NIPP Nacionalna infrastruktura prostornih podataka

INSPIRE validator i testiranje usklađenosti na primjeru skupa podataka Registar geografskih imena

Tanja Rodin

Državna geodetska uprava

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Sadržaj

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- Zaključak

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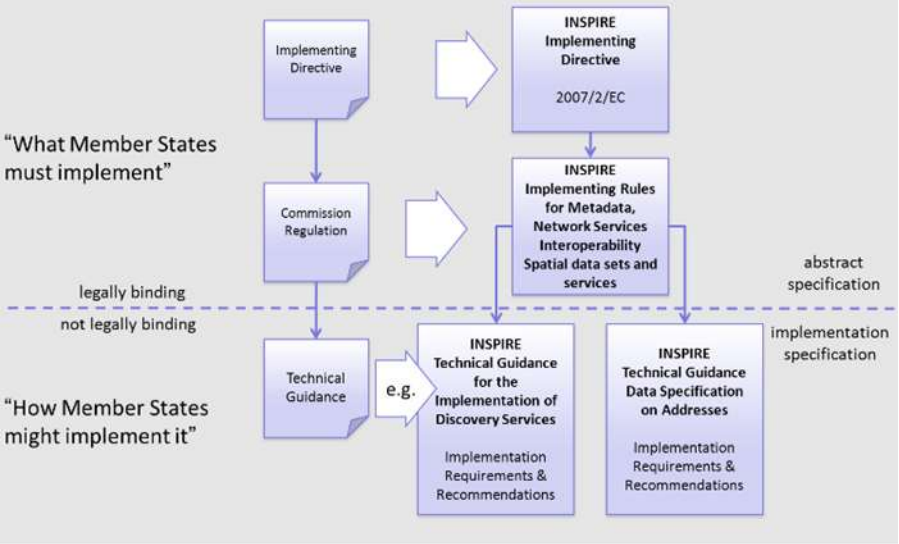
Cilj i svrha INSPIRE validatora

- JRC u srpnju 2017. objavio verziju 1.0 zajedničkog INSPIRE validatora
- Pomaže pružateljima podataka, pružateljima rješenja i nacionalnim koordinatorima provjeriti jesu li skupovi podataka, mrežne usluge i metapodaci zadovoljili uvjete definirane u INSPIRE Provedbenim pravilima i Tehničkim smjernicama.
- Pruža detaljna izvješća o testiranju
- Omogućava testiranje za:
  - skupove podataka (Skupina I)
  - mrežne usluge (usluga preuzimanja WFS i ATOM)
  - metapodatke

Veza između INSPIRE dokumenata

- Provedbena Pravila (IR) – zakonski obvezujuća (zahtjevi koji se moraju provesti)
- Tehničke smjernice (TG) navode implementacijske opcije za Provedbena pravila (kako se mogu provesti)
- Zahtjevi precizno definirani u Tehničkim smjernicama i grupirani u klase usklađenosti
- Opći cilj je maksimizirati interoperabilnost INSPIRE skupova podataka



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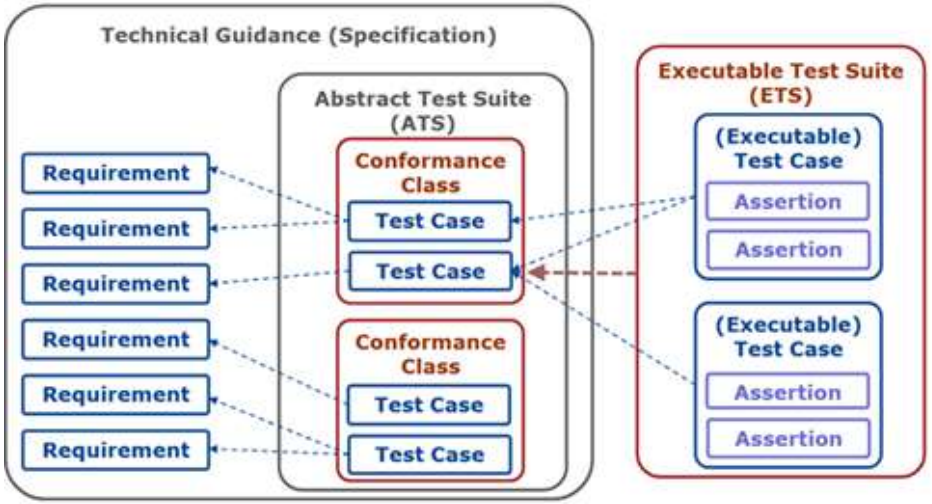
Pristup i logika testiranja

- Klasa usklađenosti je skup zahtjeva definiranih u specifikaciji
- Klase usklađenosti definirane u apstraktnom testnom paketu (ATS) – Prilog A Tehničkih specifikacija
- Svaka klasa usklađenosti obuhvaća nekoliko testnih slučaja
- Svaki testni slučaj testira jedan ili više zahtjeva iz Tehničkih smjernica
- Testni slučajevi se izvršavaju putem računalnih kodova definiranih u izvršnom testnom paketu (ETS)



Razvojni proces

- Razvojni proces (od Tehničkih smjernica preko ATS-a do razvoja ETS-a)

Tehničke smjernice ⇒ Apstraktni testni paket (ATS) ⇒ Izvršni testni paket (ETS)

IR Requirement
Article 6
Code Lists and Enumerations

(...)

2) Code lists may be hierarchical. Values of hierarchical code lists may have a more generic parent value. Where the valid values of a hierarchical code list are specified in a table in this Regulation, the parent values are listed in the last column.

The type of code list and whether it is hierarchical or not is also indicated in the feature catalogues.

5.2.4.2. **Obligations on data providers**

IR Requirement
Article 6
Code Lists and Enumerations

(...)

3) Where, for an attribute whose type is a code list as referred to in points (b), (c) or (d) of paragraph 1, a data provider provides a value that is not specified in this Regulation, that value and its definition shall be made available in a register.

4) Attributes or association roles of spatial object types or data types whose type is a code list may only take values that are allowed according to the specification of the code list.

Code list values

Version 1

Purpose: Verify whether all attributes whose value type is a code list take the values set out therein

Prerequisites

Test method

When an attribute has a code list as its type, verify that the values comply with the definitions and include the values set out in Annex II of the regulation. To pass this tests that any instance of an attribute

- takes only values explicitly specified in the INSPIRE code list register when the code list's extensibility is 'none';

Otherwise report: disallowed code attribute.

In the Geographical Names application schema, the following properties have to be tested:

- NamedPlaceType (r3): Valid values:
  - administrativeUnit
  - building
  - hydrography
  - landcover
  - landform
  - populatedPlace
  - protectedSite
  - transportNetwork
  - other
- NamedPlaceType (r4): Valid values:
  - http://inspire.ec.europa.eu/codelist/NamedPlaceTypeValue/administrativeUnit
  - http://inspire.ec.europa.eu/codelist/NamedPlaceTypeValue/Building
  - http://inspire.ec.europa.eu/codelist/NamedPlaceTypeValue/Hydrography
  - http://inspire.ec.europa.eu/codelist/NamedPlaceTypeValue/landcover
  - http://inspire.ec.europa.eu/codelist/NamedPlaceTypeValue/landform

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Apstraktni testni paket (ATS)

- Dokumentirani zapis ljudima razumljiv, sadrži:
  - svrhu testiranja
  - metodu testiranja
  - reference na zahtjeve iz Tehničkih smjernica i Provedbenih pravila
  - povratne poruke ukoliko testirani zahtjevi nisu ispunjeni

Table 6. Overview of the tests within this Abstract Test Suite.

Annex A (normative) Abstract Test Suite
- A.1 Application Schema Conformance Class
  - A.1.1 Schema element denomination test
  - A.1.2 Value type test
  - A.1.3 Value test
  - A.1.4 Attributes/associations completeness test
  - A.1.5 Abstract spatial object test
  - A.1.6 Constraints test
  - A.1.7 Geometry representation test
- A.2 Reference Systems Conformance Class
  - A.2.1 Datum test
  - A.2.2 Coordinate reference system test
  - A.2.3 View service coordinate reference system test
  - A.2.4 Temporal reference system test
  - A.2.5 Units of measurements test
- A.3 Data Consistency Conformance Class
  - A.3.1 Unique identifier persistency test
  - A.3.2 Version consistency test
  - A.3.3 Life cycle time sequence test
  - A.3.4 Update frequency test
- A.4 Metadata IR Conformance Class
  - A.4.1 Metadata for interoperability test
- A.5 Information Accessibility Conformance Class
  - A.5.1 CRS publication test
- A.6 Data Delivery Conformance Class
  - A.6.1 Encoding compliance test
- A.7 Portrayal Conformance Class
  - A.7.1 Layer designation test

Abstract Test Suite: INSPIRE Data Specification Template (DRAFT)

The specification specifies the following conformance classes:

Conformance class	Standardization target
Schemas	INSPIRE spatial data set encoded in GML
Data consistency	INSPIRE spatial data set
Information accessibility	INSPIRE spatial data set
Reference systems	INSPIRE spatial data set
Metadata for interoperability	ISO 19115/19119 metadata record

Rules for HTTP requests

The INSPIRE technical guidance documents are in general unspecific on the details of HTTP requests to access resources. The following rules apply to all HTTP requests unless a test case explicitly states deviations from these rules.

Use of HTTPS

Where HTTP is mentioned as the protocol, HTTPS may be used, too. SSL certificates must be valid and issued by a trusted Certification Authority.

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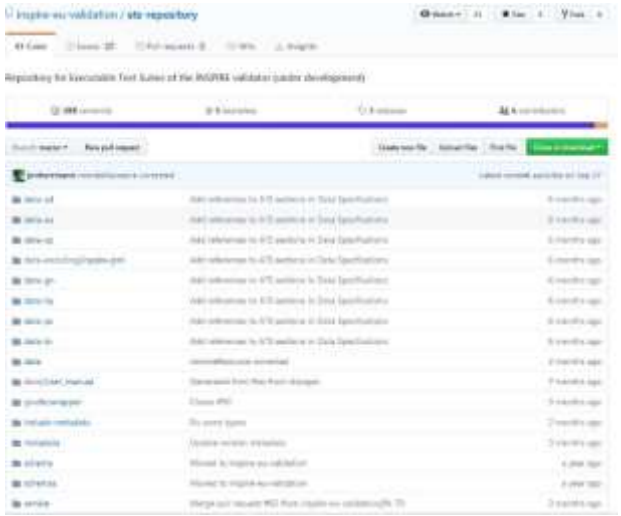
Izvršni testni paket (ETS)

- Skup testova koji testiraju izvor po svim zahtjevima iz pripadajuće klase usklađenosti
- Računalni kod putem kojeg se izvršavaju testovi navedeni u ATS-u
- Implementiran u grafičko sučelje INSPIRE validatora
- Postoje različite opcije za provedbu validacije:
  - mogu se upotrijebiti službeni ETS-ovi koji se nalaze u ETS Repozitoriju
  - može se pozvati direktno on line aplikacija INSPIRE validatora (u kojoj su ugrađeni ETS-ovi)
  - mogu se testirati vlastiti ETS-ovi koji su razvijeni prema dogovorenim ATS pravilima



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VALIDACIJA SKUPA PODATAKA REGISTRA GEOGRAFSKIH IMENA

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Primjer testiranja skupa podataka

- Testirani skup podataka: Registar geografskih imena-INSPIRE
- INSPIRE Tema: Geografska imena
- Test izvršen uz pomoć korisničkog sučelja INSPIRE validatora:

http://inspire-sandbox.jrc.ec.europa.eu/etf-webapp/

- Skup podataka preuzet putem usluge za preuzimanje WFS sa geoportala NIPP-a:

http://cgn.dgu.hr/deegree///services/wfs?service=WFS&request=GetCapabilities&version=2.0.0

- Skup podataka sadrži 63 534 obilježja veličine 96 MB
- Trajanje testiranja: 2 min i 30 s
- Izvješće dostupno na:

http://inspire-sandbox.jrc.ec.europa.eu/etf-webapp/#test-reports

INSPIRE tema: geografska imena

- Definicija:

Imena područja, regija, mjesta, velikih gradova, predgrađa, gradova ili naselja, ili bilo kojeg geografskog ili topografskog obilježja od javnog ili povijesnog značenja.

- Tehničke specifikacije

http://inspire.ec.europa.eu/documents/Data_Specifications/INSPIRE_DataSpecification_GN_v3.1.pdf

- Apstraktni testni paket

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

- Izvršni testni paket

https://github.com/inspire-eu-validation/ets-repository/tree/master/data-gn

- U TS za temu Geografska imena – 7 TS zahtjeva i 32 preporuke

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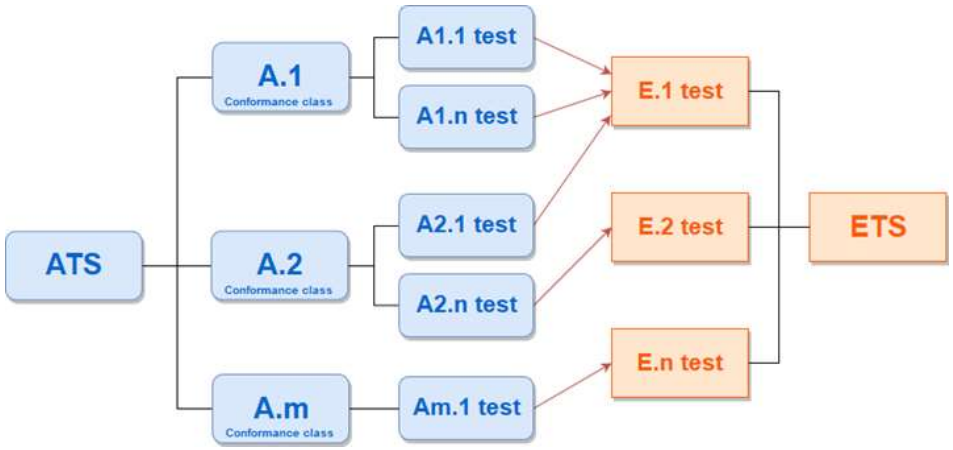
Tipovi testova – klase usklađenosti

- Zahtjevi koji se testiraju su grupirani u klase usklađenosti
- Mogu biti općeniti i specifični za temu
- Klase usklađenosti se odnose na zahtjeve vezane za:
  - aplikacijsku shemu
  - dosljednost podataka
  - informacijsku dostupnost
  - referentne sustave
- Različiti testovi provjeravaju:
  - zahtjeve iz Provedbenih pravila
  - vrijednosti iz popisa kodova
  - ograničenja iz kataloga obilježja



- Usklađenost s određenom klasom – skup mora proći sve testove definirane u toj klasi usklađenosti

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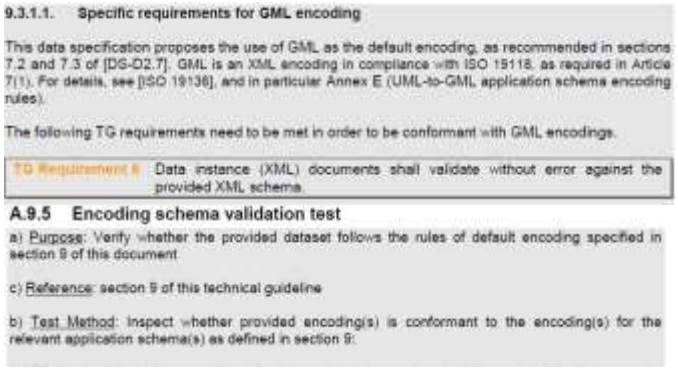
Geografska imena: test za provjeru sheme



9.3.1.1. Specific requirements for GML encoding

This data specification proposes the use of GML as the default encoding, as recommended in sections 7.2 and 7.3 of [DS-D2.7]. GML is an XML encoding in compliance with ISO 19118, as required in Article 7(1). For details, see [ISO 19136], and in particular Annex E (UML-to-GML application schema encoding rules).

The following TG requirements need to be met in order to be conformant with GML encodings.

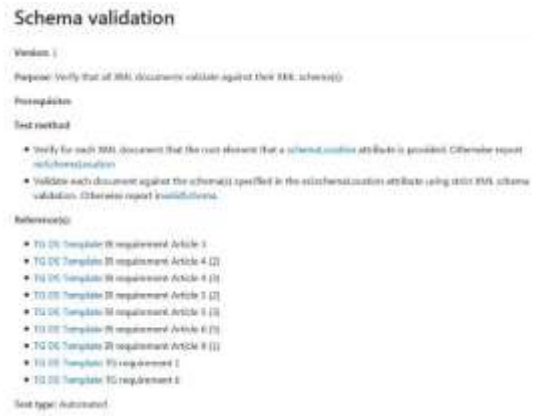
TG Requirement 8: Data instance (XML) documents shall validate without error against the provided XML schema.

A.9.5 Encoding schema validation test

a) Purpose: Verify whether the provided dataset follows the rules of default encoding specified in section 9 of this document.

c) Reference: section 9 of this technical guideline

b) Test Method: Inspect whether provided encoding(s) is conformant to the encoding(s) for the relevant application schema(s) as defined in section 9.



Schema validation

Apstraktni testni paket

Tehničke smjernice

- Zahtjev: XML dokument treba testirati bez pogreške u odnosu na predviđenu XML shemu

Prilog A Tehničkih smjernica

- Test: Provjerava da je kodiranje usklađeno sa kodiranjem za određenu aplikacijsku shemu, XML shema – predefinirana, provjerava strukturu xml dokumenta (vrijednosti elemenata, atributa, tipove podataka itd.)

Verify for each XML document that the xsi:schemaLocation attribute is provided in the root element.

Relevant requirements:

- TG Requirement 8: Data instance (XML) documents shall validate without error against the provided XML schema.

Source: Abstract Test Case 'Schema validation', INSPIRE Data Specification Template, A.9.9

Status: Passed

Duration: 0.001 s

Završno izvješće validatora

Izvršni testni paket

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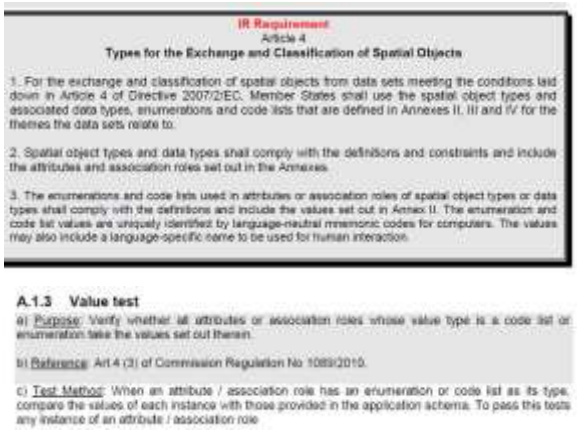
Geografska imena: test za vrijednosti popisa kodova


IR Requirement
Article 4
Types for the Exchange and Classification of Spatial Objects

1. For the exchange and classification of spatial objects from data sets meeting the conditions laid down in Article 4 of Directive 2007/2/EC, Member States shall use the spatial object types and associated data types, enumerations and code lists that are defined in Annexes II, III and IV for the themes the data sets relate to.

2. Spatial object types and data types shall comply with the definitions and constraints and include the attributes and association roles set out in the Annexes.

3. The enumerations and code lists used in attributes or association roles of spatial object types or data types shall comply with the definitions and include the values set out in Annex II. The enumeration and code list values are uniquely identified by language-neutral mnemonic codes for computers. The values may also include a language-specific name to be used for human interaction.

A.1.3 Value test

a) Purpose: Verify whether all attributes or association roles whose value type is a code list or enumeration take the values set out therein.

b) Reference: Art 4 (3) of Commission Regulation No 1089/2010.

c) Test Method: When an attribute / association role has an enumeration or code list as its type, compare the values of each instance with those provided in the application schema. To pass this tests any instance of an attribute / association role


NamedPlaceTypeValue

Definition: The type of a named place.
Extensibility: none
Identifier: http://inspire.ec.europa.eu/codelist/NamedPlaceTypeValue
Values: The allowed values for this code list comprise only the values specified in t table below.

administrativeUnit
Name: administrative unit
Definition: Units of administration, dividing areas where Member States have and exercise jurisdictional rights, for local, regional and national governan separated by administrative boundaries.

building
Name: building
Definition: Geographical location of buildings.

hydrography
Name: hydrography


Code list values

Prilog C tehničkih smjernica

- Vrijednosti popisa kodova za NamedPlace data type (administrativne jedinice, zgrade, itd.)

Apstraktni testni paket

Tehničke smjernice

- Zahtjev: svi atributi koji imaju vrijednost atributa popis kodova trebaju poprimiti vrijednosti koje su navedene u popisu kodova

Prilog A Tehničkih smjernica

- Test: Kada atribut ima vrijednost popis kodova usporedi s vrijednostima iz aplikacijske sheme. Da bi test prošao svaki atribut treba imati vrijednosti definirane u popisu kodova


Verify whether all attributes whose value type is a code list take the values set out therein.

Status Passed
Duration 0.430 s

Izvršni testni paket

Završno izvješće validatora

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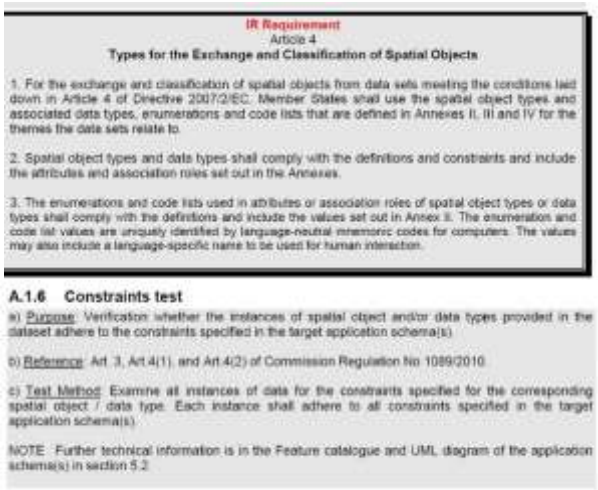
Geografska imena: test za ograničenja


IR Requirement
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2. Spatial object types and data types shall comply with the definitions and constraints and include the attributes and association roles set out in the Annexes.

3. The enumerations and code lists used in attributes or association roles of spatial object types or data types shall comply with the definitions and include the values set out in Annex II. The enumeration and code list values are uniquely identified by language-neutral mnemonic codes for computers. The values may also include a language-specific name to be used for human interaction.

A.1.6 Constraints test

a) Purpose: Verification whether the instances of spatial object and/or data types provided in the dataset adhere to the constraints specified in the target application schema(s).

b) Reference: Art. 3, Art.4(1), and Art.4(2) of Commission Regulation No 1089/2010.

c) Test Method: Examine all instances of data for the constraints specified for the corresponding spatial object / data type. Each instance shall adhere to all constraints specified in the target application schema(s).

NOTE Further technical information is in the Feature catalogue and UML diagram of the application schema(s) in section 5.2.


PronunciationOfName

Multiplicity: 0..1
Stereotypes: «voidable»

Constraint: pronunciationSoundLink or pronunciationIPA not empty

Natural language: At least one of the two attributes pronunciationSoundLink and pronunciationIPA shall not be void.
OCL: inv: self.pronunciationIPA -> notEmpty() or self.pronunciationSoundLink -> notEmpty()

Katalog obilježja tehničkih smjernica
- Ograničenje za atribut Izgovor imena


Constraints

Apstraktni testni paket

Izvršni testni paket

Tehničke smjernice
- Zahtjev: obilježja navedena u skupu podataka odgovaraju ograničenjima navedenim u INSPIRE aplikacijskoj shemi

Prilog A Tehničkih smjernica
- Test: ispituje sve tipove podataka prema ograničenjima navedenim u INSPIRE aplikacijskoj shemi

Završno izvješće validatora

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Zaključak

- Validator služi za testiranje primjene svih važnih zahtjeva i INSPIRE usklađenosti podataka
- Jednostavan za razumjeti i koristiti uz određeno tehničko znanje
- Rezultati pouzdani
- Dostupno završno izvješće o rezultatu testa (na serveru 8 dana)
- Baziran na zahtjevima iz Tehničkih smjernica
- Potrebno još razviti testove za Skupinu II i III i preostale mrežne usluge
- Prijedlog za unaprjeđenje – grafička vizualizacija izvješća (ne samo tekst), dostupnost izvješća o testiranju u obliku pdf-a (ne samo html)
- Povratne informacije i sugestije o daljnjem unaprjeđenju od strane korisnika (GitHub platforma)

Hvala na pažnji!

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