Catalogue Services 4.0 Standards Working Group Charter

Author Name(s):

*Email

DATE: CATEGORY: SWG Charter

To: OGC members & interested parties

A new OGC Standards Working Group (SWG) is being formed. The OGC members listed below have proposed the OGC Catalogue Services 4.0 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.

Purpose of the Standards Working Group

The purpose of this Standards Working Group is to develop a new version of the Catalogue Service standard (HTTP Protocol Binding).

Business Value Proposition

Scope of Work

The current versions of the catalogue standards (i.e. CAT 2.0, CAT 3.0) — developed in the early 2000s — use a Remote-Procedure-Call-over-HTTP architectural style using XML for any payloads. This was considered state-of-the art at the time but this legacy is now badly outdated and does not conform to current web development practices.

The next version (CAT 4.0) is intended to break free of this legacy and will specify a modernized service that aligns with the current architecture of the Web and the Spatial Data on the Web Best Practices (https://www.w3.org/TR/sdw-bp/). The key changes shall be as follows.

- Architecture:
  CAT 4.0 shall support and be consistent with HTTP and HTTPS. In previous versions, HTTP has been used mainly as a tunnel for CAT messages. In addition, the resources provided by the service shall include hypermedia controls in their representations to guide the user of a catalogue.

- Encodings:
  Previous versions were strongly tied to XML (Capabilities documents, XML schemas, Filter Encoding expressions, etc.). This version shall be written with JSON, HTML, and XML as primary encodings in mind, given these are common encodings today. No encoding shall be mandatory and other encodings may be used as well. HTTP is designed to support the use of multiple formats and defines rules about how servers can return the encoding that the client can best handle ("content negotiation").

- Basic information model:
  Previous versions of the CAT 3.0 standard used the Dublin Core set of metadata (encoded as XML) as the basic, cross-platform, information model that all implementations needed to support. CAT 4.0 will review the use of this model and strongly consider using DCAT (https://www.w3.org/TR/vocab-dcat/) instead.

- Reuse:
  The use of CAT-specific resources or components will be minimized and, where available, existing industry-standards that are commonly used by developers shall be used instead. The most important example for this is the use of an OpenAPI definition instead of OGC-specific "Capabilities" documents.

- Modularization:
  The CAT 3.0 standard, together with the Filter Encoding 2.0 standard, specifies a powerful, but complex service interface. In order to better support implementations that only need a relatively simple service or client, the next version shall be modularized into multiple parts. The first part (the "core") shall specify a simple interface to access metadata from catalogues that is sufficient for cases that do not require support for transactions, complex data structures, rich queries, etc. Additional parts will specify extensions to this part to meet the needs of use cases that require such capabilities.

- Security:
  CAT 3.0, like many other OGC web standards, does not specify how services may be secured and some requirements are incompatible with secured services that still conform to the standard. The use of OpenAPI would address this issue, too. Catalogues Services may be secured using security schemes that are commonly used on the Web today (e.g., OAuth2) and that developers are familiar with.

As a result of this modernization, CAT 4.0 implementations will not be backwards compatible with CAT 3.0 implementations per se. However, it is a design goal to define CAT 4.0 in a way so that the CAT 4.0 interface can be mapped to a CAT 3.0 or CAT 2.0 implementation - at least for the capabilities that were already in scope for those standards.

CAT 4.0 is intended to be simpler and more modern, but still an evolution from the previous versions and their implementations.

The goal is to develop part 1 of CAT 4.0, the foundation for the new version, as quickly as possible and work on additional parts after that, driven by community interest.

An important aspect is to ensure that implementing the standard will lead to efficient implementations, happy developers of both server and client components, and satisfied users of such components.

This has several aspects:

Before finalizing parts of the next version of CAT 4.0, it must be verified that these goals are met, i.e.:

- working implementations of all capabilities must be available and tested; and
- Implementation feedback must be taken into account.

A consequence of this is that the period between the availability of what is considered a mature draft and the finalization of the specification may be longer than in the past, depending on the availability of evidence about the suitability of the specification based on implementations.

Developers, including those that are not active in OGC or ISO/TC 211, should be encouraged as early as possible to implement the draft and provide feedback. An aspect of this is public access to drafts from the beginning.

To this end, the SWG intends to use GitHub in the development of this standard as this is the environment may developer are familiar with and user on a daily basis.

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

This standard is intended to be a major revision to the Catalogue Services standards published by OGC. This revision will take advantage of Web API patterns identified in the OGC API standards efforts (e.g., OGC API - Features, AKA WFS3) to better align with current and emerging IT practices. CAT 4.0 does overlap in scope with the existing OGC Catalogue Services standards.

What is Out of Scope?

T.B.D.

Specific Existing Work Used as Starting Point

The starting point for the work shall be the "OGC® Catalogue Services 3.0 Specification - HTTP

Protocol Binding", OGC 12-176r7. The work shall also be informed by the following specifications and by recommendations found in:

- OGC/W3C Spatial Data Working Group on the Web Best Practices (https://www.w3.org/TR/sdw-bp/);
- OGC Geospatial API White Paper;
- FGDC Application Programming Interface (API) assessment;
- OGC Web Feature Service 3.0: Part 1 - Core standard, OGC 17-069; and
- SpatioTemporal Asset Catalog API Specification (https://github.com/radiantearth/stac-spec).

Each of these documents recommends an emphasis on resource oriented APIs in future OGC standards development including use of tools such as OpenAPI. In addition, the following metadata standards shall be reviewed:

- Data Catalogue Vocabulary (DCAT) (https://www.w3.org/TR/vocab-dcat/);
- Geographic information — Metadata — XML schema implementation (ISO/TS 19130:2007);
- ebXML Registry Information Model, Version 3.0 (http://docs.oasis-open.org/regrep/regrep-rim/v3.0/regrep-rim-3.0-os.pdf).

Is This a Persistent SWG

YES

When can the SWG be Inactivated

The SWG can be inactivated once the final standard and any extensions are developed and change requests become minimal or not applicable for consideration. The SWG can be re-activated at any time.

Description of deliverables

The following deliverables will result from the work of this SWG:

- A final version of the Catalogue Services Version 4.0 Standard document for submission to the TC; and
- At least three prototype implementations of the core based on the standard — although more would be preferred.

IPR Policy for this SWG

RAND-Royalty Free

Anticipated Audience / Participants

Since we want implementations to proliferate the primary audience for the CAT 4.0 standard shall be developers implementing servers. Additionally, target audiences of the CAT 3.0 standard shall include:

- developers and deployers of catalogue services profiles; and
- users of catalogue services.

Domain Working Group Endorsement

Other informative information about the work of this SWG

Collaboration

The SWG intends to use the following GitHub report for the development of the new standard: https://github.com/opengeospatial/CAT4.0.

Like the WFS 3.0 SWG, the CAT 4.0 SWG intends to make the GitHub repo open to the public to solicit participation and feedback from OGC and non-OGC members.

Similar or Applicable Standards Work (OGC and Elsewhere)

Details of first meeting

The first meeting of the SWG will be within four weeks of approval of the SWG.

Projected on-going meeting schedule

The work of this SWG will be carried out primarily on github and via email, conference calls, with potential face-to-face meetings at OGC TC meetings as agreed to by the SWG members. The teleconference calls will be scheduled as-needed and posted to the OGC portal.

Supporters of this Charter

The following persons support this SWG and are committed to the Charter and projected meeting schedule.

Name	Organization
Paul van Genuchten	Geocat

Chris Holmes	Planet Labs
Frederic Houbie	Hexagon
Tom Kralidis	Environment and Climate Change Canada, Meteorological Service of Canada
Angelos Tzotsos	Open Source Geospatial Foundation
Panagiotis (Peter) A. Vretanos	CubeWerx Inc.

Conveners

- Chris Holmes
- Tom Kralidis
- Angelos Tzotsos
- Panagiotis (Peter) A. Vretanos