INTERNATIONAL STANDARD

ISO 19106

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Geographic information — Profiles

Information géographique — Profils

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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 19106 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

Introduction

The ISO geographic information standards define a variety of models for describing, managing, and processing of geospatial data. Some of these standards are creating elements, others are introducing structures and rules. Different user communities have different requirements for the extent they want to use or implement these elements and rules. Clearly identification and documentation of specific subsets of the ISO geographic information standards in a prescribed manner in conformance with these standards profiles are needed.

Some of the ISO geographic information standards are abstract and hence will not be implemented directly. To implement them, a specification must be created, which may consist of a choice from the options defined in one or more of the standards, or instances of the rules defined in one or more of the standards or a combination thereof. Not all of the components of the specification for an implementation of the ISO geographic information standards will be derived entirely from the ISO standards. This document focuses on the definition and creation of those components that are derived entirely from the ISO geographic information standards.

An ISO geographic information profile is a subset of one or several of the ISO geographic information standards. For example, there may be a profile from ISO 19115 developed to serve a particular application area such as cadastral mapping. The profile would consist of a choice of the metadata elements available in ISO 19115. ISO 19115 would serve as a base standard for the development of the profile. An example for a base standard only introducing a methodology is given by ISO 19110. It contains methods for creating feature and attribute definitions. A profile of ISO 19110 would not contain instances of feature definitions, since there are no instances in the base standard from which to choose. A profile of ISO 19110 would contain only a subset of the rules and methods found in that standard.

The management of specifications or components of specifications that do not meet the definition of a profile is outside the scope of this International Standard. Each national standardization body or standards-setting organization, such as DGIWG[1)] or IHO[2)] can develop profiles for its own purposes. These organizations may follow this International Standard in creating such profiles, but those profiles do not become ISO geographic information profiles. If feature catalogues are considered, it is easy to see that there could be any number of catalogues developed using the ISO 19110 methodology. By applying the mechanisms of this International Standard to define a profile of ISO 19110 will guarantee that the resulting feature definitions contain the same components and are catalogued in a like manner, but it will not guarantee that the definitions of features and attributes within the catalogue are not conflicting. The catalogues will be consistent, but the definitions they contain will not. Each standards-setting organization or national body that develops a feature catalogue could define ‘roads’ or ‘rivers’ or ‘administrative boundaries’ differently. For this reason, specifications for implementing ISO geographic information standards, which are or contain specific instances of rules or methodologies and which are not derived entirely from the ISO geographic information standards, are treated differently from profiles. This document does not focus on those implementations that are not profiles.

Geographic information systems and software developers are expected to create implementations for specific purposes that make use of a limited set of concepts from the ISO geographic information standards. These sets of concepts will be implemented in a specific technical implementation environment, for example, one of the distributed computing platforms, such as CORBA, or the World Wide Web environment. Since the standardization of specific computing environments is outside the scope of ISO/TC 211, specifications that address the implementation of ISO geographic standards in those environments will not be considered as ISO geographic information profiles of ISO/TC 211, but as independent specifications.

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1) DGIWG - Digital Geographic Information Working Group - Category A liaison organization to ISO/TC 211.

2) IHO - International Hydrographic Organization - Category A liaison organization to ISO/TC 211.

This International Standard does not address the creation of specifications for implementing ISO geographic standards in specific technical implementation environments.

ISO 19109 defines the rules for the development of an application schema, including how the elements of conceptual schemas defined in other ISO geographic information standards are combined in an application schema. ISO 19109 guides the creation of application schemas, which is outside the scope of ISO 19106. An application schema by definition is not a profile but may integrate subsets of standardized schemas that are profiles.

Two classes of conformance are defined in this International Standard (see Clause 2).

Geographic information — Profiles

1 Scope

This International Standard is intended to define the concept of a profile of the ISO geographic information standards developed by ISO/TC 211 and to provide guidance for the creation of such profiles. Only those components of specifications that meet the definition of a profile contained herein can be established and managed through the mechanisms described in this International Standard. These profiles can be standardized internationally using the ISO standardization process. This document also provides guidance for establishing, managing, and standardizing at the national level (or in some other forum).

2 Conformance

Two classes of conformance are defined in this International Standard.

Conformance class 1 is satisfied when a profile is established as a pure subset of the ISO geographic information standards, possibly together with other ISO standards. Such a profile may be processed in accordance with the rules defined in this International Standard as an ISO geographic information standard in its own right.

Conformance class 2 allows profiles to include extensions within the context permitted in the base standard and permits the profiling of non-ISO geographic information standards as parts of profiles. When such a profile adds any information that is not covered in a base ISO geographic information standard or other ISO standard, then the profile will not be processed as an ISO geographic information standard but may be established under the authority of the standards organization, member body or liaison organization making the profile.

Any profile claiming conformance to this International Standard shall satisfy all the requirements found in the abstract test suite found in Annex A in accordance with the conformance class chosen.

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 amendments) applies.

ISO 19101:2002, *Geographic information — Reference model*

ISO 19105:2000, *Geographic information — Conformance and testing*

ISO/IEC TR 10000-1:1998, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 1: General principles and documentation framework*

ISO/IEC TR 10000-3:1998, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 3: Principles and Taxonomy for Open System Environment Profiles*

ISO/IEC *Directives, Part 2: Rules for the structure and drafting of International Standards*

NOTE 1 ISO/IEC TR 10000-1:1998 describes the methodology for profiles used in ISO/IEC JTC 1. Much of this Technical Report is applicable to the work in ISO/TC 211 and sections of this document have been adapted to apply to the requirements of ISO/TC 211 under the context of the ISO/IEC Directives.

NOTE 2 ISO/IEC TR 10000-1:1998 has a special status in ISO and may be referenced normatively, even though it is a Technical Report.

4 Terms and definitions

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

4.1
abstract test suite
ATS
abstract test module specifying all the requirements to be satisfied for conformance

[ISO 19105]

4.2
base standard
ISO geographic information standard or other information technology standard that isused as a source from which a profile may be constructed

4.3
Implementation Conformance Statement
ICS
statement of specification options that have been implemented

[ISO 19105]

4.4
open systems environment
OSE
comprehensive set of interfaces, services and supporting formats, plus user aspects, for interoperability and/or portability of applications, data, or people, as specified by information technology standards and profiles

[ISO/IEC TR 10000-1:1998]

4.5
profile
set of one or more base standards or subsets of base standards, and, where applicable, the identification of chosen clauses, classes, options and parameters of those base standards, that are necessary for accomplishing a particular function

[adapted from ISO/IEC TR 10000-1:1998]

NOTE A profile is derived from base standards so that by definition, conformance to a profile is conformance to the base standards from which it is derived.

5 Abbreviated term

ISP International Standardized Profile

NOTE ISP is an ISO/IEC JTC 1 abbreviation used here to refer to an ISP in ISO/IEC JTC 1.

6 Context of profiles

ISO is developing a series of geographic information standards, the ISO 19100 series, that address the entire field of geographic information. These International Standards may be used singularly or together to address the needs of specific applications. The ISO geographic information series of standards is flexible in allowing a large number of options that may be tailored to suit any application.

Flexible standards are important because they allow many different situations to be modelled. Essentially the ISO geographic information series of standards provides rules and the components that can be applied and assembled to address virtually any application related to geographic information. Most of the ISO geographic information standards define rules for modelling certain aspects of geographic information. Some of the standards define explicit components, such as metadata elements for geographic information. Others of the standards give support that provides consistency across the series of standards. Several of the standards define the way that these components or the results of the application of the rules can be assembled. ISO 19109 defines the rules for the development of an application schema, which may include reference to elements from other of the ISO 19100 series of standards.

A profile may consist of a choice from the clauses, classes, options and parameters of base standards, or other profiles. This International Standard describes the procedures for the development of profiles. Registration is outside the scope of this International Standard. Examples of profiles are given in Annex B.

Clause 7 describes the purpose of profiles. Clause 8 describes how profiles reference base standards. Clause 9 describes the content of a profile and Clause 10 describes conformance requirements. Clause 11 describes the method for identifying profiles. Clause 12 describes the structure of documentation for profiles. Clause 13 describes the procedures for the preparation and adoption of profiles. Annex A describes the abstract test suite for conformance to ISO 19106. Annex B presents examples of profiles, Annex C describes the conformance methodology.

7 Purpose of profiles

Profiles define combinations of elements derived from a set of one or more base standards for the following purposes:

— identifying those base standards, together with appropriate classes, conforming subsets, options and parameters, which are necessary to accomplish identified functions for purposes such as interoperability;

— providing a means to enhance the availability of consistent implementations of functionally defined groups of base standards, which are expected to be the major components of real application systems;

— promoting uniformity in the development of conformance tests for systems that implement the functionality of profiles.

A profile shall provide a clear identification of the specific user requirements that are satisfied by that profile.

8 How profiles reference base standards

8.1 Relationship to base standards

Some base standards provide options allowing for a variety of applications. Base standards may also be combined in various ways in different applications. Profiles promote integration of base standards by defining how to use a combination of base standards for a given functional environment.

Profiles shall not contradict base standards, but may make choices where options and ranges of values are available.

8.2 Use of references

8.2.1 Normative references

Profiles shall comply with the ISO/IEC Directives, Part 2, in their use of normative references.

To meet conformance class 1, a profile shall make normative references only to base standards and other profiles standardized internationally under this International Standard and ISPs or standards standardized under the rules of ISO/IEC JTC 1.

References may be made to ISO/IEC Technical Reports under the following conditions.

— No base standard addressing the requirement is available.

— The use is identified and a document explaining why the reference is needed is written and supplied with the proposed draft for a profile, justifying that use.

— ISO/TC 211 or other ISO/IEC body responsible for that Technical Report agrees that a normative reference is an appropriate use of that Technical Report.

— National Bodies approve the usage in the draft ballot.

[Adapted from ISO/IEC TR 10000-1:1998, 6.1.2]

To meet conformance class 2, a profile may also make normative references to material defined outside of ISO/TC 211 or ISO/IEC JTC 1; however, such a profile will not be processed as an ISO geographic information standard (see Clause 11).

8.2.2 Informative references

It may be useful to make informative references in a profile, and these informative references shall be listed in the bibliography.

In those cases where a required element of functionality that does not exist in an approved base standard needs to be described, the profile shall be drafted in such a way that it clearly identifies what required functionality is missing from the profile. In addition, the profile may make informative reference to examples of possible specifications which the user of the profile may choose to implement in conjunction with the profile to complete the desired function [adapted from ISO/IEC TR 10000-1:1998, 6.1.4 c].

Within a profile, references to national standards shall be placed within informative text, or in a separate informative annex. Reference shall be made to the body responsible for the distribution and maintenance of the standard.

Informative references may be made to provide background material helpful in understanding the profile.

NOTE These rules parallel those given in ISO/IEC TR 10000-1:1998.

Profiles developed at the national or industrial level, or developed in other international committees may make normative and informative reference to ISO-defined base standards and profiles that have been assigned ISO numbers. They may also make reference to national standards or industrial specifications in accordance with the rules defined by the body developing the profile.

9 Content of a profile

9.1 General principles of content of profiles

A profile makes explicit any relationships that may exist within a set of base standards used together (relationships which can be implicit in the definitions of the base standards themselves), and may also specify particular details of each base standard being used.

A profile may refer to other profiles in order to reference functions and interfaces defined by them, and thus limit its own direct reference to base standards. The registration of profiles allows them to be explicitly referenced (normatively or informatively) within other profiles. Profiles of ISO/TC 211 base standards at conformance class 1 will receive ISO standard numbers, which will serve as the registration for these standards (see Clause 11).

9.2 Characteristics of a profile

A profile

a) may restrict the choice of options defined in base standards to the extent necessary to achieve the objective of the profile. A profile may retain base standard options as options of the profile;

b) shall not specify any requirements that would contradict or result in non-conformance to the base standards to which it refers;

c) may contain conformance requirements which are more specific and limited in scope than those of the base standard to which it refers.

Thus, by definition, conformance to a profile implies conformance to the set of base standards to which it refers. However, conformance to that set of base standards does not necessarily imply conformance to the profile [adapted from ISO/IEC TR 10000-1:1998].

9.3 Elements of a profile

9.3.1 A profile shall comprise the following elements: [Requirements a) to h) align with those given in ISO/IEC TR 10000-1:1998 for profiles.]

a) a concise definition of the scope of the function which the profile supports and the user requirements which it will satisfy, that may be used as an executive summary of the profile;

b) a description of the context in which a profile is applicable, giving, where relevant, a description of all interfaces;

c) a statement of the community of interest to which it is addressed;

d) normative references to a set of base standards or profiles, including precise identification of the actual texts of the base standards or profiles being used, together with identification of any approved amendments and technical corrigenda (corrections), conformance to which is identified as potentially having impact on achieving interoperability or portability using the profile;

e) specifications of the applications of each referenced base standard or profile, stating the choice of classes or conformance subsets, and the selection of options, ranges of parameter values, for profiles;

f) a statement defining the requirements to be observed by systems or data sets claiming conformance to the profile, including any remaining permitted options of the referenced base standards or profile;

g) where relevant, a reference to the specification of conformance tests for the profile;

h) informative reference to any amendments or technical corrigenda to the base standards referenced in the profile, which have been determined to not be relevant. Technical amendments or corrigenda to a referenced base standard that exist at the time that a profile is produced, and which are not relevant to the profile, should be referenced informatively to indicate that they are not relevant to the profile. Otherwise, the user of the profile would have to investigate the technical amendment or corrigenda to determine whether it was relevant.

9.3.2 Profiles of the ISO geographic information series of geographic information standards also require the following.

a) A profile of conformance class 1 shall include the words “Profile of …” in its scope and/or title. As these profiles will receive ISO standard numbers, the title will distinguish ISO geographic information profiles from the ISO series of geographic information base standards.

b) A profile shall be developed within the framework defined by ISO 19101.

c) The normative reference to the clauses and subclauses in the ISO series of geographic information standards shall be explicit; that is, references shall be to specific clauses that define elements of functionality, together with parameters that involve options within the elements. The text of sections of the standards shall not be quoted in the body of a profile with minor alterations to narrow their usage, as this creates a document that would be very hard to maintain if the base document were to change.

10 Conformance requirements of a profile

10.1 Conformance conditions

10.1.1 Conformance requirements may be

a) mandatory requirements that shall be observed in all cases;

b) optional requirements that may be selected to suit the implementation, provided that any requirements applicable to support the option are observed.

10.1.2 In addition, conformance requirements may be specified

a) unconditionally, in that: these requirements or options apply without qualification;

b) conditionally, in that the requirements shall be observed if the specified conditions apply, e.g. they are mandatory under certain specified conditions, are optional under other specified conditions, and outside the scope or not applicable under other specified conditions.

10.1.3 Furthermore, conformance requirements may be stated

a) positively in that they state what shall be done;

b) negatively in that they state what shall not be done.

To evaluate the conformance of a particular profile, it is necessary to have a statement of the capabilities which have been included in support of one or more specifications, specifically including the relevant optional capabilities and limits, so that the profile can be tested for conformance to the relevant requirements, and only to those requirements [adapted from ISO/IEC TR 10000-1:1998, 6.4].

10.2 Relationship to base standard conformance requirements

The conformance requirements of a profile shall relate to the conformance requirements in the base standards in the following ways [adapted from ISO/IEC TR 10000-1:1998, 6.5].

a) Mandatory requirements in the base standard shall remain mandatory in the profile.

b) Options in base standards may remain optional or may be changed within the profile to become

- mandatory;
- conditional, giving rise to different statuses dependent on some appropriate condition;
- out-of-scope, if the option is not relevant to the scope of the profile, for example, functional elements which are unused in the context of the profile;
- prohibited, if the use of the option is to be regarded as non-conformant behaviour within the context of the profile. This choice shall be used only when absolutely necessary, as the “out-of-scope” option may often be more appropriate.

11 Identification of profiles

This International Standard defines the procedures for the development of profiles within ISO/TC 211. Profiles need to be uniquely identified so that they can be referenced in other profiles and implementations.

Profiles of the ISO geographic information standards of conformance class 1 may be processed as standards through the ISO standardization process. As such, they will receive an ISO standard number which will serve as a unique identification. Maintenance for a profile that has been processed as a standard is the same as that for a standard. Profiles may also be developed with less formal status at either conformance class 1 or conformance class 2, at the international or at the national, industrial or private level. The identification of such profiles is left to the organization, standards body, or member body of the liaison organization establishing such a profile; however, ISO/TC 211 may maintain a list of such profiles that are of international interest.

The titles and scopes of profiles shall clearly indicate their status. It is recognized that titles should be relatively short and that only a limited amount of information can be included in a title. However, the scope statement for a profile shall identify the following:

a) type of profile (profile of a single standard, multi-standard profile, profile of a profile);

b) function performed by the profile;

c) intended user community for the profile;

d) type of documents (referenced standards, series of standards) from which the profile is derived.

NOTE A profile could be a profile of a single standard, and one would expect to see the referenced standard identified in the scope. However, a profile might be derived from many of the series of geographic information standards, where the sources would be referenced more generally by topic area. Normative references would, of course, be listed in the Normative References clause of the profile.

This International Standard specifies the structure of a profile and procedures for its development. Profiles of ISO geographic information standards, i.e. ISO/TC 211 base standards and relevant ISO/IEC JTC 1 information technology standards, at conformance class 1 may be submitted for acceptance as ISO geographic information profiles. These profiles will be processed as International Standards (see Clause 13). Profiles based on ISO geographic information standards, at either conformance class 1 or conformance class 2, may be also developed by other organizations under their own authority. These profiles will exist only under the authority of the external organization. ISO/TC 211 is responsible only for the standardization of profiles submitted for international standardization through ISO/TC 211.

12 Structure of a profile document

12.1 Principles

The requirements for content and format of profile documents are based on the following principles [adapted from ISO/IEC TR 10000-1:1998, 8.1].

a) Profiles shall be directly related to base standards, and conformance to a profile shall imply conformance to the base standards that it profiles.

b) Profiles shall follow the ISO/IEC *Rules for the drafting and presentation of International Standards* as given in the ISO/IEC Directives, Part 2.

c) Profiles shall be concise documents which do not unnecessarily repeat the text of the documents to which they refer. The reliance on references is therefore important. A profile may contain explanatory text both quoted and adapted from a base standard. This may be necessary so that the profile is readable by a user. Such explanatory text shall be marked as informative and the detailed reference to part of the base standard shall be marked as normative.

d) Profiles making identical use of a particular base standard shall be consistent, down to the level of identical wording for the identical requirements. Where possible, a conformance class should be defined in the relevant base standard so that more complex usage of base standards can be specified only once, and be referenced by several profiles.

e) The definition of one profile may include a reference to the definition of another profile in its totality.

12.2 Multi-part profiles

Where a close relationship between two or more profiles exists, a multi-part profile may be defined. A multi-part profile will be defined as a multi-part standard. This set of profiles shall share common text where appropriate. Each part of a multi-part profile shall be sufficiently independent so that it can be approved in a separate ballot [adapted from ISO/IEC TR 10000-1:1998].

12.3 Format and structure of a profile

The document structure of a profile is specified in Table 1. A profile shall follow the rules for the definition of a profile defined in this International Standard, as well as the rules defined in ISO/IEC Directives, Part 3, *Rules for the structure and drafting of International Standards*.

In addition to normative specifications, a profile shall record the rationale for the technical choices made during the development of the profile as an informative annex. This will assist in the use and maintenance of the profile.

Table 1 — Structure of a profile

Clause number	Title or description
—	Foreword
—	Introduction
1	Scope
2	Conformance
3	Normative references
4	Terms and definitions
5	Symbols and abbreviations
6	Clauses defining requirements related to each base standard
Annexes	Providing additional normative information, such as, the profile conformance requirement or containing informative information, such as, explanatory and/or tutorial material as required

13 Profile preparation and adoption

The procedure for developing and publishing a profile is the same as for a standard. These procedures are detailed in the ISO/IEC Directives, Part 1. The development of a profile that receives an ISO standards number requires the submission of a new work item proposal; the steps in the preparation of a profile are the same as for the development of a standard. In fact, a profile is a standard related to a particular group of interest. There are three additional requirements to the development of a profile above those for a base standard, as follows.

— A profile shall include the term profile in its scope and/or title.

— A profile shall indicate its relationship to base standards and other profiles.

— A short description shall be prepared by the originator of a committee draft for a profile and shall be submitted with the committee draft. In addition to general information about the profile, it shall contain sections covering the base standards.

A profile may be developed before all of the base standards or other profiles on which it depends are completed. However, a profile may not proceed to an approval stage beyond that of any of the standards to which it makes normative reference.

Annex A
(normative)

Abstract test suite for conformance to ISO 19106

A.1 General

Two classes of conformance are defined in this International Standard. The conformance tests described below apply to all profiles established in accordance with this International Standard, unless otherwise indicated. Those conformance tests that apply to only the more stringent conformance class 1 are indicated within the definition of the abstract test.

A.2 Test for conformance with profile definition

The test for conformance with profile definitions is as follows.

a) test purpose — Verify that a profile complies with the definition of a profile;

b) test method — Test that a profile is comprised only of elements from referenced base standards, consisting of chosen clauses, classes, options and parameters from those base standards that are necessary for accomplishing a particular function;

c) reference — This International Standard;

d) test type — Capability test.

A.3 Test for conformance as a profile of the ISO geographic information series of standards

The test for conformance as a profile of the ISO geographic information series of standards is as follows. This test applies to conformance class 1 only.

a) test purpose — Verify that a profile is a valid profile, with clauses, classes, options and parameters chosen from the ISO geographic information series of standards;

b) test method — Test that a profile is comprised only of elements from referenced ISO geographic information base standards and standards or ISPs standardized under the rules of ISO/IEC JTC 1;

c) reference — This International Standard;

d) test type — Capability test.

A.4 Test for conformance conditions

The test for conformance conditions is as follows.

a) test purpose — Verify that a profile complies with the conformance conditions specified in 10.1;

b) test method — Test that the profile includes an explicit statement of the capabilities which have been included in support of one or more specifications, specifically including the relevant optional capabilities and limits, so that the profile can be tested for conformance to the relevant requirements, and only to those requirements;

c) reference — This International Standard;

d) test type — Capability test;

A.5 Test that a profile inherits the conformance requirements of base standards

The test that a profile inherits the conformance requirements of base standards is as follows.

a) test purpose — Verify that a profile inherits the conformance requirements of the referenced base standards according to the relationship specified in 10.2;

b) test method — Test that the profile inherits the conformance requirements of the referenced base standards in accordance with the relationship specified in 10.2, by applying all relevant test suites given in the conformance clauses of the referenced standard or standards. If a profile profiles more than one base standard, then the abstract test suites of all of the referenced parts shall be applied;

c) reference — This International Standard;

d) test type — Capability test.

A.6 Test for additional constraints in a profile

The test for additional constraints in a profile is as follows.

a) test purpose — Verify that any additional constraints established in a profile are in compliance with 10.1;

b) test method — Test that mandatory requirements in the base standard remain mandatory. Test that a profile does not specify any requirements that contradict or result in non-conformance with the base standards to which it refers;

c) reference — This International Standard;

d) test type — Capability test.

A.7 Test for extension within the context of a base standard

The test for extension within the context of a base standard is as follows. This test applies to conformance class 2 only.

a) test purpose: Verify that any extensions within the context permitted in the base standard do not invalidate implementations of the base standard;

b) test method: Test that any extension defined within a profile, as permitted within the context established in the base standard being profiled, does not invalidate any implementation of the base standard alone. Any subdivision of an element defined in a base standard into additional sub-elements in the profile shall be done so that an implementation of the base standard can interpret the data without the additional subdivision in a manner that still conforms to the base standard;

c) reference: This International Standard;

d) test type: Capability test.

A.8 Test for a profile including specialization

The test for a profile including specialization is as follows. This test applies to conformance class 2 only.

a) test purpose: Verify that any specializations of relationships in a profile are compliant to the relationships in the base standard;

b) test method: Test that any specializations of relationships in a profile are in compliance with the relationships in the base standard by ensuring that attributes and relations are inherited from the base standard, and that relations at the supertype level can be specialized to the subtype level. Constraints such as multiplicity may be further constrained, and order of elements may be introduced. Any specialization of an attribute or relationship from a base standard in a profile shall be done so that an implementation of the relationship or attribute as defined in the base standard remains valid and data can be correctly interpreted by an implementation of the base standard alone;

c) reference: This International Standard;

d) test type: Capability test.

Annex B
(informative)

Examples of profiles

B.1 Introduction

This annex provides examples of profiles of the ISO series of geographic information standards and of associated external standards and specifications, in order to illustrate the meaning of a profile within the context of this International Standard.

This International Standard defines two classes of conformance.

At conformance class 1, a profile is a strict mathematical subset of the elements defined in a standard or specification being profiled.

A profile at conformance class 1 may also include user-extensions to narrow the choice of options. The narrower the choice of options, the more consistent the data produced in accordance with the profile. However, the narrower the choice of options, the more focused the profile is to a particular application.

Examples in B.2, B.3, B.4 and B.5 illustrate profiles at conformance class 1.

At conformance class 2, extensions are regarded as profiles as long as they are within the context defined in the base standard and an implementation of the profile recognizes and assigns meaning to the elements consistent with the standard. Since a profile is a subset, a full implementation of a standard also supports the subset. If a profile includes extensions to a base standard, within the context defined in that base standard, then an implementation of the base standard will also support the profile including the extension. For example, if a standard includes a metadata element to describe an administrative unit in free text in an address, then an application could add a user-extension to use a code list of provinces (or states, or länder).

Examples in B.6, B.7, B.8 and B.9 illustrate profiles at conformance class 2. The example in B.6 illustrates several extensions within the context defined in a base standard. This example is at conformance class 2 because some of the extensions provide additional details; however, if the example included only the three aspects of defining a more stringent code list, applying a more stringent optionality obligation or making use of the multi-lingual support provision included in the base standard, then the profile would be at conformance class 1.

B.2 Example of a profile of a single base standard

This example complies with conformance class 1.

Figure B.1 illustrates a simple profile, which is a subset of the metadata elements in one of the ISO geographic information base standards. ISO 19115 defines over 200 metadata elements, with most being listed as optional. This wide range of possible metadata elements may address all types of geographic information. However, a usage may require only a subset of the available metadata elements. This example of a profile shows the mandatory core metadata elements as defined in ISO 19115:2003, Table 3. This is a theoretical profile since it may be too short for any practical application. It is shown here to illustrate what is meant by a subset of a base standard without any user extension.

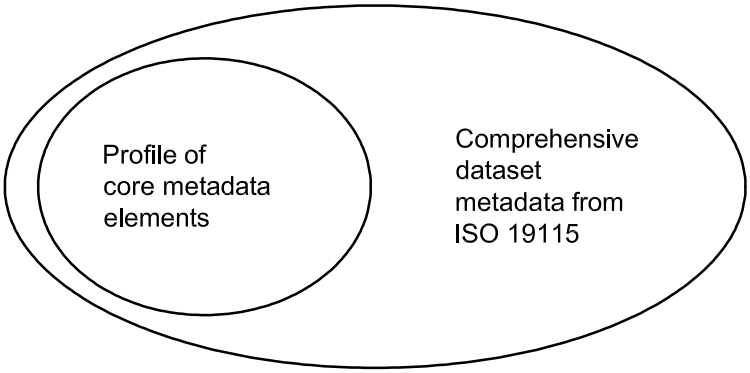


Figure B.1 —Example of a profile using concepts and structures from one standard

Software which has been written to recognize and interpret the meaning of data defined in accordance with the base standard also recognizes and interprets the meaning of data defined in accordance with this profile because it is a pure subset.

This example is also provided in a tabbed-outline format. The row number indicates where the metadata element appears in Annex B of ISO 19115:2003; this is followed by the metadata section name, metadata entity name, or metadata element name and then by the metadata obligation, where “M” means “mandatory”, “O” means “optional” and “C” means “conditional”.

From ISO 19115:2003

1 MD_Metadata (M)
- 3 language [of metadata] (C)
- 4 characterSet [of metadata] (C
- 8 contact (M)
  - 376 CI_ResponsibleParty
    - 378 organisationName ©
    - 379 role (M)
- 9 dateStamp (M)
- 15 identificationInfo (M)
  - 23 MD_Identification
    - 24 citation (M)
      - 359 CI_Citation
        - 360 title (M)
        - 362 date (M)
          - 393 CI_Date
            - 394 date (M)
            - 395 dateType (M)
- 25 abstract (M)
- 39 language [of dataset] (M)
- 40 characterSet [of dataset] (C)
- 41 topicCategory (M)
- 42 geographicBox (C)
  - 343 EX_GeoBoundingBox
    - 344 westBoundLongitude (M)
    - 345 eastBoundLongitude (M)
    - 346 southBoundLatitude (M)
    - 347 northBoundLatitude (M)

A profile of a single base standard can include a subset, which is equivalent to the entire base standard. That is, a subset can equal the whole.

B.3 Example of a profile of with specializations

This example complies with conformance class 1.

In addition to extension of a base standard within the context described in the base standard, it is also permissible to develop a profile of a base standard that specializes some of the elements in the base standard. Specialization means more than just creating a subset of the base standard, since the relationship of a class of objects to other objects or other instances of itself might change. A good example of this exists within the CEN geographic information standards where CEN ENV 12160:1997 defines several spatial schema that are subsets of the schema defined in ISO 19107, as illustrated in Figure B.2. However, these subsets specialize the geometric objects by introducing constraints.

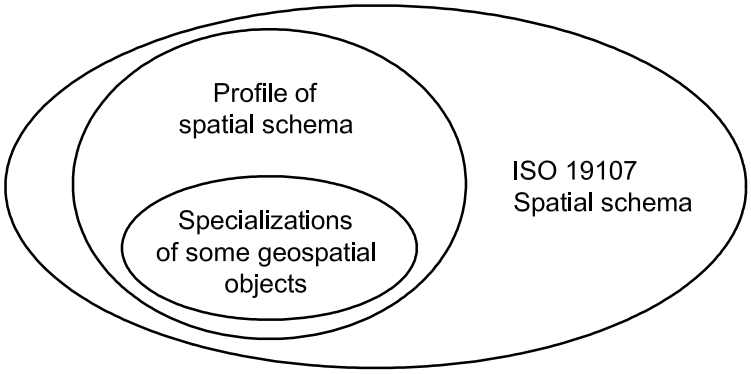


Figure B.2 —Example of a profile including specializations

This example is based on CEN ENV 12160:1997 and the CEN profile *Non planar graph linear network spatial schema G3*. This example schema is suitable for usage in application schemas for linear networks such as road and railway networks.

This example includes certain specializations which narrow the model down to a reasonable size for a certain domain. The principle for developing the profile is that the profile shall be a specialization and, as such, it shall follow certain rules:

- Only classes from ISO 19107 can be used.
- In an inheritance tree, certain subclasses can be picked and others can therefore be excluded from the model.
- All attributes and relations (including inherited ones) from ISO 19107 shall be present in the chosen classes.
- Attributes and relations can be specialized.
  - A relation at the supertype level can be specialized to the subtype level.
  - Multiplicity constraints can be constrained further, i.e., a 0..* can be constrained to 0, 0..1, 1 etc.
  - A *set* can be specialized to a *sequence of unique*.
  - A *bag* can be specialized to a *set*.
- Constraints can be specialized.

The fundamental idea behind specialization is that the specialization shall fit into the more generalized definition and present no problems for clients of data and/or interfaces that use the generalized definition. This also follows the rules of substitutability, which means that a general class can always be substituted by a specialized class in all contexts.

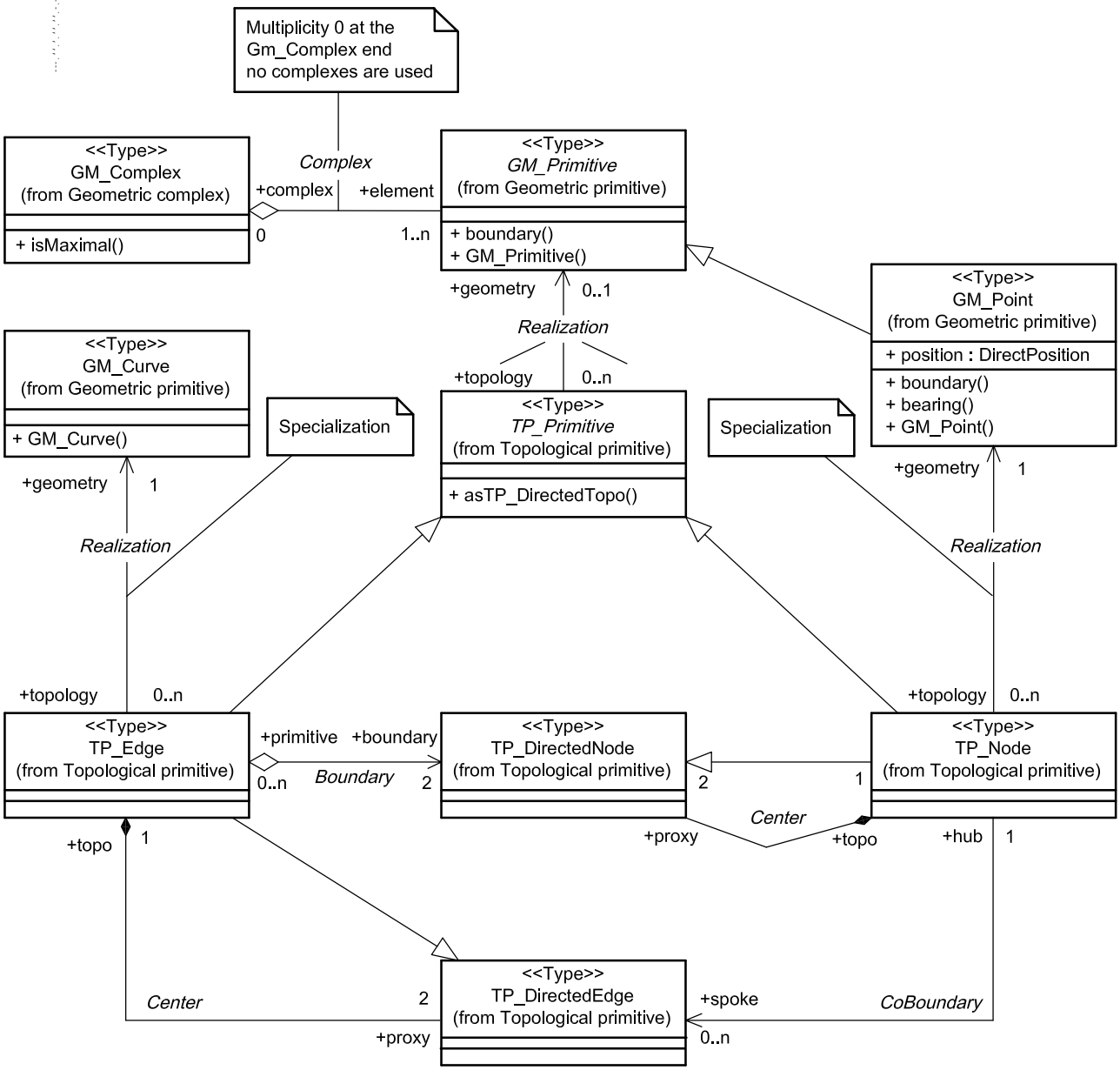


Figure B.3 — Geometry class hierarchy from ISO 19107:2003

The geometry classes hierarchy from ISO 19107:2003 is illustrated in Figure B.3 and the geometry classes hierarchy for the profile is illustrated in Figure B.4. The *Realization* relationship between *TP_Primitive* and *GM_Primitive* has been specialized at the specific levels *TP_Edge — GM_Curve* and *TP_Node — GM_Point*. Also note that the multiplicity at the geometry end is 1 instead of 0..1 to enforce that a topological object always has a geometric representation.

The specialization of the multiplicity (originally 0..n) between *GM_primitive* and *GM_Complex* says that this profile will not use geometric complexes. The reason for this is the constraint in the complexes that geometries that intersect shall be subdivided. This is an unwanted feature in this context since the networks may be defined in a coordinate dimension of 2 and still have intersections without topological connections at the intersection points. This may perhaps be solved in another way.

The referenced and inherited classes, Datatypes, Codelists, etc., are assumed to remain as defined in the standard.

The entire inheritance tree is supposed to remain the same and therefore all levels are not displayed in the diagram. *TP_DirectedNode* and *TP_DirectedEdge* inherit *TP_DirectedTopo* and therefore has the attribute *orientation*.

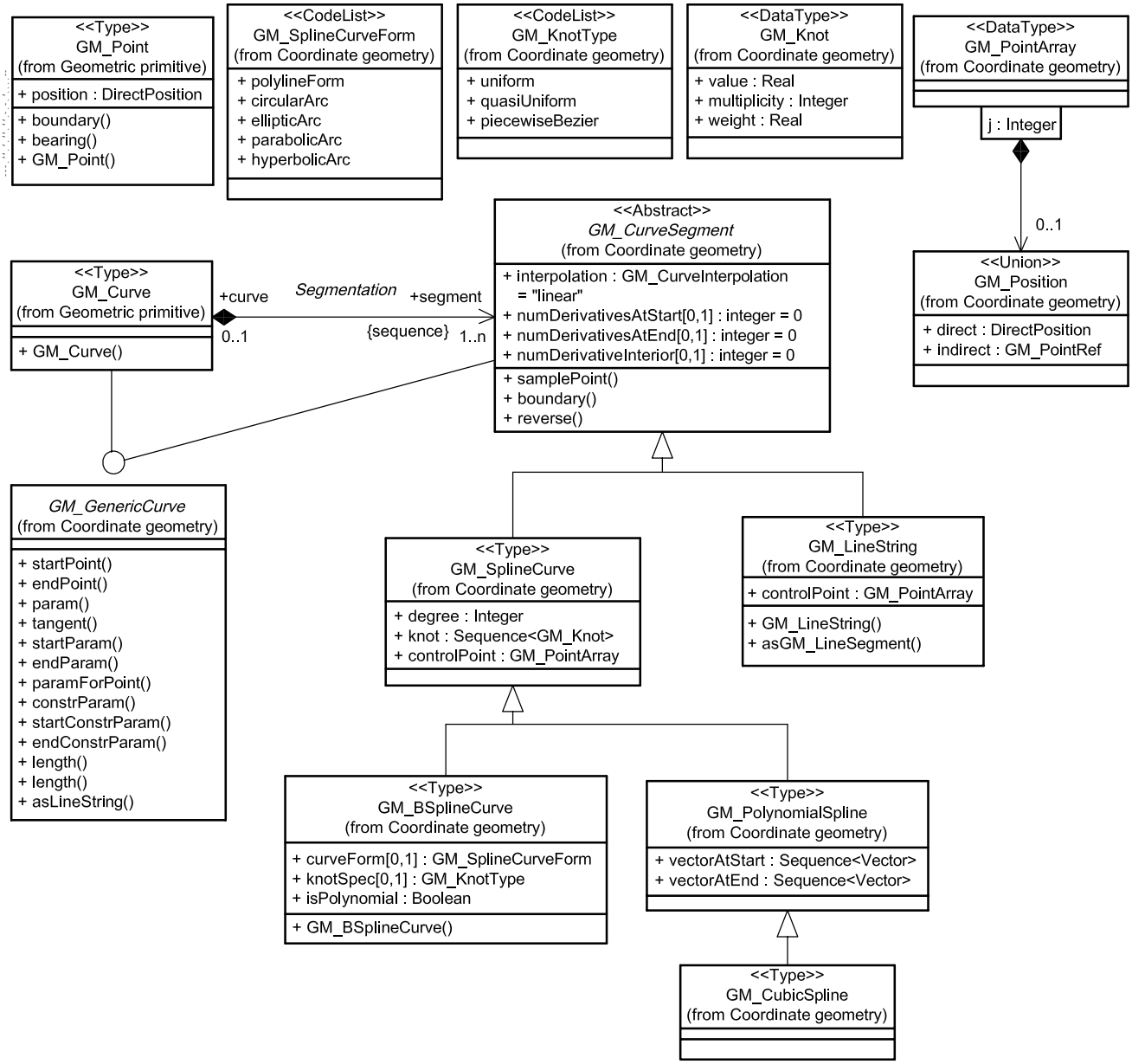


Figure B.4 — Geometry types used in the profile

The geometry types of this profile allow for using points and a couple of curve types. The allowed curve types are either *GM_LineString* or the different types of *GM_SplineCurve*.

The referenced and inherited classes, Datatypes, Codelists, etc., are assumed to remain as defined in the standard.

The entire inheritance tree is supposed to remain the same and therefore all levels are not displayed in the diagram. Both *GM_Point* and *GM_Curve* eventually inherit *GM_Object* and therefore have a relation to an *SC_CRS*.

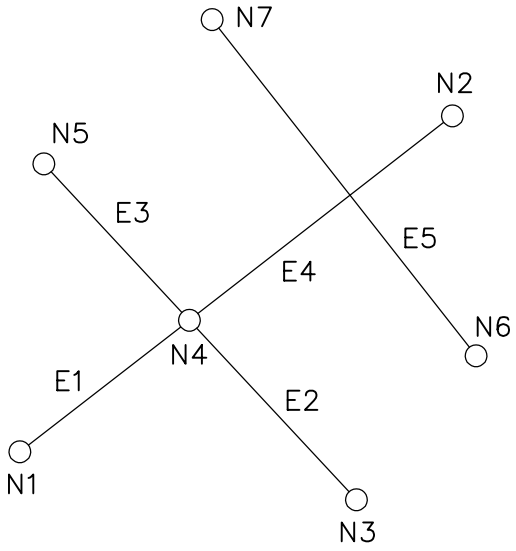


Figure B.5 — Example of data compliant to the profile

In Figure B.5, the instantiations for the topology can be as described below (where Cn and Pn are the respective geometric realizations, in a 2-dimensional coordinate system):

E1 = TP_Edge(boundary={N1,N4},geometry=C1)

N1 = TP_Node(spoke={E1},geometry=P1)

N4 = TP_Node(spoke={E1,E2,E3,E4},geometry=P4)

E2 = TP_Edge(boundary={N3,N4},geometry=C2)

N3 = TP_Node(spoke={E2},geometry=P3)

E3 = TP_Edge(boundary={N4,N5},geometry=C3)

N5 = TP_Node(spoke={E3},geometry=P5)

E4 = TP_Edge(boundary={N4,N2},geometry=C4)

N2 = TP_Node(spoke={E4},geometry=P2)

E5 = TP_Edge(boundary={N6,N7},geometry=C5)

N6 = TP_Node(spoke={E5},geometry=P6)

N7 = TP_Node(spoke={E5},geometry=P7)

A question in relation to the models is how the instantiation of the proxy attributes (=roles) for *TP_Edge* and *TP_Node* should be. In this case, the multiplicity has been specified as two in the spatial schema and therefore says that for every *TP_Edge* there shall always be two *TP_DirectedEdge* where one could be the *TP_Edge* itself. The same goes for *TP_Node*.

B.4 Example of a profile of multiple base standards

This example complies with conformance class 1.

A more complex situation arises when a profile selects a subset from more than one of the standards from the ISO suite of geographic information standards. An example is illustrated in Figure B.6. In this case, a position is described in space and time. The geometric position is defined by ISO 19107, the elements for describing the spatial referencing system are defined by ISO 19111 and the instant in time is defined as an attribute by ISO 19108.

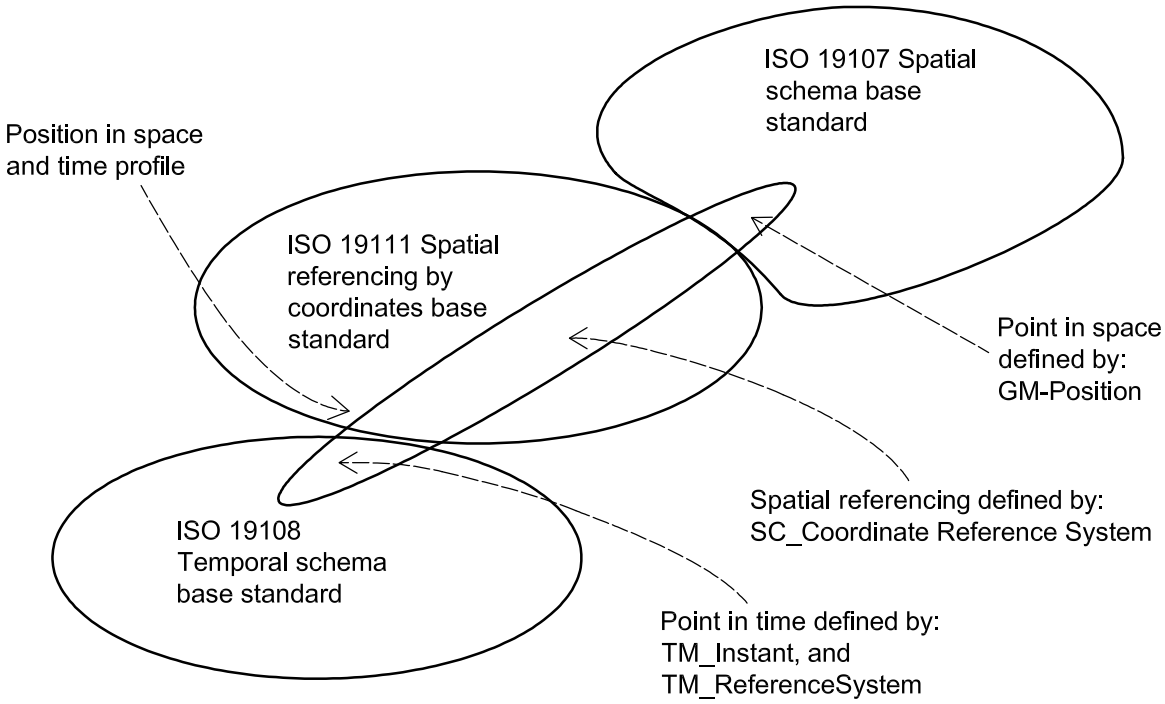


Figure B.6 —Example of a profile using concepts and structures from more than one standard

The following example makes use of elements from three ISO geographic information base standards to define a position in space and time. This is a profile for describing the spatial and temporal positions of point objects. Spatial position is described by coordinates referenced to a geodetic coordinate reference system. Temporal position is described as a date in the Gregorian calendar and time in UTC. The profile does not specify operations for any of the objects included. It conforms to ISO 19107, ISO 19108, and ISO 19111.

From ISO 19107:2003

GM_Point (6.3.11)
- position (6.3.11.3)
- CRS (6.2.2.17)

DirectPosition (6.4.1)
- coordinate (6.4.1.2)
- dimension (6.4.1.3)
- coordinateReferenceSystem (6.4.1.4)

From ISO 19111:2003

SC_CRS (6.2)
- KindCode

SC_CoordinateReferenceSystem (6.2)
- CRSID
- datum
- theSC_CoordinateSystem

SC_Datum (6.3.2)
- datumID

SC_GeodeticDatum (6.3.2)
- ellipsoid
- primeMeridian

SC_PrimeMeridian (6.3.3)

meridianID
GreenwichLongitude
SC_Ellipsoid (6.3.4)
ellipsoidID
semiMajorAxis
ellipsoidShape
SC_CoordinateSystem (6.4)
CSID
type
dimension
SC_CoordinateSystemAxis (6.4)
axisName
axisDirection
axisUnitID

From ISO 19108:2003

TM_Instant (5.2.3.2)
position
TM_Position (5.4.3)
indeterminatePosition
TM_CalDate (5.4.4.1)
calendarEraName
calDate
TM_ClockTime (5.4.4.2)
clkTime
TM_DateAndTime (5.4.4.3)

B.5 Example of a profile of a profile

This example complies with conformance class 1.

A profile may allow for some level of optionality. Given this, it is possible to develop a profile that would further narrow the choices available to the developer. For example as illustrated in Figure 7.B, ISO 19123 defines a set of grids that may be used for imagery and gridded data. These grids are a subset of the complete set of coverage types that are defined in ISO 19123. A profile may be defined as a subset of ISO 19123 that supports only gridded coverages.

A second profile may be defined that is more specific in that it only supports a particular type of gridded data. In this example, a profile is defined for a rectified grid with linear sequencing.

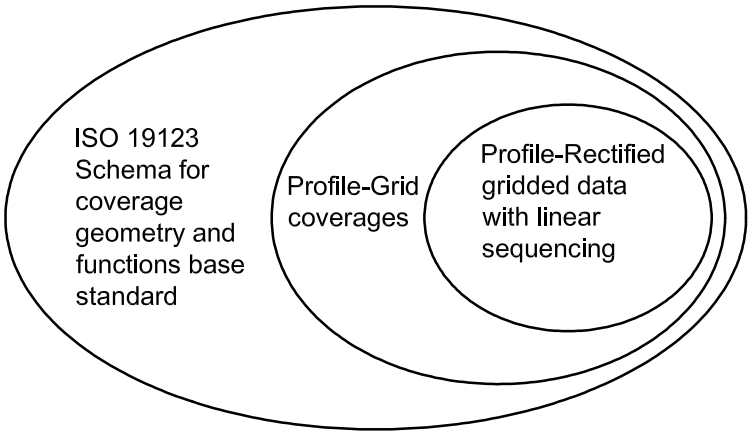


Figure B.7 —Example of a profile as a profile of a profile

This profile for grid coverages uses the following classes from ISO 19123, with all of their attributes, operations and associations, including those defined specifically for the class and those inherited from superclasses specified in ISO 19123:—but not listed here.

From ISO 19123:—

5.2.7	CV_InterpolationMethod
6.2.3	CV_Grid
6.2.4	CV_GridPoint
6.2.5	CV_GridCoordinate
6.2.6	CV_GridCell
6.2.7	CV_RectifiedGrid
6.2.8	CV_RectifiableGrid
6.3.1	CV_GridValuesMatrix
6.3.2	CV_GridPointValuePair
6.3.3	CV_GridRange
6.3.4	CV_SequenceRule
6.4	CV_DiscreteGridPointCoverage
6.5.1	CV_ContinousGridCoverage
6.5.2	CV_GridValueCell

A profile of this profile to support only two-dimensional rectified grids with linear sequencing and bilinear interpolation would

a) not use 6.2.8 CV_RectifiableGrid;

b) add to CV_Grid the constraint:

{self.gridDimension = 2};

c) use only the value “linear” from the codelist in 6.3.5 CV_SequenceType;

d) use only the value “bilinear” from the codelist in 5.2.7 CV_InterpolationMethod.

B.6 Example of a profile with permitted extensions

This example complies with conformance class 2.

Figure B.8 illustrates a profile that is a subset of the elements from a single base ISO geographic information standard together with extensions within the context defined in that base standard. Software which has been written to recognize and interpret the meaning of data defined in accordance with the base standard also recognizes and interprets the meaning of data defined in accordance with a profile, including these extensions because they were explicitly allowed for in the base standard.

ISO 19115 allows for extension of elements defined in the standard. This is described explicitly in Annex C of ISO 19115.

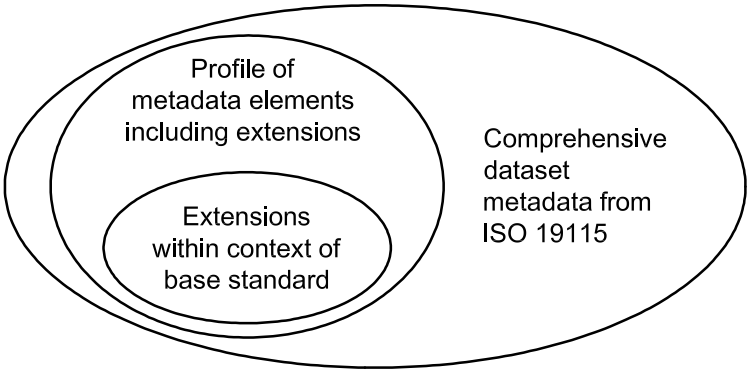


Figure B.8 —Example of a profile including extensions within the context of the standard

The following example of a profile includes five examples of user-extensions (shown in bold) that are within the context of the standard being profiled.

Type of Extension (per ISO 19115:2003)	Examples
• defining a more stringent code list (extension # 1)	This extension is used to allow only the two values "**custodian**" and "**distributor**" out of the 11 permitted from the code list in the base standard.
• applying a more stringent metadata obligation to an element, e.g. an optional element may become conditional or mandatory, or a conditional element may become mandatory (extension # 2)	This extension has changed the obligation from optional (**O**) to mandatory (**M**).
• providing more details for a metadata element (extension # 3); however, this has to be done without changing the concept behind of the element definition	Since the definition of the original metadata element "metadataStandardName" reads as follows: "name of the metadata standard (including profile name) used", this extension makes a distinction between the standard and the profile of the standard. **standardName (M)** **profileName (O)**
• implementing multi-lingual support for a free text metadata element (extension # 4)	This extension is used to describe the dataset's title in more than one language. This extension implements the method provided in ISO 19115, Annex K Multi-lingual support for free text metadata element. **4x LanguageCode (M)** **5x Country (O)** **7x plainText (M)**
• replacing a free text metadata element by a enumerated list (see user-extension # 5)	This extension is used to allow place names to be selected from a code list. An implementation, which supports a free text field, will recognize and display the code for the code list element as free text, so it would still support the profile. **state or province** **(from a code list)**

Example:

From ISO 19115:2003 1 MD_Metadata (M)

- 3 language [of metadata] (C)
- 4 characterSet [of metadata] (C)
- 8 contact (M)
  - 376CI_ResponsibleParty
    - 378 organisationName (C)
    - 379 role (M) **User-extension # 1:**
- 9 dateStamp (M)
- 10 metadataStandardName **user-extension # 2: (M)**
  - **user-extension # 3:**
  - **StandardName (M)**
  - **ProfileName (O)**
- 11 metadataStandardVersion (O)
- 15 identificationInfo (M)
  - 23 MD_Identification
    - 24 citation (M)
      - 359 CI_Citation
        - 360 title (M)
          - **user-extension # 4**
          - **4x LanguageCode (M)**
          - **5x Country (O)**
          - **7x plainText (M)**
        - 362 date (M)
          - 393 CI_Date
            - 394 date (M)
            - 395 dateType (M)
    - 25 abstract (M)
    - 29 pointOfContact (O)
      - 374 CI_ResponsibleParty
        - 376 organisationName (C)
        - 377 positionName (C)
        - 378 contactInfo (O)
          - 387 CI_Contact
            - 389 address (O)
              - 380 CI_Address
                - 381 deliveryPoint (O)
                - 382 city (O)
                - 383 administrativeArea (O)
                - **User-extension #5:**
                - **state or province code (from a code list)**

384 postalCode (O)

385 country (O)

386 electronicMailAddress (O)

379 role (M)

39 language [of dataset] (M)

40 characterSet [of dataset] (C)

41 topicCategory (M)

42 geographicBox (C)

343 EX_GeoBoundingBox

344 westBoundLongitude (M)

345 eastBoundLongitude (M)

346 southBoundLatitude (M)

347 northBoundLatitude (M)

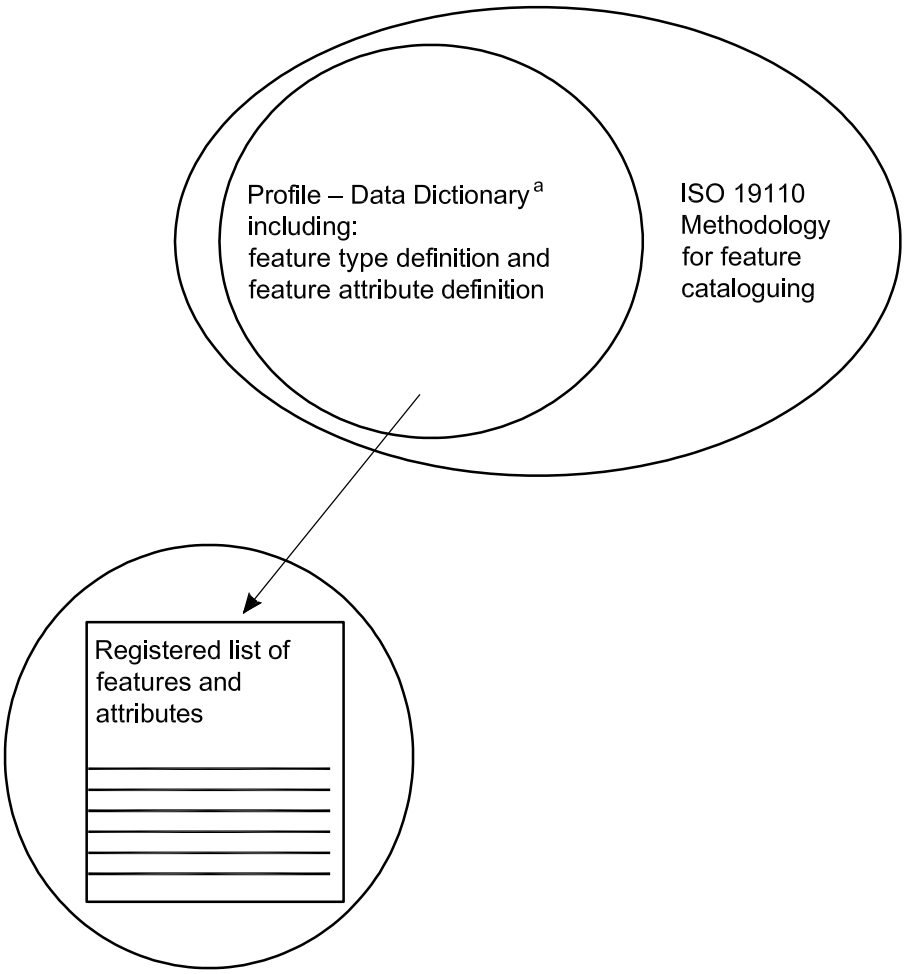
B.7 Example of a profile and an external list

This example complies with conformance class 2.

Many of the ISO geographic information standards define a methodology or a set of rules that shall be applied to create an implementation. A profile of such a standard is a subset of the rules that apply to a given application area. The conformance clauses of the standard may indicate what is a consistent set of rules that may be selected to address a particular application area. The results of implementing a methodology or rules-based standard may be a set of instances that are in compliance with the rules. These instances may be recorded in some form of tabular list or registry.

This example describes creating a subset of the methodology found in ISO 19110 and the creation of a specific set of instances (feature and attribute definitions) that would follow the subset of the ISO 19110 methodology. Only the subset of the methodology is a profile as defined by this International Standard. The set of instances is a feature and attribute data dictionary. This data dictionary is a set of features and independently a set of attributes that are not tightly linked. However, both the definition of the features and the definition of the attributes follow the template described in Annex B of ISO 19110. At a future time, selecting elements from the data dictionary can generate a feature catalogue for a particular use. In this example, the features and attributes for the data dictionary are stored in a registry.

A pure subset of 19110 would be at conformance class 1; however in this example, as shown in Figure B.9, a normative reference is made to the list of feature and attribute definitions defined outside of ISO/TC 211, and this makes the example conformable at conformance class 2.



[a] Implementation of the rules defined in the data dictionary profile of the feature-cataloguing methodology results in the list of features and attributes.

Figure B.9 —Example of a profile and an external list

From ISO 19110:—

Feature Catalogue (M) Identification and contact information for a feature catalogue

1 Name (M)

2 Scope (M)

3 Field of Application (O)

4 Version Number (M)

5 Version Date (M)

6 Definition Source (O)

7 Producer (M)

Feature Type (M) Class of real world phenomena with common properties

11 Name (M)

12 Definition (C)

13 Code (C)

Feature Attribute (M) Characteristic of the feature type

31 Name (M)

32 Definition (C)

33 Code (O)

34 Value Data Type (M)

Feature Attribute Value (M) Value for the enumerated feature attribute value domain

38 Label (M)

39 Code (O)

B.8 Example of a profile of a specification

This example complies with conformance class 2.

ISO 19106 may be used by other organizations to develop profiles of specifications under their own authority. Any such profile developed will not be an ISO geographic information profile.

A geographic information profile may be a subset of any defined geographic information standard or specification. A feature catalogue may be generated in accordance with the methodology established in ISO 19110, and a profile may be produced of that catalogue to serve a particular application area. *Since the catalogue generated in accordance with the methodology established in ISO 19110 is* ***not*** *an ISO geographic information standard, this profile would not be processed as a standard through ISO/TC 211*; however it may be developed in accordance with the rules established in this International Standard under the authority of the national or other international body developing the profile.

Figure B.10 illustrates a feature catalogue for aeronautical charts developed in accordance with the ISO 19110 methodology. A profile of this catalogue may be the subset of the catalogue that addresses only the features 1:20 000 visual flight rule (VFR) charts. The aeronautical chart feature catalogue is not one of the ISO suite of geographic information base standards. This illustrates a profile of a specification developed in accordance with the rules established in one of the ISO suite of geographic information standards.

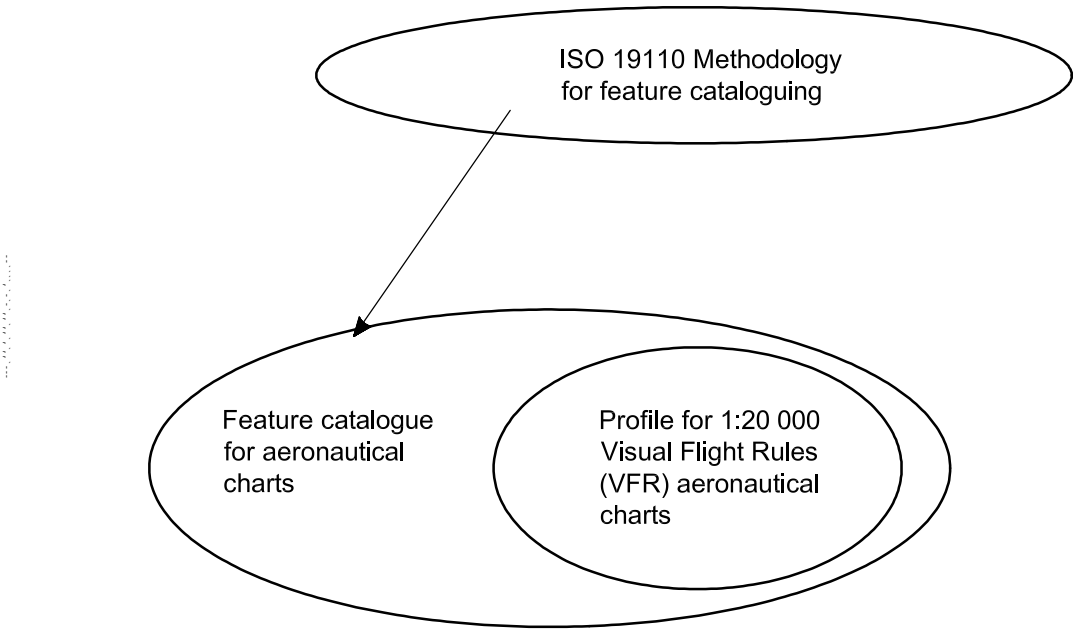


Figure B.10 — Illustration of an example of a profile of a specification — Implementation of the methodology defined in ISO 19110 for the generation of a Feature Catalogue

In this example, the general aeronautical features catalogue would contain general mapping features such as terrain, drainage, vegetation and major roads and railways as well as features specific to aeronautical charts such as vertical obstructions (towers etc.), Instrument Flight Rules (IFR) navigational aids, airspace boundaries, special-use airspace, and heavily attributed airport features. The profile for Visual Flight Rule (VFR) charts would exclude those features and attributes not required for VFR conditions. The IFR

navigational aids, the high-level airways and airspace boundaries, and many of the attributes for airports, such as the attributes pertaining to particular instruments would be excluded.

The following table is a list only of general categories of features with some example features, since the inclusion of a full catalogue in an example would be too large. The categories of features included in the profile of the catalogue are shown in bold.

Example partial aeronautical feature catalogue

General Culture (man made features)

- **industrial/commercial**
- **residential**
- **agriculture**
- **recreational**
- **land transportation**
- **communications/transmission**
- **airport**
- **....**

Hydrography

- **coast/shoreline**
- **....**

Hypsography (relief)

Vegetation

Demarcation

- **administrative areas/borders**
- **aeronautical demarcation**
  - **no-fly zone**
- **....**

Aeronautical Information

- **special-use airspace**
- aeronautical navigational aids
- air route
  - route segment
  - waypoint/calling-in point
- ....
- airport special facilities
  - IFR facilities (instrument landing)
- ....
- **air obstruction**
- **....**

B.9 Example of a "Community Profile" as defined in ISO 19115

This example complies with conformance class 2.

ISO 19106 may be used by other organizations to develop community profiles of ISO 19115 under their own authority. Any such community profile developed will not be an ISO geographic information profile.

ISO 19115 describes a "Community Profile" in C.5. This community profile includes both elements from ISO 19115 and additional elements that are not defined in the context of ISO 19115. That is, an implementation of ISO 19115 alone would not be able to recognize and interpret the meaning of these extended elements.

However, ISO 19115 describes these as a type of profile. This can be interpreted as being a profile of both the ISO 19115 base standard and the external specification that defines the particular extension. *Since the external specification is not an ISO geographic information standard, this profile would not be processed as a standard through ISO/TC 211;* however, it may be developed in accordance with the rules established in this International Standard under the authority of the national or other international body developing the profile. For example, if an information community such as the International Hydrographic Organization defined a specification for the measurement of the quality of hydrographic-chart data and hydrographic-survey data, as was done in IHO S-57 (see IHO S-57, Annex B), this quality measure might be used in conjunction with quality elements defined in ISO 19114 and with metadata elements for quality defined in ISO 19115 to describe the quality of coastal zone data.

The essential element here is that the extension is completely defined in an external specification. This means that an implementation that supports both the ISO base standard as well as the external specification would be able to recognize and interpret the meaning of all the elements in the profile. This is illustrated in Figure B.11.

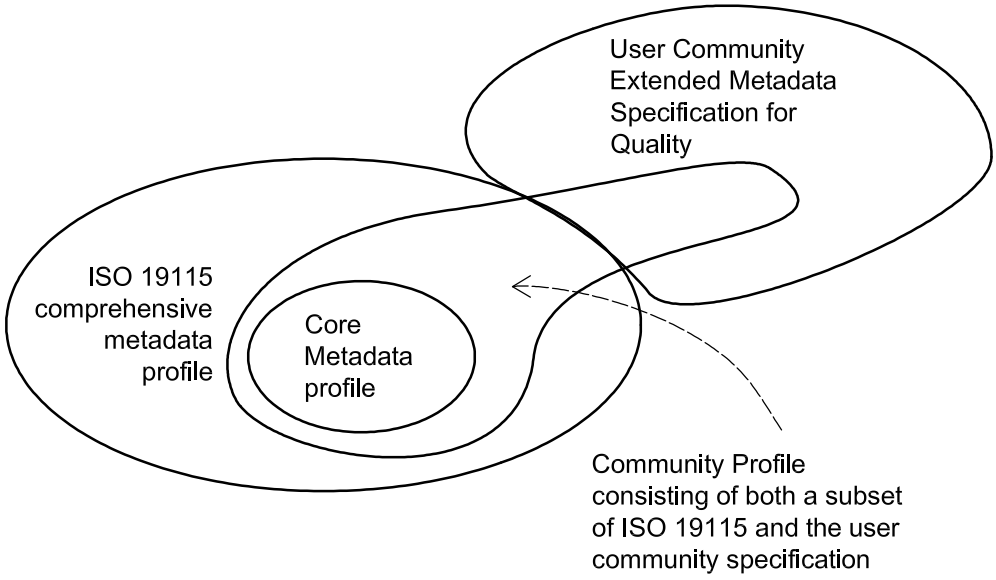


Figure B.11 —Example of a community profile (see ISO 19115, Figure C.1)

In the following example of a community profile, the metadata element that is included in the community profile for hydrographic chart data is the measure of "Survey Reliability", which has been taken from the user community specification (in this case the standard IHO S-57, edition 3.1, 2000). The metadata element from IHO is shown in bold.

From ISO 19115:2003

1 MD_Metadata (M)
- 3 language [of metadata] (C)
- 4 characterSet [of metadata] (C)
- 8 contact (M)
  - 376 CI_ResponsibleParty
    - 378 organisationName (C)
    - 379 role (M)
- 9 dateStamp (M)
- 15 identificationInfo (M)
  - 23 MD_Identification
    - 24 citation (M)
      - 359 CI_Citation
        - 360 title (M)
        - 362 date (M)
          - 393 CI_Date
            - 394 date (M)
            - 395 dateType (M)
- 25 abstract (M)
- 39 language [of dataset] (M)
- 40 characterSet [of dataset] (C)
- 41 topicCategory (M)
- 42 geographicBox (C)
  - 343 EX_GeoBoundingBox
    - 344 westBoundLongitude (M)
    - 345 eastBoundLongitude (M)
    - 346 southBoundLatitude (M)
    - 347 northBoundLatitude (M)
- 78 DQ_DataQuality
  - 79 scope (M)
    - 138 DQ_Scope
      - 139 level (M)
  - 80 report (C)
    - 108 DQ_Completeness
      - 107 result (M)
        - 133 DQ_QuantitativeResult
          - 137 value (M)
  - 115 DQ_TopologicalConsistency
    - 107 result (M)
      - 133 DQ_QuantitativeResult
        - 137 value (M)
  - 116 DQ_PositionalAccuracy
    - 107 result (M)

129 DQ_ConformanceResult

130 specification (M)

131 explanation (M)

132 pass (M)

124 DQ_ThematicAccuracy

107 result (M)

133 DQ_QuantitativeResult

137 value (M)

81 lineage (C)

82 LI_Lineage

83 statement (C)

From IHO S-57, edition 3.1, 2000, Annex A

IHO Survey Reliability (M)
Measure of the reliability of source hydrographic survey data
[Ref: M_SREL]

The Community Profile is a profile of two documents, the ISO International Standard and the user community specification. Such a profile would be standardized (or documented) under the authority of the user community. In this example, the community profile might be an IHO standard.

Annex C
(normative)

Conformance methodology

C.1 General

A profile shall include a conformance clause (see 12.3, Table 1). The conformance clause shall state the requirements for conformance to the profile. It shall include a description of what is mandatory, what is conditional, and what is optional. It shall also indicate what is out-of-scope or prohibited in a profile from the base standards that it references. The conformance clauses shall be written as specified in ISO 19105:2000, Annex A.

C.2 Inheritance

A profile inherits the conformance requirements of the base standards to which it makes normative reference. It may have more restrictive conformance requirements, but it shall not relax or eliminate the conformance requirements of a base standard that it references (see Clause 2).

C.3 Conformance statements

C.3.1 Conformance testing

To evaluate the conformance of a particular profile, it is necessary to have a statement of the chosen clauses, classes, options, and parameters, which have been used in the profile. This will allow the implementation to be tested for conformance against the relevant requirements and against only those requirements. The methodology for testing is given in ISO 19105:2000, Clause 8.

A test suite may be provided as part of a profile or in another document normatively referenced by the profile. A test suite describes the method of testing compliance to a particular profile.

An abstract test suite provides a structure for the development of more specific profile test suites. A base standard may contain an abstract test suite that identifies the requirements for which an implementation of that base standard shall be tested. A test suite in a profile shall select the appropriate tests that correspond to the elements of the base standard included in the profile. A profile shall include an abstract test suite that complies with ISO 19105:2000, Clause 8.

C.3.2 Implementation conformance statement

Profiles are simply constraints on a base standard, and conformance to such a profile is equivalent to conformance to the base standard with the inclusion of the new constraint. Conformance to profiles that include extensions within the context of the base standard will require conformance statements that include these extensions. Conformance to profiles of multiple base standards will require the inclusion of the relevant conformance clauses from each of the base standards profiled.

In some cases, a supplier may simply attest to the compliance of an implementation to a particular conforming implementation specification. The supplier may use a proprietary testing methodology to determine whether compliance is met. Such a statement may have legal status in some contracts.

NOTE ISO 19101 is based on the general principles of the ISO Open System Environment (OSE)., and these are used in ISO 19119. Conformance requirements apply across certain OSE interfaces (see ISO/IEC TR 10000-3:1998).

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