INSPIRE

Infrastructure for Spatial Information in Europe

News from Standardisation Bodies

Type	Document for information and discussion
Creator	EC and EEA INSPIRE Team
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Addressee	MIG
Identifier	**MIG/15/2022/DOC5**
Description	This documents summarises new developments and activities relevant to INSPIRE maintenance and implementation from the following standardisation bodies: • ISO/TC 211 Geographic Information/ Geomatics • Open Geospatial Consortium (OGC) • World Wide Web Consortium (W3C) – Not covered in this version
Actions:	MIG to: • Take note of the document • Discuss possible coordinated actions related to the presented standardisation activities

1. ISO/TC 211 Geographic Information/ Geomatics

ISO/TC 211 develops open geospatial standards in close cooperation with other liaison organizations, including EC, OGC, OSGeo, and ESA. Members participate through their national standards bodies and liaison organisations. Members contribute by decision making setting the scope and strategic direction, by experts developing the standard documents, and by demonstrating the adoption and implementation of standards in their organizations. ISO/TC 211 is its members and liaisons.

1.1. Keeping updated and accessing ISO/TC 211 resources

To be notified on news, publications, events or other updates, it is recommended to follow us on the committee website https://committee.iso.org/home/tc211, and social media, e.g. LinkedIn.

The committee website contains other useful information:

- Strategic business plan, program of work, ongoing projects, list of all ISO/TC 211 standards.
- Freely available resources: UML, xml, terms, ontologies, ISO Geodetic register.

1.2. Recent and upcoming activities

ISO/TC 211 meeting weeks

Our 53rd meeting week was again held entirely on line, in December 2021, but in May 2022 we will be holding a hybrid meeting week. We look forward to welcome about half our attendees in Vienna from 9-13 May, with the rest engaging from their home locations across the world. Keep an eye on 54th Plenary meeting Vienna (iso.org) – more details and links will be added over the next weeks.

Online standards guide, launched February 2022

ISO/TC 211, the Open Geospatial Consortium (OGC), and the International Hydrographic Office collaborated to produce a web edition of the UN-GGIM Standards Guide (3rd edition) which had been endorsed by UN-GGIM in August 2021. We believe this provides a good overview of geospatial standards aligned with the UN-GGIM Integrated Geospatial Information Framework. UNGGIM Standards Guide (ogc.org)

Land administration domain model workshop

Revision and extension of ISO 19152 *Land administration domain model* continues as a widely collaborative activity, so the FIG / Croatian Congress on Cadastre event from 31 March – 2 April 2022 is an opportunity to catch up with and influence what is going on in this domain. See LADM2022Workshop < Research/ISO19152 < TU Delft Wiki.

Spatial digital twins

We are pleased to be supporting our liaison organization World Geospatial Information Congress's workshop on spatial digital twins on April 5th. See https://www.assetmapping.events/spatial-digital-twins.

1.3. Other results from the committee

There are several advisory groups, ad hoc groups in addition to working groups and joint working groups.

Of particular interest:

- AHG 05 on automated documentation.
- AHG 07 on representing time. “Time” is not specific to geographic information and good practice and standards for describing temporal aspects of data exist in many other areas

As reported earlier and in line with the committee openness for solutions facilitating for developers and users, ISO/TC 211 is participating in the pilot project on ISO Standards Machine Applicable, Readable and Transferable (SMART) Standards. For example, our web-accessible glossary (https://isotc211.geolexica.org/) is a recognised ISO SMART project and provides SKOS definitions for standardised concepts, in several languages.

Collaborative work with OGC:

- Discrete Global Grid Systems / ISO 19170:
    - Part 2: Three-dimensional and Equi-volume DGGS RS;
    - Part 3: Patio-temporal DGGS RS;
    - Part 4: Axis-aligned DGGS RS.
- Observations, measurements and samples / ISO/DIS 19156; joint work to revise OGC O&M / ISO 19156, ISO public enquiry period closes April 2022
- ISO 19168-2 on Geospatial API for Features – Part 2: Coordinate reference systems by reference, equivalent to OGC API Features – Part 2 – target for publication: July 2022
- We also collaborate on activities that work across standards, such as generating documents largely from UML models, and improving the way we publish web-friendly ontologies.

1.4. New standard projects

Several other initiatives are underway or in the decision and voting process before formal start. A couple may be of particular interest

The series of **Land Administration Domain Models** (LADM – ISO 19152):

Part 1 - Land Administration Fundamentals – a revision of ISO 19152

Part 2 - Land Registration – project team working

Part 3 - Marine Space Georegulation – project team about to start

Part 4 –Valuation Information – vote in progress to start

Part 5 - Spatial Plan Information

Part 6 – Implementations. Separate NWIPs will be submitted for each other part.

Mechanism to harmonise **Land cover and land use classifications** (ISO 19144):

Part 1 – Classification system structure – revision once -2 and -3 are mature drafts

Part 2 – Land Cover Meta Language – revision, separating out land use; should go to public enquiry in summer 2022

Part 3 – Land Use Meta Language – work starting

Part 4 – Registration and implementation aspects

The European Commission is engaged with this work through our Advisory Group on Land Cover & Land Use, alongside the European Space Agency and UN bodies such as FAO and the World Bank.

1.5. Recently published standards

No ISO/TC 211 standards have been published since November 2021.

1.6. Points of contact

Mr. Morten Borrebæk, ISO/TC 211 convenor Working group 4 Morten.Borrebaek@kartverket.no

Mr Peter Parslow, ISO/TC 211 chair, peter.parslow@os.uk

2. Open Geospatial Consortium (OGC)

The OGC represents a collective problem solving community with over 550 businesses, government agencies, research organizations, and universities united with the mission to make location information FAIR – Findable, Accessible, Interoperable and Reusable. Through the organization's member-driven consensus process, OGC Members create royalty free, publicly available open standards. Existing at the cutting edge, OGC actively analyses and anticipates emerging tech trends, and runs an agile, collaborative Research and Development (R&D) lab - the OGC Innovation Program - that uses collective solving mechanisms addressing and solving real-world geospatial challenges - building on experiences by our members and resulting in proof of concepts, best practices, Engineering Reports and prototype implementations.

OGC members together form a global network of experts and communities. Using location, the OGC connects people, communities, technology and decision making for the good of society.

2.1. 2021 recap

- 12 Standards approved
- 3 Best and Community Practices approved
- 22 Engineering Reports approved
- 4 Discussion or Technical Papers approved
- 4 new Standards Working Group (SWG)
- 12 Innovation Program initiatives completed

A summary document is available at https://portal.ogc.org/files/?artifact_id=100569.

2.2. OGC Standards Roadmap and API Developments

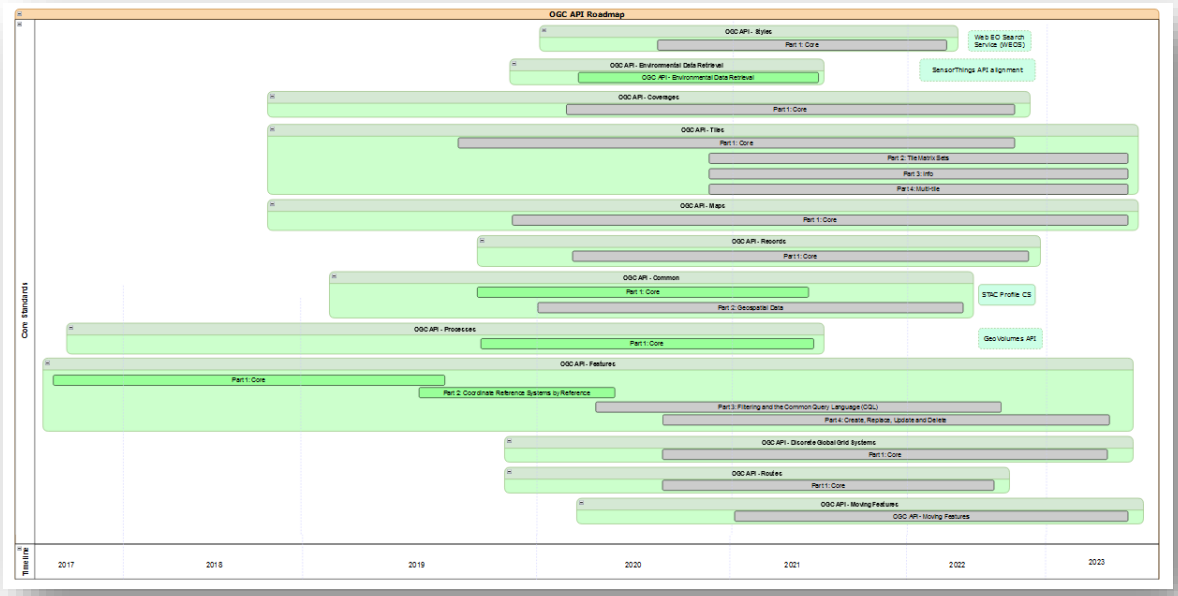
The OGC API family of standards is being developed to make it easy for anyone to provide geospatial data to the web. These standards build upon the legacy of the OGC Web Service standards (WMS, WFS, WCS, WPS, etc.), but define resource-centric APIs that take advantage of modern web development practices.

The standards are being constructed as "building blocks" that can be used to assemble novel APIs for web access to geospatial content. The building blocks are defined not only by the requirements of the specific standards, but also through interoperability prototyping and testing in the OGC'S Innovation Program. Meanwhile the INSPIRE Community has taken up the OGC APIs in various communities of practice.

The OGC Standards Roadmap shows progress of official OGC Standards (in grey) and Community Standards (in blue).

There is a first blog post available on "INSPIRE and OGC APIs - Part 1: Modernising INSPIRE". Part 2 is currently under development.

The OGC API Roadmap shows evolution and progress of official OGC API Standards and the evolution.



2.3. OGC Sprints

OGC Sprints play an important role in the standards development process, as they allow moving discussions forward in an agile environment. At OGC Sprints, technology and domain experts, programmers and program managers come together to develop new and enhance existing OGC API specifications in an agile way. The APIs development is pushed forward and at the same time coordinated to ensure minimum redundancy and overlap and consistent use of common elements across the growing set of OGC APIs.

OGC API Code Sprint Schedule (2022)

- 8th to 10th March 2022: Joint OGC OSGeo ASF Code Sprint – covering all OGC Standards. **Sponsored by Ordnance Survey.**
- May 2022: covering OGC API DGGS, OGC API Tiles, OGC API Coverages, OGC API Environmental Data Retrieval.
- July 2022: covering OGC API Moving Features, OGC API Routes, OGC API GeoVolumes, OGC API Features
- September 2022: Joint OGC and ISO/TC211 Code Sprint – covering OGC API Records, ISO 19115, JSON-FG, and STAC.
- December 2022: covering OGC API Maps, OGC API Tiles, OGC API Styles.

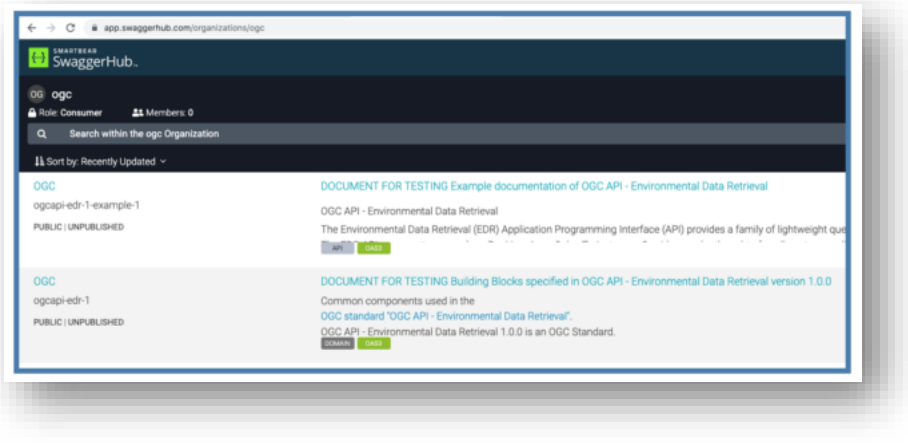
If you are interested to support and/or sponsor one of the code sprints, please contact us at standards-team@ogc.org

2.4. OGC on SwaggerHub

OGC has now a presence on SwaggerHub. This will be used for publishing API definitions of approved OGC API Standards beginning with:

- OGC API - Environmental Data Retrieval

- OGC API - Features
- OOGC API - Processes
- IGC API - Common



What does SwaggerHub mean for OGC API Standards?
OGC APIs will be visible in a very popular API repository. As of end of March SwaggerHub has more than 500.000 definitions registered. There are additional built-in capabilities available:

- OpenAPI validator
- Client SDK code generation
- Server Stub code generation
- Automated resolution of APU definition
- Automated conversion of YAML encoded API definition to JSON

2.5. OGC Member Meetings - aka Technical / Planning Committee Meetings

Last OGC Member Meetings have been moved to virtual ones, the schedule for 2022/2023 is currently under development. OGC will adjust the schedule where necessary and appropriate. NOTE: OGC will move to a long-term pattern of 3 physical and 1 virtual meetings per year, normally with virtual in December.

Dateate	**Location**	**Host/Sponsor**
28. Feb - 04. March 2022	Virtual	AWS
June 2022	In-person Europe (south-west)	
October 2022	Singapore	Singapore Land Authority
December 2022 Innovation Meeting	Virtual	
28. Feb - 04. March 2022	Virtual	AWS

2.6. Innovation at OGC

The OGC Innovation Program is the problem solving and new ideas exploration body of the OGC. It's a forum for OGC members to solve the latest and hardest geospatial challenges via a collaborative and agile process. Managed by OGC staff, more than 500 organisations jointly develop solutions for geospatial IT challenges. These challenges can be of any type: technological, strategical, economical, communicational and many more. Results are Innovative Solutions, Best Practices and Open Standard.

OGC Innovation Program in Numbers (2021):

Current initiatives include:

- Testbed-18:
  - New Space.
  - Machine Learning.
  - Open Science.
  - Building Energy.
- Federated Marine SDI Pilot.
- Climate Change Services Pilot.
- GeoTech Interoperability Experiment (addressing connections between Science & IT, BIM & GIS, Users & Solutions).

2.7. Points of contact

Athina Trakas,
Director Member Success and Development, Europe, Central-Asia & Africa atrakas@ogc.org

Dr. Ingo Simonis,
CTIO Chief Technology & Innovation Officer, isimonis@ogc.org

3. World Wide Web Consortium (W3C)

Not covered in this version of the report.