13 Registration

13.1 Introduction

This International Standard specifies standardized instances of several SRM concepts. This International Standard allows new instances of some SRM concepts to be specified by registration. These new instances are termed *registered items*.

New instances of the following SRM concepts may be registered:

a) abstract coordinate systems (see 5.3),

b) temporal coordinate systems (see Clause 6),

c) reference datums (see 7.2),

d) object reference model templates (see 7.4.4),

e) object reference models (see 7.4.5),

f) reference transformations (see 7.4.5),

g) object binding rule sets (see 7.5),

h) spatial reference frame templates (see 8.5),

i) spatial reference frames (see 8.6),

j) spatial reference frame sets and their members (see 8.7),

k) designated spatial surfaces (see Clause 9), and

l) profiles (see Clause 12).

References for new instances of the above SRM concepts may also be registered separately (see 13.2.5).

New items are registered using the established procedures of the registration authority for this International Standard[27]. These procedures require the submitter to supply all information for a new SRM registered item. Registration shall be according to the procedures in ISO/IEC 9973 (see [ISO/IEC 9973]). Registration shall not be used to modify any existing standardized or SRM registered item (see Annex G for details concerning how standardized and registered items may be deprecated).

Other International Standards that normatively reference this International Standard, implementations of those standards, and implementations of this International Standard shall not use any SRM registered item codes in the value ranges reserved for registration or future standardization by this International Standard with any meaning other than the one defined in this International Standard or in the International Register of Items.

This clause specifies the rules and guidelines that shall be followed in preparing registration proposals. Registration proposals include required information for new SRM registered items, as well as accompanying administrative information (see Annex H). The guidelines in 13.2 shall apply to all SRM registered items. The additional guidelines in 13.3 shall apply only to the indicated sets of SRM registered items.

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[27] At the time this International Standard was published, the registration authority was the ISO/IEC Registration Authority for Items. Contact information for the ISO-designated Registration Authority for Items registered under the ISO/IEC 9973 procedures is available at the ISO Maintenance agencies and registration authorities web site: http://www.iso.ch/iso/standards_development/maintenance_agencies.htm.

13.2 Specification elements for SRM registered items

13.2.1 Introduction

The specification of each SRM registered item shall include the following elements:

a) label: a unique, compact, character string that is used to denote the registered item,

b) code: a unique integer[28] that is used to denote the registered item, and

c) other concept-dependent information as required in this International Standard.

Other concept-dependent information may include the following elements:

a) a description, and

b) references.

The SRFS members do not require labels in the case of some SRFSs. See 8.7.1.

13.2.2 Label

The *label* element of an SRM registered item specification shall be a compact and human-readable designator that is used to denote that registered item. Labels in this International Standard may include the name or names for the registered item.

Each label in this International Standard shall:

a) uniquely denote a specific instance within the set of instances of a given SRM concept,

b) be a succinct expression of the concept instance that it denotes,

c) be represented as a character string, and

d) be human readable.

For presentation purposes only, a long label may be displayed on more than one line by using a hyphen (-) to separate the label before an underscore (_) character.

EXAMPLE 1 The label LOCOCENTRIC_SURFACE_EUCLIDEAN may be displayed for presentation purposes as:
LOCOCENTRIC_SURFACE -
_EUCLIDEAN.

If two concept instances differ only in the dimension of an associated position-space or the dimension of an associated object-space, then the characters “_1D”, “_2D”, or “_3D”, as appropriate, shall be appended to the label as a means of differentiating such concept instances.

The labels of standardized SRM concept instances in this International Standard were created by applying the following guidelines. Labels for proposed SRM registered items shall be created according to these guidelines:

a) A label shall be provided for each registered SRM concept instance.

b) Labels shall be character strings.

c) Labels shall contain only uppercase characters (A-Z) and digits (0-9) with the exception of the radix delimiter symbol "r" and the underscore character (_).

d) Labels shall begin with an uppercase alphabetic character (A-Z).

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[28] Uniqueness is only within each set of SRM concepts, for example: RDs or ORMs.

e) Labels shall not contain spaces.

f) Labels may be a single word or may be composed of a series of components each of which is a word, an abbreviation, or an acronym/initialism.

g) The underscore (_) character shall be used to concatenate the components of a label.

h) Labels should be as short as possible while capturing a common use descriptive word or phrase representative of the registered SRM concept instance.

i) The length of a label shall not exceed sixty-three (63) characters.

The components of a registered SRM concept instance label shall be chosen according to the following guidelines:

a) Components of labels shall not be used with a different meaning from how that component is used in this International Standard or in previously registered SRM concept instances.

b) When abbreviating, if a word or phrase to be abbreviated appears in Annex F, the given abbreviation for that word or phrase shall be used.

c) When abbreviating, if a word or phrase to be abbreviated does not appear in Annex F, the proposed abbreviation should, if possible, be consistent with those specified in Annex F.

Recognized abbreviations for words, and acronyms for phrases, may be used as components of a label based on the following guidelines:

a) Each abbreviation shall uniquely represent a single word.

b) A single abbreviation shall not represent a combination of words.

c) Each acronym shall uniquely represent a single multi-word phrase.

d) If a word is abbreviated in one label, it is not required to be abbreviated in other labels.

e) If a word is abbreviated in one label, the same abbreviation should be used wherever that word is abbreviated.

f) If a phrase is replaced by an acronym in one label, it is not required to be replaced in other labels.

g) If a phrase is replaced by an acronym in one label, the same acronym should be used wherever that phrase is intended.

h) New acronyms may be defined if necessary to create a label whose length meets the criteria defined in guidelines (h) and (i) for labels.

i) Jargon shall not be used.

j) An acronym or abbreviation in a label shall not be, by itself, a word with a different meaning than that of the word/phrase that it replaces.

EXAMPLE 2 The acronym DATUM should not be used for the phrase "Dartmouth Arc Transit Universal Meridian".

13.2.3 Code

The *code* element of an SRM registered item specification shall be a compact designator that is used to uniquely identify that registered item. Codes are assigned by the registration authority for this International Standard when a registration proposal is accepted. Therefore, codes are not included in registration proposals.

Each code in this International Standard shall:

a) uniquely denote a specific instance within the set of instances of a given SRM concept,

b) be represented as an integer, and

c) be assigned sequentially in increasing order within the set of instances of a given SRM concept, beginning at 1.

There is a one-to-one relationship between labels and codes in the same set of SRM concept instances. Therefore, a label and a code may be used interchangeably to denote the same concept instance. The set of members of a single SRFS shall be considered as a separate and distinct set from the set of members of a different SRFS.

Application program interfaces and exchange formats often utilize codes. Applications using such codes shall be capable of distinguishing 2^{31}-1 different codes. Negative codes are not permitted in this International Standard, but they may be used in a non-conforming implementation for experimentation. The code value zero is reserved for use in the API (see Clause 11).

All codes for SRM standardized concept instances that are not assigned in this International Standard are reserved for future standardization or for registration. Codes shall be assigned by the registration authority for this International Standard according to these rules:

a) Nothing shall be assumed about the relationship among standardized or registered SRM concept instances from the numerical relationships of their corresponding codes. In particular, the numerical sequencing of codes does not impose any sequential ordering to the standardized or registered SRM concept instances denoted by those codes.

b) Integers are used to represent codes even though only positive integer values shall ever be assigned in either this International Standard or through registration. This allows negative integer values to be used experimentally in applications, even though such use of negative integer values is not in conformance to this International Standard.

c) The registration authority for this International Standard shall assign codes in increasing order beginning at the first available integer value, and skipping no integer values, within the set of codes for each SRM concept.

d) The registration authority for this International Standard shall coordinate the assignment of codes with future revisions of this International Standard to ensure that no code shall be assigned more than once in the same scope by either standardization or registration.

13.2.4 Description

The contents of the *description* element of an SRM registered item specification shall be a precise statement of the nature, properties, scope, or essential qualities of the concept instance.

The descriptions of standardized SRM concept instances in this International Standard were created by applying a set of guidelines. Descriptions for proposed SRM registered items shall be created according to these guidelines:

a) A description shall be provided for each SRM concept instance. This description shall contain at least one word, number, expression or formula.

b) Descriptions shall be clear and concise, containing only the content necessary to summarize the concept instance.

c) Jargon shall not be used.

d) Abbreviations shall not be used.

e) Acronyms shall be used only if they are defined in Table 3.3.

f) If an acronym is defined in Table 3.3, it shall be used wherever the phrase would have appeared. That is, the phrase shall not be used except in Table 3.3; wherever the phrase might have appeared, the acronym shall be used instead.

13.2.5 References

13.2.5.1 Introduction

Two types of references are recognized in International Standards. The first type of reference is a normative reference [ISOD2]. Identified provisions of a normative reference are incorporated by reference and "become" part of the subject standard. Normative references play a key role in ensuring the consistency of the body of International Standards by allowing work done by others to be reused without modification. The second type of reference is an informative reference [ISOD2]. Identified provisions of an informative reference are cited as being the source of, related to, or providing additional information about text in the subject standard, but the identified provisions of the document are not themselves directly incorporated into the subject standard.

13.2.5.2 Citation format

Each citation consists of an identifier and an optional location enclosed in square brackets ([ ]) with the identifier listed first, followed by a comma, followed by the location. The *identifier* specifies the cited document and shall appear in either Clause 2 or the Bibliography. The *location* specifies the portion of the document that is cited. Whenever possible, the location shall be specified in accordance with the requirements in [ISOD2]. When a cited document lacks a subclause structure, the location may be specified in a convenient and natural format depending on the organization of the cited document.

EXAMPLE [83502T, App. A-1, "HO"] and [RIIC, Table IV, "Saturn"].

13.3 Guidelines for specific SRM concepts

13.3.1 Guidelines for registration of abstract CSs

Abstract CSs shall be registered according to the following additional guidelines:

a) The function type shall be either “generating function” or “map projection”.

b) The CS descriptor shall be one of: 3D linear, 3D curvilinear, surface linear, surface curvilinear, map projection, 2D linear, 2D curvilinear, 1D linear, 1D curvilinear, or surface (map projection) and 3D (augmented map projection).

c) The CS properties shall be either “none” or a list of one or more properties of the CS chosen from the following: orthogonal, not orthogonal, orthonormal, not orthonormal, conformal, or not conformal. Conformal and not conformal only apply to map projections.

d) The CS parameters and constraints, if any, shall specify the parameters of the CS and constraints on how those parameters interrelate.

e) The coordinate symbols and common names shall specify these symbols and terms as used in the specification of coordinates in the CS. Thus in the case of the geodetic CS, “λ : longitude in radians, φ : latitude in radians, and h : ellipsoidal height”.

f) The domain of the CS generating function or mapping equations shall be specified in terms of the coordinate symbols and other CS parameters.

g) The CS generating function or mapping equations shall be specified in terms of the coordinate symbols and other CS parameters. In the case of an oblate ellipsoid, common parameters and functions from Table 5.6 shall be used if possible.

h) The domain of the inverse of the CS generating function or mapping equations shall be specified in terms of the coordinate symbols and other CS parameters.

i) The inverse of the CS generating function or mapping equations shall be specified in terms of the coordinate symbols and other CS parameters. In the case of an oblate ellipsoid common parameters and functions from Table 5.6 shall be used.

j) If the CS is a map projection, the COM function shall be specified in terms of the coordinate symbols, other CS parameters, and or functions from Table 5.6.

k) If the CS is a map projection, the point distortion function(s) shall be specified in terms of the coordinate symbols, other CS parameters, and or functions from Table 5.6.

l) Supplementary geometric figures may be provided that explain the roles of the CS parameters and illustrate the CS.

m) Additional, non-normative information concerning the CS may be supplied in the form of notes.

EXAMPLE 1 Guideline d:

CS parameters: "a: major semi-axis length, and b: minor semi-axis length" and
CS parameter constraints: "$a > b$".

EXAMPLE 2 Guidelines f and h: "$-\pi/2 < \varphi < \pi/2$, $-\pi \leq \lambda < \pi$, and $-b < h$".

EXAMPLE 3 Guideline m note: "The generating function is the composition of the generating function for azimuthal spherical with the 3D localization operator."

13.3.2 Guidelines for registration of temporal CSs

Temporal CSs shall be registered according to the following additional guidelines:

a) The epoch shall specify the time of the temporal CS origin.

b) The unit of duration shall specify the physical quantity that corresponds to an abstract unit of duration in the temporal CS.

c) The relationship of the temporal CS to TAI (see 6.2.4) shall be specified in terms of the conversions to and from the temporal CS and TAI.

EXAMPLE 1 Guideline a: "1 January 2000"

EXAMPLE 2 Guideline b: "SI second [I80000-3]".

13.3.3 Guidelines for registration of RDs

RDs shall be registered according to the following additional guidelines:

a) The name of the physical object, if any, shall be specified.

b) If the RD is not based on an ellipsoid, the analytic formulation of the RD in position-space shall be specified.

c) If the RD is based on an ellipsoid, the parameter values shall be specified as follows:

1) For an RD based on an oblate ellipsoid: major semi-axis, a, and flattening, f.

2) An RD based on a sphere shall be specified as an oblate ellipsoid RD with major semi-axis equal to the sphere radius and the flattening equal to zero.

3) For an RD based on a prolate ellipsoid: minor semi-axis, a, and major semi-axis, b.