 4.6

##### **definition**

representation of a **concept** by a descriptive statement which serves to differentiate it from related concepts

[ISO 1087-1:2000]

#### 4.7

##### **deprecated term**

**term** rated according to the scale of the term acceptability rating as undesired

[ISO 1087-1:2000]

#### 4.8

##### **designation**

designator

representation of a **concept** by a sign which denotes it

NOTE In terminology work, three types of designations are distinguished: symbols, appellations and **terms**.

[ISO 1087-1:2000]

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**4.9****extension**

totality of **objects** to which a **concept** corresponds

[ISO 1087-1:2000]

**4.10****language**

system of signs for communications, usually consisting of vocabulary and rules

[ISO 5127-1]

NOTE In this Technical Specification, language refers to natural language or special languages but not to programming languages or artificial languages unless specifically identified.

**4.11****language identifier**

information in a terminological entry which indicates the name of a **language**

[ISO 1087-1:2000]

**4.12****obsolete term**

**term** which is no longer in common use

[ISO 1087-1:2000]

**4.13****preferred term**

**term** rated according to the scale of the term acceptability rating as the primary term for a given **concept**

[ISO 1087-1]

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**4.14****subordinate concept**

narrower concept

**concept** which is either a specific concept or a partitive concept

[ISO 1087-1:2000]

**4.15****term**

verbal **designation** of a general **concept** in a specific subject field

[ISO 1087-1]

NOTE A term may contain symbols and can have variants, e.g. different forms of spelling.

**4.16****term equivalent**

**term** in another **language** which designates the same **concept**

NOTE A term equivalent should be accompanied by a **definition** of the designated concept expressed in the same language as the term equivalent.

**4.17****term instance classification**

classification identifying the status of a **term**

**4.18****terminological record**

structured collection of terminological data relevant to one **concept**

#### 4.19

##### **terminological record identifier**

unique, unambiguous, and linguistically neutral identifier assigned to a **terminological record**

#### 4.20

##### **terminology repository**

data store or document in which **terms** and their associated **definitions** are stored or recorded

## 5 Abbreviated terms

CD committee draft

DIS draft International Standard

FDIS final draft International Standard

GIS geographic information system

IT information technology

IUT implementation under test

ODP open distributed processing

PT project team

TC technical committee

TMG terminology maintenance group

WD working draft

WG working group

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## 6 Criteria for the selection of concepts

Any concept requiring a definition for the clarity of reading of any of the ISO/TC 211 geographic information International Standards or Technical Specifications shall be included in that document and within Annex B of this Technical Specification, subject to the following conditions:

- the term that represents the concept is not a trade name, name of research project, or colloquial term (local informal term to describe a formal term e.g. “guy” instead of “man”);
- the concept is not selected if its definition in general language dictionaries corresponds to its definition in the field of geographic information;
- only concepts with a single definition are included;
- the concept is central to understanding the standard and is not self-explanatory.

## 7 Structure of the terminological record

### 7.1 Record content

The terminological record may contain the following terminological data fields, in the order listed below:

- record number – a terminological record identifier;

- b) entry language identifier – the code representing natural language utilized for the terminological record based on ISO 639-2;
- c) preferred term;
- d) abbreviation – if preferred, the abbreviation shall precede the full form, otherwise an abbreviated form shall follow the full form;
- e) admitted term(s) – if these are national variants, they shall be followed by a code as defined in ISO 3166-1; the numeric 3-digit code is used for the IT interface (i.e. stored in the database), while the meaning of this code is presented in the human language used by the user (i.e. the human interface);
- f) definition – if taken from another normative document, a reference shall be added in square brackets after the definition; or, if referring to another concept in the vocabulary, that concept shall be named by its preferred term and presented in bold face characters; the principles for definition writing are given in ISO 704 (see Annex C);
- g) deprecated or obsolete terms (in alphabetical order);
- h) references to related entries;
- i) examples of term usage;
- j) notes – may be used to provide additional information (if a definition has been adapted from a source, this may be explained in a note);
- k) term instance status (for online repository only);
- l) beginning date of the instance (for online repository only) (see ISO 19108);
- m) ending date of the instance (for online repository only) (see ISO 19108).

Provision shall be made for specifying language identifiers and, if needed, country codes for equivalents in other languages.

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## 7.2 Mandatory data fields

The following terminological data fields are mandatory for a terminological record. The rest of the data fields listed in 7.1 are optional.

- a) entry number;
- b) preferred term;
- c) definition;
- d) beginning date of the instance;
- e) term instance status (for online repository only).

## 7.3 Term equivalents

Term equivalents in national languages may be submitted by national bodies and class A liaisons to the Terminology Maintenance Group for consideration. Term equivalents shall be preceded by:

- a) the numeric 3 character country code as defined in ISO 3166-1, if needed;
- b) the language code as defined in ISO 639-2 (e.g. “fra” for French, “deu” for German);

## **Annex A** **(normative)**

### **Maintenance of the Terminology Repository**

#### **A.1 Introduction**

A Terminology Repository will be maintained by the TMG, see A.3.1. Maintenance mechanisms have been developed that will

- enable proposed terms (and their associated definitions) to be added to, or amended in, the Terminology Repository as required, and
- facilitate the assessment and harmonization of proposed terms prior to their parent draft standards becoming final.

#### **A.2 Terminology Repository**

##### **A.2.1 Overview**

A Terminology Repository shall be maintained for ISO geographic information standards.

The Terminology Repository shall take the form of an online computer database.

Online read-only access will be available to all ISO/TC 211 members. Write and update access will be available to WG convenors, PT leaders and editors. Public access to terms and definition that appear in published ISO/TC 211 International Standards shall be made available. All terms (existing and proposed) defined in ISO geographic information standards and drafts shall be included in the Terminology Repository.

##### **A.2.2 Terminology entry and update**

The relevant WG convenor or PT leader will be responsible for electronically submitting all terms and definitions from a new ISO geographic information standard WD, CD, DIS or FDIS to the Repository. The person responsible for entering the term shall also be responsible for entering the status of the term and any related useful terms from outside ISO/TC 211.

All concepts, terms and definitions submitted to the Terminology Repository shall satisfy the criteria for the selection of concepts as specified in Clause 6.

All terminological records shall be structured as specified in Clause 7.

At the time of entry to the Repository, terms shall be classified as being Candidate, regardless of whether the same term is classified as being Draft or Harmonized elsewhere in the Repository.

##### **A.2.3 Attribution and classification of terms**

Every term in the Terminology Repository shall be accompanied by its parent document's ISO standard number (for example, ISO 19107) where applicable, the document type (for example, WD or CD) and the date of entry. A term may also have a status type indicating that it is to be deleted or requires harmonization. Specific fields will be included in each Terminology Repository record to accommodate this information.

Each term in the Terminology Repository shall be assigned one of the following six status types.

- Candidate – newly entered term, or a term that is associated with multiple definitions and/or concepts.

- Draft – term that appears in a single draft ISO geographic information standard and that conforms to the “one term, one definition, one concept” principle.
- Harmonized – term that appears in multiple ISO geographic information draft standards but for which the “one term, one definition, one concept” principle has been negotiated by the relevant working groups.
- Normative – term that has already been published in an International Standard or Technical Specification and does not conflict with the terms and definitions in the ISO geographic information standards.
- Normative/Conflict – term that has been published in more than one International Standard or Technical Specification with different definitions in different standards.
- Deleted – term that has been identified for deletion from the repository.

These status types will be assigned to a code list to be referred to as “term instance classification” as illustrated in Table A.1.

**Table A.1 — Term instance status**

Instance status code	Status type
001	Candidate
002	Draft
003	Harmonized
004	Normative
005	Normative/Conflict
006	Deleted

Progression of a term from Candidate to Draft to Harmonized status will depend on either

- an assessment by the TMG, or <https://standards.iteh.ai/catalog/standards/sist/29303d8f-f445-4406-88bf-d4959ec23ee2/iso-ts-19104-2008>
- harmonization consultations between affected working groups.

Draft or Harmonized status indicates that significant stability has been achieved as regards the term and its definition. Progression to Normative status can only occur when the term, with its associated definition, is published in an International Standard or Technical Specification.

## A.2.4 Authority of the Terminology Repository

The Terminology Repository and its associated maintenance processes are not a substitute for normal ISO practices in relation to standards development. The Repository provides a summary for existing and proposed ISO/TC 211 terminology and helps facilitate harmonization where necessary. The Candidate, Draft and Harmonized status types have no official meaning or authority beyond the Terminology Repository.

## A.3 Terminology status review process

### A.3.1 Terminology Maintenance Group (TMG)

Assessment of Candidate terms shall be the responsibility of the TMG.

The TMG shall comprise:

- a convenor;
- at least two members from each ISO/TC 211 working group (preferably representing different national bodies); ideally there should be more than one language represented;

- additional members as necessary to ensure the representation of at least two languages, the inclusion of terminology expertise and the engagement of national bodies and liaisons.

Membership of the TMG shall be for a two-year term or for the balance of a two-year term in the case of a working group that is established part-way through a term. Each term shall commence on 1st January of even-numbered years (2002, 2004, etc.). Members of the TMG will be eligible for reappointment for further terms.

In the event of a working group being dissolved (for example, as a result of all its work items being completed), the representatives from the working group shall remain members of the TMG until all related terminology issues have been resolved. They will then withdraw.

In the event of all working groups being dissolved, the chair of ISO/TC 211, upon the completion of all related terminology work, shall suspend the TMG until such time as new work items are introduced.

### A.3.2 Responsibilities

The Chair of ISO/TC 211 shall be responsible for ensuring the existence of the TMG and for nominating the convenor.

Each ISO/TC 211 working group leader shall be responsible for nominating representatives to the TMG and for advising the convenor of the availability of relevant new documents.

The convenor shall be responsible for the operation of the TMG.

The convenor shall be responsible for advising members of the TMG regarding the availability of new documents and for ensuring the update of the status of terms.

### A.3.3 Assessment by TMG

#### A.3.3.1 Objective

The TMG shall review Candidate terms within two months of receipt. The objective of the review shall be to ensure that Candidate terms conform to the “one term, one definition, one concept” criterion (i.e. a one-to-one correspondence between a term and a concept, and a one-to-one association between a definition and a concept) and do not conflict with existing terminology. Candidate terms that satisfy the criterion shall be nominated as Draft terms pending their publication in an International Standard or Technical Specification. Candidate terms that do not satisfy the criterion shall retain their Candidate status and be referred for harmonization. The TMG will work online whenever possible and, when necessary, convene meetings in accordance with the ISO directives.

NOTE In instances where a Candidate term/definition conflicts with an existing Draft term/definition, the existing term/definition shall retain its status pending harmonization deliberations.

#### A.3.3.2 Candidate terms

The review process shall consider each Candidate term individually and shall proceed as follows.

- Perform Concept, Structure and Circularity Tests;
  - Determine if the criteria for the selection of concepts in Clause 6 have been satisfied.
  - Determine if the terminological record is currently structured in the parent document according to Clause 7.
  - Determine if the definition can be understood and is non-circular.
  - Refer terms from working drafts that fail to satisfy the above requirements back to the appropriate working group for correction. Terms from committee drafts or later that fail to satisfy the above requirements will be referred back through appropriate national body comments.

## b) Perform the “One Concept, One Definition” Test;

- 1) Determine if there are other records for the same concept in the Repository originating from other standards or earlier drafts of the standard in question. If yes, extract all definition records for the concept from the Repository. If no, classify the concept as having satisfied the “One Concept, One Definition” criterion but requiring “One Term, One Concept” testing.
- 2) If a record for the same concept, originating from an earlier draft of the same standard, has been extracted from the Repository, determine if the definitions are identical. If yes, classify the earlier record for removal from the Repository. If no, retain the concept's Candidate status and document the need for harmonization with other standards that have adopted the definition in the earlier draft.
- 3) If other records for the same concept, originating from other draft standards, have been extracted from the Repository, determine if all definitions are identical to those of the Candidate term. If yes, reclassify the Candidate concept as Draft. If no, retain the concept's Candidate status and document the need for harmonization.
- 4) If other records for the same concept, originating from published International Standards or Technical Specifications, have been extracted from the Repository, determine if all definitions are identical to those of the Candidate concept. If yes, the concept is already Normative. Ensure that cross-referencing is correct. If no, retain the concept's Candidate status and document the need for harmonization.

## c) Perform the “One Term, One Concept” Test;

Each Candidate term that has not previously appeared in other standards or earlier drafts of the standard in question will be subjected to a “One Term, One Concept” test by members of the TMG. The members shall individually examine the Terminology Repository to determine whether the concept described by the definition is already adequately described by another term. Consultation with relevant working groups will be required. If an alternative term exists, retain the term's Candidate status and classify it as requiring harmonization. Do not change the status of the alternative term. If no alternative term is identified, classify the term as being Draft.

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**A.3.3.3 Normative terms**

A working draft or committee draft may include normative terms that have been adopted from other International Standards. The TMG shall review these terms to ensure that they harmonize with ISO 19100 series concepts and terminology. The TMG shall refer any problems to the appropriate working group or editing committee (in the latter case through national body comments).

**A.3.3.4 Deleted terms**

The test for deleted terms is to be performed if the terminology from an earlier draft of the standard has been entered into the Terminology Repository.

- For each item in the earlier draft, check if an identical Candidate term occurs in the current draft.
- If a Candidate term does not exist in the current draft, check if the term appears in other standards.
- If a Candidate term does not exist in the current draft and the term does not appear in other standards, classify the term and its definition as deleted in the Terminology Repository.

Terms that have been specifically nominated for deletion shall be classified accordingly in the Terminology Repository. ISO/TC 211 shall be formally advised of the intention to delete the terms. Deletion shall take place following a plenary meeting of ISO/TC 211.

**A.3.4 Harmonization**

Candidate terms that require harmonization shall be directly referred to the appropriate working groups. In addition, where the source document is at CD or DIS, the convenor of the TMG shall identify terminology harmonization issues in comments formally forwarded to the TC secretariat.