

DOCUMENT INFORMATION

Title:	Report of the Metadata catalog implementation
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Subject:	Installation, setup and tests on metadata catalogue
Description:	This document describes how to install and setting the CAIQ metadata catalog
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Introduction

In the previous meeting a scouting session was done in order to define which metadata catalog software would have been to be used for the project. The software named GeoNetwork (<https://geonetwork-opensource.org/>) was identified as the final solution.

GeoNetwork

GeoNetwork is a catalog application used to manage spatially referenced resources. It provides powerful metadata editing and search functions as well as an interactive web map viewer. It is currently used in numerous Spatial Data Infrastructure initiatives across the world.

The software was selected for several reasons:

- an open-source solution named *GeoNetwork opensource is available*;
- it is constantly supported and maintained by the community;
- it is an OSGeo Project;
- it has a dedicated User Interface (UI) for metadata setting and publishing;
- it may work combined with Geoserver (software that we use in this project to publish spatial data).

Installation

During the training, under the supervision of Prof. Massimo Rumor, a dedicated Virtual Machine (VM) was activated in order to prepare a safe environment for installing and testing different software. The same was built locally in order to test configuration in different computers (not server) to test and verify the SO compatibility.

To install GeoNetwork the WAR file method was applied. This method implies that Apache Tomcat has to be prior installed on the Server. Then, the last version of WAR file was downloaded from Sourceforge platform <https://sourceforge.net/projects/geonetwork/>.

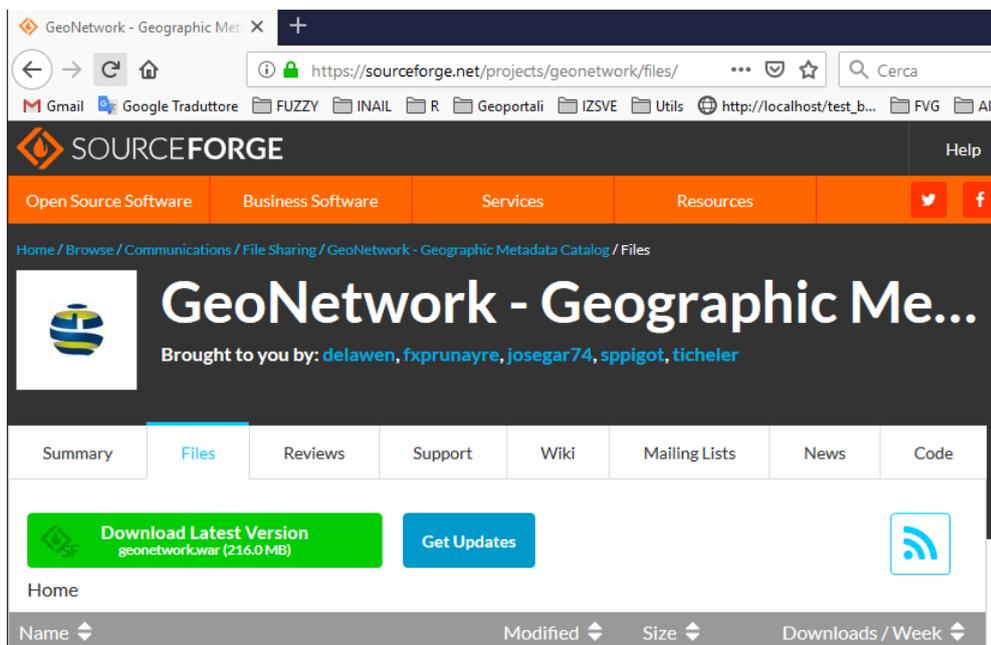


Figure 1 – Sourceforge web site to download geonetwork.war

The next step was to copy the WAR file in the webapp folder of Apache Tomcat software (/var/lib/tomcat7/webapps).

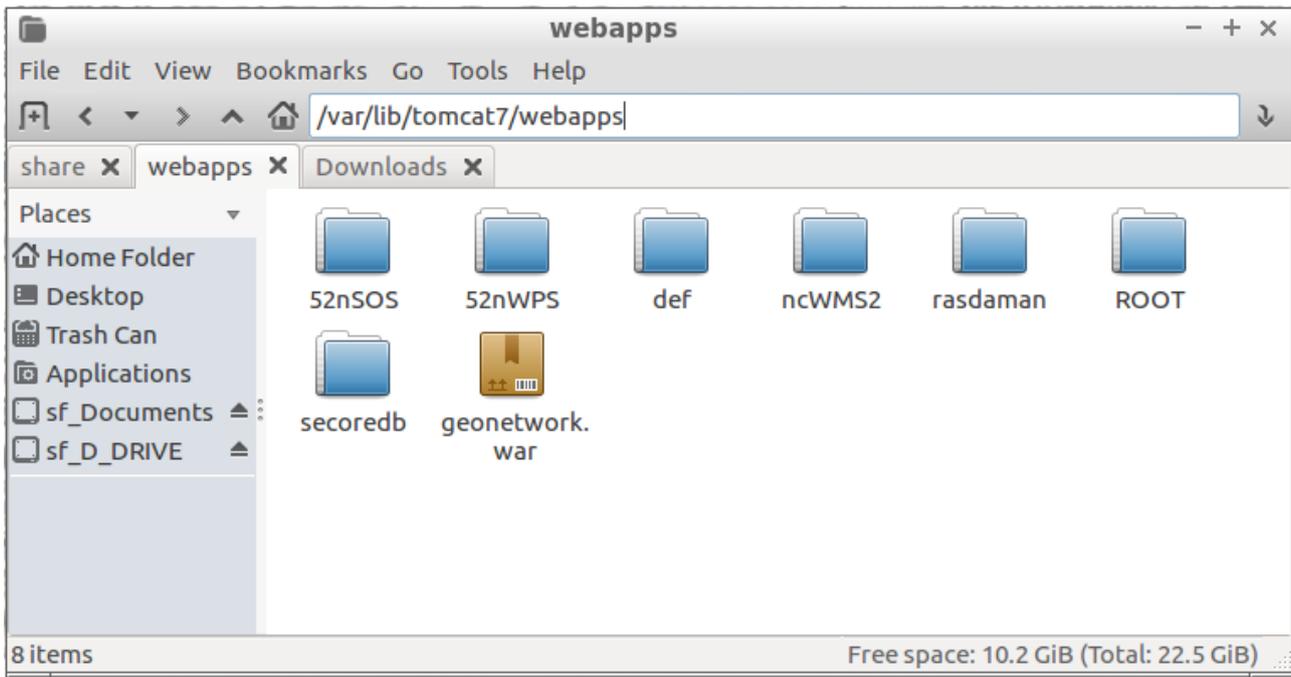


Figure 2 –Apache Tomcat folder to copy GeoNetwork.war file.

Before starting the application, Tomcat was configured with sufficient memory for launching GeoNetwork and the data directory was modified to launch an empty GeoNetwork directory. When started Tomcat automatically deploys the application. It can be viewed at <http://localhost:8080/geonetwork>.

The final installation was completed on the CAIQ Server:

- Operating System: Linux Server LTS
- Application server: Tomcat 7.

Setup

Under the supervision of Prof. Massimo Rumor, after the deployment, a dedicated database in PostgreSQL was created. Then the GeoNetwork configuration was modified in order to write all data in the Database.

A dedicated schema was implemented in the original CAIQ database.

- Database
 - DBMS: PostgreSQL
 - Name: caiq_metadata
 - Schema: Public
- Users was defined
 - Administrator
 - Reader

A link with spatial data was not created because it already existed in GeoServer. The metadata catalog will be used only in order to publish metadata. An *application link* will be created directly from the WebGIS user interface. A single user, who uses the WebGIS, can access directly to the Metadata Catalog through a dedicated button.

At the end of the installation and the database configuration, the final version of GeoNetwork was installed on the CAIQ Server from remote desktop.

The final server was compliant with the local VM. Below the technical aspects of configuration are reported:

- Software release installed: GeoNetwork 3.0.4
- Installation type: WAR deployment
- Publishing on port 8080 (*common web port*)
- Public URL: <http://211.157.136.26:8080/geonetwork>
- Users:
 - Admin
 - CAIQUser.

Metadata acquisition

A set of Chinese data was identified to produce metadata. The complete list of metadata is:

- Administrative divisions (boundaries)
- Export Farm
- Quarantine Farm
- Point of Interest
- Export Farm Buffers
- Quarantine Farm buffers
- Wild animal protection areas.

According with the *Template for Vector data ISO19139*, some metadata were acquired directly from a limited set of tests performed in the previous months.

Other metadata were created directly using GeoNetwork Dataset UI. The GeoNetwork software supports Chinese language during the metadata creation and the ISO19139 schema was applied to all metadata.

Metadata publication

The defined set of metadata was published directly in the CAIQ Metadata Catalog. Different interfaces were tested according with different GeoNetwork software updates (from release 2.4 to release 3.0).

The GeoNetwork information were protected by username and password before the final release.

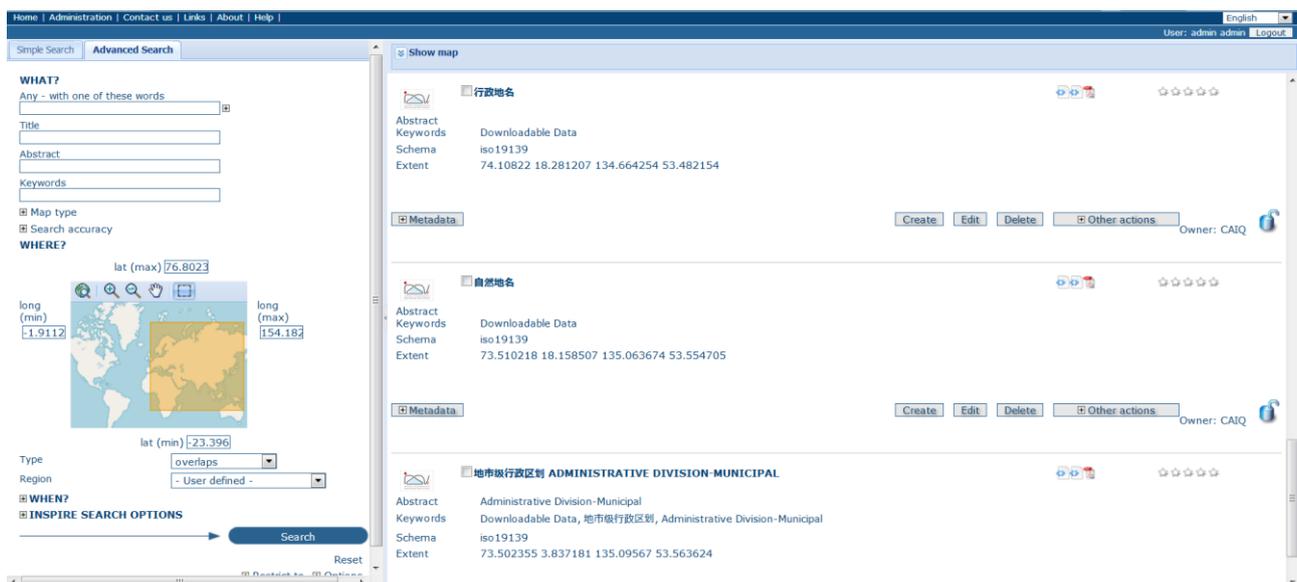


Figure 3 - List of metadata

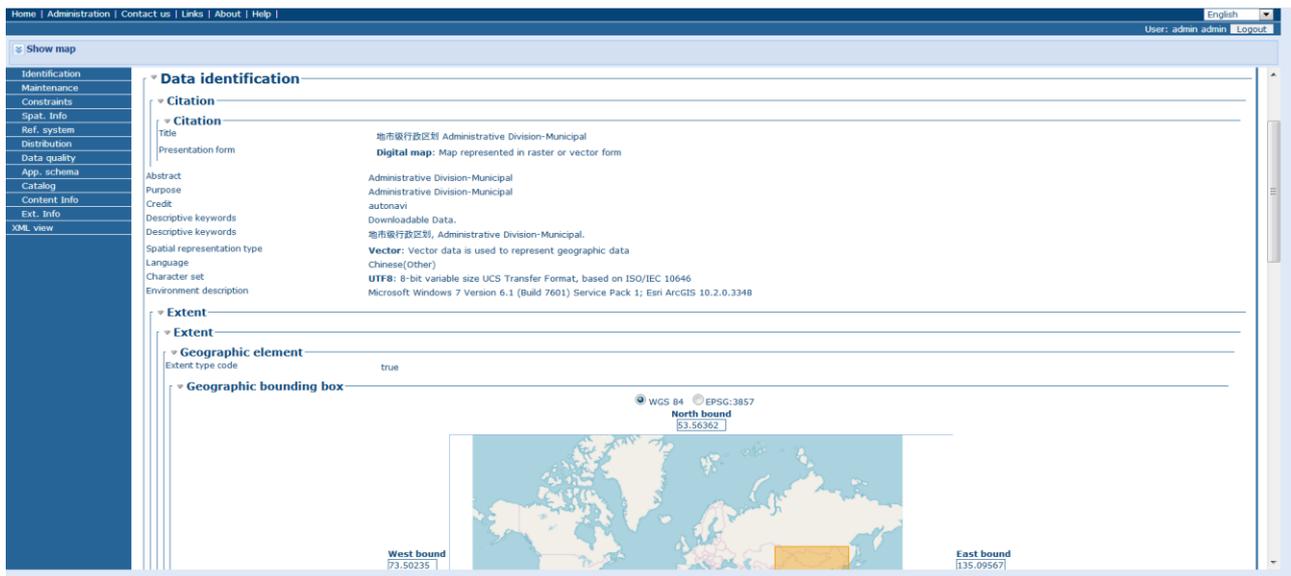


Figure 4 – Metadata details: data identification, keywords and extent

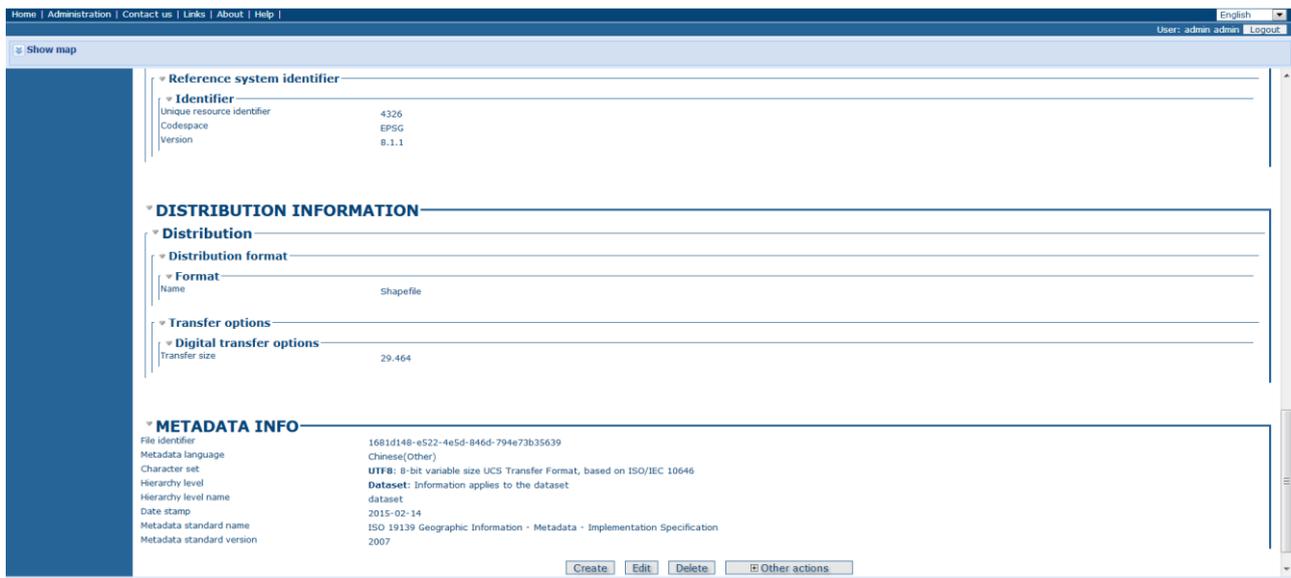


Figure 5 – Metadata details: spatial reference system, formats and basic info

Issues

During tests, some Metadata were created in English language, but in the Chinese language translations, some bugs were identified. In particular, the metadata *search engine* presented some problems during the search operations if Chinese characters were present in the *string*.

In detail, identified issues were:

- problems with Search functionalities in Chinese language. The problem was related to the Unicode codification and *Charset*;
- catalog Service for the Web (CSW) worked properly, but required a specific interface to be queried.

Maintenance and contribution

In order to publish all elements of the UI (menu, footer, or header) in Chinese language, without errors, a specific translation was required. To do that it was necessary to use an external service called Transifex (www.transifex.com). The service offers a dynamic structure to manage software internationalization and it was integrated into GeoNetwork by developers, to translate all the user interfaces contents dynamically. In this way, the community and the contributors, maintain the software multi-language contents, directly into project online repository.

A translation session was defined and CAIQ IT experts completed that task few weeks after the training period. According with new contents, a new release date for the original GeoNetwork setup was required directly to the software developers.

Meanwhile, a set of issues were reported to the GeoNetwork official GitHub channel and forums.

A dedicated section in the documentation explain how to manage this contributions activities (<https://geonetwork-opensource.org/manuals/3.6.x/en/contributing/translating.html>) and in the next few months a CAIQ/IZSve IT team was created to maintain these aspects, contributing directly to the GeoNetwork project repository (<https://www.transifex.com/geonetwork/core-geonetwork/>).