



Sisteme Informaționale Geografice



Echippinge Geodezice profesionale

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MapSys Android

1. System Requirements

Operating System:

- Android 2.1 or later

Hardware:

- Android based smartphone or tablet
- CPU 800 MHz or higher
- RAM 256 MB or higher
- SD card
- Touchscreen display with 320 x 480 or better resolution
- GPS (GPS+GLONASS for better accuracy, 2 m-5 m under optimal conditions)
- GPRS (internet connection) for displaying online maps (Google Maps)

2. Installation

From a desktop computer:

- Download the installation kit from <http://www.geotop.ro/download/mapsys.apk>
- Connect the Android device to the computer and activate USB Mass Storage mode.
- Copy mapsys.apk to the SD card
- Open File Explore on your Android device and locate mapsys.apk
- To install open mapsys.apk and follow the steps displayed

From a Android device:

- Download the installation kit from <http://www.geotop.ro/download/mapsys.apk> or Play Store
- Copy mapsys.apk to the SD card
- Open File Explore on your Android device and locate mapsys.apk
- To install open mapsys.apk and follow the steps displayed

3. Launching the application

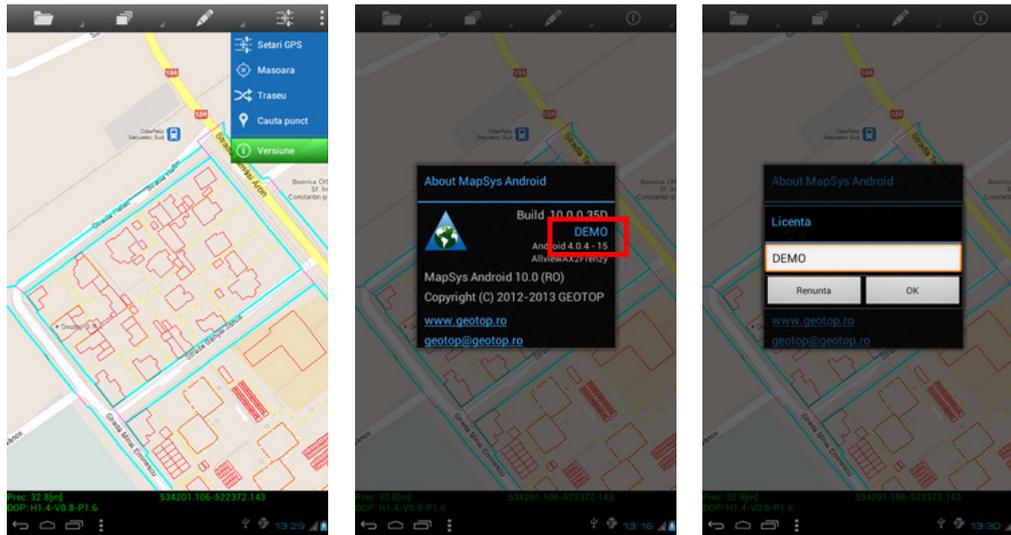
1. To open select the MapSys icon

4. Activation

- After installation, MapSys Android runs in DEMO mode. În DEMO mode, Save and Export options can't be used, other options work normal

- To activate MapSys Android you need to have a valid license number
- To activate you must have:
 - MapSys Android installed on your device
 - A valid MapSys Android license number
 - Active internet connection on your device

- In GPS menu select Version



- In the About MapSys Android window select the blue text DEMO
- In License window enter a valid license number and select OK
- Activation is done within seconds
- To check if the application has been activated, select the save option. If the option doesn't work try a few times

5. General features

1.1. Menu bar

The menu bar appears at the top of the display. It is a dynamic bar which means that it will always display the most recent used submenus.



Calculation and Edit menus are contextual and only appear when selecting an element

Displaying the submenus is done either by long pressing (1 sec.) the desired menu or by pulling down the dropdown menu



Exiting a submenu is done by pressing a point outside the menu/window or by pressing the  button

The main features are listed by pressing the display when no other feature is open. In this case a pop-up window with the most used features will appear.

1.2. GPS settings

To be able to record points, you must check if the GPS is activated in the *GPS –GPS settings* menu. There you can also check other settings. Normally all settings should be activated



By selecting the green *Signal* icon, you can display the satellite configuration and status.

1.1. Projects

Data created in MapSys Android are saved as a group of files, named projects. They have a binary format, identical to the projects created in the desktop GIS software MapSys. Projects can be exported in ASCII (P X, Y, Z) or DXF file format.

After launching MapSys Android, a new project is opened automatically. After editing the project (create new elements, measure points, import points etc.) the project has to be saved using the *Save* option.

Saved projects can be opened later using *Open Project*.

1.3. Display

Zooming can be done with regular multi touch gestures or by selecting the zoom in or zoom out options in the display menu.

Moving is done by gliding your finger in the desired direction.

Framing all graphic elements in the display is done with the *Extent* option. This option can only be used for graphic elements (point, line, surface). To use this option you must have at least 2 points, 2 text elements or a line.

1.2. Create new elements by digitizing

Using the *Graphic* menu, *Create/Digitize* submenu the user can create line, polygon or text elements.



After selecting the desired element type, press *OK*, and proceed to creating the elements (one or more) by pressing on the desired area on the display.

To input a text select ... button. You can input a text either as a separate element or as part of a polygon in its center.

Accepting the new element is done by pressing the \checkmark button in the upper left area of the display.

Revoking the new element is done by pressing the \times button in the upper right area of the display.

1.3. Create new element using GPS measurements

In a similar way to the *Graphic* menu, you can create new point, line or surface elements using coordinates obtained by GPS measurements. The difference is that you don't place the elements on the display, their position is calculated based on the GPS measurements. Measuring multiple same type elements is done in the following succession:

- Select *GPS-Measure* from the *GPS*  menu
- Move to the desired point

- Begin measuring by pressing  → 

- Stop measuring (done automatically by the program)
- Select element type and create the element by selecting *Create*

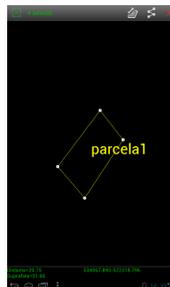


- Move to the next point
- Begin measuring
- Stop measuring (done automatically by the program)
- Create element

.....

- Move to the next point
- Begin measuring
- Stop measuring (done automatically by the program)
- Create element

- Exit by selecting *GPS-Measure* from the *GPS*  menu



Detailed description of the measuring process:

To begin measuring select *GPS-Measure* from the *GPS* menu.

In the upper right corner of the display a blue square with the GPS status will appear.

The operator must move to the desired point, and wait until either *3D-Single SPS* or *3D-DGPS* and *START-FIX* is displayed. The device must be held at head height or above.

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To begin logging in the measurements, press the blue button and wait until the device finishes measuring. The device will record the number of measurements, and for every valid measurement it will emit a sound.



After this, the program will stop the measurements and compute an average for the current coordinates. A window will appear where you can choose the type of element you wish to create (point, line or surface). After this press *Create*.



The number of measurements and the tolerance for calculating the coordinates of a new point are set by the user. The program can calculate the number of measurements needed for a given tolerance. If the given tolerance is too small (the accuracy of the GPS is 2-5m in optimal conditions), or the conditions do not allow the use of sufficient satellites (deep valleys, built up areas, near walls or poles, the operator does not hold the device properly) the program will do additional measurements. If the accuracy is not satisfactory, you can repeat the procedure or quit.



To measure the next element, move to it and repeat the procedure. Press again the blue **START - FIX** button to begin logging the measurements, wait for the program to finish measuring and define the element type. Repeat this operation in every desired point until the element is completely defined (all break points of a line or polygon).

When measuring line or surface elements, the points must be measured in order. After selecting *Create*, the measured point will be connected to the previous measured point.

Finishing the operation is done by pressing the *Measure* button in the menu bar. Save the project after each operation or activate automatic saves to prevent loss of data.

1.4. Edit elements

Editing an element is done by selecting it on the display. In this case the application will display a edit specific menu bar.

The attributes of the selected element can be also displayed and edited by select the attribute icon in the upper right part of the screen.

Edit point, line, text – simple selection



Possible options:

	Edit attributes point/line/text
	Delete point/line/text

Edit point – multiple selection



Possible options:

	Calculate surface
	Connect points with a line
	Delete selected points



After editing select the green area  from the window (*Point attribute, line attribute, text attribute* – depending on the selected element type)

Deleting selected elements is done by pressing **X** in the upper right part of the editing window

Points are connected in order. Points that are not automatically connected, can be connected by selecting 2 in order