European Location Framework data in the ArcGIS platform

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Why ELF?

Global (e.g. UN-GGIM)

Regional – Europe (INSPIRE-based)

National
ELF is ...

- the response from the European Mapping and Cadastral Authorities (NMCAs) to requirements at the European arena
- a 44 month project co-financed by the European Commission and comprising 40 partners, including 23 NMCAs
- running from March 2013 to October 2016
The overall objectives of ELF (when fully developed)

⭐ Be a unique online service for Europe that offers the only geospatial products which are
⭐ Coherent, official, cross-border, edge-matched, harmonised, reference data from a sustainable and reliable source
⭐ Up to date, easy accessible products at a single point with an easy to use license and prices

⭐ Increase the re-use of official public sector spatial reference information and create opportunities for the private sector
What will ELF be to the users?

★ Create business opportunities in Europe for start-ups and existing application developers
★ Reduce discovery and administration costs by providing a single source for all European official reference data
★ Support combining ELF data and services with other location dependent data

Several presentations and workshops this week that provide detailed information about the European Location Framework

This talk focusses on specific support in ELF for users of the ArcGIS platform
INSPIRE is looking only at part of the dataflow

Limited guidance and tool support

INSPIRE Directive Implementing Rules Technical Guidance
More ELF users through affiliated platforms

★ Affiliated platforms are additional **hubs for ELF data**
  - Cloud-/Web-based GIS platforms with a very large user base and support for major devices
★ ELF data published in affiliated platforms is **ready for immediate use**
  - by both application developers and GIS users
  - using the applications, tools and APIs they are familiar with
★ In the ELF project, ELF feature data is hosted on **ArcGIS Online**
  - ArcGIS is an example for an affiliated platform
Best Practice 14: Provide data in multiple formats

Make data available in multiple formats when more than one format suits its intended or potential use.

Why

Providing data in more than one format reduces costs incurred in data transformation. It also minimizes the possibility of introducing errors in the process of transformation. If many users need to transform the data into a specific data format, publishing the data in that format from the beginning saves time and money and prevents errors many times over. Lastly it increases the number of tools and applications that can process the data.

Intended Outcome

As many users as possible will be able to use the data without first having to transform it into their preferred format.
Some key ELF Products

- Datasets available via Download Services (national WFSs and cascading WFSs)
  - AD, AU, BU, CP, EL, GN, HY, LC, PS, SR and TN road, rail, water, air and cable
  - Regional and Global data available and supported by WMS as well

- ELF Topographic Basemap
  - WMTS

- ELF Administrative Basemap
  - WMS using EuroBoundaryMap

- ELF Cadastral Index Map
  - Cascading WMS using CP, BU, AD and AU

- ELF Geo Locator
  - Geo-referencing API using GN, AD and AU
ArcGIS

An Integrated Web GIS Platform

Providing Mapping, Analysis, Data Management, and Collaboration

Available on the Open Web . . .

. . . and On-Premises
Simplifying the use of ELF products in ArcGIS

1. Automated harvesting from ELF Platform services provided by NMCAs to ArcGIS Online using FME and the ArcGIS Portal API; includes optimization of the data for use in ArcGIS

2. Publish the data as Hosted Feature Service in ArcGIS Online
Preparing ELF data for use in ArcGIS

- **Simplify structures** for use in maps and to make the data easier to understand and handle by users and developers that are not INSPIRE experts
- **Improve layer structure of the data** for use in multi-scale maps
- **Cache ELF data** in the ArcGIS Online cloud and publish it via hosted feature services
- **Keep data synchronized** – support for change-only updates (planned)
Why ArcGIS Online?

- We could have published the data using ArcGIS Server and ArcGIS Portal on premise
  - Significant effort required to operate a reliable, scalable infrastructure
- Advantages of the SaaS approach for us:
  - Elasticity (user demands differ over time)
  - High availability and security
  - Management of the complete infrastructure by a third party (Esri)
- We can focus on the reference data!
  - Important to manage resources
SaaS cloud use increasing, including in GIS

SaaS/PaaS sales nearing 10% of Top 50 Software Company revenues

- SaaS/PaaS: 9%
- Licensed software: 91%
- Total software revenue: US$242.5B

Source: PwC’s SaaS Revenue of Top 50 Software Companies with data from IDC

Top 50 Software Companies’ SaaS and PaaS revenue

- Total SaaS/PaaS revenue: US$22.4 billion
- Total SaaS revenue: US$19.9 billion
- Total PaaS revenue: US$2.5 billion

PwC’s SaaS Revenue of Top 50 Software Companies with data from IDC

No. of Top 50 companies also on the Fastest Growing Cloud list: 6

- with either SaaS or PaaS revenue: 38
- with SaaS revenue: 36
- with PaaS revenue: 15
- with both SaaS and PaaS revenue: 13
- with no SaaS or PaaS revenue: 12

Source: PwC’s SaaS Revenue of Top 50 Software Companies with data from IDC
ELF in ArcGIS Online

http://elf.maps.arcgis.com/

Welcome to the European Location Framework (ELF) in ArcGIS Online - a single point of access for harmonised reference data from National Mapping, Cadastre and Land Registry Authorities for users of the ArcGIS platform. The European Location Framework aims at fostering the wider use of geo-information in Europe and enable the creation of innovative value-added services.

Cloud GIS platforms like ArcGIS Online are hubs of the ELF infrastructure. They integrate feature data and
EuroGlobalMap - open data
(Scale level: Global)
EuroRegionalMap, EuroBoundaryMap
(Scale level: Regional)
ELF Platform has 100+ master level datasets available via INSPIRE Download Services
Use ELF data in ArcMap
Use ELF data in ArcMap

ArcGIS Desktop wants to access your ArcGIS Online account information

Username

Password

SIGN IN CANCEL

Forgot password?  Forgot username?

Sign in with ENTERPRISE ACCOUNT

ArcGIS Desktop developed by:

Esri

Esri publishes a set of ready-to-use maps and apps that are available as part of ArcGIS. ArcGIS is a mapping platform that enables you to create interactive maps and apps to share within your organization or publicly.
Use ELF data in ArcMap
Use ELF data in ArcMap
Support for multiscale maps
(here: ELF Administrative Units; scale level: Master)
Support for multiscale maps
(here: ELF Administrative Units; scale level: Master)
Simplifying INSPIRE data structures
(e.g. names, denormalising data)
Joining “business data” with reference geodata
(here: an example using ELF statistical units with statistical data)
On an iPhone
In ArcGIS Pro
ArcGIS

An Integrated Web GIS Platform

- Desktop
- Web
- Device

Portal

Server

Online Content and Services

Geoinformation Model

Services

Access

Apps

Identity

Security

Web GIS

Providing Mapping, Analysis, Data Management, and Collaboration

🌟 Available on the Open Web . . .

🌟 . . . and On-Premises
Discovering data: Metadata is published using the ArcGIS Online Portal

**ELF LOD1 Hydrography (Norway) [SAMPLE]**

**Description**

This feature services provides access to the data of the direct access download service for ELF hydrography data from Norway based on the ELF Master data specification, which extends the INSPIRE data specifications for hydrography data, adapted for using the data in maps in the ArcGIS platform.

This service is work-in-progress and will change.

The direct access download service is available at: [http://54.247.162.180.8080/wss/service/NO-HY/httpauth?service=WFS&request=GetCapabilities](http://54.247.162.180.8080/wss/service/NO-HY/httpauth?service=WFS&request=GetCapabilities)

**Access and Use Constraints**

Restricted to the ELF consortium. The guidelines how ArcGIS Online will be used in ELF is available in the following document: [https://service.projectplace.com/po/pv.cgi/93600118](https://service.projectplace.com/po/pv.cgi/93600118).

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Terms of use:

*The European Location Framework (ELF) is a technical infrastructure which delivers authoritative, interoperable geospatial reference data from all over Europe for analysing and understanding information connected to places and features.*
Discovering data: Use the discovery capability of the client (here: ArcGIS Online Map Viewer)
Future option could be to use the ArcGIS Marketplace
(this will depend on the WP9 results)
The way ahead

★ Project ends October 31, 2016

★ Access to ELF Products and Services via www.locationframework.eu and elf.maps.arcgis.com

★ ELF then moves into a transition phase which transfers responsibility for the future of ELF to EuroGeographics

★ Keynote on Thursday, September 29, 11:00

INSPIRE by mapping agencies – The European Location Framework, ELF experience and outlook

Mr. Mick Cory
EuroGeographics
Secretary General and Executive Director