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Geographic information — Geospatial API for features —

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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*.

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[9] define modular API building blocks to spatially enable Web APIs in a consistent manner. The OpenAPI specification is used to define the API building blocks.

The OGC API family of standards is organized by resource type. This document 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.

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 provide more detail.

OGC API Features provides API building blocks to create, modify and query features on the Web. OGC API Features is comprised of multiple parts, each of them a separate standard. This document, the "Core", specifies the core capabilities and is restricted to fetching features where geometries are represented in the coordinate reference system, 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 coordinate reference systems, multiple datasets and collection hierarchies.

By default, every API implementing this document will provide access to a single dataset. Rather than sharing the data as a complete dataset, the OGC API Features standards offer 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, the W3C/OGC Spatial Data on the Web Best Practices 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 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) will be 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.

A subset of the OGC API family of standards is expected to be published by ISO. For example, this document is published by ISO as ISO 19168-1. 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," i.e. 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 that in ISO is published as ISO 19168 / "Geographic Information - Geospatial API for features;"

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

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	Document reference
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

Implementations of OGC API Features are intended to support two different approaches for how clients can use the API. For further information, see 6.1.

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Geographic information — Geospatial API for features —

Part 1: Core

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1 Scope

This document specifies the behaviour of Web APIs that provide access to features in a dataset in a manner independent of the underlying data store. This document defines discovery and query operations.

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.

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.

INTERNET ENGINEERING TASK FORCE (IETF), RFC 2818: **HTTP Over TLS** [online]. Edited by E. Rescorla. 2000 [viewed 2020-03-16]. Available at https://tools.ietf.org/rfc/rfc2818.txt

INTERNET ENGINEERING TASK FORCE (IETF), RFC 3339:2002: **Date and Time on the Internet: Timestamps** [online]. Edited by G. Klyne, C. Newman. 2002 [viewed 2020-03-16]. Available at https://tools.ietf.org/rfc/rfc3339.txt

INTERNET ENGINEERING TASK FORCE (IETF), RFC 7230 to RFC 7235: **HTTP/1.1** [online]. Edited by R. Fielding, J. Reschke, Y. Lafon, M. Nottingham. 2014 [viewed 2020-04-28]. Available at https://tools.ietf.org/rfc/rfc7230.txt, https://tools.ietf.org/rfc/rfc7231.txt, https://tools.ietf.org/rfc/rfc7232.txt, https://tools.ietf.org/rfc/rfc7233.txt, https://tools.ietf.org/rfc/rfc7234.txt, and https://tools.ietf.org/rfc/rfc7235.txt

INTERNET ENGINEERING TASK FORCE (IETF), RFC 8288:2017: **Web Linking** [online]. Edited by M. Nottingham. 2017 [viewed 2020-03-16]. Available at https://tools.ietf.org/rfc/rfc8288.txt

OPENAPI INITIATIVE (OAI), **OpenAPI Specification 3.0** [online]. 2020 [viewed 2020-03-16]. The latest patch version at the time of publication of this standard was 3.0.3, available at http://spec.openapis.org/oas/v3.0.3

3 Terms, definitions and abbreviated terms

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

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