

IMPLEMENTING GEMINI 2.3 (ISO19115:2003) AS A GEONETWORK METADATA PROFILE

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HI! I'M JO *WAVES*

I'm the lead metadata consultant for **Astun Technology**



Astun are a small firm, with 20 staff. We're based in Epsom, Surrey, but have staff spread across the UK and abroad.



We provide web-based GIS products, services, and training to local authorities, government departments, devolved government, and commercial firms. These include mapping, databases, and metadata portals, all based on an open source geospatial stack

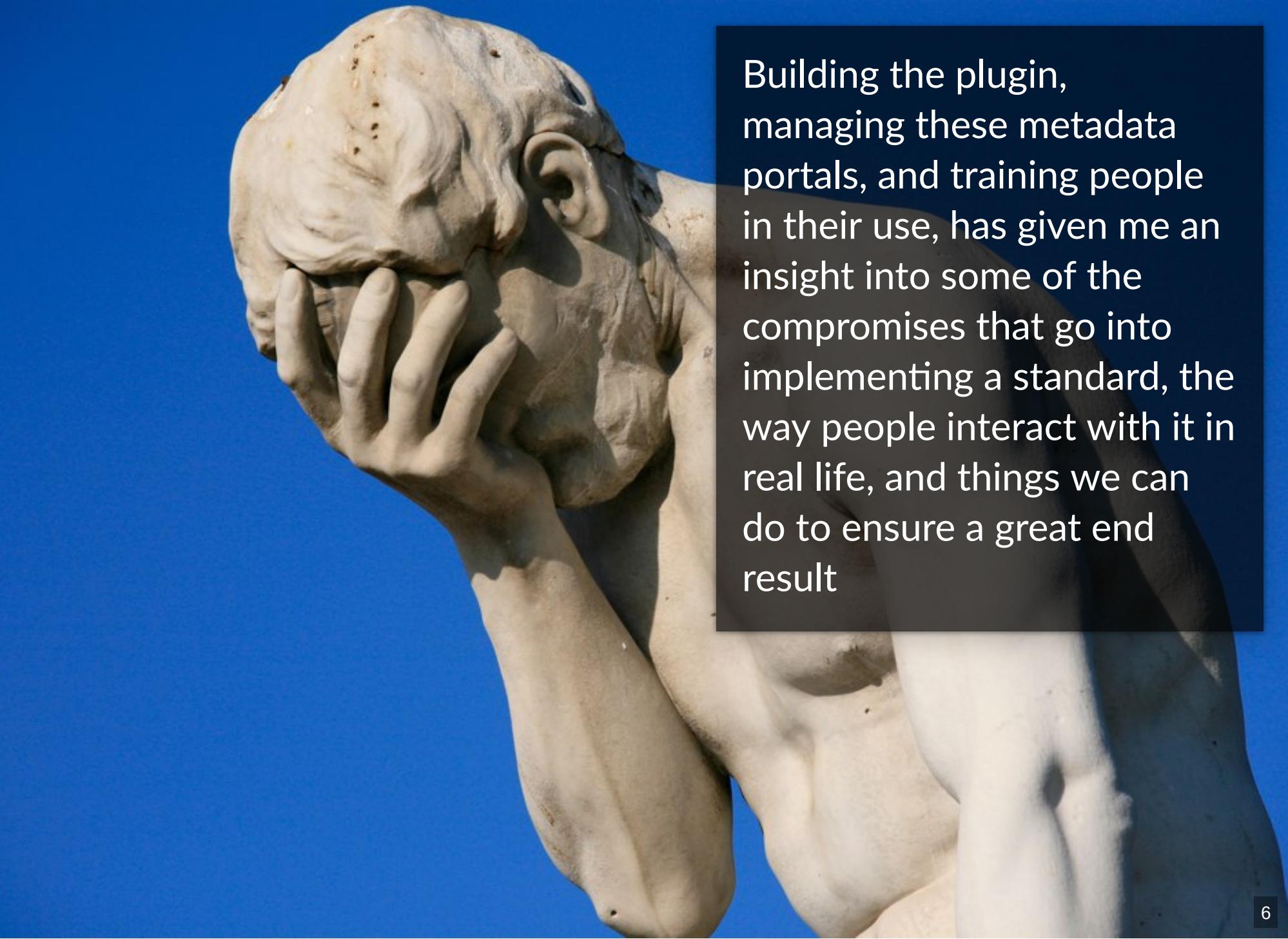
We provide metadata portals for DEFRA and the Environment Agency, Scottish Government, and a number of local authorities. This involves a lot of training, metadata wrangling, and integration with multiple other services

The screenshot shows the homepage of the SpatialData.gov.scot Metadata Portal. At the top, there is a navigation bar with links for 'SpatialData.gov.scot', 'Search' (with a magnifying glass icon), and 'Map'. Below the navigation bar is a search bar labeled 'Search ...'. A welcome message from the Scottish Government is displayed, followed by a detailed privacy policy link. On the left, there is a sidebar titled 'Browse by INSPIRE themes Topics' with a list of categories: Environment (262), Economy (113), Society (88), Culture (45), Health (21), and Education (7). To the right of the sidebar, there is a large grid of categories, each represented by an icon and a label. The categories include: Boundaries (203), Farming (105), Geoscientific information (87), Transportation (30), Imagery base maps earth cover (18), Utilities communication (6), Biota (115), Planning cadastre (99), Oceans (47), Structure (30), Elevation (10), and Climatology, meteorology, atmosphere (1). At the bottom of the page, there are three dark blue boxes with white text: 'Native Woodland Survey of Scotland (NWSS)', 'National Forest Inventory Woodland GB 2018', and 'National Forest Estate Subcompartment'.

```
metadata>
title>Metadata 101 </title>
subject>A repository of metadata profiles</subject>
metadata>
```

While supporting our metadata clients we have developed a plugin for the GEMINI 2.3 Metadata specification for the GeoNetwork catalog.

It's open source, and available at [metadata101](#) and [GitHub](#) and works with most recent GeoNetwork versions.

A close-up photograph of a classical statue's torso and head. The figure is nude, with one hand resting near the ear and the other arm partially visible. The statue is set against a solid blue background.

Building the plugin, managing these metadata portals, and training people in their use, has given me an insight into some of the compromises that go into implementing a standard, the way people interact with it in real life, and things we can do to ensure a great end result

#1 IT'S A LONG JOURNEY FROM STANDARD TO PLUGIN

ISO19115:2003 (the standard)

ISO19139:2007 (the XML implementation)

INSPIRE TG:2017 (extends and brings in ISO19119
for services)

GEMINI 2.3 Specification:2018 (clarifications, UK-
specific requirements)

GeoNetwork Plugin:2020 (user interface)



By the time we get to GeoNetwork we're a couple of steps removed from the standard, both temporally and conceptually

Every one of these steps introduces complexity and design decisions, in particular getting towards something people can interact with.

A simple example of this when checking for conformance against a data quality specification. In ISO19115:2003 this is defined as a boolean and hence traditionally displayed in a User Interface using a check box. Checked means a pass result, and unchecked means a fail.

▼ Conformance result

| | | | |
|---------------|--|----------------|---------|
| Title * | Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of | | |
| Date * | Publication | 08 / 12 / 2010 | -- : -- |
| Explanation * | | | |
| Pass * | <input type="checkbox"/> | | |

In INSPIRE TG:2017 and Gemini 2.3:2018 a third result is allowed: not evaluated. Simple check boxes can't convey the difference between a fail and "not evaluated" so we have to use a different approach.

✓ Report

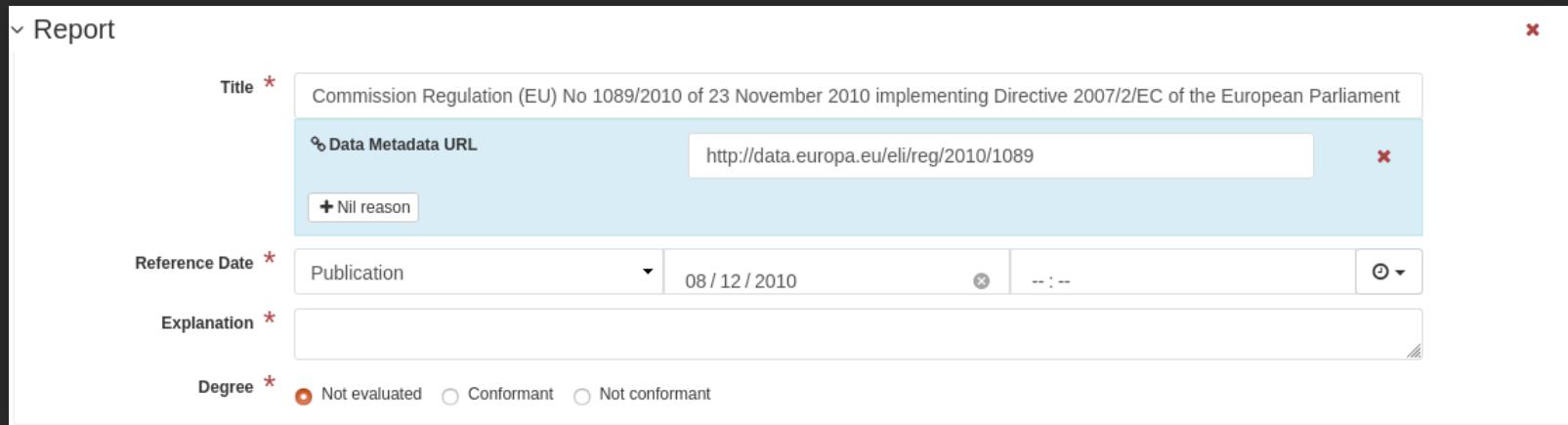
Title * Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament

% Data Metadata URL <http://data.europa.eu/eli/reg/2010/1089>

Reference Date * Publication 08 / 12 / 2010

Explanation *

Degree * Not evaluated Conformant Not conformant



#2 THERE'S ANOTHER STEP

ISO19115:2003

ISO19139:2007

INSPIRE TG:2017

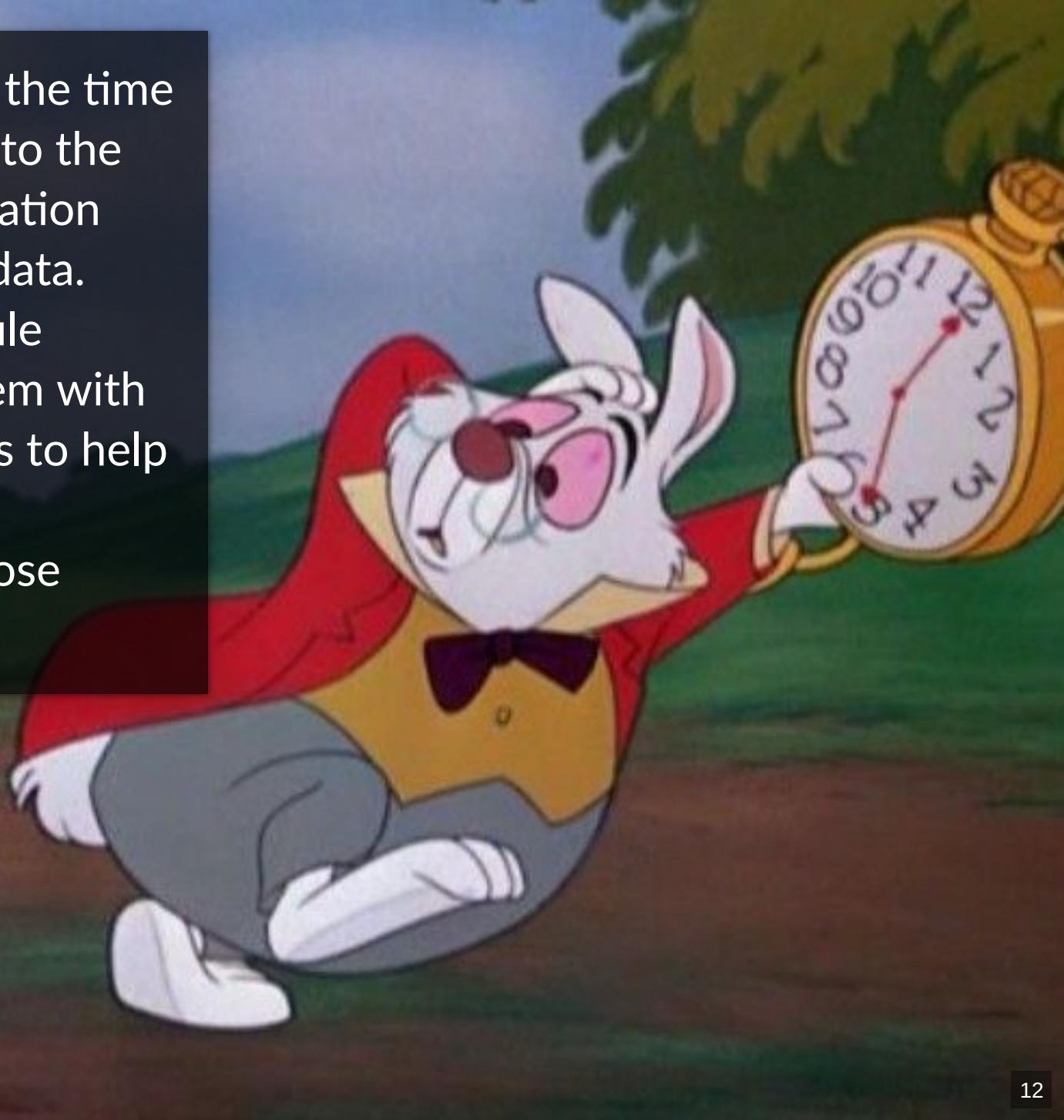
GEMINI 2.3 Specification:2018

GeoNetwork Plugin:2020

The User

Very few users have the time and training to refer to the standards documentation when creating metadata. So it's up to the profile plugin to provide them with guidance and utilities to help them do this.

Here are a few of those ways...



We've enhanced the GEMINI 2.3 editing interface with snippets about each element, links to the definitive guidance, and buttons for adding complex elements.

The screenshot shows the GEMINI 2.3 editing interface with two expanded sections: 'Access constraints' and 'Use constraints'.
Access constraints:

- Limitations on Public Access ***: A dropdown menu with options 'Other restrictions' and 'no limitations'. The 'no limitations' option is currently selected.
- % Data Metadata URL**: A field containing the URL <http://inspire.ec.europa.eu/metadata-codelist/LimitationsOnPublicAccess/>.

Use constraints:

- Use constraints ***: A dropdown menu with options 'Other restrictions' and 'no conditions apply'. The 'no conditions apply' option is currently selected.

Both sections include a 'Gemini Guidance' link for more information.

We're using the GeoNetwork "suggestions wizard" to allow users to convert GEMINI 2.2 records to GEMINI 2.3, with one click.

Template for data in UK GEMINI 2.2 rev3

Categories Group Validate Cancel Save & close Save template

Identification info

Title * Template for data in UK GEMINI 2.2 rev3

Date * Publication 2019-01

Citation identifier

Citation Identifier * d30b626a-89a7-45fd-a436-314e5611b6f1_resource

Abstract * Template for data conforming to the UK Gemini 2.2 Metadata Standard

Status On going

Point of contact + Search for a contact ...

Maintenance and update frequency * As needed

Contact + Search for a contact ...

Keyword World

Type +

GEMET - INSPIRE themes, version 1.0

Search ...

Choose keywords from thesaurus + Add new keywords

Associated resources

Validation

Suggestions

http:// returns an error (false). Run this task to remove it.

Schema is Gemini 2.2. Run this task to convert it to Gemini 2.3.

WMS service http://is described in online resource section. Run to update extent, CRS or graphic overview for this WMS service for the layer named: .

Need help

Use constraints

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We're using another feature called "inflate-metadata" to automatically insert missing or inadvertently deleted mandatory elements

The screenshot shows a user interface for entering vertical extent metadata. At the top, there is a section titled "Vertical extent" with two input fields: "Minimum value" containing "5" and "Maximum value" containing "45". Below this, another section titled "Vertical extent" contains a "Vertical CRS" field set to "http://www.opengis.net/def/crs/EPSG/0/5701" and a "Recommended values" dropdown menu. At the bottom of the form, there is a button labeled "+ Vertical Extent" and a detailed description of the element's purpose and requirements.

▼ Vertical extent

Minimum value *

Maximum value *

▼ Vertical extent

Vertical CRS * Recommended values

+ Vertical Extent

The purpose of this element is to describe the vertical range of the data resource (where relevant).

- Provide a minimum value and maximum value in the units of the provided coordinate reference system
- Identify the coordinate reference system used for vertical extent measurements from the dropdown list.
- For more guidelines see Gemini Guidance

#3 THERE'S MORE...

Metadata profile plugins can include additional enhancements that are not related to the standard as such, but help with data quality, and discoverability.



Geospatial
Commission

Search engine optimisation (SEO) for data publishers

Best practice guide

A recent UK **Geospatial Commission report** advised data providers to utilise Search-Engine Optimisation techniques to ensure their datasets are discoverable and "highly ranked", and to include structured data to ensure that search engines can display results in a richer way.

In work funded by the Scottish Government to address these findings, one of the things we've done is to add **schema.org** structured data tags for metadata records. This is now included in the GEMINI 2.3 Metadata Profile Plugin

| Dataset | | All (1) |
|----------------|---|-----------------------|
| Dataset | | 0 ERRORS 0 WARNINGS ^ |
| ID: | https://ssdi.astuntechnology.com/geonetwork/srv/api/records/8f343e87-574e-403e-8329-4592a7ed25f9 | |
| @type | Dataset | |
| @id | https://ssdi.astuntechnology.com/geonetwork/srv/api/records/8f343e87-574e-403e-8329-4592a7ed25f9 | |
| inLanguage | eng | |
| name | Scottish Index of Multiple Deprivation (SIMD) 2006 | |
| description | The Scottish Index of Multiple Deprivation (SIMD) 2006 is the Scottish Government's official tool for identifying concentrations of deprivation in Scotland. SIMD06 is the Scottish Government's second edition since 2004. The Scottish Index of Multiple Deprivation (SIMD) combines seven different domains (aspects) of deprivation: income; employment; health; education, skills and training; geographic access to services; crime; and housing. These domains are measured using a number of indicators to form ranks for each domain. Data zones are ranked from 1 being most deprived to 6,505 being least deprived. Each of the seven domain ranks are then combined to form the overall SIMD. This provides a measure of relative deprivation at data zone level, so it tells you that one data zone is relatively more deprived than another but not how much more deprived. | |
| keywords | Population distribution – demography | |
| keywords | Area deprivation | |
| encodingFormat | WMS | |
| encodingFormat | WFS | |

TO SUMMARISE:

There are a lot of steps between metadata standard and plugin

These steps all introduce complexities and require implementation decisions

Profile plugins can be used to enhance the user experience, and make it easier for them to produce high-quality metadata that meets the standard

THANK YOU!

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