

## INTRODUCTION OF SYSTEMATIC CADASTRE IN CRAIVA VILLAGE, ALBA COUNTY

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**Abstract:** Buildings registration through PNCCF program in the integrated system of cadastre and land register is done with the help of measurements carried out for the purpose of creating cadastral plan where positions of all buildings are established according to actual reality on ground. This is done without taking into account whether the land belongs to state's public or private domain, is in LAU's property, in an owner's capacity, possessor or holder of natural person.

Work done in measurement stage can be done either by graphic, numerical, photogrammetric or combined methods.

**Keywords:** systematic cadastre; non-cooperative area; cgxml; possession; land registration

### 1. Introduction

National cadastre and land book program can be done either at the level of the entire LAU (Local Administrative Unit) or at the level of the cadastral sector.

The purpose of these types of works is:

- a) establishing the buildings, carrying out the measurements, collecting documents and record them in technical documents made within the program;
- b) establishing all owners, possessors or holders of land with the aim of registering them in cadastre and land registry records;
- c) public presentation of obtained data at end of the work, corrections of identified errors and creation of new land records.

Technical documents that are produced within this type of project are:

- a) cadastral plan;
- b) cadastral register of buildings;
- c) alphabetical lists for holders of real property rights, possessors and other holders.

These documents are made at the level of cadastral sector and include data about properties and their owners found during the systematic registration works.

### 2. Materials and methods

The Phantom 4 RTK drone has a state-of-the-art RTK system through which instantaneous centimetric position data is obtained to benefit from very good accuracy of meta-information image. In addition to the RTK receiver it also has a redundant GNSS module which can be used to maintain flight stability even in areas with weak signal such as cities with a large population. The two systems offer the Phantom 4 RTK drone possibility of

optimizing safety during flight and guaranteeing that information obtained can be used in complex surveillance, mapping and inspection work.

AutoCAD application is 2D and 3D computer-aided design software for desktop, web and mobile powered by Autodesk. This design software is used by architects, engineers, urban planners and other professionals to create blueprints.

CGXML application is a free application, implemented by the National Agency for Cadastre and Land Registration and available to providers of systematic registration works with the aim of creating cgxml files for each building within the project.

Zenith35 Pro GPS device incorporates a modern measurement system with multi-constellation channels and frequency support offering a wide range of functionalities. The Wi-Fi connection allows configuring the apparatus from any device. The GPS system is widely used in navigation systems but also in the field of topography, trade, tracking and surveillance systems.

eTerra v3 application is offered by National Agency for Cadastre and Land Registration and it helps with registration of all documents submitted to the Office of Cadastre and Land Registration and are pending verification.

### 3. Results and discussion

As a start, within the framework of systematic registration works, property documents, limit of territorial administrative unit and the limit of existing buildable area are collected in OCPI database and mayor's office.

Property boundaries are established using topographical measurements of detail points for each individual property, made using the Zenith35 GPS device. Landlords or building's owners located in this area are summoned to the domain in order to carry out measurements. Since the properties for which tabulation is made are located in a non-cooperative area, measurements are made for each of them in order to establish the location and the surface.

Prior to the measurements a Phantom 4 RTK drone flight was carried out after which an orthophoto plane was created which was used to facilitate the process of establishing the location.

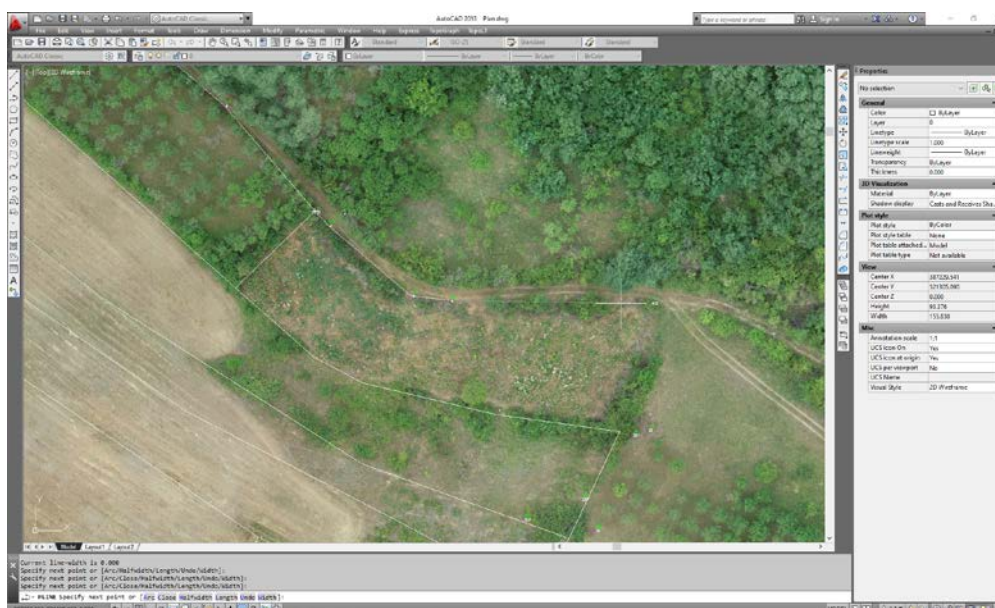


Fig. 1 The processing of measurements and creation of each building related geometry

Natural or legal persons who own land, in ownership or administration, on the area where works are carried out are obliged to participate in its identification and measurement.

For buildings located in non-cooperative areas it's necessary to identify them with old land register, hence why the land register map with topographical numbers was superimposed on the plan resulted from measurements in the field.

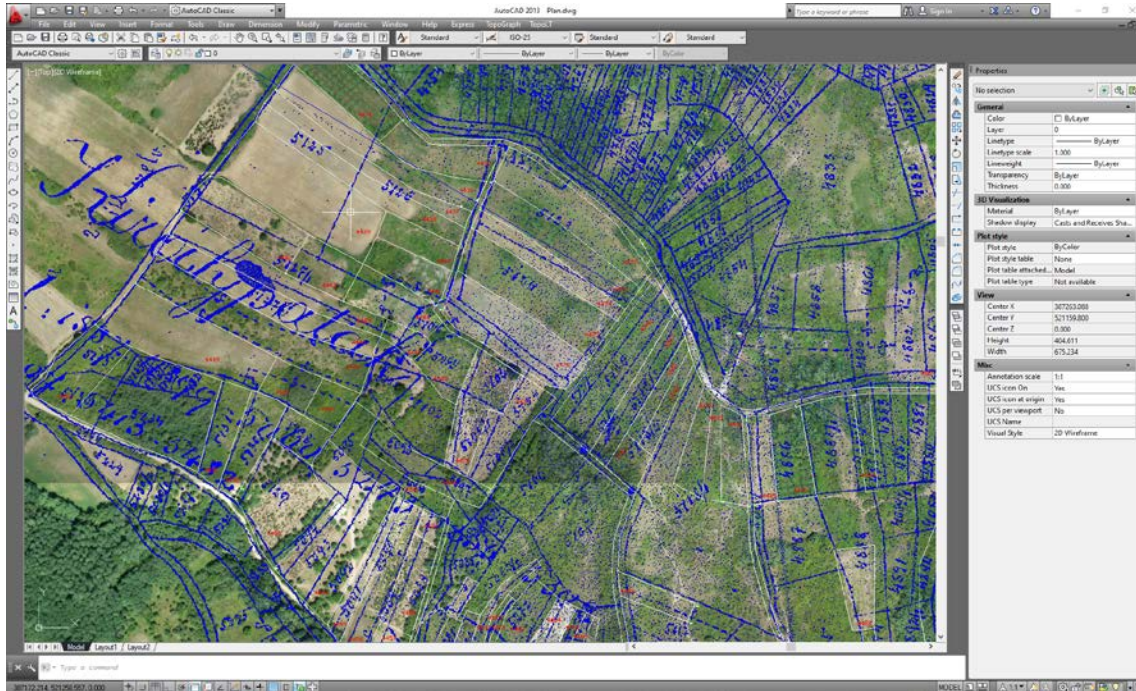


Fig. 2. Topographical number's identification

### CGXML files

Cgxml files are created for each property resulted from measurements.

Files contain data about:

- property identifier
- sector which the property is part of
- topographical number and old land book within which the property is identified
- geometry of the building
- category of use
- documents and legal titles on the basis of which the property is owned
- owner or possessor's identification data

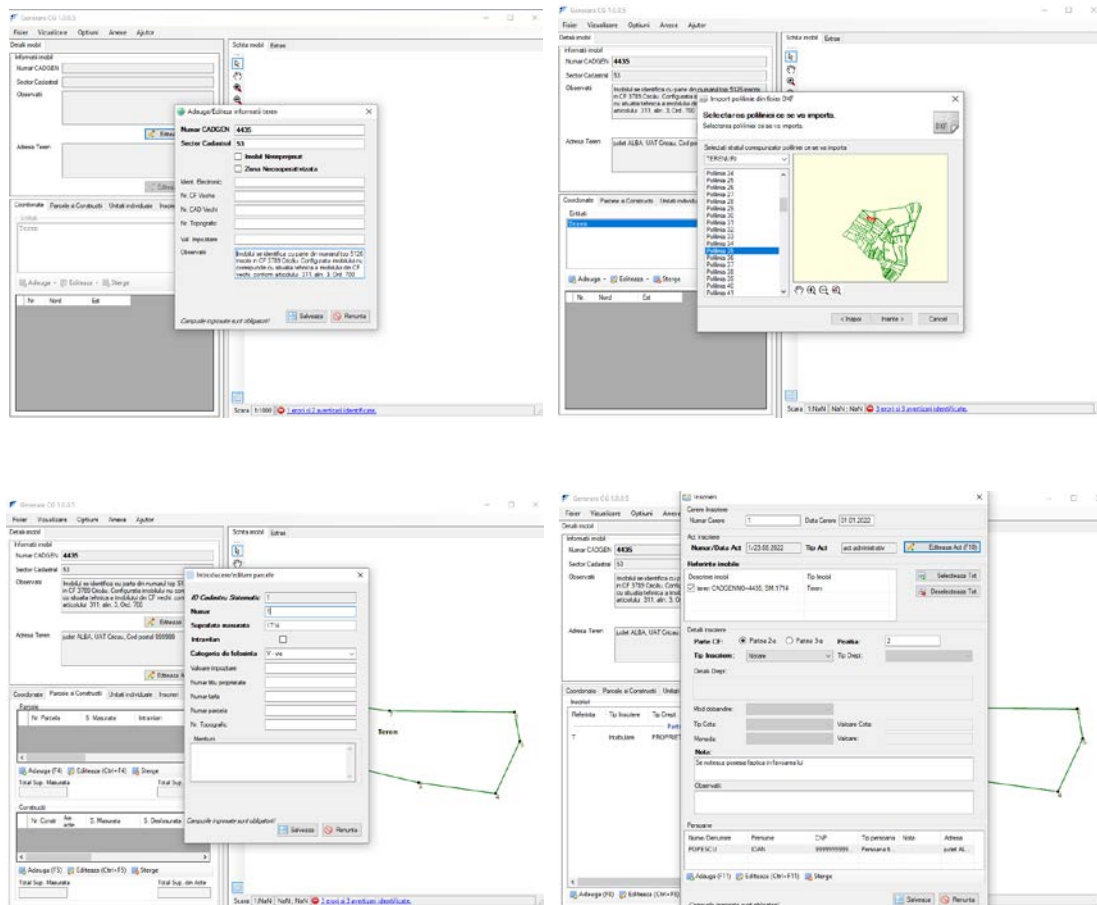


Fig. 3. CGXML file creation for each property within the work

In case of persons that don't have property deed but are recognized as its owners and the property is located in non-cooperative areas, their right of possession can be registered in land register following the identification made on field by provider and a designated official from mayor's office with the condition that following documents exist:

- a) data sheet of the building for which possession nation is requested, signed by owner and provider of systematic registration works;
- b) certificate issued by the town hall of the commune within the radius of which the building is located, specifying the following:
  - (i) concerned person is known to own the property;
  - (ii) the property for which possession is requested is not part of public domain, state's private domain or LAU (Local Administrative Unit);
- c) if exists, a copy of the document certifying possession of the property is required.

Comună/Oraș/Municipiu  
Nr. 1/23/08/2023

ADEVERINȚĂ

Ca urmare a cererii nr. 124 din data de 22.08.2023, se certifică prin prezenta următoarele: Domnul Popescu Ioan, cu domiciliul în loc. Craiva, posesorul CI seria AA, nr. 123456, CNP 999999999999999 este cunoscut că deține imobilul situat în:

- extravilan, în suprafață de 1714 mp, ID 4435, sub nume de proprietar.

De asemenea, se certifică faptul că:

- posesorul a plătit taxele și impozitele locale ca un adevărat proprietar;
- imobilul nu face parte din domeniul public al statului sau al unităților administrativ-teritoriale.

FBIMAR  
(nume, prenume, semnătură)  
.....

I

SECRETAR  
(nume, prenume, semnătură)  
.....

Fig. 4 Certificate of possession issued by municipality

At each cadastral sector's level, technical documents are drawn up to present the technical and legal situation of the properties, which the provider notified it during the systematic cadastral works.

In order to verify the technical documents of the cadastre, they are submitted in electronic format to the Office of Cadastre and Land Registration, i.e. the cgxml files and the pdf files, which contain scanned copies of documents collected for each property, are uploaded to the eTerra platform, and rest of documents are handed over on physical CD.

Județ: ALBA  
UAT: Cricău  
Denumirea livrării: Sector 53  
Sursa de finanțare: PNCCF  
Arhiva upload: S53.zip  
Importa / Inchide

Fig. 5. Uploading files to Eterra platform

At the time of uploading the files, eTerra platform carries out a preliminary check on them, from a textual and topological point of view.

The geometry of each loaded property is displayed on the right side of the screen.

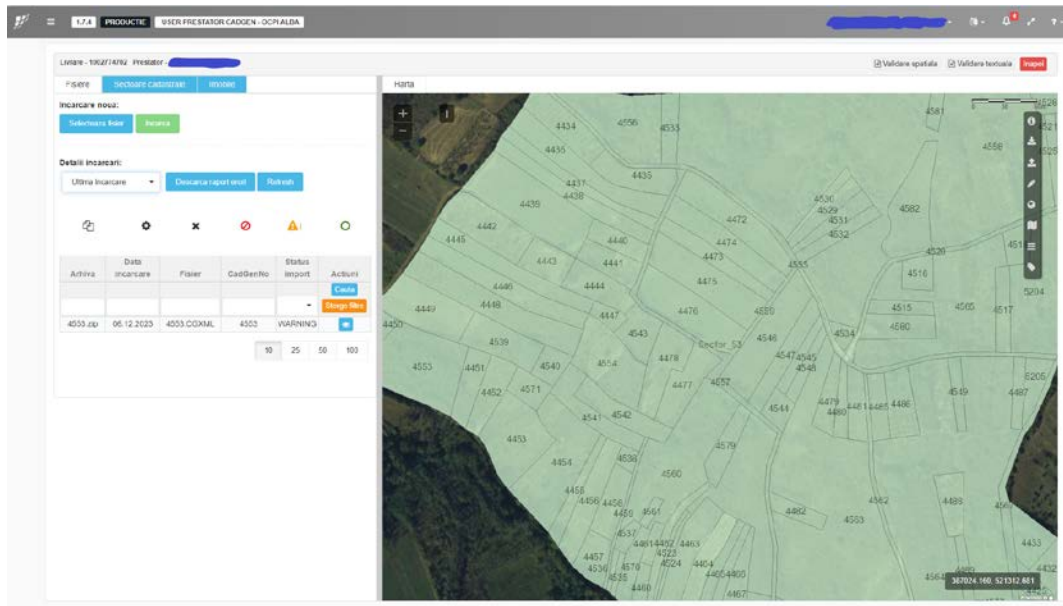


Fig. 6. Viewing properties uploaded to eTerra platform

#### 4. Conclusions

With the help of a case study carried out for a cadastral sector in the village of Craiva, Alba county, this paper traces the steps taken to introduce systematic cadastre in a cadastral sector located in a non-cooperative area.

Such project also offers several advantages for Romania’s economic and legal systems, in addition to its final goal of creating land registers of buildings, advantages such as:

- measurement of entire territory, establishing actual extent and limits of all buildings;
- safety of civil legal circuit;
- creation of a real database for the purpose of correct property taxation.

#### 5. References

1. <https://geomax-positioning.com/SFTP/files/GeoMax/Downloads/GeoMax%20Zenith35%20PRO%20BRO%20849552%201118%20enus%20LR.pdf>
2. *Legea cadastrului și a publicității imobiliare nr. 7/1996 cu modificările și completările ulterioare;*
3. *Ordinul 1/2020 - Regulament privind realizarea, verificarea și recepția lucrărilor sistematice de cadastru și înscrierea din oficiu a imobilelor în cartea funciară*