

Humboldt Alignment Editor (HALE)

3a Sessão Técnica Inspire
24 de maio de 2016

Humboldt Alignment Editor a.k.a. HALE

Quem foi Humboldt?



https://en.wikipedia.org/wiki/Alexander_von_Humboldt

O que significa "alignment"?

"the act of adjusting something to match a standard"

Para que serve este editor?

"a tool that allows to define conceptual schema transformations"

HALE?... HELP!



Documentação

HALE User Guide

<http://hale.igdi.fraunhofer.de/2.9.6/help/index.jsp>

HALE Wiki

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

HALE Tutorial

<http://www.digipanel.eu/humboldt-framework/hale-tutorial.html>

HALE Introductory Presentation

http://community.esdi.eu/humboldt.eu/attachments/1827/FreeGIS_Workshop_Humboldt_Session_7_-_HALE_CST_FNL_2011-06-19.pdf

Code lists for interoperability - Principles and best practices in INSPIRE
http://presentations.copernicus.org/FCU/2012-IGATIS_presentation.pdf



Vídeos

Harmonização da COS de acordo com as especificações INSPIRE - Teresa Zuna



Schema Transformation workshop
8-9.10.2009 HALE (T. Reitz)



How to manage Code lists according
to INSPIRE - An encoding example
using HALE OpenSource



Fóruns de discussão



Share and reuse interoperability solutions for public administrations
<https://joinup.ec.europa.eu/software/hale/home>



HUMBOLDT Alignment Editor

<http://www.esdi-community.eu/boards/2/topics/932>



INSPIRE Thematic Clusters Platform

<https://themes.jrc.ec.europa.eu/discussion/Media/20162/geology-gml-and-hale/>



INSPIRE Fórum

<https://inspire-forum.jrc.ec.europa.eu/pg/forum/topic/92062/schema-transformation-with-hale/>

Documentação

HALE User Guide

<http://hale.igd.fraunhofer.de/2.9.4/help/index.jsp>

HALE Wiki

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

HALE Tutorial

<http://www.dhpanel.eu/humboldt-framework/hale-tutorial.html>

HALE Introductory Presentation

http://community.esdi-humboldt.eu/attachments/187/FreeGIS_Workshop_Bozen_Session_2_-_HALE_CST_EN_2011-06-14.pdf

Code lists for interoperability – Principles and best practices in INSPIRE

http://presentations.copernicus.org/EGU2012-10415_presentation.pdf

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HUMBOLDT Alignment Editor

<http://www.esdi-community.eu/boards/3/topics/492>



INSPIRE Thematic Clusters Platform

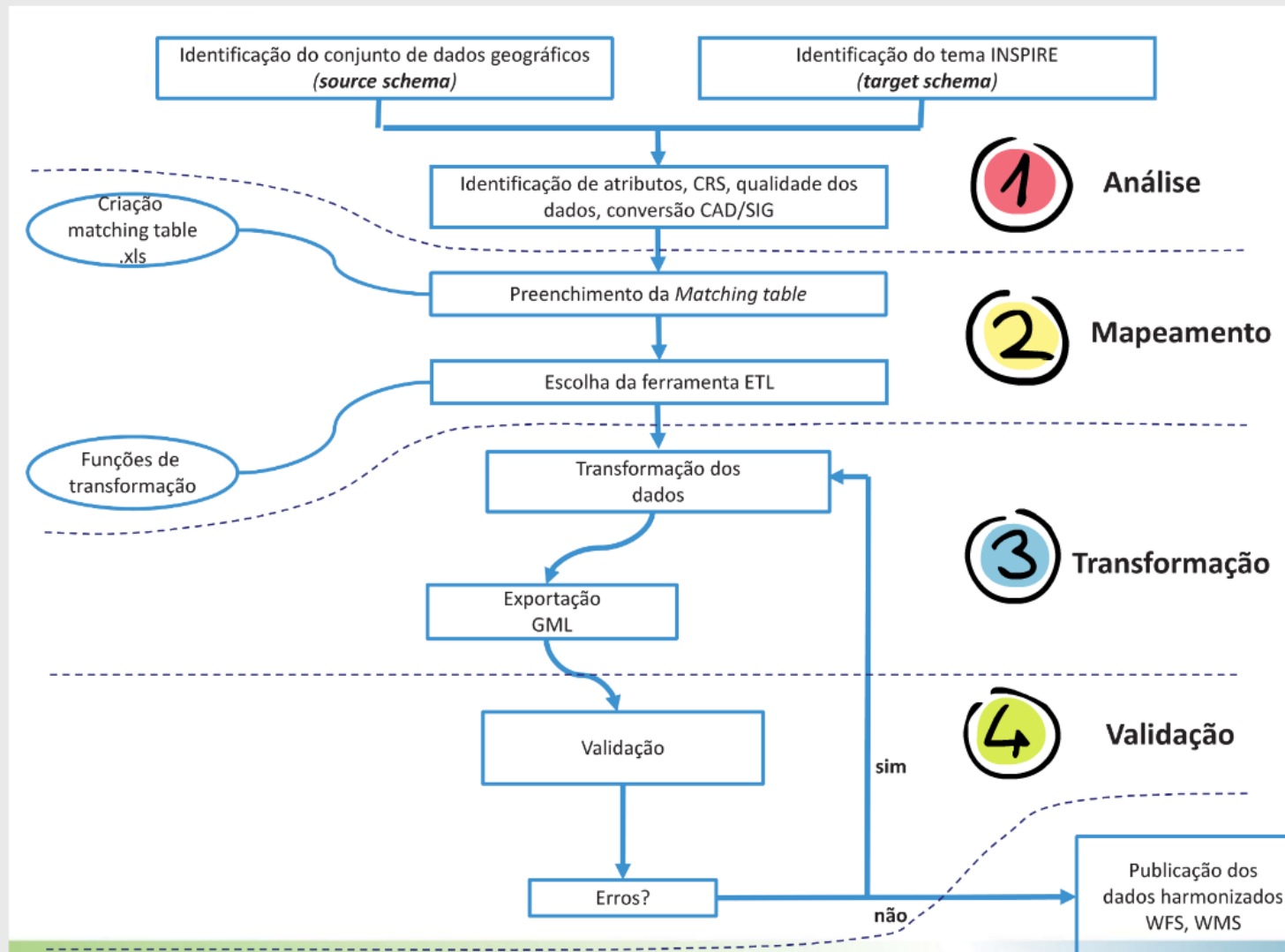
<https://themes.jrc.ec.europa.eu/discussion/view/79562/geology-gml-and-hale>



INSPIRE Fórum

<https://inspire-forum.jrc.ec.europa.eu/pg/forum/topic/92062/schema-transformation-with-hale/>

Processo de harmonização de dados



Análise

- Analisar a informação geográfica que se pretende harmonizar;
- Identificar o tema/anexo Inspire na qual a mesma se enquadra;
- Ler/estudar o documento de especificações técnicas do tema, bem como o documento "Generic Conceptual Model";
- Verificar as CodeLists necessárias para o tema em análise;
- Procurar exemplos de conjuntos de dados já harmonizados nos Thematic Clusters ou mesmo no YouTube;
- Preparar a informação geográfica de modo a ser mais fácil efetuar o mapeamento e transformação.



Mapeamento

- Efetuar o download da matching table que corresponde ao tema que pretendemos harmonizar;

<http://inspire.ec.europa.eu/data-model/approved/r4618-ir/mapping/>

- Preencher a matching table com a informação que pretendemos inserir no target schema;



- Definir as funções do HALE que irão ser adotadas.



Matching table

Application Schema 'LandCoverVector' (version 3.0)							Application Schema <provide name of source schema>											
Type	Documentation	Attribute / Association role	Association / Constraint	Attribute / Association role / Constraint documentation	Values / Enumerations	Multiplicity	Voidable / Non-Voidable	Type	Documentation	Attribute / Association role	Association / Constraint	Attribute / Association role / Constraint documentation	Values / Enumerations	Multiplicity	Voidable / Non-Voidable	Status	Remarks	
LandCoverUnit	-- Name -- Land Cover Unit. An individual element of the LC dataset represented by a point or polygon. Every unit support Land Cover information.	inspireId		-- Name -- inspireId External object identifier of the spatial object. NOTE: An external object identifier is a unique object identifier published by the responsible body, which may be used by external applications to reference the spatial object. The identifier is an identifier of the spatial object, not an identifier of the real-world phenomenon.	Identifier	1												
		beginLifespanVersion		-- Name -- beginLifespanVersion Date and time at which this version of the spatial object was inserted or changed in the spatial data set.	DateTime	1	voidable											
		endLifespanVersion		-- Name -- endLifespanVersion Date and time at which this version of the spatial object was superseded or retired in the spatial data set.	DateTime	0..1	voidable											
		geometry		-- Name -- geometry Spatial representation of the Land Cover unit. NOTE: Restricted to point or surface.	GM_Object	1												
		landCoverObservation		-- Name -- landCoverObservation Land cover information at a specific time and place.	LandCoverObservation	1..*												
LandCoverDataset	-- Name -- Land Cover Data set. A vector representation for Land Cover data. This representation allows Land Cover data being supported by a vector geometry.	inspireId		-- Name -- inspireId External object identifier of the spatial object. NOTE: An external object identifier is a unique object identifier published by the responsible body, which may be used by external applications to reference the spatial object. The identifier is an identifier of the spatial object, not an identifier of the real-world phenomenon.	Identifier	1												
		beginLifespanVersion		-- Name -- beginLifespanVersion Date and time at which this version of the spatial object was inserted or changed in the spatial data set.	DateTime	1	voidable											
		endLifespanVersion		-- Name -- endLifespanVersion Date and time at which this version of the spatial object was superseded or retired in the spatial data set.	DateTime	0..1	voidable											
		extent		-- Name -- extent Contains the extent of the data set. NOTE: Extents may be specified in space, time or space-time.	EX_Extent	1												
		name		-- Name -- name Name of the Land Cover data set.	CharacterString	1												
		nomenclatureDocumentation		-- Name -- nomenclatureDocumentation Information about the nomenclature used in this data set.	LandCoverNomenclature	1												
		validFrom		-- Name -- validFrom The time when the phenomenon started to exist in the real world.	Date	1	voidable											
		validTo		-- Name -- validTo The time from which the phenomenon no longer exists in the real world.	Date	1	voidable											
		member		-- Name -- member A Land Cover Unit being part of the data set. A Land Cover dataset is a collection of LandCover units, each one being called an element.	LandCoverUnit	1..*												

Matching table

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Type	Documentation	Attribute Association role Constraint	Attribute / Association role / Constraint documentation	Values / Enumerations	Multiplicity	Voidable / Non- Voidable	Type	Documentation	Attribute Association role Constraint	Attribute / Association role / Constraint documentation	Values / Enumerations	Multiplicity	Voidable / Non- Voidable	Status	Remark	
dCoverUnit	-- Name -- Land Cover Unit An individual element of the LC dataset represented by a point or polygon. Every unit support Land Cover Information.	inspireId	-- Name -- inspireId External object identifier of the spatial object. NOTE An external object identifier is a unique object identifier published by the responsible body, which may be used by external applications to reference the spatial object. The identifier is an identifier of the spatial object, not an identifier of the real-world phenomenon.	Identifier	1											
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		geometry	-- Name -- geometry Spatial representation of the Land Cover unit. NOTE Restricted to point or surface.	GM_Object	1											
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		beginLifespanVersion	-- Name -- beginLifespanVersion Date and time at which this version of the spatial object was inserted or changed in the spatial data set.	DateTime	1	voidable										

The logo of the International Organization for Standardization (ISO) is located in the bottom left corner of the page. It consists of a circular emblem with a globe in the center, surrounded by the text "INTERNATIONAL ORGANIZATION FOR STANDARDIZATION" and "ISO".The Prezi logo is located in the bottom left corner of the page, next to the ISO logo. It features the word "Prezi" in a stylized, lowercase font, with a circular graphic element to its left.

Funções do HALE

Type Relations

- Groovy Retype
- Groovy Create
- Groovy Merge
- Groovy Join
- **Retype**
- **Merge**
- Join
- Create

Property Relations

- Ordinates to Point
- **Network Expansion**
- Calculate Length
- **Calculate Area**
- Centroid
- **Compute Extent**
- Aggregate
- Reproject Geometry
- Groovy Script
- Groovy Script (Greedy)
- Inspire Identifier
- Geographical Name
- Mathematical Expression
- **Generate Sequential ID**
- **Date extraction**
- Regex Analysis
- **Rename**
- **Assign**
- **Generate Unique ID**
- **Classification**
- Formatted String
- Inline transformation
- Assign (Bound)
- XPath Expression



Transformação



- Depois de realizar o mapeamento das relações entre o source schema e o target schema, devem resolver-se todos os warnings que advierem da validação automática;



- Só depois poderemos efetuar a transformação dos dados, através da opção "File > Export > Transformed data";



- Aquando da fase de exportação, deve escolher-se o formato de dados GML (WFS 2.0 Feature Collection);



Validação

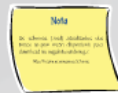
- A validação do XML é feita no próprio HALE, ao seleccionarmos a opção correspondente aquando do processo de transformação dos dados;
- De seguida, efetuamos a validação do GML através do Envplus Validation Service;

http://cloud.epsilon-italia.it/eenvplus_new/



- Por fim, para validar o GML com o schema base ou com o schematron, instala-se a versão trial do Oxygen e importa-se para lá o nosso GML;

<https://www.oxygenxml.com/>



- Esta etapa de validação ainda está um bocado "verde".

Nota

O eEnvplus disponibiliza um serviço de validação online e gratuito, (http://cloud.epsilon-italia.it/eenvplus_new/ATS.htm?), que permite a implementação do ATS (Abstract Test Suite) incluído no Anexo A das especificações técnicas dos dados. Este conjunto de testes executável (ETS) verifica a conformidade dos conjuntos de dados GML em relação aos esquemas de aplicação (application schemas) e também em relação à ISO 19136:2007 (schematron GML 3.2.1).

Nota

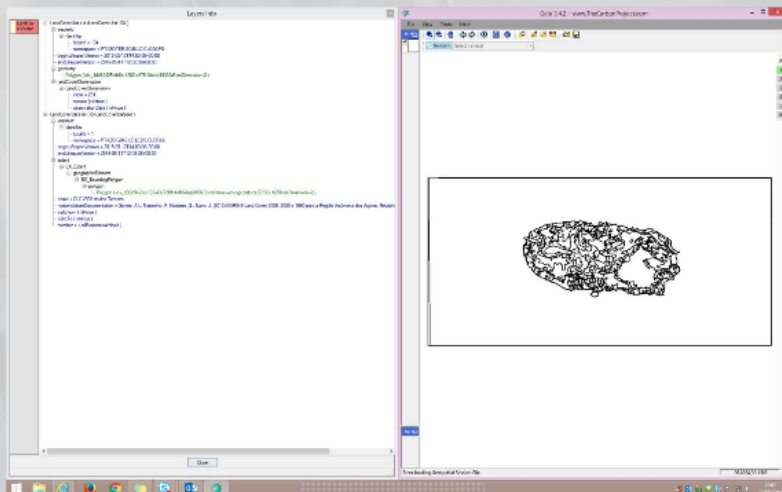
Os schemas (.xsd) atualizados dos temas Inspire estão disponíveis para download no seguinte endereço:

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

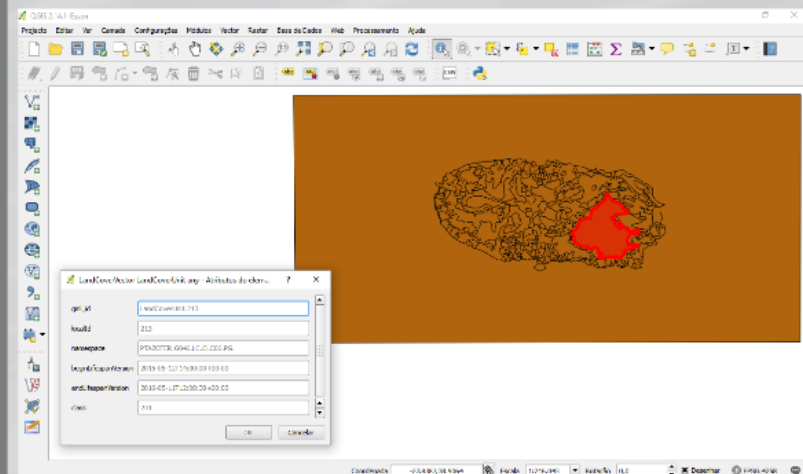


Visualização do resultado

Gaia 3.4.2.



QGIS 2.14.1-Essen



Software disponível para download em:

<http://www.thecarbonproject.com/Products/Gaia>

<https://www.qgis.org/en/site/forusers/download.html>

Gaia 3.4.2.

The image displays the Gaia 3.4.2 software interface, showing the Layers Info panel on the left and the main map area on the right.

Layers Info Panel:

- LandCoverDataset (id=LandCoverDataset)**
 - inspireId
 - Identifier
 - localId = 1
 - namespace = PTAZO G046 LC.LCDS.CLCRAA
 - beginLifespanVersion = 2015-05-12T14:00:00+00:00
 - endLifespanVersion = 2016-05-11T12:08:38+00:00
 - extent
 - EX_Extent
 - geographicElement
 - EX_BoundingPolygon
 - polygon
 - Polygon (id=_d30c5e21-c103-4327-99b4-886daa810619 srsName=urn:ogc:def:crs:EPSG:4258 srsDimension=2)
 - name = CLC 2006 da ilha Terceira
 - nomenclatureDocumentation = Gomes, A.L.; Marcelino, F.; Monteiro, G.; Nave, J. (2013) CORINE Land Cover 2006, 2000 e 1990 para a Região Autónoma dos Açores. Relatório
 - validFrom (nil=true)
 - validTo (nil=true)
 - member = (nilReason=withheld)
- LandCoverUnit (id=LandCoverUnit.134)**
 - inspireId
 - Identifier
 - localId = 134
 - namespace = PTAZOTER G046 LC.CLC06.PG
 - beginLifespanVersion = 2015-05-12T14:00:00+00:00
 - endLifespanVersion = 2016-05-11T12:08:38+00:00
 - geometry
 - Polygon (id=_1dd61825-db5a-4292-a976-7dcdb19332df srsDimension=2)
 - landCoverObservation
 - LandCoverObservation
 - class = 231
 - mosaic (nil=true)
 - observationDate (nil=true)

Main Map Area:

The main map area displays a black and white line drawing of a land cover unit, showing a complex, irregular shape with internal features. The map is titled "Gaia 3.4.2 - www.TheCarbonProject.com".

Status Bar:

The status bar at the bottom indicates "Error loading Geospatial Session File" and shows coordinates "-26.9904, 39.1585".

Quiz 2.14.1 - Esser

QGIS 2.14.1-Essen

Projecto Editar Ver Camada Configurações Módulos Vector Raster Base de Dados Web Processamento Ajuda

gml_id: LandCoverUnit.213
localId: 213
namespace: PTAZOTER.G046.LC.CLC06.PG.
beginLifespanVersion: 2015-05-12T14:00:00+00:00
endLifespanVersion: 2016-05-11T12:08:38+00:00
class: 231

Coordenada: -27.8387,38.9064 Escala: 1:216.043 Rotação: 0,0 Desenhar EPSG:4258

Vantagens de utilização do HALE

- Uma excelente ferramenta de harmonização de dados em conformidade com as disposições da Inspire;
- Atualização automática das codelists e dos schemas Inspire;
- Execução de diversas funções de mapeamento;
- Importação de ficheiros em diferentes formatos;
- Exportação para GML e outros formatos;
- Validação do XML.

Dificuldades na utilização do HALE

- Diferenças existentes entre o diagrama UML do tema Inspire e o target schema carregado a partir do site Inspire;
- Efetuar o mapeamento correto entre o source schema e o target schema;
- Efetuar a validação de todas as instâncias;
- Entender o significado dos erros e dos avisos;
- Saber da qual funções aplicar em cada situação;

Novidades de última hora!

A aplicação Inspire “Find your Scope” possui uma nova funcionalidade:

- Ligação direta para a ferramenta de transformação de dados do HALE;
- O botão hale transformation aparece no final do processo de selecção dos objetos espaciais Inspire que são relevantes para a transformação que pretendemos efetuar;

The screenshot displays the 'Find your Scope' application interface. At the top, a breadcrumb trail reads: 'European Commission > INSPIRE > INSPIRE Interactive Data Specifications > Find your scope > Interactive Workflow > Selected objects'. Below this, there are navigation buttons: 'Intro', 'Read/Compare Technical Guidelines', 'Find your scope', and 'Favorites'. The main content area is titled 'Favorite objects details' and contains a table with two entries. Each entry shows the object name, its theme, and its application schema. The 'Actions' column for each entry contains an information icon and a delete icon. At the bottom of the table, there is a pagination control showing 'Showing 1 to 2 of 2 entries'. Below the table, there are several buttons: 'Add more objects', 'PDF', 'DOCX', 'hale transformation', and 'Matching Table'.

Favorite objects details	Actions
Land Cover Unit - Spatial object type Theme: Land Cover - [INSPIRE Data Theme Land Cover] INSPIRE Application schema: Land Cover Vector - [INSPIRE Application schema Land Cover Vector]	
Land Cover Dataset - Spatial object type Theme: Land Cover - [INSPIRE Data Theme Land Cover] INSPIRE Application schema: Land Cover Vector - [INSPIRE Application schema Land Cover Vector]	

Showing 1 to 2 of 2 entries

First Previous 1 Next Last

[Add more objects](#) [PDF](#) [DOCX](#) [hale transformation](#) [Matching Table](#)

<http://inspire-regadmin.jrc.ec.europa.eu/dataspecification/FindYourScope.action>

Muito obrigada pela atenção!

Agora é só começar a testar....

Marlene Antunes

marlene.cs.antunes@azores.gov.pt
296206807 voip:401507

Raquel Medeiros

raquel.t.medeiros@azores.gov.pt
296206824 voip:401524

Vanda Marcos

vanda.a.marcos@azores.gov.pt
296206826 voip:401526

