Meeting Minutes: Introductory webinar on GeoDCAT-AP (SEMIC - A04.02)

Project:	SEMIC	**Date and Time:**	20/02/2024 10:00 - 12:00
Meeting Type:	Webinar	**Location:**	Virtual
Coordinators:	Jakub Klímek Bert Van Nuffelen Pavlina Fragkou	**Issue Date:**	05/03/2024

Agenda of the webinar		
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10:10 - 10:40	GeoDCAT-AP and the DCAT-AP Ecosystem	Slides 11 - 26
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LINK

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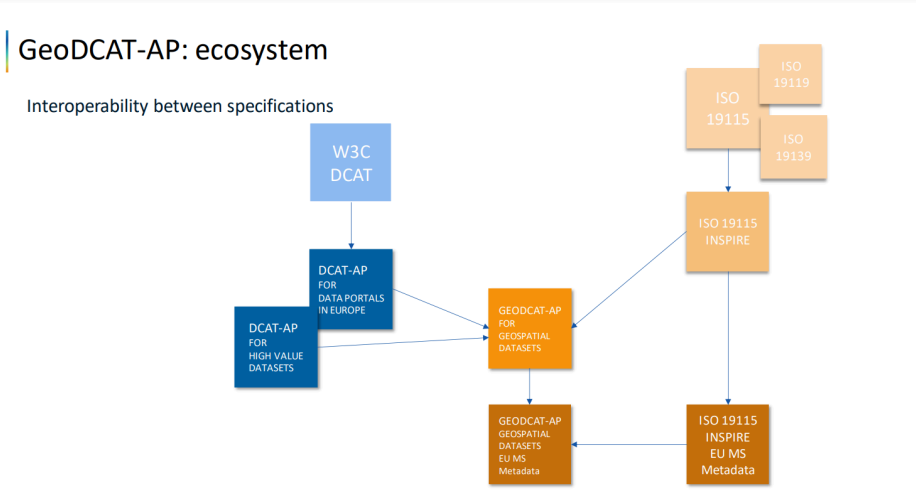
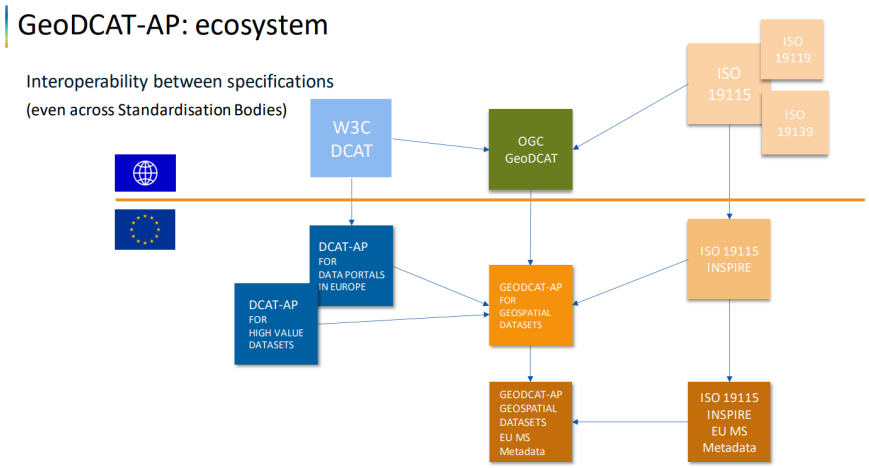
Full Meeting Minutes

Welcome & Introduction Slides 1 - 10 **Speaker:** Pavlina Fragkou	PF welcomes the participants and goes over the webinar practicalities. The SEMIC context is provided as a facilitator of interoperability in Europe by a number of specifications, pilots and a knowledge hub to share documentation. The focus areas of SEMIC are: ● Semantic specifications and extensions ● Catalogue of Services ● Base Registries ● Support in interoperability policy implementation ● AI4interoperability SEMIC specifications enable interoperability: ● They make data transparent and available ● They support the coherent implementation of laws and policies ● They help implement cost efficiencies ● They help digitalisation and harmonising processes The objective of DCAT-AP is to support the discovery of/access to (open) data in a cross-border and cross-domain environment, by describing the expression of metadata to be harvested across a distributed network of portals. The revision of GeoDCAT-AP is a collaborative effort between the Joint Research Community, DG ENV, and SEMIC (DG DIGIT).
GeoDCAT-AP & the DCAT-AP Ecosystem	**GeoDCAT-AP: DCAT-AP for geographical data** The basic use case for GeoDCAT-AP is to make spatial datasets searchable on general data portals. These portals typically use W3C DCAT or DCAT-AP in Europe. However, the typical metadata source for

Slides 11 - 26 **Speaker:** Jakub Klímek **Moderator:** Bert Van Nuffelen	Geospatial data often is expressed in ISO 19115 extended with INSPIRE metadata. GeoDCAT-AP aims to bridge this gap between 'general data portal metadata' and geospatial metadata. GeoDCAT-AP contains mappings on two levels: • **Core level**: mapping of subset of INSPIRE metadata defined by what can be covered by DCAT-AP. • **Extended level**: mapping majority of INSPIRE metadata using extensions beyond what can be covered by DCAT-AP, using additional terms - both terms from existing vocabularies, and new ones. Current status of GeoDCAT-AP 2.0.0 (released in 2020): • Aligned with W3C DCAT 2, DCAT-AP 2.0.1, INSPIRE Metadata Technical Guidelines 2.0.1 Upcoming revision of GeoDCAT-AP 3.0.0 (to be released in 2024): • Alignment with W3C DCAT 3, DCAT-AP 3.0, DCAT-AP HVD, INSPIRE Metadata Technical Guidelines 2.2.0 It should be noted that GeoDCAT-AP does not replace the INSPIRE metadata regulation, it provides mapping to DCAT-AP and enables the previously mentioned basic use case. There will be a call for evidence from DG ENV on good practices on geospatial metadata reporting and participants are encouraged to participate. The ecosystem of GeoDCAT-AP includes on the one hand parts of the DCAT(-AP) ecosystem and on the other hand ISO and INSPIRE.  Currently INSPIRE is being implemented by Member States in their Geoportals, while more general open data portals use DCAT and DCAT-AP. In addition, there is an exchange happening on the Member State level where they feed their INSPIRE metadata in the DCAT-AP enabled catalogues.

Last year OGC formed a new Standards Working Group for GeoDCAT. The aim is to provide a profile of W3C DCAT to describe a geospatial dataset. SEMIC is in contact with OGC to keep these specifications aligned.



On a world wide level the ecosystem looks like the above image. GeoDCAT should feed into GeoDCAT-AP to ensure full interoperability.

Changes in DCAT-AP 3.0.0
In DCAT-AP 3.0.0, changes are triggered from W3C DCAT 3 to ensure alignment. Among these changes are Dataset Series and Versioning. Additionally, applicable legislation from High-Value Datasets was included as annex, DCAT-AP was released in a new HTML (ReSpec) presentation.

The revision of DCAT-AP 3.0.0 was done over the course of 5 webinars and covered 80 issues. In addition, the recently released annex of DCAT-AP, DCAT-AP for HVD, is version independent.

DCAT-AP for HVD
DCAT-AP for HVD needed additional constraints to Datasets and Data Services mandated by the HVD Implementing Regulation (IR). Those additions are Applicable Legislation and the HVD Category. Six categories are identified in the HVD IR for which a list is defined on the EU Vocabularies website. A mapping to the INSPIRE themes from these HVD categories also exists.

For Data Services there are more mandatory properties including the Contact Point and the Quality of Service documentation.

The technical extensions of metadata are not the only point of attention when implementing HVD metadata. There is also a service level increase. This is more of a policy engagement. The use of Persistent IRIs is mandatory for Endpoint URLs, DCAT Dataset IRIs and DCAT

	Data Service IRIs. In addition, licences should be machine-readable and dereferenceable. The final input for GeoDCAT-AP is the SEMIC Style Guide which guides both the editors and implementers of profiles to make them concise and profileable. It does so, for example, by indicating best practices on the reuse of terms within a profile. The effort taken for GeoDCAT-AP is on multiple domains as the world of DCAT, DCAT-AP, DCAT-AP for HVD and geospatial (meta)data intersect. **Discussion** BF has a question regarding the relation between INSPIRE and GeoDCAT-AP, and whether INSPIRE reporting may adopt GeoDCAT-AP as reporting profile in the future. JEP answers that the whole intention of this webinar is to establish a bridge between the INSPIRE community and the Open Data Community. In this alignment the goal is to evolve the rules that are applied in the documentation of metadata reporting and they should be in line with the intentions for green data. In this period new rules will be embraced and in the end it may result in an integration of data catalogues within Europe to achieve a common portal at European level to offer a once-only solution for Member States. However, this is in the future and as of currently GeoDCAT-AP will not replace INSPIRE. BF wonders whether the JRC promotes the use of GeoDCAT-AP instead of INSPIRE or ISO. JEP replies that for DG ENV the objective is to align the specifications and no recommendation for GeoDCAT-AP is given at this moment in time. MP mentions that in Sweden they have tried to use an extended version of GeoDCAT RDF as the source and generate ISO XML structures from it. The question is whether the current GeoDCAT-AP specification recommends the other direction. MP is interested in using GeoDCAT as a source of truth. BVN replies that this is not in the plans, but if MP wants to contribute to this he is free to share it. JEP thinks this would be interesting to explore, as far as he knows the geospatial metadata is richer in content. In the case of going from GeoDCAT-AP to geospatial metadata it is necessary to identify which fields cannot be filled by GeoDCAT-AP metadata. GN mentions that they only map the INSPIRE things to ISO, instead of the other way around. Therefore, the ISO side cannot be forgotten, because it is more than just INSPIRE. MP agrees with this. Restrictions have to be made when implementing and sometimes the technical guidelines from INSPIRE are not completely clear.

	GeoDCAT-AP 3.0.0 revision plan
	The following webinars are planned within the revision:
	- Working Group Webinar 1 - Concerning generic organisation & findability (12/03/2024)
	  - Datasets, Distributions and their relationships
	  - Categories (alignment with DCAT-AP 3.0): keywords, categories, themes
	
	- Working Group Webinar 2 – specific geo-aspects (23/04/2024)
	  - Geospatial coverage & resolution
	  - Coordinate reference systems & spatial representation type
	
	- Working Group Webinar 3 – relationship with INSPIRE
	  - GeoDCAT-AP related tools such as XSLT

GeoDCAT-AP Supporting Tools & Poll Slides 27 - 42 **Speaker:** Jakub Klímek	The participants are invited to take part in the poll on tooling. **GeoDCAT-AP XLST** This tool transforms the metadata from the XML from the INSPIRE directive to the GeoDCAT-AP format in RDF, according to the mappings defined in the specification. **GeoDCAT-AP API** The second tool uses this XSLT and a given CSW endpoint, which is a special service for metadata about spatial datasets. It extracts all the data descriptions, transforms them using this XSLT into GeoDCAT-AP and provides a GeoDCAT-AP view of those data sets. Therefore, the previous tool, the XSLT can be used by any tool able to run an XSLT transformation. This is a specific implementation that uses the XSLT to produce a GeoDCAT-AP compatible output of a CSW endpoint. **CSW-4 Web** This is a web-based application that allows you to go through the data sets in the CSW endpoint transformed by an extended ad hoc version GeoDCAT-AP, the XSLT and the API. It is a web view taking advantage of this transformation and showing the output of this transformation in a web application for end users. **EPSG-XSLT** This tool converts the entries from the OGC EPSG Register of Coding Reference Systems and creates a GeoDCAT-AP conformant representation in RDF. Since this is an XSLT transformation, it can run in any tool able to process XSLT transformations. **GeoIRI and Measurement Resolution** Finally, two tools that are more simple in nature are mentioned. The first one takes a geometry and generates an IRI, identifying the geometry.

	The second tool generates IRI for measurement resolutions that can be used in GeoDCAT-AP. **Results of the poll** **Choose the option that is most applicable for you for: GeoDCAT-AP XSLT.** 18 I am actively using it. 17% I definitely plan to use it in the future. 22% I have heard of it, but do not plan on using it. 33% I have never heard of it (before this webinar). 28% **Choose the option that is most applicable for you for: GeoDCAT-AP API.** 18 I am actively using it. 11% I definitely plan to use it in the future. 17% I have heard of it, but do not plan on using it. 0% I have never heard of it (before this webinar). 72%

Choose the option that is most applicable for you for: CSW-4 Web. 17

I am actively using it.
6%

I definitely plan to use it in the future.
6%

I have heard of it, but do not plan on using it.
12%

I have never heard of it (before this webinar).
76%

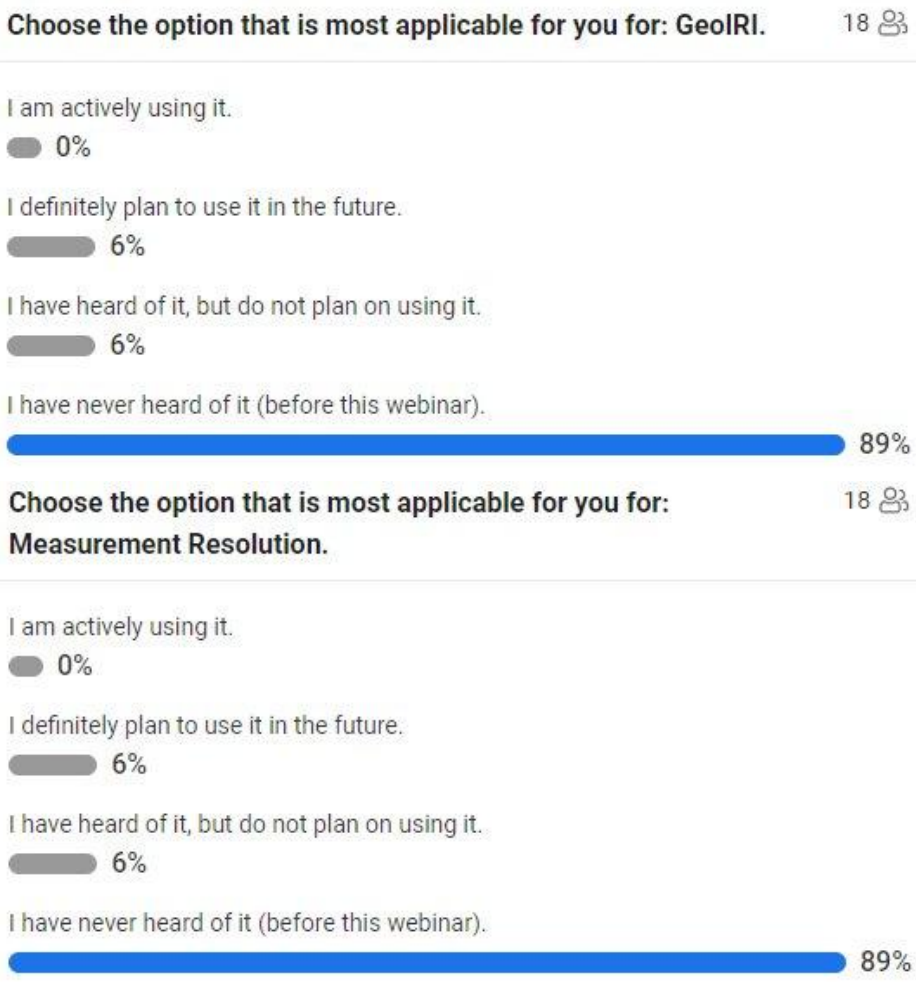
Choose the option that is most applicable for you for: EPSG-XSLT. 18

I am actively using it.
0%

I definitely plan to use it in the future.
6%

I have heard of it, but do not plan on using it.
11%

I have never heard of it (before this webinar).
83%

	
GeoDCAT-AP Issues Slides 43 - 51 **Speaker:** Jakub Klímek **Moderator:** Bert Van Nuffelen	Currently there are 17 open issues, the majority of which concerns DCAT-AP 3.0.0 alignment. The other issues have the following topics: ● 6x DCAT-AP 3.0 alignment ● 1x INSPIRE alignment ● 2x SEMIC Style Guide alignment ● 3x editorial ● 1x other On four issues, with label 'feedback-requested', the input from the community is requested. **Issue #77:** Ambiguous mapping of *dct:type* on Data Service The first issue is on the ambiguity of the mapping of dct:type which occurs in three distinct contexts: 1. service category with "Classification of spatial data services" code list 2. service type with "Spatial data service types" code list

	3. type with "Resource types" code list. (this one also appears in Dataset) According to the SEMIC Style Guide, this kind of reuse of the dct:type property is not in line with the recommendations because it reuses the property with terminological, but maybe even semantic adaptations. This demands the creation of a sub property. The proposition is to create a separate GeoDCAT-AP specific sub property for each of these contexts, which would be paired to the corresponding code list. This would be a service category for the classification of spatial data services, service type for spatial data service types and the resource type for the resource type code list. There, the domain of the resource type property would be dcat:resource, because this usage of dct:type occurs both in a dataset and a data service. Therefore it is reasonable to lift the domain here to dcat:resource. **Issue #78:** Profile specific sub property of *dct:subject* A similar type of issue is with dct:subject, because it is quite a generic term. In GeoDCAT-AP it is paired with a specific code list “Topic categories in accordance with EN ISO 19115”. The goal is the same; to align the reuse of dct:subject with the SEMIC Style Guide. The proposition would be to make a subproperty of dct:subject in DCAT-AP and pair it to the specific code list. These proposals are in line with the SEMIC Style Guide, but problems arise in cross-profiling. One profile could make some assumptions about a generic property such as dct:type or dct:subject and another unrelated profile does so as well. However, when the metadata encoding of the two profiles meet somewhere these requirements on the generic properties cause interoperability issues. Therefore, it is cleaner and more efficient for validation to create profile specific sub properties for those generic properties. Implementation wise, this could be some additional effort. On the other hand, resolving this issue might be quite straightforward because for this kind of use cases, the new sub property can be just swapped for the generic one. However, to enable the validation and be compliant with the SEMIC Style Guide having these sub properties is necessary. **Issue #79:** Investigation of usage of Dataset series in INSPIRE community The next issue is the investigation of the actual usage of data set series in the INSPIRE community. As was mentioned before, dataset series is one of the main reasons for this revision because it was formalised in W3C DCAT, adopted in DCAT-AP 3.0.0 and now needs to be propagated into GeoDCAT-AP. However, in the DCAT-AP community, we have detected that actually dataset series are being used as a

	grouping of datasets. Therefore, it does not require the same amount of attributes and relations in the metadata as the dataset itself. Feedback on how the INSPIRE community treats dataset series is requested. Participants are invited to contribute on GitHub issue #79. **Discussion** JZ mentions that in Germany, they have very detailed descriptions on dataset series that differ from the datasets. GN agrees with the subproperty of dcat:theme. She wonders whether the mapping between the different themes will be done on EU level. BVN replies that this will be done where possible. When local themes or codelist are used it is up to the local level to host the mapping. AR mentions that in Italy dataset series are used with the same metadata elements as the datasets which is in line with the rules of the INSPIRE guidelines. In addition, they use a term to link the dataset series to the dataset. In that sense the dataprovider can provide information on the series and the datasets included in the series. The identifier element is used to create the link between dataset and dataset series. In INSPIRE this link is missing. AR uses the specific metadata elements coming from ISO standard 19115 related to Dataset Series. BVN adds that SEMIC would like to know how many of these properties are used in practice and encourages the community to share the critical pieces of information on a dataset series. GN uses the dataset series as well. In ISO there are datasets and dataset series that conform to the same ISO profile. The only thing that is different is that on the one hand it's a dataset series, and on the other it's a dataset. The definition is that a dataset series can be set up if the data model is the same. There are two approaches, for continuously updated datasets that have one metadata record, and periodically updated datasets that have multiple metadata records. The dataset series is used to group datasets from the latter instance. **Issue #68:** Multiplicity of dcat:bbox, dcat:centroid w.r.t. various representations Another issue is regarding properties on spatial coverage. These have cardinality one meaning there can only be one instance. However, there is also a note that these properties can have multiple encodings. An example is shown of a BBox with multiple encodings despite having cardinality 0..1. The first proposition is to lift the cardinality to unbounded and propagate this to DCAT-AP. A second is to limit the cardinality as it is, and change the example and note.

	Issue DCAT-AP#175: Discussion on spatial coverage This issue is a request for recommendation from the GeoSpatial Community. It deals with the fact that current spatial coverage of a data set on the metadata level can be expressed in many different ways. There can be various geometry types. For instance, polygons, multiplegons, etc. Each of these can be represented in different geometry representations, such as gml, wkt, geoJSON, etc. Each of the representations can be used with various coordinate reference systems. The problem is that it is hard for the implementers to support all these representations of spatial coverage in a data portal. If a geospatial search on datasets with polygons is performed, the portal needs a heavy weight geospatial processing library to be able to process all those different encodings, shapes and coordinate reference systems. The question is whether the geospatial community could help in reducing the possible options such that the implementers of the data portal's effort can be reduced. It needs to be specified that this concerns metadata, not the data itself. Therefore, in the data itself the encodings or CRS types do not have to be reduced, it is purely for improving geospatial search & reuse through metadata descriptions. The proposition is to recommend a limited set of coding reference systems, geometry types, etc. This would then be recommended when publishing data on a geospatial portal. **Discussion** GN mentions that at the Flemish level a thesaurus with all the bounding boxes of the municipalities is stored. Using this thesaurus, data providers can use the same bounding boxes to describe spatial coverage. She wonders whether we should provide all the bounding boxes to be used on a European level. She argues that BBoxes are the best established standard. **Chat** JZ observes that the environmental data details include information about monitoring procedures, using the monitoring of the seal population in the North Sea as an example. JP explains that they treat series metadata with the same level of detail as datasets, using all ISO and INSPIRE requirements. He provides a link to an example of this approach.

	PK explains that, to his knowledge, the various CRS focus on the data itself, not the spatial coverage documented in the metadata. SK suggests using the PONlz wgs84 coordinate for BBox in ISO 19139 metadata. MP supports the previous suggestion regarding spatial coverage and proposes allowing any EPSG to indicate the reference system when referring to the data itself. AL informs that there is only WGS84 in the BBox in a metadata record. BVN asks AL if she is referring to the ISO INSPIRE metadata. AL confirms this and adds that INSPIRE also adheres to ISO. BVN asks if there is a preference between WKT or GML. AL expresses a preference for WKT, explaining that there are no polygons, only four coordinates as WKT. She adds that, while a GML polygon could exist, she has never seen it used. EO states that BBox should be given in WGS84.
Next steps Slides 52 - 57 **Speaker:** Pavlina Fragkou	PF states that the intention of the webinar was to start making progress on revamping GeoDCAT-AP in order to meet between the Open Data world and the Geospatial Community. The easiest part of the issues that were presented is aligning the current version of GeoDCAT-AP 2.0.0 to DCAT-AP 3.0.0. In addition, generic issues that are identified in GeoDCAT-AP can be escalated to DCAT-AP. In combination with the Style Guide the goal is to create a common methodology for creating Application Profiles of Application Profiles. JR thanks everyone for the first webinar. This series and revision is leading the way to an alignment of the two different flavours of dialects that exist under the existing legislation. An important fact is the obligation on the member states to implement the ISO under the INSPIRE directive and DCAT-AP under high value datasets as common practice in the open data directive. These two things all depend on the further revision of the INSPIRE directive and the impact assessment. It will be very helpful to have a mapping with DCAT-AP and the proposal to do it both ways could be very helpful depending on the tools that are being used. JR looks forward to addressing the issues that will be raised in the next webinar such that a common consensus on how to map ISO to DCAT and vice versa satisfying all the legal obligations from the INSPIRE directive, the open data directive and the high value datasets implementing regulation at the same time. The vision is to complete this before the summer. It will give clear guidance to Member States on how to implement the high-value datasets using DCAT-AP to get ready

	for the reporting exercise in February 2025. JR thanks the members of the SEMIC Team, the SEMIC Community, the INSPIRE Community and the Geospatial community at large for their efforts.