

# Harmonizacija podataka

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Zagreb, 30. 11. 2017.

# Definicije

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## □ HARMONIZACIJA

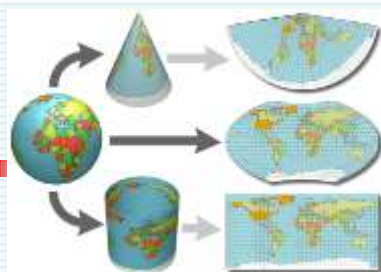
- Prilagodba određenih pravilima kako bi se omogućila interoperabilnost

## □ INTEROPERABILNOST

- Sposobnost sustava / proizvoda / podataka, čija su sučelja / strukture potpuno poznati, da međusobno djeluju i funkcioniraju s drugim proizvodima i sustavima, bez ikakvih ograničenja.
  - Mogućnost kombinacije prostornih podataka i usluga za interakciju, bez ponovljene ručne intervencije, na takav način da je rezultat koherentan, a dodana vrijednost skupova podataka i usluga poboljšana
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# Različiti aspekti harmonizacije

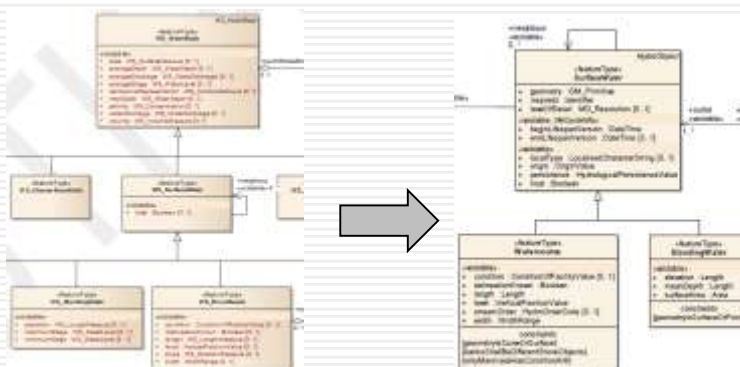
- Referentni sustavi



- Geometrija



- Specifikacije podataka



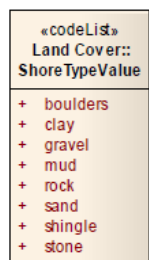
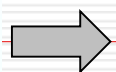
- Vizualizacija



- Rezolucija prikaza



- Modeli podataka



# Harmonizacija i INSPIRE

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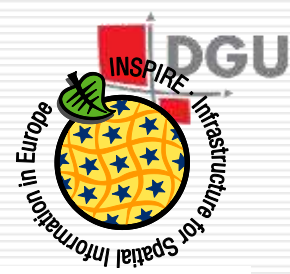
INSPIRE promiče harmonizaciju prostornih podataka u smislu učinkovitijih donošenja ispravnih odluka vezanih za upravljanje: okolišem, resursima, održivim razvojem, rizicima te u svrhu kriznog menadžmenta.

Ključ harmonizacije je uporaba zajedničkog modela podataka u otvorenim standardima, te komunikacija prostornim servisima, a kako bi različitim sustavima bila omogućena interakciju s **minimalnim preoblikovanjima**. To podrazumijeva potrebu za programima / alatima koji omogućavaju mapiranja shema s internih na INSPIRE modele podataka.

Temelj poslovnog procesa harmonizacije je proces transformacije koji preoblikuje izvorni u ciljani INSPIRE model



# 1. korak – Evaluacija



## INSPIRE direktiva

INSPIRE direktiva postavlja obvezujuća pravila za uspostavu infrastrukture prostornih podataka u EU

INSPIRE se temelji na slijedeći načelima:

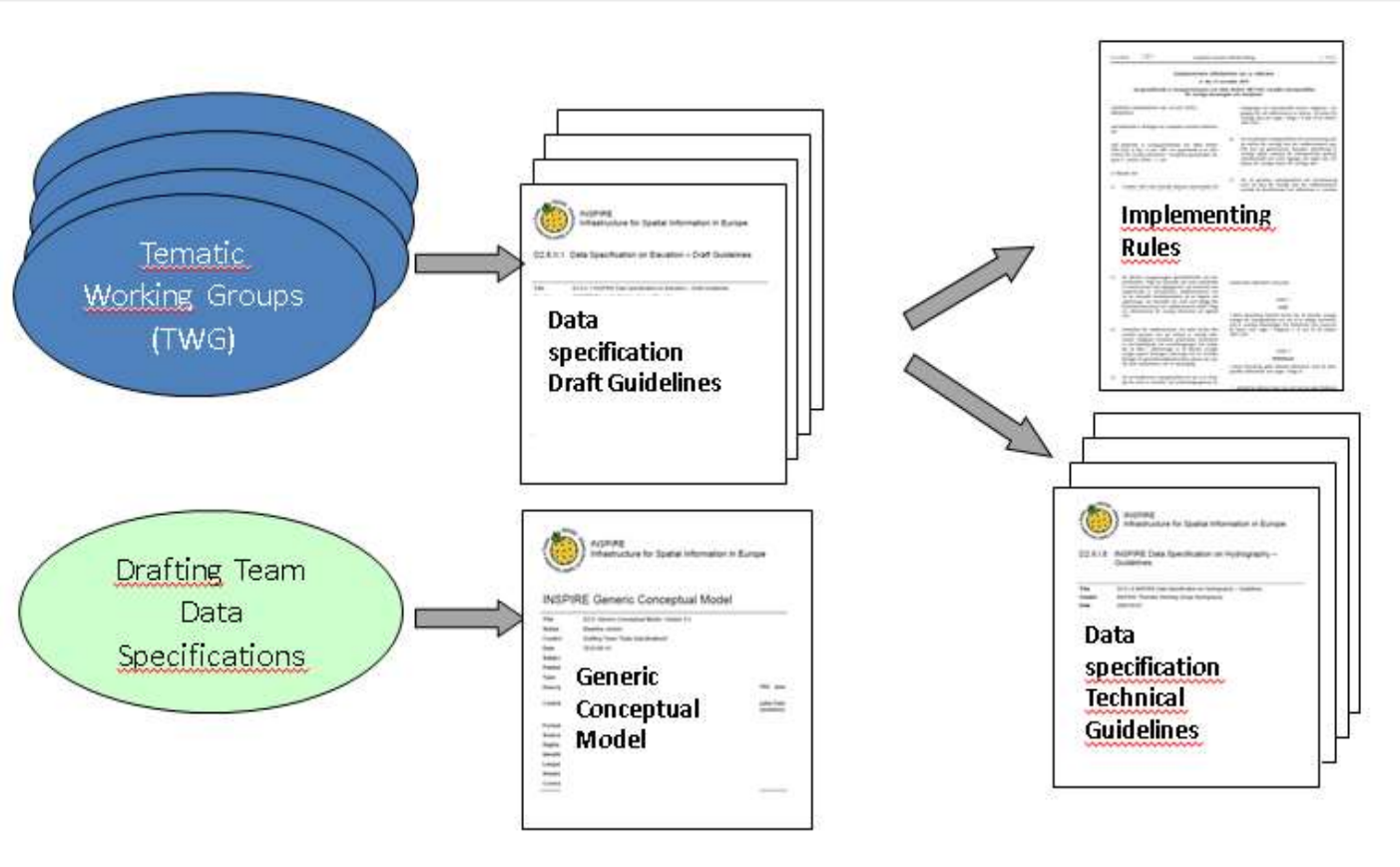
- Podaci se trebaju prikupljati samo jednom višestruko koristiti
- Treba omogućiti kombiniranje prostornih informacije iz različitih izvora diljem Europe i omogućiti dostupnost istih drugim korisnicima
- Treba omogućiti korištenje prikupljenih podataka visoke točnost za izradu podataka slabije točnosti.
- Prostorne informacije koje su potrebne za kvalitetno upravljanje prostorom moraju biti čitljive i transparentne.
- Metapodaci koji definiraju prostorne informacije moraju biti dostupni te moraju omogućiti informacije o dostupnosti, nabavi i uvjetima korištenja podatka koje opisuju





# 1. korak – Evaluacija

## INSPIRE dokumentacija



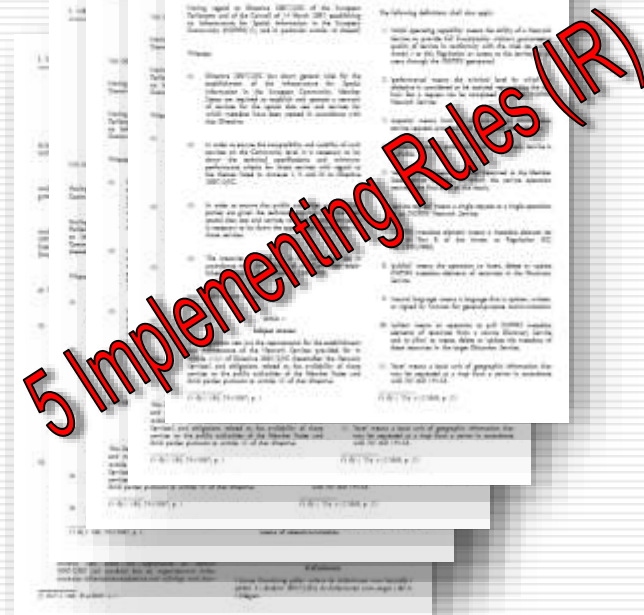
# 1. korak – Evaluacija



## INSPIRE provedbena pravila

□ Provedbena pravila definiraju „korake” koji moraju biti odrađeni kako bi implementirali INSPIRE direktivu:

- Izrada metapodataka
- Uspostaviti interoperabilnost
- Omogućiti mrežne usluge
- Omogućiti dijeljenje podataka
- Izvršavati praćenje i izvješćivanje



# 1. korak – Evaluacija

## INSPIRE - Generički konceptualni model

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Generički konceptualni model opisuje zajedničke zahtjeve i preporuke koje bi trebale slijediti sve teme INSPIRE, a kako bi se u konačnici postiglo usklađivanje tema

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# 1. korak – Evaluacija

## INSPIRE – Specifikacije

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Specifikacije su tehnički dokument koji definira svaku temu posebno i svaka specifikacija ima identičnu strukturu:

1. Scope
  2. Overview
  3. Specification scopes
  4. Identification information
  5. Data content and structure
  6. Reference systems, units of measure and grids
  7. Data quality
  8. Dataset-level metadata
  9. Delivery
  10. Data Capture
  11. Portrayal
-

# 1. korak – Evaluacija

## INSPIRE – Specifikacije

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Specifikacije su tehnički dokument koji definira svaku temu posebno i svaka specifikacija ima identičnu strukturu:

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  10. **Data Capture**
  11. Portrayal
-

# 1. korak – Evaluacija

## INSPIRE – Specifikacije

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  8. Dataset-level metadata
  9. Delivery
  10. **Data Capture**
  11. Portrayal
-

## o Identifier

All external objects (i.e. objects that can be used for data exchange between different information systems) must have an identifier with the data type Identifier. It consists of:

- localId - local identifier that is assigned by the data provider and is unique within its namespace
- namespace - namespace that is owned by the data provider and uniquely identifies the data source
- VersionId - identifier for a specific version of the object.

## o Life-cycle information

If an object may change in a way where it is still considered to be the same object, life-cycle information shall be provided

- The identification shall still be the same (i.e. same localId and namespace, but versionId will change)
- The attributes beginLifespanVersion and endLifespanVersion can be used

## o Attribute obligation

In specifications attribute information can be mandatory, optional or voidable

Example:

- If an object isn't meaningful without an attribute, INSPIRE uses MANDATORY obligation, e.g. the object type GeographicalName is not meaningful without the attribute name
- If an attribute is desired for an object but isn't available in all datasets, INSPIRE uses VOIDABLE obligation, e.g. the objecttype Road has the attribute roadName, but roads without names can exist

Voidable attributes should, if possible to have values. If no value exists, a void reason should be provided like: Unpopulated, Unknown or Withheld

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***Unpopulated:*** The property is not part of the dataset maintained by the data provider. However, the characteristic may exist in the real world. For example when the —elevation of the water body above the sea levelll has not been included in a dataset containing lake spatial objects, then the reason for a void value of this property would be ‘Unpopulated’. The property receives this value for all spatial objects in the spatial data set.

***Unknown:*** The correct value for the specific spatial object is not known to, and not computable by the data provider. However, a correct value may exist. For example when the —elevation of the water body above the sea levelll *of a certain lake* has not been measured, then the reason for a void value of this property would be ‘Unknown’. This value is applied only to those spatial objects where the property in question is not known.

***Withheld:*** The characteristic may exist, but is confidential and not divulged by the data provider

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# INSPIRE ID

## 9.8.2.3.1. Base Types.Identifier

Class: «dataType» Base Types.Identifier	
Definition:	External unique object identifier published by the responsible body, which may be used by external applications to reference the spatial object.
Description:	NOTE1 External object identifiers are distinct from thematic object identifiers.  NOTE 2 The voidable version identifier attribute is not part of the unique identifier of a spatial object and may be used to distinguish two versions of the same spatial object.  NOTE 3 The unique identifier will not change during the life-time of a spatial object.
Subtype of:	
Status:	Proposed
Stereotypes:	«dataType»
Attribute: localId	
Definition:	A local identifier, assigned by the data provider. The local identifier is unique within the namespace, i.e. no other spatial object carries the same unique identifier.
Description:	NOTE It is the responsibility of the data provider to guarantee uniqueness of the local identifier within the namespace.
Value type:	CharacterString
Multiplicity:	1
Stereotypes:	
Attribute: namespace	
Definition:	Namespace uniquely identifying the data source of the spatial object.
Description:	NOTE The namespace value will be owned by the data provider of the spatial object and will be registered in the INSPIRE External Object Identifier

Namespaces Register.	
Value type:	CharacterString
Multiplicity:	1
Stereotypes:	
Attribute: versionId	
Definition:	The identifier of the particular version of the spatial object, with a maximum length of 25 characters. If the specification of a spatial object type with an external object identifier includes life-cycle information, the version identifier is used to distinguish between the different versions of a spatial object. Within the set of all versions of a spatial object, the version identifier is unique.
Description:	NOTE The maximum length has been selected to allow for time stamps based on ISO 8601, for example, "2007-02-12T12:12+05:30" as the version identifier.  NOTE 2 The property is void, if the spatial data set does not distinguish between different versions of the spatial object. It is missing, if the spatial object type does not support any life-cycle information.
Value type:	CharacterString
Multiplicity:	0..1
Stereotypes:	«lifeCycleInfo,voidable»

EXAMPLE 1 “FR.IGNF.BDCARTO” may be the namespace used by IGN France for spatial object in their BD CARTO product. “NL.TOP10NL” may be the namespace for spatial objects in the TOP10 NL product in the Netherlands. “\_EGGR.ERM” may be the namespace for spatial objects in the EuroRegionalMap product of from EuroGeographics (assuming that “\_EGGR” would be the registered abbreviation of EuroGeographics).

- Code lists and enumerations

Is used to avoid "free text" values for attributes, and they are necessary for classifications and comparisons.

Can be one of the following types:

- Enumeration



- Code list that can be extended

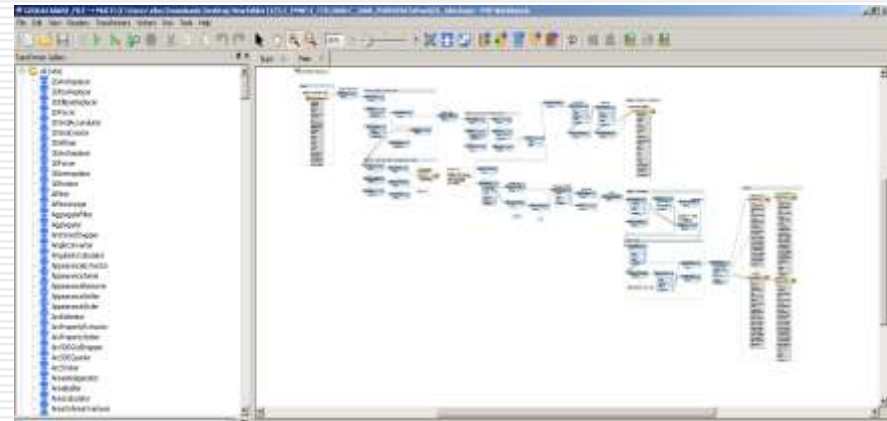
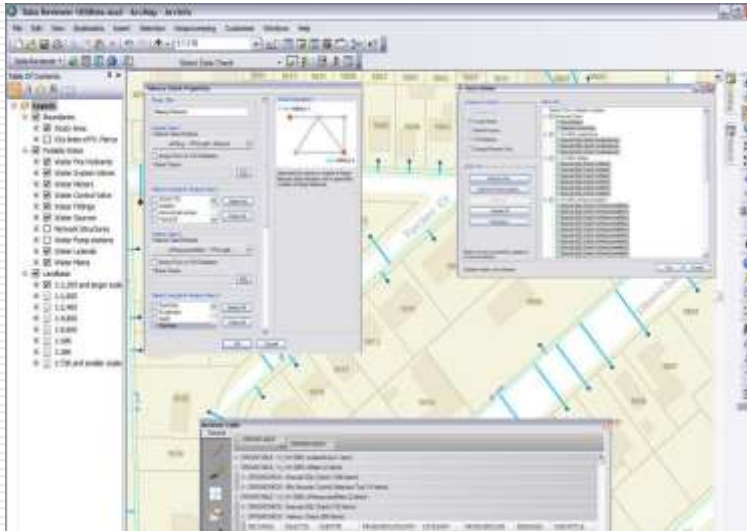


- Code list that cannot be extended



# 2. korak – Matching proces

## Analiza i korekcija podataka



# 2. korak – Matching proces

## Kompariranje modela

Možemo koristiti klasični Excel tablice za usporedbu modela (local-INSPIRE)



Produktbeskrivning: GSD-Översiktskartan vektor, GSD-Administrativ indelning 1:250 000, GSD-Höjdkurvor 25m

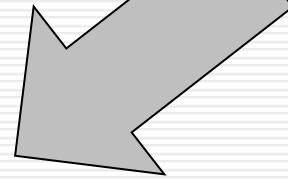
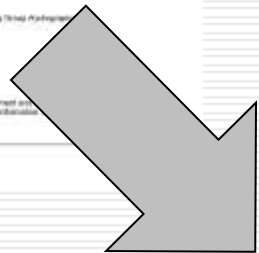
Innehållsförteckning

- 1 Allmän beskrivning..... 3
  - 1.1 Innehåll..... 3
  - 1.2 Geografisk täckning..... 4
  - 1.3 Koordinatsystem..... 4
  - 1.4 Samiska namn..... 4
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    - 3.1.1 dokument..... 5
    - 3.1.2 font..... 5
    - 3.1.3 översett..... 6
    - 3.1.4 areal (endast vid leverans i shape-format)..... 6
  - 3.2 Filuppsättning..... 6
  - 3.3 Skiktindelning..... 6
- 4 Utseende på och uppritning av data..... 7
  - 4.1 Utbredning..... 7




D2.8.18 INSPIRE Data Specification on Hydrography – Guidelines

Title	INSPIRE Data Specification on Hydrography – Guidelines
Create	INSPIRE Thematic Working Group Hydrography
Date	2010-09-07
Editor	INSPIRE Data Specification for the spatial data theme Hydrography
Publisher	INSPIRE Thematic Working Group Hydrography
Type	Text
Description	This document describes the INSPIRE Data Specification for the spatial data theme Hydrography.
Contributor	Members of the INSPIRE Thematic Working Group Hydrography
Format	Portable Document Format (PDF)
Source	
Rights	Public
Identifier	INSPIRE_DataSpecification_HYD_03_08.pdf
Language	English
Relative	Derived 2010/07 of the European Commission establishing an Infrastructure for Spatial Information (INSPIRE)
Coverage	Hydrography



Application Schema 'Geographical Names' (version 3.1)							Application Schema <GSD_ORYTNAMV>							
Type	Documentation	Attribute Association role	Attribute Association role documentation	Types Complex types Enumerations	Multiplicity	Voidable / Non-Voidable	Type	Documentation	Attribute Association role Constraints	Attribute Association role Constraints documentation	Values / Enumerations	Multiplicity	Voidable / Non-Voidable	Remarks
NamedPlace	Any real world entity referred to by one or several proper nouns.	geometry	Geometry associated to the named place. This element object identifies the spatial object. NOTE: An external object identifier is a unique object identifier published by the responsible body, which may be used for identification.	GPLObject	1		Ortnamn		XYCOORD, YCOORD					Must be consecutive GML
		inspire		inspire	1									Several Complex types
		name	Name of the named place.	String	1..*									Several Complex types
		beginDate/Version	Date and time at which the version of the spatial object was created.	DateTime	1	voidable								
		endDate/Version	Date and time at which the version of the spatial object was deleted.	DateTime	0..1	voidable								
		resolution/ViewingResolution	Resolution, expressed as the inverse of an integer.	Integer	0..1	voidable			RESOLUTION					
		localType	Characterization of the kind of area designated.	LocalAreaDesignation	1..*	voidable			LOCALITY					
		mostDetailedViewingResolution	Resolution, expressed as the inverse of an integer.	Integer	0..1	voidable								
		relatedSpatialObject	Identifier of a spatial object representing the named place.	String	0..*	voidable								
		type	Characterization of the kind of entity designated.	NamedPlaceTypeValue	1..*	voidable								Several Enum-CodeList

<http://inspire.ec.europa.eu> ➡ <http://inspire.ec.europa.eu/data-specifications/>



**AdministrativeUnits Mapping Table.xml**

Downloads



Data Schema

Addresses

> [XSD Schema](#)

> **Mapping Table**



Application Schema 'Geographical Names' (version 3.1)							Application Schema <GSD_ORITNAMV>									
Type	Documentation	Attribute Association role	Attribute Association role documentation	Types Complex types Enumerations	Multiplicity	Voidable / Non-Voidable	Type	Documentation	Attribute Association role Constraint	Attribute Association role Constraint documentation	Values / Enumerations	Multiplicity	Voidable / Non-Voidable	Remarks		
NamedPlace	Any real world entity referred to by one or several proper nouns.	geometry	Geometry associated to the geographical name. This element object identifies the spatial object. NOTE: An external object identifier is a unique object identifier published by the responsible body, which may be used to identify the object.	GMLObject	1		Dttname									
		inspire		inspire	1										Must be connected GML	
		name	Name of the named place.	StringWithLine	1..*											Serial/Complex types
		beginResponVersion	Date and time at which this version of the spatial object was created.	DateTime	1	voidable										
		endResponVersion	Date and time at which this version of the spatial object was last updated.	DateTime	0..1	voidable										
		leastDetailedViewClassification	Resolution, expressed as the inverse of an integer.	REL_Resolution	0..1	voidable										
		localType	Characterization of the kind of entity designated.	LocalWithLineString	1..*	voidable					DETAILED					
		mostDetailedViewClassification	Resolution, expressed as the inverse of an integer.	REL_Resolution	0..1	voidable										
		relatedSpatialObjectType	Identifier of a spatial object representing the same geographical entity designated.	String	0..1	voidable										
			Characterization of the kind of entity designated.	NamedPlaceTypeValue	1..*	voidable								Serial/Enum-CodeList		



Matching tables (xml/Excel) include:

- Left side: the INSPIRE schema
- Right side: source schema
- Middle: transformation column

Explanation of matching table cells

Inspire schema							Source schema							
Type	Documentation	Attribute Association role	Attribute Association role	Complex & Simple	Multiplicity	Validation / Non-Validable	Type	Documentation	Attribute Association role	Attribute Association role	Values / Enumerations	Multiplicity	Validation / Non-Validable	Remarks
FeatureType	Area and point data referred to by one or more of the same elements	Geometry	Geometry	Complex	1		Geometry		303000, 143000					Point to coordinate system
		Point	Point	Complex	1									Point to Coordinate system
		String	String	Simple	1	mandatory								
		Integer	Integer	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								
		CodeList	CodeList	Simple	1	mandatory								

1. - INSPIRE feature type
2. - Simple and common data types
3. - Complex INSPIRE data types
4. - INSPIRE code lists and enumerations (Enum - Codelists)
5. - Name of the source data table, layer or feature type
6. - Name of the source data attributes
7. - some remarks (if its needed)

# 2. korak – Matching proces

## Kompariranje modela

Možemo koristiti i DIA program za usporedbu modela (local-INSPIRE)

INSPIRE  
Infrastructure for Spatial Information in Europe

D2.8.18 INSPIRE Data Specification on Hydrography – Guidelines

Title: INSPIRE Theme Working Group Hydrography  
 Create: 2010-09-02  
 Date: 2010-09-02  
 Subject: INSPIRE Data Specification for the spatial data theme Hydrography  
 Publisher: INSPIRE Theme Working Group Hydrography  
 Type: Text  
 Description: This document describes the INSPIRE Data Specification for the spatial data theme Hydrography.  
 Contributor: Members of the INSPIRE Theme Working Group Hydrography  
 Format: XHTML Document XHTML PDF  
 Rights: Public  
 Identifier: INSPIRE:DataSpecification/D2.8.18  
 Language: English  
 Relative: Derived 2010-02-02 of the European Commission on establishing an Infrastructure for Spatial Information (INSPIRE)  
 Coverage: Point location

LANTMÄTERIET

Datum: 2010-06-01  
Dokumentversion: 3.0

Produktbeskrivning: GSD-Översiktskartan vektor, GSD-Administrativ indelning 1:250 000, GSD-Höjdkurvor 25m

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  - 3.2 Filuppsättning..... 6
  - 3.3 Skiktindelning..... 6
- 4 Utseende på och uppritning av data..... 7
  - 4.1 Utbredning..... 7

```

Brandstationer
+RDD: CharacterString [1]
+ID: CharacterString [0..1]
+BEREDSKAP: CharacterString [1]
+STATIONSORT: CharacterString [1]
+NAMN_AKTUAL: CharacterString [0..1]
+KOMMUNNAMN: CharacterString [1]
+KOMMUN: Integer [1]
+X_SWEREF: Integer [1]
+Y_SWEREF: Integer [1]
+NAMN: CharacterString [1]
+GOID: CharacterString [1]
+Geometry: Point [1]
  
```

```

<<featureType>>
GovernmentalService
+inspireID: Identifier = "se.mab.brandstationer"+GOID
+serviceLocation: ServiceLocationType = Point(X_SWEREF,Y_SWEREF)
+serviceType: ServiceTypeValue = fireStation
+areaOfResponsibility: AreaOfResponsibilityType voidable [0..1] = void, Unpopulated
+pointOfContact: Contact voidable [1..*] = void, Unpopulated
+beginLifespanVersion: DateTime voidable = void, Unpopulated
+endLifespanVersion: DateTime voidable [0..1] = void
  
```

```

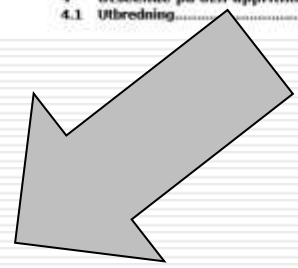
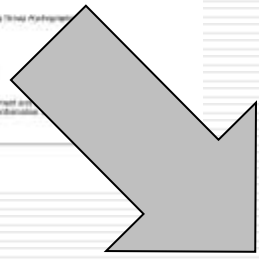
<<union>>
ServiceLocationType
+serviceLocationByAddress: Address
+serviceLocationByBuilding: Building [1..*]
+serviceLocationByActivityComplex: ActivityComplex
+serviceLocationByGeometry: GM_Object
+serviceLocationByUtilityNode: UtilityNode
  
```

```

<<union>>
AreaOfResponsibilityType
+areaOfResponsibilityByAdministrativeUnit: AdministrativeUnit [1..*]
+areaOfResponsibilityByNamedPlace: NamedPlace [1..*]
+areaOfResponsibilityByNetwork: NetworkReference [1..*]
+areaOfResponsibilityByPolygon: GM_MultiSurface
  
```

```

<<CodeList>>
ServiceTypeValue
+
http://inspire.ec.europa.eu/codeList/ServiceTypeValue
  
```

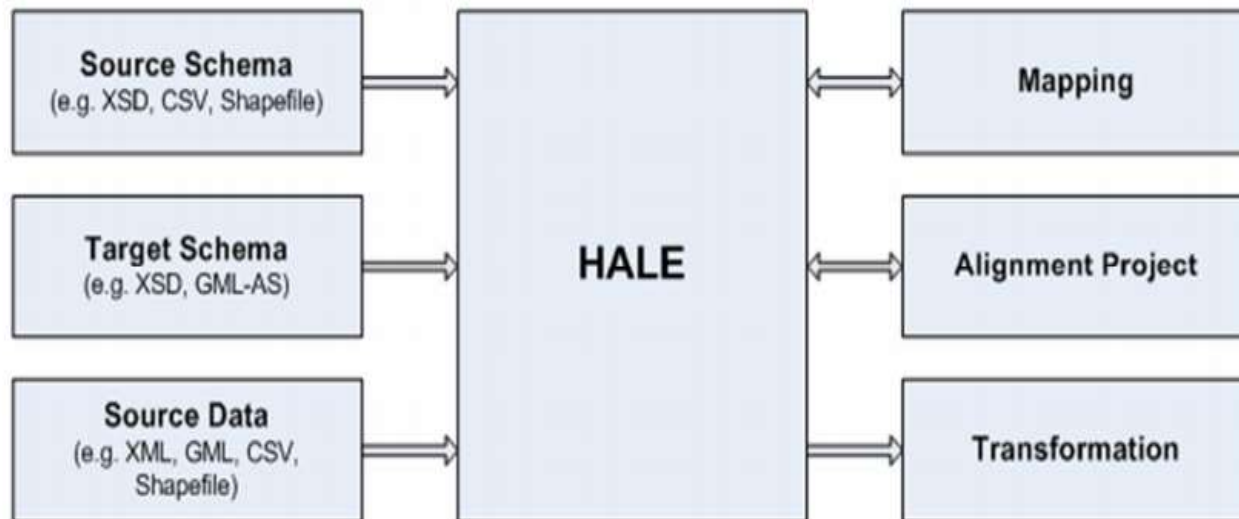


# 3. korak – Mapiranje i transformacija

Mapiranje je korak u kojem se podaci "mapiraju" iz jedne aplikacijske sheme u drugu, u našem slučaju iz trenutne sheme u INSPIRE sheme.

Korisnici sami moraju pronaći učinkovite metode i alate za izvršenje.

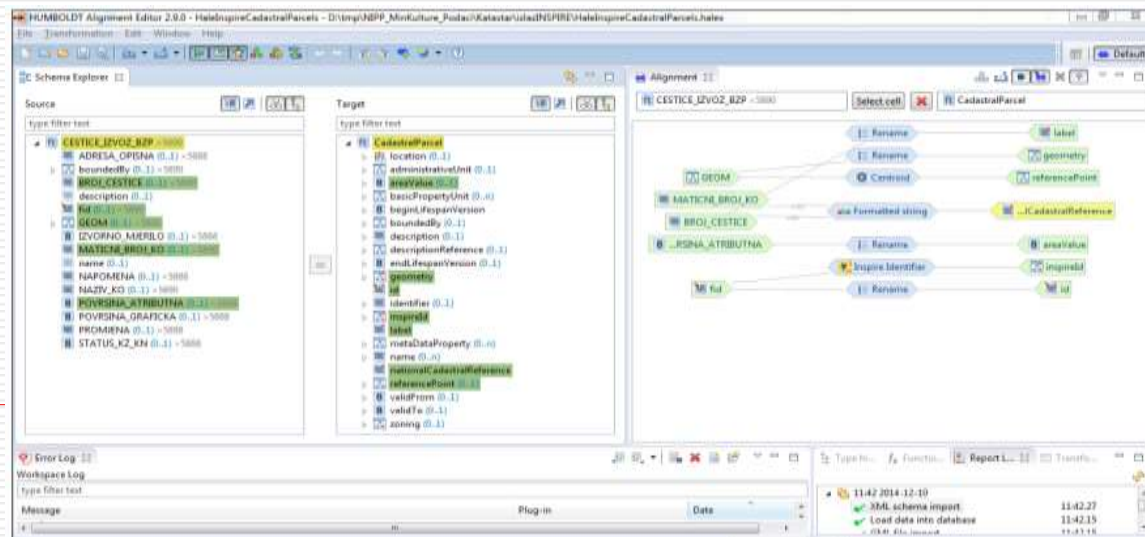
Rješenje može biti korištenje programskih paketa otvorenog koda (HALE ...) ili komercijalno (FME, ArcGIS4INSPIRE ...)



# 3. korak – Mapiranje i transformacija

Humboldt HALE software was recommended like powerful tool for interactive geodata harmonization.

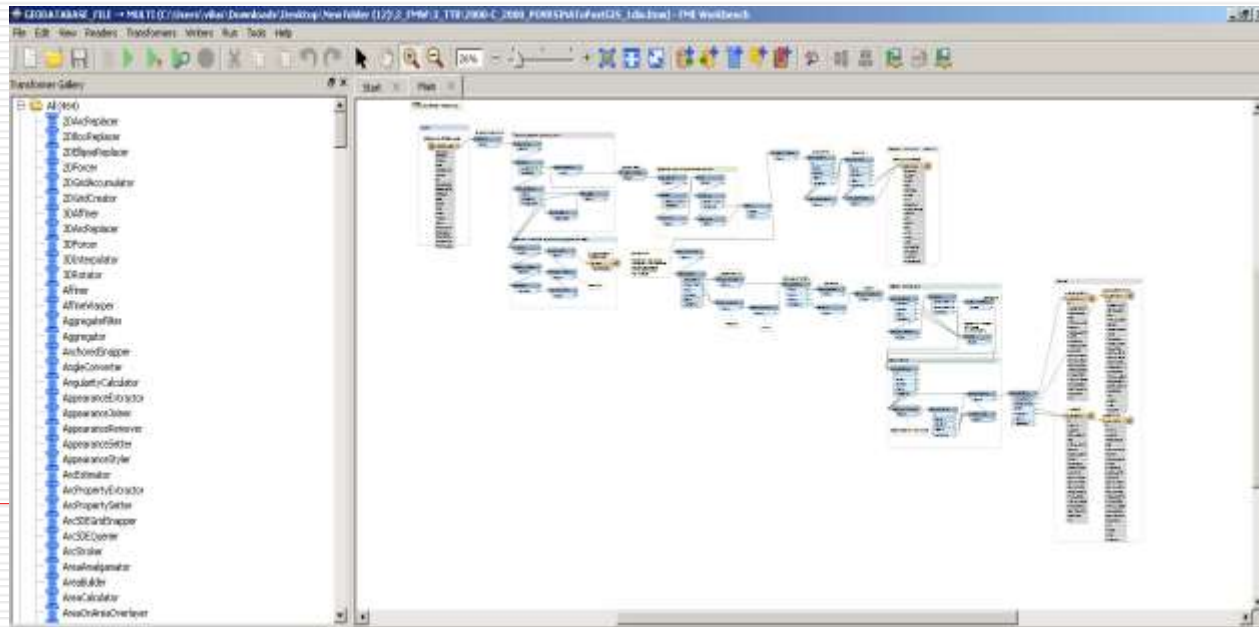
- Formats supporting:
  - Schema import: GML 2.1, GML 3.1, GML 3.2, Shapefile, WFS
  - Data import: GML 2.1, GML 3.1, GML 3.2, Shapefile, WFS
  - Data export: GML 2.1, GML 3.1, GML 3.2, Shapefile
  - Mapping export: OML, RIF-PRD, CSV, HTML, XSLT
- Functionality
  - Schema matching and mapping is performed at the schema level
  - Schema transformation using schema mapping definitions and operates on data level
  - Importing of INSPIRE schemas and code lists from the INSPIRE registry
  - Validation of GML files



# 3. korak – Mapiranje i transformacija

FME (Future Manipulation Engine) - very powerful tool for quality control, gaps correction and future mapping process

FME includes more than 450 transformers, tools that perform powerful data manipulation tasks and give you complete control over what your data looks like and how it's structured. According to SAFE SOFTWARE license policy it's possible to download the trial license on period of 30 days.

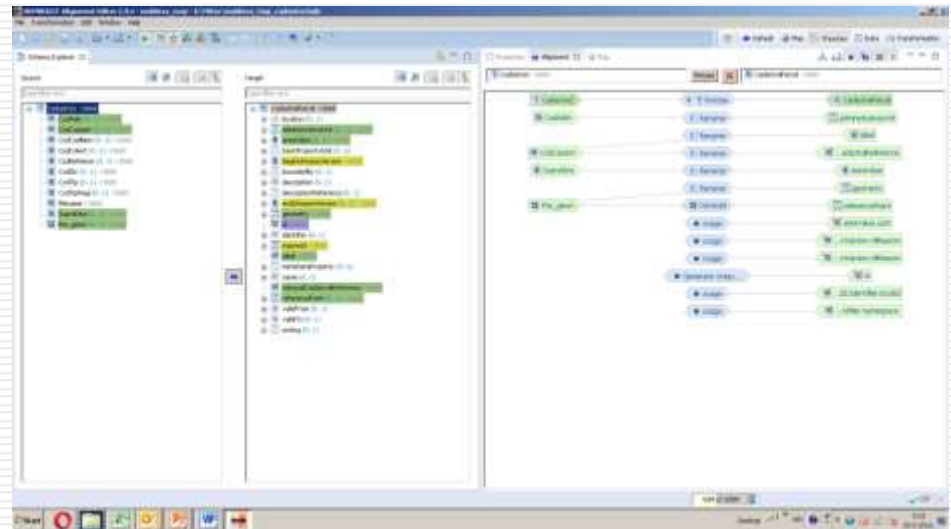




# Overview of HALE

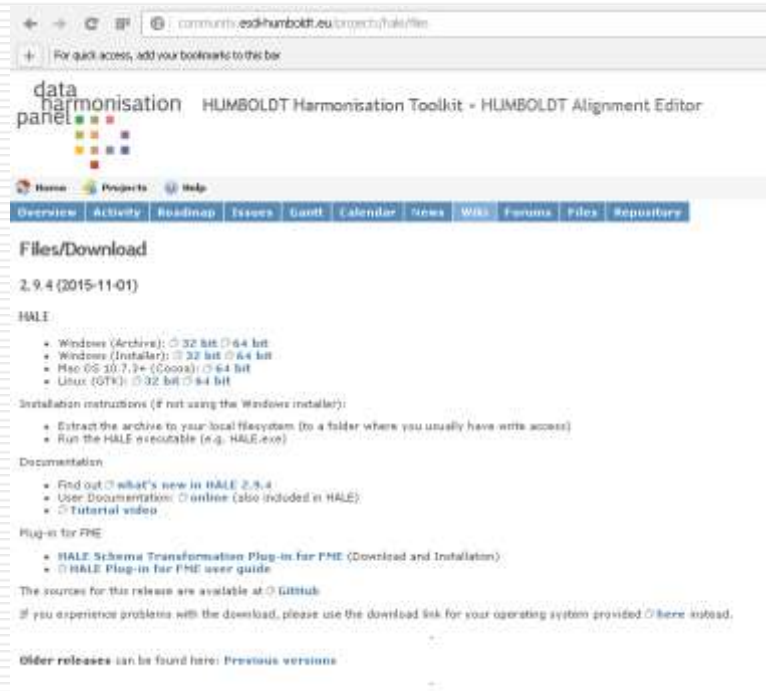
Developed open source software for data integration

HALE is a tool for defining and evaluating conceptual schema mappings. The goal of HALE is to allow domain experts to ensure logically and semantically consistent mappings and consequently transformed geodata from one schema to another



# Download HALE

<http://community.esdi-humboldt.eu/projects/hale/files>



community.esdi-humboldt.eu/projects/hale/files

data harmonisation HUMBOLDT Harmonisation Toolkit - HUMBOLDT Alignment Editor

data harmonisation panel

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### Files/Download

2.9.4 (2015-11-01)

HALE

- Windows (Archive): 32 bit 64 bit
- Windows (Installer): 32 bit 64 bit
- Mac OS 10.7.3+ (Cocoa): 64 bit
- Linux (GTK): 32 bit 64 bit

Installation instructions (if not using the Windows installer):

- Extract the archive to your local filesystem (to a folder where you usually have write access)
- Run the HALE executable (e.g. HALE.exe)

Documentation

- Find out what's new in HALE 2.9.4
- User Documentation: online (also included in HALE)
- Tutorial video

Plug-in for PHE

- HALE Schema Transformation Plug-in for PHE (Download and Installation)
- HALE Plug-in for PHE user guide

The sources for this release are available at [GitHub](#).

If you experience problems with the download, please use the download link for your operating system provided [here](#) instead.

Older releases can be found here: [Previous versions](#)

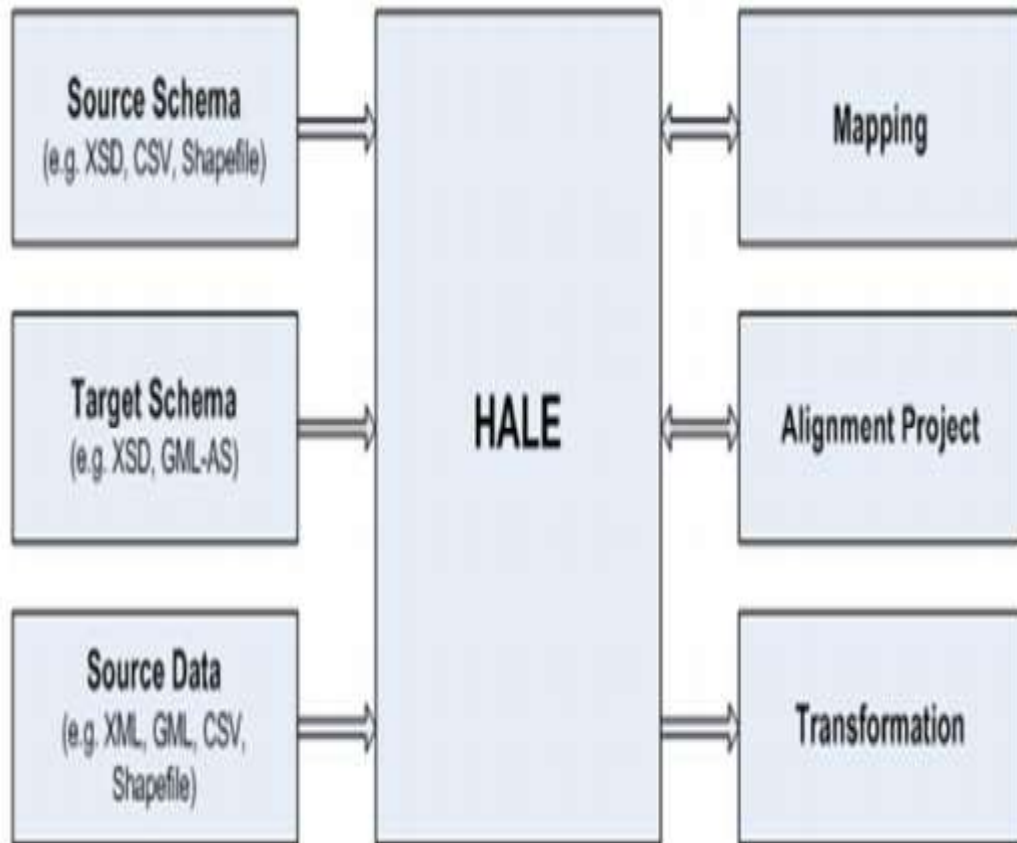
## Files/Download

2.9.4 (2015-11-01) ¶

### HALE

- Windows (Archive): 32 bit 64 bit
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# Functionality:



- Schema matching and mapping is performed at the schema level

- Schema transformation using schema mapping definitions and operates on data level

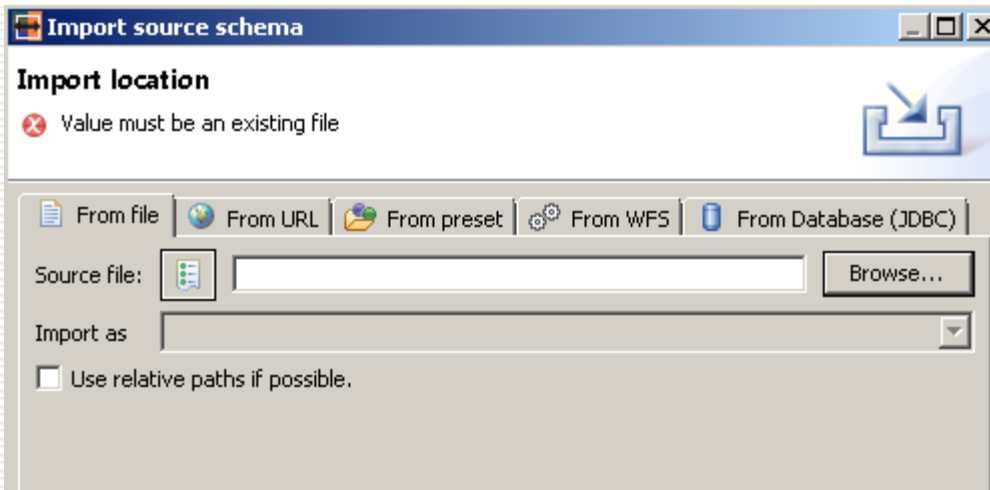
- Importing of INSPIRE schemas and code lists from the INSPIRE registry

- Validation of GML files

# Source scheme:

**Source scheme (definition of the structure of the input data)**

Can be defined for the following data sources: shapefile, CSV, MS Excel XLS / XLSX, XML schema (XSD, XML), Hale schema definition (HSD), WFS, base data, INSPIRE XML schemas.

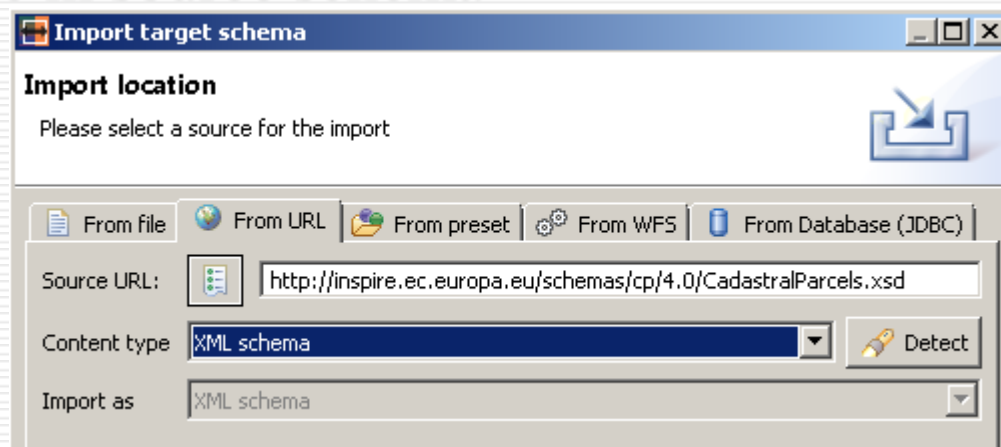


All supported files  
 Shapefile (\*.shp)  
 XML schema (\*.xsd, \*.xml)  
 CSV file (\*.csv)  
 MS OOXML Format Spreadsheet (XLSX) (\*.xlsx)  
**Spatialite Database (\*.sqlite)**  
 HALE Schema Definition (\*.hsd, \*.haleschema)  
 GZipped HALE Schema Definition (\*.hsd.gz, \*.haleschema.gz)  
 Excel Spreadsheet (XLS) (\*.xls)  
 All files

# Target scheme:

**Target scheme** (the definition of the structure of the output data)

- In the definition of the target scheme it is possible to select all data formats and codes which are mentioned before in source schema

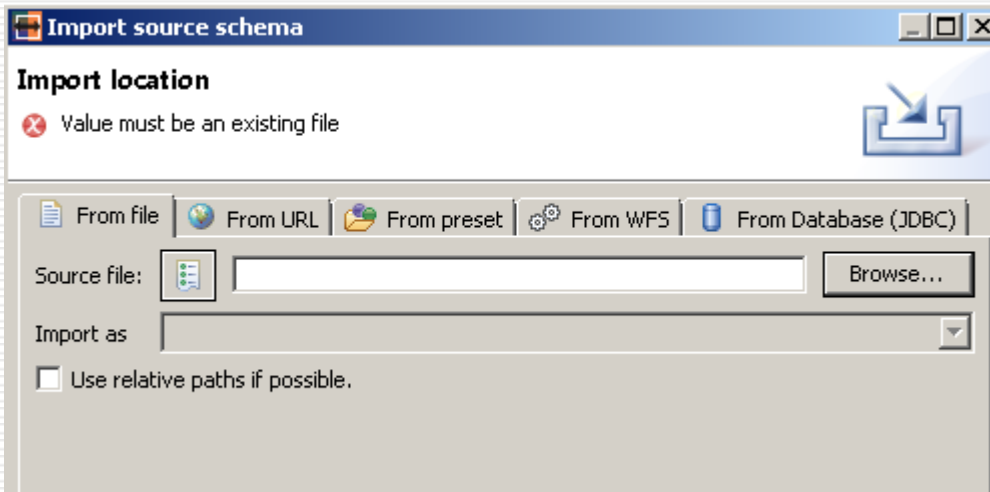


<http://inspire.ec.europa.eu/schemas/>

# Source data:

**Source data** (definition of the structure of the input data)

Can be defined for the following data sources: shapefile, CSV, MS Excel XLS / XLSX, XML schema (XSD, XML), Hale schema definition (HSD), WFS, base data, INSPIRE XML schemas.



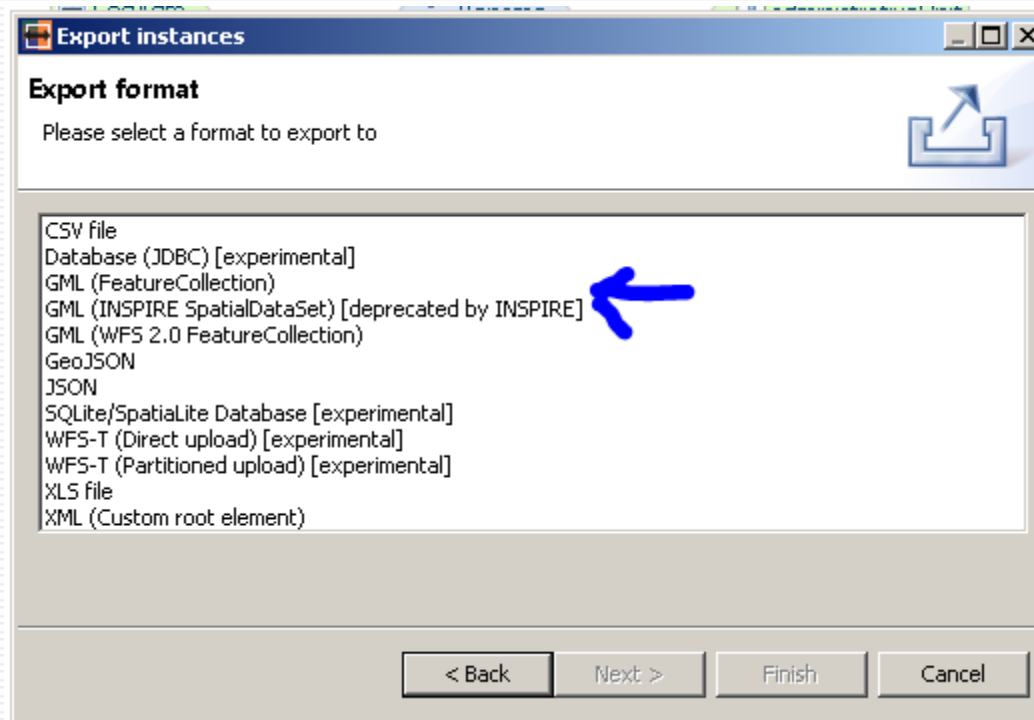
All supported files  
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 Excel Spreadsheet (XLS) (\*.xls)  
 All files



# Target data:

**Target data (the definition of the structure of the output data)**

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# Integrated functions

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## Type Transformation functions

- Retype (one source type -> one target type)
- Join (several source types -> one target type)
- Merge (several source types -> one target type based on property values)
- Create (one or several target types)

## Property Transformation functions

- General functions
  - Rename (copy), Assign (value),
- Geometric functions
  - Ordinates to point, Network expansion (1D->2D), Centroid (2D->0D), Calculate length/area, compute extent
- INSPIRE and ID functions
  - INSPIRE ID, Sequential ID, GeographicalNames, Xpath expressions
- Numerical functions
  - Mathematical expressions,
- String functions
  - Date extraction, Regex analysis (string conversion), Classification, Formatted string

# Integrated functions

- General
      - Retype
      - Merge
      - Join
      - Create
      - Rename
      - Date extraction
      - Regex Analysis
      - Assign
      - Generate Unique Id
      - Classification
      - Formatted string
      - Assign (Bound)
    - Geometric
      - Ordinates to Point
      - Network Expansion
      - Calculate Length
      - Calculate Area
      - Centroid
      - Compute Extent
    - Groovy
      - Groovy Retype
      - Groovy Create
      - Groovy Merge
      - Groovy script
      - Groovy script (greedy)
    - Inspire
      - Inspire Identifier
      - Geographical Name
    - Numeric
      - Mathematical Expression
      - id Generate sequential ID

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**Hvala na pažnji !!!**

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