OPEN CADASTRAL MAP

Guide for Data Suppliers V.1.3

July 2024

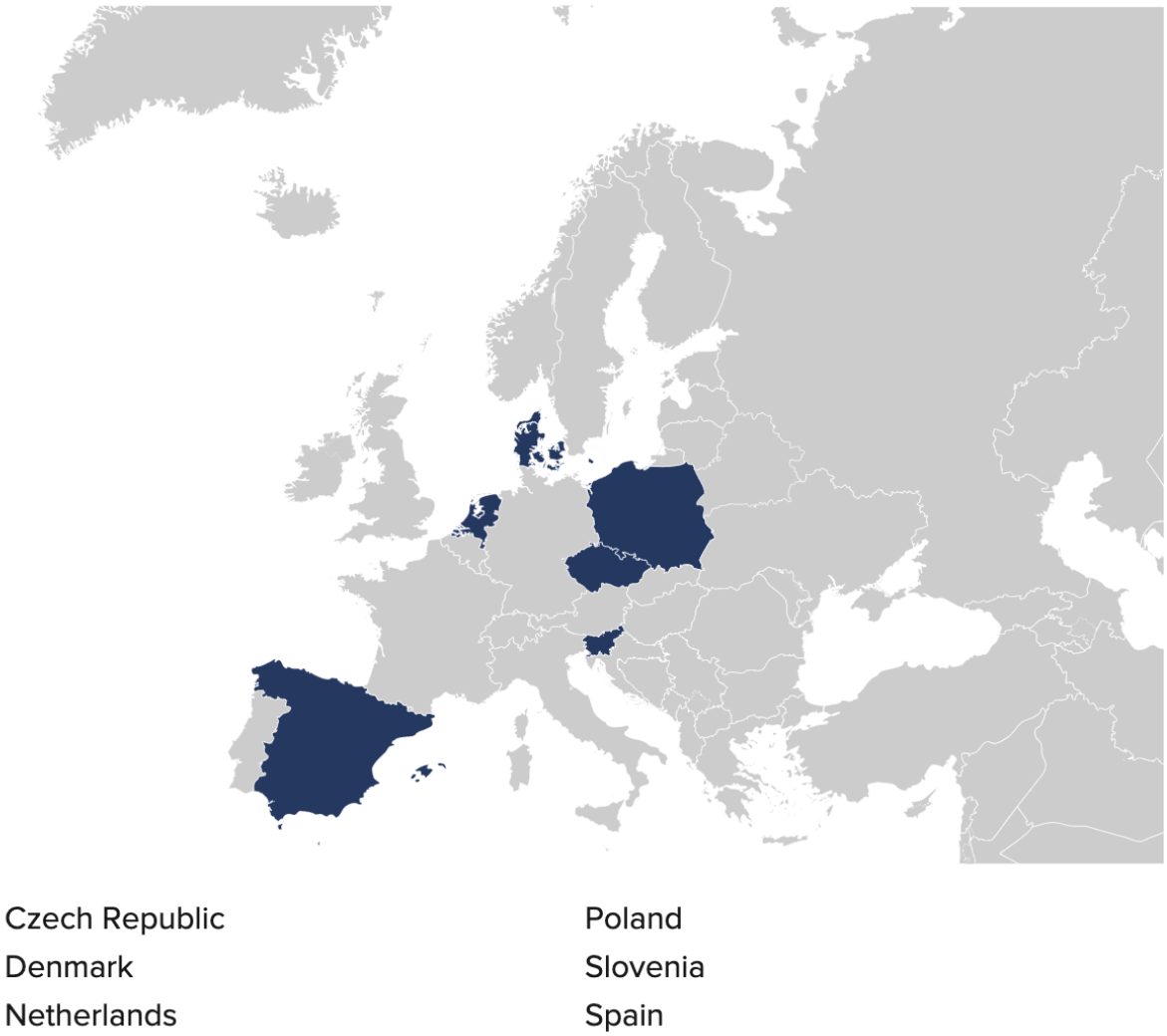

Figure 1: The current view of the Open Cadastral Map with 6 European countries

(https://www.mapsforeurope.org/datasets/cadastral-all)s

This project has received funding from the European Union's Digital Europe program under grant agreement No 101100625

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1. Scope of the Document

This document contains a simple description of how to generate the necessary files to incorporate the national cadastral datasets to the Open Cadastral Map that EuroGeographics is developing within the OME2 project (Open Maps for Europe2).

2. What is the Open Cadastral Map

The Open Cadastral Map (https://www.mapsforeurope.org/datasets/cadastral-all), is part of the Open Maps for Europe project and aims at providing an easy access to open, authoritative, harmonised pan-European cadastral datasets provided by the National Mapping Agencies and Cadastral & Land Registries of Europe (NMCAs).

Upon completion of the on-going Open Maps for Europe project, it is envisaged to establish and operate openly a single pan-European map that would depict the principal cartographic features of

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the countries, such roads, hydrographic network etc., as well as cadastral maps. For the time being, cadastral map services are available, as a prototype, for only six (6) countries **(**

Figure *1***),** while there is a plan to add nine (9) more countries within the next two years. Those services pertain, depending on the country, information about administrative units, cadastral parcels (and cadastral zones), buildings (and building parts) and addresses.

The goal of establishing open geospatial data at a pan-European level is to improve decision-making at a trans-national scale and support directly or indirectly a wide range of applications, such as spatial analysis and planning, environmental monitoring, natural resource management, and disaster management across various industries and countries.

All these datasets are identified as High Value Datasets and are subject to a set of rules in order to ensure free of charge availability. Moreover, their re-use is associated with the yielding of important benefits to the society and economy, especially in supporting public authorities to carry-out their missions.

2.1 Technical Specifications and production process description

The Open Cadastral Map is a view service that provides a simplified and harmonised view of the INSPIRE themes: Cadastral Parcels (CP), Buildings (BU), Addresses (AD) and Administrative Units (AU), all of them High Value Data set, for pan-European use. The source of this view are the authoritative cadastral datasets that are available on the national geoportals of the member countries.

In order to provide one point of access to all the cadastral data in Europe in a harmonised, efficient and cost-effective way, one process for all countries was necessary to be defined. INSPIRE Directive sets some common regulations that help streamline the existing data from countries that comply with the Directive and thus, make the OCM possible. However, these regulations are implemented slightly differently among countries. Therefore, further specifications are imposed by the OCM production process and the members' cooperation in cases when the OCM specifications are not completely in line with the INSPIRE implementation is needed. The OCM specifications are listed below:

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- INSPIRE endorsed gml schema is required as a data format
- INSPIRE ATOM Feed Service for download is required as a download service
- The download must return zip file(s) (URL ending in *.zip/*.gz)
- The CRS used for the data has to be the ETRS 89

The production process looks for a zip file and downloads it. Zip file is required so that the the amount of data to be downloaded is significantly reduced. This benefits both sides, user side by less data traffic and server /provider side by requiring less storage space and less bandwidth to transfer data.

The tags and the structure of the gml file are read so that the file can be processed appropriately.

The file is then imported into the database and it is finally published, in a harmonised way, as a view service.

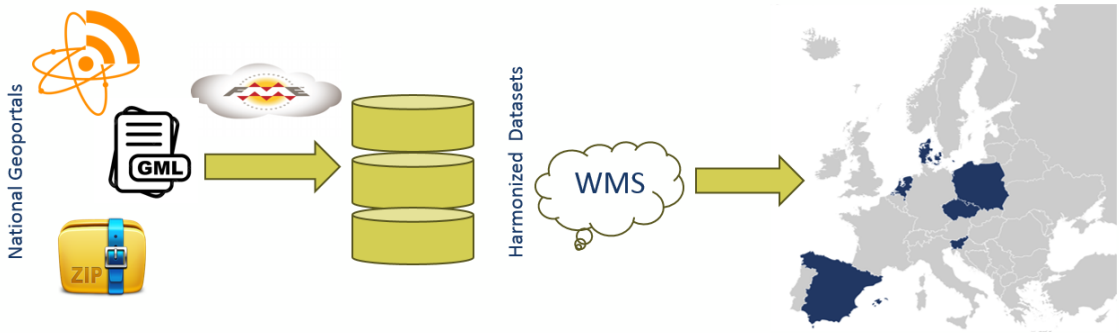

Figure 2: Specifications and Process for the OCM

2.2 Infrastructure and other details

The authoritative cadastral data is downloaded into the servers of EG's subcontractor, Idox France, with headquarter in Paris. The only data themes downloaded are those that will be visualised on the Open Maps for Europe interface: cadastral parcels, administrative borders, building footprints and addresses. No information such as ownership or property values is downloaded nor visualised.

The EG servers are located in the European Union, more specifically in Ireland. From these servers, WMS and WMTS services are set up for OME2. This is the only access provided to the users.

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No data for the Open Cadastral Map is downloadable from the EG's server. Links and human-readable metadata are used to guide the users to the official national geoportals. Additionally, a generalised solution for GetFeatureInfo to further facilitate user access to the national geoportals is planned to be implemented. This will allow users to be transferred from a cadastral parcel geometry in the Open Cadastral Map to the information page of that cadastral parcel on the national geoportal. If users want to download the (vector) data, they need to access it from the respective national geoportal. This requires, however, that such a page exists and that the necessary information is included in the Atom Feed (see example from Spanish geoportal in *Figure 3*.The user selects a certain parcel and by making use of the GetFetureInfo functionality, they are transferred to the national geoportal and the information regarding this specific parcel.

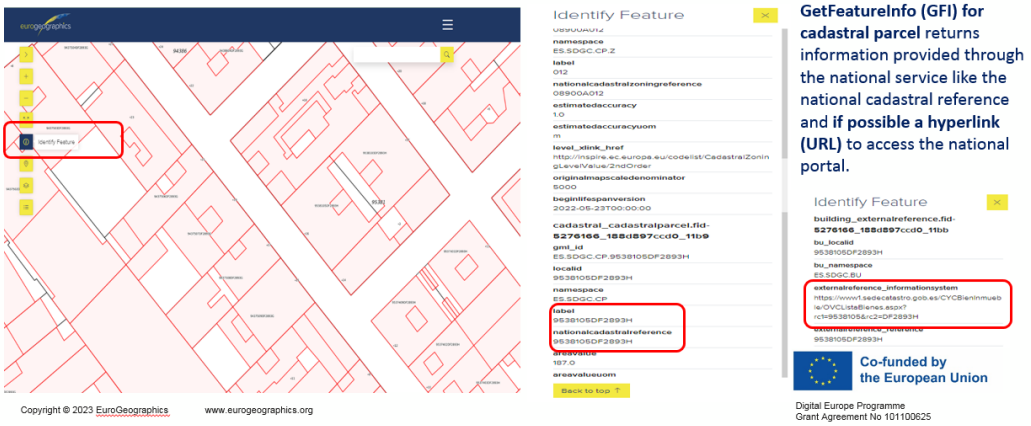

Figure 3: GetFeatureInfo functionality example from the Spanish DGC.

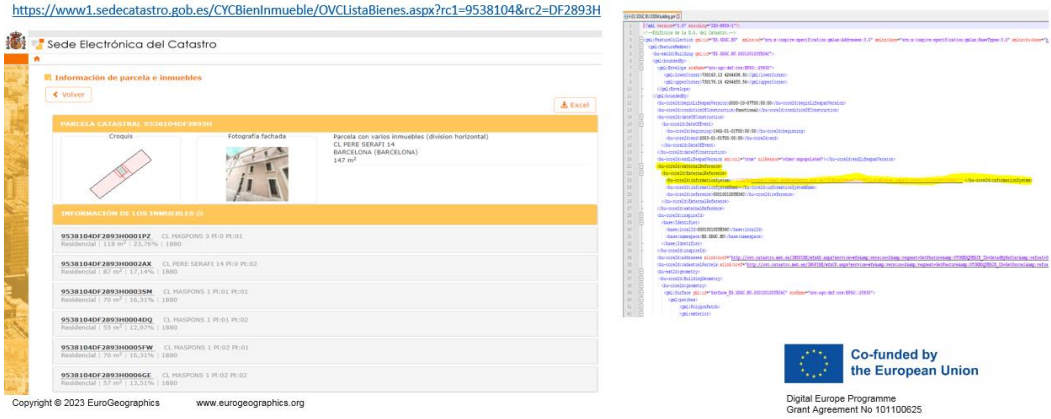

Figure 4: The external reference link found in the OCM directs the user to the respactive cadastral parcel's information in the official national geoportal.

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The Open Cadastral Map is not one single map layer. It is composed by theme-specific map layers organised theme-wise and their visibility is scale-dependant. Each theme has its layers and the styles are defined for each layer. This also makes the Open Cadastral Map visualization more flexible, as the layers can be individually switched on and off.

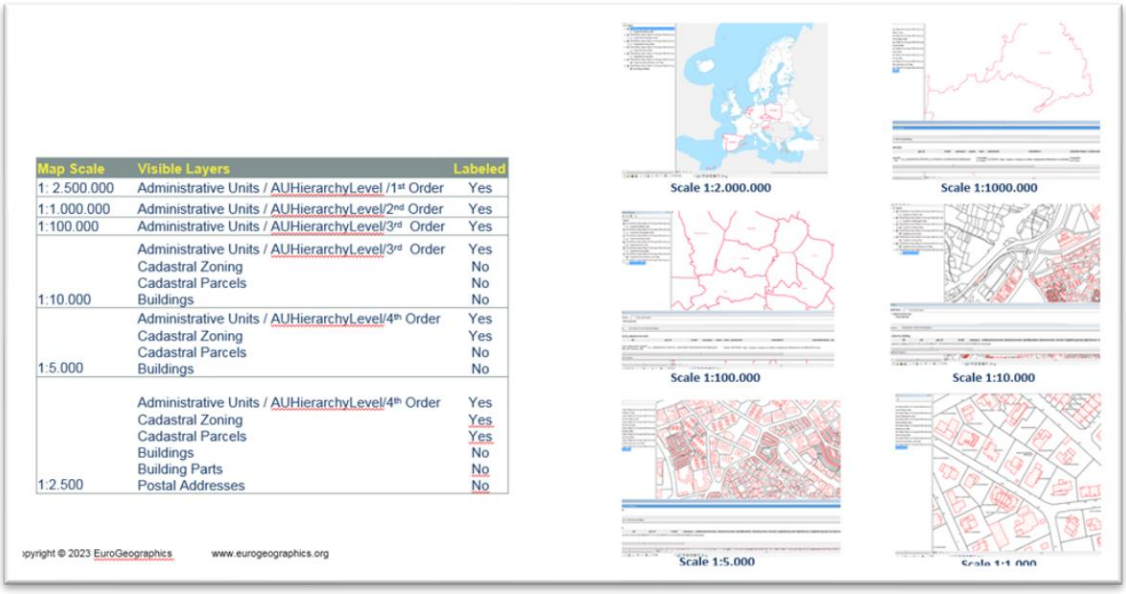

Figure 5: The Open Cadastral Map themes visibility is scale-dependant

2.3 Updates

Whilst EuroGeographics plan to update the Open Cadastral Map every six months, the data from the National Cadastral Agencies may be updated on a different frequency cycle.

3. Implementation of ATOM FEEDS

As previously described, data providers should implement INSPIRE ATOM FEEDS

ATOM FEED is one of the options for implementing INSPIRE Download Services and provides access to pre-defined datasets. Technical Guidelines provided by INSPIRE (https://github.com/INSPIRE-MIF/technical-guidelines/blob/main/services/download-atom-wfs/DownloadServices.adoc#atom-implementation-of-pre-defined-dataset-download-service) are a good resource to implement AtomFeed.

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An ATOM FEED contains:

1. Descriptive metadata describing the feed itself
2. One or more entries that describes the content (i.e. pre-defined dataset)

You can see both, for example, in the Spanish Cadastre ATOM FEED Services INSPIRE of Predefined Data Sets (*Figure 6*).

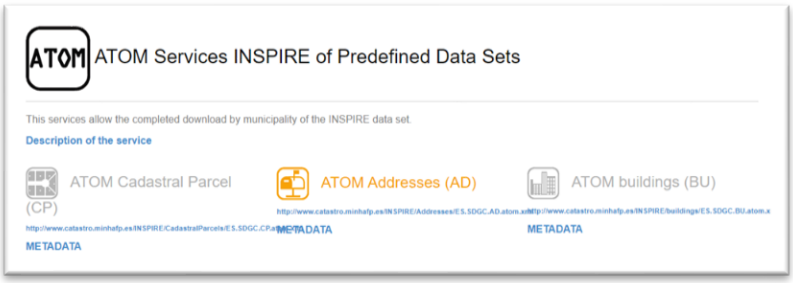

Figure 6: Screenshot from the Spanizh Cadastre AtomFeed Service: http://www.catastro.minhap.es/INSPIRE/CadastralParcels/ES.SDGC.CP.atom.xml

CP : http://www.catastro.minhap.es/INSPIRE/CadastralParcels/ES.SDGC.CP.atom.xml

Metadata: http://www.idee.es/csw-inspire-idee/srv/spa/csw?SERVICE=CSW&VERSION=2.0.2&REQUEST=GetRecordById&outputSchema=http://www.isotc211.org/2005/gmd&ElementSetName=full&ID=ES_SDGC_CP_ATOM

AD : http://www.catastro.minhap.es/INSPIRE/Addresses/ES.SDGC.AD.atom.xml

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BU: http://www.catastro.minhap.es/INSPIRE/buildings/ES.SDGC.BU.atom.xml

Metadata: http://www.idee.es/csw-inspire-idee/srv/spa/csw?SERVICE=CSW&VERSION=2.0.2&REQUEST=GetRecordById&outputSchema=http://www.isotc211.org/2005/gmd&ElementSetName=full&ID=ES_SDGC_BU_ATOM

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The INSPIRE download service based on ATOM FEED provides a simple mechanism for publishing information on the web in the form of feeds, is an XML-based document format and allows searching for updates to content published on a website.

ATOM FEED service can be deployed as a one level access for all predefined datasets provided or as a hierarchical structure sorting and grouping the files of a dataset by levels based on a characteristic, for example at administrative unit level.

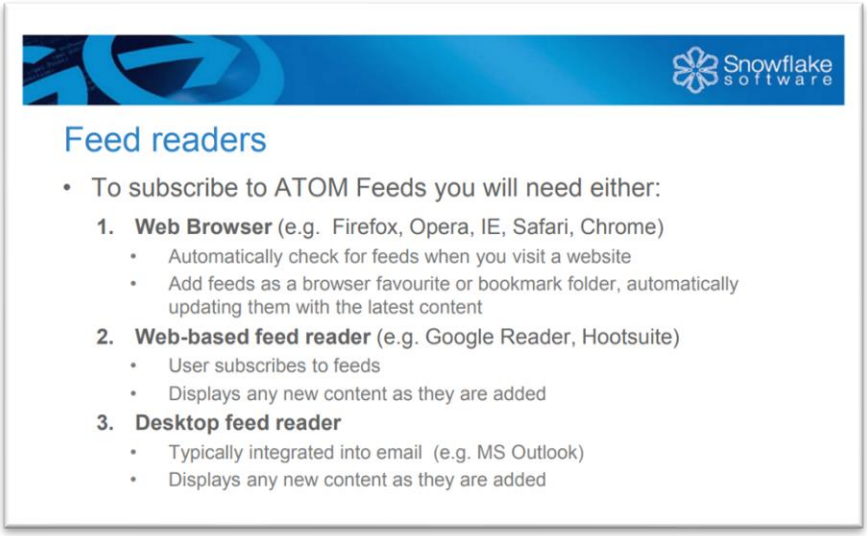
The files provided through the ATOM FEED service may contain the complete dataset or it may be divided into different files based on some criteria such as administrative units or other subdivision of interest to the producer and/or users. This makes it easier for the user since they can access a smaller area of their choice.

For the Open Cadastral Map as well as being an Atom Feed and following INSPIRE, the download files need to be in .gml (rather than, e.g. shapefile), they will also need to be *Open* - i.e. freely available for download and re-use.

The entries in the Atom Feed which link to the download itself must contain the *category_label* 'ETRS-89', and the download must either return a zip file, or the URL must end in *.zip / *.gz to be identified within the process.

There are many softwares to read ATOM FEEDS

https://inspire.ec.europa.eu/events/conferences/inspire_2012/presentations/69.pdf



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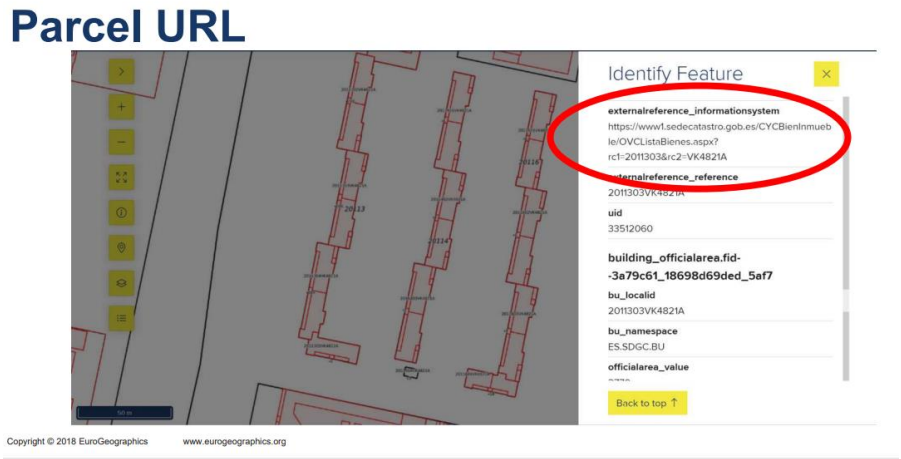
4. GetFeatureInfo functionality

The Open Cadastral Map implements getFeatureInfo functionality over the information contained in ATOM FILES provided . This getFeatureInfo functionality permits access to more complete national public information, non-included in INSPIRE core data, under the conditions defined by each country.

In order to allow this operation, the .gml files provided by the ATOM FEEDS, must include the cadastral reference and the URL or link that directs users to the corresponding national portal.

OCM allows then users to identify the features of the respective layer, obtain the national reference link and access more complete national information as well, taking into account the differences of the legal regulations of such data in the different Member States.



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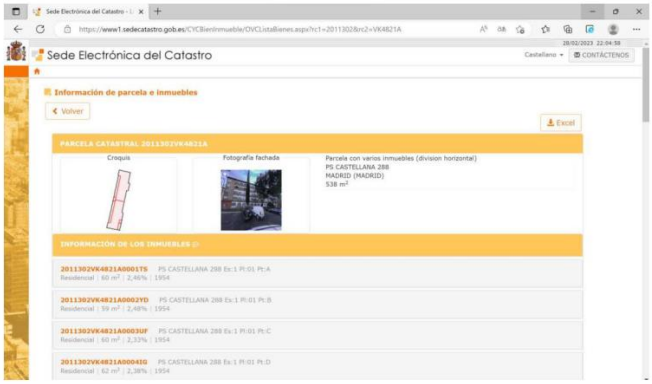
Parcel URL



5. Licences and Attribution

The Open Cadastral Map web service is provided via WMS/WMTS and licenced through the EuroGeographics' Open licence. Open Maps For Europe do not provide cadastral data for download, this is available directly from our data providers. The Open Cadastral Map web service is owned by all contributing National Mapping and Cadastral Agencies listed below, and collectively represented by © EuroGeographics.

The current attribution list is:

Country	Member	Attribution Statement
Czech Republic	Czech Office for Surveying, Mapping and Cadastre	© Český úřad zeměměřický a katastrální (CUZK)
Denmark	Danish Ministry of Energy, Utilities and Climate / Agency for Data supply and Efficiency	© Energi-, forsynings- og klimaministeriet / Styrelsen for Dataforsyning og Effektivisering (SDFE)
Netherlands	Cadastre, Land Registry and Mapping Agency, The Netherlands	© Kadaster (KADASTER)
Poland	Head Office of Geodesy and Cartography, Poland	© Head Office of Geodesy and Cartography (GUGIK)
Slovenia	Surveying and Mapping Authority of the Republic of Slovenia	© Geodetska uprava Republike Slovenije (GU)
Spain	General Directorate for the Cadastre, Spain	© Dirección General del Catastro (DGC)
Spain	National Geographic Institute Spain	© National Geographic Institute (NGI)

National datasets are licensed under an open national data license, the type of open license is decided by the data providers. In the case of the Swiss Cantons, some of the data is not available as open, this is clearly stated on their portal alongside the Canton licensing conditions.

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6. OME2 plan for Open Cadastral Map

For the next 2 years, the OME 2 plan for the Open Cadastral Map is to:

- Continue the operation of the Open Maps for Europe platform
- Expand its data and functionalities both for the countries already on the map and for the new ones
- Increase OCM's coverage by 4 new countries by 31st Dec 2024 and 5 additional countries by 31st Dec 2025
- Increase the harmonisation of the access to cadrastral data
- Document cadastral data
- Develop user-oriented description of the datasets offered by OCM
- Metadata Quality Assurance (**F**indability **A**ccessibility **I**nteroperability **R**eusability)
- Enhance further the awareness of the Open Cadastral Map and its usefulness to cadastral communities
- Develop a long-term pan-European strategy in delivering cadastral data, specifying common deliverables and applying standardisation approaches in order to homogenise datasets that are going to be integrated in the OCM.
- Develop guidelines about best practices for cadastral agencies and users
- Identify current and future OCM users (public and private organizations, companies and citizens), as well as, related needs.

7. Contact Information

If you need any clarification or any assistance in the implementation, please can contact:

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