



Using Automated Geoprocessing to Synchronize INSPIRE Datasets across Platforms

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The ELF vision

ELF will provide immediate and reliable access to consistent and authoritative reference geo-information

ELF will provide the most up-to-date information via the web

ELF will ensure that national level data and services “join up” at borders

Location is a fundamental aspect of making effective business decisions and setting public policies

The ELF project

A first step towards the ELF vision

Started 1st March 2013

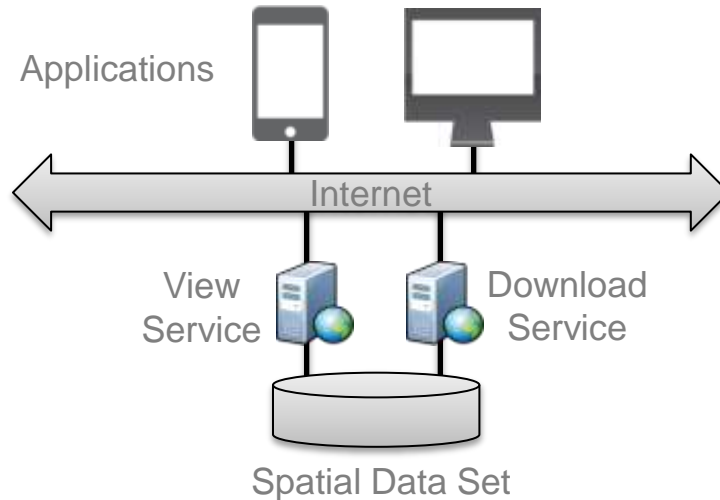
36 month project, 30 partners

- ★ EuroGeographics
- ★ 15 national/regional data providers
- ★ 3 service integrators
- ★ 6 application developers and domain experts
- ★ 2 universities
- ★ 3 user community representatives

Extension under preparation

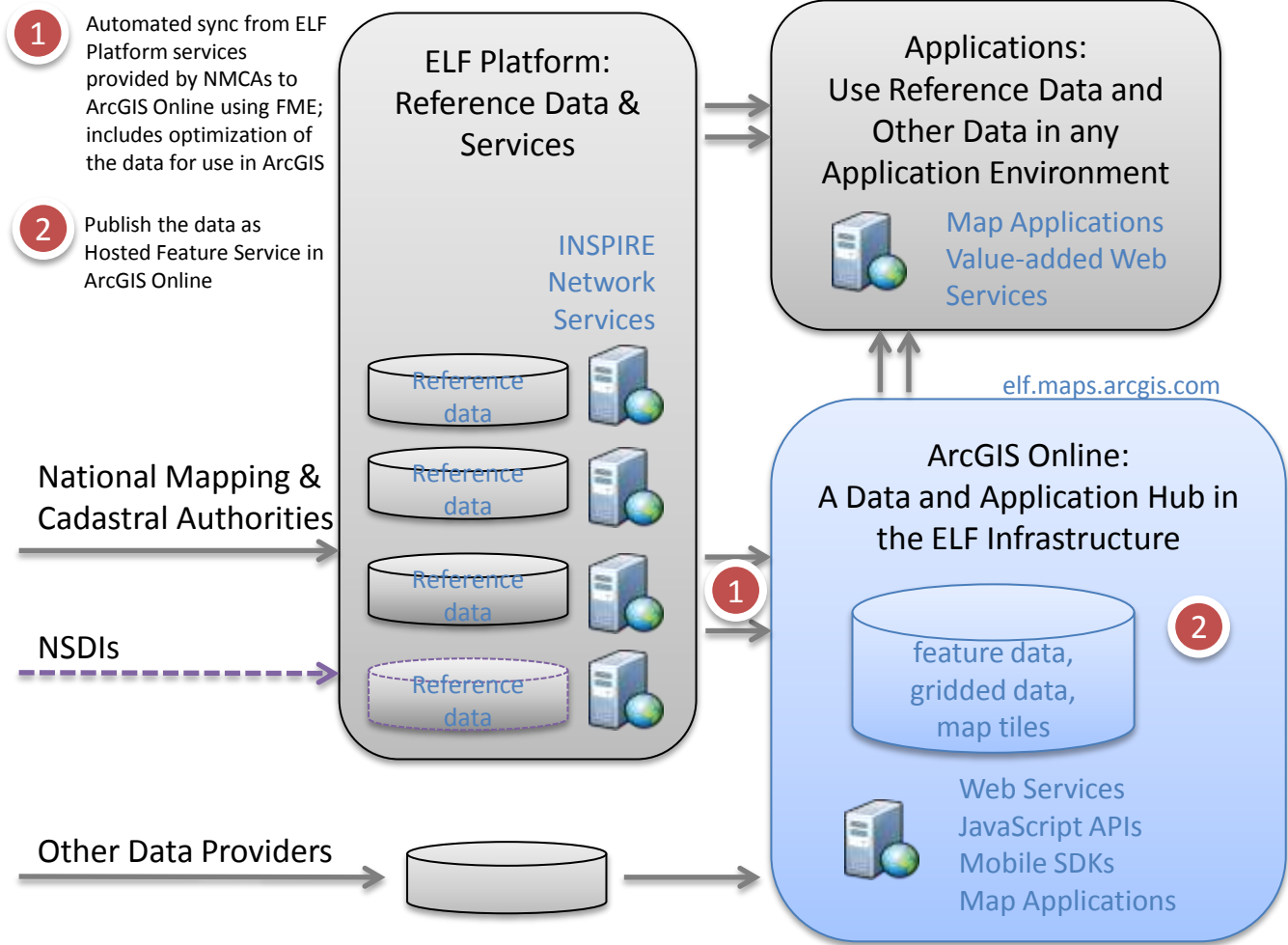


INSPIRE is looking only at part of the dataflow



*Lack of guidance
and broad tool
support*

INSPIRE Directive
Implementing Rules
Technical Guidance



ELF in ArcGIS Online

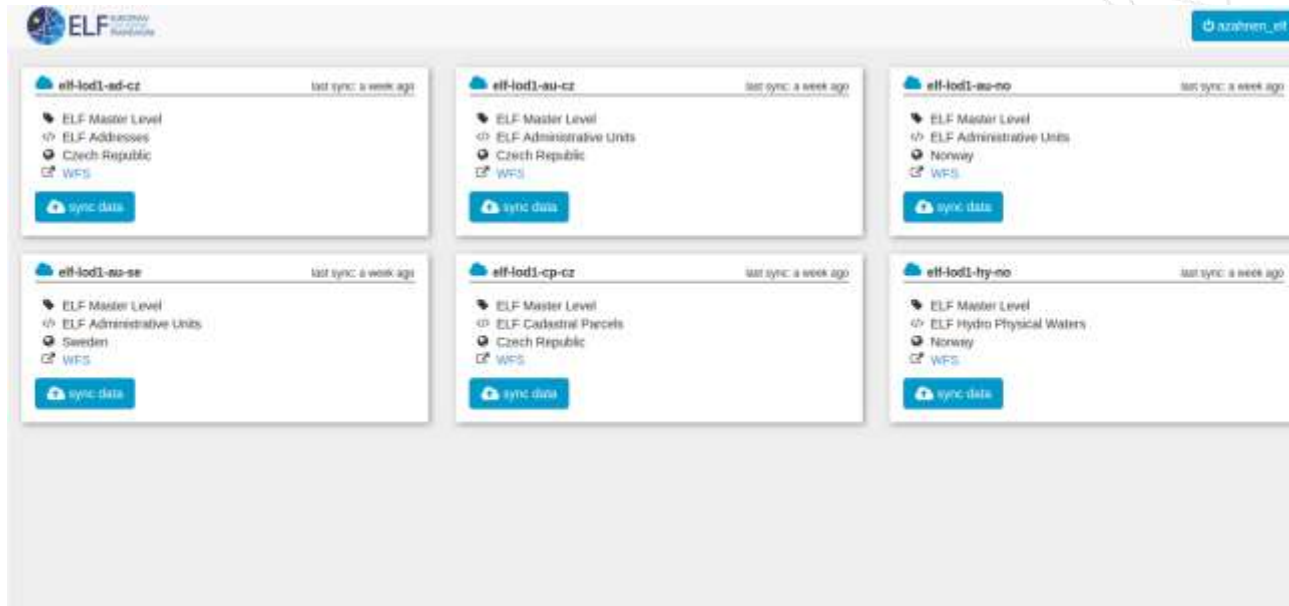
<http://elf.maps.arcgis.com/>



The screenshot shows the ArcGIS Online interface for the European Location Framework (ELF). At the top, there is a navigation bar with links for HOME, GALLERY, MAP, GROUPS, MY CONTENT, and MY ORGANIZATION. A search bar on the right contains the name 'Clemens' and a search icon. The main content area features a large banner with the ELF logo and the text 'EUROPEAN LOCATION FRAMEWORK'. Below the banner is a carousel of four map application thumbnails, each with a descriptive caption: 'Population density', 'ELF demo application with elevation points, airports and...', 'ELF map-apps demo: administrative and statistical...', and 'ELF web map: administrative and statistical units'. Below the carousel, a text box provides a welcome message: '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.' A final line of text states: 'Cloud GIS platforms like ArcGIS Online are hubs of the ELF infrastructure. They integrate feature data and...'

ELF Data Synchronizer

Automated synchronization from ELF Platform services to ArcGIS Online



The screenshot displays the ELF Data Synchronizer interface, which is a web-based tool for managing data synchronization. The interface features a header with the ELF logo and a user profile icon labeled 'azahrem_elf'. Below the header, there are six task cards arranged in a 2x3 grid. Each card represents a synchronization task and includes the following information:

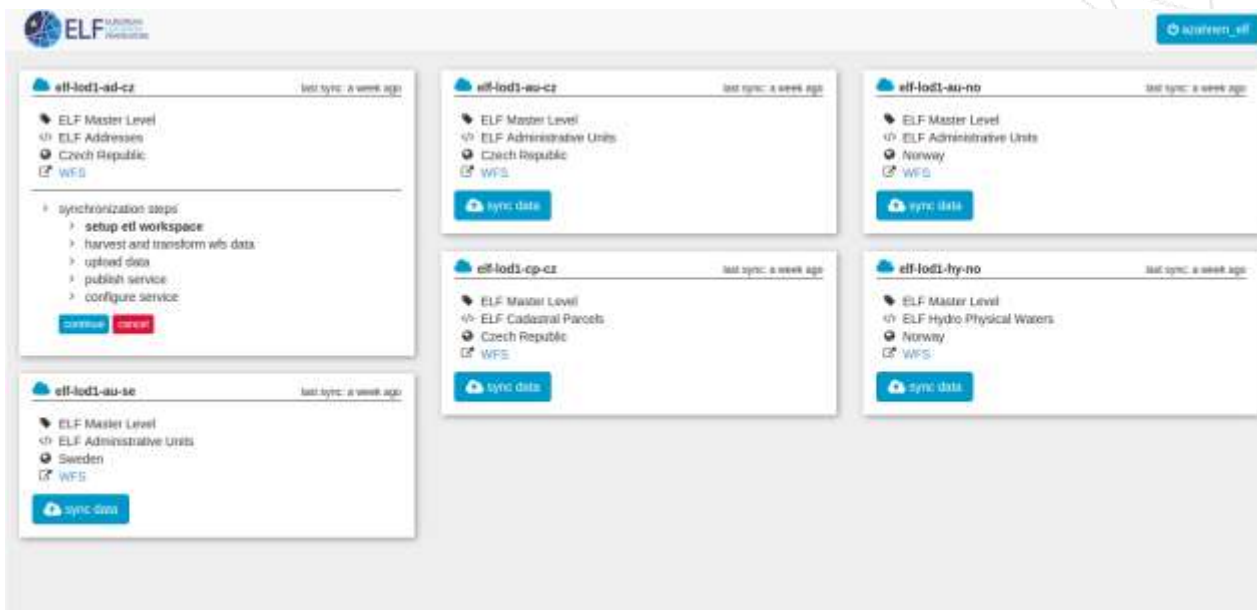
- Task ID:** A unique identifier for the task, such as 'elf-lod1-ad-cz'.
- Last Sync:** The date and time of the last synchronization, consistently shown as 'last sync: a week ago'.
- Source Data:** A list of data sources being synchronized, including 'ELF Master Level', 'ELF Addresses', 'Czech Republic', and 'WFS'.
- Action:** A blue button labeled 'sync data' with a cloud icon, used to initiate or refresh the synchronization process.

The tasks shown are:

- elf-lod1-ad-cz (Czech Republic)
- elf-lod1-au-cz (Czech Republic)
- elf-lod1-au-no (Norway)
- elf-lod1-su-se (Sweden)
- elf-lod1-cp-cz (Czech Republic)
- elf-lod1-ty-no (Norway)

Setup FME workspace

Push workspaces and configuration files to FME Desktop/Server/Cloud

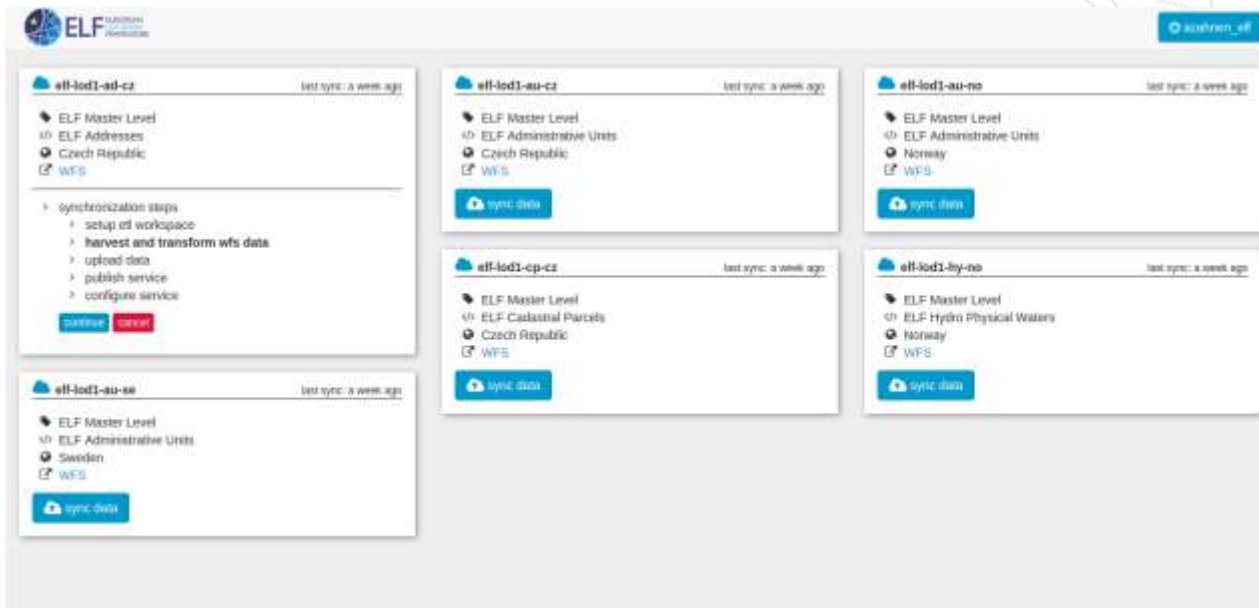


The screenshot displays the ELF web interface with a dashboard of workspace cards. Each card represents a workspace and includes a list of components and a 'sync data' button.

- elf-lod1-ad-cz** (last sync: a week ago):
 - ELF Master Level
 - ELF Addressen
 - Czech Republic
 - WFS
 - synchronization steps
 - setup etl workspace
 - harvest and transform wfs data
 - upload data
 - publish service
 - configure service
- elf-lod1-ao-cz** (last sync: a week ago):
 - ELF Master Level
 - ELF Administrative Units
 - Czech Republic
 - WFS
- elf-lod1-au-no** (last sync: a week ago):
 - ELF Master Level
 - ELF Administrative Units
 - Norway
 - WFS
- elf-lod1-cp-cz** (last sync: a week ago):
 - ELF Master Level
 - ELF Cadastral Parcels
 - Czech Republic
 - WFS
- elf-lod1-hy-no** (last sync: a week ago):
 - ELF Master Level
 - ELF Hydro-Physical Waters
 - Norway
 - WFS
- elf-lod1-au-se** (last sync: a week ago):
 - ELF Master Level
 - ELF Administrative Units
 - Sweden
 - WFS

Harvest and transform WFS data

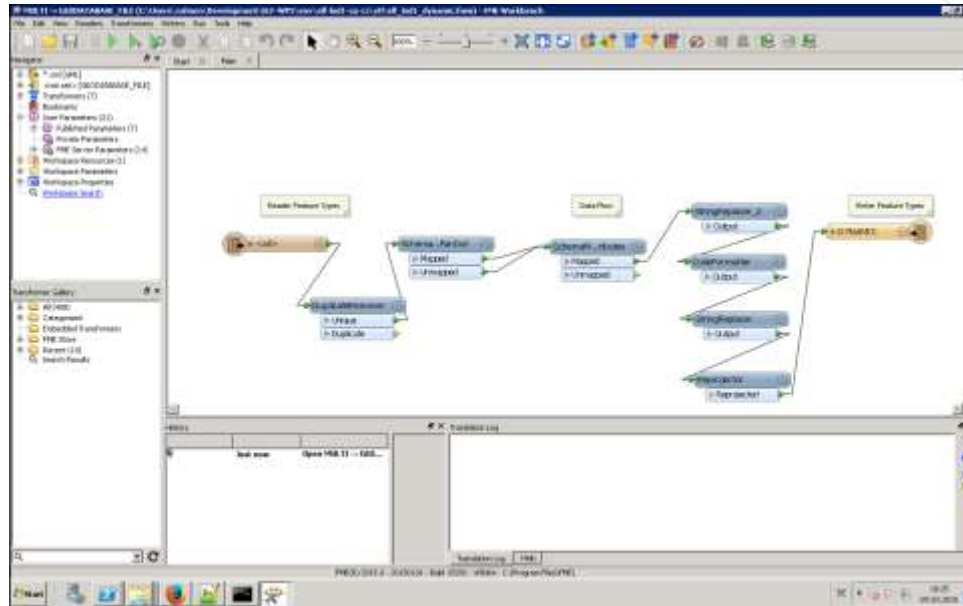
Run FME workspaces, one to harvest and one to transform the data



The screenshot displays the ELF European Location Framework web interface. At the top left is the ELF logo. The main area contains five workspace cards, each representing a different country's data synchronization process. Each card includes the workspace name, the last sync time (all are 'a week ago'), and a 'sync data' button. The workspace 'elf-lod1-ad-cz' is expanded to show a list of steps: 'ELF Master Level', 'ELF Addresses', 'Czech Republic', 'WFS', and a 'synchronization steps' section with sub-steps: 'setup elf workspace', 'harvest and transform wfs data', 'upload data', 'publish service', and 'configure service'. Below these steps are 'continue' and 'cancel' buttons. The other workspace cards are: 'elf-lod1-au-cz', 'elf-lod1-au-no', 'elf-lod1-cp-cz', and 'elf-lod1-au-se'. Each card also lists the workspace name, last sync time, and a 'sync data' button.

Harvest and transform WFS data

Only one workspace for all themes using Dynamic Schema functionality and SchemaMapper

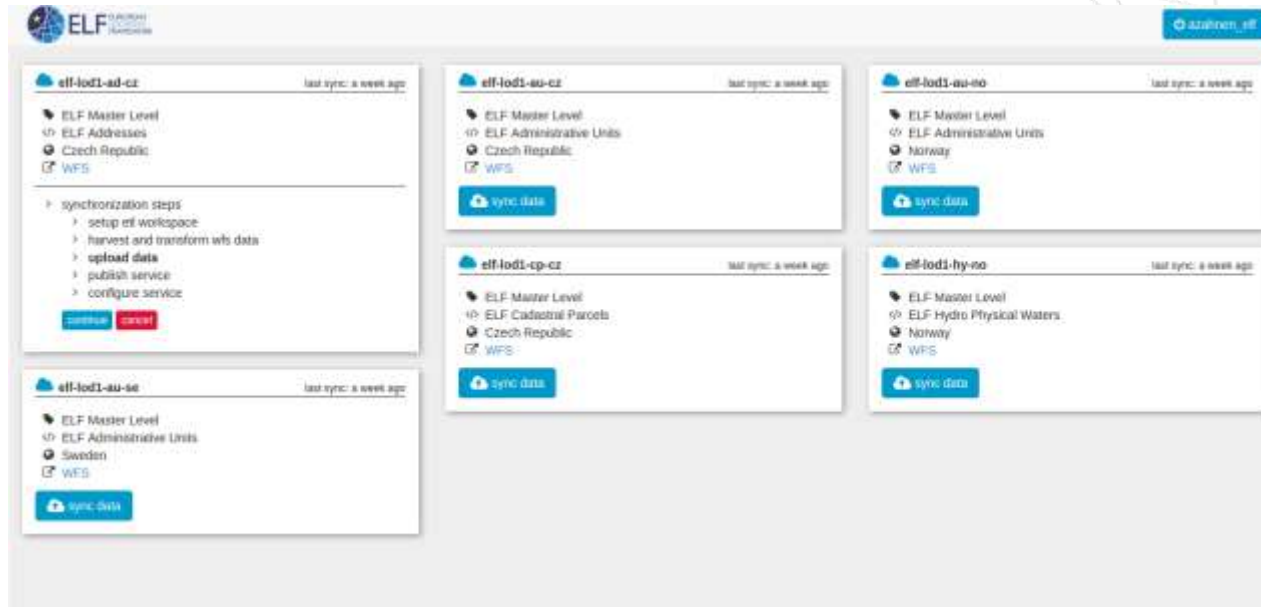


Preparing ELF data for use in ArcGIS

- **Simplify structures** for use in maps
- **Reduce content** to make the data easier to understand and handle by users and developers that are not INSPIRE experts
- **Make use of additional platform capabilities:** built-in support for feature relationships, perhaps also time and attachments
- **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 optimised for use in map-based apps

Upload data

Use ArcGIS Online REST API to upload generated FileGDB



The screenshot displays the ELF web interface with a grid of service cards. Each card represents a different geographical area and includes a 'sync data' button. The cards are:


- elf-lodi-ad-cz** (last sync: a week ago): Includes ELF Master Level, ELF Addresses, Czech Republic, WFS, and a synchronization steps list (setup elf workspace, harvest and transform wfs data, **upload data**, publish service, configure service). Buttons: **cancel**, **cancel**.
- elf-lodi-au-cz** (last sync: a week ago): Includes ELF Master Level, ELF Administrative Units, Czech Republic, WFS. Button: **sync data**.
- elf-lodi-au-no** (last sync: a week ago): Includes ELF Master Level, ELF Administrative Units, Norway, WFS. Button: **sync data**.
- elf-lodi-cp-cz** (last sync: a week ago): Includes ELF Master Level, ELF Cadastral Parcels, Czech Republic, WFS. Button: **sync data**.
- elf-lodi-au-se** (last sync: a week ago): Includes ELF Master Level, ELF Administrative Units, Sweden, WFS. Button: **sync data**.
- elf-lodi-hy-no** (last sync: a week ago): Includes ELF Master Level, ELF Hydro Physical Waters, Norway, WFS. Button: **sync data**.

A 'zahlen_elf' button is visible in the top right corner of the interface.

Upload data

HOME GALLERY MAP SCENE GROUPS MY CONTENT MY ORGANIZATION Address

elf_lod1_ad_cz

 subject: Service Definition by scstevan_elf
Last Modified: November 20, 2014
(0 ratings, 3 views)

[GROUPS](#) [SHARE](#) [EDIT](#) [DELETE](#) [PUBLISH](#) [CHANGE OWNER](#) [USAGE](#) [UPDATE](#)

Description

Comments

Properties

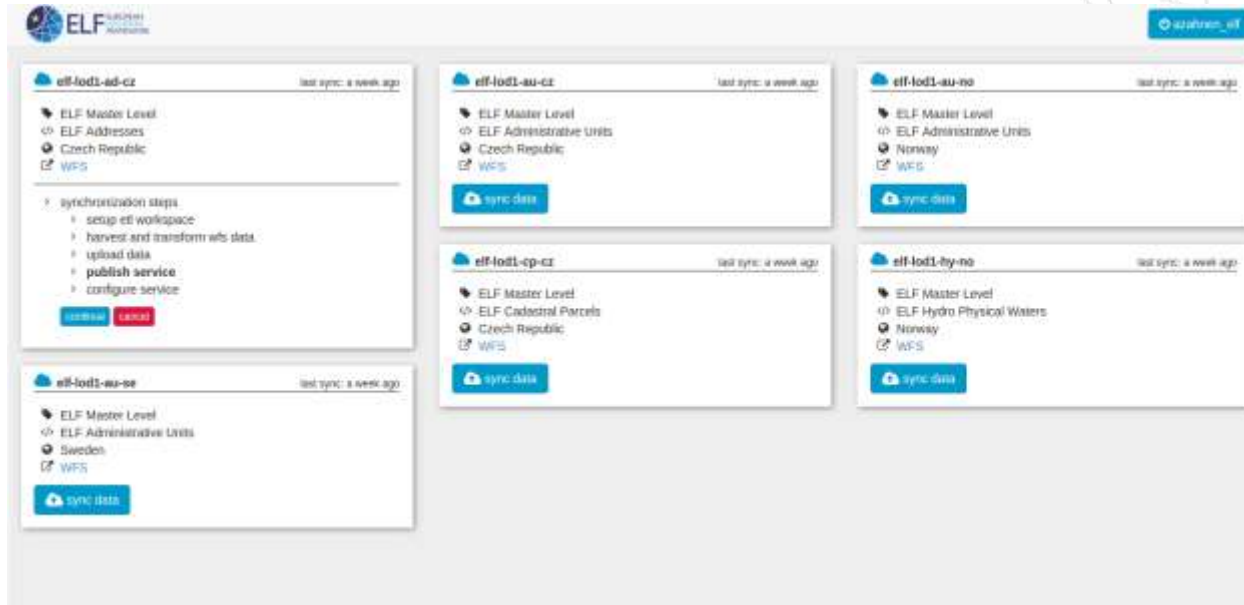
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Tags	Keywords	
Coords	61696	
Size	182 KB	
Data Protection	Disabled	
Extent	Left: 14.00 Right: 14.60	Top: 11.04 Bottom: 49.23

Comments (0)

Comments have been disabled on this item.

Publish service

Use ArcGIS Online REST API to publish the FileGDB as Feature Service




The screenshot displays the ArcGIS Online interface for publishing services. It features a grid of five service configuration cards, each representing a different dataset. Each card includes a title, a 'last sync' timestamp, a list of metadata items, and a 'sync data' button. The first card, 'elf-lod1-ad-cz', is expanded to show a 'synchronization steps' list with sub-steps: 'setup elf workspace', 'harvest and transform wfs data', 'upload data', 'publish service', and 'configure service'. The 'publish service' step is highlighted in red. The other cards are: 'elf-lod1-au-cz', 'elf-lod1-au-no', 'elf-lod1-cp-cz', and 'elf-lod1-hy-no'. Each card also has a 'sync data' button at the bottom.

- elf-lod1-ad-cz** (last sync: a week ago)
 - ELF Master Level
 - ELF Addresses
 - Czech Republic
 - WFS
 - synchronization steps
 - setup elf workspace
 - harvest and transform wfs data
 - upload data
 - publish service**
 - configure service
- elf-lod1-au-cz** (last sync: a week ago)
 - ELF Master Level
 - ELF Administrative Units
 - Czech Republic
 - WFS
 - sync data
- elf-lod1-au-no** (last sync: a week ago)
 - ELF Master Level
 - ELF Administrative Units
 - Norway
 - WFS
 - sync data
- elf-lod1-cp-cz** (last sync: a week ago)
 - ELF Master Level
 - ELF Cadastral Parcels
 - Czech Republic
 - WFS
 - sync data
- elf-lod1-hy-no** (last sync: a week ago)
 - ELF Master Level
 - ELF Hydro Physical Waters
 - Norway
 - WFS
 - sync data
- elf-lod1-sv-se** (last sync: a week ago)
 - ELF Master Level
 - ELF Administrative Units
 - Sweden
 - WFS
 - sync data

Publish service

elf-lod1-ad-cz



Feature Layer (hosted) by asterisk_elf

Search Feature Service

Last Modified: March 9, 2010

1 2 3 4 5 (1 rating, 0 views)

[OPEN](#)
[SHARE](#)
[EDIT](#)
[DELETE](#)
[PUBLISH](#)
[TRACK](#)
[CHANGE OWNER](#)
[USAGE](#)
[EXPORT](#)

Description

Layers

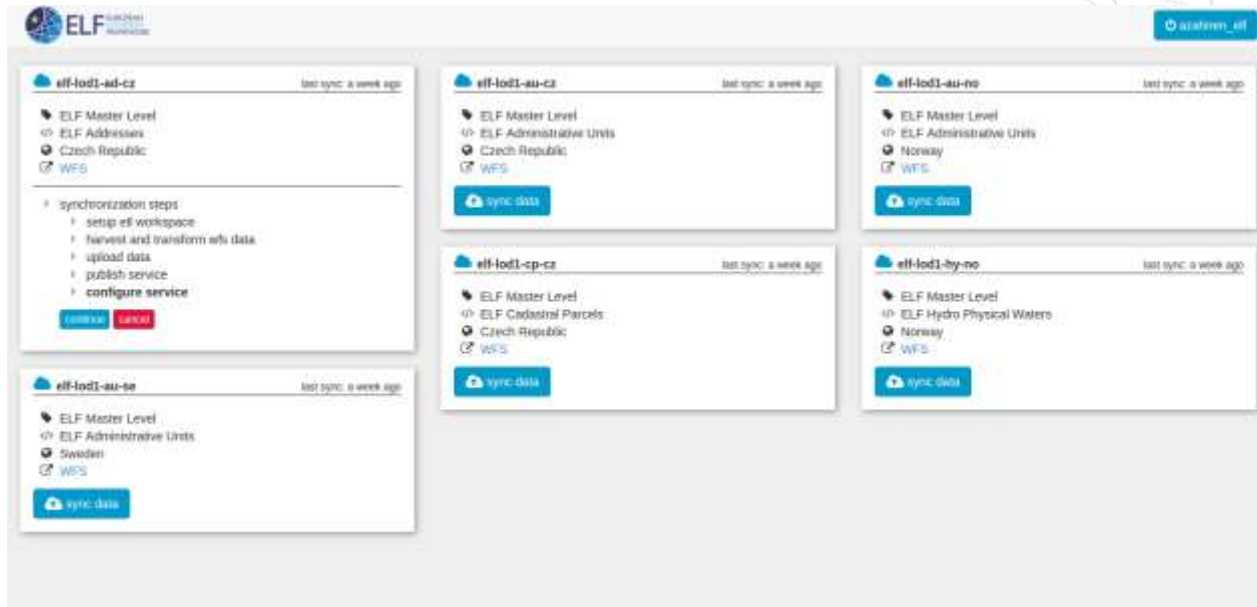
Address:

Properties

Shared with:	The item is not shared.
Tags:	ELF
Created:	
Size:	1 KB
Content Protection:	Disabled
Extent:	Lat: 48.00 Right: 16.00 Top: 50.00 Bottom: 16.00
Editing:	Editors can add, update, and delete features.
Export Data:	Disabled
Tools:	Enabled

Configure service









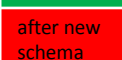


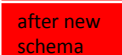

Use ArcGIS Online REST API to configure the Feature Service



The screenshot displays the ELF (European Location Framework) web interface. At the top left is the ELF logo. A user profile icon labeled 'stafinn_elf' is in the top right. The main area contains several service configuration cards, each for a different country:

- elf-lod1-ai-cz** (last sync: a week ago):
 - ELF Master Level
 - ELF Addresses
 - Czech Republic
 - WFS
 - synchronization steps:
 - setup elf workspace
 - harvest and transform wfs data
 - upload data
 - publish service
 - configure service
 - Buttons: **publish** (blue), **cancel** (red)
- elf-lod1-au-cz** (last sync: a week ago):
 - ELF Master Level
 - ELF Administrative Units
 - Czech Republic
 - WFS
 - Button: **sync data** (blue)
- elf-lod1-au-no** (last sync: a week ago):
 - ELF Master Level
 - ELF Administrative Units
 - Norway
 - WFS
 - Button: **sync data** (blue)
- elf-lod1-cp-cz** (last sync: a week ago):
 - ELF Master Level
 - ELF Cadastral Parcels
 - Czech Republic
 - WFS
 - Button: **sync data** (blue)
- elf-lod1-by-no** (last sync: a week ago):
 - ELF Master Level
 - ELF Hydro Physical Waters
 - Norway
 - WFS
 - Button: **sync data** (blue)
- elf-lod1-au-se** (last sync: a week ago):
 - ELF Master Level
 - ELF Administrative Units
 - Sweden
 - WFS
 - Button: **sync data** (blue)

ArcGIS Online status of datasets officially available via the ELF Platform

Region	Theme	Status in ArcGIS Online														
Europe	Administrative Units (EBM)								Scale: Regional / Global							
	<i>Several</i> (ERM)									also as base map tiles						
	<i>Several</i> (EGM)									also as base map tiles						
Country	AD	AU	CP	GN	HY	LC	Scale: Master									
Czech Republic																
Norway																
Sweden																
Finland																

More Master Level datasets from additional countries and themes will be added over the coming months as they become available. They will also become available to the third parties once the data providers have finalised terms of licensing and pricing.

Outlook: Change-only updates

ELF datasets often of significant volume → support for change-only updates required

- ★ Changes provided either by the data provider directly or the change-detection tool
- ★ Technical specifications currently under discussion (information to be included, encoding, packaging, workflow) → meeting in June 2015
- ★ Persistent identifiers for each feature required

Plan: Use FME Cloud to automate the synchronisation workflow, write transactions to the hosted feature services in ArcGIS Online and keep the cached data up-to-date