

GPS Tag v1.5

User Guide

as of 2013.07.09



winlon

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OVERVIEW

GPS Tag is an application that is installed on mobile devices to determine their geographical position and track them.

GPS Tag can be installed on Android based mobile devices, such as cell phones, table computers, netbooks, etc. Since their location is determined mainly by GPS, GPS receiver should be enabled in a device being controlled.

GPS Tag is compatible with satellite GPS tracking systems [Wialon Hosting](#), and [Wialon Kit](#). Positional information (geographical coordinates, course, speed, etc.) is sent from a mobile device to the server of a tracking system where it is stored. Apart from positional data, text messages, images, alarms, and custom states can be sent.

Data received from a mobile device can be processed by the tracking system later on and presented in different forms such as tracks of travelled routes on the map, tabular reports, etc. (depending on the tracking system used).

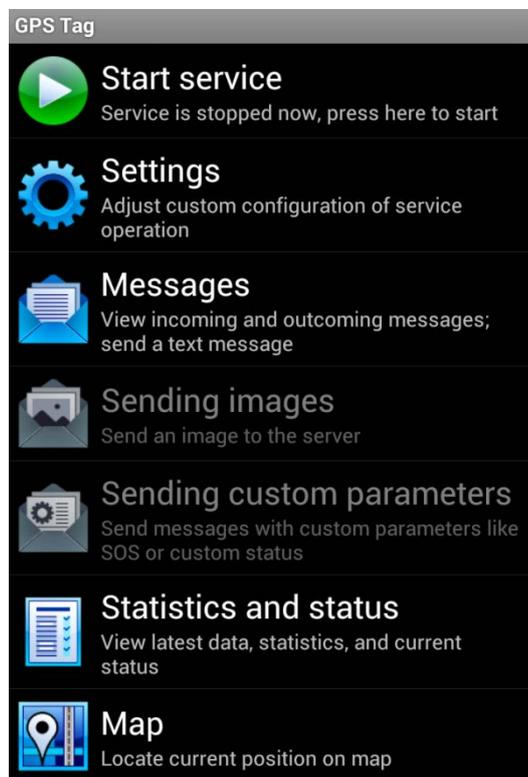
1. START/STOP SERVICE

The upper menu item shows service current status – *stopped* or *started*. It is also a switcher between these two states. If at the moment the service is started, press to stop it, if stopped – press to start.



Automatic start and stop is also possible (after reboot, while recharging the battery, or by schedule). See [2.1](#) for details.

When the service is started, its further activity depends on program settings, GPS receiver availability, connection to the Internet and server. If GPS receiver is on, the service starts generating messages with location. Otherwise, the service waits for GPS availability. If there are messages in the clipboard or in the black box and the Internet connection is established, the service connects to the server and sends messages.

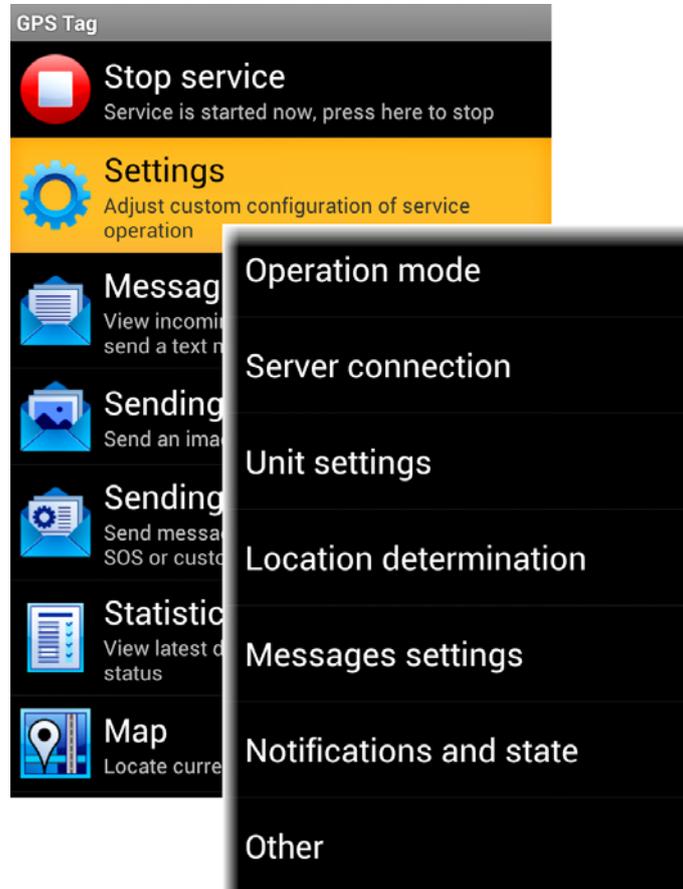


Attention!

Start and stop the service may be restricted by administration privileges (see [0](#)).

2. SETTINGS

The *Settings* section allows you to configure different parameters of program and service operation.



Attention!

Access to settings can be restricted by administration privileges (see [0](#)).

2.1. OPERATION MODE

2.1.1. Operation mode

The service can work continuously or by timeout.

In the first case (*Continuous work*), data is requested all the time. If GPS receiver is not available, the service will wait for its availability and then try to determine location. In this mode, the battery is consumed rather actively. That is why this mode is recommended only if you have possibility to recharge the battery at any time.

In the second case (*By timeout*), the service addresses to GPS receiver and tries to determine the current position by timeout, for example, once in 20 minutes. The service analyses up to three messages during two minutes and generates a message if successful. After that, the mobile device returns to the sleep mode till the next time.

2.1.2. Timeout

This parameter is meaningful only if the operation by timeout is chosen above (in [2.1.1](#)). Timeout value should be no less than 5 minutes.

2.1.3. Work in roaming

Depending on this checkbox state, the mobile device will send data when in roaming or not.

2.1.4. Auto startup

Mark this checkbox to automatically launch GPS Tag after your mobile device has been rebooted.

2.1.5. Work while being charged

Automatically launch GPS Tag service when the charger is connected and stop it when the charger is disconnected.

2.1.6. Work by schedule

The service can be started and stopped automatically by schedule and operate, for example, only during the working hours of the day. You can indicate as

many intervals for service operation as you want. Set start and stop time for each interval individually and specify days of the week if necessary. All intervals appear below.

2.1.7. Schedule

This section contains intervals for scheduled start/stop of the service. Each interval has its beginning and end time and days of the week this interval is applied. Click on an interval to edit or remove it. To add more intervals, press the previous option – ‘Start/stop by schedule’ and specify time and days.

2.2. SERVER CONNECTION

2.2.1. Server address

The service is compatible only with GPS tracking systems [GPS-Trace Orange](#), [Wialon Hosting](#), and [Wialon Kit](#). Choose one and enter its server address here.

2.2.2. Remain connected

If the checkbox is on and there is the Internet connection, the service will hold connection to the server continuously. It is mainly useful for receiving incoming messages from the server.

If the checkbox is disabled, the service connects to the server only when it needs to send new data.

2.3. UNIT SETTINGS

2.3.1. Unit unique ID

Unit unique ID is an identification code used to recognize your mobile device in the tracking system. It can be the same as IMEI code of the mobile device or some other but not shorter than 8 symbols.

2.3.2. Use password for unit

If it is required to use access password for the unit, enable this checkbox, and type the password below. In addition, the same password should be duplicated

in the tracking system, in the unit properties dialog. Otherwise, data coming from the unit will not be registered on the database.

2.3.3. Unit password

Here you enter the access password for the unit. It has sense only if the option [2.3.2](#) is enabled.

2.4. LOCATION DETERMINATION

2.4.1. Positioning source

This option allows to choose the source to determine your geographical position. It can be GPS (default), wireless networks (such as Wi-Fi and cellular networks), or both. Note that the appropriate options should be enabled in the settings of the mobile device itself.

2.4.2. Filtration of messages

If you activate this option, parameters listed below will be applied to messages as they are prepared to be sent to the server. This filtration can be applied only to messages generated by GPS, because if wireless technology is used, such data as speed, course, satellites count, etc. is unknown, and accuracy can exceed 2000 meters.

Below, the conditions of filtration are set up. Note that the operation of logical *OR* is applied to these parameters, so that a new message is generated if any of conditions is met. This does not concern *Max accuracy* and *Max speed* as they are provided to exclude messages with unlikely large values (potentially invalid messages).

2.4.3. Min time interval

Minimum time interval between messages (in seconds). That is a new message is generated when the indicated time has passed since the previous message.

2.4.4. Min distance

Minimum distance between messages (in meters). That is a new message is generated if the unit has travelled the indicated distance since the previous message.

2.4.5. Change in course

Indicate change in course angle to send a new message (in degrees).

2.4.6. Change in speed

Indicate change in speed (difference in speed between previous and current messages) that will be considered as significant enough to send a new message.

2.4.7. Max accuracy

Maximum value of accuracy (in meters). If exceeded, such message is considered invalid and not sent to the server.

2.4.8. Max speed

Maximum value of speed (in kilometers per hour). If exceeded, such message is considered invalid and not sent to the server.

2.5. MESSAGES SETTINGS

2.5.1. Use custom messages

If this flag is enabled, message contents can be extended with advanced parameters which are chosen below.

2.5.2. Provider name

This parameter is applied to positional messages. It allows to include information about the source of location data. It will have the name 'p' in messages.

2.5.3. Accuracy

If this option is chosen, positional messages will contain 'a' parameter with information about accuracy of detected location (in meters).

2.5.4. Battery level

The parameter will be called 'b' in messages and will indicate battery charge level at the moment of message (percentage).

2.5.5. New custom status

Here you can create a new custom status, for example, 'free/busy', 'public/private', 'in office/travelling/with client' and many others. Those statuses can be sent in messages. Here you set only a name for the status and other parameters are configured below.

2.5.6. Custom statuses

All created custom statuses are listed here. Choose one to view or edit its parameters:

- Name: .
- Values: a custom status can obtain any number of values depending on what you configure here. Adjust an intelligible text for each numeric value, for example, 0 – 'Free', 1 – 'Busy', 2 – 'Away'. Attention! When deleting values from the middle of the list, lower lines shift up (that means they change their numeric value).
- Message format: numeric, textual or both values of a custom status can be sent in a message. If you need to save traffic, choose only numeric value. Textual value comes in messages as 'ptN', where N is the index which is applied to the status automatically. Numeric value comes as 'pnN'.
- Always send last: set this flag to receive the value of this custom status in each positional message (similar to provider name, accuracy, and battery level). This option is available only if the option 'Use custom messages' is enabled (see [Ошибка! Источник ссылки не найден.](#)).
- Delete status: choose this item to delete custom status with its configuration.

2.6. NOTIFICATIONS AND STATE

2.6.1. Notifications

Depending on this checkbox state, events happening in the background mode will be displayed in the notification panel or not. These can be such events as a new incoming message, connection troubles, and others (you choose them below). If there are any notifications, a special sign appears in the notification panel (see the icon on the right) 

2.6.2. Play sound for events

This option assumes that all new event will be played in some way – would it be a sound, vibration, illumination, or a combination of these (it depend on the device's settings). It works only if the previous item is checked.

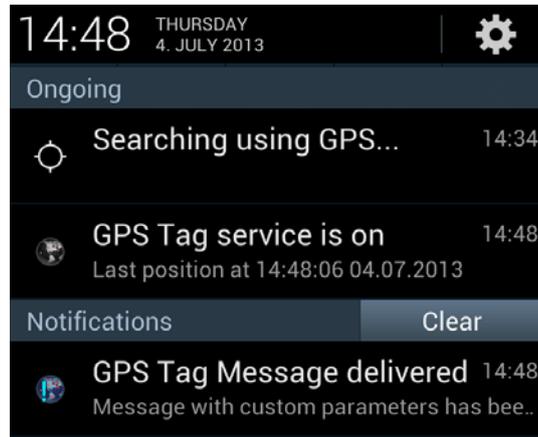
2.6.3. Types of notifications

Here you select events to display notifications for. The list is as follows:

- Connection error (in case no connection to the server can be established);
- ID or password failure (in case unit ID or access password are invalid);
- New message (in case of a new incoming messages received from the server);
- Delivery report for a text message (a notification saying that your text message has been delivered successfully);
- Delivery report for an image (a notification saying that your message with an image has been delivered successfully);
- Automatic start/stop of the service (in case the service has been started automatically after reboot, while recharging the battery, or by schedule);
- Delivery report for messages with custom parameters.

2.6.4. Show service status

If this option is enabled, a special icon is displayed in the notification panel to indicate that GPS Tag is working at the moment. If you expand the panel, you will find the time of latest generated message. Besides, this notification serves as a shortcut to quickly load the application. 



2.7. OTHER

2.7.1. Use stock camera application

If the checkbox is enabled, the stock camera application is used for making pictures to send (see [4.1](#)). This works with any kind of mobile devices, however the image will be of a small size.

If the checkbox is disabled, the internal camera application will be used to make pictures. This application has minimum functionality, however the images will inherit settings from the camera of the mobile device. This might not work with some kinds of mobile devices.

2.7.2. Debug mode

If the checkbox is enabled, log files are saved in the *.GPS Tag* folder. This mode is recommended when you just start using the program. Then, when all necessary features have been tested, the debug mode can be disabled.

If you have encountered any bugs or crashes, it is advisable that you send log files to the developers for further analysis. See [2.8.1](#) for details.

2.7.3. Image packet size

This parameter is used when sending images. The value depends on the outgoing Internet connection speed. For example, image packet size of 50 000 is good for speed of 512 kbps (upload).

2.7.4. Use admin password

Choose the option if you would like to make configuration of GPS Tag available only to those who have administration privileges. Without entering a password, user will be unable to start/stop the service (1) or view/change settings (2).

2.7.5. Administration password

Enter administration password to be checked.

2.8. ADVANCED SETTINGS

If while being in *Settings* you press the MENU button, more options will be loaded in an additional window. On the top, program name, version, and date of issue are displayed.



2.8.1. Send log files

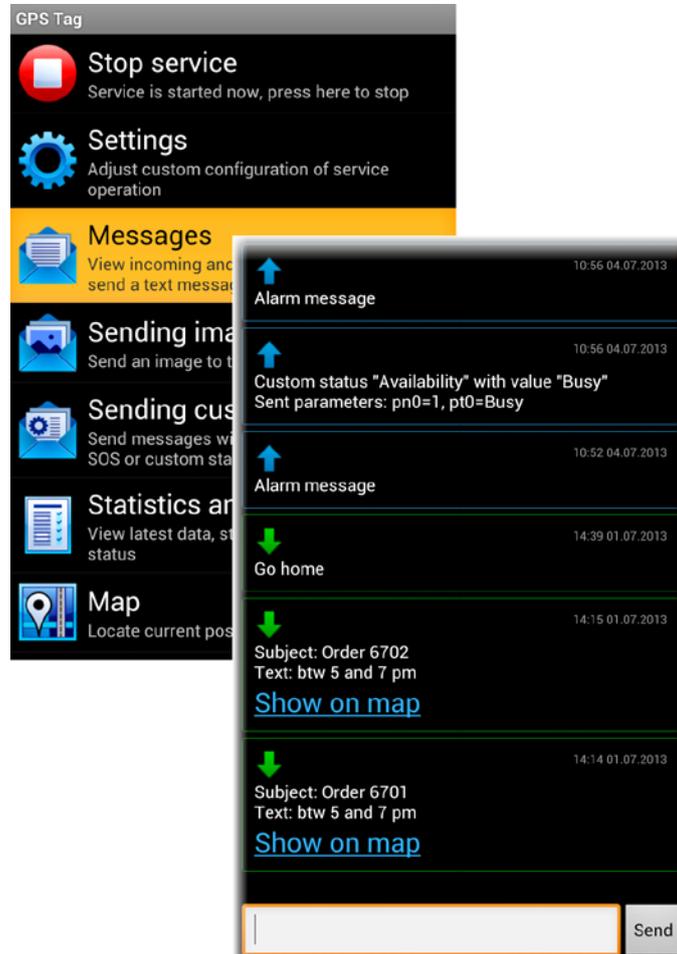
This is to send log files to the developers by e-mail. E-mail address, message theme and text are filled in automatically, and log files are attached to the letter. It works only if you have a mail client installed. However, you can send log files manually – to development@gurtam.com.

2.8.2. Reset to defaults

This option is to reset all settings to their default values.

3. MESSAGES

On the Messages page, you can see all incoming and outgoing messages as well as send a text message to the server.



The number of unread messages is indicated in brackets (if there are any).

3.1. VIEWING MESSAGES

Messages are displayed chronologically in the reverse order (the latest message is always on the top).

In the right corner, message date and time are indicated. If there is any text or image in the message, they are displayed, too. If there are any coordinates available, the link *Show on map* is added (see 3.3 to learn how it works).

Special icons indicate message type and status: incoming / outgoing, delivered / not delivered.

3.1.1. Incoming messages

 – incoming message.

Messages can be sent to GPS Tag from the tracking system with the help of appropriate commands:

- *Send position.*
Coordinates can be sent with this command. Useful if it is necessary to indicate a destination point (like new delivery address or something). Besides, coordinates can be accompanied by any textual information.
- *Send message to driver.*
This command allows sending a plain text.

3.1.2. Outcoming messages

 – delivered outgoing message;
 – undelivered outgoing message.

Messages from GPS Tag back to the tracking system can be images (see 4 for instructions), text (see 3.4 for instructions), alarms or custom statuses (see). They are forced by user unlike positional messages with coordinates.

In the tracking system, messages can be observed through the Messages Mode (data messages, sent commands) and in several types or reports (Chat, Executed commands).

3.2. ACTIONS WITH MESSAGES

Click on a message to perform an action over it. Choose one of available actions: show details, copy contents, or remove message.

3.2.1. Show details

Typical details are message type (incoming/outcoming), time and date message was sent, and message contents (text/image/position). Depending in message type and contents, there can be more details. For example, outcoming message will have delivery status (delivered/not delivered) and delivery time (if delivered), file path is indicated for images, message length is calculated for plainly text messages.

3.2.2. Copy contents

Message contents can be copied to the clipboard and afterwards pasted into another message. Only text and coordinates can be copied.

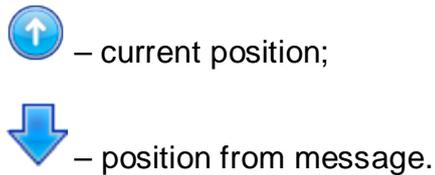
3.2.3. Remove message

If you select *Remove message* option, the selected message is removed from the list. However, it still remains in the tracking system.

It is possible to remove all messages at once. To do this, press the MENU button when being on the *Messages* page. Then, a special  button will appear at the place of text message input. Press it to proceed. Then confirm your intentions or press Cancel to return to the messages list without doing anything.

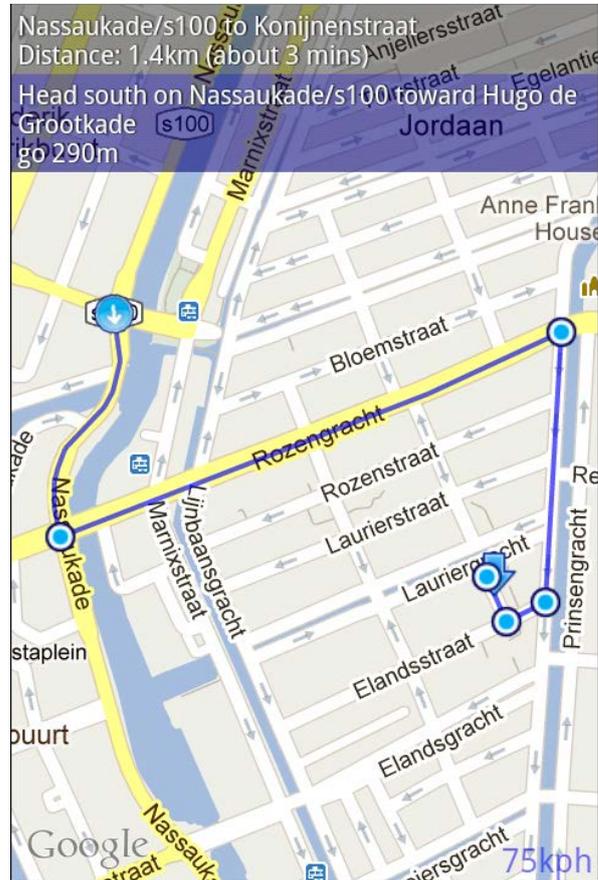
3.3. POSITION AND ROUTES

A message, either incoming or outgoing, can contain coordinates (position). In this case, the option *Show on map* is displayed underneath. If you press it, the map is displayed with two markers on it. One indicates your current position, and the other shows position mentioned in the message.



Two markers are connected with a dashed line. To see a possible route to the destination point, press *Calculate Route* button above. Routes are built along roads. Route details like departure and destination addresses, route distance and assumed time are given above. Round blue markers are set in turning points – press those markers for more instructions in tooltips. If you press the destination point marker, message text is shown (if there is such).

For more manipulations with map, see 7.



3.4. SEND A TEXT MESSAGE

You can send text messages from *GPS Tag* to the server. Sent messages are displayed in a special window in the tracking system, so that an operator (or other user who has access to this unit) could read this message. They also can reply to the message from the interface of the tracking system.

To send a text message, type it in the input below the list of messages and press *Send*.

4. SENDING IMAGES

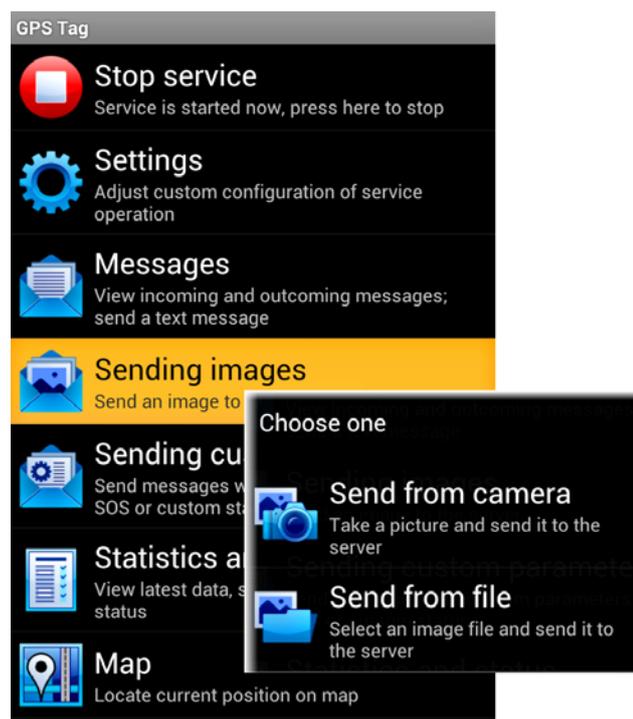
Not only a text message but also an image can be sent to the server. It is also stored in the database and can be used for different tracking purposes.

4.1. SEND FROM CAMERA

This option allows sending images captured with the camera of the mobile device. You can choose either standard or special application for the camera (see [2.7.1](#)).

4.2. SEND FROM FILE

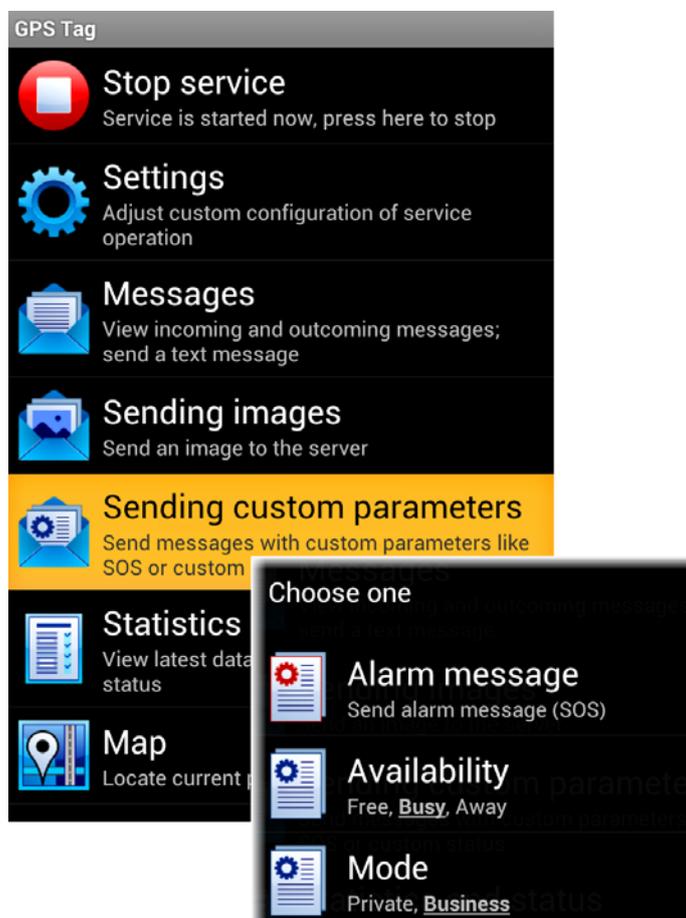
This option allows sending any image stored in the memory of the mobile device. When you choose this option, image viewer or file manager are loaded, and there you can select an image for sending.



All sent images can be explored on the Messages page (see [3.1](#)).

5. SENDING CUSTOM PARAMETERS

Here you can send messages containing special parameters. This is either an alarm or a custom status such as 'busy/free', etc. Values for such statuses are adjusted manually (see. [Ошибка! Источник ссылки не найден.](#)).



5.1. ALARM

Alarm message (SOS) can be sent in the case of a critical situation. In the tracking system, data message with alarm will contain the parameter 'SOS=1'.

5.2. CUSTOM STATUS

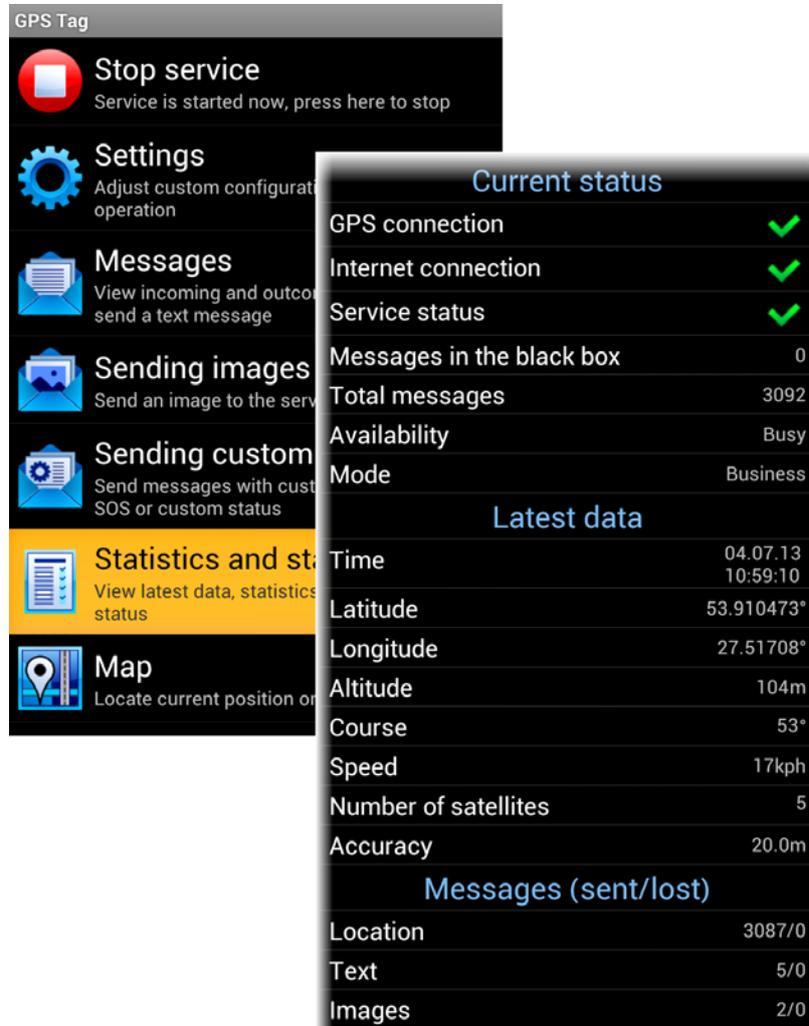
User can create any number of custom statuses, for example, 'Status 1' can obtain values 'Free', 'Busy', 'Away'; 'Status 2' can obtain values 'Private', 'Business', and so on. To apply a status, choose it from the list and set the appropriate value for it. The status which is active at the moment is bold and underlined on the list.

Custom statuses appear in data messages in the tracking system with parameters 'ptN' (textual value of custom status) and 'pnN' (numeric value of custom status).

Sent parameters (both alarms and custom statuses) can be used in the tracking system to adjust notifications (notification type should be 'Message parameter control'). You can be notified about alarms and custom statuses by e-mail, SMS, online popup message, or you can register such events in unit's database and generate reports on them.

6. STATISTICS AND STATUS

This section provides latest data, current statuses, and different statistical information such as messages sent/lost/queued/total.



The screenshot displays the 'GPS Tag' application interface. On the left is a vertical menu with the following items:

- Stop service**: Service is started now, press here to stop
- Settings**: Adjust custom configuration operation
- Messages**: View incoming and outgoing messages, send a text message
- Sending images**: Send an image to the server
- Sending custom messages**: Send messages with custom status, SOS or custom status
- Statistics and status**: View latest data, statistics, status (highlighted in yellow)
- Map**: Locate current position on the map

On the right, the 'Current status' panel is open, displaying the following information:

Current status	
GPS connection	✓
Internet connection	✓
Service status	✓
Messages in the black box	0
Total messages	3092
Availability	Busy
Mode	Business
Latest data	
Time	04.07.13 10:59:10
Latitude	53.910473°
Longitude	27.51708°
Altitude	104m
Course	53°
Speed	17kph
Number of satellites	5
Accuracy	20.0m
Messages (sent/lost)	
Location	3087/0
Text	5/0
Images	2/0

6.1. CURRENT STATUS

6.1.1. GPS connection

Shows whether GPS receiver is on in the mobile device.

6.1.2. Internet connection

Shows whether there is the Internet connection at the moment.

6.1.3. Service status

Shows whether the service is started or stopped at the moment.
To start/stop the service, see [1](#).

6.1.4. Messages in the black box

Shows the number of messages in the black box, that is queued messages ready to be sent to the server.

6.1.5. Total messages

Shows the total number of messages with position (coordinates) that have been generated by GPS or wireless networks. Text messages and sent images are not included there. The success in sending messages is neither taken into account.

6.1.6. Custom statuses

They bear names and values given by the user (see [Ошибка! Источник ссылки не найден.](#) and [Ошибка! Источник ссылки не найден.](#)).

6.2. LATEST DATA

The freshest data about unit location is displayed here. It is updated dynamically when a new data comes.

6.2.1. Time

Date (above, in the format *dd.mm.yy*) and time (below, in the format *hh:mm:ss*) of the message from which the latest data is taken.

6.2.2. Latitude

Geographical latitude of the last position (in degrees).

6.2.3. Longitude

Geographical longitude of the last position (in degrees).

6.2.4. Altitude

Elevation above sea level (in meters).

6.2.5. Course

Course is a direction of movement. It can take on the values from 0 to 360 degrees, where 0° is a course strictly northward, and then the value increases clockwise.

6.2.6. Speed

Speed of movement in kilometers per hour. It is calculated by GPS receiver mathematically considering position in the previous message.

6.2.7. Number of satellites

Number of satellites locked in the last message.

6.2.8. Accuracy

Measure of possible inaccuracy (in meters). Knowing number of satellites and accuracy, you can judge whether the data is reliable enough.

6.3. MESSAGES SENT / LOST

6.3.1. Location

Number of messages with position (coordinates) successfully sent to the server (before slash) and messages that were not sent for some reason (after slash).

6.3.2. Text

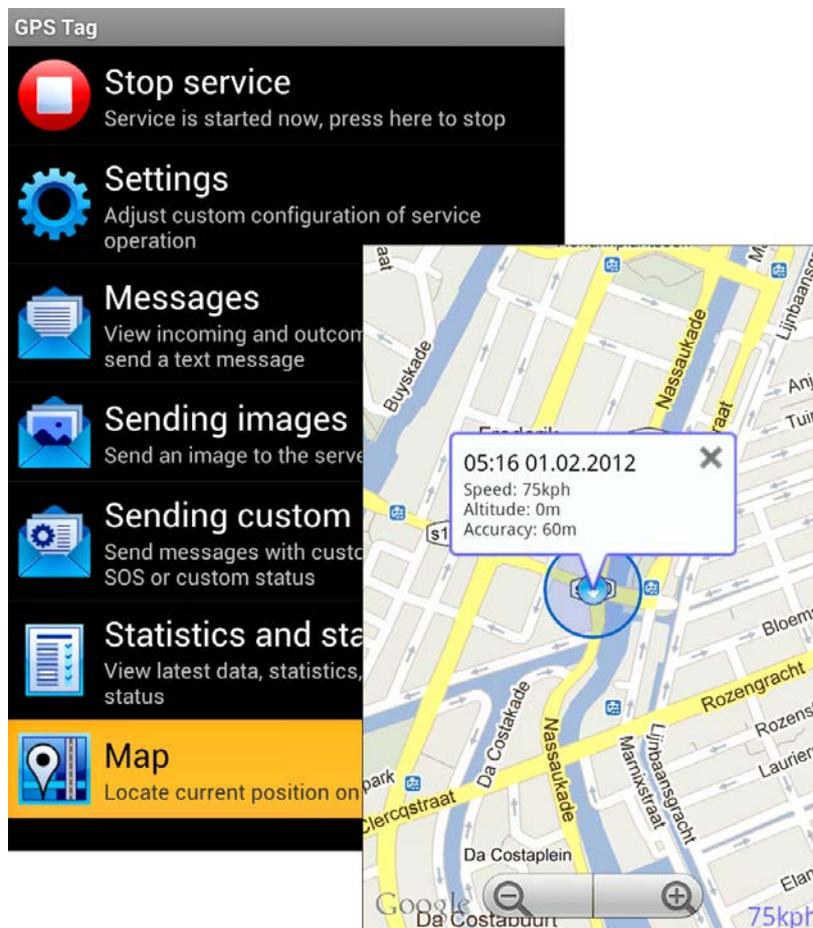
Number of sent and lost text messages.

6.3.3. Images

Number of sent and lost images.

7. MAP

To see your current position on the map, choose the *Map* option on the main menu.



Google Street Maps are used to visualize your location. Current position is marked with a round blue icon with an arrow inside. The arrow shows course of movement. A semitransparent blue circle around the icon shows position accuracy.

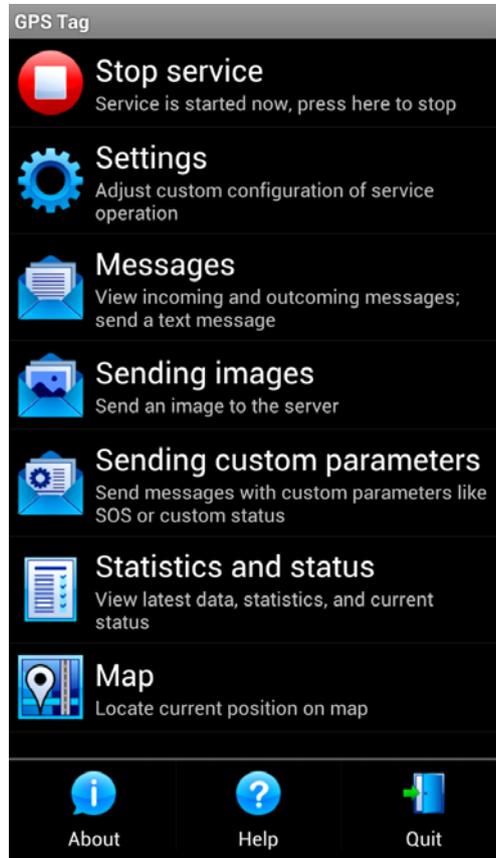
Press the icon to read details in a tooltip: time, speed, altitude, and accuracy (see 6.2 for details). Besides, speed is additionally indicated at the right bottom corner.

You can move the map in any direction and zoom it in and out. To move the map, simply drag it in the desired direction. To change map scale, use plus/minus buttons at the bottom.

Routes from the current point to a destination point can be calculated and shown on the map. For more information, see 3.3.

8. MENU

Being in the main menu, press the MENU button to get access to three more options: *About*, *Help*, and *Quit*.



8.1. ABOUT

Press to see program attributes (name, version, and date of issue) as well as information about the developer.

8.2. HELP

Press to load *GPS Tag User Guide* with detailed description of all functionality (PDF document).

8.3. QUIT

Press to close the program. At that, the service can continue working in the background mode.