What is the Object Editor?
Why is it needed?
What’s new? A different approach…
Use cases
Demo of Object Editor
Introduction to the GeoPlatform Profile for ISO-19115-3
What is the Object Editor?

A tool for “curating” Portfolios of Online Geospatial Resources…

- Create and register portfolio objects (representations of resources):
  - Dataset
  - Service
  - Layer
  - Map
  - Organization
  - Contact
  - Concept (e.g., Keyword, Theme)
  - Concept Scheme (e.g., Thesaurus)

- Curate portfolio objects into linked collections (a web) of resources of interest

- Manage online resources as unique, consistent, and unambiguous objects

- Update / correct / augment information about objects. Specifically, elements essential for automated search and online access:
  - Identification
    - Citations
    - Responsible parties
    - Keywords/ topics/ themes
  - Distribution
    - Formats
    - Distributors
    - Digital transfers
    - Online resources

- A work-in-progress… with a roadmap for incremental rollout of new capabilities this year

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Why? So users can find what they need!

- **A-16 National Geospatial Data Assets (NGDA)**
  - 177 datasets

- **Data.gov**
  - 122,791 geospatial datasets

- **Data.gov CSW**
  - (https://catalog.data.gov/csw-all?REQUEST=GetCapabilities&SERVICE=CSW)
  - 122,791 datasets and (and 32 services)

- **EPA Environmental Data Gateway (EDG)**
  - 3,034 items

- **NOAA GEO-IDE UAF ERDDAP**
  - 8,985 datasets

- **NOAA CSW**
  - (https://data.noaa.gov/csw?REQUEST=GetCapabilities&SERVICE=CSW)
  - 45,654 datasets (and 65 services)

- **ArcGIS Online** (1,020,570 maps)

- **GEOPLATFORM.gov**
Why? Connecting user-needs to data and services

Finding and remembering the good stuff, forgetting the bad stuff…

(1) Describe Datasets and Services for Machine-Consumption
- ISO Metadata according to FGDC Guidelines
  - Identification
  - Distribution
- Taxonomies (Controlled Vocabularies)
  - Well defined meaning of terms (concepts)
  - Unambiguous
  - Unique

(2) Ground to Semantic Concepts (from Taxonomies)
- Unified Knowledge Graph
  - 5★ Linked Data
  - Machine-encoded facts
  - Framework for reasoning and navigation

(3) Link into Knowledge Graphs for Navigation and Reasoning
- Advanced Search
  - Navigate
  - Discover
  - Discern
  - Recommend

(4) Advanced Search and Analysis
- “Quickly find the right resource for my need”
- “Let me build and share my Open Map”
- “Let me add to my community gallery”
- “How are my assets performing?”

(5) Doing things with Maps, Layers, Services, and Datasets
- With improved...
  - Reliability
  - Precision
  - Performance
  - QoS
  - Consistency

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Towards shared geospatial knowledge and services…
What’s the Big Idea? Linked Open Data (LOD)

Metcalf’s Law… there’s more valuable information when we link things together.

- Data "on-the-Web" characterizes unlinked, hard to find, document-based data
- Data “in-the-Web” describes well-integrated, linked data providing value-added network effect benefits

**Good news:** Geodata from US is generally…
- Downloadable as files “on-the-Web”
- Freely available under an open license
  - Data can be stored locally
  - Data can be used anyway you wish
  - Data can be shared with anyone
  - Data can be modified as you wish

**Bad news:** still not good enough to find the right data at the right time…
- To *automatically* get data *in-the-Web*, we need good identification and distribution metadata

**Really good news!** Basic metadata for Datasets and Services opens up the world of Linked Data, Knowledge Graphs and Advanced Search

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Towards 5★ Open Data

Tim Berners-Lee, the inventor of the Web and Linked Data initiator, suggested this *5 star deployment scheme* for Open Data

<table>
<thead>
<tr>
<th>Level of Openness</th>
<th>Description</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>★</td>
<td>Make your stuff available on the Web (whatever format) under an open license</td>
<td>OK. It's great to have the data accessible on the Web under an open license (such as PDDL, ODC-by or CC0), however, the data is locked-up in a document. Other than writing a custom scraper, it's hard to get the data out of the document.</td>
</tr>
<tr>
<td>★★</td>
<td>Make it available as structured data (e.g., Excel instead of image scan of a table)</td>
<td>Splendid! The data is accessible on the Web in a structured way (that is, machine-readable), however, the data is still locked-up in a document. To get the data out of the document you depend on proprietary software.</td>
</tr>
<tr>
<td>★★★</td>
<td><em>Use non-proprietary formats (e.g., CSV instead of Excel)</em></td>
<td>Excellent! The data is not only available via the Web but now everyone can use the data easily. On the other hand, it's still data on the Web and not data in the Web.</td>
</tr>
<tr>
<td>★★★★</td>
<td><em>Use URIs to denote things, so that people can point at your stuff</em></td>
<td>Wonderful! Now it's data in the Web. The (most important) data items have a URI and can be shared on the Web. A native way to represent the data is using RDF, however other formats such as Atom can be converted/mapped, if required.</td>
</tr>
<tr>
<td>★★★★★</td>
<td><em>Link your data to other data to provide context</em></td>
<td>Brilliant! Now it's data, in the Web linked to other data. Both the consumer and the publisher benefit from the network effect.</td>
</tr>
</tbody>
</table>

Towards a world of *unambiguous, semantically-grounded linked data* that adds rich context and meaning to shared data…. The last rung in the interoperability ladder.
GeoPlatform.gov: Objects and Internet Things

Creating Curated Portfolios of Objects…

Portfolio Objects

Metadata

Dataset

Service

Layer

Map

Things (Online Resources)

Other Things

Dataset

Service

Layer

Map

Web Sites
Documents
Specifications
Articles

Organizations
Taxonomies/Thesauri
Places

Metadata
The Unified Knowledge Graph

A Network of Maps, Layers, Services, Datasets, People, Organizations….
Primarily concerned with properly supporting the semantic web and enabling autonomous (machine-machine) access to services
- mapping relationships between Datasets, Services, Layers, and Maps by…
- ensuring they have clear and concise identification and location information
- Support Linked Open Data standards

Uniform Resource Identifiers (URIs) are used to ensure each resource has a unique and persistent identifier (as required for LOD)

Open Layer and Open Map identification classes are added at the same level as Dataset and Service identification so they can be linked in metadata for exchange

Formal semantics are added via Knowledge Graphs that wrap each resource
- Make use of controlled vocabularies so that all key concepts are unambiguous

Draft spec and schema online here: [https://www.geoplatform.gov/gp-profile](https://www.geoplatform.gov/gp-profile)
ISO-19115 GeoPlatform Profile (Specifics)

Concerned with properly supporting the semantic web and autonomous (machine-machine) access to services...

- Added **identifier** elements to the MD_Identification class and the CI_Party class, **ontologyURI** element to MD_FeatureTypeInfo, and a **uri** element to the CI_Citation class. *(unambiguously ID things)*
- The element **serviceDocumentation** of type CI_OnlineResource has been added to the class SV_ServicIdentification *(a non-standard, self-describing service… e.g., a swagger document)*
- The elements **format**, **representationTechnique**, and **mimeType** have been added to the CI_OnlineResource data type to allow better description of online resources *(more machine-consumable)*
- SV_ServicIdentification **operatesOn** domain is modified to allow any specified class of MD_Idenfication *(Services operate on Maps and Layers too, not just Datasets)*
- Introduces a new element of the MD_Keywords class, **concept**, which is defined by a new class, MD_Concept with the following elements and attributes: **conceptIdentifier**, **preferredLabel**, **alternateLabel**, and **description** *(more general-purpose than tags/keywords/themes/places/etc)*
- When **concept** is used, **keyword** should be used to refer to the preferredLabel of a SKOS Concept, MD_Keywords: **type** should refer to the concept type, and MD_KeywordClass: **ontology** should be used for concept scheme *(so we can link keywords to grounded SKOS concepts and ontologies)*
- To enable better semantic search, the attribute **type** should use the appropriate code in the KeywordTypeCodes code list and thus, five new KeywordTypeCodes have been added: **audience**, **subject**, **community**, **function**, and **domain** *(more ways to link to grounded concepts for “tradecraft”)*
Questions?
Thank You!

For more information, click here!