More Practical INSPIRE Practice

Kathi Schleidt, Stefania Morrone, Lena Hallin-Pihlatie, Nuno Oliveira, Sylvain Grellet, Mickaël Beaufils

More Practical INSPIRE Practice

INSPIRE Conference 2018

Introduction

Introduction - Overview

- Intro [5 min]
- Known Issues pertaining to [45 min]
  - Data Provision
  - Data Access
  - Data Usage
- Discussion Panel [30 min]
  - Bring together data providers, software producers and technology integrators
  - Topics: bug remediation process, possible coordination and collaboration options (Github?)
- Discussion/Wrap-up [10 min]
  - Prioritization of issues
  - Ways to remediate

Audience interview

Who is data provider, integrator, sw developer?

Which sw is being utilized? GeoServer, deegree

Demonstrator showing the world as we'd like it

https://raw.githubusercontent.com/BRGM/gml_application_schema_toolbox/master/presentations/2018_EGU/Demo_1_2_0_rc2_EPOS_WP15_EGU_with_datagraph.mp4

Known Issues

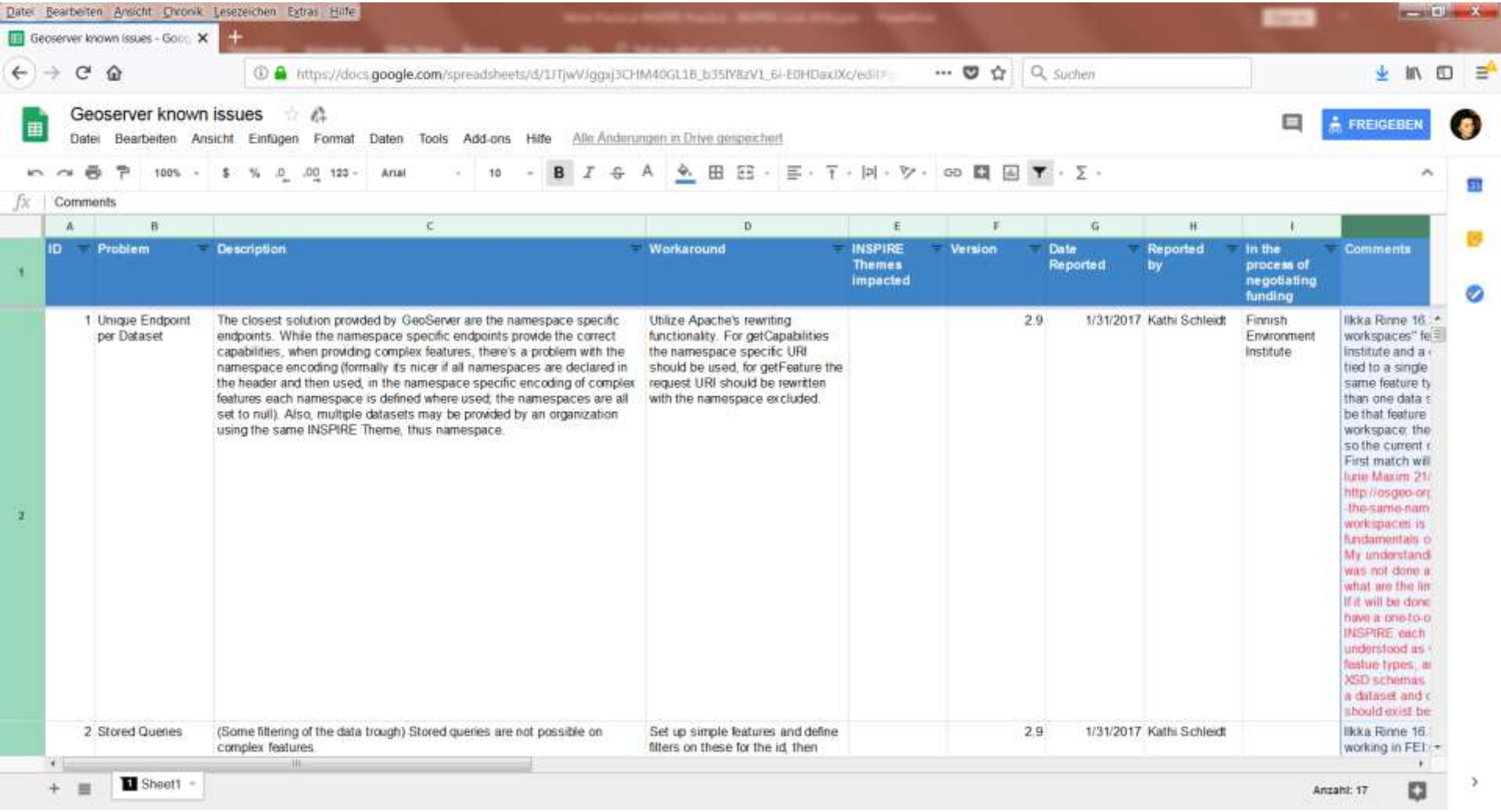
Known Issues - Overview

- Data Provision
  - Issues providing download services (GeoServer, deegree)
  - Alternatives for coverage models
  - Simplification Options
  - Codelists and Registers
- Data Access
  - Identifier Management and Referencing
  - Stored queries
- Data Usage
  - Available libraries and tools (GDAL GMLAS driver and QGIS GMLAS toolbox, QGIS 3.0)
  - Reusable code for client development

Note: if possible, please state the requirement the issue pertains to

Data Provision - Issues with download services

- Various technologies being utilized for the provision of INSPIRE Services
- Most have some deficiencies pertaining to INSPIRE
- Knowing about these issues can save a great deal of effort and frustration!
- Workarounds can help to mitigate some of these issues
- Joint funding (crowd-funding among institutions) would be ideal (but politically difficult)
- Knowing who has contracted fixes would be valuable for coordination of efforts



Geoserver known issues

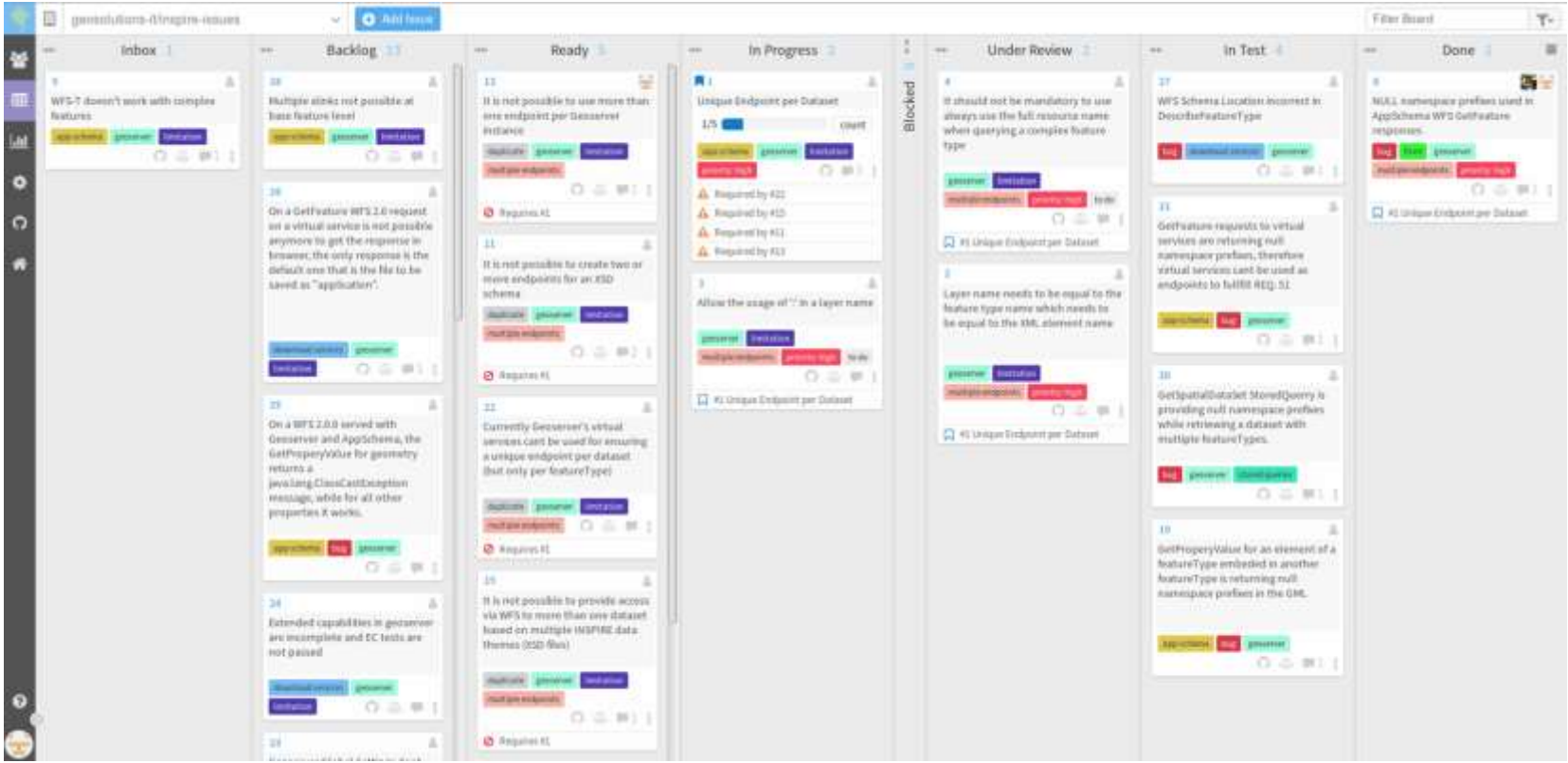
ID	Problem	Description	Workaround	INSPIRE Themes impacted	Version	Date Reported	Reported by	In the process of negotiating funding	Comments
1	Unique Endpoint per Dataset	The closest solution provded by GeoServer are the namespace specific endpoints. While the namespace specific endpoints provide the correct capabilities, when providing complex features, there's a problem with the namespace encoding (formally it's nicer if all namespaces are declared in the header and then used, in the namespace specific encoding of complex features each namespace is defined where used, the namespaces are all set to null). Also, multiple datasets may be provided by an organization using the same INSPIRE Theme, thus namespace.	Utilize Apache's rewriting functionality. For getCapabilities the namespace specific URI should be used, for getFeature the request URI should be rewritten with the namespace excluded.		2.9	1/31/2017	Kathi Schleidt	Finnish Environment Institute	Ilkka Rinne 16 workspaces" fe Institute and a tied to a single same feature b than one data s be that feature workspace; the so the current First match wil lurie Maxim 21/ http://osgeo-or -the-same-nam workspaces is fundamentals o My understandi was not done a what are the lin If it will be done have a one-to-o INSPIRE each understood as festue types, a XSD schemas a dataset and should exist be
2	Stored Queries	(Some filtering of the data trough) Stored queries are not possible on complex features	Set up simple features and define filters on these for the id, then		2.9	1/31/2017	Kathi Schleidt		Ilkka Rinne 16. working in FEI

Repository of software issues

Known INSPIRE issues (download and others) with **Geoserver on Github**: https://github.com/geosolutions-it/inspire-issues/

Source: Excel sheet with known issues and workarounds + GeoSolutions contribution

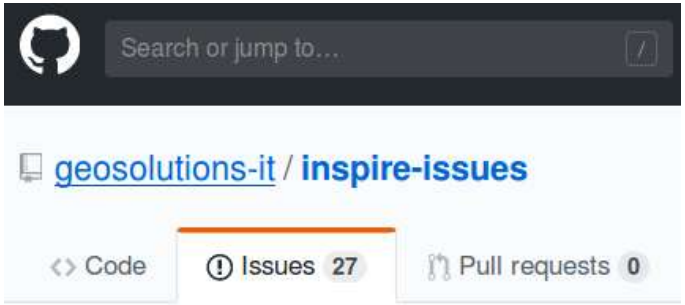
Repository of software issues



Repository of software issues

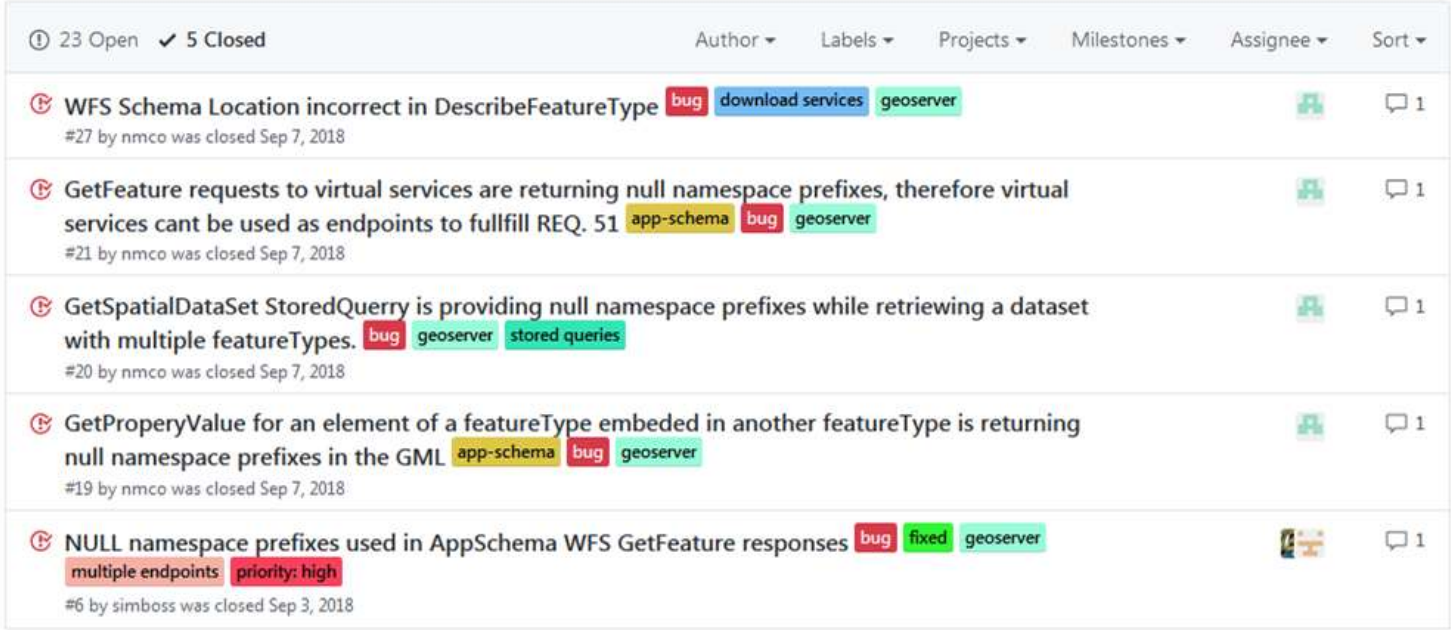
Current status of **most relevant** issues:

- **3 *in progress*** issues related with `multiple endpoints` (**almost done**):
  - `http://<HOST>:<PORT>/geoserves/ps_Natura2000SP/owsA?service=WFS&version=2.0.0&request=GetFeature&typeNames=ps:ProtectedSite`
  - `http://<HOST>:<PORT>/geoserver/ps_Natura2000SCI/ows?service=WFS&version=2.0.0&request=GetFeature&typeNames=ps:ProtectedSite`
- **3 *open*** issues related with `stored queries`
- **3 *open*** issues related with `download services`



Progress since the 2017 WS

Progress in Geoserver described by GeoSolutions on GitHub. Closed issues:



23 Open ✓ 5 Closed — Author ▾ Labels ▾ Projects ▾ Milestones ▾ Assignee ▾ Sort ▾

- WFS Schema Location incorrect in DescribeFeatureType [bug] [download services] [geoserver] — 1
  #27 by nmco was closed Sep 7, 2018
- GetFeature requests to virtual services are returning null namespace prefixes, therefore virtual services cant be used as endpoints to fullfill REQ. 51 [app-schema] [bug] [geoserver] — 1
  #21 by nmco was closed Sep 7, 2018
- GetSpatialDataSet StoredQuerry is providing null namespace prefixes while retriewing a dataset with multiple featureTypes. [bug] [geoserver] [stored queries] — 1
  #20 by nmco was closed Sep 7, 2018
- GetProperyValue for an element of a featureType embeded in another featureType is returning null namespace prefixes in the GML [app-schema] [bug] [geoserver] — 1
  #19 by nmco was closed Sep 7, 2018
- NULL namespace prefixes used in AppSchema WFS GetFeature responses [bug] [fixed] [geoserver] [multiple endpoints] [priority: high] — 1
  #6 by simboss was closed Sep 3, 2018

Progress since the 2017 WS

Explicitly define the **default geometry** attribute:

```
<isDenormalised>true</isDenormalised>
<defaultGeometry>gsml:MappedFeature/gsml:shape/gml:Polygon</defaultGeometry>
<attributeMappings>
```

1..N cardinality mappings made simple (*pending PR*):

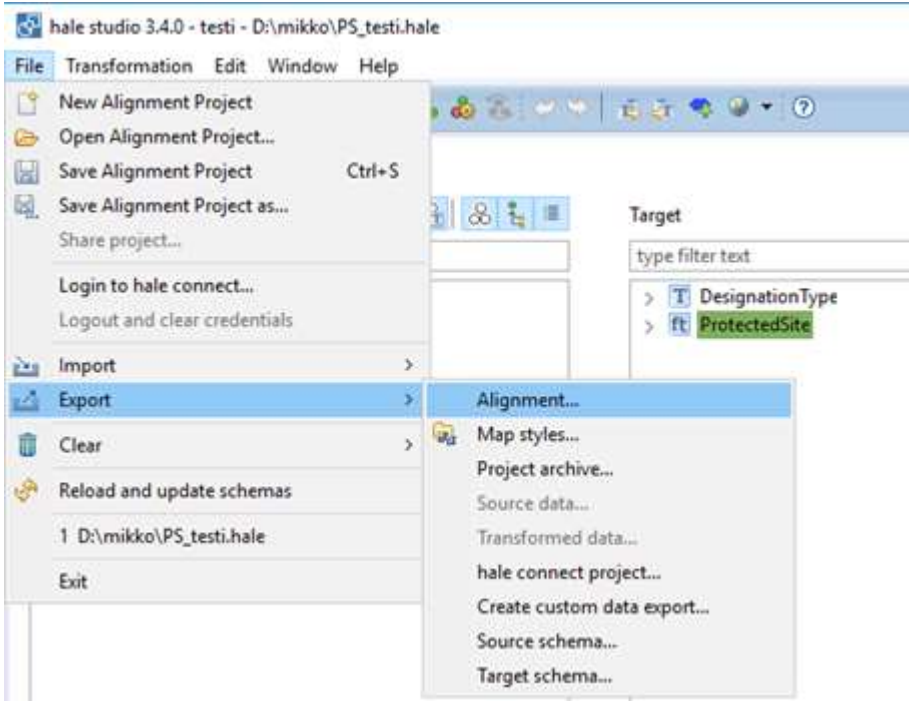
```
(...)
<AttributeMapping>
  <targetAttribute>st:tag</targetAttribute>
  <jdbcMultipleValue>
    <sourceColumn>ID</sourceColumn>
    <targetTable>TAGS</targetTable>
    <targetColumn>STATION_ID</targetColumn>
    <targetValue>TAG</targetValue>
  </jdbcMultipleValue>
```

Progress since 2017 WS example

Isolated workspace -implementations for Geoserver, App-schema, GeoTools and HALE. **Goal: To allow the publishing of the same feature type in one Geoserver instance more than once using isolated workspaces to meet INSPIRE requirement 52 (one endpoint per dataset).** There are still some issues and work to be done but progress has been made:

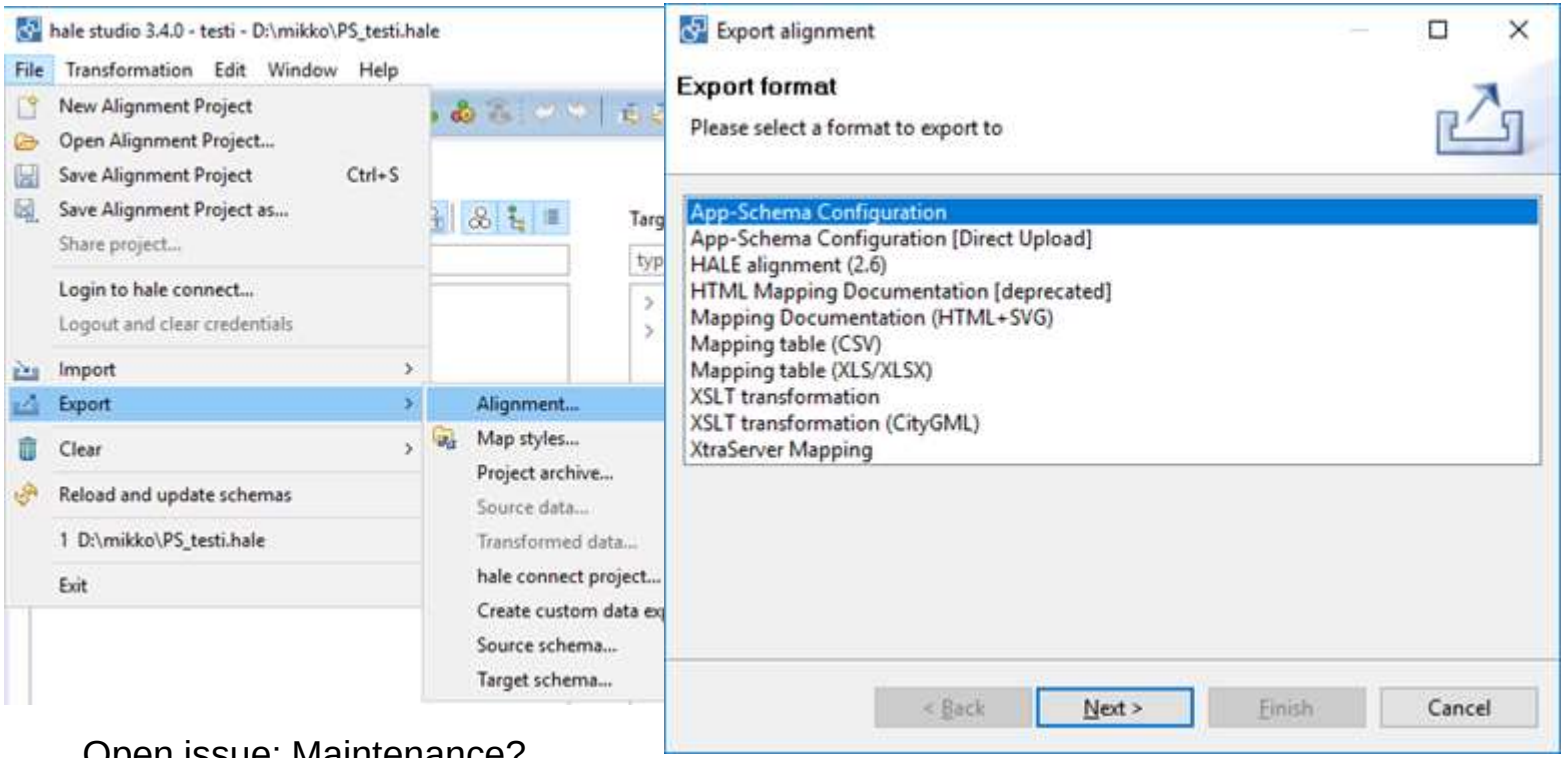
- App-schema modifications
- Geoserver GUI modifications
- GeoTools implementation
- HALE modifications (next page)

HALE isolated workspaces



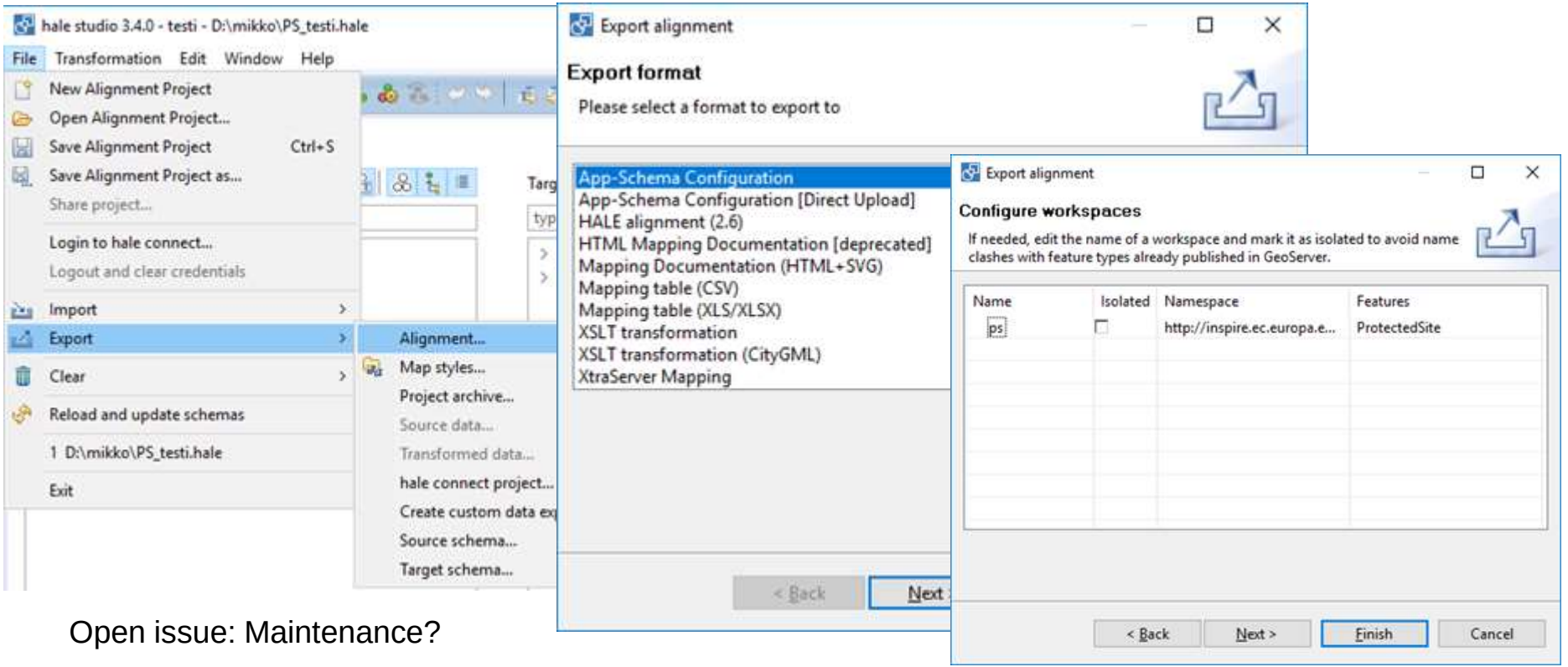
Open issue: Maintenance?

HALE isolated workspaces



Open issue: Maintenance?

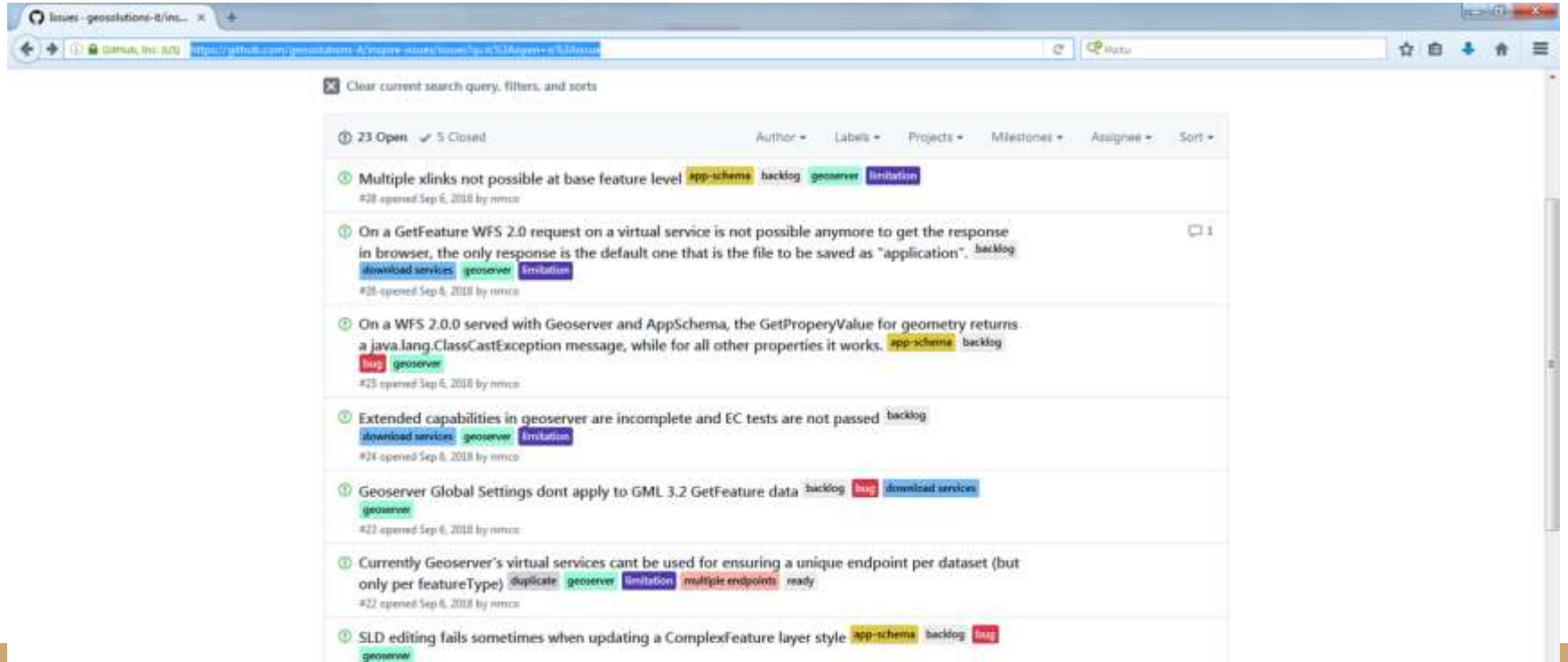
HALE isolated workspaces



Open issue: Maintenance?

Data Provision - Issues with download services

Open issues with GeoServer described by GeoSolutions on GitHub



Data Provisi
- Issues

deegree / deegree3

Watch

Code | Issues 155 | Pull requests 39 | Projects 1 | Wiki | Insights

Improved support for INSPIRE #860

Closed tfr42 opened this issue on 23 Oct 2017 · 9 comments

tfr42 commented on 23 Oct 2017 • edited — Member

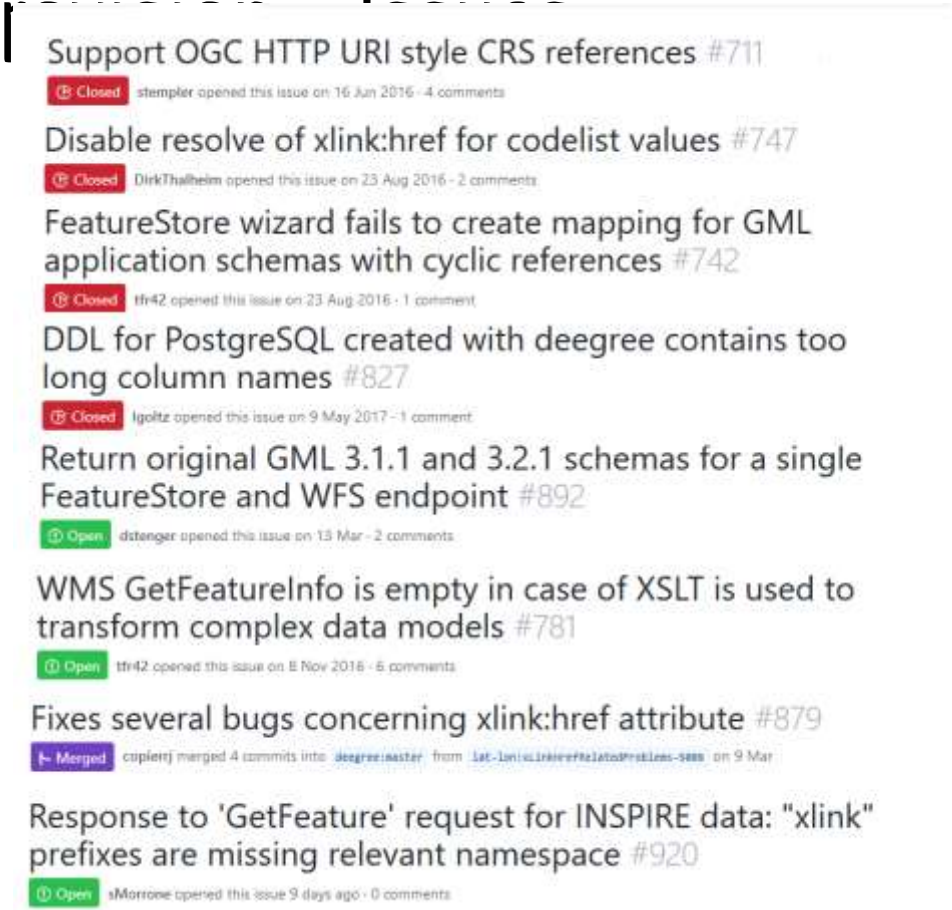
we have an important request for your next TMC-Meeting: As you know deegree3 is used by many governmental organizations for the implementation of web services according to INSPIRE. The next milestone (aka deadline...) on the INSPIRE roadmap will be the 23/11/2017 and every responsible organization has to provide its interoperable spatial data sets (Annex I) until this date.

In this context many improvements and bugfixes were promoted by LDBV Bayern / LGB Brandenburg in cooperation with known service providers. Unfortunately many organizations are still working with deegree 3.4 RC3 or other versions (it's a small mess at the moment) and they encounter huge problems which are already solved in the developments we ordered.

For this reason, we strongly recommend to take the following tickets into account and we hope that you'll integrate these improvements in the new release (or at least into a release candidate):

- [x] #573
- [x] #742
- [x] #713
- [x] #745
- [x] #747
- [x] #781
- [x] #782
- [x] #749
- [x] #827
- [x] #711

Data Pr


Support OGC HTTP URI style CRS references #711
Closed stempler opened this issue on 16 Jun 2016 · 4 comments
Disable resolve of xlink:href for codelist values #747
Closed DirkThalheim opened this issue on 23 Aug 2016 · 2 comments
FeatureStore wizard fails to create mapping for GML application schemas with cyclic references #742
Closed tfr42 opened this issue on 23 Aug 2016 · 1 comment
DDL for PostgreSQL created with deegree contains too long column names #827
Closed lgoltz opened this issue on 9 May 2017 · 1 comment
Return original GML 3.1.1 and 3.2.1 schemas for a single FeatureStore and WFS endpoint #892
Open dstenger opened this issue on 13 Mar · 2 comments
WMS GetFeatureInfo is empty in case of XSLT is used to transform complex data models #781
Open tfr42 opened this issue on 8 Nov 2016 · 6 comments
Fixes several bugs concerning xlink:href attribute #879
Merged
Response to 'GetFeature' request for INSPIRE data: "xlink" prefixes are missing relevant namespace #920
Open

Data Provision - Alternatives for coverage models

- Coverage models as provided in INSPIRE XSDs not suitable for provision via WCS
  - Directly derived from conceptual model, not taking WCS requirements into account
  - Additional information must be shifted to metadata element, not extended to new classes
  - Alignment with IRs must be maintained
- Alternatively, Coverage data can be provide via WFS, but doesn't allow for subsetting to access required data
- Good news is we're making progress, first datasets online with WCS
- More at the INSPIRE Coverage WS Thursday 9:00

Data Provision: Simplification Options

MIG Action 2017.2 on alternative encodings for INSPIRE data (until 12/2018)

Scope, based on the results of a survey (6/2018) and agreement with MIG:

- developing an encoding rule for GeoJSON as a first example
- developing generic rules / approaches for flattening the INSPIRE data models, which will be useful for a number of alternative encodings
- developing the overall procedure for proposing and endorsing additional encodings

Ongoing: collection of examples of GML simplifications and usage of GeoJSON encodings on github https://github.com/INSPIRE-MIF/2017.2/issues

1st draft encoding rules/simplification procedure in end of October & MS review in December

More information:
https://webgate.ec.europa.eu/fpfis/wikis/display/InspireMIG/Action+2017.2+on+alternative+encodings+for+INSPIRE+data

Codelists and Registers

- INSPIRE registry
  - JRC
  - National, i.e. AT
    http://registry.inspire.gv.at/registry
- CSIRO register SW
  - IUGS CGI Geoscience Vocabularies for Linked Data
    http://resource.geosciml.org/
- OGC Register activities
  - Being reworked, will allow multiple formats (content negotiation), including SKOS

Data Access: Identifier Management and Referencing

- Identifier management loosely specified in INSPIRE, various non-aligned options available:
  - base:inspireId (which provides the local identifier inside a namespace, and versioning)
  - gml:id (default for WFS, useful for getting just the exact feature needed, restrictions++)
    - doesn't allow a number of characters, many SW generete IDs randomly
  - gml:identifier (alt. identifier in GML, freeer version of gml:id, not useful in feature filtering)
- Standard WFS **GetFeatureById** stored query (SQ) references **gml:id**
  - filtering the data is based on an identifier element that has many restrictions
- What does INSPIRE TG mandatory **GetSpatialDataSet** SQ reference ???
  - unclear if this SQ is anything else than an alternative way of getting ALL the features from a WFS, or something more
- How to access a specific feature by the inspireId?
  - Where is ***GetFeatureByInspireID*** SQ? What about versioned data (dataset time series)?

Data Access: Identifier Management and Referencing

- How to reference specific features? First try: WFS URI including query
  Problems:
  - URI changes with SW versions
  - Long and ugly URI
- Rewriter approach - provider level:
  - Configure Apache to rewrite simple URIs to current WFS
  - Simple URI used for referencing and in xlinks
- http://ressource.brgm-rec.fr/data/Piezometre/06512X0037/STREMY.2
  vs.
- https://wfspoc.brgm-rec.fr/geoserver/ows?service=wfs&version=2.0.0&request=GetFeature&StoredQuery_ID=GetEnvironmentalMonitoringFacilityById&ID=Piezometre.06512X0037.STREMY.2

Data Access: Stored queries

- Syntax for stored queries on complex features slightly different from simple features, not very well documented.
  - For simple features element name in the fes:ValueReference sufficient
  - For complex features relative XPath must be provided, examples:
    - gml:name doesn't work
    - ./gml:name works
    - ./ps:DesignationType/ps:designationScheme/@xlink:href
    - /cdda:DesignatedArea/ps:siteDesignation/ps:DesignationType/ps:designationScheme/@xlink:href
  - Keeping in mind that since not all SW is equal, it doesn't always manage to resolve these filter requests correctly, or at all.

Data Access: Stored queries

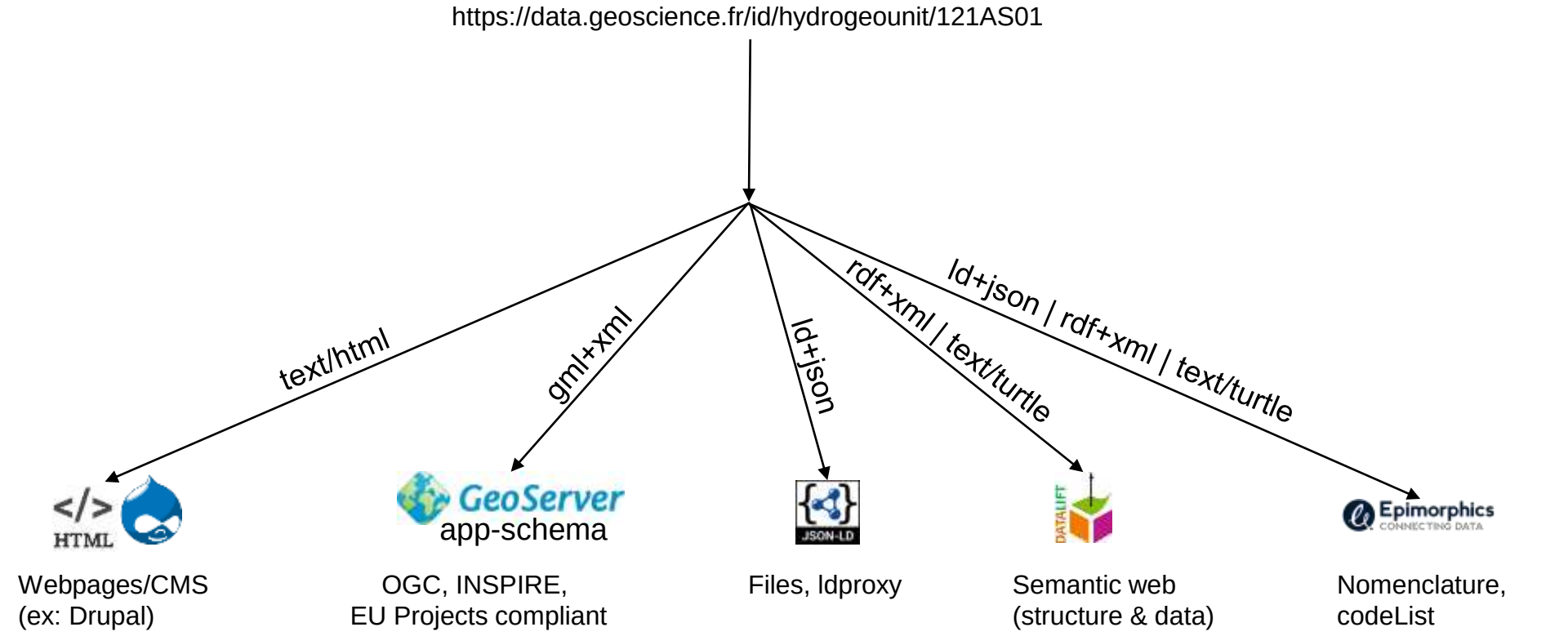
Implementations must keep track of the following **REC**s and **REQ**s:

- Req 49: Predefined SQ available for predefined datasets
- Req 50: All combinations of CRS/DataSetIdCode/ DataSetIdNamespace/language available as Predefined SQ
- Req 51: Following parameter names must be used: CRS, DataSetIdCode, DataSetIdNamespace and Language
- Rec 13: Name of Predefined SQ for predefined datasets: http://inspire.ec.europa.eu/operation/download/GetSpatialDataSet
- These do not really apply for WFS-based GML features

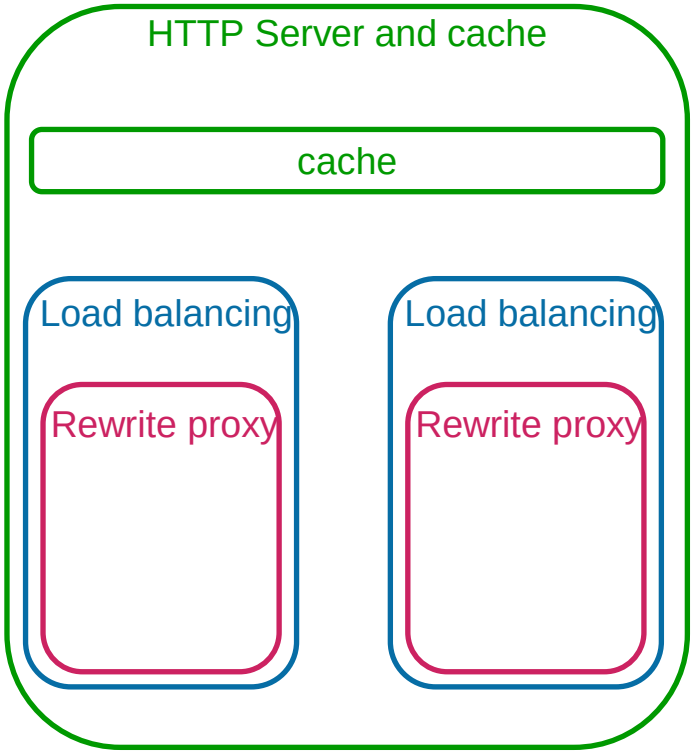
Data Access: Stored queries

- Standardized theme specific stored queries would be valuable for data users
  - Most systems will not allow users to specify their own stored queries, so dependent on existing ones
  - A good complement to data specifications
  - Alignment across systems essential for cross-border applications
  - Discussion of potential stored query types/options for standardization
- Deficit of WFS Filters - no select distinct!
  - Essential for GUI development, which features to select
  - Otherwise App must first access all features using GetPropertyValue, filter redundancies

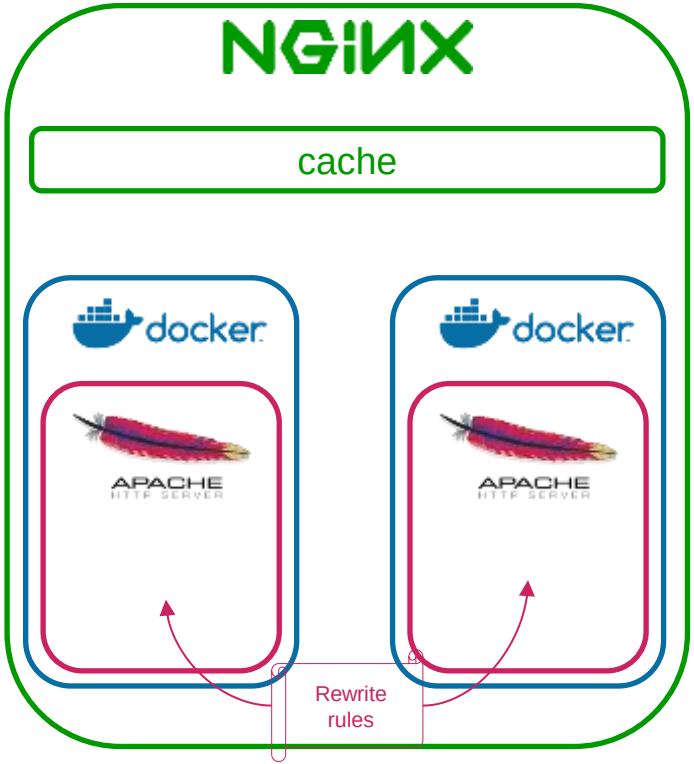
Resolver - overview



Resolver - mechanics



Resolver - mechanics



Resolver - rewrite rules

```
# id - H
# ex : https://data.geoscience.fr/id/hydrogeounit/121AS01
RewriteCond %{HTTP:Accept} 'text/html'
RewriteRule ^/id/hydrogeounit/([^/]*)$ https://bdlisarec.eaufrance.fr/hydrogeounit/$1 [P]

RewriteCond %{HTTP:Accept} 'application/gml\+xml'
RewriteRule ^/id/hydrogeounit/([^/]*)$
http://geoserverref.brgm-rec.fr/geoserver/ows?service=wfs&version=2.0.0&request=GetFeature&StoredQuery_ID=GetAquiferById&ID=EntiteHydroGeol.$1
[P]

RewriteCond %{HTTP:Accept} 'application/pdf'
RewriteRule ^/id/hydrogeounit/([^/]*)$ http://reseaurec.eaufrance.fr/geotraitements/bdlisa/files/entite/$1.pdf [P]

RewriteCond %{HTTP:Accept} 'application/ld\+json'
RewriteRule ^/id/hydrogeounit/([^/]*)$ /files/HydrogeoUnit_$1.json [P]
```

Resolver - testing

- Browser access (Human oriented)
    - Simple test case for a chemical compound vocab entry : https://data.geoscience.fr/ncl/par/1340
    - More complex one for a hydrogeological unit more complex content negotiation: https://data.geoscience.fr/id/hydrogeounit/121AS01 (URI in production soon)
- Machine access - Or postman
    - "Accept: text/html"
    - "Accept: application/pdf"
    - "Accept: application/ld+json"
    - "Accept: application/gml+xml"

Data Usage - Available libraries and tools

GDAL GMLAS driver and QGIS GMLAS toolbox, QGIS 3.0

Data Usage: Better client support

MIG Action 2017.3 on improved client support for INSPIRE data

Expected outcomes:

- Study on the usability of INSPIRE datasets and metadata in different software products
  - Survey: Usability of INSPIRE data https://ec.europa.eu/eusurvey/runner/UsabilityINSPIRE
- List of priority tools and specific functionalities that should be improved or developed
- Approach to tool improvement

Source of information: https://ies-svn.jrc.ec.europa.eu/projects/2017-3/wiki

Any additional information on this activity from the WS participants?

Discussion Panel

Discussion Panel - Participants

- Data Providers
  - SYKE: Hallin-Pihlatie Lena
- Software Producers
  - SAFE: Ken Bragg or Dean Hintz
  - GeoSolutions: Nuno Oliveira
- Technology Integrators
  - Epsilon Italia: Stefania Morrone

Discussion/Wrap-up

Collate a list of “difficult requirements”, see if absolutely mandatory for INSPIRE (i.e. create priorities for implementation)

Thank you!

Kathi Schleidt
Kathi@DataCove.eu

Stefania Morrone
s.morrone@epsilon-italia.it

Lena Hallin-Pihlatie
Lena.Hallin@ymparisto.fi

Sylvain Grellet S.Grellet@brgm.fr
Mickael Beaufils M.Beaufils@brgm.fr

Nuno Oliveira
nuno.oliveira@geo-solutions.it

Panel questions 1

What is your name and role in the INSPIRE implementation?

What are the major challenges or obstacles overall related to INSPIRE download services today (mention 1-2)?

What are the major challenges in fulfilling your role related to INSPIRE download services (mention 1-2)

What would you propose to improve or change in order to make it easier to fulfil your role?

Panel questions 1 - Topics: bug remediation process, possible coordination and collaboration options (Github?)

The information on GitHub (GeoServer, Deegree) is an improvement from last year. However, is this improvement enough?

What is /how do you see your role in the bug remediation (fix?) process?

What other kind of improvements are needed to support you in your role?

What other kind of information would you like to see have access to (in addition to the information on GitHub)