



SLOVENSKI STANDARD
SIST EN ISO 19177-1:2026

01-julij-2026

**Geografske informacije - Geoprostorski API za informacije v obliki ploščic - 1. del:
Osrednji profil (ISO 19177-1:2025)**

Geographic information - Geospatial API for tiles - Part 1: Core (ISO 19177-1:2025)

Information géographique - API géospatiale pour les tuiles - Partie 1: Profil minimal (ISO 19177-1:2025)

Ta slovenski standard je istoveten z: EN ISO 19177-1:2026

ICS:

07.040	Astronomija. Geodezija. Geografija	Astronomy. Geodesy. Geography
35.240.70	Uporabniške rešitve IT v znanosti	IT applications in science

SIST EN ISO 19177-1:2026

en,fr,de

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

Sample Document

get full document from standards.iteh.ai

EUROPEAN STANDARD

EN ISO 19177-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2026

ICS 35.240.70

English Version

Geographic information - Geospatial application programming interface (API) for tiles - Part 1: Core (ISO 19177-1:2026)

Information géographique - Interface de
programmation d'application (API) géospatiale pour
les tuiles - Partie 1: Profil-minimal (ISO 19177-1:2026)

This European Standard was approved by CEN on 18 January 2026.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2026 CEN All rights of exploitation in any form and by any means reserved
worldwide for CEN national Members.

Ref. No. EN ISO 19177-1:2026 E

Contents	Page
European foreword.....	3

Sample Document

get full document from standards.iteh.ai

European foreword

This document (EN ISO 19177-1:2026) has been prepared by Technical Committee ISO/TC 211 "Geographic information/Geomatics" in collaboration with Technical Committee CEN/TC 287 "Geographic Information" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2026, and conflicting national standards shall be withdrawn at the latest by September 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 19177-1:2026 has been approved by CEN as EN ISO 19177-1:2026 without any modification.

Sample Document

get full document from standards.iteh.ai



**International
Standard**

ISO 19177-1

**Geographic information —
Geospatial application
programming interface (API) for
tiles —**

**Part 1:
Core**

*Information géographique — Interface de programmation
d'application (API) géospatiale pour les tuiles —*

Partie 1: Profil-minimal

**First edition
2026-03**

Sample Document

get full document from standards.iteh.ai

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2026

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

ISO 19177-1:2026(en)

Contents

	Page
Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions	1
3.2 Abbreviated terms	4
4 Conformance	4
4.1 General.....	4
4.2 Requirements classes defining resources.....	4
4.2.1 Requirements class “Core”	4
4.2.2 Requirements class “Tileset”	5
4.2.3 Requirements class “Tilesets List”	5
4.3 Requirements classes defining data origins.....	5
4.3.1 Requirement class “Dataset Tilesets”	5
4.3.2 Requirements class “GeoData Tilesets”	6
4.4 Requirements classes defining query parameters.....	6
4.4.1 Requirements class “Collections Selection”	6
4.4.2 Requirements class “DateTime”	6
4.5 Requirements classes for specific resource representations.....	6
4.5.1 Requirements class “OpenAPI Specification 3.0 API definition”	6
4.5.2 Requirements class “XML Tileset Metadata”	6
4.6 Requirements classes for tile encodings.....	7
4.7 Declaration of conformance.....	7
5 Conventions	8
5.1 General.....	8
5.2 Identifiers.....	8
5.3 Link relations.....	8
5.4 Use of HTTPS.....	9
6 Overview	9
6.1 General.....	9
6.2 Evolution from OGC Web Services.....	10
6.3 Relationship to other OGC API standards	11
6.4 Using this document independently.....	12
6.4.1 Overview	12
6.4.2 Description of the domain.....	12
6.4.3 Description of the observed or measured properties.....	13
6.4.4 Available formats and tile response expectations.....	13
6.4.5 Limitations	13
6.5 How to approach an implementation of an OGC API standard.....	13
6.6 Use of the term “tiles”	15
7 Requirements class “Core”	16
7.1 General.....	16
7.2 A tile.....	16
7.2.1 General.....	16
7.2.2 Operation	16
7.2.3 Parameter tileMatrix.....	17
7.2.4 Parameter tileRow.....	17
7.2.5 Parameter tileCol.....	18
7.2.6 Parameter tileMatrixSetId (optional).....	18
7.2.7 Response.....	18
7.2.8 Error conditions.....	20

ISO 19177-1:2026(en)

7.3	Declaration of conformance classes.....	20
7.3.1	General.....	20
7.3.2	Response.....	20
8	Requirements class “Tileset”.....	21
8.1	Overview.....	21
8.2	Tileset resource.....	22
8.2.1	General.....	22
8.2.2	Tileset path.....	22
8.2.3	Response.....	22
8.3	Web-API-defined TileMatrixSets.....	25
8.3.1	General.....	25
8.3.2	Web API landing page.....	25
8.3.3	TileMatrixSets.....	26
8.3.4	TileMatrixSet.....	27
9	Requirements class “Tilesets List”.....	27
9.1	Overview.....	27
9.2	Tilesets list.....	28
9.2.1	General.....	28
9.2.2	Tilesets path.....	28
9.2.3	Response.....	28
10	Requirements class “Dataset Tilesets”.....	29
10.1	Overview.....	29
10.2	General.....	30
10.3	Web API landing page.....	30
10.3.1	General.....	30
10.3.2	Response.....	30
10.4	Dataset tilesets.....	31
10.4.1	General.....	31
10.4.2	Operation.....	31
10.4.3	Response.....	31
10.5	Tiles.....	31
10.5.1	General.....	31
10.5.2	Response.....	31
11	Requirements class “GeoData Tilesets”.....	32
11.1	Overview.....	32
11.2	General.....	32
11.3	Geospatial data resources.....	32
11.4	Geospatial data resources tilesets list.....	33
11.4.1	General.....	33
11.4.2	Operation.....	33
11.4.3	Response.....	34
11.5	Tiles.....	34
12	Requirements class “Collections Selection”.....	34
12.1	Overview.....	34
12.2	Operation.....	34
12.2.1	General.....	34
12.2.2	Parameter collections.....	34
12.2.3	Response.....	35
12.2.4	Error conditions.....	35
13	Requirements class “DateTime”.....	35
13.1	Overview.....	35
13.2	Describing the temporal extent.....	36
13.3	<code>datetime</code> query parameter request and response.....	36
13.4	<code>subset=datetime</code> query parameter request and response.....	37
13.5	Actual date and time response header.....	39
13.6	Closest date and time permission.....	39

ISO 19177-1:2026(en)

14	Requirements class “OpenAPI Specification 3.0”	39
14.1	Overview	39
14.2	Web API OpenAPI description	40
14.2.1	General	40
14.2.2	Response	40
15	Requirements class “XML Tileset Metadata”	43
15.1	Overview	43
15.2	Tileset and Tilesets List XML representation	43
15.2.1	General	43
15.2.2	Operation	43
15.2.3	Response	43
16	Requirements classes for tile encodings	44
16.1	General	44
16.2	Overview	44
16.3	Requirements class “PNG”	44
16.4	Requirements class “JPEG”	45
16.5	Requirements class “TIFF”	46
16.6	Requirements class “NetCDF”	47
16.7	Requirements class “GeoJSON”	47
16.8	Requirements class “Mapbox Vector Tiles”	48
Annex A (normative) Abstract test suite		49
Bibliography		62

Sample Document

get full document from standards.iteh.ai

ISO 19177-1:2026(en)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 287, *Geographic Information*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement), and in collaboration with the Open Geospatial Consortium (OGC).

A list of all parts in the ISO 19177 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO 19177-1:2026(en)

Introduction

This document is an ISO adaptation of *OGC API – Tiles – Part 1: Core* (OGC 20-057). The normative content is identical to that in the OGC standard, but some minor editorial changes have been made to bring this document in line with the ISO/IEC Directives, Part 2.

This document defines building blocks for implementing web application programming interfaces (APIs) that support the retrieval of tiled geospatial information. A web API is an application programming interface for either a web server or a web browser. This document is sometimes referred to as the “Tiles API”.

The OGC suite of web API standards is an extensible framework for building HTTP-based services that can be accessed in different applications on different platforms such as the web, desktop, mobile, etc. This document specifies how different forms/types of geospatial resources are supported, such as tiles of vector features (“vector tiles”), coverages and maps (or imagery). Although this document can be used independently, the building blocks (e.g. subsets of the API definition that provide for specific functions) can be combined with other OGC API standards (or the ISO equivalents, such as ISO 19168-1) for additional capabilities or increased interoperability for specific types of data. This document references *OGC Two Dimensional Tile Matrix Set and Tile Set Metadata, Version 2.0* (OGC 17-083r4). That standard defines logical models and encodings for specifying tile matrix sets and describing tile sets. A tile matrix set is a tiling scheme that enables an application to partition and index space based on a set of regular grids defined for multiple scales in a coordinate reference system (CRS).

This document is an alternative to *OpenGIS® Web Map Tile Service Implementation Standard* (OGC 07-057r7). Instead of a fixed web interface, this document focuses on simple reusable Representational State Transfer (REST) API building blocks which can be described using the OpenAPI specification. Whereas *WTMS OpenGIS® Web Map Tile Service Implementation Standard* (OGC 07-057r7) focuses on map tiles, this document is designed to support any form of tiled data.

Sample Document

get full document from standards.iteh.ai

Sample Document

get full document from standards.iteh.ai

Geographic information — Geospatial application programming interface (API) for tiles —

Part 1: Core

1 Scope

This document specifies the behaviour of web application programming interfaces (APIs) that provide access to tiles of one or more geospatial data resources (collections) that the web API offers.

This document describes how to:

- discover which resources offered by the web API can be retrieved as tiles;
- get metadata about the available tile sets (including according to which tile matrix set each tile set is partitioned and the limits of that tile set within a common potentially global tile matrix set);
- request a tile.

The core conformance class is defined in a way that can be easily included in a web API, even if that API does not conform to the *OGC API – Common* Standard. A web API can combine some requirements classes of this document with those of other OGC API standards (including *OGC API – Common*) to extend the scope of the web API by adding functionality.

get full document from standards.iteh.ai

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

MASÓ, J., JACOVELLA-ST-LOUIS, J. (eds.) *OGC Two Dimensional Tile Matrix Set and Tile Set Metadata*. Version 2.0. OGC 17-083r4. Open Geospatial Consortium, 2022. Available at: <https://docs.ogc.org/is/17-083r4/17-083r4.html>

HEAZEL, C. (ed.) *OGC API – Common – Part 1: Core*. Version 1.0.0. OGC 19-072. Open Geospatial Consortium, 2023. Available at: <https://docs.ogc.org/is/19-072/19-072.pdf>

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>