

## IMPLEMENTATION OF INFORMATIONAL SYSTEM "STATE REGISTER OF ADMINISTRATIVE-TERRITORIAL UNITS AND LOCALITIES OF THE REPUBLIC OF MOLDOVA"

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**Abstract:** *Humanity has stepped in a new era where the most important and precious resource is information, and the main objective remains to be the creation of the informational society. Informational society differs from a society dominated by service and traditional industry sector by more accelerated evolution of information and knowledge, informational service and all branches involved in their production, boosting the economic development and generating new working places.*

*The need to create the Automated informational system "State Register of administrative-territorial units and localities' streets from Moldova " was imposed by the fact that so far no institution had a database that comprehends all the objects of the administrative-territorial units of the Republic of Moldova, as well as the localities' address plan.*

**Keywords:** *cadastre, administrative- territorial unit, informational system, address, structure, streets, buildings, databases.*

### 1. Introduction

Administrative and territorial organization of the Republic of Moldova is the basis for determining traditional postal addresses and is a typical system for identification of objects and subjects. Traditionally, the address represents a entirety of country names, administrative territorial units, localities, streets, house number and apartment. In this way the address is used in files kept manually. Also, for each object of evidence in part, the address was written fully and legibly.

Address representation in information systems has evolved from direct reproduction of traditional "manual" card indexes to using specially developed classifiers.

In the first case, as the card indexes kept on paper, there is a surplus of data.

When entering addresses in databases of automated systems was practically impossible to write them uniform, this made unfeasible, full search entries on a single building, street, town or administrative-territorial unit [1], [13], [19].

Switch to using classifiers allowed simultaneously removing excess data and obtain uniformity in writing addresses and based on the presentation of the unitary character of the addresses, the full search entries.

They spread classifiers with hierarchical structure. Selecting hierarchical structure classifiers streets settlements was dictated by administrative-territorial organization of the Republic of Moldova. Classifiers of this type are concrete, reliable, simple and economical in

design and exploit. But they have one disadvantage: they are not stable at the changes in the described structures. Therefore, at the selection of classifier structure is necessary to take into account not only the structure of object modeling, but and any possible change of it.

The classifiers of administrative-territorial organization and the streets of the towns, currently used in departmental information systems were developed independently and separately from similar processes in other departments.

The classifiers of Moldova's territorial administrative organization and names of streets, localities, which are used in departmental information systems does not correspond the destination both in terms of their keeping at the legal level of input information, stability against changes in described administrative structures, and the technologies used [2], [18], [15].

Considering the fact that so far no institution doesn't have a database that contains all evidence objects of the administrative units of the Republic of Moldova and address plans of towns, it was necessary to create as soon as possible the State Register of units administrative - territorial and streets of cities of the Republic of Moldova. For this it was necessary to solve the following problems:

- elaboration of normative acts and an amendment to the provisions in force, in order to create a legal basis for the formation and implementation;
- creating complex of software and hardware of the State Register of administrative units and streets of cities of the Republic of Moldova;
- taking urgent measures to automate all institutions and their territorial subdivisions and town halls;
- creating national telecommunications network.

A particular problem is the transfer of all information systems that use address information, to the use of unique identifiers [3].

Under these quite complex conditions, it was necessary to create a single state automated information system that describes all the administrative-territorial elements (territorial administrative units and localities) and address plans of the localities (administrative areas, streets, buildings, isolated rooms). The basic principle of preparation of this system must be unique and unchanging identification of each object on record. Each entry in such a system should be based only on legal documents and in accordance with special rules. Database to a certain level, should contain legal documents supplies, pursuant to which entries are made. Data structure must be optimized according to textual and graphical data structure [13], [14], [17].

From the structural point of view, the system must be presented as a totality of two subsystems. First subsystem in terms of legal status is assigned by the Registry, which must contain the elements of administrative-territorial organization of Moldova. The second subsystem works at the classifier level and containing objects addresses compartment of the urban infrastructure (streets, buildings, isolated rooms). Settlements is the common link for both subsystems [10], [12], [16].

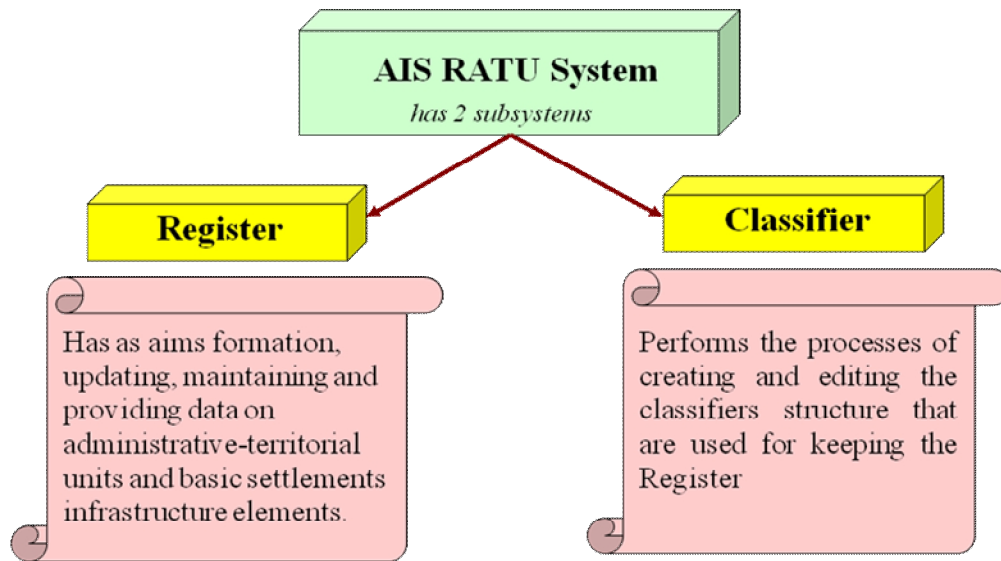


Figure 1. The structure of AIS RATU

The peculiarity of the system is the spatial representation of objects taken out in the form of electronic map layer that includes the borders of Moldova, administrative units and localities, axial lines of the streets and their segments, contours of buildings and other objects of urban and rural infrastructure, which have individual addresses [17].

## 2. State Register of administrative - territorial units and streets of localities in Moldova

State Register of administrative territorial units and streets of localities of the Republic of Moldova is part of a national geographic information system and has the goal of creating, updating, maintaining and providing data on administrative units and basic elements of localities infrastructure.

Featured items of the Register are:

- Republic of Moldova;
- administrative territorial units of the second level - districts, autonomous territorial administrative units with special legal status, municipalities;
- administrative territorial units of the first level (cities (municipalities), villages (communes);
- localities part of the municipality, city, commune;
- administrative sectors;
- streets, street segments;
- the reference points of buildings address;
- the reference points of isolated rooms.

Street segments, buildings and separated rooms, constitute entries in the address plan classifier of localities.

Documents for making entries in the register are prepared and presented:

- administrative-territorial units and localities - by local authorities of the second level;
- streets and addresses - by local authorities (departments (sections) of architecture).

Registry and Registry documents are held in electronic form and form to the Registry database.

The register contains datasets about information objects, selected, trained and systematized in a central database.

Register consists of the following chapters: State, territorial-administrative unit of the second level, administrative - territorial unit of the first level, city, sector, street, street segment, the reference point of the address of the building, the reference points of isolated room.

Each chapter consists of three subchapters:

- Subchapter I - data about informational subject;
- Subchapter II – data about documents;
- Subchapter III - Spatial Data.

In Subchapter I of each chapter of the Register it is indicated:

- informational object identifier;
- code of letters;
- formation date of the object;
- object name;
- object status;
- administrative unit name of level I and / or II;
- registration date;
- appropriate subject area;
- date and basis of deregistration.

In Subchapter II of each chapter of the Register it is indicated:

- document identifier;
- type of decisional act of the issuing authority;
- document number;
- date of issue of the document;
- the document content in PDF format;
- date of introduction of document in system.

In Subchapter III of each chapter of the Register it is indicated spatial information about the informational object.

Register is kept in the state language. Any entry in the Register it is confirmed by digital signature.

To register documents refer:

- Documents serve basis for recording administrative - territorial units, localities, sectors, streets, buildings and isolated rooms addresses;
- Digital Maps of administrative-territorial organization of the Republic of Moldova and digital plans address;
- The TAU establishing borders file, cities, sectors [4], [5], [6].

### **3. The registration works of informational objects**

Since March 1, 2012 in the Republic of Moldova operates the State Register of administrative units and streets of cities of the Republic of Moldova ".

If information about informational objects (territorial administrative unit borders, borders of localities, street name, building address, isolated room address) in the register does not match the information in other information sources, the information in the register is deemed authentic.

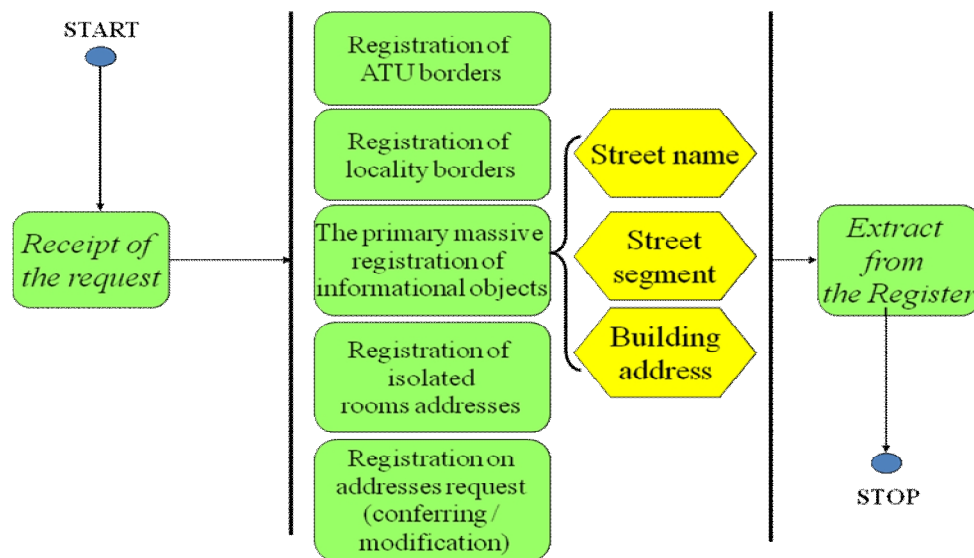


Figure 2. Diagram for recording works of the informational objects in the AIS RATU

#### 4. The conferring mode of the real estate's addresses in localities from Republic of Moldova

Every land, building, isolated room must have unique address within the territorial administrative unit.

The real estate, which are given addresses are:

- land without buildings with closed boundary contour;
- land with buildings (land with closed outline border with buildings located on it);
- buildings;
- isolated rooms (apartments).

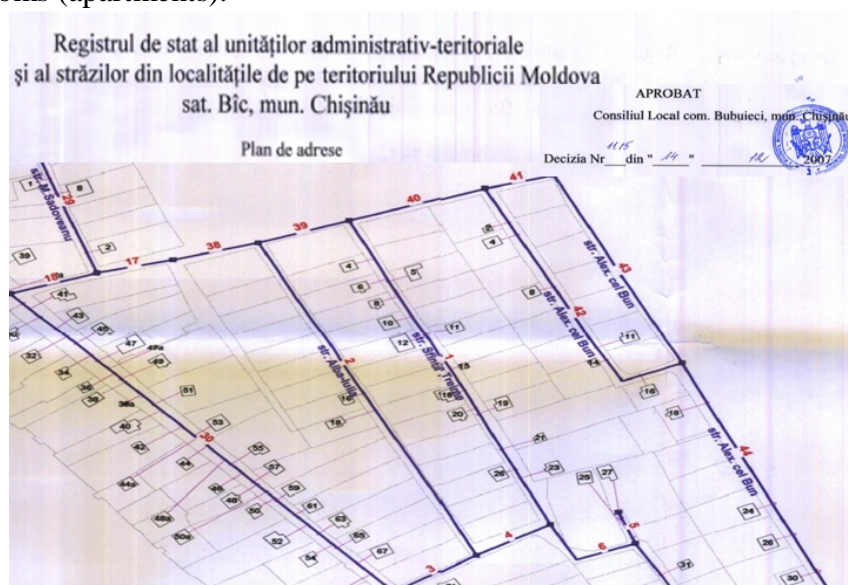


Figure 3. Addresses plan (fragment)

## 5. Automated Informational System "Register of administrative territorial units of the Republic of Moldova". Conclusions, the advantages

Complex platform AIS "RATU" is a modern and efficient support in facilitating decisions on regional development, attraction of investors, valorize the tourist potential of the region and the development of socio-economic analysis.

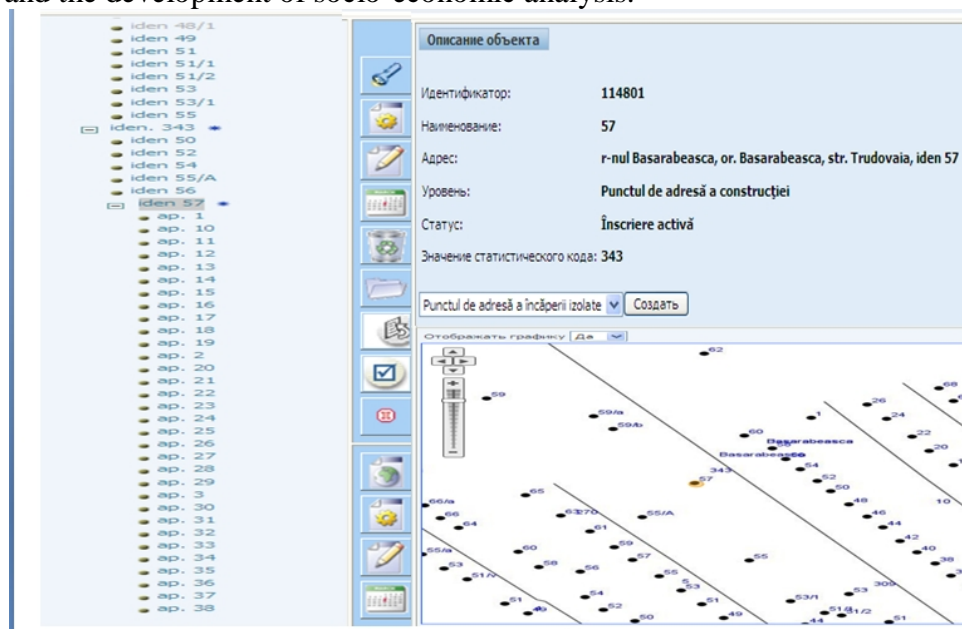


Figure 4. View of the objects in AIS RATU, by address

AIS RATU enables connection of existing databases (registers) and electronic maps. Following this connection, analyze of various issues will not only reduce the tables or graphs, but will also include spatial analysis (analysis on thematic maps). The problems will be able discussed as a whole, taking into account all the existing factors [17], [18], [19].

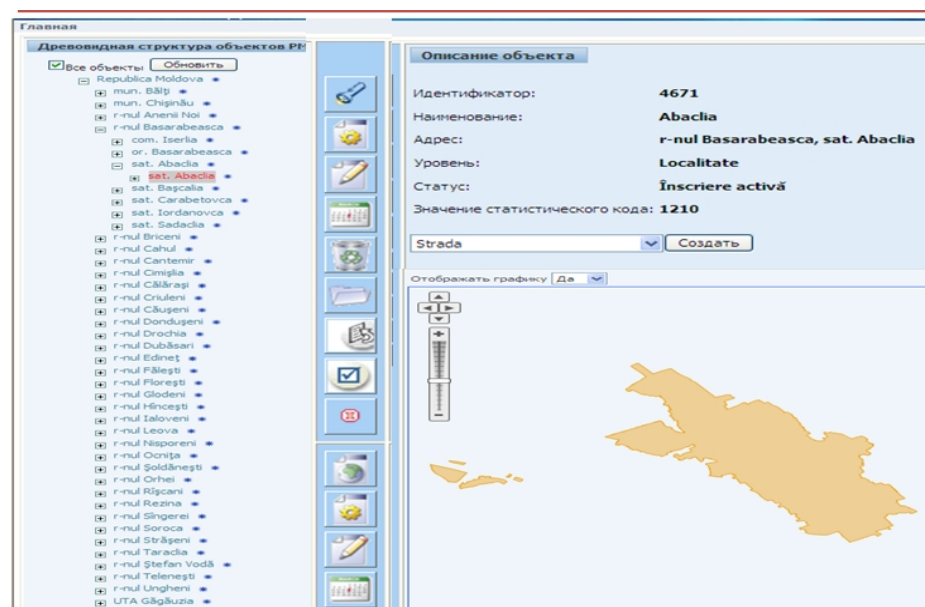


Figure 5. View of the objects in AIS RATU, by locality

Advantages of AIS RATU will grow from year to year, so their functionality will grow and provide a wide range of operations and instruments:

- Quickly create of various reports and certificates;
- Inserting, searching and record of all real estate from one locality;
- Secure and rapid exchange of data between public authorities;

Also states that "AIS RATU" is a new information system for Moldova which potential will be used during implementation [7], [8].

Currently in AIS RATU is recorded the next volume of informational objects:

Table 1. Volume of objects registered in the AIS RUAT in Republic of Moldova

Nr.	Denumirea datelor	Categoria datelor	Volumul de date	Formatul datelor	Data creării	Proprietarul datelor	Accesul la date din partea altor instituții
1.	Stat	Cadastrale	1 obiect	Oracle Database	2008	Î.S.Cadastru	WEBPortal
2.	UAT II	Cadastrale	39 obiecte	Oracle Database	2008	Î.S.Cadastru	WEBPortal
3.	UAT I	Cadastrale	901 obiecte	Oracle Database	2008	Î.S.Cadastru	WEBPortal
4.	Localitate	Cadastrale	950 obiecte	Oracle Database	2009	Î.S.Cadastru	WEBPortal
5.	Sectoare	Cadastrale	5	Oracle Database	2009	Î.S.Cadastru	WEBPortal
6.	Strada	Cadastrale	21399	Oracle Database	2009	Î.S.Cadastru	WEBPortal
7.	Segmente de stradă	Cadastrale	107058	Oracle Database	2009	Î.S.Cadastru	WEBPortal
8.	Puncte de referință a adresei clădirilor	Cadastrale	530567	Oracle Database	2009	Î.S.Cadastru	WEBPortal
9.	Puncte de referință ale adreselor încăperilor izolate	Cadastrale	30000	Oracle Database	2013	Î.S.Cadastru	WEBPortal

Of which in the city of Chisinau:

Table 2. Volume of objects registered in the AIS RUAT in city Chisinau

Nr. d/o	Sectoare	Stradă	Segmente de stradă	Puncte de referință a adresei clădirilor
1.	Botanica	162	690	5038
2.	Rîșcani	206	1125	7073
3.	Ciocana	74	497	2517
4.	Centru	230	1056	7824
5.	Buiucani	139	511	5975
	<b>Total</b>	<b>811</b>	<b>3875</b>	<b>28427</b>

The purpose of implementing the registry is to achieve integrated geospatial solutions at the country level and WebGIS portal of the State Enterprise "Cadastru" with possibility of using information by all participants in the real estate market [9].

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