MANAGEMENT OF NATIONAL CADASTRE DATA WITH ARCGIS

Arvydas Dulinskas
Senior database administrator of GIS department
SE Centre of Registers
BRANCH OFFICES AND GIS DIVISIONS OF SECR

Marijampolė
Alytus
Kaunas
Tauragė
Šiauliai
Telšiai
Mažeikiai
Klaipėda
Panevėžys
Utena
Vilnius
Marijampolė
Alytus
Vilnius
CADASTRAL MAP

- Municipalities
- Residential areas
- Center lines of streets
- Cadastral units
- Cadastral blocks
- Parcels
- Building points
- Adresses
- Engineering constructions:
  - gas networks;
  - pipeline networks;
  - sewage networks;
  - rainwater collection networks;
  - roads, streets, railways;
  - heating networks;
  - communication networks;
  - water supply networks;
  - electricity lines.
DATAFLOW AND SOFTWARE

Branch offices

GIS server

Geo-surveyor and address applications

Users

ArcEditor

Oracle

ArcGISServer

ArcGISServer

ArcGISServer

Applications for cadastral data entry

Real property server

Internet map applications

ArcGISServer

Oracle

Request

Check out

Check in
Application KadaGIS has been developed on the platform of ArcEditor 9.2 in order to meet our specific needs for updating cadastral map.

The application is created using VB.NET programming language in ArcObjects development environment.

Disconnected editing is used to reduce data traffic.

Graphical interface of the application consists of 45 controls that allow to speed up such operations as data entering and editing, quality control, updating central and local geodatabases.

Application KadaGIS was introduced in January 2006.
FUNCTIONAL SCHEME OF UPDATING PROCESS

Application KadaGIS

Geodetically surveyed parcels
Entering coordinates; Transformation.
Scanned plans of preliminary surveyed parcels
Georeferencing raster data; Vectorisation.

Polygons of parcels;
Polygon that defines area of interest for data extraction and updating.

Local GIS database

Data delivery to external users

Central GIS database

Central database of Real Property Register

Electronic archive
Internet map service
Enter parcels data in branch office and send userID and area of interest to GIS server

Check for not posted versions (WEB service)

Check-out data from ArcSDE

Resolve conflicts

1. Add entered parcels to check-out
2. Edit parcels boundaries and attributes

Data checking
1. Topology of boundaries
2. Attribute data

Link spatial data with RPR (WEB Service)

In:
1. Parcel ID
2. Parcel area
3. Surveying method

Out:
1. Unique ID
2. Area in RPR
3. Status
FUNCTIONALITY OF APPLICATION “KadaGIS”

- coordinate grid generation;
- transformation from local to national coordinate system;
- calculation of adjacent parcels boundary mismatch tolerance.
FUNCTIONALITY OF APPLICATION “KadaGIS”

• search for mismatched vertices using search distance;
• automatic snapping of polygon boundaries using snap distance.
Application “KadaGIS” passes to special web service parcel cadastral unit and block codes, address ID, type of use code, area and type of survey code. Web service creates new record in RPR and returns unique object code and cadastral number that are entered as parcel attributes in cadastral map.
<table>
<thead>
<tr>
<th><strong>Unique object code</strong></th>
<th>44/1393636 (Žemės sklypas)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Register record number</strong></td>
<td>44/1393636 (Žemės sklypas)</td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>Centrinė įmonė</td>
</tr>
<tr>
<td><strong>Registration date</strong></td>
<td>2012.01.31</td>
</tr>
<tr>
<td><strong>Cadastral number</strong></td>
<td>8677/0002:56 Švenčionėlių m. k.v.</td>
</tr>
<tr>
<td><strong>Type of use</strong></td>
<td>Formuojamos</td>
</tr>
<tr>
<td><strong>Area</strong></td>
<td>1066</td>
</tr>
<tr>
<td><strong>Type of survey</strong></td>
<td>Geodezijos atmatuotas</td>
</tr>
</tbody>
</table>
Demonstration

Analysis of vertices

Boundary snapping

Cadastral map updating process
CADASTRAL MAP PUBLISHING ON THE INTERNET
GENERATING PDF FILE OF CADASTRAL MAP USING INTERNET
GENERATED PDF FILE OF CADAstral MAP (WITHOUT BACKGROUND)
GENERATED PDF FILE OF CADAstral MAP (TOPOGRAPHIC BACKGROUND)
CADAstral Map Data Export in DXF or SHP Formats Using Internet

Naujienos:
Jau galima pasiimti sklypų ribas DXF formato tiesiai iš šios aplikacijos. Ši paslauga gali naudoti tik kadastro duomenis nustatantys juriniai asmenys. Kad ši paslauga būtų įjungta, reikia pasirašyti papildomą susitarimą su VĮ Registrų Centru. Daugiau informacijos ▶

Duomenų paketo formavimas

Pažymėta:

Registruotų sklypų: 74
Neregistruotų sklypų: 6

Duomenų paketo kaina: 53.30 Lt.

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REVIEW OF PARCEL COORDINATES

Skypo koordinatės LKS94 X/Y

1. 6072609.51 / 587004.59
2. 6072597 / 587130.22
3. 6072580.93 / 587130.09
4. 6072570.15 / 587128.79
5. 6072556.37 / 587123.62
6. 6072593.43 / 587024.89
7. 6072661.55 / 587051.18
8. 6072569.41 / 587059.38
9. 6072708.61 / 587075.19
CORRECTION OF BOUNDARIES OF VALUE ZONES USING INTERNET
INTERNET APPLICATION “GeoSurveyor”

WEB

“GeoSurveyor” (PREPARATION OF CADAstral DATA CASE FILES)

SECR STAFF

Real Property Register

GIS Database

Address Register

Mass valuation

Register of Legal Entities

Population Register

SURVEYOR
INTERNET APPLICATION “GeoSurveyor”

WEB-BASED APPROACH — MEAN TO PROVIDE ADDITIONAL POSSIBILITIES FOR SURVEYORS AND OPTIMIZE CADASTRAL DATA MANAGEMENT

SECR analyzed needs of surveyors, cadastral data managers (SECR specialists), clients and created new web-based software GeoMatininkas (GeoSurveyor) for surveyors and introduced electronic signature functionality in it.

This program is designed for processing of cadastral surveys, preparation of all case file documents and submitting to cadastral data manager for revision.
FUNCTIONALITY OF “GeoSurveyor”

1. Setting of the measurement area
2. Import/ Export of data (CAD, SHP, raster)
3. Loading of measurement data
4. Drawing (in the layers Pickets, Annotations, Points, Lines, Areas, each layer has its drawing/editing tools like in desktop programs).
5. Drawing (the slopes, buildings (from 3 points), stairs generation).
6. Scale-dependent symbology (depending on parcel plan scale, user sees just appropriate symbols).
FUNCTIONALITY OF “GeoSurveyor”

7. Solving of various geodetic tasks
8. Automatic calculation of restriction areas
FUNCTIONALITY OF “GeoSurveyor”

10. Generating of parcel plan and cadastral forms filled with necessary data.
MAIN ADVANTAGES OF “GeoSurveyor”

a) No need to install application – it is available on any web browser. Only Internet connection is needed;

b) Always actual version of the program;

c) Program always corresponds to legal acts requirements;

d) All case file documents are prepared in one system using classifiers;

e) Transfer relations between surveyor and cadastral data manager to the web space, i.e. possibility to submit prepared cadastral data case file to cadastral data manager without going out of the office;

f) Provides surveyor with a lot of initial data in one place (registered and temporary land parcels, territories of cultural and protected objects, addresses, etc.) It allows partially automated data checking before presenting cadastral form for revision.
Electronic signature is usable in three stages of cadastral data management:

1. Surveyor signs with electronic signature cadastral data case file documents prepared in the system;

2. Cadastral data manager performs preliminary control of the case file documents and approves by signing them with electronic signature;

3. After registration in the Real property cadastre, cadastral data manager signs case file documents with electronic signature in order to transfer documents to the electronic archive;
Thank you for your attention!

www.registrucentras.lt