UNITED NATIONS GROUP OF EXPERTS ON GEOGRAPHICAL NAMES

WORKING PAPER NO. 40/9

Twenty-ninth session
Bangkok, Thailand, 25 – 29 April 2016

Item 9 of the Provisional Agenda

Activities Relating to the Working Group on Toponymic Data Files and Gazetteers

Status Report on the EuroGeoNames (EGN) transition to the GeoLocator service in the European Location Project (ELF)

Submitted by the Working Group on Toponymic Data Files and Gazetteers *

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Status Report on the EuroGeoNames (EGN) transition to the GeoLocator service in the European Location Project (ELF)**

Summary

The EuroGeoNames (EGN) service provides the combined geographical name services from 17 National Mapping and Cadastral Authorities (NMCAs), members of EuroGeographics, the European Association of NMCAs. EuroGeoNames provides authoritative data and includes official exonyms and variant names representing the 25 languages of the EU.

The ELF GeoLocator service is a gazetteer type of web service that is currently being developed in the project 'European Location Framework' (ELF). The service is based on the earlier EuroGeoNames gazetteer service that has been developed further in the ELF project.

Background

EuroGeoNames (EGN) is the service executed in 2011-2012. It provides the combined geographical name services from 17 National Mapping and Cadastral Authorities (NMCAs), members of EuroGeographics, the European Association of NMCAs. EuroGeoNames provides authoritative data and includes official exonyms and variant names representing the 25 languages of the EU. [1]

The European Location Framework (ELF) is the project co-funded by European Commission under the Information and Communication Technologies (ICT) Competitive and Innovation (CIP) programme. The purpose of this project is to deliver the European Location Framework (E.L.F.) required to provide up-to-date, authoritative, interoperable, cross-border, reference geo-information for use by the European public and private sectors. The project's proactive stimulation of content markets involves the creation of example applications, using thematic communities to make user led developments by SMEs (inside and outside the consortium). ELF Project started in March 2013 as a 3-year activity of thirty organizations with a common aim to provide one source for reference geo-information for Europe [2]. From March 2016 ten additional NMCAs from seven countries joined the project as Data providers. Thus taking into account the new partners ELF service coverage extends to 20 countries. Also the project timeline was extended to October 2016. ELF will combine national reference geo-information through the cloud based ELF infrastructure and by combination of national download and view services it will provide a new BaseMap service and thematic data coverages for Europe. ELF will move data to services in a European SDI as envisioned by the INSPIRE Directive [3]. The harmonisation is in progress developing and triggering a number of geo-tools like edge-matching, generalisation, transformation and others. ELF will provide some centralised tools like GeoLocator for searching locations based on geographical names, addresses and administrative units, and GeoProductFinder for discovering the available web-services and licensing them. ELF web services will be offered to users and application developers through open source (OSKARI) and proprietary (ArcGIS Online) cloud platforms.

The decision was taken to improve the current content of EGN and accommodate it to the ELF GeoLocator service. The national INSPIRE compliant services of geographical names, administrative units and addresses are linked to the ELF GeoLocator opening the additional operational capacities for users. Also the EGN database of exonyms and variant names was revised, further populated and integrated to the ELF GeoLocator.

ELF GeoLocator service

The ELF GeoLocator service is a gazetteer type of web service that is currently being developed in the project 'European Location Framework' (ELF). The service is based on the earlier EuroGeoNames gazetteer service that has been developed further in the ELF project. The implementation of the ELF GeoLocator service follows the Web Feature Service Gazetteer Application Profile and it contains custom functionalities for executing administrative unit-limited geocoding, reverse geocoding, administrative unit-limited reverse geocoding and fuzzy name search.

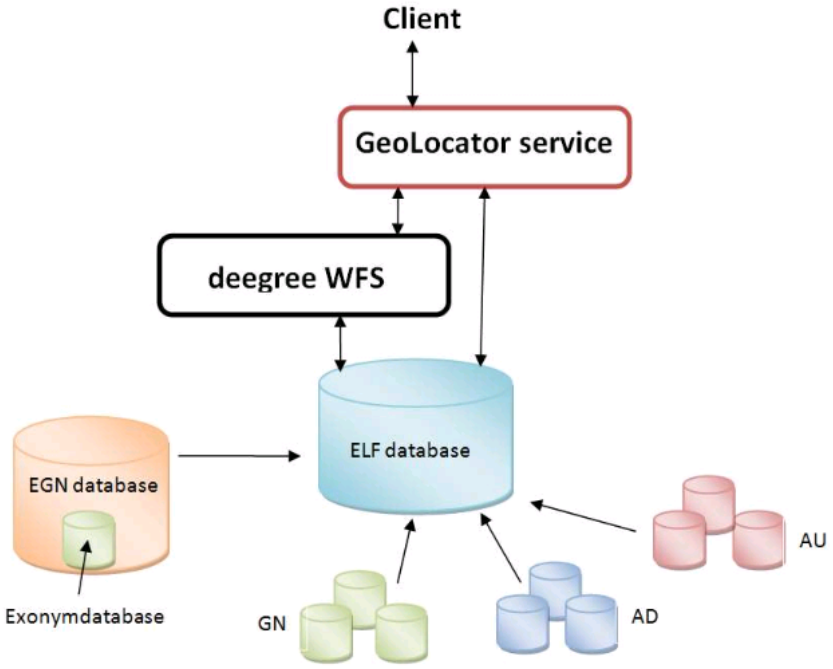

Fig. 1. ELF GeoLocator service architecture

The added functionalities are provided as custom WFS interface operations: GetFeatureInAu, FuzzyNameSearch and ReverseGeocode. The GetFeatureInAu operation can be used for limiting the geocoding operations inside a specific administrative unit instance. The FuzzyNameSearch operation can be used for searching features from a slightly misspelled input and it is useful in situations when there are typing errors in the queried name or when the queried name contains diacritics or other special characters that might not be easily available on user's keyboard. The ReverseGeocode operation contains two modes:

- Normal mode, where the service returns the feature that is nearest to the given coordinate pair.
- Administrative unit limited mode, where the service returns the administrative unit-based feature at the most detailed administrative unit level that contains the given coordinate pair.

The ELF GeoLocator service contains spatial data from the INSPIRE themes Addresses, Administrative Units and Geographical Names that are provided by several European national mapping and cadastral authorities. In addition, the service includes the contents of a separate exonym database that consists of multilingual variant names of many European locations [4].

The main output format of the GeoLocator Service is the GML that is compliant with the schema defined in the Open Geospatial Consortium's (OGC) Gazetteer Service Application Profile of the Web Feature Service (WFS-G AP) Best Practice document [6]. The output of the GeoLocator Service is provided mainly as SI_LocationInstance features, defined in the Gazetteer Service AP. Other supported GML-based output forms are the INSPIRE/ELF GN output and the Core Location Vocabulary (CLV) output [7]. Other supported output formats are JavaScript Object Notation (JSON) and Keyhole Markup Language (KML). The place name contents of the GeoLocator Service are also provided in visual form as a Web Map Tile Service (WMTS).

Work on Exonyms and variant names

Based on the documents and papers of the former EuroGeoNames project and the toponymic network with experts the mining for and collecting of reliable sources of exonyms and variant names has been executed. The focus of the work was brought to determine documents for official languages of countries with names data already integrated in the ELF names database. Another focal point was to get updated versions of already existing documents.

The Exonyms' Data Management comprises the following activities:

- entering new exonyms and other variant names in the ELF names database and connecting these exonyms with their appropriate endonymic datasets if available;
- connecting already existing exonyms of the database with their appropriate endonymic datasets if available;
- recognizing inaccurate / incomplete datasets and prepare them for correction.

The above mentioned activities have been executed for Czech, Dutch, Finish, French, and German "completely" and for Spanish, Estonian, Galician and some more languages partly, according to the latest reliable lists of exonyms of the respective language.

During 2014-2015 the activity resulted to following [5]:

- 610 new names (exonyms and variant names),
- 120 corrections of spellings, links to geographical features, SpatialObjectIDs, and other discrepancies in existing datasets,
- 540 new links of exonyms and variant names with their appropriate geographical SpatialObjectID.

All datasets to be modify or supplemented have been converted into two *.csv-files for being imported, deleted and corrected in the ELF names database by the National Land Survey of Finland. In parallel with this ongoing work a comprehensive analysis of inconsistencies of data in national names databases has been made [5]. This analysis addressed an identification and suggestions on:

- national rules which are contrarily to ELF standards;
- systematic mistakes by countries;
- wrong assignment of the feature type for geographical objects;
- missing names in national databases;
- and others

It was extended continuously and could be the basis for improving the quality standards of the ELF names service as well as of the national names databases.

Status of ELF GeoLocator developments

The ELF GeoLocator is currently in the status of developments by integrating national web services of geographical names, administrative units and addresses. Each data provider follows data quality testing and validating procedures prior to accommodating the national web services to ELF GeoLocator service. The current status of the availability of national data through national web services in ELF GeoLocator is presented in Fig. 2. There are plans and commitments of the participating data providers NMCAs (in red colour) delivering or

updating the national INSPIRE compliant web services to be connecting in the ELF GeoLocator. Though a number of those shown countries (Estonia, Latvia, Lithuania) already provide EGN data, but the updated services are expected in 2016.

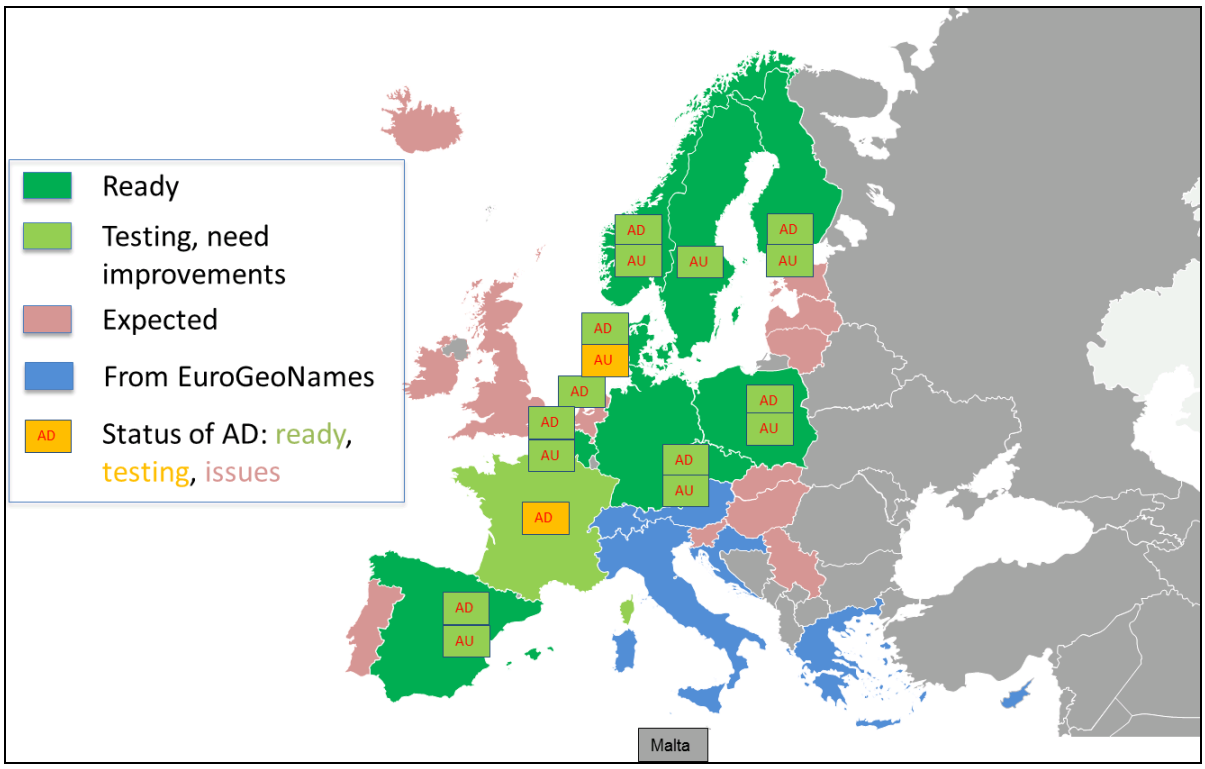

Fig 2. Status of ELF GeoLocator arrangements of national web services of Geographical Names (in colours), Addresses and Administrative Units.

The test version of the ELF GeoLocator service is publicly available in the ELF showcase application http://demo.locationframework.eu/ Due to the continuous developments the service might be perturbed and the content changed. According to the project workplan the developments in GeoLocator as well as in other ELF services shall be completed by autumn 2016. The ELF services will be accessible free of charge for evaluation.

The ELF GeoLocator is already considered in the feasibility study for an EU Gazetteer common service' is conducted in the context of the European Union Location Framework (EULF) Action of the ISA Programme of the European Commission. The study aims at identifying the scope options and making a business case for an EU Gazetteer common service.

References

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[6] Gazetteer Service – Application Profile of the Web Feature Service Best Practice / version 1.0 / 30 Jan, 2012 / Harrison, J., Vretanos, P. A. (ed).
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