GML application schema made easy in GDAL/OGR and QGIS

Workshop

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Outline of workshop

Workshop outline

• Introduction (15’)
• Tour de table
  • Workshop organizers
  • Participants
• Presentations / Q&A
  • Based on tour de table feedback
  • QGIS GMLAS plugin guided tour - use case on French Groundwater Information Network (GIN)
  • GML AS driver
• Hands-on (~3h)
• Wrap-up (15’)

European Environment Agency
Starting point and general issue:

- Complex feature XML import is still underdeveloped in GIS desktop clients
- Expected developments (over the course of time) have still not taken place

Side issue:

- “chicken-egg” / “data-server-client” problem?
- The server side is further developed
- Complex feature XML data available
- Still no sufficient client tools
Why complex type XML?!

**UML class models**
- More complex and interconnected data models
- Flexible multiplicities
- Nested data structures
- Datatypes
- Mandatory, conditional and optional elements

**INSPIRE Directive** (more on next slide)
- Based on model oriented approach (UML)

Class models (INSPIRE) versus RDB structures/flat tables (GIS clients)??!
INSPIRE context:

- Based on (mainly class) model oriented approach
- INSPIRE suggests complex feature GML as default encoding
- Data models are provided as UML/XSD only
- By Nov. 2017 all Annex I data is supposed to be provided harmonised and will be in the wide majority be provided as complex feature GML
- By Nov. 2020 Annex II and III are supposed to be fully implemented as well
- Annex I, II and III are currently >120,000 datasets across all Europe (trend is increasing)
- While countries are obliged to provide their data the user update due to missing client tools is staggering
INSPIRE context: Data-Service-Client problem

✓ Data
  • Large amount of complex type XML data available

✓ Services
  • Services providing for complex type encoded data available

☐ Clients ?!
Initial idea:

- Reuse information available in XML compliant to xsd(s) to handle this content with no hardcoded configuration
  - XML aware mode and database generation on the fly

- Possibility to enrich the initial ‘information seed’ retrieved by implementing content negotiation on xlink:href
  - retrieve codeList definitions, new feature instances linked to it
Introduction

Run n° 1
QGIS 2.x GML application schema toolbox ProofOfConcept

Run n°2
GML App Schema OGR Driver and QGIS 3 integration

Run n°3 (now)
GML App Schema OGR Driver and QGIS 3 integration enhancements
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Run n°2
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PyXB -> specific OGR/GDAL GMLAS driver (targeting GDAL 2.2), handling both reading and writing
Integration within QGIS 3

Run n°3 (now)
GML App Schema OGR Driver and QGIS 3 integration enhancements

- **GDAL 2.2** GMLAS : addition handling specific SWE types based on GWML2 GW_GeologyLogCoverage and EU Air Quality Reportings (dataArray, dataRecord, …)

- **QGIS 3**: enhanced widgets for timeseries, and borehole logs + some commit to the trunk