STUDIES AND RESEARCH ON SYSTEMATIC REGISTRATION DATA MANAGING APPLICATIONS

Eng. Ioana Codruţa BĂLŢĂTESCU[1]

Scientific Coordinators: Lect. PhD. Alina Corina BĂLĂ[1], Eng. Huba MARTON[2]

[1] University Politechnic Timisoara, master study program, Cadastre and Evaluation of Immovables, str. Ioan Curea, nr. 1A, Timisoara, Romania
[2] S.C. Geotop S.R.L, str. Mihai Eminescu nr.6, Odorheiu Secuiesc, jud. Harghita, România

Corresponding author email: codrutza_baltzatescu@yahoo.com

Abstract

The systematic registration represents the identification, description and registration of the immovable properties in the cadastral documents, their measurement and representation on cadastral plans and the data recording on digital formats and the identification and registration of all immovable holders and of UI from condominium constructions, for the registration in the land Book. This paper will address two scientific applications that work with logical data units, thereby bringing each a database . These applications developed for the management of systematic registration data relate to : CG 1.5 , developed by Geotop company and NetSetCAD developed by Data Invest.

Key words: database, systematic registration, alphanumeric data, plots, individual unit.

INTRODUCTION

The Systematic Registration is the unitary and mandatory technical, economic and legal registration system for all the immovables across the country. A Systematic Registration work is a project which is carried out during a specific period of time, which aims at collecting, validating, correlating, aggregating and delivering the technical and legal data belonging to the Systematic Registration register to the Beneficiary.

The systematic registration represents the identification, description and registration of the immovable properties in the cadastral documents, their measurement and representation on cadastral plans and the data recording on digital formats and the identification and registration of all immovable holders and of UI from condominium constructions, for the registration in the land Book. The large volume of data and information collected during previous stages of systematic registration of immovable properties projects which are used to create geographical related databases made necessary the development of data managing applications. These applications are developed according to

The National Agency for Cadastre and Land Registration specifications.

Next I will present two application that manage systematic registration data: CG 1.5 (developed by Geotop) and NetSetCAD (developed by Data Invest).

SYSTEMATIC REGISTRATION DATA MANAGING APPLICATIONS

CG 1.5 is an application designed in order to manage systematic registration data according to National Agency for Cadastre and Land Registration specifications. CG along with MapSys GIS (Geographic Informational System) allows creation, validation and management of a geographical relate database and generates all information necessary to systematic registration work. The final results of this process are creating vector data and CGXML files. The application allows you to enter information in distributed client-server system using Microsoft Access database.

The main functions of this application are: entering data related to immovable properties, plots, buildings, individual units, registration, database validation (missing details/duplicates),

generating relational database using MapSys tools, Import/ Export MapSys vector formats, Import/ Export CGXML/CPXML/ CG, Export CGXML from MapSys and generating charts such as immovable and holders cadastral register, interview records, interview records of individual units, and holders' alphabetical index. These functions are represented in Figure 1 too.
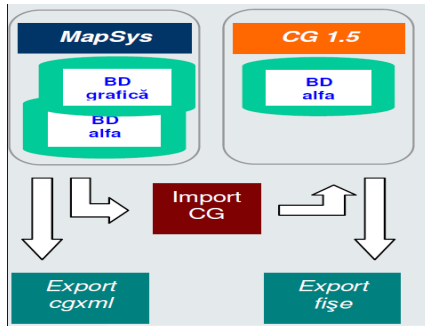

Figure 1. Main functions of CG

To create databases alphanumeric data entry is required. Entering this data is done in specialized sections such as:
General data of immovable properties
Plots
Buildings/ Individual Units
Registration
Alphanumeric data entered into specialized sections represents basic features for each unit. From these I will list: E-Terra ID, topographic number of cadastral sector, address, measurements and documents area for immovable properties, land use category and topographical number for plots, group, purpose and common parts for buildings and individual units and ownership data, deeds, way of acquiring the records.
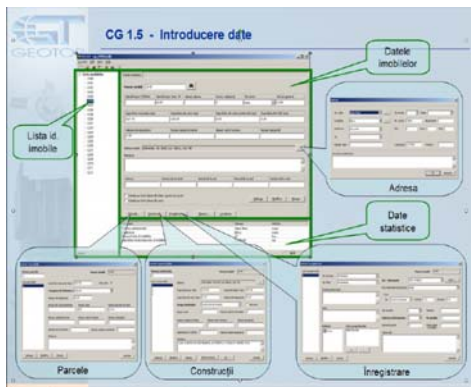

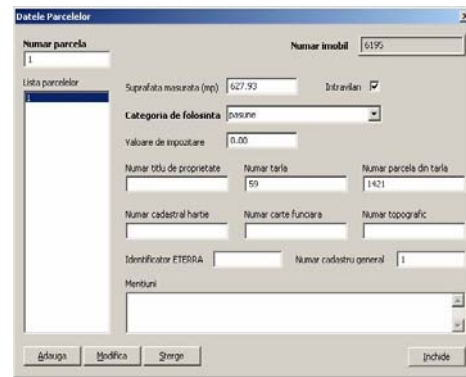Figure 2. Alphanumeric data entry in CG 1.5

Figure 3. Entering alphanumeric data (exemplified for plots)

Adding people as landlords can be done directly by entering data directly from the application interface (adding data directly in the database) or by importing them from an ASCII file previously prepared.
Relational database of CG application can be accessed simultaneously by multiple users, and the information on landlords, addresses, can also be used in a centralized manner.
The verification function of CG database corrects errors that can be automatically corrected.
When a project is opened (CG database), the application checks the database structure. The project is compared to CG model database (cg15_model.mdb), which is saved the directory where the application was installed. The window below automatically appears if there are differences between the two database.
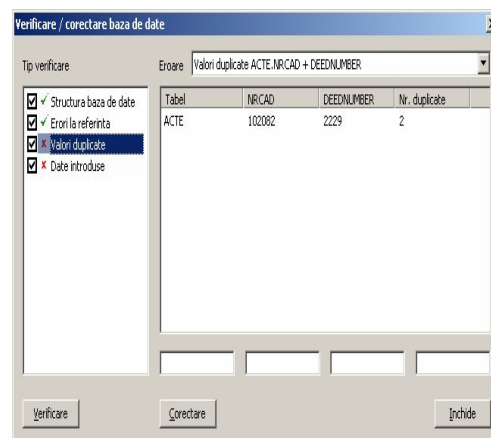

Figure 4. Database checking function

Database checking is made to correct any errors that may appear on the database structure (missing fields), reference errors, duplicate values, imported duplicate immovable properties and input (difference in area

136

property / plots , entities with no registration documents / persons that are not used for any entry, address, blank building with individual units and with no common parts, building area is larger than the area of immovable properties, part and number fields of Land Book are not filled).

Unlike CG 1.5 application, NetSET (Network Spatial Editing Tool) is an integrated tool for editing, analyzing and managing maps / digital plans with an associated database. It is a system with a friendly interface and a flexible set of predefined functions for spatial analysis of database. NetSET includes tools for converting existing GIS, raster images and vector maps from / to various formats and allows import / export files in formats as ESRI Shapefile, DXF, TIGER, S57, MapInfo File, DGN, CSV, GML, CGXML. The structure of the database tables in NetSetCAD application is managed by MS SQL Server. By its GIS structure updates and view both graphic elements from the layers and corresponding attributes in the database.
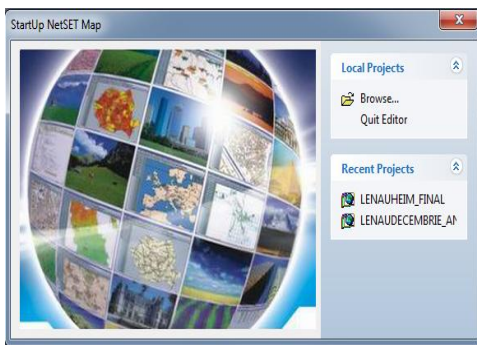

Figure 5. Applications graphic interface

The software NetSetCAD developed by the company Data Invest is suitable for use in a production environment. It has the following main functions: storage of information in a system of local data, based on the file structure of CGXML file, data conversion from holding existing digital data (import CGXM, CPXML files and DDAPT database) Import / Export in CGXML file format, the opportunity for consultation Agricultural Register and Register of Fiscal Role, automatic generation of cadastral records such as interview records, holders' alphabetical index and database checking. Alphanumeric data and information used in the real estate cadastre are managed within the application NetSET CAD, with a direct connection to vector layers referring to graphic components of cadaster. Graphical elements are organized on layers. This is presented in the picture below.

Layer Name	Layer Type	Characteristics
UAT_Limi (ex. Lenauheim)	Polygon	county data to which it belongs to and its name SIRUTA code,territorial administrative unit, the measurements and documents area
Townlimit(ex. Sat Grabat, etc.)	Polygon	SIRUTA code the measurements and documents area
SectorCad	Polygon	data relating to the name of the town that belongs to, the number allocated the cadastral sector,area
Immovable properties	Polygon	Number of cadastral sector, cadastral number of body ownership, code for areas that are inside or outside town, destination address, measured area (GIS area), etc
Buildings	Polygon	the number and category of use of thelocated plot, body building number, name, year of construction, area levels, destination, etc..

Figure 6. Organising elements on layers

Alphanumeric data on immovable properties, plots, buildings, individual units exemplified in the above figure, determine the structure and CGXML file fields. This file structure and fields are predetermined and imposed by the National Agency of Cadastre and Land Registration.
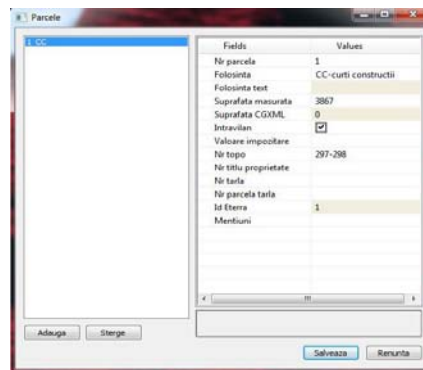

Figure 7. Entering alphanumeric data
(exemplified for plots)

NetSetCAD application contains a verification and validation module of data stored in the local database. The database is checked for errors referring to the database structure, duplicate values, imported duplicate immovable properties and input data.

This function is very important to generate the correct CGXML files.

RESULTS AND DISCUSSIONS

CG 1.5 and NetSetCad applications can generate specific cadastre reports after the data has been entered for each graphical unit separately. This can automatically generate deliverables for major systematic registration projects: CGXML Files, the Immovable Cadastral Register, alphabetical list of real property rights holders, the owners and other owners.
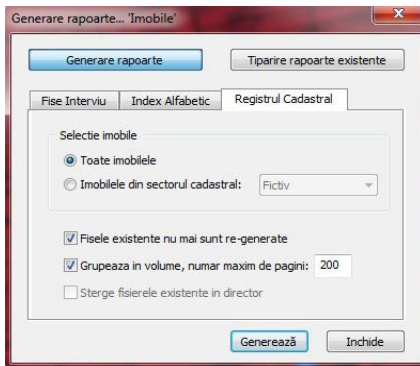

Figure 8. NetSetCAD Menu for generating reports

In addition, with NetSetCAD can be generated the cadastral plan overall scale of 1: 10,000 by "extracting" the elements specified in the SQL database that can be found throughout the graphic administrative territorial unit's (ATU's limits, community and neighborhood, Urban limits and the names, numbers and cadastral sectors boundaries, etc). Later, they can add elements such as title, grid, legend, performer's name etc. All the elements were created on separate layers.
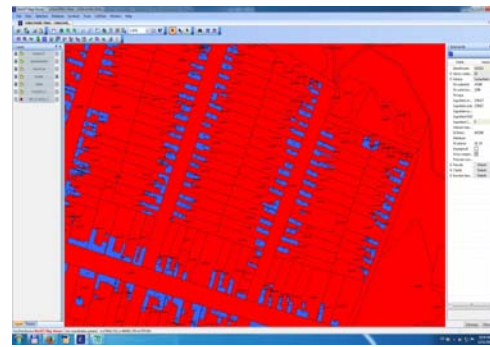

Figure 9. NetSetCAD Menu for generating reports

CONCLUSIONS

Using applications for accounting and data management in systematic registration projects has numerous advantages. Among the advantages of using this type of product are:
-Representing graphics accurately and suggestive of the actual situation on the ground on land and buildings,
-Creating and managing a comprehensive database with the most comprehensive information on land and building owners,
-developing and printing all kinds of reports used in survey
-giving a true and complete picture of a territorial-administrative units, support for administrative management,
-Direct and fast access to information on land and building owners with all aspects of it.

REFERENCES

http://www.dreptonline.ro/dictionar_juridic/termen_juridic.php?cuvant=Cadastru
http://www.geotop.ro/index.php?page=39&lang=ro
Utilization manual of the NetSET software package developed by Data Invest Company, 2004, Iasi Strada A. Panu Nr. 26, Et. 1, World Trade Center, Iaşi