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Geografske informacije - Geoprostorski API za funkcije - 1. del: Osrednji profil (ISO 19168-1:2025)

Geographic information - Geospatial API for features - Part 1: Core (ISO 19168-1:2025)

Geoinformationen - Raumbezogene API für Features - Teil 1: Kern (ISO 19168-1:2025)

Information géographique - API géospatiale pour les entités - Partie 1: Profil minimal (ISO 19168-1:2025)

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Geographic information - Geospatial API for features - Part 1: Core (ISO 19168-1:2025)

Information géographique - API géospatiale pour les entités - Partie 1: Profil minimal (ISO 19168-1:2025)

Geoinformationen - Raumbezogene API für Features - Teil 1: Kern (ISO 19168-1:2025)

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European foreword

This document (EN ISO 19168-1:2025) 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of an identical text or by endorsement, at the latest by July 2025, and conflicting national standards shall be withdrawn at the latest by July 2025.

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.

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ISO 19168-1

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Part 1: Core

Information géographique — API géospatiale pour les entités —

Partie 1: Profil minimal

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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.

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.

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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).

This second edition cancels and replaces the first edition (ISO 19168-1:2020), which has been technically revised.

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The main changes are as follows:

— the link schema has been updated to make the "rel" attribute required to align with IETF RFC 8288;

— the bounding box schemas have been updated to require 4 or 6 numbers (2D or 3D);

— the XML Schema core.xsd has been aligned with the corresponding schema for the JSON representation;

— normative references have been updated to reference newer editions (HTTP and OpenAPI);

— the definition of "dataset" has been updated;

— the definitions of the terms "landing page" and "OGC Web API" have been added;

— the IANA link relation type has been corrected to "describedby", rather than "describedBy";

— requirement /req/core/fc-limit-response-1 has been updated to clarify the behaviour if the value of the "limit" parameter is higher than the maximum value;

— recommendation /rec/core/fc-extent has been added to clarify that the bounding box of a feature collection response should be the bounding box of a matched feature, not only the features in the current page;

— recommendations /rec/core/fc-md-self-links and /rec/core/sfc-md-links have been added to clarify that "self" links should be added;

— the value of the "profile" attribute in the GML media type has been modified to be in quotation marks;

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— a new requirement /req/core/fc-md-extent-multi has been added to clarify that the first bounding box in a collection extent array contains all other bounding boxes in the array;

— the use of the attributes "spatial"/"temporal" in a collection extent has been clarified;

— it has been clarified that the "itemType" attribute should be included for each collection;

— the interpretation of a degenerated bounding box in the "bbox" parameter has been clarified;

— it has been clarified that a "next" link can return no additional features;

— it has been clarified that the feature identifier is mapped to the "id" attribute in GeoJSON and "@gml:id" in GML;

— missing test cases have been added;

— some specification URIs have been updated;

— various editorial corrections and updates have been applied in the document.

NOTE For more details on the changes listed, see the OGC release notes.[13]

A list of all parts in the ISO 19168 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.

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Introduction

OGC API standards[10] define modular API building blocks to spatially enable Web APIs in a consistent way. The OpenAPI specification is used to define the API building blocks.

ISO has published a subset of the OGC API family of standards. To reflect that only a subset of the OGC API standards will be published by ISO and to avoid using organization names in the titles of ISO standards, standards from the "OGC API" series are published by ISO as "Geospatial API." For example, the title of this document in OGC is "OGC API - Features - Part 1:Core" and the title in ISO is "Geographic Information — Geospatial API for Features — Part 1: Core."

For simplicity, this document consistently uses:

— "OGC API" to refer to the family of standards for geospatial Web APIs that in ISO is published as "Geospatial API";

— "OGC API - Features" to refer to the multipart standard for features of which certain parts are published by ISO as the ISO 19168 series/"Geographic Information — Geospatial API for Features"; and

— "this document" to refer to "OGC API - Features - Part 1: Core", which is published by ISO as ISO 19168-1/"Geographic Information — Geospatial API for Features — Part 1: Core".

OGC API is organized by resource type. OGC API - Features specifies the fundamental API building blocks for interacting with features. The spatial data community uses the term "feature" for things in the real world that are of interest.

NOTE For those not familiar with the term "feature," the explanations on Spatial Things, Features and Geometry in the W3C/OGC Spatial Data on the Web Best Practice document[7] provide more detail.

OGC API - Features provides API building blocks to create, modify and query features on the Web. The series is comprised of multiple parts, each of them a separate standard. This document (ISO 19168-1), which corresponds to one such part, the "Core", specifies the core capabilities and is restricted to fetching features where geometries are represented in the coordinate reference system (CRS) WGS 84 with axis order longitude/latitude. Additional capabilities that address more advanced needs will be specified in additional parts. Examples include support for creating and modifying features, more complex data models, richer queries, additional CRS, multiple datasets and collection hierarchies.

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By default, every API implementing this document will provide access to a single dataset. Rather than sharing the data as a complete dataset, OGC API - Features offers direct, fine-grained access to the data at the feature (object) level.

The API building blocks specified in this document are consistent with the architecture of the Web. In particular, the API design is guided by the IETF HTTP/HTTPS RFCs, the W3C Data on the Web Best Practices,[8] the W3C/OGC Spatial Data on the Web Best Practices,[7] and the emerging OGC Web API Guidelines. A particular example is the use of the concepts of datasets and dataset distributions as defined in DCAT[9] and used in schema.org.

This document specifies discovery and query operations that are implemented using the HTTP GET method. Support for additional methods (in particular POST, PUT, DELETE, PATCH) is specified in additional parts.

Discovery operations enable clients to interrogate the API, including the API definition and metadata about the feature collections provided by the API, to determine the capabilities of the API and retrieve information about available distributions of the dataset.

Query operations enable clients to retrieve features from the underlying data store based upon simple selection criteria, defined by the client.

This document defines the resources listed in Table 1. For an overview of the resources, see 7.1.

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Table 1 — Overview of resources, applicable HTTP methods and links to the document sections

Resource	Path	HTTP method	Subclause
Landing page	/	GET	7.2 API landing page
Conformance declaration	/conformance	GET	7.4 Declaration of conformance classes
Feature collections	/collections	GET	7.13 Feature collections
Feature collection	/collections/{collectionId}	GET	7.14 Feature collection
Features	/collections/{collectionId}/items	GET	7.15 Features
Feature	/collections/{collectionId}/items/{featureId}	GET	7.16 Feature

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