

UML TO GEOJSON

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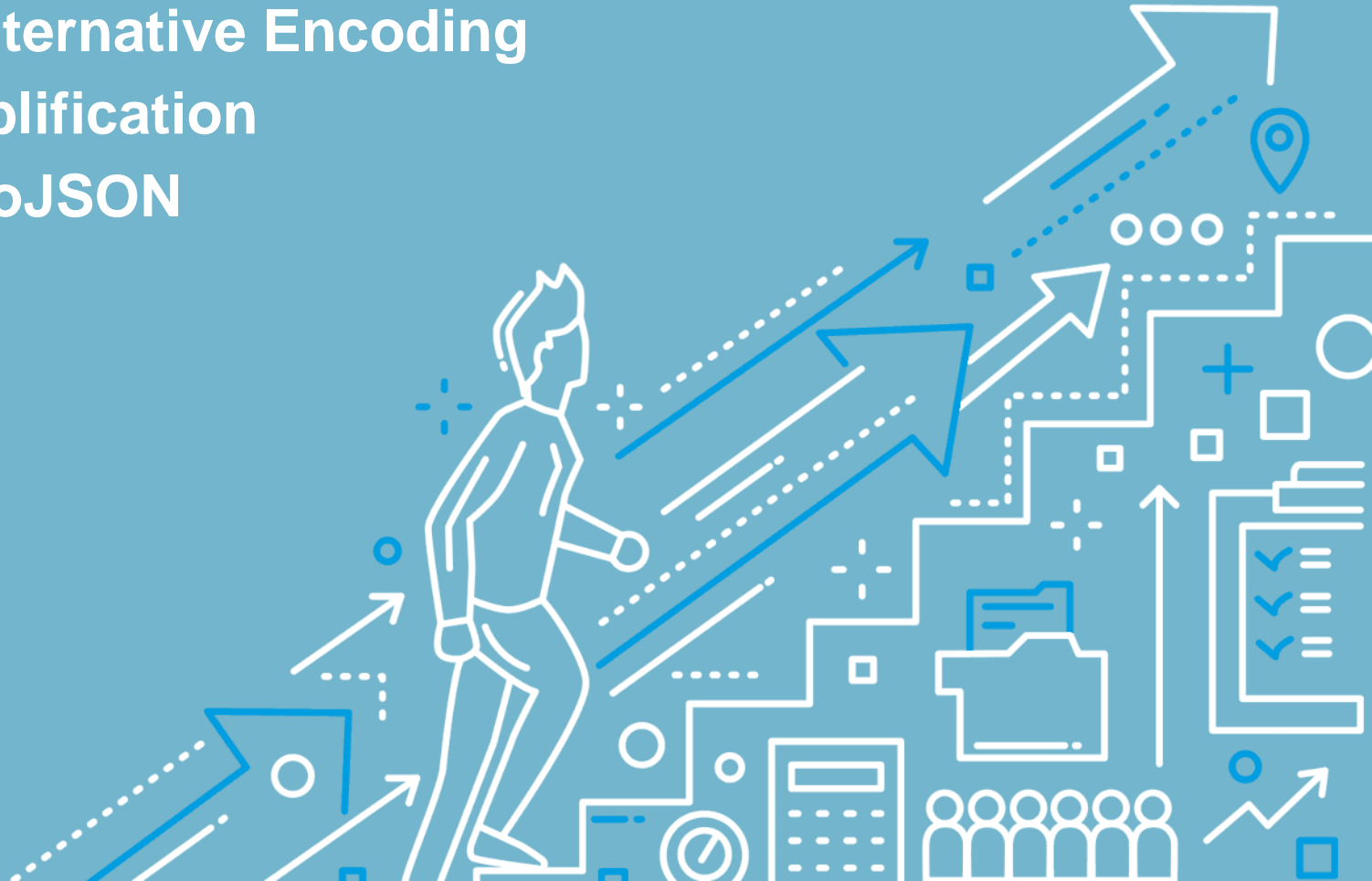


INSPIRE Alternative Encoding

Model simplification

UML to GeoJSON

AU, SU



INSPIRE ALTERNATIVE ENCODING

- Model Simplification Rules
- General UML-to-JSON Encoding Rule
- Theme-specific encodings for themes
 - Addresses
 - Environmental Monitoring Facilities

MODEL SIMPLIFICATION RULES

- General Flattening
- Extract Primitive Arrays
- Association to Composition
- Composition to Association
- Simple Geographic Name
- Simple Citation
- Simplified Codelist Reference
- Simple Period

GEOJSON

- GeoJSON is a JSON (JavaScript Object Notation) –based encoding for simple geospatial features
 - Geometry: Point, MultiPoint, LineString, MultiLineString, Polygon, MultiPolygon, GeometryCollection
 - Only linear geometry
 - No support for 3D geometries or raster data
- To ease processing in applications like QGIS, OpenLayers, Leaflet, ArcMap
- UTF-8 –based character encoding
- IETF RFC 7946

MAIN PROBLEMS TO BE TACKLED

- Structural attributes
- Multiple valued attributes
- Feature references
- Abstract geometry types (loose typing)
- Mixed geometry types

SCHEMA LANGUAGE

- XML, XML Schema
- JSON, JSON Schema

- JSON Schema does not yet have wide support in tools

BASIC RULES

- Every <<featureType>> becomes a GeoJSON Feature object
 - In GeoJSON there is no feature element, like in GML (f.ex. <Building>)
 - In the schemas defined in NLS, a special property, 'featureClass', has been introduced
- Geometry property becomes the GeoJSON 'geometry'
 - If there are several geometries, one will be selected as default ('geometry'), others will be mapped into 'properties'
- All other properties are mapped to the GeoJSON 'properties'
 - Structural data types can be mapped to JSON objects

BASIC RULES

- Property names are maintained as 'property' keys
- Properties with cardinalities > 1 can be mapped into JSON arrays
- No namespace prefixes used in GeoJSON
- Unit of measurement of x mapped to separate property $x.uom$

UML type	JSON type	Notes
CharacterString	string	
LocalisedCharacterString	string	LanguageCode is added as a separate property
Boolean	boolean	
Integer	integer	
Real	number	
Decimal	number	
DateTime	string	ISO 8601 (2020-03-09T09:00:00+02:00)
Date	string	(2020-03-09)
Length	double	uom is added as a separate property
Measure	double	uom is added as a separate property
URI	string	
URL	string	

ISO 19107 type	GeoJSON type	Notes
GM_Point	Point	
GM_MultiPoint	MultiPoint	
GM_Curve	LineString	Only linear geometries supported
GM_MultiCurve	MultiLineString	Only linear geometries supported
GM_Surface	MultiPolygon	
GM_MultiSurface	MultiPolygon	
GM_Aggregate	GeometryCollection	Limitations apply
GM_Triangle	Polygon	
GM_Object	Any	
GM_Primitive	Any	
GM_MultiPrimitive, GM_PolyhedralSurface, GM_Tin	Not supported	

Default encoding	Property type	GeoJSON Property	GeoJSON Property type
<code>gml:id</code>	ID	<code>id</code>	string
<code>gml:identifier</code>	CodeWithAuthorityType	<code>properties.identifier</code>	string
<code>base:inspireId</code>	IdentifierPropertyType	<code>properties.inspireId_localId</code>	string
		<code>properties.inspireId_namespace</code>	string
		<code>properties.inspireId_versionId</code>	string

COORDINATE REFERENCE SYSTEMS

- GeoJSON mandates the use of WGS84 with lon, lat axis order
 - urn:ogc:def:crs:OGC::CRS84
 - In most cases ETRS89 can be regarded as being equivalent
 - EPSG:4258, but with reversed axis order!
- If a client requests a different CRS, the server might return it
 - In GeoJSON, the CRS used should be indicated, like defined in GeoJSON Draft 6 (deprecated)

INSPIRE ALTERNATIVE ENCODING

- Administrative Units (AU) ja Statistical Units (SU)
 - Ei valmista skeemaa MIG-T työstä
 - Kansallinen ehdotus
 - Tietopalveluskeemat laadittu
 - PoC palvelu toteutettu

AU AND SU SCHEMA

- Administrative Units (AU) ja Statistical Units (SU)
 - No existing schema proposal from INSPIRE process
 - Local schemas developed by NLS
 - Limited to the content that is available in Finland
 - Can be seen as proposals for wider use in INSPIRE
 - A proof-of-concept OGC API Features service developed
 - The service: <http://pta.spatineo-devops.com/sofp>
 - Example link to data: http://pta.spatineo-devops.com/sofp/collections/au_inspire_1000k_wgs84/items?f=html
 - Example client: <https://ausuclient.spatineo-devops.com/>

AU

- Kuntaraja
- Maakuntaraja
- Aluehallintovirastoraja
- Valtakuntaraja
- Kunta
- Maakunta
- Aluehallintovirasto
- Valtakunta

SU

- Suuralue
- Seutukunta
- Vaalipiiri
- Työssäkäyntialue
- ELY



Kunta

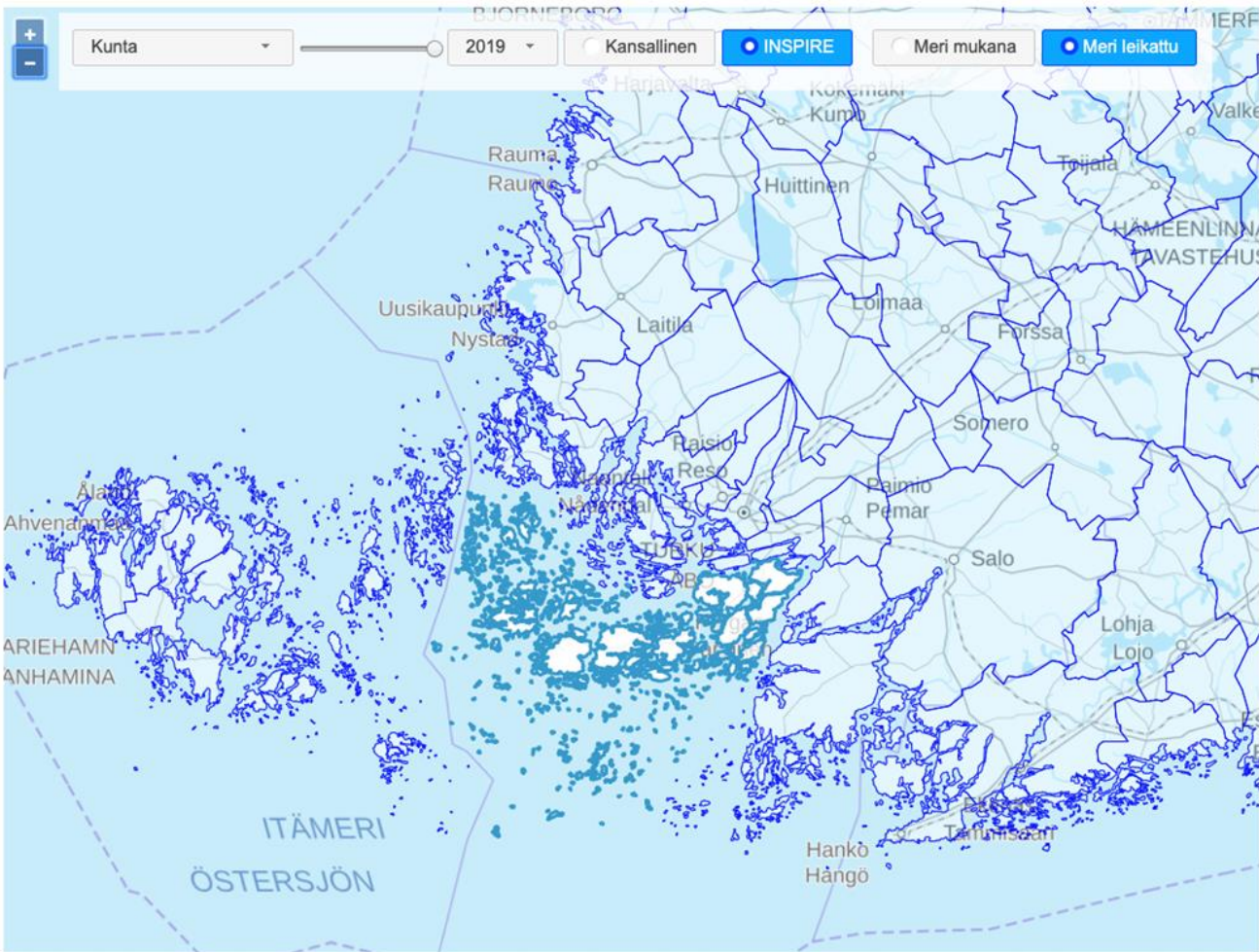
2019

Kansallinen

INSPIRE

Meri mukana

Meri leikattu



```
{
  "inspireid_localid": "kunta_1_20190101_445",
  "inspireid_versionid": 2019,
  "inspireid_namespace": "http://paikkatiedot.fi/so/1001074/au/AdministrativeUnit/",
  "beginLifespanVersion": "2019-01-01",
  "endLifespanVersion": "2020-01-01",
  "country": "FI",
  "name_fin": "Parainen",
  "name_swe": "Pargas",
  "name_eng": "Pargas",
  "nationalCode": "445",
  "nationalLevel": "4thOrder",
  "nationalLevelName": "kunta",
  "upperLevelUnit": [
    "maakunta_1_20190101_02",
    "avi_1_20190101_2",
    "valtio_1_20190101"
  ],
  "lowerLevelUnit": []
}
```

KIITOS!



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