The geospatial metadata catalogue

FOSS4G2010 - Barcelona

Jeroen Ticheler

Making The Geospatial Web Work
Director

Founder and chair
GeoNetwork opensource

Dutch National Geo Registry

SwissTopo geocat.ch
GeoNetwork history at a Glimpse

• Prototyping by FAO (2000-2001)
• Version 1 by FAO & WFP (released 2003)
• Version 2 by FAO, WFP & UNEP (released 2005)
• Version 2.1 (released September 2007)
• Version 2.2 (released April 2008)
• Version 2.4 (released July 2009)
• Version 2.6 (September 2010)
• Version 2.8 and 3.0 in progress (under development)
Users

- United Nations: FAO, WFP, UNEP, WHO, OCHA, UNHCR
- Other: FGDC, JRC, CGIAR
- Netherlands, Swiss, Norway, Denmark, Sweden, Finland, Spain, France, Czech, UK, Australia, South Africa, …
- ESA Heterogenous Mission Accessibility project
- Global Earth Observation System of Systems (GEOSS) GEOoportal
- et cetera...
The glue in a Spatial Data Infrastructure
An interactive map library on the Internet
Build on Standards, Standards, Standards, Standards, ...
The Basic Building Blocks

- ISO TC211 Standards
- OGC Standards (Open Geospatial Consortium)
Standards

Metadata

Catalog interfaces
- OGC CSW 2.0 (client & server)
- Z39.50/ISO23950 (client & server)
- OAI-PMH (client & server)
- Geo-OpenSearch (server)
- GeoRSS (server)
- WebDAV (client)

Web Mapping Client
- WMS, WMC

Web Map Server (through GeoServer)
- WMS, WFS, WFS-t, WCS, KML

donderdag 9 september 2010
Catalogue Services/Web 2.0.1

- Developed by: United Nations Food and Agriculture Organization (UN FAO)
- Product Name: GeoNetwork
- License: GNU GPL

GeoNetwork opensource is a standards-based catalog application to manage geospatial data on the web. It provides powerful metadata functionalities as well as an embedded interface.

Catalog Interfaces
Technologies

- Java language (platform independent)
- Servlet environment (Tomcat, Jetty, ...)
- XML data representation (JDOM)
- XSL templates for presentation (XALAN)
- JDBC for database access (runs on any compliant DBMS)
- Lucene search capabilities
- XML Schema for metadata editing
Users

- Search in multiple catalogues through one website
- File download
- Data visualization through web map viewer
Data Providers

- Standardized process to document and publish
- Online metadata editor
- Different metadata standards
- Different sharing / security levels
- File upload
Administrators

- Easy to install
- Easy to maintain
- Groups and users management
- Harvesting management
- Migration support
- Active user and developer communities
Open Source Software Development & Community
The Open Source Geospatial Foundation - osgeo.org

OSGeo Projects

- Web Mapping
  - deegree *
  - Mapbender
  - MapBuilder
  - MapGuide Open Source
  - MapServer *
  - OpenLayers

- Desktop Applications
  - GRASS GIS
  - OSSIM *
  - Quantum GIS
  - gvSIG *

Geospatial Libraries

- FDO
- GDAL/OGR
- GEOS *
- GeoTools *

Metadata Catalog

- GeoNetwork

Other Projects

- Public Geospatial Data
- Education and Curriculum

(* in incubation)

donderdag 9 september 2010
Formalized project governance

- Advisory Board
- Project Steering Committee (day-to-day)
- Proposals for new developments
- Release strategy

donderdag 9 september 2010
Some Screenshots
Dutch National Georegistry
Dutch National georegistry nominated as government ICT-project of the year!

Please vote before 23 September 2010 at:

http://www2.computable.nl/computableawards/stem/
Online editor

Title: Hydrological Basins in Africa
Date: 2000-07-19T14:45:00
Date type: creation
Edition: First
Presentation form: mapDigital

Abstract:
Major hydrological basins and their sub-basins. This dataset includes:
- area of the major basin in square km (MAJ_AREA);
- numerical code and name of the sub-basin (SUB_BAS and SUB_NAME);
- area of the sub-basin in square km (SUB_AREA);
- numerical code of the sub-basin towards which the sub-basin flows (TO_SUBBAS) (the codes -888 and -999 have been assigned respectively to the other headwaters and to the boundary). This dataset is developed as part of a GIS-based information system on water resources for the African continent. It has been published in the framework of the AQUASTAT programme of the Land and Water Division of the Food and Agriculture Organization of the United Nations, as part of FAO Land and Water Digital Media

Purpose:
This dataset is developed as part of a GIS-based information system on water resources for the African continent. It has been published in the framework of the AQUASTAT programme of the Land and Water Division of the Food and Agriculture Organization of the United Nations, as part of FAO Land and Water Digital Media

Status: completed
Point of contact: PointOfContact
Harvesting

GeoNetwork: The portal to spatial data and information - Mozilla Firefox

Harvesting Management

<table>
<thead>
<tr>
<th>Select Name</th>
<th>Type</th>
<th>Status Errors Every</th>
<th>Last run</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GeoNetwork 2.0</td>
<td>x</td>
<td>2007-09-04</td>
<td>Edit</td>
</tr>
<tr>
<td>exist</td>
<td>GeoNetwork 2.0</td>
<td>x</td>
<td>2007-09-04</td>
<td>Edit</td>
</tr>
<tr>
<td></td>
<td>Web DAV</td>
<td>v</td>
<td>2007-09-04</td>
<td>Edit</td>
</tr>
</tbody>
</table>

Options: Activate, Deactivate, Run, Remove, Add, Refresh

Donderdag 9 september 2010
System Administration

ISO 19115 to 19139 conversion

Prior to version 2.1, GeoNetwork managed only the old ISO 19115 metadata format (the one with short names). Starting from version 2.1 you can use the new ISO 19139 format, which is the XML encoding of the ISO 19115:2003 spec. This panel lets you convert your old metadata in ISO 19115 format to the new one.
New in version 2.6
Hyperlinks

URLs recognized and made into links
Keywords selection panel
(In Search and in Edit)
Export ZIP & CSV

- Select: all, none
  - actions on selection
  - Delete
  - New Owner
  - Update categories
  - Update privileges
  - Display selected only
  - Print selection
  - Export (ZIP)
  - Export (CSV)

ZIP archive
Name: export-full-1277681164630.zip
Kind: ZIP archive
Size: 250 KB on disk

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schema;id;title;abstract;keyword;geoBox;Constraints;image;link;iso19139;10;Hydrological Basins in Africa (Sample record, please remove!);Major hydrological basins and their sub-basins;Physiographic Map of North and Central Eurasia (Sample record, please remove!);Physiographic maps for iso19139;16;Template for WMS in INSPIRE mode;The ISO19139/119 metadata standard is the preferred metadata standard;iso19139;15;Template for INSPIRE;The ISO19115 metadata standard is the preferred metadata standard to use. If unsure;schema;id;title;abstract;keyword;geoBox;image;iso19115;12;Hydrological basins in Europe;Major hydrological basins and their sub-basins. This dataset divides the;schema;id;title;abstract;keyword;link;geoBox;fgdc-std;13;Globally threatened species of the world;Contains information on animals and plants threatened at the;schema;id;title;abstract;keyword;link;geoBox;gmd:iso-910:1.3.2.6.1;9.10.1.0.1.4.1.1.1;Natural polar ecosystems;A harmonised database of natural ecosystems in the Circumpolar Arctic;
Improved Categories
Temporal extent search
Multilingual metadata

Use Google translation service to suggest a translation for selected language.
Metadata relations

[Image of a webpage showing metadata relations, including parent/child metadata, related service metadata, and related feature catalogues.]
Metadata relations
(Editing)
Metadata relations
(Editing)
Edit/View Geographic Extent
Feature catalog support

(ISO19110)
Sort your templates

<table>
<thead>
<tr>
<th>SORT TEMPLATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature catalogue template in ISO19110</td>
</tr>
<tr>
<td>Template for Dublin Core</td>
</tr>
<tr>
<td>Degree22 WFS Fragments Philosopher Database Test Template</td>
</tr>
<tr>
<td>Template for WMS service in ISO19139/119</td>
</tr>
<tr>
<td>Template for Raster data in ISO19139</td>
</tr>
<tr>
<td>Template for Vector data in ISO19139 (preferred!)</td>
</tr>
<tr>
<td>GeoServer WFS Fragments Country Boundaries Test Template</td>
</tr>
<tr>
<td>Template for Vector data in ISO19139 (multilingual)</td>
</tr>
<tr>
<td>Template for FGDC</td>
</tr>
</tbody>
</table>
Feature catalog support (ISO19110)
Compute extent
CRS system selection
Visual warnings in the editor

<table>
<thead>
<tr>
<th>Identifier</th>
<th>geoservertest.citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Geoserver WFS Fragments Country Boundary</td>
</tr>
<tr>
<td>Abstract</td>
<td></td>
</tr>
<tr>
<td>Identifier</td>
<td>geoservertest.abstract</td>
</tr>
</tbody>
</table>
Propagate changes to child records

MORE DETAILS
Update all children related to current metadata record. Select the strategy to be applied on each main sections.

Add will preserve child section and add the parent equivalent section after the child ones. Replace will remove child section by parent equivalent section.

Children identifier, character set, language, parent identifier, hierarchy level, dataset URI and identification section (excluding extent and keywords) are always preserved. Parent locales are always replaced.

Distribution and maintenance section are always replaced (even in add mode) because ISO19115 does not allow to have more than one.
**INSPIRE view**

<table>
<thead>
<tr>
<th>IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASSIFICATION OF SPATIAL DATA AND SERVICES</td>
</tr>
<tr>
<td>KEYWORDS &amp; INSPIRE THEMES</td>
</tr>
<tr>
<td>GEOGRAPHIC LOCATION</td>
</tr>
<tr>
<td>TEMPORAL REFERENCE</td>
</tr>
<tr>
<td>QUALITY AND VALIDITY</td>
</tr>
<tr>
<td>CONFORMITY</td>
</tr>
<tr>
<td>CONSTRAINT RELATED TO ACCESS AND USE</td>
</tr>
<tr>
<td>ORGANISATIONS RESPONSIBLE FOR THE ESTABLISHMENT, MANAGEMENT, MAINTENANCE AND DISTRIBUTION</td>
</tr>
</tbody>
</table>

**METADATA**

- File identifier: Example ID
- Metadata language: English
- Character set: UTF8
- File transfer format: Based on ISO/IEC 10646

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*donderdag 9 september 2010*
Schematron validation report improvements
Other changes

- Performance improvements (on search and on indexing)
- CSW ISO AP automated testing
- MEF format support for multiple metadata
- Composed Metadata Records (using xlink)
- Z39.50 improvements
Other changes

- Maven build process
- Test automation
- Deployment through a war file
New documentation and website
(based on ReStructured text, thanks GeoServer!)

GeoNetwork opensource

GeoNetwork opensource is a catalog application to manage spatially referenced resources. It provides powerful metadata editing and search functions as well as an embedded interactive web map viewer.

GeoNetwork opensource has been developed to connect spatial information communities and their data using a modern architecture, which is at the same time powerful and low cost, based on the principles of Free and Open Source Software (FOSS) and International and Open Standards for services and protocols (a.o. from ISO/TC211 and OGC).
Tool integration

ESRI ArcCatalog

GeoNetwork

gvSIG

Export/import metadata & data

donnerdag 9 september 2010
Thanks to the GeoNetwork Developers and Users!!!

And to you for listening!

Don’t forget to vote :-) 

http://www2.computable.nl/computableawards/stem/