Open Geospatial Consortium

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OGC Terminology Reference SWG Charter

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To: OGC members & interested parties

A new OGC Standards Working Group (SWG) is being formed. The OGC members listed below have proposed the OGC Terminology Reference SWG. The SWG proposal provided in this document meets the requirements of the OGC Technical Committee (TC) Policies and Procedures.

The SWG name, statement of purpose, scope, list of deliverables, audience, and language specified in the proposal will constitute the SWG's official charter. Technical discussions may occur no sooner than the SWG's first meeting.

This SWG will operate under the OGC IPR Policy. The eligibility requirements for becoming a participant in the SWG at the first meeting (see details below) are that:

- You must be an employee of an OGC member organization or an individual member of OGC;
- The OGC member must have signed the OGC Membership agreement;
- You must notify the SWG chair of your intent to participate to the first meeting. Members may do so by logging onto the OGC Portal and navigating to the Observer page and clicking on the link for the SWG they wish to join and;
- You must attend meetings of the SWG. The first meeting of this SWG is at the time and date fixed below. Attendance may be by teleconference.

Of course, participants also may join the SWG at any time. The OGC and the SWG welcomes all interested parties.

Non-OGC members who wish to participate may contact us about joining the OGC. In addition, the public may access some of the resources maintained for each SWG: the SWG public description, the SWG Charter, Change Requests, and public comments, which will be linked from the SWG's page.

Please feel free to forward this announcement to any other appropriate lists. The OGC is an open standards organization; we encourage your feedback.

Chapter 1. Purpose of the Standards Working Group

The purpose of this SWG is to revise, publish, and maintain standard methods of referencing and maintaining terminology resources across OGC standards. These methods include schema patterns, profile descriptions and validations and service APIs.

Chapter 2. Business Value Proposition

2.1. Value to the OGC

The OGC is faced with many instances where terminology is referenced, and a range of legacy solutions from either developed or adopted standards. Often these solutions are based on duplication of content such as keywords, without reference to the allowable range of such keywords. Most typically applications of OGC standards face the problem of specifying the terminology needed to achieve semantic interoperability of content, or full description of application specific services.

Having a dedicated SWG to standardise approaches, working in conjunction with other WGs such as the OGC API "umbrella" SWG, the OAB and the Spatial Data on the Web WG allows for solutions to be validated and shared to cover the spectrum of terminology and terminology services approaches.

A key value proposition is establishing effective collaborations with domain specific standards groups that maintain terminology resources, such as buildingSMART International. Such collaborations support potential adoption of OGC standards in these environments.

2.2. Value to the OGC Membership

A centralised forum to assess and debate solutions to terminology interoperability frees OGC members from the complexities of reviewing a wide range of internal and external implementations. It allows conformance and software support for basic capabilities to be widely understood and implemented.

This SWG represents the principles of "encapsulation" of a complex problem through sharing the simplest possible common solutions.

2.3. Value to the geospatial community

The larger geospatial community will benefit from an ability to achieve semantic interoperability across the suite of OGC standards implementations, without having to develop specific application solutions for every deployment having potentially different solutions.

2.4. Value to the wider IT community

This is a problem not solved in the wider IT community - OpenAPI for example has stated a desire to look to OGC for understanding of requirements. This is natural, since terminology differences are inherent in geography, both in terms of formal jurisdictions and social context.

By demonstrating approaches relevant to OGC standards, which in turn build on wider IT community standards, this SWG can support a "design pattern" approach, or more formal interactions with other specifications.

Chapter 3. Scope of Work

This will SWG will define standards for a range of mechanisms to enable semantic interoperability of content provided by OGC API and data standards, including:

- reusable schema "Building Blocks" for referencing terminology resources as Linked Data
- reusable schema "Building Blocks" for minimal profiles of terminology definition standards - including at least the SKOS standard.
- mappings or translations between legacy and external standards and the preferred canonical schemas
- a terminology access API compatible with OGC API common collections and items model
- Terminology service subscription mechanisms - possibly as an example of PubSub
- Terminology service federation mechanisms supporting geographically relevant subsets of vocabularies.
- Extension of terminology with rich object models
- Specification of OGC APIs (i.e. methods) if required for specific terminology object models key to the OGC domain, including Feature Types, ObservableProperties, CRS

For example, an application may need to standardise content with a combination of a subset of terminology from a large dataset augmented with a subset of terminology from another source. For example a planning authority may need to combine a subset of land use categories from the *International Urban and Regional Information Systems Association (URISA) Land Use Classification* and combine with a subset of cultural landuses relevant to their region.

One need is to declare the source of this terminology in metadata and data to support discovery and interpretation of the data using this terminology. Interpretation and analysis may require access to richer models describing the characteristics of these lan ude categories.

3.1. Statement of relationship of planned work to the current OGC standards baseline

The scope of this SWG is to augment the semantic interoperability capabilities of existing and future OGC standards by defining profiles and extensions to standardise use of terminology resources.

This SWG can identify common semantics and canonical translations between the many forms of terminology references already present in OGC and other standards, and help avoid proliferation of more forms.

3.2. What is Out of Scope?

Developing new functional standards not related to terminology usage in other OGC standards.

3.3. Specific Existing Work Used as Starting Point

- Keyword and theme references in OGC API Records schemas
- STAC extensions [Themes](https://github.com/stac-extensions/themes) - and fields in many extensions that could or should use controlled terminology.
- GML and ISO XML schemas for dictionaries
- [SKOS JSON schema draft "Building Block"](https://ogcincubator.github.io/bblocks-skos/)
- [OGC Building Blocks profiling](https://ogcincubator.github.io/bblocks-docs/overview/profiles)
- STAC extensions - embedded vocabularies
- BuildingSmartInternational BSI Data Dictionary
- other approaches such as Ontoportal Alliance federated vocabulary services (software specific)

3.4. Is This a Persistent SWG

[x] YES

[ ] NO

3.5. When can the SWG be Inactivated

If and when:

- building blocks have been defined and it an adopted OGC policy to use these in new OGC standards to support semantic interoperability, and
- the wider community routinely addresses semantic interoperability with solutions covered by OGC standards.

Chapter 4. Description of deliverables

- Schema Building Blocks supporting terminology references
- API Building Blocks for augmenting OGC API endpoints with terminology
- Ontology Building Blocks for profiling and extending SKOS to support federation and terminology provenance

Note that these Building Blocks will include canonical resources with persistent URL locations, validation resources, examples and transformation rules with testing.

Profiles of existing OGC standards will be described as Building Blocks supported further profiling and combination using the same mechanisms as profile constraint specifications (i.e. a scalable, reusable solution)

4.1. Initial Deliverables

The following set of deliverables provides a minimal capability:

- JSON schema for a minimal SKOS profile (using JSON-LD for simple interpretation as SKOS)
- OGC API - Terminology using the minimal SKOS profile JSON schema to serve terminology definitions
- OGC API Records profile constraining references to managed terminology resources, including terminology resource subsets as range of property values
- OGC API Features profile constraining terminology to references to managed terminology resources

After these federation mechanisms for terminology services can be explored in the context of wider IT community directions, using the above mechanisms as driving Use Cases to drive requirements.

4.2. Additional SWG Tasks

Additional SWG tasks will be added iteratively when new change requests and issues become apparent or gain priority. The SWG is planned as a long term working group so that new change requests may arise during the development of the initial deliverables. These will be prioritized and periodically classified as additional SWG tasks.

Chapter 5. IPR Policy for this SWG

[x] RAND-Royalty Free

[ ] RAND for fee

Chapter 6. Anticipated Audience / Participants

The anticipated audience is:

- OGC standards users needed to adequately describe data
- software developers needing to support end-user understanding of data in data access services and metadata
- data spaces and other infrastructure designers needing to support FAIR principles
- data publishers needing to better describe data

Chapter 7. Domain Working Group Endorsement

This SWG scope addresses requirements for interoperable best practices in across multiple environments.

As terminology is both a semantic and implementation concern, the GeoSemantics DWG should work with relevant SWG implementing functionality to identify requirements and opportunities for standardisation.

As one or more APIs and profiles of OGC APIs are envisaged the OGC APIs SWG should be engaged, however these activities can be limited to best practices for use of existing OGC APIs and schemas and does not have any impact on legacy standards.

Chapter 8. Other informative information about the work of this SWG

8.1. Collaboration

8.1.1. bSI

GIS/BIM integration has been a long-standing challenge. bSI has a strong community using controlled vocabularies, so identifying how these may be used in the context of OGC standards such as OGC API Features, CityGML, IndoorGML, MUDDI etc is a problem of standardising terminology referencing mechanisms.

"On behalf of buildingSMART International (bSI), I am writing to express our strong interest in the OGC Call for Participation for the Vocabulary Service Standard (https://www.ogc.org/requests/vocabulary-service-standard/). We see significant synergy between this initiative and our buildingSMART Data Dictionary (bSDD) service (read more: https://www.buildingsmart.org/users/services/buildingsmart-data-dictionary/).

In short, the bSDD is a service for sharing and accessing data dictionaries to be used in BIM data, information requirements etc. The service is to a great extent based on the ISO23386 and ISO12006-3 on interconnected data dictionaries. As of today, there are 195 organisations who published over 300 data dictionaries in the bSDD, all can be browsed here: https://search.bsdd.buildingsmart.org/. The service has around 1000 unique daily users doing around 3M requests a month. We also provide an open API (JSON, RDF) to enable easy integrations with software, and there are 26 known software integrations with the bSDD.

As you know, the OGC and bSI have a longstanding Memorandum of Understanding, renewed in 2023, fostering cooperation in standards development and interoperability between BIM and GIS (more on MOU: https://www.buildingsmart.org/buildingsmart-international-and-geospatial-world-sign-mou-to-advance-bim-and-gis-workflows/). The Vocabulary Service Standard goals reflect the purpose and to great extent capabilities that the bSDD provides. Many of the ideas you describe are already implemented and actively used in the bSDD. By aligning and potentially integrating these efforts, I believe we can harmonize access and enhance great interoperability and improved consistency of BIM and GIS data. "

8.2. Similar or Applicable Standards Work (OGC and Elsewhere)

8.2.1. W3C/OGC Spatial Data on the Web Working Group

Scope of Activity

This group operates within the W3C as well as the OGC in order to develop and maintain vocabularies and best practices that encourage better sharing of spatial data on the Web; and identify areas where Standards should be developed jointly by both W3C and the Open Geospatial

Consortium (OGC). It allows members of both organizations to collaborate in the creation of standards an best practices related to both Web and spatial data.

Web Site(s)

- https://www.w3.org/2017/sdwwg/

Source Repositories

- https://github.com/w3c/sdw

Liaisons

- Luis de Sousa (co-chair)
- Rob Atkinson (co-chair)

8.3. Other Related Work

8.4. Details of first meeting

TBD

8.5. Projected on-going meeting schedule

The work of the SWG will be carried out primarily by email and conference calls, possibly every two weeks, with face-to-face meetings perhaps at each of the OGC Member Meetings.

8.6. Supporters of this Charter

The following people support this proposal and are committed to the Charter and projected meeting schedule. These members are known as SWG Founding or Charter Members. The Charter Members agree to the SoW and IPR terms as defined in this charter. The Charter Members have voting rights beginning the day the SWG is officially formed. Charter Members are shown on the public SWG page.

TBD

8.7. Conveners

TBD

Name	Organization

Chapter 9. References

[DCAT] Web: W3C: Data Catalog Vocabulary (DCAT) — Version 2, https://www.w3.org/TR/vocab-dcat-2/ (2020)

[DCAT3] Web: W3C: Data Catalog Vocabulary (DCAT) — Version 3, https://www.w3.org/TR/vocab-dcat-3/

[SDWBP] Web: OGC & W3C: Spatial Data on the Web Best Practices, https://www.w3.org/TR/sdw-bp/

[PROF] Web: W3C: Profiles Vocabulary (DCAT), https://www.w3.org/TR/dx-prof/

[ISO19115]: ISO 19115-1:2014. Geographic information — Metadata — Part 1: Fundamentals, https://www.iso.org/standard/53798.html

[OAR]: DRAFT OGC API - Records - Part 1: Core, http://docs.ogc.org/DRAFTS/20-004.html

[STAC]: Spatio Temporal Asset Catalogs (STAC), https://stacspec.org/en