

ISO/IEC JTC 1/SC 24 "Computer graphics, image processing and environmental data representation"

Secretariat: BSI

Committee manager: Stride Jean M Mrs



## ISO/IEC CD 18026: Spatial Reference Model (SRM) Ed 3 - Form 4 circulated for information only

Document type	Related content	Document date	Expected action
Project / Form	Project: <a href="#">ISO/IEC CD 18026</a>	2023-05-23	<b>INFO</b>

### Description

This document is circulated for reference only and to be read in conjunction with SC 24 N4903: ISO/IEC CD 18026 Spatial Reference Model (SRM)

This revision was approved by Resolution 9 of document SC 24 N4580 passed in August 2021.

**NEW WORK ITEM PROPOSAL (NP)****DATE OF CIRCULATION:**

2023-05-23

**PROPOSER:** ISO member body:

Click or tap here to enter text.

 Committee, liaison or other:

SEDRIS Organization, ISO/IEC SC 24

**CLOSING DATE FOR VOTING:**

Click here to enter a date.

**REFERENCE NUMBER:**

ISO/IEC 18026 – Edition 3

 **WITHIN EXISTING COMMITTEE**

Document Number:

Committee Secretariat: BSI

 **PROPOSAL FOR A NEW PC**

A proposal for a new work item within the scope of an existing committee shall be submitted to the secretariat of that committee.

A proposal for a new project committee shall be submitted to the Central Secretariat, which will process the proposal in accordance with ISO/IEC Directives, Part 1, [Clause 2.3](#).

Guidelines for proposing and justifying new work items or new fields of technical activity (Project Committee) are given in ISO/IEC Directives, Part 1, [Annex C](#).

**IMPORTANT NOTE:** Proposals without adequate justification and supporting information risk rejection or referral to the originator.

**PROPOSAL**

(to be completed by the proposer, following discussion with committee leadership if appropriate)

English title

ISO/IEC 18026:202x(E) Information Technology – Spatial Reference Model (SRM)

French title

Click or tap here to enter text.

(Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.2).

In case of amendment, revision or a new part of an existing document, please include the reference number and current title

**SCOPE**(Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.3)

[NOTE: Scope same as Edition 2.]

This International Standard specifies the Spatial Reference Model (SRM) defining relevant aspects of spatial positioning and related information processing. The SRM allows precise and unambiguous specification of geometric properties such as position, direction, orientation and distance. The SRM addresses the needs of a broad community of users, who have a range of accuracy and performance requirements in computationally intensive applications.

Aspects of this International Standard apply to, but are not limited to:

- a) mapping, charting, geodesy, and imagery;
- b) topography;
- c) location-based services;
- d) oceanography;
- e) meteorology and climatology;
- f) interplanetary and planetary sciences;
- g) embedded systems; and
- h) modelling and simulation.

The SRM specifies an application program interface (API) that supports the representations, conversion, and transformation of position and orientation information in a variety of forms. To ensure that spatial operations are performed consistently, the application program interface specifies conversion operations between alternative representations of geometric properties.

This International Standard is not intended to replace the standards and specifications developed by ISO/TC 211, ISO/TC 184, the International Astronomical Union (IAU), and the International Association of Geodesy (IAG). It is applicable to applications whose spatial information requirements overlap two or more of the application areas that are the scope of the work of ISO/TC 211, ISO/TC 184, the IAU, and the IAG.

## PURPOSE AND JUSTIFICATION

(Please see ISO/IEC Directives, Part 1, [Annex C](#) and additional guidance on justification statements in the brochure [Guidance on New Work](#))

This new Edition provides more comprehensive treatments of geodesics, template-based similarity transformations, formalization of relations between spatial reference frames, concepts associated with orientation/direction/rotation, and their corresponding operations. These technical capabilities are of particular value to physics-based applications and user communities including modelling and simulation. The SEDRIS Organization, in cooperation with U.S. National Geospatial-Intelligence Agency (NGA), has been developing these capabilities over the last decade. The improvements to the SRM concepts and capabilities have been discussed within SC 24 and SC 24/WG 8, and are important to the continuous support of user communities that have a range of accuracy and performance requirements in computations of position, orientation, and distance information across multiple systems/applications.

This new work will produce ISO/IEC 18026 Edition 3 (the Spatial Reference Model (SRM)) by introducing new capabilities, and extending and improving existing Edition 2 capabilities. The new and/or enhanced technical content include:

- 1) Comprehensive and improved treatment of geodesics
- 2) Similarity transformation templates (STT)
- 3) Revisions to *Profiles* and *Conformance* clauses, as well as informative Annex I.6 to cover positional error measurement cases
- 4) Improved accuracy domains in the Default Profile
- 5) Incorporation of a new clause *Orientation – change of basis and rotation*
- 6) Revision to *Coordinate Systems*, *Spatial Reference Frames*, and *Operations* clauses
- 7) Other improvements throughout the standard, including editorial and self-consistency improvements, incorporation of new figures, correction of defects, and updated links to external documents.

**PROPOSED PROJECT LEADER** (name and email address)

Dr. Paul Berner and Mr. Kevin Trott – SEDRIS Organization  
berner@consultant.com kevin.trott@ngc.com

**PROPOSER** (including contact information of the proposer's representative)

Farid Mamaghani, SEDRIS Organization  
farid@sedris.org

**The proposer confirms that this proposal has been drafted in compliance with ISO/IEC Directives, Part 1, Annex C**

**PROJECT MANAGEMENT**

Preferred document

- International Standard
- Technical Specification
- Publicly Available Specification\*

Proposed Standard Development Track (SDT – to be discussed by the proposer with the committee manager or ISO/CS)

- 18 months
- 24 months
- 36 months

Proposed date for first meeting: [Click here to enter a date.](#)

Proposed TARGET dates for key milestones

- Circulation of 1<sup>st</sup> Working Draft (if any) to experts: [Click here to enter a date.](#)
- Committee Draft consultation (if any): 2023-05-23
- DIS submission\*: 2024-02-25
- Publication\*: 2025-02-25

\* Target Dates for DIS submission and Publication should be set a few weeks ahead of the limit dates automatically determined when selecting the SDT.

It is proposed that this DOCUMENT will be developed by:

- An existing Working Group, add title SC 24/WG 8  
A new Working Group [Click or tap here to enter text.](#)
- (Note that the establishment of a new Working Group requires approval by the parent committee by a resolution)*
- The TC/SC directly
- To be determined
- This proposal relates to a new ISO document
  
- This proposal relates to the adoption, as an active project, of an item currently registered as a Preliminary Work Item
- This proposal relates to the re-establishment of a cancelled project as an active project
- Other: [Click or tap here to enter text.](#)

Additional guidance on project management is available [here](#).

## PREPARATORY WORK

- A draft is attached
  - An existing document serving as the initial basis is attached
  - An outline is attached
- Note: at minimum an outline of the proposed document is required

The proposer is prepared to undertake the preparatory work required:

- Yes  No

If a draft is attached to this proposal:

Please select from one of the following options:

- The draft document can be registered at Preparatory stage (WD – stage 20.00)
- The draft document can be registered at Committee stage (CD – stage 30.00)
- The draft document can be registered at enquiry stage (DIS – stage 40.00)
  
- If the attached document is copyrighted or includes copyrighted content, the proposer confirms that copyright permission has been granted for ISO to use this content in compliance with [clause 2.13](#) of ISO/IEC Directives, Part 1 (see also the [Declaration on copyright](#)).

## RELATION OF THE PROPOSAL TO EXISTING INTERNATIONAL STANDARDS AND ON-GOING STANDARDIZATION WORK

To the best of your knowledge, has this or a similar proposal been submitted to another standards development organization or to another ISO committee?

- Yes  No

If Yes, please specify which one(s) [Click or tap here to enter text.](#)

- The proposer has checked whether the proposed scope of this new project overlaps with the scope of any existing ISO project
- If an overlap or the potential for overlap is identified, the proposer and the leaders of the existing project have discussed on:
  - i. modification/restriction of the scope of the proposal to avoid overlapping,
  - ii. potential modification/restriction of the scope of the existing project to avoid overlapping.
- If agreement with parties responsible for existing project(s) has not been reached, please explain why the proposal should be approved  
[Click or tap here to enter text.](#)
- Has a proposal on this subject already been submitted within an existing committee and rejected? If so, what were the reasons for rejection?  
[Click or tap here to enter text.](#)

This project may require possible joint/parallel work with

- IEC (please specify the committee) [Click or tap here to enter text.](#)
- CEN (please specify the committee) [Click or tap here to enter text.](#)
- Other (please specify) [Click or tap here to enter text.](#)

**Please select any UN Sustainable Development Goals (SDGs) that this proposed project would support** (information about SDGs, is available at [www.iso.org/SDGs](http://www.iso.org/SDGs))

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace, Justice and strong institutions
- N/A GOAL 17: Partnerships for the goals

**Identification and description of relevant affected stakeholder categories**  
(Please see [ISO CONNECT](#))

	Benefits/Impacts/Examples
Industry and commerce – large industry	Existing and potential new SRM/SEDRIS users
Industry and commerce – SMEs	SRM/SEDRIS users, including SEDRIS data producers and users
Government	Governmental projects using environmental data applications and exchange mechanisms
Consumers	Click or tap here to enter text.
Labour	Click or tap here to enter text.
Academic and research bodies	Academic projects using environmental data applications and exchange mechanisms
Standards application businesses	Click or tap here to enter text.
Non-governmental organizations	Click or tap here to enter text.
Other (please specify)	Click or tap here to enter text.

**Listing of countries where the subject of the proposal is important for their national commercial interests** (Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.8)

Included in SC 24 P-members

**Listing of external international organizations or internal parties (other ISO and/or IEC committees) to be engaged in this work** (Please see ISO/IEC Directives, part 1, [Annex C](#), Clause C.4.9)

SEDRIS Organization, as well as Web3D Consortium and OGC

**Listing of relevant documents (such as standards and regulations) at international, regional and national level** (Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.6)

ISO/IEC 18026:2009 – SRM (Edition 2)

ISO/IEC 18042 – SRM language bindings – Part 4: C

ISO/IEC 18023 – SEDRIS – Part 1

**ADDITIONAL INFORMATION**

**Maintenance Agencies (MAs) and Registration Authorities (RAs)**

This proposal requires the designation of a maintenance agency.  
If so, please identify the potential candidate:  
Click or tap here to enter text.

This proposal requires the designation of a registration authority.  
If so, please identify the potential candidate  
SC 24

NOTE: Selection and appointment of the MA or RA are subject to the procedure outlined in ISO/IEC Directives, Part 1, [Annex G](#) and [Annex H](#).

**Known patented Items** (Please see ISO/IEC Directives, Part 1, [Clause 2.14](#))

Yes  No

If Yes, provide full information as an annex

**Is this proposal for an ISO management System Standard (MSS)?**

Yes  No

Note: If yes, this proposal must have an accompanying justification study. Please see the Consolidated Supplement to the ISO/IEC Directives, Part 1, [Annex SL](#) or [Annex JG](#)