

12 Profiles

12.1 Overview

A *profile* identifies a subset of this document that has been specified to meet the needs of a specific application area. Only those subsets that can define, represent and/or process positions in at least one SRF shall be allowed. The core of a profile is a specified set of SRFTs, along with an applicable set of ORMs, and sets of SRFs and/or SRF sets that can be specified using these SRFTs and ORMs. A profile definition also may include computational accuracy requirements for conformance (see [Clause 14](#)) of any functional implementations of operations that apply to the SRFs included in the profile. The default profile requires support for all SRFTs and ORMs specified in this document. Additional profiles may be specified by registration in accordance with [Clause 13](#).

An SRM profile specification includes:

- a) a description of the profile (see [13.2.4](#)),
- b) a specification of a non-empty subset of standardized and registered ORMs, such that each ORM in the set shall be applicable to at least one SRFT specified in c,
- c) a specification of a non-empty subset of the set of standardized and registered SRFTs such that for each SRFT in the set, there is at least one ORM specified in b that is applicable to that SRFT,
- d) specifications of subsets of standardized and registered SRFs and SRF sets based on SRFTs specified in c, and applicable ORMs in b; these subsets shall not both be empty,
- e) a (possibly empty) subset of the set of standardized and registered [DSSs](#), and
- f) optional specifications of computational accuracy requirements, consisting of an accuracy domain and positional, directional, and ratio error bounds, for SRFTs specified in c.

Accuracy domains and computational accuracy requirements are defined in [14.2.1](#). The “default” profile is specified in [12.3](#). Guidelines for registering profiles are in [13.3.13](#). The proposal format for profile registration is provided in [H.14](#). Conformance requirements are specified in [14.2](#).

12.2 Profile specification

The elements of a profile specification are defined in [Table 12.1](#).

Table 12.1 — SRM profile specification elements

Element	Definition
Profile label	The label of the profile (see 13.2.2).
Profile code	The code of the profile (see 13.2.3).
Description	A description of the profile (see 13.2.4).
Standard edition used	The edition number of the SRM standard from which the entries in the profile are obtained.
Amendment(s) used	A list of all associated amendment numbers from which the entries in the profile are obtained, or "0" if no amendments are used.

Element	Definition	
Registered concept(s) included	"Yes" or "No", indicating whether any registered entries from the International Register of Items are included in the profile.	
ORM(s)	A non-empty subset of standardized and registered ORMs, such that each ORM in the subset shall be applicable to at least one SRFT in the profile.	
SRFT(s)	A non-empty subset of standardized and registered SRFTs, such that for each SRFT in the subset, there is at least one ORM in the profile that is applicable to that SRFT.	
SRF(s)	A subset of the standardized and registered SRFs that are derived from an SRFT in the profile SRFT(s) element and specifying an ORM in the profile ORM(s) element.	
SRF set(s)	A subset of the standardized and registered SRF sets that are derived from an SRFT in the profile SRFT(s) element, and such that at least one ORM specified in the profile ORM(s) element satisfies the ORM constraint of the SRF set.	
DSS(s)	A subset of the standardized and registered DSSs.	
Computational accuracy requirements	This optional element may be repeated for single SRFTs or groups of SRFTs in the profile. An SRFT in the profile shall appear in at most one of these elements.	
	SRFT label(s)	The label(s) of one or more SRFTs in the profile.
	Error bounds	ε_P : the positional error bound in metres, ε_D : the directional error bound in radians, and ε_R : the ratio error bound. Optionally, separate error bounds for one or more subsets of the ORMs associated with the listed SRFTs in the SRFT label(s) element.
	Accuracy domain	A set of constraints that specify: a subset of the CS domain; and/or SRFT parameter value ranges (see 14.2.1).

The non-empty subsets of ORMs, SRFTs, SRFs, SRF sets and DSSs may be explicit or may be expressed in a clear and unambiguous short-hand form that, when expanded, ensures the intended subset is produced.

EXAMPLE 1 "All standardized ORMs".

EXAMPLE 2 "All standardized SRFs".

EXAMPLE 3 "All object-fixed ERM".

EXAMPLE 4 "All standardized ORMs in the profile SRM_3_0_MARS_PROJECT_PROFILE", where SRM_3_0_MARS_PROJECT_PROFILE is the label of an existing profile.

As specified in [4.1](#), the unit of length is the metre, and the unit of angular measure is the radian.

An implementation conforms to the *computational accuracy requirement* of a profile if for every SRF that is included in the profile or is a member of an SRF set that is included in the profile, positional, directional and ratio errors for operations on SRF coordinates in the accuracy domain shall not exceed the positional, directional and ratio error bounds (if any) specified in the computational accuracy requirements element applicable to both the ORM and SRFT of the SRF. These requirements assume computational digital accuracy at least as accurate as double precision, as specified in [ISO/IEC/IEEE 60559](#).