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W3C/OGC Spatial Data on the Web

Andrea Perego

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W3C and OGC to Collaborate to Integrate Spatial Data on the Web

[Translations](#) | [W3C Press Release Archive](#)

6 January 2015 — The W3C and the [Open Geospatial Consortium \(OGC\)](#) announced today a new collaboration to improve interoperability and integration of spatial data on the Web. Spatial data —describing geographic locations on the earth and natural and constructed features— enriches location-based consumer services, online maps, journalism, scientific research, government administration, the Internet of Things, and many other applications. In the United States alone, geospatial data and services are [estimated](#) to generate \$1.6 trillion annually.

"Location, as well as providing context to much of today's online information, is vital to the emerging field of connected devices," said Ed Parsons, Geospatial Technologist at Google. "Through this collaboration we hope to make the understanding of geospatial knowledge a fundamental component of the Web."

SDW Deliverables: UCRs & BPs

- **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** (Note)

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}.

SDW Deliverables: Ontologies

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

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.

SDW & INSPIRE

The **ISA Core Location vocabulary** is mentioned as one of the reference ontologies

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

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4.4 Other Groups & Projects

[INSPIRE](#)

The community and standards around the European INSPIRE Directive are an important reference point for the Working Group.

[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.

INSPIRE is explicitly mentioned as a reference initiative

SDW Roadmap (as per the WG Charter)

Milestones

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

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

New roadmap: *Deadline to be extended (June, 2017)*

SDW Best Practices

- Editors: Jeremy Tandy (MetOffice), Linda van den Brink (Geonovum), Payam Barnaghi (University of Surrey)
- Focus is on how to enable the (re)use of spatial data via the Web platform
 - The focus is on Web technologies, and not necessarily on the Semantic Web (e.g., RDF)
- BPs build upon and re-use the W3C *Data on the Web Best Practices*, which are addressing the same objective from a domain-independent perspective
- *New version published on 25 Oct 2016*
- Presented at the SDW Workshop @ INSPIRE 2016

SDW Best Practices at a glance

12. Best Practices Summary

Best Practice 1: Include spatial metadata in dataset metadata

Best Practice 2: Provide context required to interpret data values

Best Practice 3: Specify Coordinate Reference System for high-precision applications

Best Practice 4: Make your data indexable by search engines

Best Practice 5: Describe the positional accuracy of spatial data

Best Practice 6: How to describe properties that change over time

Best Practice 7: Use globally unique HTTP identifiers for spatial things

Best Practice 8: Provide geometries on the Web in a usable way

Best Practice 9: How to describe relative positions

Best Practice 10: Use spatial semantics for Spatial Things

Best Practice 11: Expose spatial data through 'convenience APIs'

Best Practice 12: Include search capability in your data access API

Best Practice 13: Provide subsets for large spatial datasets

Best Practice 14: Publish links to related resources

Best Practice 15: Use links to find related data

Best Practice 16: Provide a minimum set of information for your intended application

Best Practice 17: How to work with crowd-sourced observations

Best Practice 18: Describe the location according to a Coordinate Reference System

SDW Workshop @ INSPIRE 2016

- Held on Sep, 30th, and attended by ~30 people
- Best Practices discussed during the workshop:
 - **BP7:** *Use globally unique HTTP identifiers for spatial things*
 - **BP4:** *Make your data indexable by search engines*
 - **BP8:** *Provide geometries on the Web in a usable way*
 - **BP10:** *Use spatial semantics for Spatial Things*
- Positive outcome in terms of discussion and feedback
- The feedback will be considered in the new versions of the BP document (to be released on a regular basis until June, 2017)
- *Comments can be sent to: public-sdw-comments@w3.org*



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Thanks for your attention!

andrea.perego@jrc.ec.europa.eu

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For more information

- W3C/OGC SDW Charter
<https://www.w3.org/2015/spatial/charter>
- W3C/OGC SDW work space
<https://www.w3.org/2015/spatial/>
- SDW Workshop @ INSPIRE 2016
[https://www.w3.org/2015/spatial/wiki/SDW Workshop @ INSPIRE 2016](https://www.w3.org/2015/spatial/wiki/SDW_Workshop_@_INSPIRE_2016)
- Spatial Data on the Web Use Cases & Requirements
<https://www.w3.org/TR/sdw-ucr/>
- Spatial Data on the Web Best Practices
<https://www.w3.org/TR/sdw-bp/>
- Index of all deliverables
<http://w3c.github.io/sdw/>