The INSPIRE Reference Validator

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Joint Research Centre
The European Commission's science and knowledge service

European Commission

MIWP action on Validation & conformity testing

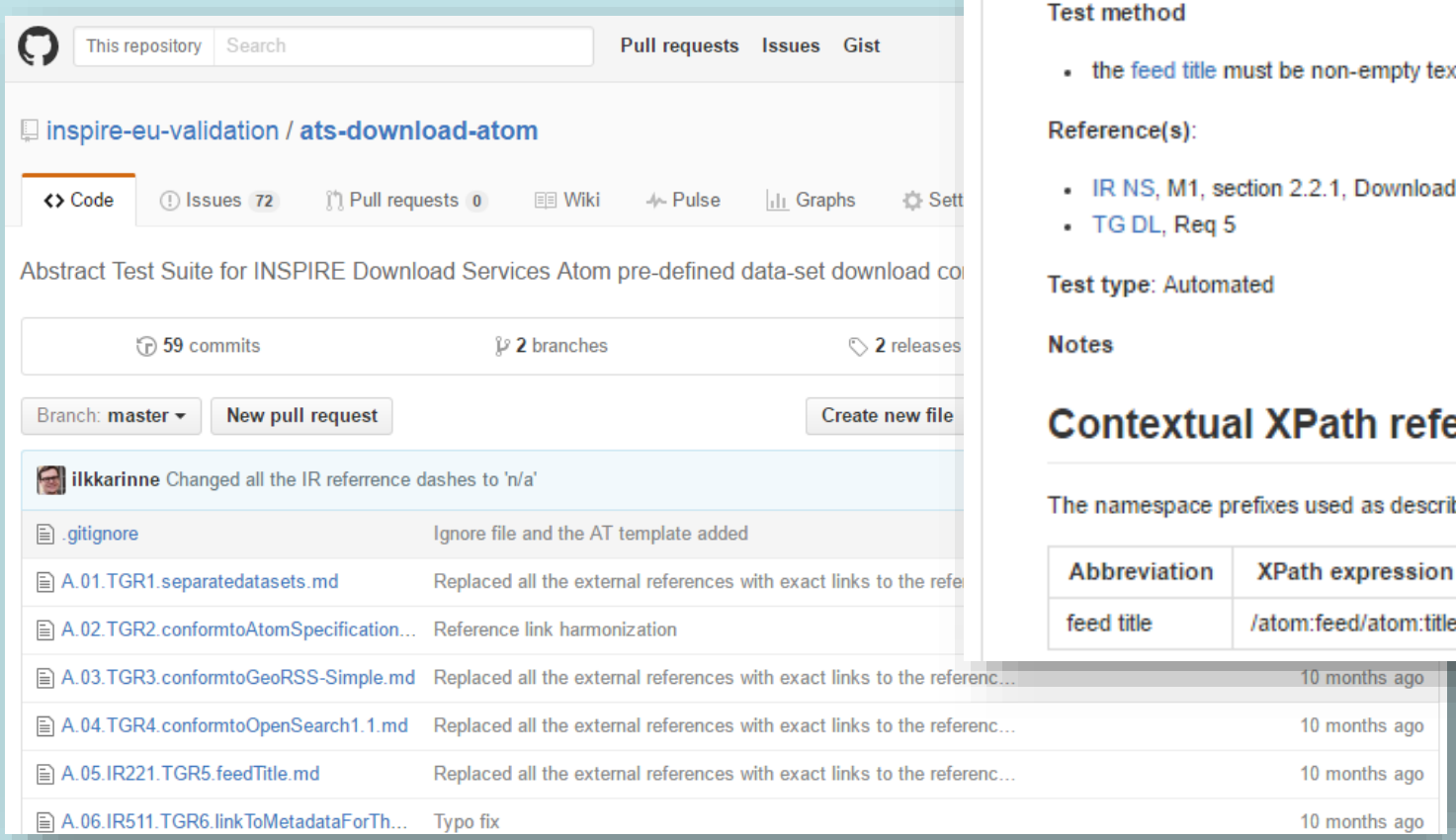
- Why develop a common validator?
  - help implementers check their implementation progress
  - help national coordinators and DG ENV/JRC/EEA monitor the progress implementations in MS and across Europe
  - help solution providers check their software solutions against the INSPIRE requirements
- Existing validation services in JRC and some Member States and projects
  → possible synergies
  → need for consistent results

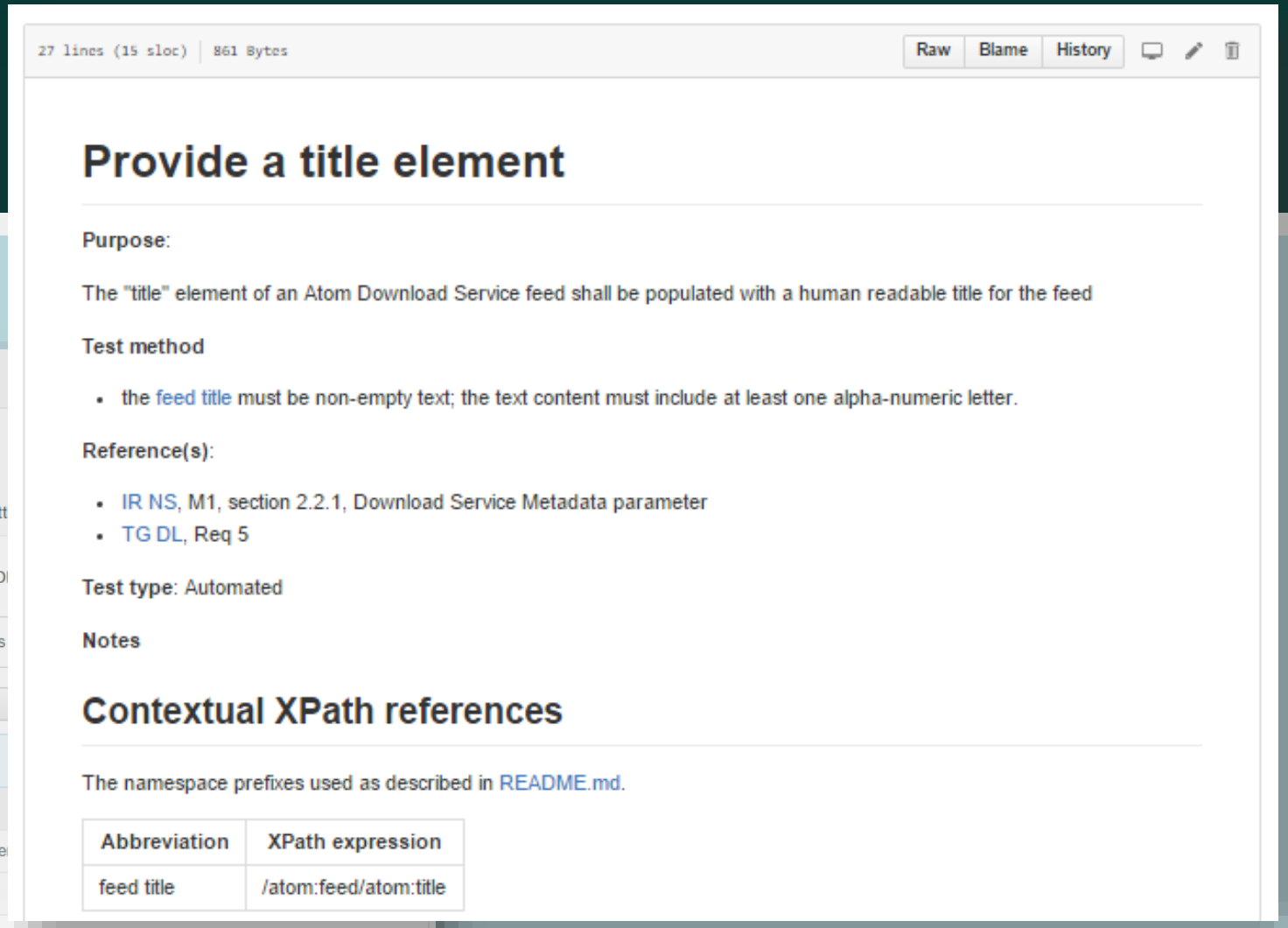
European Commission

INSPIRE reference validator

- Supported by ISA/ISA^2 actions ARE3NA and ELISE
- Scope: Tests for all INSPIRE Technical Guidance
  - v1.0: Annex I data specifications, metadata (TG v1.3), download services (Atom and WFS) [July 2017]
  - v1.x: Metadata (TG v2.0), View Services (WMS & WMTS), Annex II+III data specifications, Discovery Services (CSW), download Services (SOS & WCS) [2018-2019]
- Aims
  - Development of a reusable, open source, reference validator
  - Build upon existing solutions
  - Configurable software and test rules

ATS repository





GitHub

https://github.com/inspire-eu-validation/

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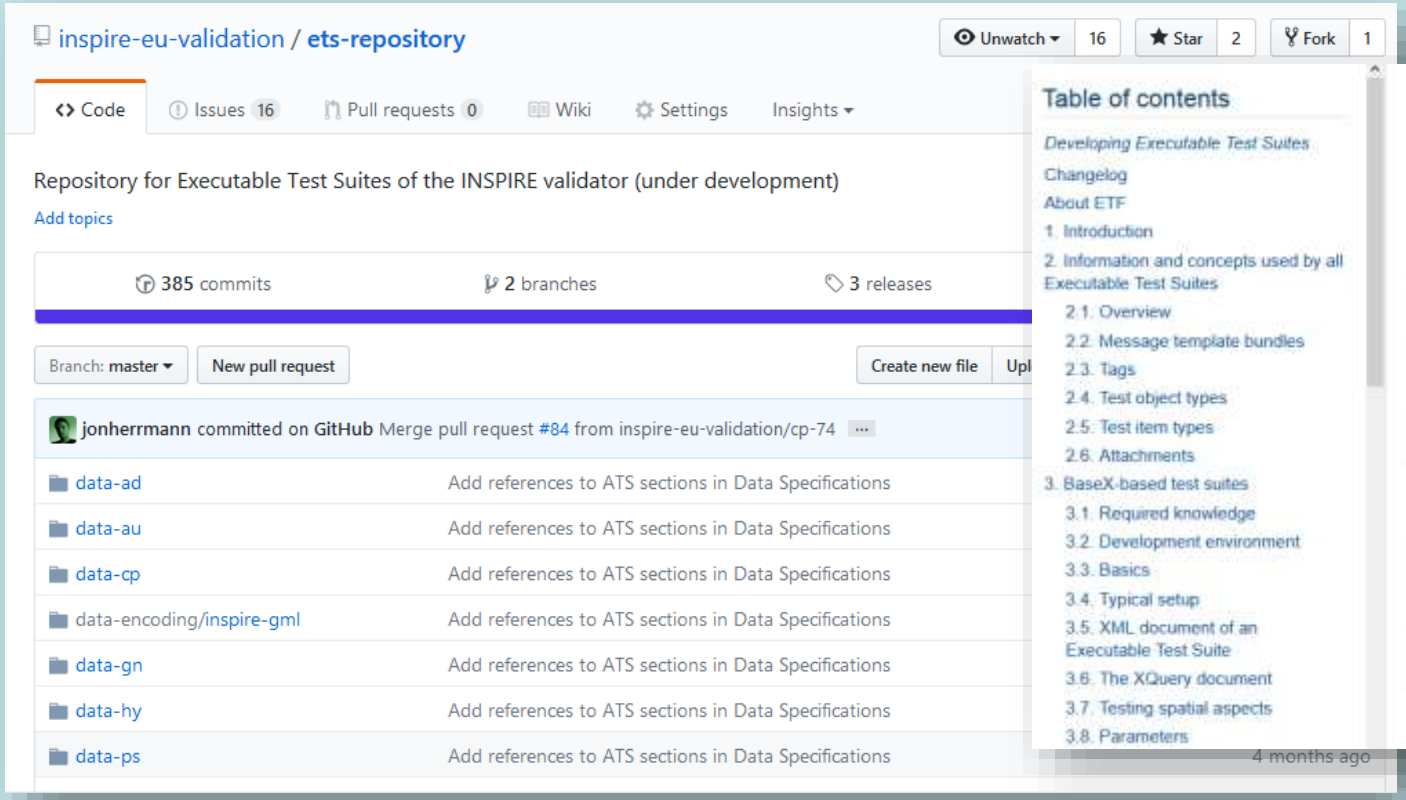
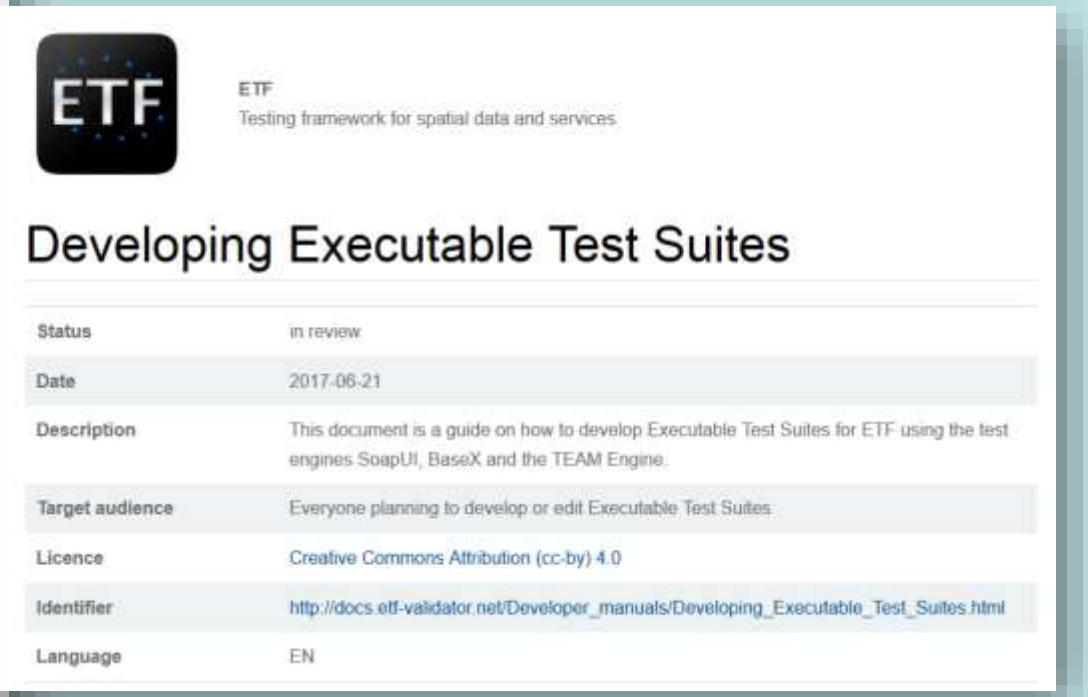
ETS repository & guidelines

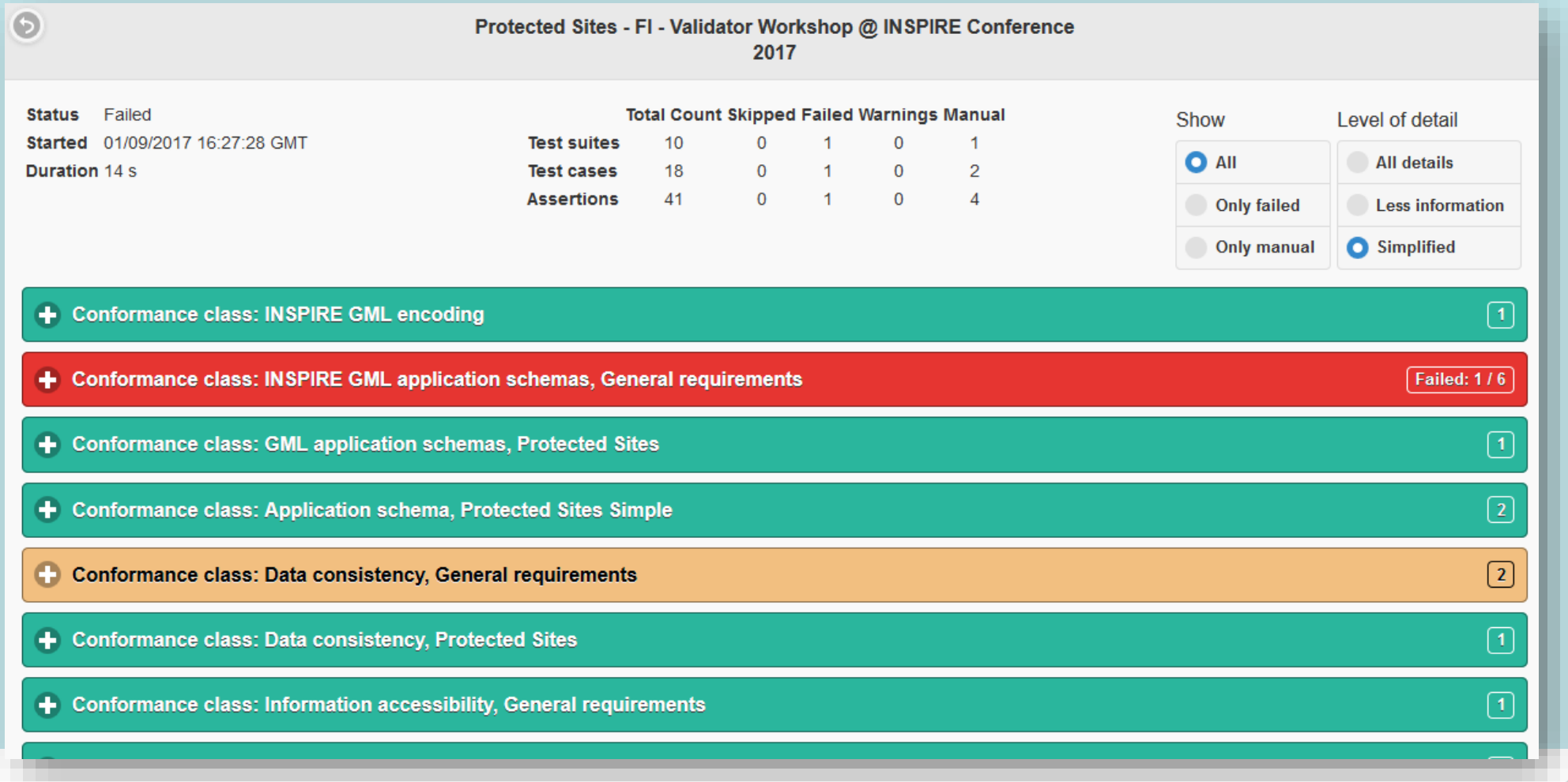




https://github.com/inspire-eu-validation/ets-repository

http://docs.etf-validator.net/#developer_manuals

Sample test report



Protected Sites - FI - Validator Workshop @ INSPIRE Conference 2017

Status Failed
Started 01/09/2017 16:27:28 GMT
Duration 14 s

	Total Count	Skipped	Failed	Warnings	Manual
Test suites	10	0	1	0	1
Test cases	18	0	1	0	2
Assertions	41	0	1	0	4

Show: (•) All ( ) Only failed ( ) Only manual

Level of detail: ( ) All details ( ) Less information (•) Simplified

- **Conformance class: INSPIRE GML encoding** 1
- **Conformance class: INSPIRE GML application schemas, General requirements** Failed: 1 / 6
- **Conformance class: GML application schemas, Protected Sites** 1
- **Conformance class: Application schema, Protected Sites Simple** 2
- **Conformance class: Data consistency, General requirements** 2
- **Conformance class: Data consistency, Protected Sites** 1
- **Conformance class: Information accessibility, General requirements** 1

gmlas.d.9: 1, 2 or 3 coordinate dimensions — Simplified

gmlas.d.10: Validate geometries (1)

Verify that in curves and surfaces only gml:posList is used for coordinates, i.e. validate all geometry elements of a feature from the application schema using a geometry library.

Relevant requirements:

- IR Requirement Article 12 (1): Other Requirements and Rules. The value domain of spatial properties defined in this Regulation shall be restricted to the Simple Feature spatial schema as defined in Herring, John R. (ed.), OpenGIS® Implementation Standard for Geographic information – Simple feature access – Part 1: Common architecture, version 1.2.1, Open Geospatial Consortium, 2011, unless specified otherwise for a specific spatial data theme or type.

Note:

- Cadastral Parcel and Building 3D features are excluded from this requirement.

Source: Abstract Test Case 'Simple features', INSPIRE Data Specification Template, A.1.7

Status Failed
Duration 0.233 s

Messages

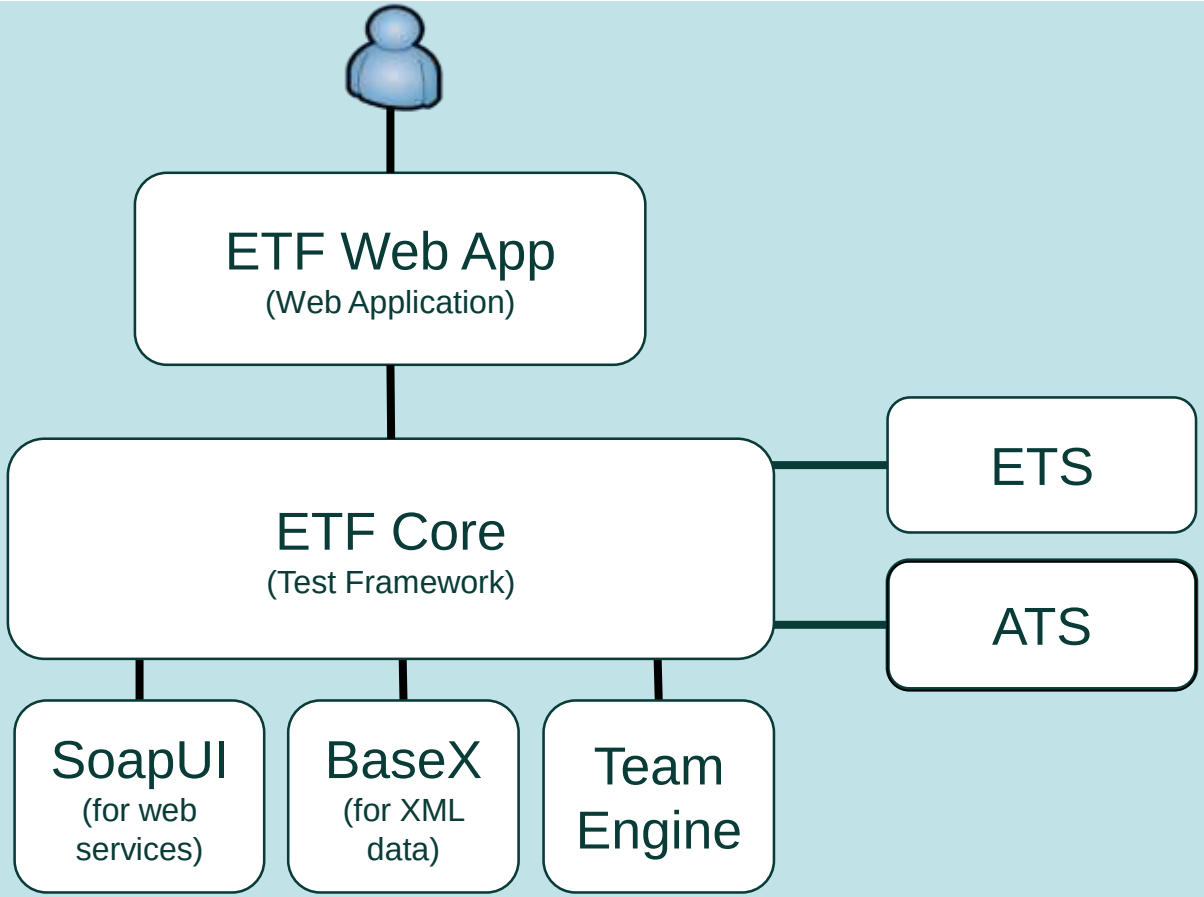
The dataset has 7 feature(s) with errors for this assertion.
XML document 'PS_Natura2000_3035_small.gml', ProtectedSite 'ps-SCIFI0100006-L': The feature geometry is not a valid GML geometry. Error detected: Invalid polygon. Outer ring of polygon is clockwise within element MultiSurface, (gml:id: ps-SCIFI0100006-L-0 with coordinates: LINESTRING (4146652.320966 5041496.569316,4149374.225709 503...)
XML document 'PS_Natura2000_3035_small.gml', ProtectedSite 'ps-SCIFI0200090-L': The feature geometry is not a valid GML geometry. Error detected: Invalid polygon. Outer ring of polygon is clockwise within element MultiSurface, (gml:id: ps-SCIFI0200090-L-0 with coordinates: LINESTRING (4130796.060765 4993781.289665,4127148.032830 499...)
XML document 'PS_Natura2000_3035_small.gml', ProtectedSite 'ps-SPAFI0100006-L': The feature geometry is not a valid GML geometry. Error detected: Invalid polygon. Outer ring of polygon is clockwise within element MultiSurface, (gml:id: ps-SPAFI0100006-L-0 with coordinates: LINESTRING (4146652.320966 5041496.569316,4149374.225709 503...)
XML document 'PS_Natura2000_3035_small.gml', ProtectedSite 'ps-SCIFI1400030-L': The feature geometry is not a valid GML geometry. Error detected: Invalid polygon. Outer ring of polygon is clockwise within element MultiSurface, (gml:id: ps-SCIFI1400030-L-0 with coordinates: LINESTRING (4229722.291544 4907672.044310,4231628.089206 490...)
XML document 'PS_Natura2000_3035_small.gml', ProtectedSite 'ps-SPAFI0100091-L': The feature geometry is not a valid GML geometry. Error detected: Invalid polygon. Outer ring of polygon is clockwise within element MultiSurface, (gml:id: ps-SPAFI0100091-L-0 with coordinates: LINESTRING (4212154.320736 5129177.808487,4212152.675040 512...)

INSPIRE Test Framework (ETF)

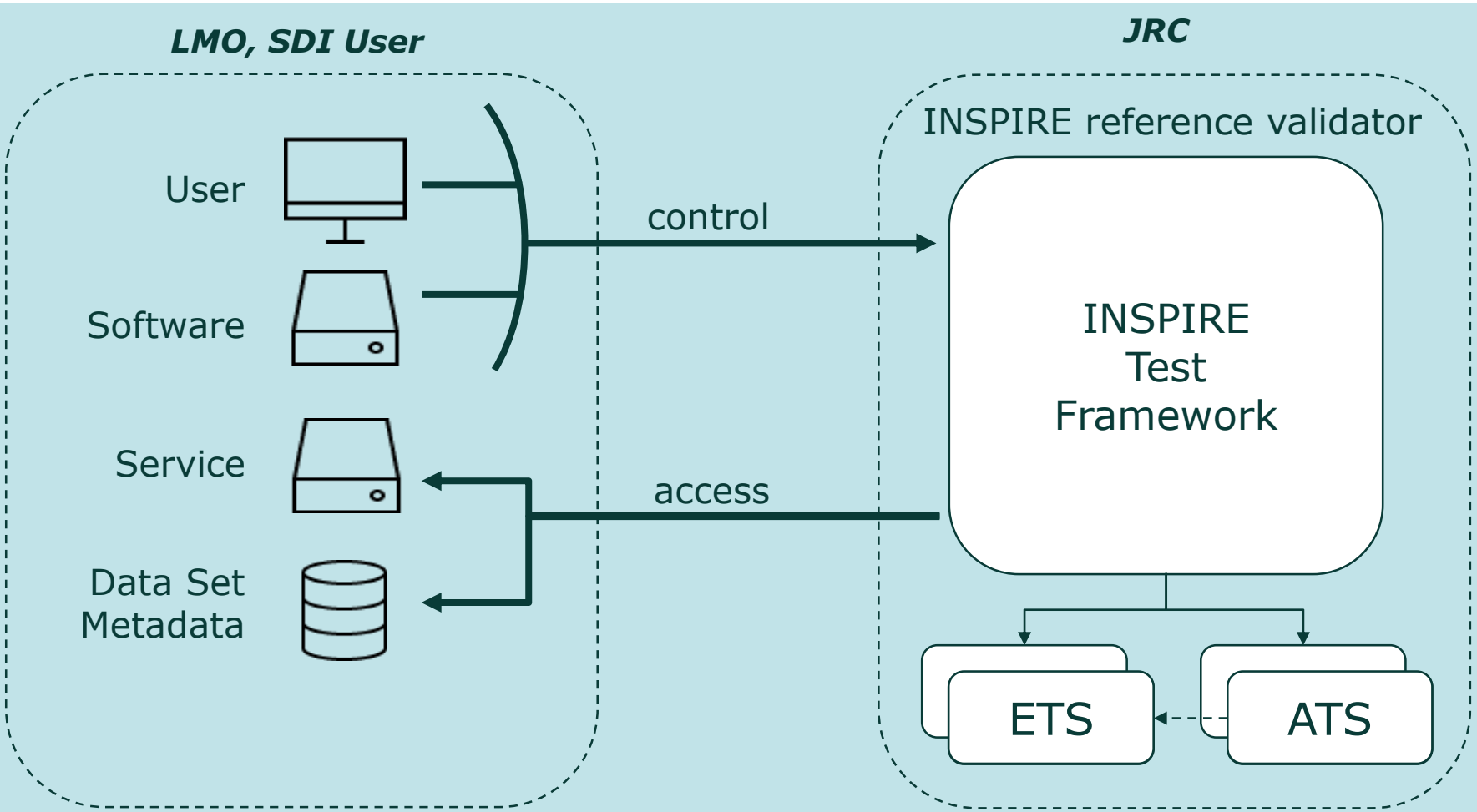
- Test framework = software to run ETS
- INSPIRE Test Framework uses & further develops ETF – an open-source testing framework for SDIs
  - http://docs.etf-validator.net
- ETF design goals
  - user-friendly
  - consistent with OGC/ISO specification model
  - capable of testing all resources in an SDI (spatial data, services and metadata records)

ETF – Modular architecture

- Framework can be extended with test drivers
- Web interface for
  - controlling test runs
  - managing test reports and test objects
- Useful, uniform test reports
  - in XML and HTML

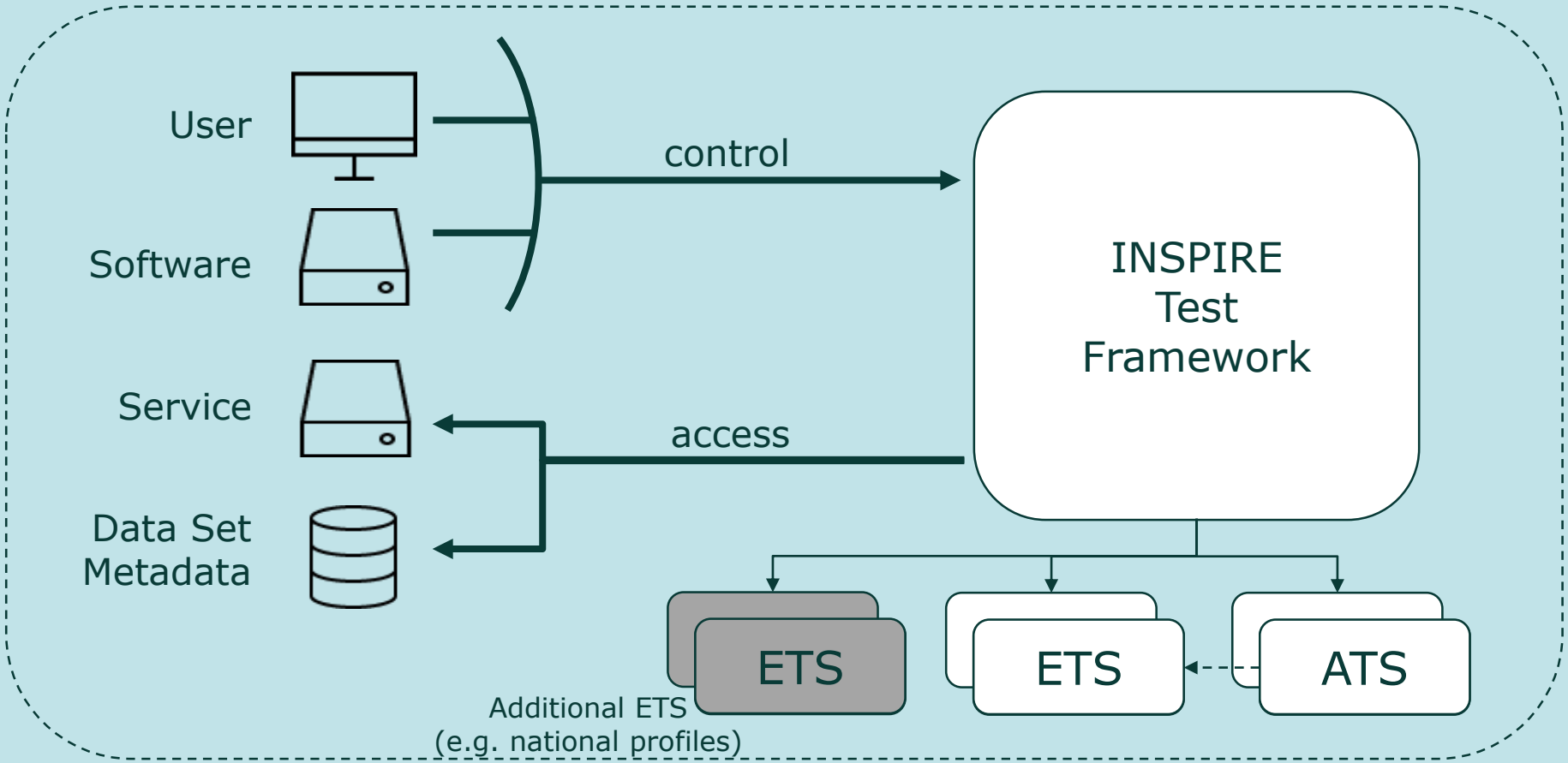


Central deployment

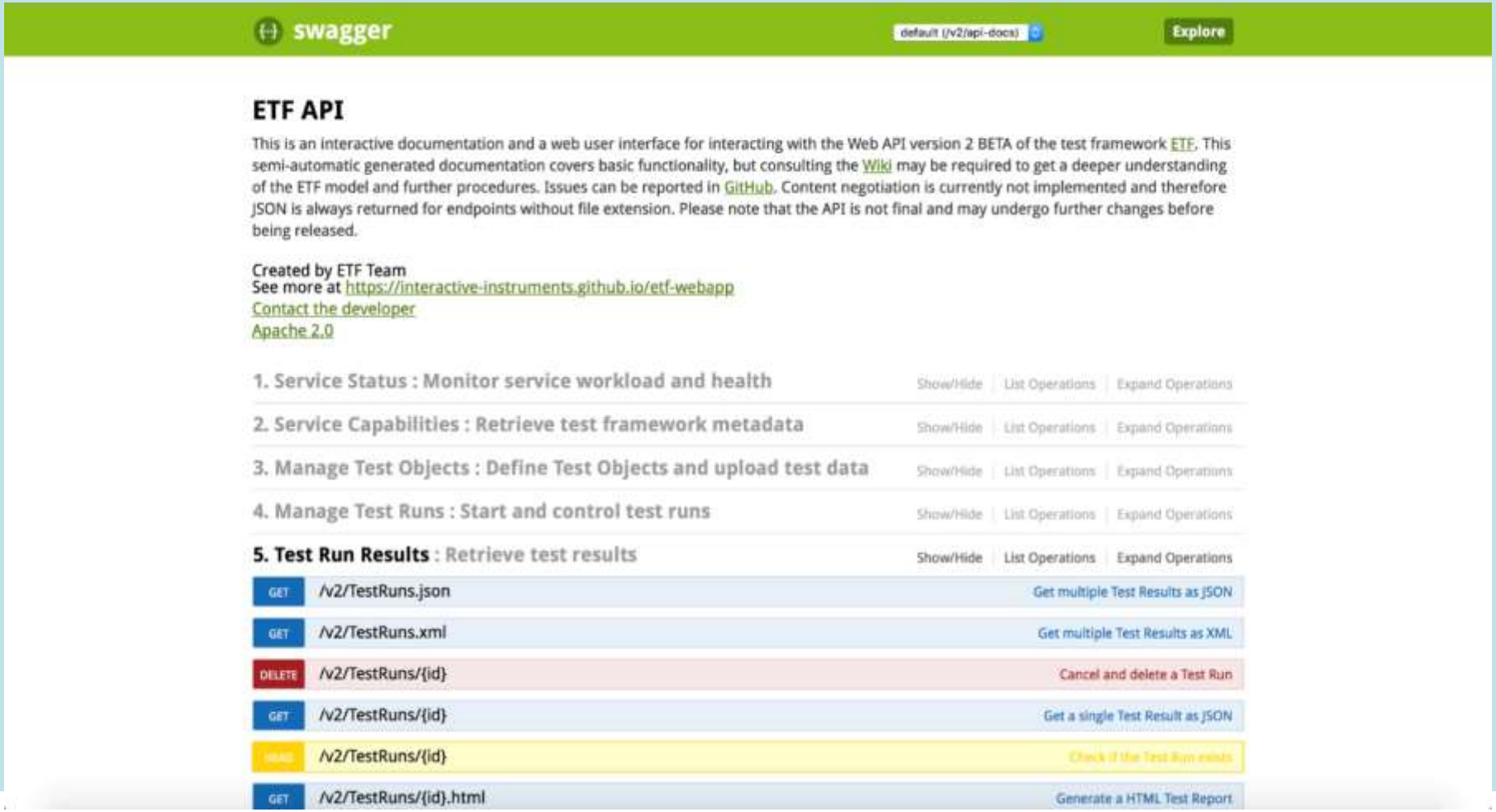


http://inspire-sandbox.jrc.ec.europa.eu/validator/

Reusable, e.g. by an LMO



REST API, documented using OpenAPI



Other ETF features

- Test driver for OGC TeamEngine (support WFS 2.0 CITE tests of OGC)
- Selection of multiple (compatible) conformance classes for a single Test Run
- Selection of multiple XML for a single Test Run (metadata and data tests)
- Support for multi-linguality (user interface and reports)

- Manuals for users, developers and admins
  - http://docs.etf-validator.net/

Clarification: ETF reference validator vs. testing tool of geoportal harvesting component

- Currently, two distinct tools are available as part of the INSPIRE knowledge base that perform tests on INSPIRE resources:
  - The INSPIRE reference validator (aka ETF validator), available at http://inspire-sandbox.jrc.ec.europa.eu/validator
  - The testing tool used inside the INSPIRE geoportal's harvesting component (aka validator2) and made available through a web interface at http://inspire-geoportal.ec.europa.eu/validator2/
- Both tools have evolved separately, provide different functionality and aim to serve different purposes

Scope: ETF reference validator vs. testing tool of geoportal harvesting component

- ETF reference validator
  - aim: agreed reference implementation of validation rules
  - developed under the governance of the MIG
  - based on commonly agreed Abstract Test Suites available in the public ATS repository
- Testing tool of geoportal harvesting component
  - aim: extract and enrich the information found in the metadata and the described resources, in order to present them in a useful and usable fashion in the geoportal
  - check completeness and correctness of resources & establish links between them
  - evolved prior and in parallel to the development of the Reference Validator and may currently not be fully consistent with the agreed ATS → do not consider results as a complete and authoritative INSPIRE compliance test
  - web-based API still heavily used by INSPIRE implementers and tools

Which tool to use?

- Only the INSPIRE reference validator is based on ATS agreed by the MIG → this should be the main validator to be used
- In some cases test results may differ (due to different interpretations of the TG requirements)
  - such inconsistencies will be successively removed by updating the test logic in either the geoportal or the reference validator
- Please report inconsistencies in the issue tracker of the relevant ATS on Github or log them in the geoportal helpdesk

ETF software – Governance

- Standalone GitHub organisation
- Steering Group (SG): Project Governance
  - Very significant contributions: Organizations and Developers
  - Voting system: consensus of all members (where possible)
  - Inaugural members: JRC, ii
- Technical Committee (TC): Technical management
  - Proven technical capacity over time
  - TC analyzes and propose candidates
  - SG will assess and accept/reject new TC members proposal
- Developers: Project Contributions

MIG sub-group 2017.4

- Support the resolution of notable comments received on the validator, ETS and ATS and, where relevant, the formulation of change requests to TGs and/or IRs → ATS and ETS governance!
- Promote the usage of the validator in the Member States and act as national contact point for validation
- Advise the EC on further evolution and long-term sustainability of the ETF test framework

Ongoing work

- Complete ETS / ATS for
  - Metadata v2.0
  - View Services – WMS & WMTS
  - Annex II+III data specifications
  - Discovery Services
  - Download Services – SOS & WCS
- Maintenance, further development and roll-out of the testing framework
- Long-term sustainability & funding
- Outreach and promotion

Get involved

- Submit your feedback on
  - ATS: https://github.com/inspire-eu-validation
  - ETS: https://github.com/inspire-eu-validation/ets-repository
  - ETF software: https://github.com/interactive-instruments/etf-webapp

- Develop your own tests:
  - http://docs.etf-validator.net/#_developer_manuals

Any questions?

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