
**Geographic information — Procedures
for item registration —**

**Part 1:
Fundamentals**

*Information géographique — Procédures pour l'enregistrement
d'éléments —*

Partie 1: Principes de base

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 211, *Geographic information/Geomatics*.

This first edition of ISO 19135-1 cancels and replaces ISO 19135:2005, which has been technically revised.

ISO 19135 consists of the following parts, under the general title *Geographic information — Procedures for item registration*:

- *Part 1: Fundamentals*
- *Part 2: XML Schema Implementation*

Introduction

This part of ISO 19135 specifies procedures for the registration of items of geographic information. ISO/IEC JTC 1 defines registration as the assignment of an unambiguous name to an object in a way that makes the assignment available to interested parties. 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.

NOTE In this International Standard, the definition of registration has been changed so that registration is the assignment of linguistically independent identifiers, rather than names, to items of geographic information.

Registration of items of geographic information offers several benefits to the geographic information community. Registration

- a) supports wider use of registered items both by providing international recognition to the fact that such items conform to an ISO International Standard and by making them publicly available to potential users,
- b) provides both immediate recognition to extensions of an International Standard and a source for updates to that International Standard during the regular maintenance cycle,
- c) may provide a single mechanism to access information concerning items that are specified in different standards,
- d) provides a mechanism for managing temporal change,

NOTE Items specified in a standard or in a register may change over time either due to changes in technology or for other reasons. Published standards do not clearly document what changes may have occurred, and do not include information about earlier versions of specified items. Such information can be maintained in a register.

- e) may be used to make sets of standardized tags available for encoding of registered items in data sets, and
- f) supports cultural and linguistic adaptability by providing both a means for recording equivalent names of items used in different languages, cultures, application areas and professions and a means for making those equivalent names publicly available.

This part of ISO 19135 specifies procedures to be followed in preparing and maintaining registers of items of geographic information. Any organization may choose to establish registers of items of geographic information that conform to this part of ISO 19135. [Annex C](#) is particularly applicable to registers established under the auspices of ISO/TC 211.

A goal of this part of ISO 19135 is to achieve a balance between minimizing the number of registers for items of geographic information and minimizing the burden on the registration authorities.

Following experience of setting up registers in user communities, there are fewer requirements in this version than previously. Because of this, implementations of the previous edition of ISO 19135 should be conformant to this part of ISO 19135. A log of changes from the previous version (ISO 19135:2005) is provided in [Annex F](#).

The level of abstraction for the UML model described in ISO 19135-1 is the “Abstract Schema level” according to ISO 19103 requirement 4.

Geographic information — Procedures for item registration —

Part 1: Fundamentals

1 Scope

This part of ISO 19135 specifies procedures to be followed in establishing, maintaining, and publishing registers of unique, unambiguous, and permanent identifiers and meanings that are assigned to items of geographic information. In order to accomplish this purpose, this part of ISO 19135 specifies elements that are necessary to manage the registration of these items.

2 Conformance

2.1 General

This part of ISO 19135 defines three conformance classes for registers:

- Core schema – the minimum requirements for establishing, maintaining, and publishing registers;
- Extended schema – additional requirements to be conformant to the most frequently used model elements in the previous edition (ISO 19135:2005);
- Hierarchical register.

To conform to this part of ISO 19135, a register of items of geographic information shall satisfy all of the requirements specified in one of the three conformance levels described in [2.2](#) to [2.4](#), with the corresponding abstract test suite given in [Annex A](#).

2.2 Core conformance class

[Table 1](#) defines the characteristics of the core conformance class.

Table 1 — Core conformance class

Conformance class identifier	core
Standardization target	registers
Dependency	ISO 19103: Conformance classes UML 2, Model documentation ISO 19115-1: Clause 2 Conformance requirements
Requirements	All requirements in Clauses 5 to 7
Tests	All tests in A.1

2.3 Extended conformance class

[Table 2](#) defines the characteristics for the extended conformance class.

Table 2 — Extended conformance class

Conformance class identifier	extended-schema
Standardization target	registers
Dependency	hierarchical
Requirements	All requirements in Annex B
Tests	All tests in A.2

2.4 Hierarchical register conformance class

[Table 3](#) defines the characteristics of the conformance class for hierarchical registers.

Table 3 — Hierarchical register conformance class

Conformance class identifier	hierarchical
Standardization target	registers
Dependency	core
Requirements	All requirements in Clause 8
Tests	All tests in A.3

3 Normative references

The following documents, in whole or in part, are normatively referenced in this document indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19103:—¹⁾, *Geographic information — Conceptual schema language*

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

4 Terms, definitions, and abbreviations

4.1 Terms and definitions

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

4.1.1

clarification

<register> non-substantive change to a register item

Note 1 to entry: A non-substantive change does not change the semantics or technical meaning of the item. Clarification does not result in a change to the *registration* ([4.1.12](#)) status of the register item.

4.1.2

control body

<register> group of technical experts that makes decisions regarding the content of a *register* ([4.1.9](#))

4.1.3

geographic information

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

[SOURCE: ISO 19101-1:2014, 4.1.18]

1) To be published.

4.1.4**hierarchical register**

structured set of *registers* (4.1.9) for a domain of register items, composed of a *principal register* (4.1.8) and a set of *subregisters* (4.1.16)

EXAMPLE ISO 6523 is associated with a hierarchical register. The principal register contains organization *identifier* (4.1.5) schemes and each subregister contains a set of organization identifiers that comply with a single organization identifier scheme.

4.1.5**identifier**

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

4.1.6**invalidation**

<register> action taken to correct a substantive error in a register item

4.1.7**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.

4.1.8**principal register**

register (4.1.9) that contains a description of each of the *subregisters* (4.1.16) in a *hierarchical register* (4.1.4)

4.1.9**register**

set of files containing *identifiers* (4.1.5) assigned to items with descriptions of the associated items

4.1.10**register manager**

organization to which management of a *register* (4.1.9) has been delegated by the *register owner* (4.1.11)

Note 1 to entry: In the case of an ISO register, the register manager performs the functions of the registration authority specified in the ISO/IEC Directives.

4.1.11**register owner**

organization that establishes a *register* (4.1.9)

4.1.12**registration**

assignment of a permanent, unique, and unambiguous *identifier* (4.1.5) to an item

4.1.13**registry**

information system on which a *register* (4.1.9) is maintained

4.1.14**retirement**

<register> declaration that a register item is no longer suitable for use in the production of new data

Note 1 to entry: The status of the retired item changes from “valid” to “retired”. A retired item is kept in the register to support the interpretation of data produced before its retirement and has not been superseded by another item.

4.1.15

submitting organization

organization authorized by a *register owner* ([4.1.11](#)) to propose changes to the content of a *register* ([4.1.9](#))

4.1.16

subregister

part of a *hierarchical register* ([4.1.4](#)) that contains items from a partition of a domain of information

4.1.17

supersession

<register> declaration that a register item has been retired and replaced by one or more new items

Note 1 to entry: The status of the replaced item changes from “valid” to “superseded”.

4.1.18

technical standard

<register> standard containing the definitions of *item classes* ([4.1.7](#)) requiring *registration* ([4.1.12](#))

4.2 Abbreviations

JTC 1 Joint Technical Committee 1

TMB Technical Management Board

UML Unified Modelling Language

4.3 Notation

The conceptual schema specified in this part of ISO 19135 is described using the Unified Modelling Language (UML) (ISO/IEC 19505), following the guidance of ISO 19103.

By convention within ISO/TC 211, in earlier versions of standards, the names of UML classes, with the exception of basic data type classes, include a two-letter prefix that identifies the standard and the UML package in which the class is specified. For newer versions of ISO/TC 211 standards, this convention is no longer applied. In this part of ISO 19135, the two letter prefix of “RE” applies for classes that are continued from the previous edition. Classes and packages new to this edition do not use an abbreviation.

Several model elements used in this schema are specified in packages specified in other ISO/TC 211 standards, as shown in [Table 4](#).

Table 4 — UML packages from ISO 19115-1

Prefix	Package
CI	Citation and responsible party information
MD	Metadata

5 Roles and responsibilities in the management of registers

5.1 General

Several organizations play a role in the management of a register ([Figure 1](#)). The roles and their relationships are illustrated as a conceptual model using UML notation.

NOTE Although they are not organizations, register and registry are included in [Figure 1](#) because they are the basis of the roles played by the organizations included.

For some simple registers, several roles may be handled by the same organization. For example, the role of the control body could be handled by the register manager. It is up to each register to give a more detailed description of the management of roles.

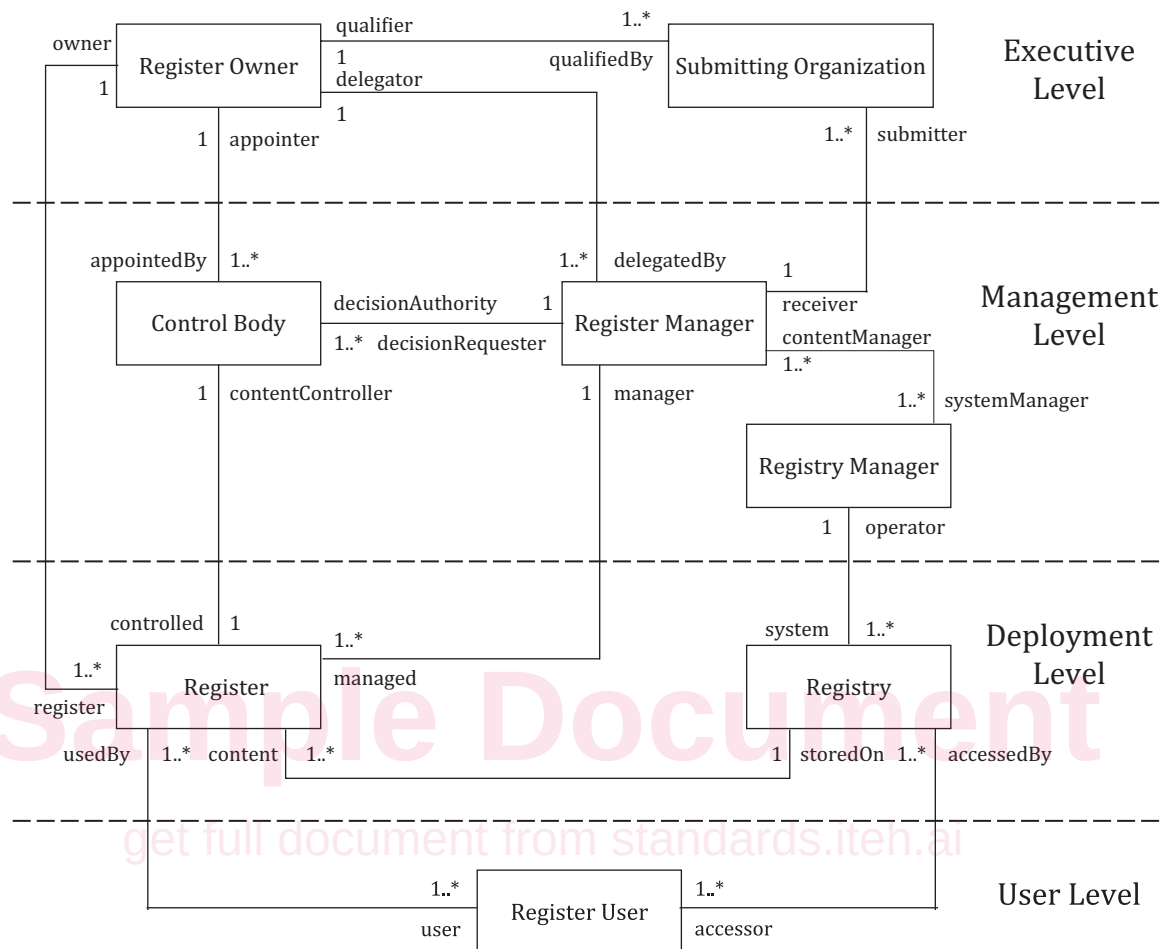


Figure 1 — Organizational relationships

5.2 Register owner

A register owner is an organization that

- has established one or more registers, and
- has primary responsibility for the management, dissemination and intellectual content of those registers.

Requirement 1. The register owner shall set terms and conditions regarding different levels of access to the register and making the contents available to the public. In addition, the register owner shall specify the time period in which the approval process shall be completed.

Requirement 2. The register owner shall appoint a register manager (5.3). A register owner may serve as the register manager for any register that it has established or it may appoint another organization to serve as the register manager.

Requirement 3. The register owner shall decide whether a control body (5.5) is required for the register and if so appoint the control body. The register owner may serve as the control body for any register that it has established or it may delegate that role to a subgroup within the organization or to the register manager.

Requirement 4. A register owner shall specify the criteria that determine which organizations may act as submitting organizations (5.4).

Requirement 5. The register owner shall clarify the process for a submitting organization to appeal decisions of the control body (if such a body is appointed). The register owner may establish a procedure for such a process. The specification of this procedure shall include appropriate time limits for completion of the process. An alternative solution may be for a submitting organization to resubmit a new proposal with changes or a better justification.

5.3 Register manager

5.3.1 Appointment of a register manager

A register owner may delegate the role of register manager to another organization. This is the usual case for registers established by ISO or IEC Technical Committees. A register manager may manage multiple registers.

5.3.2 Responsibilities of a register manager

Requirement 6. A register manager shall manage a register in conformance with [Clause 6](#).

Requirement 7. Upon request, the register manager shall distribute an information package containing a description of the register and how to submit proposals for changes to the content of the register. The information package shall describe what proposed changes to the content may be considered to be substantive (6.3.1).

Requirement 8. The register manager shall accept proposals from submitting organizations and manage the proposals as specified in 6.4. The register manager shall pass proposals to the control body (5.5) for decisions as to acceptability and shall serve as the point of contact between the control body and the submitting organization for negotiations regarding changes to the proposal.

Requirement 9. The register manager shall determine whether a submitting organization is qualified in accordance with the criteria established by the register owner.

5.4 Submitting organizations

A submitting organization is an organization that is qualified under criteria determined by the register owner to propose changes to the content of a register.

5.5 Control body

A control body is a group of technical experts appointed by a register owner to decide on the acceptability of proposals for changes to the content of a register ([Clause 7](#), [Clause 8](#), and [Annex B](#)). A control body may not be required for simple registers.

Requirement 10. If a control body is appointed, it shall accept proposals from the register manager and render a decision regarding each proposal within the time limits specified by the register owner.

5.6 Registry manager

A registry manager is a person or an organization responsible for the day-to-day management of a registry. A register manager may engage a third-party service provider to perform this service.

Requirement 11. A registry manager shall ensure the integrity of any register held in the registry ([6.8](#)) and shall provide means for electronic access to the registry for register managers, control body members, and register users.

5.7 Register user

Register users access a registry in order to use one or more of the registers held in that registry. Register users include any person or organization interested in accessing or influencing the content of a register. Users have a variety of requirements from registered data:

- developers of standards and specifications want to re-use items specified in a register;
- data producers want to use in their products items specified in a register;
- data users want to understand the meaning of register items;
- system developers want to provide a capability to use register items in data production, interchange, or consumption.

Register users may have different levels of access to the register as defined by the register manager.

Register users vary in the frequency of access they need, from the occasional data user who may need to determine the meaning of a register item on a very infrequent basis, to the data producer who may need to use values from a register many times a day.

Requirement 12. Register managers shall consider the requirements of different categories of users in selecting methods for publishing the content of a register ([Clause 7](#), [Clause 8](#), and [B.2](#)).

6 Management of registers

6.1 Establishment of registers

Any organization may establish a register. A register established by an ISO Technical Committee (TC) or Subcommittee is an ISO register. In establishing registers, ISO Technical Committees are required to follow the general rules specified in the ISO/IEC Directives, but may develop detailed rules and procedures to satisfy their own requirements.

Establishment of ISO/TC 211 registers is described in [Annex C](#).

Requirement 13. Every register shall have a technical document describing the item classes to be registered.

6.2 Status of register items

Requirement 14. Items shall be individually managed, moving through a set of well-defined states. Information about the temporal history of each item shall be maintained.

Normally only the valid, superseded, and retired items are exposed when the contents of a register are made available to the public. Invalid items may also be exposed. Proposed and unaccepted items are part of the approval mechanism and are only required for management of the register.

An item in a register has a period of validity that begins on the date on which the proposal to register the item was accepted and ends on the date on which a decision to supersede, retire, or invalidate the item has been made. Although retired, superseded, and invalid items are no longer valid for use in the production of new data, they are kept in the register to support the interpretation of data produced before their retirement, supersession, or invalidation.

NOTE This does not imply that use of an unregistered item specified in a standard is somehow “invalid” until the item is registered. However, a reference using an item identifier can apply only to the specification of a register item.

Geographic information concepts represented in a register may change over time due to changes in requirements or technology, or for other reasons. By defining a series of items of the same item class, each with associated dates of validity, a register can identify how a particular concept has changed over a period of time.

Requirement 15. If an item is superseded by another item, the date the succession occurred shall be captured, along with references to and from the item that superseded it. At any given time, only one item in the series shall be “valid” (see 7.5.2).

6.3 Change of status of register items

6.3.1 General

Submitting organizations may make requests to add or modify register items. Modifications are of two kinds: simple clarifications that cause no substantive change to an item (6.3.3) and substantive changes.

6.3.2 Addition

Addition is the insertion into a register of an item that describes a concept not described by an item already in the register.

6.3.3 Clarification

Clarifications correct errors in spelling, punctuation, or grammar.

Requirement 16. A clarification shall not cause any substantive semantic or technical change to a registered item.

Requirement 17. Clarification shall be accomplished by updating the existing item in the register. The clarification shall be recorded with a justification of the change and the date on which the register transaction was made.

6.3.4 Invalidation

Requirement 18. If an item in a register is found to have substantive error, it shall be removed from the register entirely or it shall be left in the register, have its status changed to invalid, have a reference to the item(s) that replaced it, and have the date when the register transaction was made.

6.3.5 Retirement

Submitting organizations may submit requests for retirement of registered items that are no longer useful for producing data.

Requirement 19. Retirement shall be accomplished by leaving the item in the register, having its status changed to retired, and including the date on which the register transaction was made.

6.3.6 Supersession

Requirement 20. If a register item is deemed to be no longer suitable for the use in the production of new data and has been superseded by a new register item, either (a) it shall be removed from the register or (b) the original item shall remain in the register, shall have its status changed to superseded, have a reference to the item(s) that superseded it, including the date on which the register transaction was made.

6.4 Submission of proposals

6.4.1 Process of submitting

[Figure 2](#) describes the process of submitting proposals. An example of the process for submitting proposals for registration of items of geographic information including the appeal process is illustrated in [Annex D](#).

The internal process for submitting proposals may vary from register to register; however, the procedures in [6.4.2](#) shall be fulfilled.

6.4.2 Submitting organizations

The submitting organization is responsible for

- a) ensuring that proposals are complete,
- b) coordinating proposals with other submitting organizations, if desired,
- c) forwarding the proposal to the appropriate register manager, and
- d) explaining proposals to the register manager or register owner, if necessary.

6.4.3 Register manager

The register manager

- a) shall receive proposals from qualified submitting organizations,
- b) shall review proposals for completeness, and return proposals to the submitting organization if the proposal is incomplete or if the submitting organization is not qualified,
- c) shall initiate the approval process ([6.5](#)), and
- d) if necessary, generate a proposal management record.

Requirement 21. The register manager shall review proposals received from third parties for completeness and return proposals to the submitting organization if the proposal is incomplete or if the submitting organization is not qualified, else initiate the approval process.