

TITLE: Spatial Data on the Web Sub-Group Charter Author Name (s): Denise McKenzie Email: dmckenzie@opengeospatial.org DATE: 07/11/2014 CATEGORY: Charter (Sub-Working Group to Geosemantics DWG)

1. Spatial Data on the Web Working Group (SDWWG)

2. Purpose of this Standards Working Group

What are the best examples of data-driven Web applications you've ever seen? The updates to [Open Street Map after the Haiti earthquake](#)? The mapping of all [9,966,539 buildings in the Netherlands](#)? The [NHS Prescription data](#)? Things like [SF Park](#) that help you 'park your car smarter' in San Francisco using real time data? The maps, satellite and street level images offered by search engines?

All these and many, many more data-driven applications have geospatial information (GI) at their core; it is a major element in defining context for knowledge that can then be exposed in many different ways to end users. The societal, economic and scientific benefits of integrating GI into commercial and institutional processes is potentially huge. Very often the common factor across multiple datasets is the location data, and maps are crucial in visualizing correlations between data sets that may otherwise be hidden.

Having a clear strategy as to how GI is best integrated with data on the Web is paramount. Commercial operators, including search engines, invest a great deal of time and effort in generating geographical databases which are mirrors to Web content with the geographical context often added manually or at best semi-automatically. This process would be substantially aided if data were published on the Web with the appropriate geographic information at the source, thus allowing discovery and access using the standard mechanisms of the Web.

'Geo' is not the only spatial data. In healthcare, for example, polygons may represent pathology tissue segmentation extractions that can be subjected to spatial analysis. Whilst prioritizing geospatial use cases, in so far as is practical, the WG will take account of the needs of other users of spatial technologies.

The term **coverage** is used to describe a feature whose properties vary with space and / or time; for example, the variation of air temperature within a given geographic region, or the variation of flow rate with time at a hydrological monitoring station.

The Linking Geospatial Data workshop recognized that many relevant standards already exist. These include informal 'community standards' that enjoy widespread adoption

([GeoJSON](#) being the prime example) and others for which the formal standardization process has not been completed. Where standards have been completed there are competing ideas and engineers are often unsure which ones to adopt. With these factors in mind, the **mission** of the Spatial Data on the Web working group is to clarify and formalize the relevant standards landscape. In particular:

1. to determine how spatial information can best be integrated with other data on the Web;
2. to determine how machines and people can discover that different facts in different datasets relate to the same place, especially when 'place' is expressed in different ways and at different levels of granularity;
3. to identify and assess existing methods and tools and then create a set of best practices for their use;
4. where desirable, to complete the standardization of informal technologies already in widespread use.

3. Business Value Proposition

To be completed by the working group in Tokyo.

4. Scope of Work

The scope of the Spatial Data on the Web Working Group, SDWWG, is Web technologies *as they may be applied to location*. Where relevant, it will promote Linked Data using the [5 Stars of Linked Data](#) paradigm, but this will not be to the exclusion of other technologies.

4.1 Relationship with W3C



In collaboration with the OGC, the World Wide Web Consortium, W3C, will create a working group subject to its usual practice and rules of membership. Both the OGC & W3C working groups will be RAND – Royalty Free Working Groups in accordance with both W3C's [Patent Policy](#) and in compatibility with section 3.2.2 of OGC's 2008 Intellectual Property Rights Policy ([PDF](#)). Formally, each group will have its own charter and operate under the respective organizations' rules of membership, *however*, the 'two groups' will work together very closely and create a set of common outputs as set out [below](#) that are expected to be adopted as standards by both W3C and OGC and to be jointly branded.

Corresponding W3C Charter can be found at <http://www.w3.org/2014/spatial/charter>

As is the practice in W3C, the two working groups will work in public, i.e. it will use a publicly visible mailing list and wiki, and the editor's drafts of its documents will be

publicly visible (e.g. on GitHub). To enable write access to these facilities, unless there are specific reasons to the contrary, members of the OGC WG who do not represent W3C member organizations will be granted [Invited Expert](#) status in the SDWWG but without access to member-only resources.

It is expected that the WG's chairs and editors will represent organizations that are members of both standards bodies.

4.2 What is Out of Scope?

The Spatial Data on the Web Working Group must be mindful of the needs of front end Web developers, (see [Dependencies & Liaisons](#)) however, it will not develop any geospatial or map rendering technologies. In other words, this WG is focused specifically on the intersection of the issues facing OGC and W3C members.

4.3 Specific Contribution of Existing Work as a Starting Point

5. Description of Deliverables

The following deliverables are expected to be developed as standards through collaboration with the Open Geospatial Consortium's Geosemantics Domain Working Group, as described below, and to be jointly branded by both standards bodies.

5.1 Deliverables

The titles of the deliverables are not final; the two Working Groups will have to decide on the final titles as well as the structures of the documents. The Working Groups may also decide to merge some deliverables into one document or produce several documents that together constitute one of the deliverables.

The superscripts ^{OGC, W3C} indicate the standards body whose members have particular expertise in a given area.

- **Use Cases and Requirements** (Note)

A document setting out the range of problems that the working groups are trying to solve.

- **Spatial Data on the Web Best Practices** (Recommendation)

This will include:

- an agreed spatial ontology conformant to the ISO 19107 abstract model and based on existing available ontologies such as [GeoSPARQL](#), [NeoGeo](#) and the [ISA Core Location vocabulary](#)^{OGC, W3C};
- advice on use of URIs as identifiers in GI systems^{W3C};
- advice on providing different levels of metadata for different usage scenarios (from broad sweep metadata to metadata about individual coordinates in a polygon)^{OGC};
- develop advice on, or possibly define, RESTful APIs to return data in a variety of formats including those defined elsewhere, such as [GeoJSON](#), [GeoJSON-LD](#) and [TopoJSON](#)^{OGC, W3C}.

Evidence of implementation will be gathered from national or sector-specific guidelines that reference the best practices.

- **Time Ontology in OWL** (Recommendation)^{W3C}

The WG will work with the authors of the existing [Time Ontology in OWL](#) to complete the development of this widely used ontology through to Recommendation status. Further requirements already identified in the geospatial community will be taken into account

- **Semantic Sensor Network Vocabulary** (Recommendation)^{OGC, W3C}

The WG will work with the members of the former [Semantic Sensor Network Incubator Group](#) to develop its [ontology](#) into a formal Recommendation, noting the [work to split the ontology into smaller sections](#) to offer simplified access.

- **Coverage in Linked Data** (Recommendation)^{OGC}

The WG will develop a formal Recommendation for expressing discrete coverage data conformant to the [ISO 19123](#) abstract model. Existing standard and *de facto* ontologies will be examined for applicability; these will include the RDF Data Cube. The Recommendation will include provision for describing the subset of coverages that are simple timeseries datasets - where a time-varying property is measured at a fixed location. OGC's [WaterML 2 Part 1 - Timeseries](#) will be used as an initial basis.

Given that coverage data can often be extremely large in size, publication of the individual data points as Linked Data may not always be appropriate. The Recommendation will include provision for describing an entire coverage dataset and subsets thereof published in more compact formats using Linked Data. For example where a third party wishes to annotate a subset of a large coverage dataset or a data provider wishes to publish a large coverage dataset in smaller subsets to support convenient reuse.

Where deliverables build on prior work, any variance developed by the Spatial Data on the Web WG will be backwards compatible with the existing work. The aim is to formalize existing work, not to replace or compete with it.

Subject to its capacity, the working groups *may* choose to develop additional relevant vocabularies and specifications in response to community demand. For example: a standard method for converting between spatial ontologies; methods to access a subset of a large dataset in terms of its spatial component. Such additional work *may* be carried out by one or other WG independently of the other.

5.1.1 Best Practice Success Criteria

To advance to Proposed Recommendation, evidence will be adduced that each of the best practices have been followed or recommended in at least two environments.

5.1.2 Vocabulary Success Criteria

To advance to Proposed Recommendation, evidence will be adduced that each term in the vocabulary has been used in multiple environments. This will be most strictly applied to terms developed by the WG, less strictly to terms originating from the prior work whose use or otherwise may not be knowable.

5.1.3 Milestones

Milestones

Note: The group will document significant changes from this initial schedule on the group home page.

Deliverable	FPWD	LC	CR	PR	Rec
Use Cases and Requirements	March 2014	June 2015			
Best Practices	June 2015	December 2015	March 2016	July 2016	September 2016
Time Ontology in OWL	June 2015	December 2015	March 2016	July 2016	October 2016
Semantic Sensor Network	July 2015	March 2016	June 2016	October 2016	December 2016
Coverage in Linked Data	September 2015	March 2016	July 2016	September 2016	December 2016

5.1.4 Timeline View Summary

- December 2014: First teleconference
- March 2015: First face-to-face meeting
- March 2015: UCR First Public Working Draft
- June 2015: Best Practices & Time Ontology FPWD
- July 2015: SSN & Coverage to FPWD
- December 2015: Best Practices & Time Ontology to Last Call
- March 2016: Best Practices & Time Ontology to Candidate Recommendation, SSN & Coverage to Last Call
- Summer/Fall 2016: All standards to Proposed Recommendation

- December 2016: All standards to Recommendation

6. IPR Policy for this WG

RAND-Royalty Free.

7. Anticipated Participants

This working group is unique in that the work is in direct collaboration with another SDO. As such it is at all times preferred that participants hold memberships with both OGC & W3C. However, it is recognized that in some cases experts that are critical to the working group may not be in a position to hold memberships of both or any membership at all. In these cases such experts will be invited to participate at the discretion of the Chairs of the working group with the intention that their access to resources is restricted to those relating only to the working group.

To get the most out of this work, participants should expect to devote several hours a week; for budgeting purposes, we recommend at least half a day a week. For chairs and document editors the commitment will be higher, say, 1-2 days a week. Participants who follow the work less closely should be aware that if they miss decisions through inattention further discussion of those issues may be ruled out of order. However, most participants follow some areas of discussion more closely than others, and the time needed to stay in good standing therefore varies from week to week. The Working Group will also allocate the necessary resources for building Test Suites for each specification.

7.1 Dependencies and Liaisons

As well as collaborating with the W3C's SDWWG, the OGC SDWWG will be responsible for liaising with the following OGC groups:

OGC Groups

Geosemantics DWG

core group in OGC that deals with Geo Linked Data (this is the primary PoC working group from which the OGC SDWWG will be formed. This sub-group will have the same individuals as those outlined as Chairs for the Spatial Data on the Web working group)

Geometry DWG

supporting the spatial ontology conformation to ISO 19107, GeoJSON, GeoJSON-LD

Coordinate Reference System DWG

supporting the spatial ontology conformation to ISO 19107, GeoJSON, GeoJSON-LD

Metadata DWG

particularly to advice on providing different levels of metadata

Architecture DWG

OGC

- overarching group considering architectural issues to multiple OGC specifications, to support Use Cases and Requirements and advise on RESTful API's
- Temporal DWG
 - to directly support the Time Ontology in OWL
- Sensor Web Enablement DWG
 - support the Semantic Sensor Network Vocabulary
- Coverages DWG
 - in direct relation to the Coverage in Linked Data
- Mobile Location Services DWG
 - directly relates to the W3C GeoLocation WG.

- Points of Interest SWG
 - general support the Spatial data on the Web Best Practices
- GeoSPARQL SWG
 - directly supporting the Spatial Linked Data on the Web
- Simple Features SWG
 - supporting the spatial ontology conformation to ISO 19107, GeoJSON, GeoJSON-LD
- CRS Well Known Text SWG
 - supporting the spatial ontology conformation to ISO 19107, GeoJSON, GeoJSON-LD
 - Naming Authority - advising on the URI's
- GeoServices REST SWG
 - to develop advice on RESTful API's
- RESTful Services Policy SWG
 - to develop advice on RESTful API's
- Web Coverage Service (WCS) SWG
 - the group working on web services serving coverages

W3C Groups

As well as collaborating with the OGC's SDWWG, the W3C SDWWG will be responsible for liaising with the following W3C groups:

[Data on the Web Best Practices Working Group](#)

Coordinate on best practices, especially in areas of potential overlap.

[Geolocation API Working Group](#)

The group defining the Level 2 Geolocation API to cover geofencing, and the Device Orientation API.

[Annotations WG](#)

Particularly with reference to annotating maps

[SVG Working Group](#)

Ensure compatibility with SVG

[Web Applications Working Group](#)

Ensure spatial data is readily and conveniently available to application developers.

Internationalization Activity

Ensure that multilinguality concerns are properly reflected in the best practices. The WG should also take note of the work of the Best Practices for Multilingual Linked Open Data Community Group.

[Privacy Interest Group](#)

Ensure that the privacy concerns are properly included in the best practices.

Data Activity Coordination Group

Ensure that the WG operates in cooperation with others working in related fields.

[RDF Stream Processing](#)

Not directly in scope for the SPWG but relevant to the Web of Things which is in turn highly relevant.

Other Groups & Projects

[SmartOpenData](#), [GeoKnow](#), [MELODIES](#), [DaPaas](#), [InGeoCloudS](#)

A range of EU-funded projects are working in closely related areas, the list above is not exhaustive.

[stSPARQL](#)

The Strabon platform implements stSPARQL that offer a number of spatial and temporal extension functions.

Furthermore, the Spatial Data on the Web Working Group expects to follow these W3C Recommendations:

- QA Framework: Specification Guidelines.
- Character Model for the World Wide Web 1.0: Fundamentals
- Architecture of the World Wide Web, Volume I

8. Other Informative Remarks about this SWG

a. Details of the First Meeting

The date and time of the first teleconference will be determined by the working group at the Tokyo TC in December 2014.

b. Projected On-going Meeting Schedule

The work of the WG will be carried out primarily by email and conference calls, possibly every 1-2 weeks, with face-to-face meetings at a combination of OGC TC meetings and W3C meetings.

c. Supporters of the Proposal

The following people support this proposal and are committed to the Charter and projected meeting schedule. These members are known as WG Founding or Charter members. Once the WG is officially activated, this group is immediately “opted-into” the WG and have voting rights from the first day the WG is officially formed. Extend the table as necessary.

Name	Email	Organization
Kerry Taylor		CSIRO
Ed Parsons		Google
Jeremy Tandy		MetOffice
Chris Little		MetOffice

e. Convener(s)

Kerry Taylor, CSIRO & Ed Parsons, Google

f. Communication

In the interests of reducing duplication and causing confusion this group will use a shared resources approach in collaboration with W3C. The group will primarily conduct its work on the public mailing list.

Information about the group (deliverables, participants, face-to-face meetings, teleconferences, etc) is available from the Spatial Data on the Web Work Group home page and will where necessary be mirrored or linked to the OGC website as required.