

Map Mobile Navigator User's Guide

Version 4.6.0

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Common issues

Map Mobile Navigator (MapNav) can be started on almost any mobile phone with Java support MIDP-2.0 and CLDC-1.1.

Memory heap available to application must be at least 500kb, when less memory is available application tries to start in safe mode when only one piece of map is displayed at once. Some part of the app functionality depends on phone support for different extension to J2ME platforms (JSRs) (phones with Symbian OS are limited in using external map).

This guide reflects abilities of listed version number above and can be behind of latest version available at forum in Debug Versions section ([Отладочные версии](#)).

Important! Before you start use the application check your Internet settings for Java applications! You must have selected Internet profile not WAP profile or you may be overcharged by your provider.

Basics of MapNav



At start application show startup logo with application name until initialization is done.

After that you see screen where maps and surfaces are displayed. After first run there is a planet view. Cross at center points to place coordinates of which are shown at right bottom corner of the screen.

Map keys

Map navigation use next keys:

Joystick – map move.

1 – zoom in

3 – zoom out

7 – triple zoom in

9 – triple zoom out

– changes between map/surface

0 – changes map source Google / VirtualEarth / Custom maps (Depends on Settings - Maps)

* – displays additional menu (menu content depends on active route and GPS).

5 (as joystick press) – switch between GPS position and free map user scroll.

When binded to GPS position joystick scrolls info screens. Also some info screens has several views so pressing left-right you may scroll through them too.

4 – rotates screen to 90 degrees (or part of screen depending on phone capabilities).

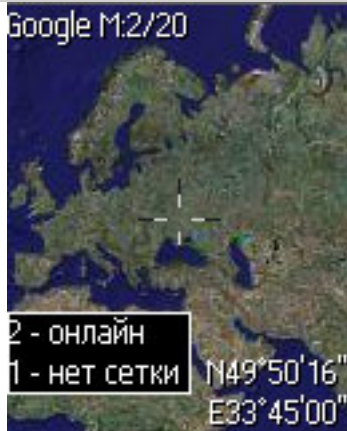
6 – switches backlight.

4 hold – opens SMS send mode your coordinates

5 hold – adds waypoint to active route/waypoints with your current coordinates (creates waypoints and active it if no active present), or with azimuth and distance to current. By using Settings you may set to add marks, not waypoints

6 hold – opens Settings screen

Additional menu with * press appears on screen. Its content depends on active route and application modes.



1 – no scale/scale (shows scale grid over the map)

2 – online/offline enables auto download necessary map tiles from Internet or only cached tiles will be used.



Additional menu content depends on current application state. When GPS is active items for map rotate and compass over map display appear.

Important! Long key * press locks keyboard, 4 - goes to SMS coordinates send screen, 6 - goes to Settings, 5 - adds waypoint to active route (create waypoints if no active found). Short press 6 switch backlight intensity.

Pointer support

Since 4.2.0 support for pointer is present. You may move your map, zoom in and out, change map server and type, bind to GPS position and change screen mode. If your phone support pointer you'll see next buttons on map screen at right side. When binded to GPS position pressing top-bottom part of screen scrolls info screens when pressing to left-right part of screen scrolls views of that info screen.



Long press for pointer add waypoint or mark as setuped.

Application Main Menu

Main menu consists of

- **GPS on**
- **Navigation**
- **Marks**
- **Goto**
- **Refresh**
- **Options**
- **More...**
- **NetRadar On**
- **Exit**

GPS on connects your GPS-receiver.

Navigation lets you manage and activate waypoints, routes, track or set mark as waypoint. TrackBack function can be called here with active track (create back route by your track).

Marks are useful for saving locations for next quick return and reference. Here you can also turn on/off **marks displaying** on a map.

Goto is for entering location coordinates with next move to the place.

Refresh may be used in case of connection lost to download missed map tiles.

Settings let you tune MapNav for your only needs and phone abilities.

Settings are divided in groups:

- **General - basic settings**

Scaled preview – zoom in use previous level to display scaled image until current level image is available

Parallel download – allow to download more then one map tile from Internet at once

Full screen – display map in full screen area

Safe mode – show only one map tile where cross is inside, decrease application memory requirements

Show coordinates – display current coordinates at map

Backlight on – turns on constant backlight (Nokia, SonyEricsson, Siemens)

Blink – check it in if Backlight on is not enough for backlight to function properly

Fox Hunter – sound tone changes with approaching to waypoint

Limit rotate image size – set limit for 256x256 pixels raster to be used for map rotating. Turn off if your phone have enough memory and its screen is larger then that

Add Minimize – in main menu new item added Minimize to minimize application to run in background.

Cross – show cross in map center.

Transparent pointer – location pointer displayed transparent.

Light on lock – with keypad lock/unlock application turn on/off backlight.

Work path – brosse for folder to open first in file browser.

- **Appearance - visual settings**

Font size and style let you set more useful text appearance for your particular phone device. You can select *Large, Normal, Small* font size and , independently from font size, *normal* or *bold* font style.

Opaque text – text on map is drawn over semitransparent panel.

50% (30%) – opacity of panel.

Map font: Forecolor – select color for text over map.

Map font: Shadow – select color for shadow text outline.

View 2, View 3, View 4 – select screens to show in [multiscreen mode](#).

- **Alerts - settings for sound alerts**

Sounds on – turn on/off special sounds.

Satellites status – sound alarms when satellites are lost or found by GPS-receiver.

Vibration – vibrate when BT GPS connection lost.

New track point – signals when new point is added to track

Max Speed – signals when speed exceeds the value

Volume – set volume for sound alerts

- **Keys – settings for keypad use**

Hold 5 add – you may select to add new waypoint or mark on long key 5 hold.

Smooth scroll – make map scroll smooth.

Here you can redefine most keys.

- **Geo Info – coordinates display format**

Show location as – select coordinate format you need ($23^{\circ}40'47''$, $23^{\circ}40.783$, 23.67972°).

Display datum – select datum to display (WGS 84, Pulkovo 1942).

Projection – for what projection display coordinates (Geodetic, Universal Transverse Mercator (UTM), Gauss-Kruger).

Measure units – select system to display (metric, nautical, imperial).

- **GPS – setup GPS-receiver connection**

Connection type – select type of connection to your GPS-receiver (Bluetooth, Com-port, internal location).

COM-port – if you use com-port connection specify its name.

Auto reconnect – next time app is started it tries to connect to GPS-receiver.

HGE-100 – check to use the application with the device.

- **Track - settings for track record and display**

Show track points – track may hold thousands of points. To speed up its display select to show only last 100 points.

Record track by – check necessary events that triggers add new track point.: **time period, min distance, course change**. You can select any combination of events. If no events selected track record is disabled. You can tune *record write period* and *Next point min distance* farther.

Waypoints proximity – distance from current waypoint to autoselect next waypoint in active route.

Auto start track – with application start if no active track is available starts default track record with 200 points and cycle overwrite. To save this default track go to Navigation - Track and select Close Track. After it select it in the list as normal track

Autoselect next waypoint – with enough approach to current waypoint (to distance set in Settings-Track-Waypoint proximity) selects next waypoint in active route

Clear default track – clears default track on application start up.

Autoselect next waypoint may be *To next only* or *To nearest next* (may be used when actual route significantly differs from planned one).

- **Maps – list of used maps**

Check map servers in list you want to rotate by keys 0 and #.

Autocenter – centers map when switching user's custom maps.

- **Language – user interface language**

Select your native language.

- **NetRadar - setting of NetRadar system**

Login – Your login (you must registered at Map Mobile Navigator site, it's free).

Password – Enter your password.

Hold background connection – application tries to hold constant connection to Internet to avoid traffic rounding and operator's charge (but use a lot of phone battery).

NetRadar traffic – approximation of data exchange volume.

Additional – leave mapnav.spb.ru for system to function.

- **Cache - information about cache state**

In-memory image pool – extra count of tile that holds in memory at once. Used for phone with large screens and to speed up display. You don't need to change it in most cases. But

2 - phone with at least 1Mb,

4 - for phones with at least 1,5 Mb of memory heap size.

Image cache size (Internet) shows volume of downloaded tiles and

how much is *available for **internal** map and cache.*

Also there you can see loaded *Map image size.*

You can use **CacheClear** (frees space occupied with Internet cache).

You can also use **Reset** (to set all setting to default values. **Cache and map are not cleared**).

- **Debug - additional settings to fix problems occurred and custom map binding**

Enable – activate debug information write to log.

Map correction mode – after enabling this joystick let you move custom map binding at the same time showing map from Google.

This helps you to finish creating your custom map. Displayed values must be entered in Map Creator to appropriate fields and map must be converted again with this values.

Save map correct – stores correction after app exit.

Correct for all maps – shifts all maps not only user's.

Save NMEA – write all messages from GPS-receiver to file.

Path to save – path to folder used to store log exported with menu Log2File.

Check debug update – the application will automatically check for new debug version instead of release (as it do by default).

Log – log itself.

Menu item **More...** moves you to short help, about program, send SMS with coordinates and take screen shot (to file or MMS).

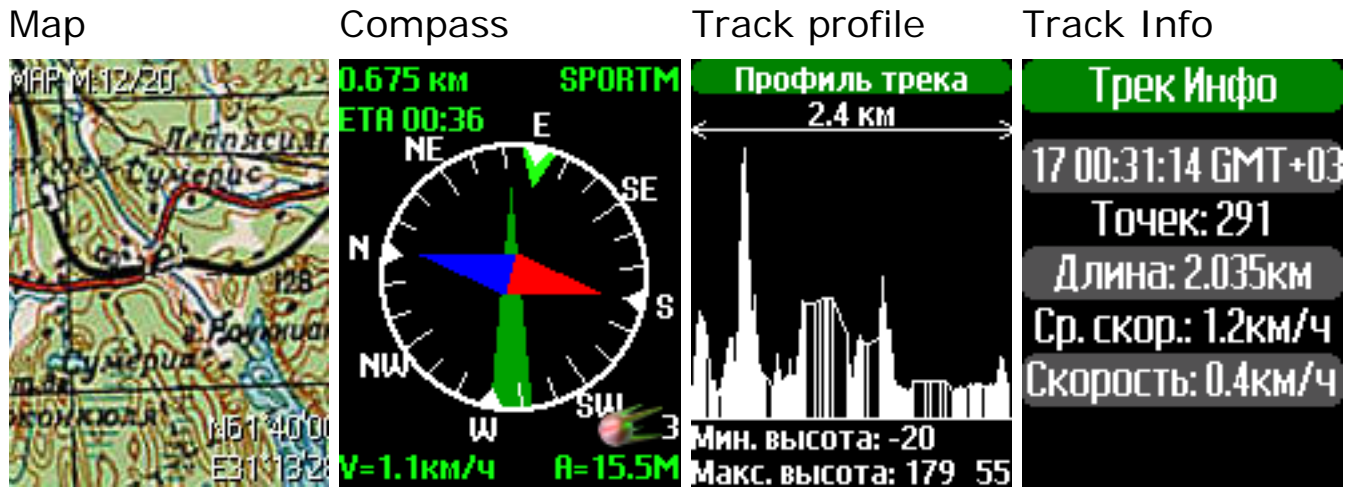
Also from here you can [Load your custom map](#) and get closest five cache from GeoCaching.ru. MapNav support photo upload to service Flickr with geotagging. In More... also possible to make backup of application data in Service section.

NetRadar is ability application to send your location to internet server so you can see location of your friends and your self from the application and from web site.

Information screens

MapNav has not only screen with map but many other information screens. Two arrows from each other in caption signals about possible other views for current screen. Use left-right to scroll through.

Keys 2 and 8 change current screen (in forward and backward order) to next:



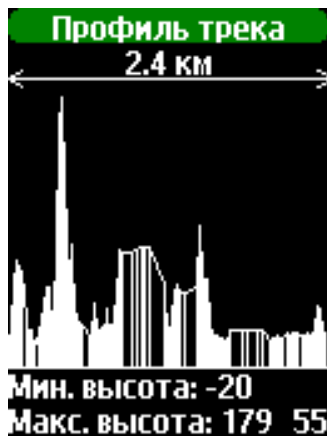
Location Directional speedometer Navigation (with route)



When **GPS is active** compass displays northern direction relatively to your move direction (blue arrow end), green arrow must be pointed forward away from you.



If **route is active** then it displays information about **selected waypoint**: name, distance, ETA hh:mm. Green triangle at circle shows direction to the waypoint.



Track record makes possible to see **track profile**. At this screen you see total track length, max and min altitude. Use joystick left-right to get more info.



Screen **Speed** displays current speed and selected waypoint information in active route.

Screen **Navigation** displays your position relatively to current route step (between active waypoint and previous one). The screen lets you ability to move alone route with high precision staying on a shortest possible path. Different variants of the screen display as your position to route as route position to you (like HSI - Horizontal situation indicator). You may change scale or scroll waypoints list with keys 1 and 3.

How screen Navigation is functioning (large view):

1. On rotating round scale you see your current course on the end of big light green arrow, yellow number it is.
2. Through the center comes **blue** line - line of route current step, direction on it is shown with white triangle in center so where it cross round scale is your

course to current waypoint, this value is not displayed. But with blue number is displayed your "must be" course on current route step. Sure, it is constant value at all.

3. In the center is indicator of you position relative to route line (step). It is displayed with **yellow** color. When it goes off blue line you have offset from route line displayed in right bottom corner with direction to route line. You may change scale of offset with 1 and 3 keys (distance between points is displayed at left).

4. When you are more then 10 meters off the route line green highlighted sector so you big light green arrow must be inside the sector to get back on route line. See the picture:



It means you are moving towards waypoint Cross (course of route line to it is 200 - constant, your current course is 195) and you are 0,03 km to left from route line (so arrows show you move to right). Each point of scale is 31m currently set.

To get back on route line you have to change course into green sector like this:



The navigation in this way is very useful in flight, sea navigation and moving across landscapes with no visible references where you need to move from A to B by shortest path.

Multiscreen mode

Multiscreen mode makes it possible to display several screens at once. To

activate the mode open quick menu with key * and select 1 - View. Then with 2 - viewport change multiscreen mode.

Examples of multiscreen modes: :



Three and four screens modes.

Navigation

Navigation objects

Objects are Waypoints, Routes and Tracks.

Each object is a set of points with coordinates and some additional info.

Waypoints and Routes is a set of a waypoints but in Route order of waypoints is important when with Waypoints it is not. Waypoints and Routes always have active (current) waypoint which is used for current navigation to its location: displayed its name, distance to it, ETA and others. You may create and edit Waypoints and Routes in the application changing any of its attributes.

Track is a set of ordered points with coordinates and with information when and at what speed the point information is recorded. It is an information of a real route you done. Information about time and speed lets calculate different statistics and display speed and altitude graphs.

Menu item Navigation

Here you can select what kind of object to load for navigation. You can use waypoints and routes created with application [OziExplorer](#).

How to create its in OziExplorer see that program help.

You may load waypoints and routes by two way: from Internet and from local file.

To load from Internet you need to load up your file to some site and get its URL. Then in MapNav select Load..., specify URL (**without** http://) and select Load from Internet and menu Load. File will be downloaded and object appears in list. To load from local file specify path to file, like c:/other/route.rte, usually files of unknown type stored in folder Other (другое). Use menu Browse to run browser of file system.

Number of points is not limited, however 1000 points any phone loads with no trouble.

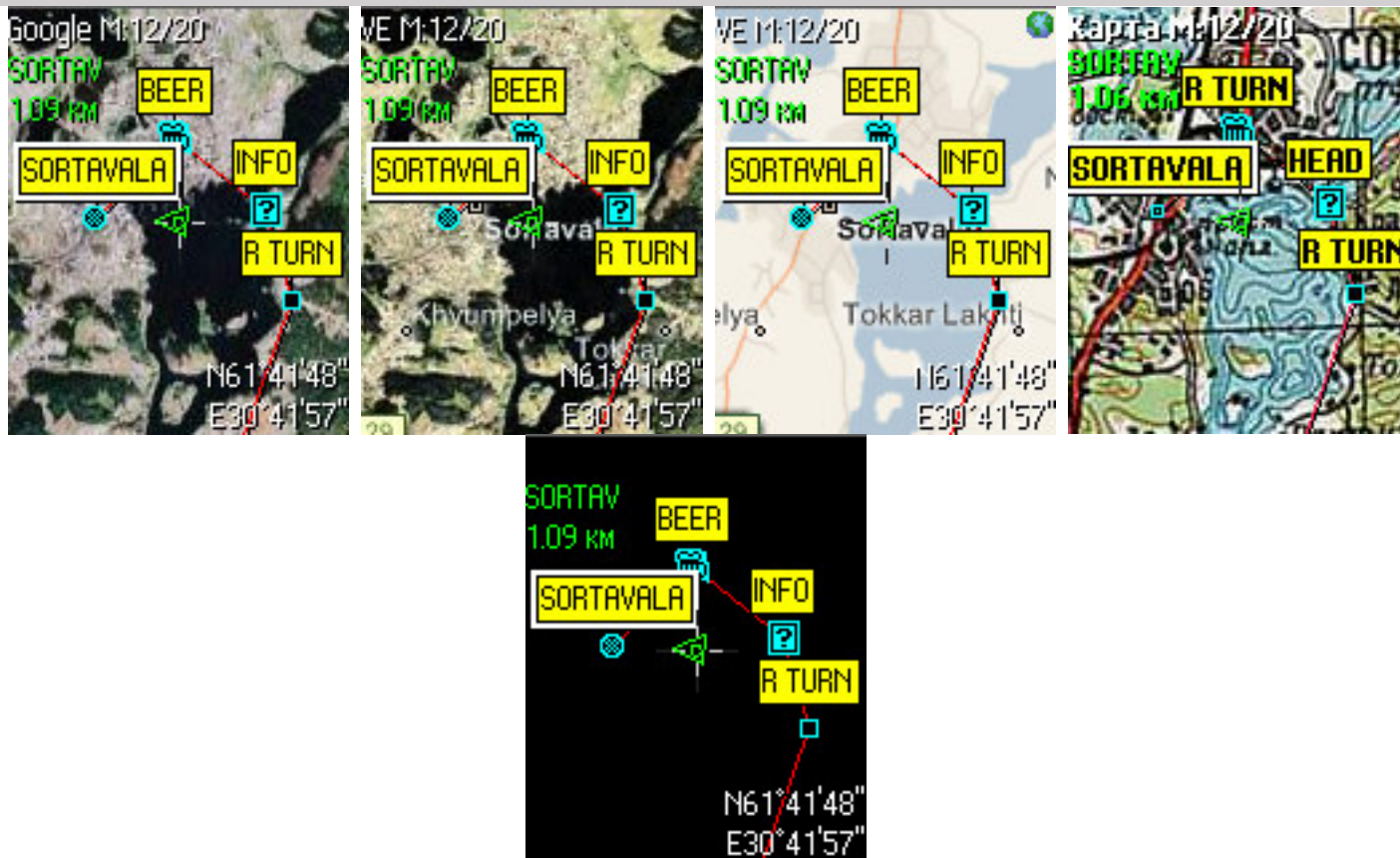
From routes MapNav loads next information of [OziExplorer](#):

- Route name and its color
- Point name, coordinates, color of text and background, symbol from Garmin set.



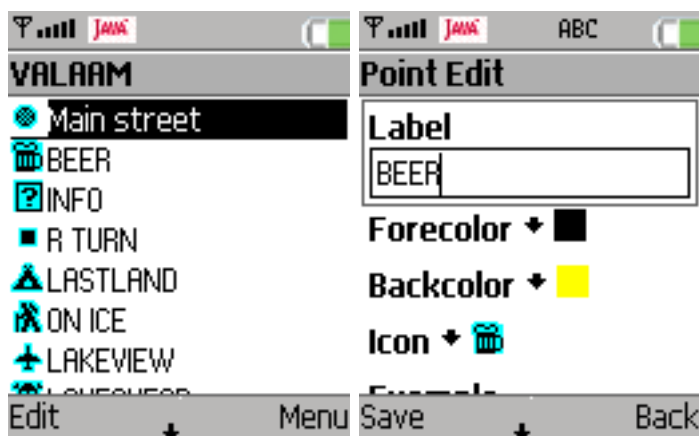
For example, have this route in [OziExplorer](#):

Then in phone you can see next screens (depends on selected map mode, or no map at all)



You also can **edit waypoints and routes** right in application. You may create and clone routes, add and remove waypoints, edit waypoints: location, label, symbol. You can also export and import all navigation objects in different formats: PLT WPT RTE (OziExplorer), KML (Google Earth), GPX (universal format).

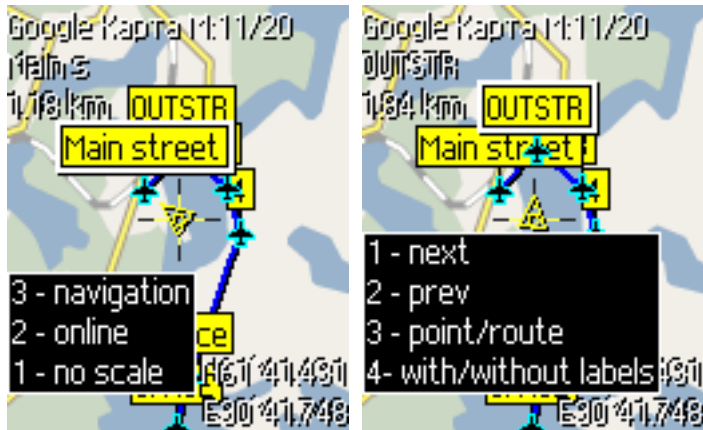
Waypoints and Routes edit



Goto to Routes/Waypoints, (close Route/Waypoints, if active), highlight route, select in menu Edit. Waypoint's list appear from the route. You may rename route, change waypoint's order, add and remove waypoints. Select waypoint in list to edit. To save changes select Save in menu. On exit program asks for changes save.

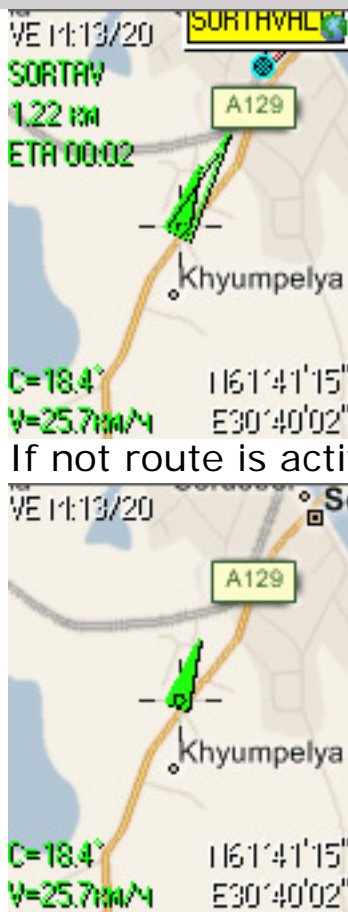
Active object handling

When you select waypoints/routes in list it becomes active. It means you they displayed on map and one waypoint become *current* waypoint. Program shows its name, distance to it from current location, ETA. When navigation object is active in quick menu (call with *) appears *Navigation* item. After press 3 quick menu for navigation is displayed. It lets you select waypoint, change object display options. When GeoCache waypoints is active additional info is available.



GPS-receiver

Of course, true navigation is possible with GPS-receiver only. You may use external Bluetooth GPS or internal. See Settings - GPS. To connect Bluetooth GPS-receiver select menu item **GPS on** (Bluetooth *must* be activated in phone before you run MapNav). After device search select your BT GPS in list and select **Connect**. After that confirm connection to BT GPS. When satellites are found and location is known you see you current location. Also your speed, direction and coordinates are displayed. Active route displays direction to selected waypoint and other important information: name, distance, ETA.



If not route is active displays speed and course only.



Important! When GPS is active not only moving map is available but rotating! To enable map rotate press * and select Rotate. After it you can also enable displaying compass over the map. Extra memory required for mode to operate, starting at 512kb...

Track record

One of the most important GPS navigation item is track record. To **start track record** (if default track is disabled or track was closed) select Navigation - Tracks - Start track. If you want to continue existed track just select it in list. Track can be selected any time but record is available with active GPS only. Track records according to **Settings - Track**. You may also see your current settings at Information screen.

Track saves every 10 minutes of record, when closed or selected other track or MapNav exit (**with use Exit menu item!**).

In Track list also available **Delete**, **Save** and **Delete all**. **Delete** will delete selected track. **Save** will offer to save selected track to selected track file format (OziExplorer , GPX) with name TRYYYMMDD_HHNN.PLT to specified path. You may send track directly to site for later review and download with Send - WWW in track menu.

Track view

Active track display on map screen. Here is a small example of snowboard ride.
[Download](#).



Using custom maps

MapNav may use maps from files. Custom maps (offline maps) are internal and external ones.

Internal maps are loaded into application so it's size is limited by free space of application location and count of tiles shouldn't be more then 10000. Map load time may take several minutes.

External maps are ready for use immediately from its location and aren't limited in size so they are more useful because no actual load comes with. But not all phones may be used with external maps due to phone capabilities (for examples, Nokia phones with Symbian OS).

To load map select in menu More... and then Internal or External maps. List of loaded maps appear. Select Add Map. Fill map name and Browse to map file. Then use menu item Add map. After map completes it loading it appear in map list. To view your maps in Settings-Maps User Map must be checked. Switch to your map with key 0 (until No appear - no maps) and then # to select each your own maps.

Prepare your custom map

Raster map conversion

Since version 2.4.7 Map Mobile Navigator can use its own raster maps. Source of maps is maps for **OziExplorer** or files **GeoTIFF** with projection **Mercator**. To prepare map you need [Download](#) Mobile Map Creator.

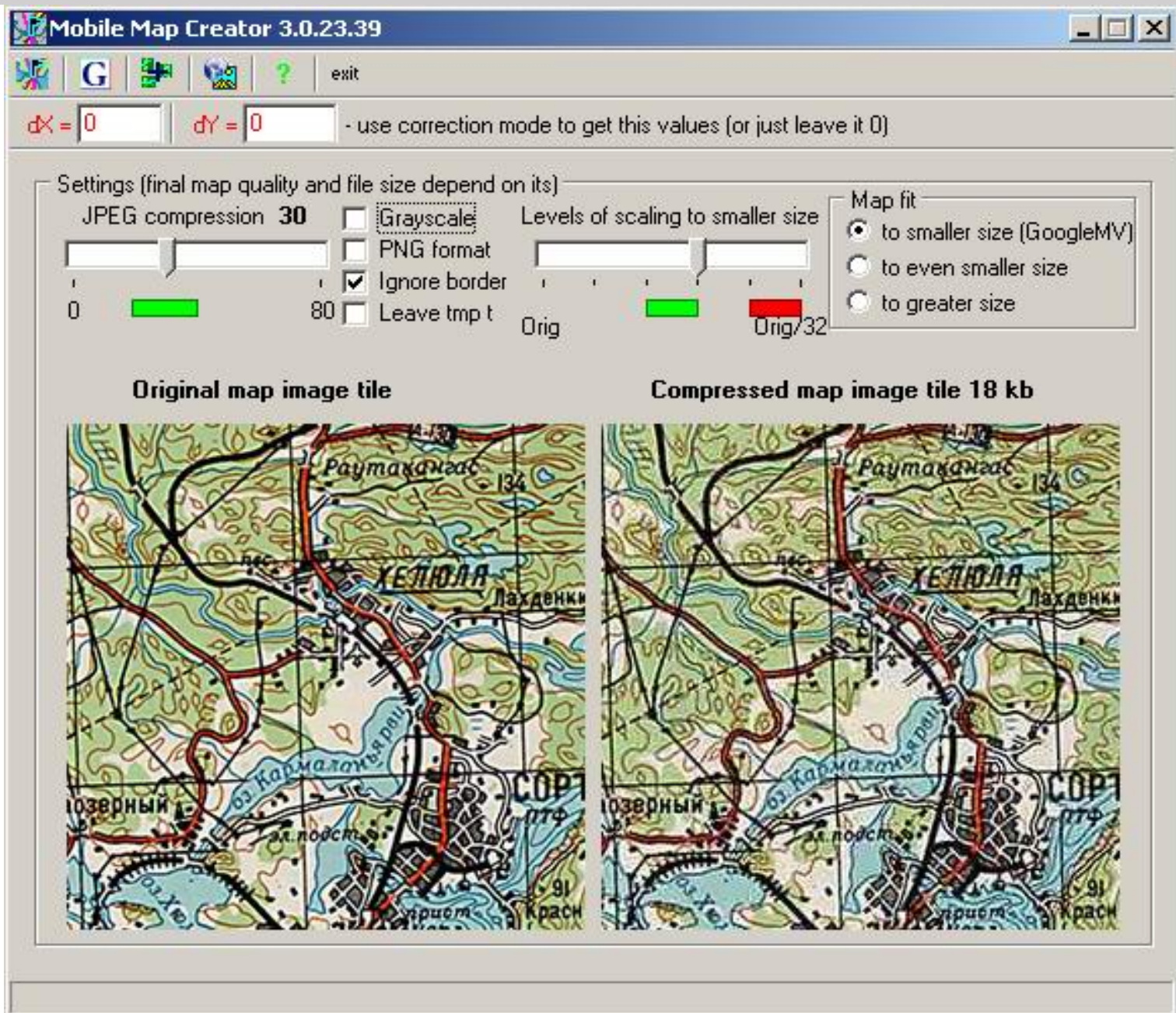
With MapNavEditor you can create your own maps with OziExplorer maps, export OziExplorer maps to GoogleMV2 cache , merge many ready maps to one. Since build 30 it creates two map files *.MNM and *.MNO.

*.MNM – internal map. It needs to be loaded before use. And the map needs free space in phone twice as map file size. After load map file may be deleted. It may be used on any phone with file access from java-applications. But large maps of the type require a lot of heap to store map tiles information.

*.MNO – external map. Connects immediately (no beforehand load needed) and may be any size. The point is to support advanced file access interface (fast position skip in file) or your external map become too slow to use. So external maps work with any phone with file access but quality of use depends on interface implementation.

Important! Map must be in Mercator projection and use datum WGS84 or Pulkovo 1942! Check map calibration in Ozi. To use map 3 points is enough (one in centre and 2 by diagonal in corners).

Map creating consists of two steps only.
Start MapNavEditor. You see next screen (may evolve with permanent development):



Step 1.

Set **JPEG compression** , map quality and file size depends on it. To help choose desired compression level two map tiles are shown, without and with compression.

You may choose how many levels of downscaled map must be available (how far you may push map from you). Changes in position of **Levels of scaling to smaller size** from Orig to Orig/32 increase map size in 1.3 . If you choose Orig , you'll be able to see map only in one scale.

Important! Modes, close to Orig/32 require much of RAM so if application says it runs out of memory decrease value of **Levels** to green area.

Parameter **Map fit** define way to create base map scale because only predefined

scales can be used (like Google Map).

For map with low color count you may want to use **PNG** format, so no JPEG artifacts will present in map.

For map fast correct use values dX & dY acquired in app, or just leave it 0.

If **Ignore borders** is checked map tiles from borders is ignored and not included in map.

Absolute black tiles are also ignored always.

Step 2.

Browse to OziExplorer map, click fist button in panel. Select *.map , after that browse for ready map store (must be enough free space).

That's all! Wait for finish. After finish you get *.mnm (internal map) and *.mno (external map), which you need to transfer in you phone. To load internal map select More in menu, Load custom map. It takes time to load large maps. To load external map goto More, External map. It connects immediately, but see notes upper. After load phone transfers you to map center at smallest scale.

Advice create mark at the location to fast return.

You still may change map with 0 and #.

Important! Map image file must be JPG, BMP or GIF. If there is no enough RAM convert map to JPEG with good quality and try again. PC with 1 Gb RAM you may convert JPG 14000x16000 pixels.

Export to GoogleMV2 cache

Bind correctness you may check by export to GoogleMV2 cache, by second button at panel.

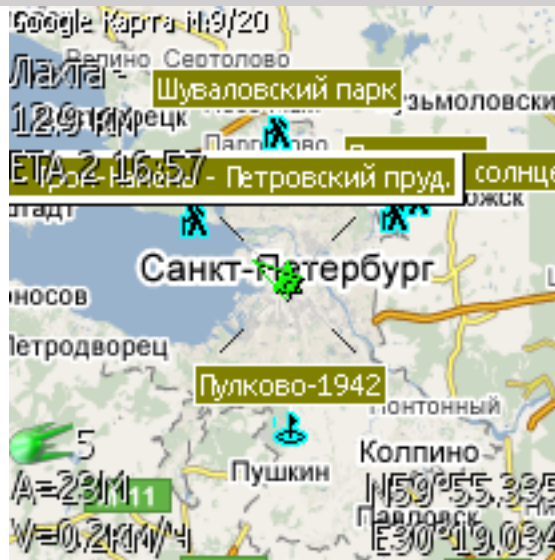
Map merge

You may merge several map files into one. Click third button at the panel. Specify file list to merge. When tile overlap occurs tiles from upper file in list are used.

Convert process automation

The application is an automation server with COM interface. So it may be used from any programming language. In the application folder are several examples on Visual Basic.

[Caches geocaching.ru](http://caches.geocaching.ru)



In section **More...** with active GPS function is available to get location of three nearest to your location caches geocaching.ru.

To get locations select **GeoCache nearest**, program will access online database and then display its on the map. Received locations become waypoints so you may select next with additional menu with key *.

Please, get familiar with [rules of the game](#) before cache visiting.

NetRadar - interuser location system

System NetRadar allows to see locations of other users as their speed and direction. User location may be seen from the application or from the site. Goto to NetRadar [Settings](#) site section and select user which may see your location. You see also list of users visible to you.

Important! While no user is added to your visibility list in Settings no data from application is stored on server.

To function in phone enter your login and password (for the site) in **Settings - NetRadar**. After it select in main menu **NetRadar On**.

To get list of users use fast menu with * key. In list you may goto user location, navigate on user or bind to it (useful when only of you has GPS).

Latest version support for real-time tracking and text and sound messages between users.

Additional abilities

Application also has next functions for your comfort (More... menu item):

Screen shot

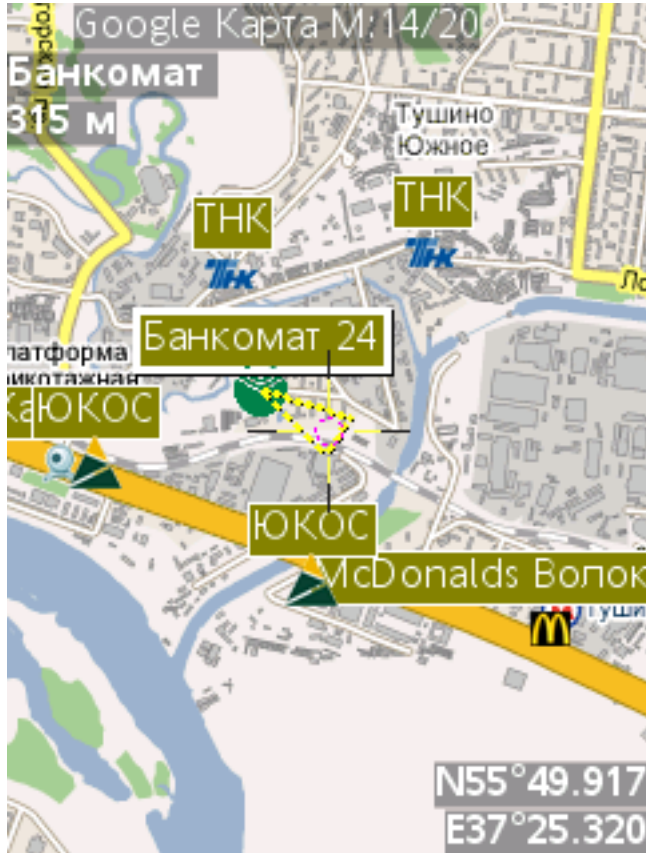
You can take screenshots from map or any other information screens and save it

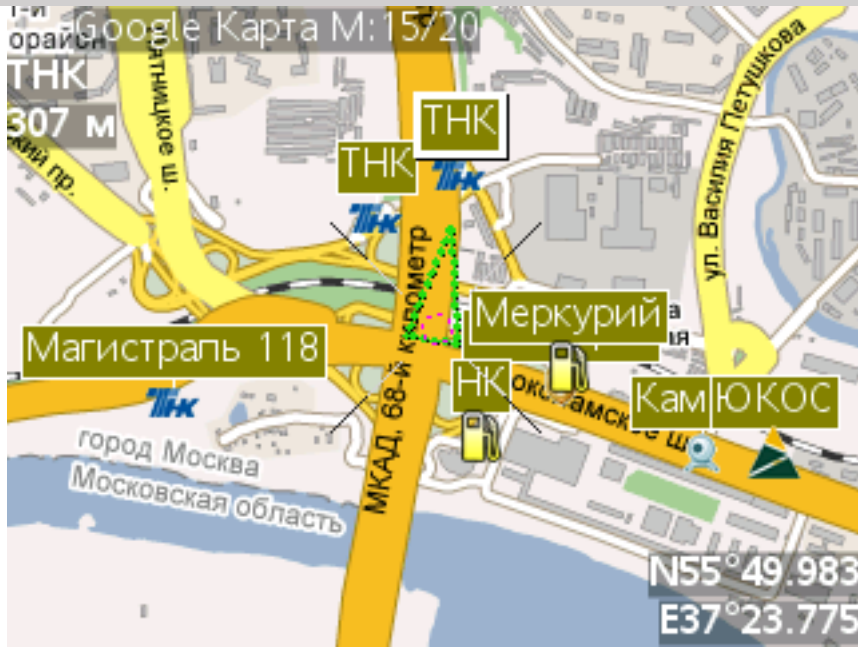
in BMP or GIF format file, or send it by MMS.

Send coordinates

This mode let you send your current position by SMS. If receiver has MapNav running he may goto to location or save it as Mark.

My POI (gps-club.ru)





Displays POI from poi.gps-club.ru, located in screen borders. You may add or edit POI by yourself. Goto to GPS Club.

Precise position

This mode accumulates GPS measurements and calculate statistics info: measurements count, maximum deviation from medium, medium coordinates, CEP50 precise (50% of made measurements are in circle of displayed radius) and CEP90 (90%).

Flickr

This mode makes photogeotagging with the phone camera. To use it register at <http://flickr.com> and authorize MapNav by the link <http://www.flickr.com/auth-72157602577356052> . Enter the result number in Registration. You may send photos from the app or ready files in phone. Its would be tagged with location from GPS or map. Mode PhotoLog - sends shots until battery is depleted or you cancel it.

How to get rid of program errors

If program displays messages with error or you see some goes wrong you can help with the program development.

You have to install **debug version** of the application, the last one you may find in [the forum section](#). After install you need open Settings - Debug, check **On**. Then Save it and restart the program. Try to reproduce wrong situation. After error then in Settings-Debug choose LogSite and log will be sent directly to

developer's site or choose LogFile and the same will be save to folder which is displayed at the same screen. Content of the error log and error symptoms post to site forum in section [Errors and troubles](#). Thank you!

Abilities of the program grow every day. If you still have any questions please visit [forum](#) of the site.

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Updated 01.04.2008 with MapNav version 4.6.0