The tool for organizing high-quality military simulation games

«ComBat Games»

Navigator

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1. Login screen

ComBat Games Navigator is a server-based application, which can provide its functionality only after successful login into the game server using certain user credentials. Each application user must have a unique login, which will be used to identify the owner of each specific Android device. First application launch always shows **Login Screen** to enter user credentials or register new user.

To sign into the application, fill user credential fields and press **"Login"** button to the right of them.
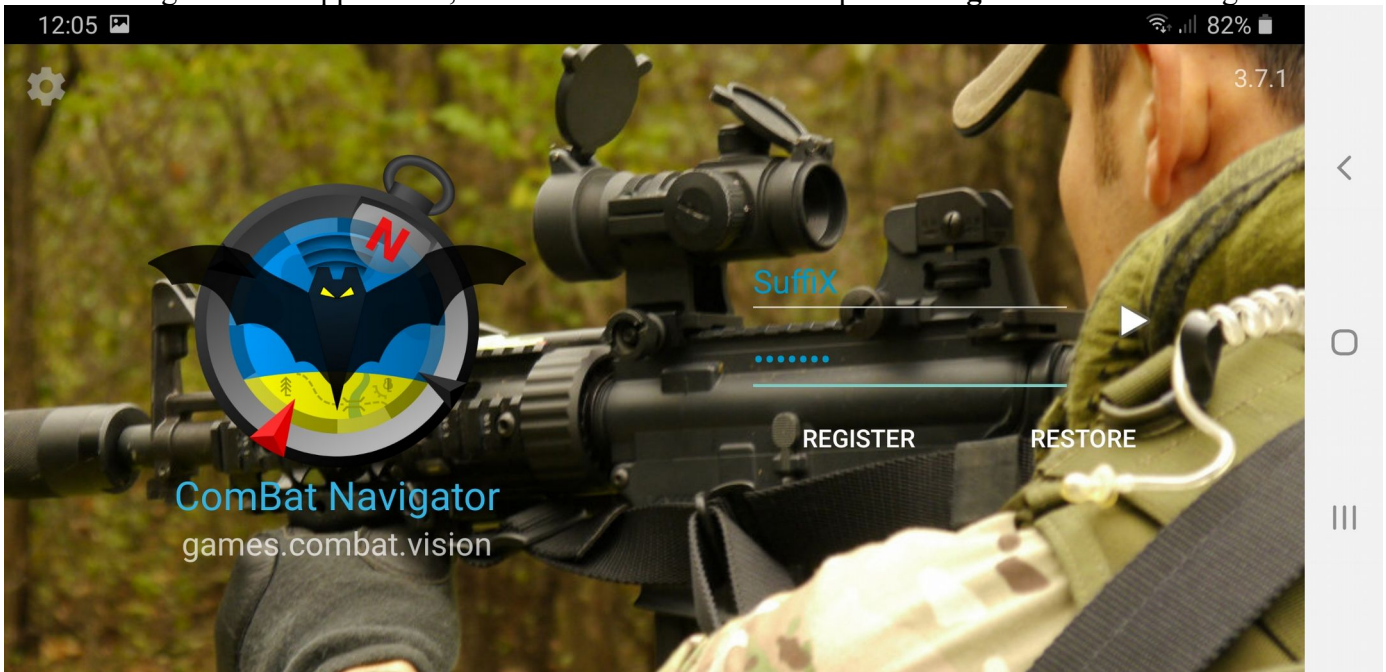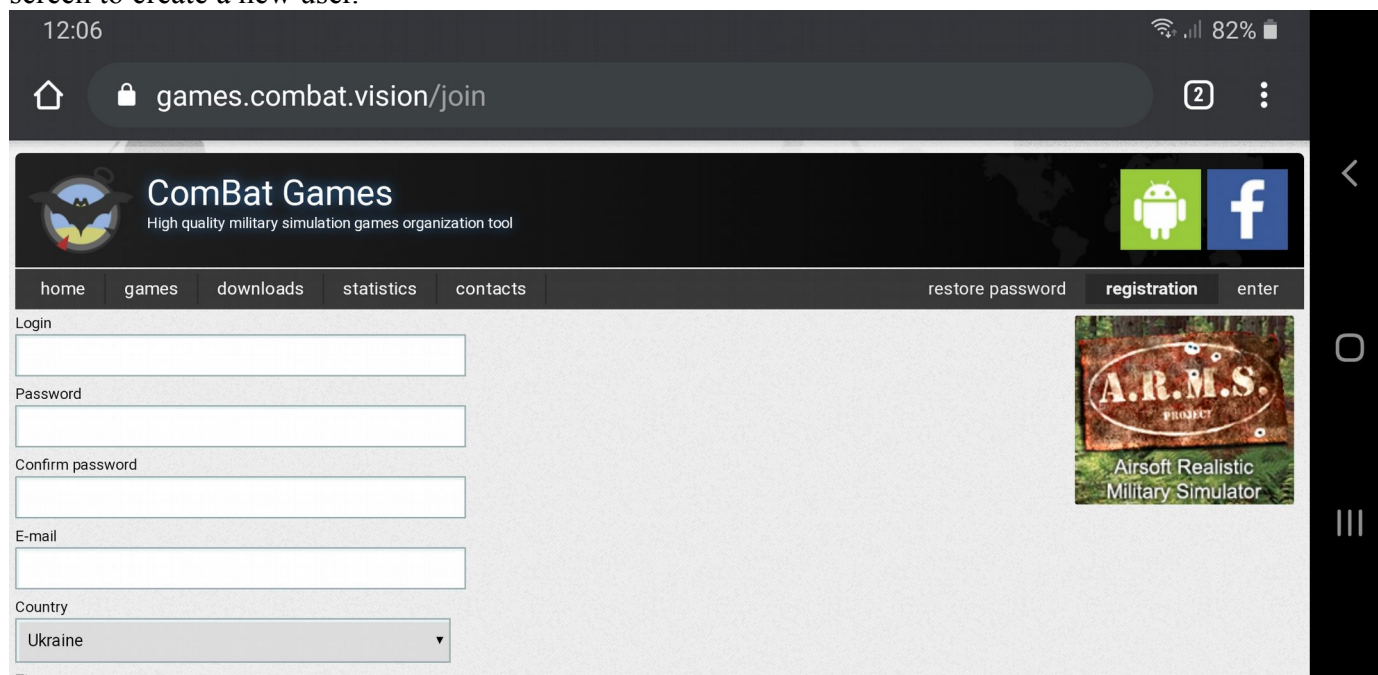

Login process can be **online** and **offline**. Login in online mode is required to receive settings and permissions of current game from server. Login in offline mode is possible only if the user has successfully logged in online mode at least once. In offline mode user can join only the last played game. He can create any marks on it, but they will not synchronize with the server and other users until there will be a possibility of online access. When online access appears, the application automatically logs into the server with the previously specified password and switches to online mode with the ability to synchronize.

Successful user credentials check is not the only requirement to start application. The game master must define the game territory, create a game instance based on it, connect user teams to the game etc. The procedure for creating a user, team, territory and game is described in the **WEB server manual**.
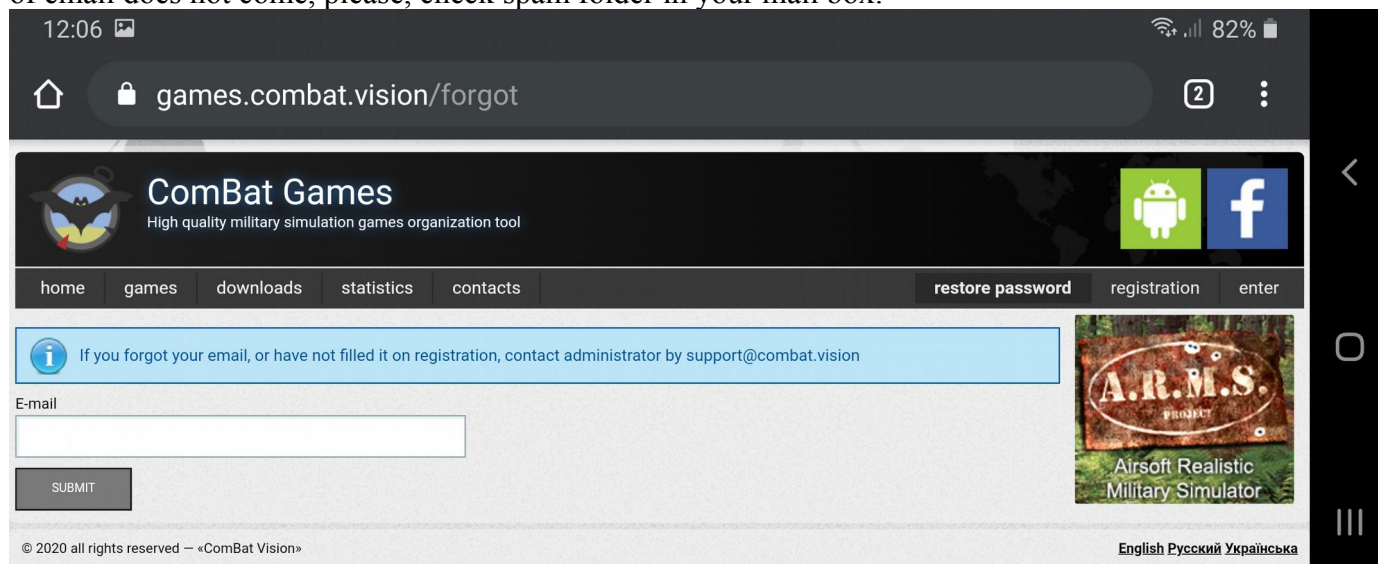
Click the **Logo** to visit server configuration web-site.
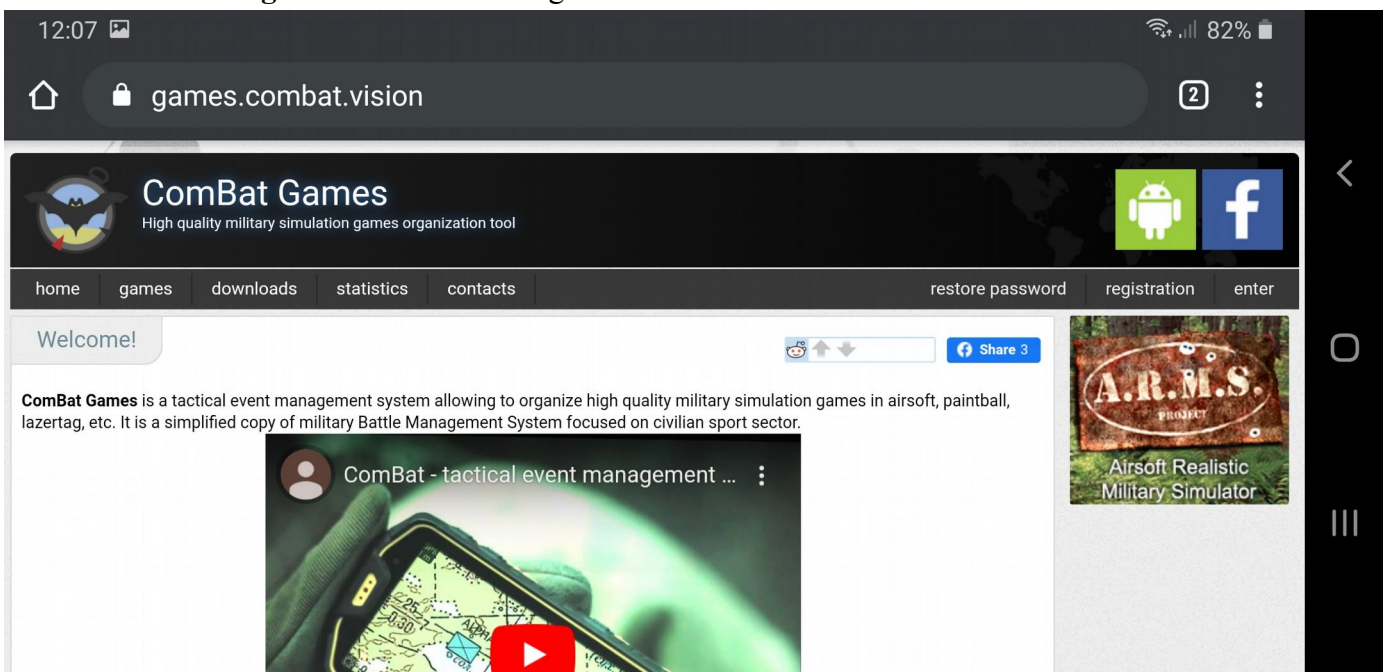
The **"Register"** button on the login screen opens registration screen where it is possible to specify login, password, email and other user-specific information. Press "Submit" button on the registration screen to create a new user.

The **"Restore"** button on login screen redirects user to the password recovery screen. Enter email address, press "Submit" button and follow instructions in the incoming email to restore password. In case of email does not come, please, check spam folder in your mail box.


Authorization process may face such problems:

1) **There is no connection to the server** - offline login is not possible, because the user logs in for the first time, and the online login failed due to the lack of connection with the server. Check your network connection settings.

2) **Incorrect username or password** - the user is trying to log in with a non-existent name or the password does not match. Check the password or register new user on the server (click the "Register" button).

3) **You are not in a team** - the specified user is not connected to any of the teams on the server, which makes it impossible to log into the game, since not individual users, but entire teams are connected to the game. Go to the system server and send a request to enter one of the teams, or create your own team (see the WEB server manual).

4) **The current game is not selected** - the user enters the team, but the current game is not selected on the server, as a result, the client does not know which game to log in to. Go to the server and select one of the games in the "My Games" list (see the WEB server manual).

5) **A new version of the application has been released** - you are not using the latest version of the program. It is advisable to update the application to the latest version, as it may contain bug fixes or useful features. To do this, click the "Update" button in the dialog.

6) **The application version is outdated** - you cannot log in with the current version of the program, since it is no longer supported. It is necessary to update the application by clicking the "Update" button in the dialog.

7) **Unknown error** - an unexpected error occurred while trying to log in, which cannot be resolved without contacting support. Contact your system administrator and describe under what circumstances this error occurs. Administrator contacts can be found on the WEB server in the Contacts page.

8) **The role is changed** - this error means that user permissions were changed or user was moved to another game side and re-login required. No action is required from the user side, the system will re-login itself automatically.

9) **The user is blocked by the administrator** - it means the server administrator forcibly blocked the entrance of selected user. Contact the server administrator or game master to unlock.

10) **The session has ended** - an error occurs when the user has not synchronized for a long time and exceeded the allowed interval. No action is required from the user, the application will automatically perform re-login.

2. Home screen

The home screen of the Android application look like following:
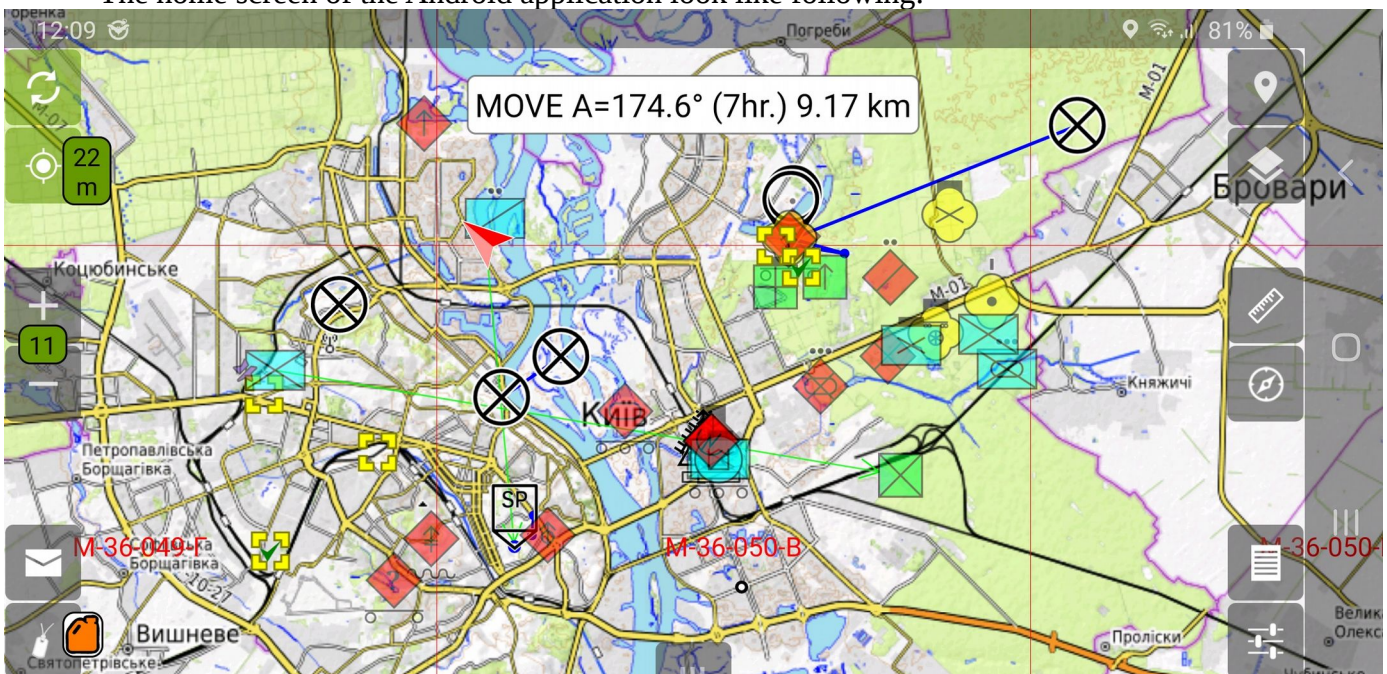
Synchronization button allows the user to force the data synchronization mechanism to transfer the changes made by him on the map to the server and get changes made by other users from the server. Typically, the system automatically calls synchronization, at intervals of 10 seconds to 30 minutes, specified in the program settings (see Section "Program settings").

The black color of the button means that there has not been any synchronization yet.

The yellow color of the button means that data transfer is in progress. The button turns yellow for the duration of the data transfer when the user clicks on it, or when the automatic synchronization period specified in the program settings occurs (see Section "Program settings").

A green button means that the previous synchronization completed successfully.

 The red color of the button means that the previous synchronization attempt failed. This means that at the time of the last synchronization, there was no connection to the server or connection lost in progress. In this case, the changed data will be re-sent to the server at the next synchronization moment specified in the settings, or when the user clicks on this button.

Note: All elements on the map are buffered in the program memory, which prevents the loss of changes even if you exit the program without prior synchronization. The only exception is when the user does not have rights to the local cache.

The change counter reflects the number of changes the user has made since the last synchronization. The counter is reset after each successful synchronization.

Positioning button - automatically moves the user's mark on the map, according to the position of the Android device using the GPS / GLONASS positioning system. Typically, the system automatically causes an update in the user's position, at intervals of 30 seconds up to 30 min. specified in the program settings, or continuously (see the "Program Settings" section).

Note: Please note that in periodic mode, the position of the user's label does not change constantly, but discretely in the specified time interval.

 The black color of the button means that automatic movement of the user's label on the map is currently not performed. Probably, the manual mode for updating coordinates in the settings is turned on.

 The yellow color of the button means that the process of establishing communication with GPS satellites is in progress. The button stays yellow until the positioning accuracy is satisfactory. In this case, the positioning accuracy is displayed in the upper right corner of the button. At this time, in the periodic GPS operation mode, the user's label on the map does not move.

 A yellow inscription with GPS accuracy means that the accuracy is not yet sufficient for full operation.

 A green inscription with GPS accuracy means that the accuracy is sufficient for the job. In periodic mode, the inscription disappears some time after the successful connection with the satellites, since the accuracy data becomes irrelevant in time.

 The green color of the button means that the connection with the satellites has been successfully established, the positioning accuracy is sufficient and the process of automatically moving the user's mark is in progress (for continuous mode), or the position search process has been successfully completed (for periodic mode).

 The red color of the button means that GPS is disabled in the device's settings or the search for satellites ended with poor accuracy or no data in periodic mode, because the connection with the satellites could not be established due to the lack of the visibility.

Note: The position tracking process may be disabled (in this case, the button will be semi-transparent on the screen).

Buttons for zooming the map, clicking on which you can zoom in or out the raster substrate, or go to another level of detail of the substrate. The counter shows the level of detail at which the user is located.

 Messages button brings up the screen for quick messaging with other users (see the "Messages" section). The number in the red area at the top right of the button indicates the number of unread messages.
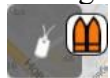
 Status button calls up the menu for changing the status of a user or his group if the user is the commander of one of the groups (see the section "Status of the user and group"). In the upper right corner of the button, the current status of the user or his subgroup is displayed.

 Button of the panel of detailed information - allows you to open an additional panel with a description of all the attributes of the selected label on the map. If no mark is selected, then the cursor position information is displayed by default. The green color of the button means that the panel is active.
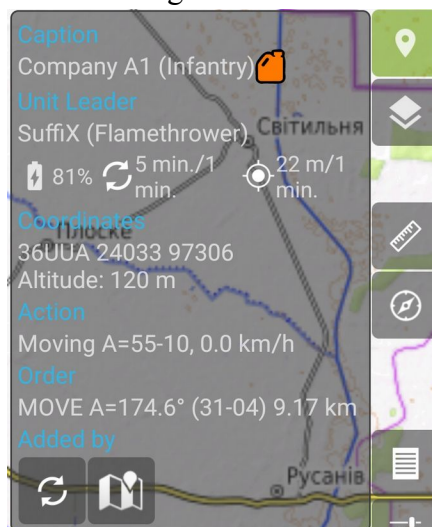

With a long press of the button, a bookmark is created at the cursor location, which can later be transformed into any object type. This function is convenient if you need to quickly fix the coordinates, but there is no time to classify the found object.

 Map types switching button with the help of which you can change the raster map substrate from the spectrum of substrates available in the current game (defined on the server). The green color of the button means that the types selection menu is active. A long press of the button brings up a map items layer management menu. A long click on the name of the layer selects the current layer to create objects.

The "Update map" item forcibly starts downloading all tiles of the current map and heights data to the device in the background.

Note! If the map was updated on the server, system will offer to load it on next user login.
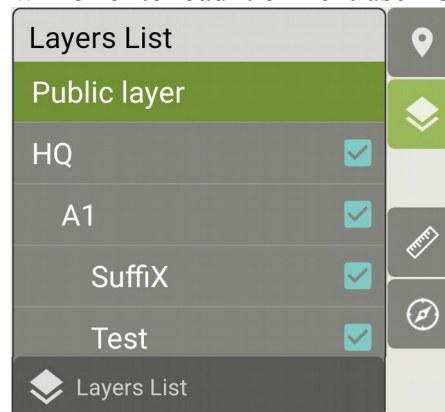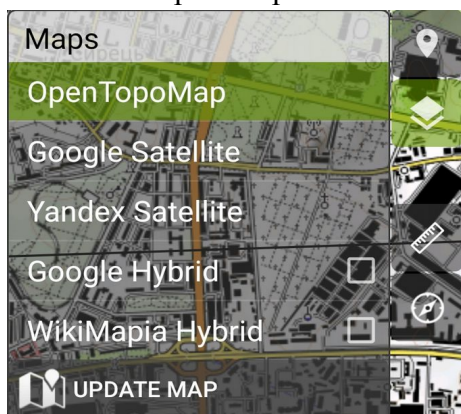
To hide all objects on the selected layer and its nested layers, clear the tick box to the right of the name of the selected layer.

By selecting the **"Layers List"** item below, the system will open a list of layers available to the user in the current game and allow creating new ones.

 Ruler activation button includes a tool for measuring distances and azimuths between two points on the ground. See the "Ruler" section for instructions on its use.

 Compass activation button turns on the map navigation mode and allows you to see your current course, azimuth to the target and azimuth to the commander. See the Compass section for a detailed description.

 Button for invoking the main menu invokes the Tasks menu to access the briefing viewing windows, current goals, user list, layer management, system console, as well as self-locking access to the system (see the Main Menu section). A green button means that the menu is active.

 The quick settings button calls up the "Menu" for controlling the main program modes, which also contains a button for switching to the settings screen (see the section "Quick settings menu"). The green color of the button means that the menu is active

The commander's bookmark allows you to quickly interact with other users in the game, not only those who are directly subordinate, but also indirect ones, and those who are not present in the hierarchy.
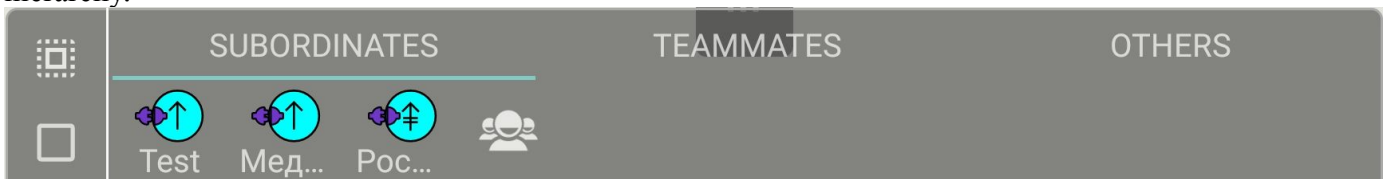
The **"Select users in the specified zone"** button allows to select all users who fall into the rectangular selection area. To do this, select the place on the map from where the zone will start (click on the screen so that the cursor appears on it), activate the user selection function and select a point on the map where the diagonal angle of the desired zone will be. To confirm the selection, click on the same button on a yellow background or long tap on the second position during rectangle definition.
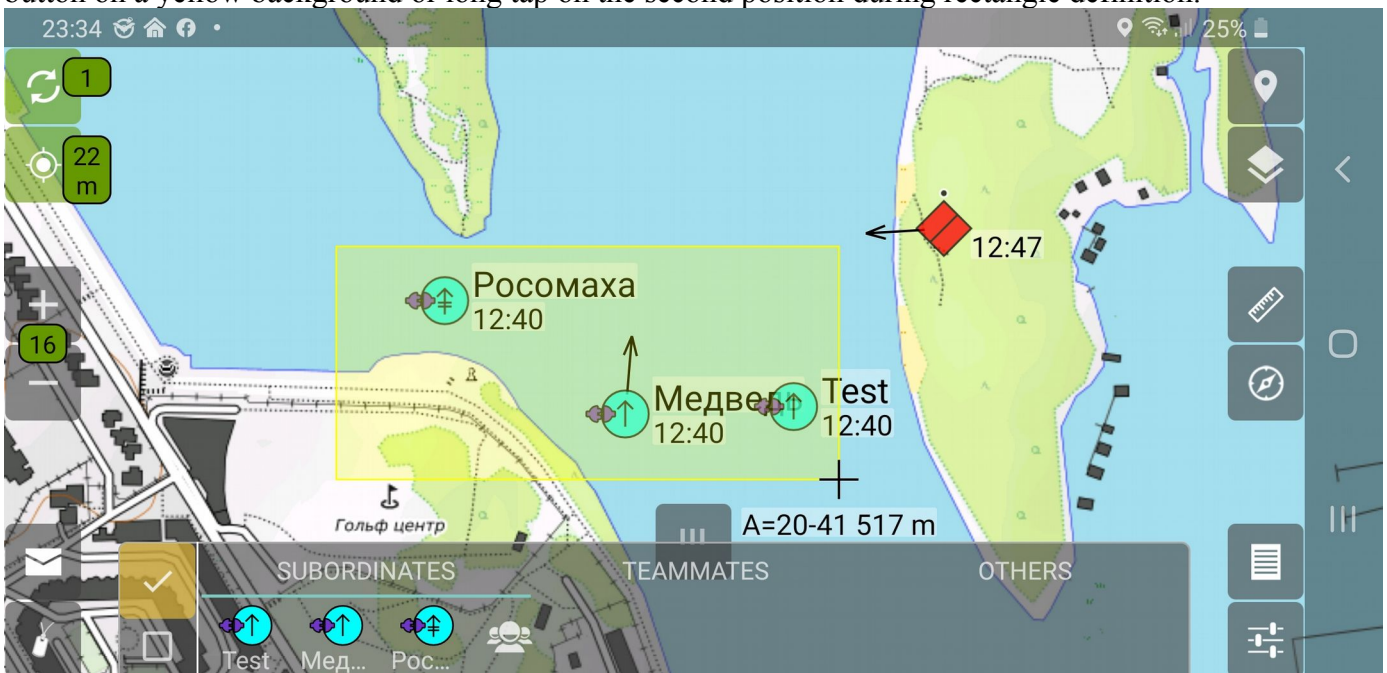
The notification area at the bottom of the screen displays a pop-up window with the last received messages (on a blue background) or the last automatically generated messages from user actions (on a green background). The area disappears after a while; however, all unread messages can be seen in the chat window (see the "Messages" section)

Current order - the type of the current order, azimuth and distance to the target, as well as the direction to the target in hours in case of movement is displayed at the top center of the screen. See the section "Issuing Orders" for more details.

> MOVE A=174.6° (7hr.) 9.17 km

A short click on the label opens a quick response menu, which allows to pick an reply to the order. After a long click on the label, the map is centered on the target.

The Cursor is a cross on the map that reflects the place of the current click on the screen. The text under the cursor reflects the azimuth and distance to the given place from the last determined position of the user. If you click on any mark, the cross is not displayed, however, the azimuth to the location of the mark remains below the mark.

> +
> A=27.5° 13.0 km h=99 m

The following information is displayed under the cursor:
• **Azimuth** from the device to the point (A - true azimuth, Am - magnetic, α - direction angle);
• **Distance** from device to point (second value);
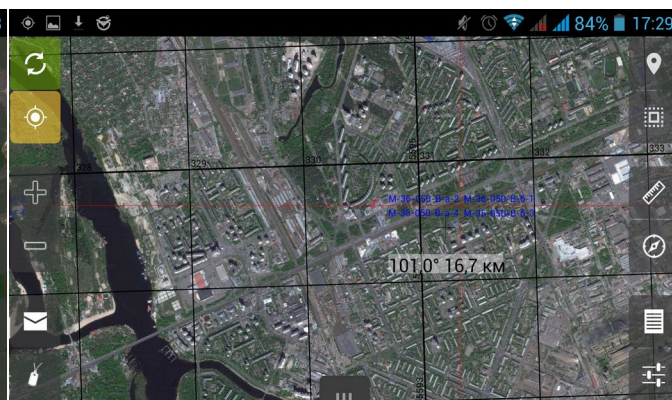• **Altitude** at the point where the point is set (h parameter).

The Screen Grid allows to define and name areas of the map. Three types of grids are available in the program: Grade Grid, USSR General Staff Grid and USSR Kilometers Grid. Each type of grid is described in the "Grid" section in detail.
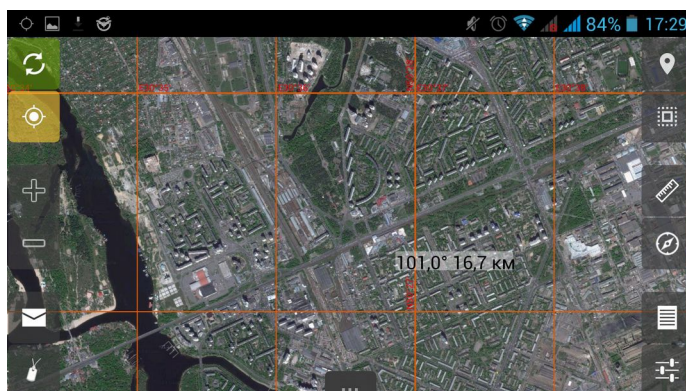
Geodetic Grade Grid
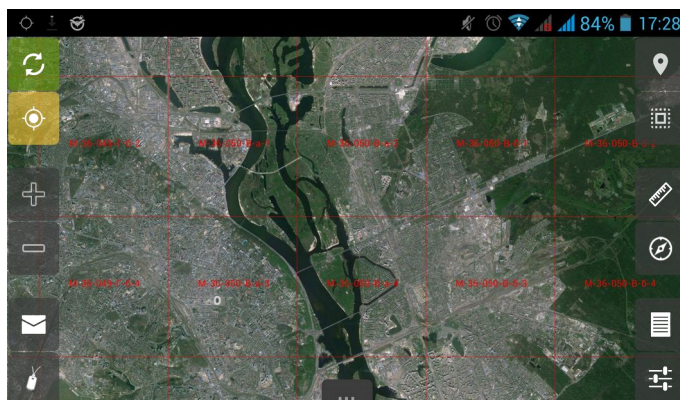

USSR General Staff (pages)   USSR General Staff (kilometers)

 User label is a red arrow on the map indicates the position and direction of the last movement of the current user.
Note! When you click on the label of the current user or select it to give an order, the label turns into a standard unit label, the same as that of other users, which describes the armament and status of the current user (see the "Units" section).

2.1. The compass

In order to navigate in space, look at the azimuth of the current target or the group commander there is a compass screen. To call it, you need to click the button ⊘ on the side of the main window. The compass screen looks as follows:
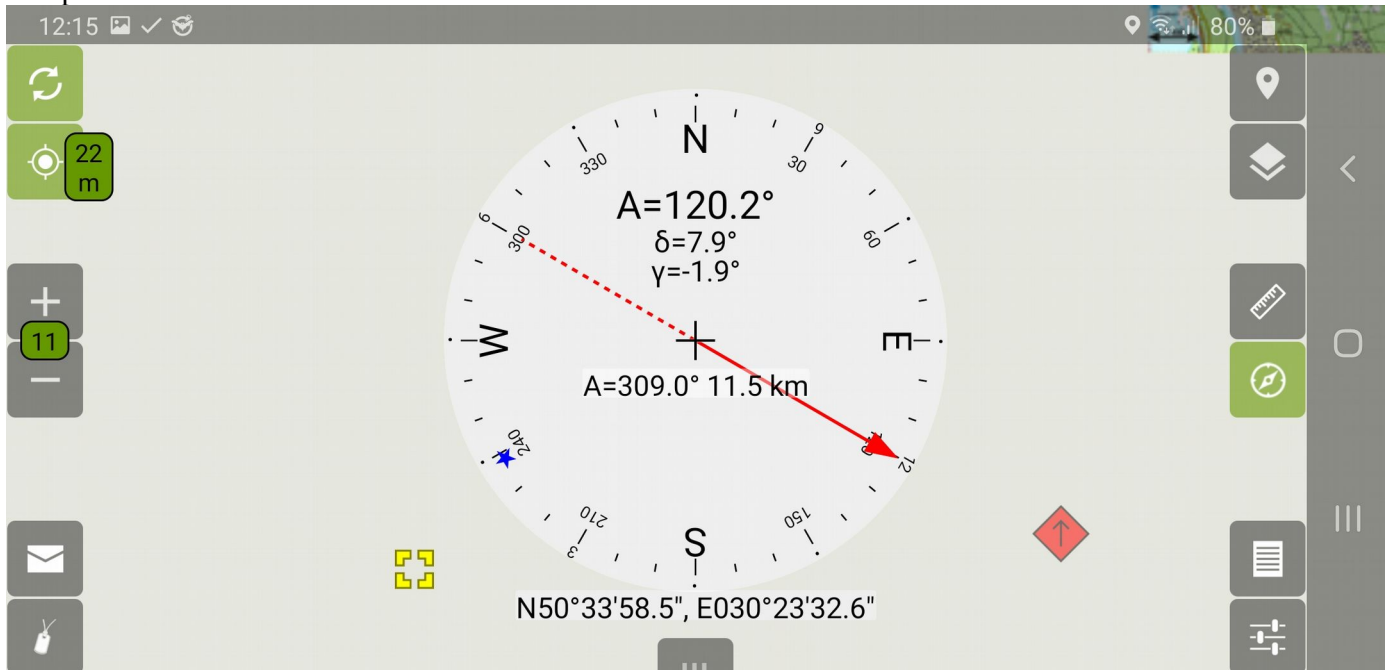
Note! The compass works in any position of the device, but the most accurate readings can be obtained by holding the compass as horizontally as possible.

Note! Before using the compass for the first time on a device, it is usually necessary to calibrate the compass by turning the device on all three axes in space several times. Otherwise, the sticking effect (incorrect operation) of the compass in a certain sector of values may be observed.

Note! Selecting any label on the map by a short click moves the screen so that the selected label falls in the center of the screen where the cursor is located.

Compass overlay contains the following elements:

The Cursor - in compass mode it always follows the center of the screen and does not respond to the screen taps. Creation of marks and all operations that require the coordinates of the cursor occur at the coordinates of the center of the screen.

Circular marking of the azimuth - to visually determine the azimuth to the target, the azimuth to the commander and his direction, there is a standard notch of degrees in conventional compasses.

The red arrow on the azimuth circle marking indicates the angle of your current viewing direction. The angle in the compass mode "magnetic" is calculated between the "top" of your device and the true north (taking into account the magnetic declination), and in the "GPS course" mode, the angle is calculated from the line between the last two points of space during the user's movement. The GPS course mode does not show up-to-date data when stopped, but it is not affected by the device's location and magnetic interference in motion, so it more accurately shows the azimuth of movement.

Viewing direction angle - in addition to the red triangle inside the compass, a numerical azimuth from 0 to 359 degrees is displayed at the top.

Magnetic deviation of the map is displayed under the numerical azimuth value in the form "δ = 7.2°", where "-" indicates the western declination, "+" indicates the eastern declination, and the number indicates the number of degrees of the given declination at this point in space. The declination is calculated by the formula based on the declination matrix and is necessary in order to combine the readings of a conventional magnetic and software compasses. The real compass reflects the azimuth to magnetic north (that is, lies to the size of the magnetic deviation), and the program shows the exact azimuth from the true geographic north.

The convergence of the meridians. The transition from the geodetic azimuth to the direction angle

is displayed by the numerical azimuth value in the form "Y = -2.0⁰" - this is the angle at this point between its meridian and a line parallel to the abscissa axis or the axial meridian. The meridian convergence account is maintained from the geodesic meridian. The convergence of the meridians is considered positive if the north direction of the abscissa axis is deflected to the east from the geodesic meridian, and negative if this direction is deflected to the west. The convergence of the meridians indicated on the topographic map in the lower left corner refers to the center of the map sheet.

Blue asterisk indicates the azimuth to the user's immediate commander, if the user has a commander (see Section "User Hierarchy").

Green circle shows the azimuth to the user's current operational target, set using the mechanism for giving orders by a higher commander (see the section "Issuing orders").

Note: The same azimuth and distance to the target are displayed on the compass screen and on the top of the main window on a white background in the form of the text "ORDER 000* (99h) 999.99km", containing the azimuth to the target in degrees, the direction in hours in relation to the current movement and the distance to the target (see the section "Issuing orders").

Cursor coordinates - under the compass marking, the coordinates of the cursor position (center of the screen) are displayed.

Search for a point by coordinates occurs by calling the coordinate search window when holding the compass icon:
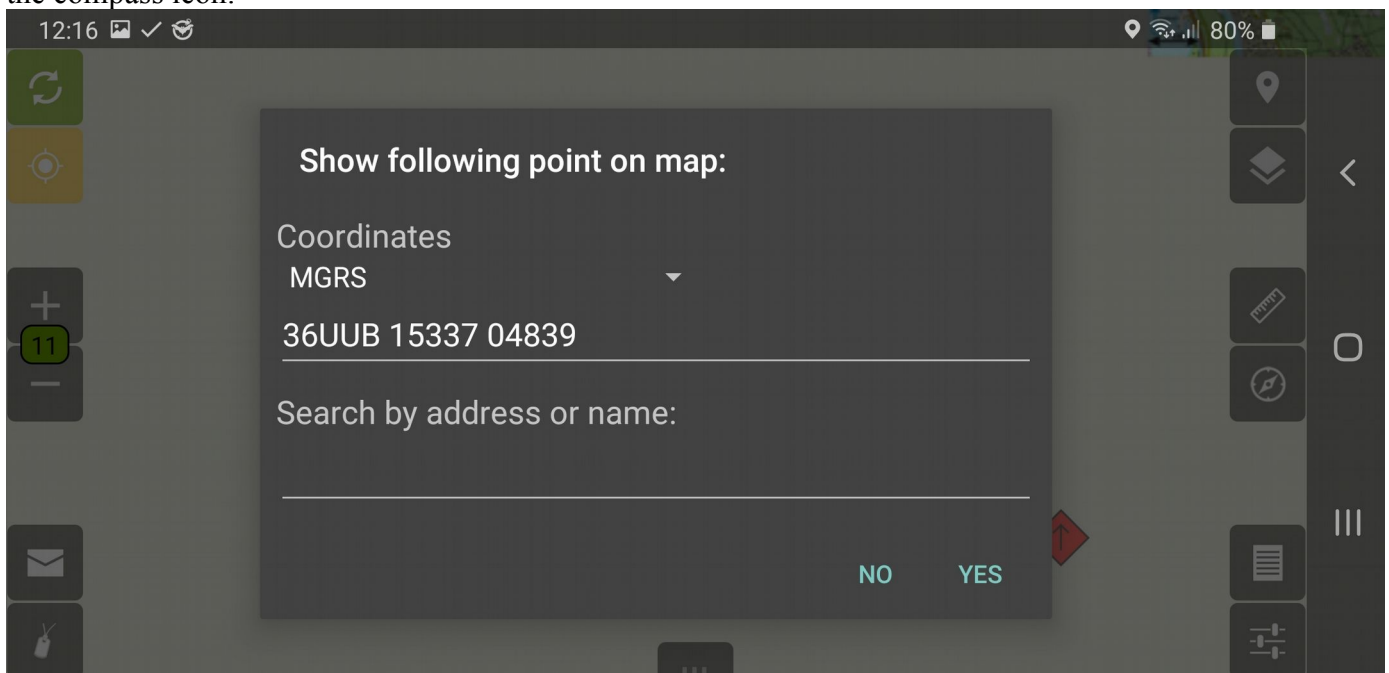
In the "Coordinates" drop-down list, you can select a coordinate system, and enter the coordinates themselves in the input field.

Note: Searching by address or name only works when connected to the Internet.

2.2. The ruler

To start measuring distances, tap on the map at starting point and press the ruler button ![ruler button]. As a result, cursor text will turn yellow, and the selected point will become an "anchor" point for measurement.

To view the distance and azimuth to a point or object of your choice, click on the places you need in the ruler mode. As a result, a yellow line will be drawn between the "anchor" point and the second point of interest. The azimuth and distance below the cursor mark will be calculated not from the user's current position, as usual, but from the "anchor" point.


The value "h" in this case indicates the altitude at a given end point location.

To exit the ruler mode and return the azimuth output to the selected objects from the last user position, click the green ruler button again.

Note! The units for measuring the angle and distance depend on the settings for the units of application (see Section "Program Settings").

To search for a point with an offset, long tap the ruler icon and then enter the offset parameters:
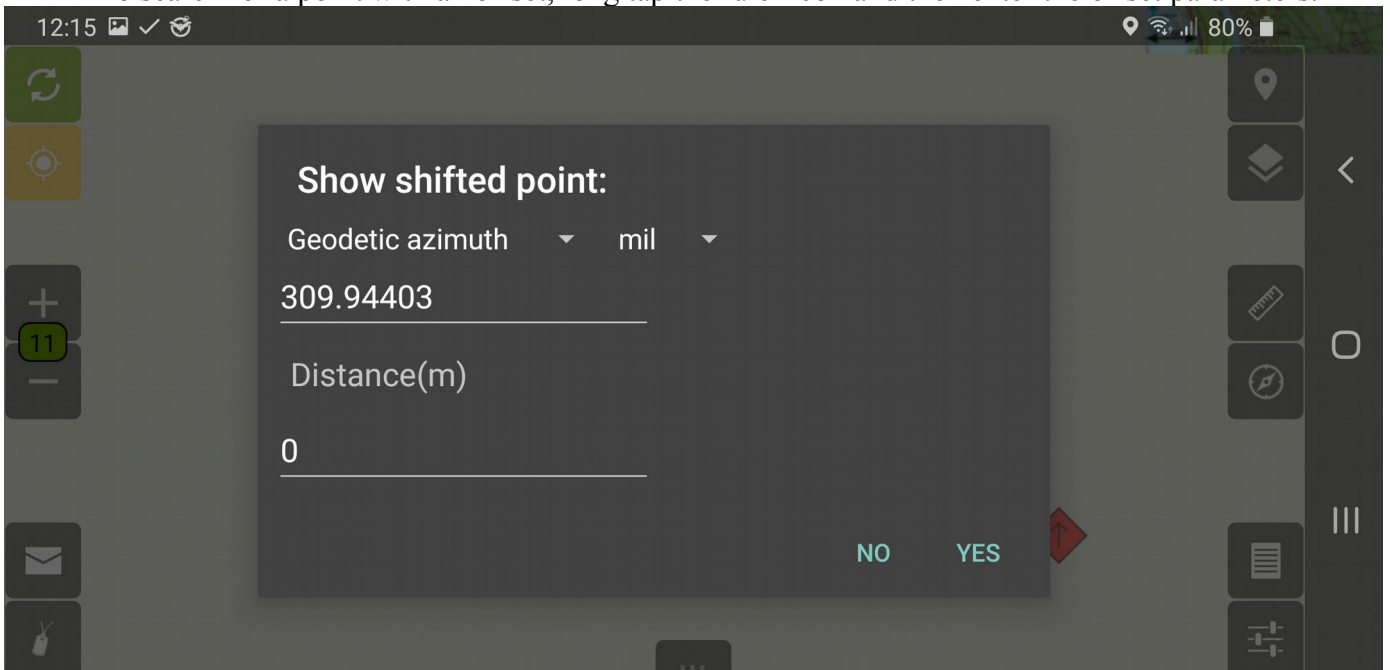

Here you can select the type of azimuth (magnetic, true, directional angle) and the calculation system (degree, thousandth, mil (NATO)).
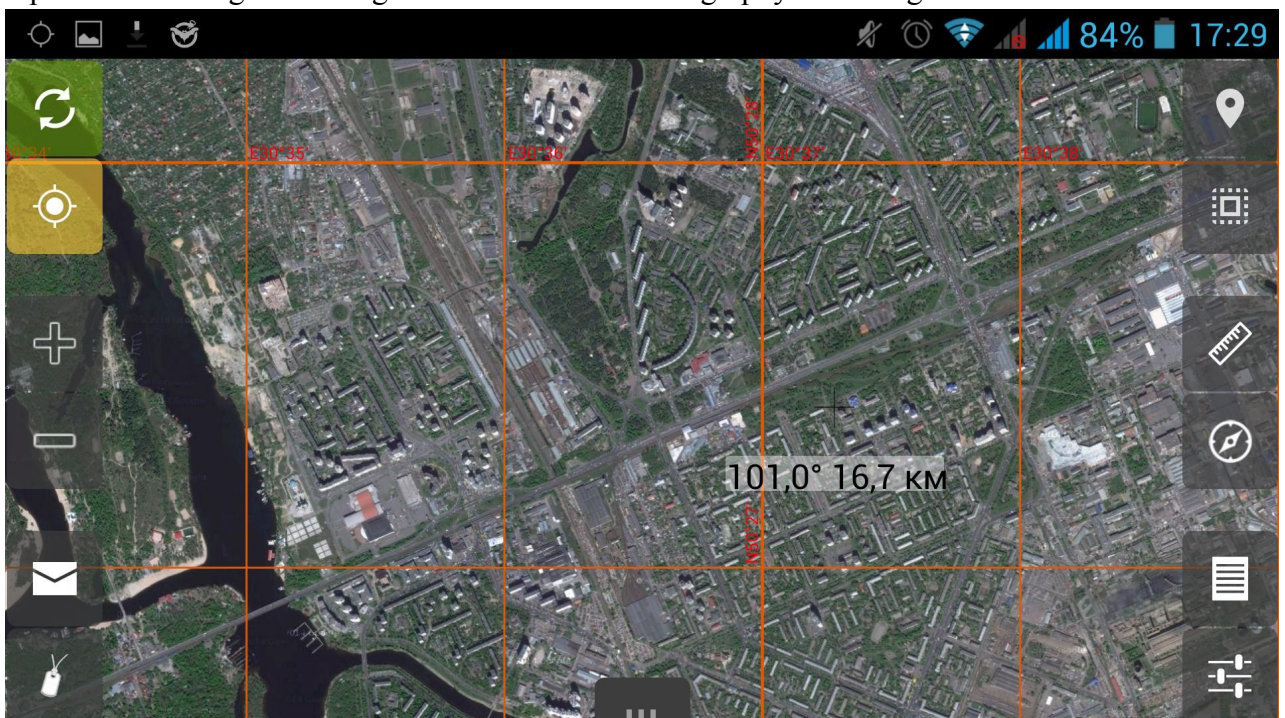
2.3. The grid

Application provides three types of grid: "Geodetic Grade Grid", "USSR General Staff Grid (pages)" and "USSR General Staff Grid (km)". To switch the grid type go to the "Metric Units" section of the "Program Settings" screen (see the "Program Settings" section).

The Geodetic Grade grid draws lines of meridians and parallels on top of the map with details of degrees, minutes and seconds, depending on the current map scale. The grid step changes between the following values: every 6 degrees, every degree, degrees and tens of minutes, degrees and minutes, degrees of minutes and tens of seconds, degrees, minutes and seconds.
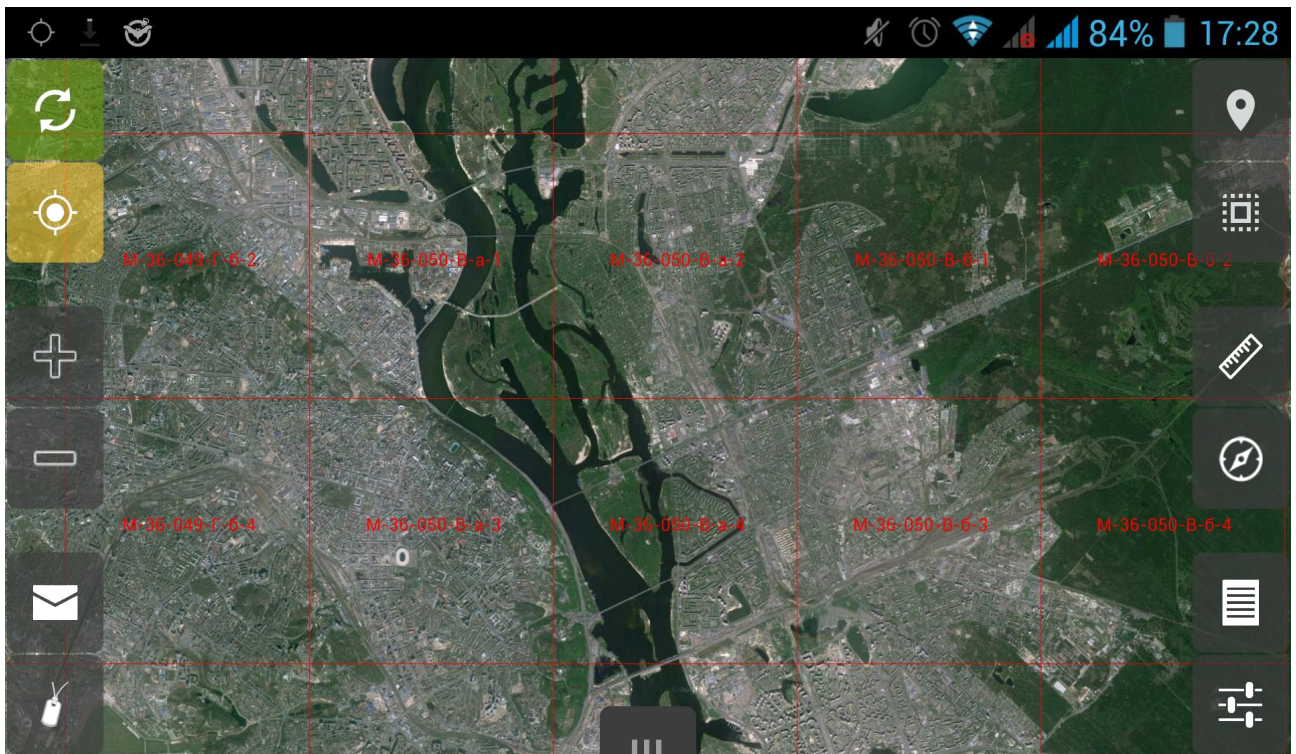
The USSR General Staff grid (pages/km) is the distribution of space into zones denoted by a letter and squares inside this zone denoted by numbers and letters separated by a hyphen. Read a detailed description of working with this grid in textbooks on cartography and navigation of the CIS countries.

Note! The grid lines are first multiples of 3 degrees in latitude and 4 degrees in longitude and are displayed in the SK-42 coordinate system.

2.4. User and group statuses

Each user and group in the system have a specific set of statuses. Statuses are necessary to reflect the current state and degree of preparedness for battle of a particular unit or fighter. Statuses can reflect the physical condition, level of supplies, describe the environment or technical aspects.

In order to change the status, it is necessary to press the button for changing the status on the home screen of the program, check the necessary statuses from the list in the menu with the flags and click the yellow "Apply changes" item. As a result, in addition to the fact of a status change, members of your group and the commander of a higher group will receive an automatic message with a list of your statuses.
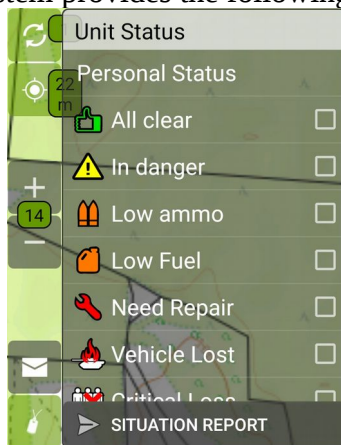
On the button for changing statuses, the status icon higher in importance will be displayed.

In order to re-inform the current statuses without changes, it is necessary to select the "Report" item in the menu of status changes.

The statuses are displayed on the left side of the user and group labels in the form of icons.
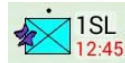
The system provides the following user statuses:

To call the user status menu, a user who is not a group commander needs to click on the status icon.

To call the group status menu, it is necessary for the unit leader to click the icon once, to call the menu of his own status, the commander needs to hold down the status icon.

All is clear means that activity is no longer detected in the field of visibility of enemy.

Note! The status "All is clear" is automatically reset after 5 minutes at a shift of more than 500 m from the place of setting the status and in case of a repeated login.

In danger means that the user is in the area of visual or fire contact with the enemy.

Low ammo means that the user needs ammo supply.

Injured means that the user needs urgent medical care.

I am out means that the user can no longer continue to be active in connection with the injuries received, or the user has left the training process area.

Note! If the "I dropped out" status is activated, an icon in the form of a red letter "X" appears at the place of the user's label, which remains stationary, while the user's label continues to move (according to GPS coordinates), but it is not visible to other users, except the current one, until the user status "I dropped out" is withdrawn. If the user was a group leader, then command passes to the next one in the user group as the rank decreases (see Section "User Hierarchy").

The system provides the following user statuses:

All is clear and **In danger** are similar to user statuses.

Low fuel means that the unit vehicle has a limited fuel endurance.

**Low ammo** means that the unit vehicle needs ammo supply.

Need repair means that the machinery unit entrusted to the subdivision has problems with functioning.

Vehicle lost means that the machinery unit entrusted to the subdivision is destroyed or captured by the enemy.

Critical losses means that the subdivision is not able to continue the task through numerous losses of manpower.

2.5. Activities menu

The Task menu contains items for invoking additional program screens.
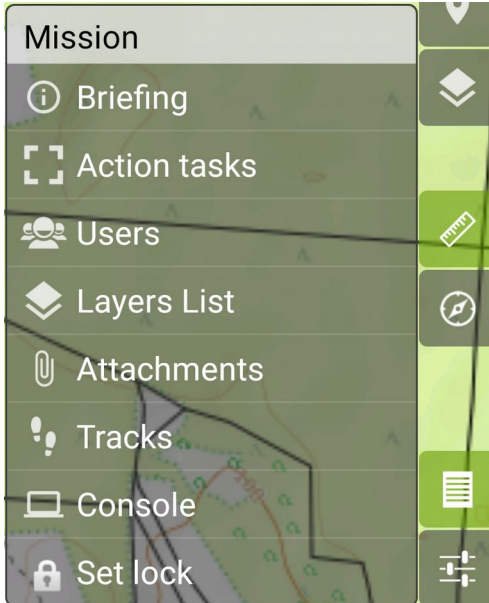
"Briefing" item opens the screen for viewing the briefing of the current game for the side of the current user (see "Briefing" section).

"Target" item opens the screen for viewing the list of current user targets (see the "Target" section).

"Users" item opens the screen for viewing the hierarchical structure of users, which serves to select participants before giving an order, sending a message, setting targets, etc., as well as managing a hierarchy of groups (see the section "User hierarchy").

"List of Layers" item opens the screen for viewing and managing the logical layers of the map. Layers are used to group labels on the map, collectively control their visibility and to divide the visibility rights of label groups according to the user hierarchy (see the "Layers" section).

"Attachments" item opens the status screen and attachment management.

"Tracks" item opens the screen for viewing the list of tracks with the ability to manage them, process them into routes and change attributes (see the "Tracks" section);

"Console" item is available only to the game organizer and opens a screen for viewing the results of scripts and other debugging information (see. "Triggers and a scripting language").

"Set lock" item calls the user self-locking function. The first click allows you to transfer your account to the "Beacon without a map" mode (see the "Managing Games" section in the server instructions). When you call again, it blocks the user access to the current game. This function is needed to prevent unauthorized access to information in the event of a threat of seizure of the device by unauthorized persons.

Note! Only the game organizer can regain access to the game after self-locking. Communication with the organizer will be possible only by third-party means of communication.

2.6. Express settings menu

The settings menu contains the main switches of the operating modes of the program and the call **item** of the settings screen.
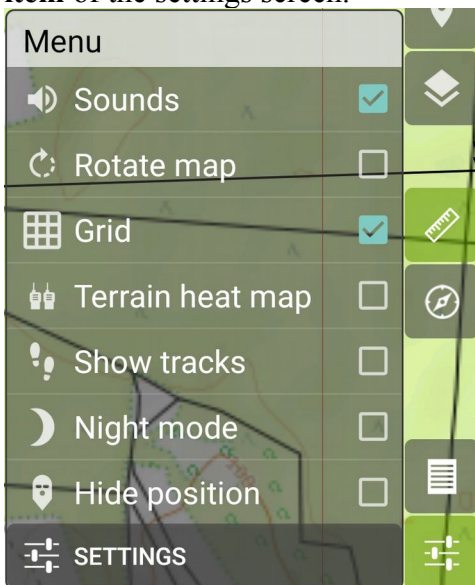
"Sounds" item allows you to turn on a signal that informs you of a message, receipt of new directions, sound identification of the timer and other sounds. If the option is disabled, the device will give a vibration signal, instead of a sound signal.

"Map Rotation" item turns on the mode of the map substrate rotation in the direction of the user's movement. This mode makes it easier to navigate in space when applying intelligence.

Note! Opening any menu in the application disables the map rotation mode until it is closed. This allows you to conveniently handle map objects.

"Grid" item includes an image of the screen grid in accordance with the selected view (see the "Grid" section).

"Show tracks" item includes an image of all tracks created in the menu of additional screens.

"Night mode" item turns on the mode of lowering the brightness of the map substrate to increase eye comfort and reduce screen unmasking when working in the dark.

"Settings" item opens the screen for the main settings of the program (see Section "Program settings").

3. Program settings

In order to open the program settings, you must click the button of the express settings menu ⚙ and select "Settings".

Settings are divided into four categories: "Game Options", "Common" and "Interface", "Units of Measurement" and "Heart Rate".

The **Save** and **Restore Default** buttons are located at the bottom of the screen, the first one applies the settings and closes the window, and the second one resets all settings to the default values set by the developers.

Note! Some settings, such as changing the language and working hand, may require a restart of the program, which the user will be notified of with a special pop-up message.
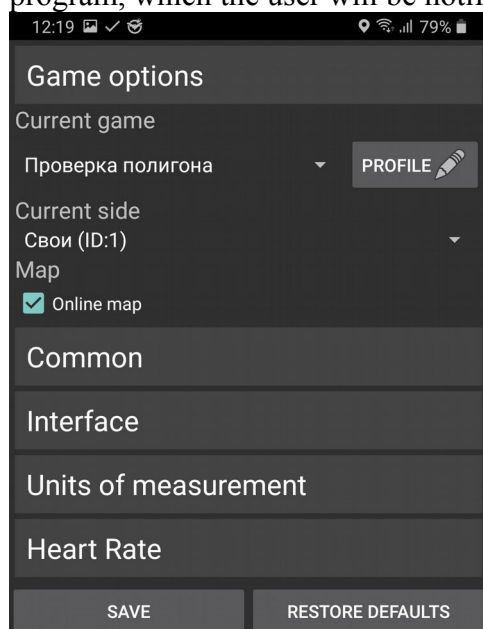
The **"Game Settings" setting** looks as follows:

The **"Current game" item** allows you to select one of the games created on the server system using the list. After choosing a game and clicking the "Save" button, the system will log on to the map with a new game.

Note! The list does not display archive games, as well as games created after a user logs into the application. To update the list of games, you must log in to the application manually.

The **"Profile" button** - opens the window for editing the attributes of the current user and allows you to set the name, description, weapons, ranks and other attributes of the user (see the "Units" section).

The "Current side" item allows user with the rights of the game master (see the "User Rights" section of the server manual) to change the side in order to see map objects created by users of the other side in the game.

The **"Online map" checkbox** switches the mode of working with map tiles between downloading tiles from the server on the fly and the previous map loading when entering the game.

The **Common setting** is as follows:
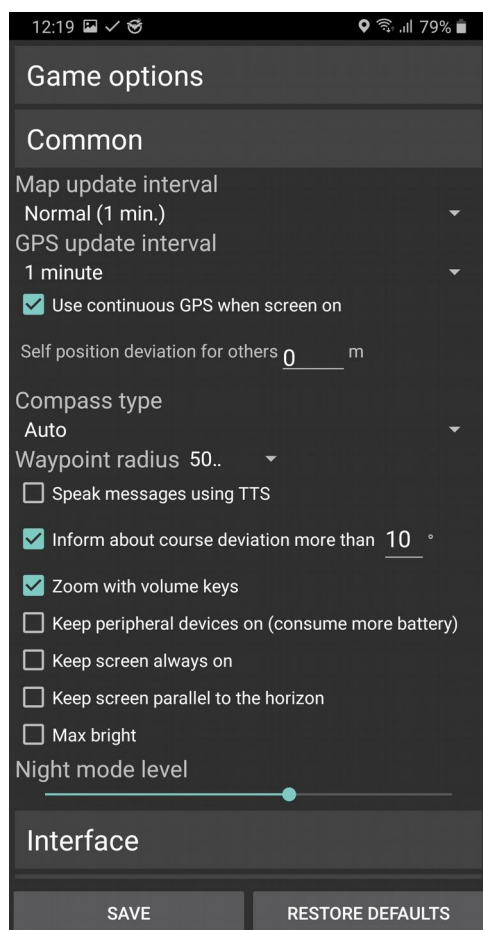
"Map update interval" item allows you to set the frequency of automatic data synchronization in the following range: manual, 10sec, 30sec, 1min, 5min, 15min and 30min.

"GPS update interval" item allows you to set the frequency of automatic movement of the user's label, in accordance with the current GPS coordinates of the device, in the range: manual, 15sec, 30sec, 1min, 5min, 15min, 30min and continuous or disable positioning by selecting "Do not use".

Note! In case of disabling GPS coordinates update, the corresponding button disappears from the home screen of the program (see Section "Home screen").

The error in location for other values is used to display the user's false location in the software package. The maximum value is 15000 meters.

"Compass type" item switches the source of the current user azimuth (GPS course or magnetic). The compass in the "GPS course" mode reflects the azimuth based on the user's current direction of movement, calculating the angle between the north and the line formed by the two points of the user's location in space, read at a certain frequency. The compass in "magnetic" mode uses the device's built-in magnetic sensor to determine the direction of the user in space.

"Inform about course deviation more than" item sets a threshold at which the program gives a sound signal indicating a deviation from the course.

"Max bright" item activates the mode of increasing the brightness of the back-light to the maximum for 5 seconds at the moment of clicking on the screen. The option is convenient to use in sunny weather on the street, in order to increase the readability of the screen only at the time of interaction with it and save battery.

The slider "Night mode level" allows you to specify the level of decrease in the brightness of the map substrate when the night mode of the express settings menu of the home screen of the map is turned on (see "Home screen").
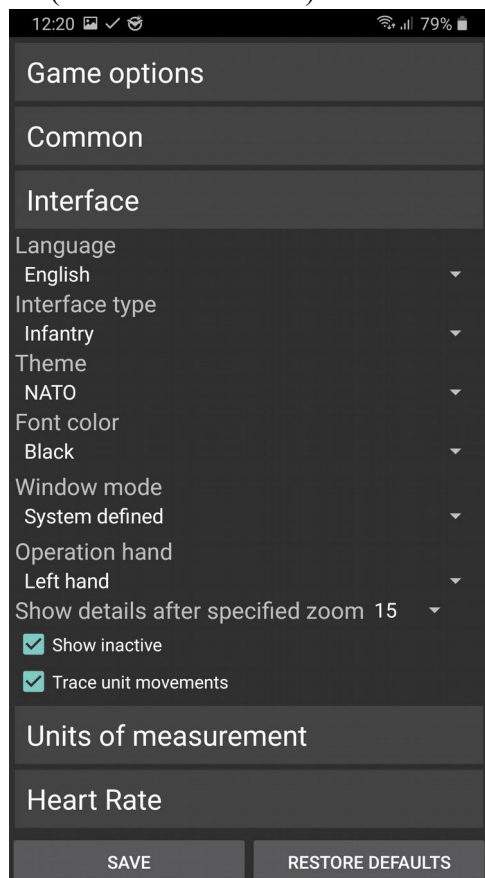
The **"Interface" setting** is as follows:

The **"Language" item** allows you to choose the localization of the program, different from the one set in the Android settings. The option requires a reset of the program. This option is useful if your Android device does not have the localization you need, which is in the application.

The **"Interface Type" item** allows you to change the program interface depending on the characteristics of the type of unit troops.

The **"Theme" item** allows you to change the types of marks, currently the marks are displayed in NATO standards within and without them:
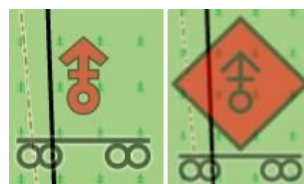
The **"Font color" item** allows you to select the default color for the main interface elements, such as the typeface color of the main labels on the map (for example, the name of the labels), the color of the lines between the structural elements of the group hierarchy, etc.

The **"Show details after" item** allows you to set the scale value, after which the "global mode" of the map is turned on. The global mode provides for a reduction in the amount of information displayed on the screen in order to eliminate the effect of superimposing a mass of unnecessary inscriptions and marks on each other. For example, in global mode, label inscription and users in a group are not displayed. Choose the threshold for switching the card to global mode convenient for you. See the Global Mode section for more details.

"Window Mode" item - the application supports displaying the interface in landscape, portrait and inverted landscape orientation. Automatic reversal is not supported due to the specifics of using the system. Set your preferred orientation.

"Operation hand" item allows you to select the direction of the main buttons on the main program window: on the left side of the screen, or on the right. The program is designed to realize maximum functions with one thumb of one hand, so that the second hand could hold a weapon.

"Show inactive" item reflects the marks of other users who were in no contact for more than an hour. It is recommended to disable this option so as not to clog the screen by users who have left the game.

"Trace unit movements" item includes displaying the previous position of user labels in the form of a thin line with a circle at the beginning and a user label at the end:
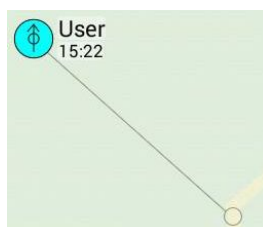
Units of measurement

Coordinates
MGRS

Distance
Metric

Angle
mil (NATO)

Angle type
Geodetic azimuth

Grid
Genshtab (kilometre)

Heart Rate

| SAVE | RESTORE DEFAULTS |

Heart Rate

Not found | SEARCH

☐ Enable Heart Rate monitoring

Injured Heart Rate Min **40** bpm

Injured Heart Rate Max **160** bpm

| SAVE | RESTORE DEFAULTS |

The **"Units of Measurement"** setting is as follows:

The **"Coordinates" item** allows you to switch the format for displaying coordinates between WGS-84, CK 42 and UTM.

The **"Distance" item** allows you to choose a system of calculating distances and heights ("Metric" or "English").

The **"Angle" item** allows you to select the direction calculation system (degrees, thousandths, mil (NATO)).

The **"Type of angle" item** allows you to select the type of measured angle (magnetic, true, directional).

The **"Grid" item** sets the type of grid on the map screen ("Degree" or "General Staff"). See "Grid" for details.

The **"Heart Rate"** settings allows you to connect any heart rate monitor to Bluetooth, which supports this technology:

The **"Enable heart rate monitoring" item** allows you to display the status of the user in his status and list of users.

The **"Minimum / Maximum pulse of a healthy fighter" items** allows you to set the heart rate interval at which the user will have the status "Ready", if the indicators go beyond the set limits, the user will automatically be assigned the status "I dropped out". If necessary, accounts of a user may be blocked.

4. Map items interaction

During the operation of the program, the user can interact with the marks on the map as follows:

During normal viewing of marks on the map in global mode (see the Global Mode section), only the mark icon is displayed, and in the local, to the right of the icon, the label name (if it is set) and additional information, such as: time of the last change, are additionally displayed unit attributes, target timer, distance to way point, etc. The time and contour of the target can be displayed in red - it means that changes to the attributes of the label are not yet synchronized to the server, which means that other users still do not see the change.
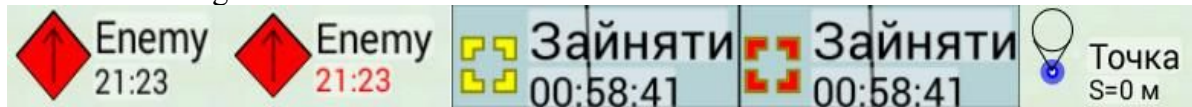
With a short click on any mark, its additional information is displayed even in global mode. In addition to this, the azimuth and distance to the mark from the current user are displayed under the label. If the label is the label of a user or group, a short click on it also displays thin lines on the subordinates of the selected group and a thick line on the higher group, according to the user hierarchy (see Section "User hierarchy"). In the image below, the "1SL" group is higher for the selected group "B1" with the commander "et", in whose subordination the user "User" is located.
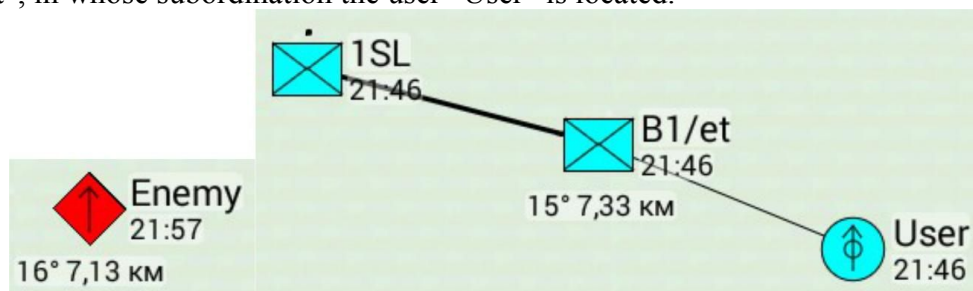
A short click on the points of the route / line / polygon selects the current point from which the drawing of the line to the new point will last (in this case, the point is highlighted with a blue circle, see the corresponding sections "Routes" and "Shapes").
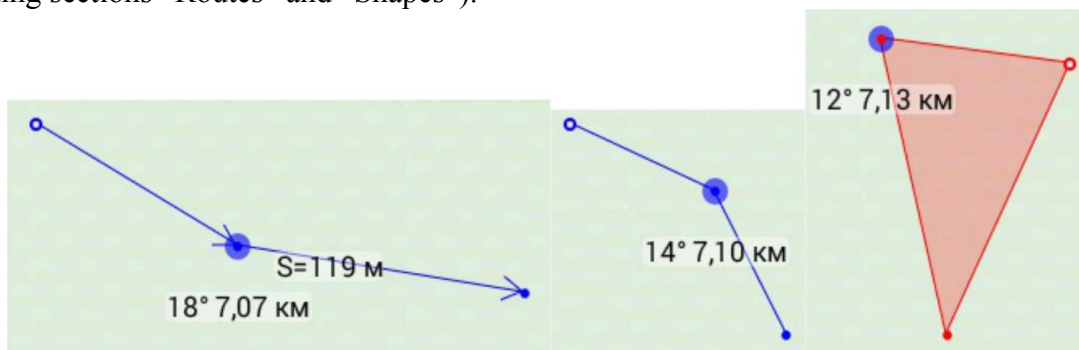
Note! To clear highlights with a short click from a label or a point, it is necessary to select another label / point with a short click, or make a short click on an empty place on the map, thereby placing the cursor in that place.

A long click opens the sector menu for a mark. Each type of mark can have its own sector menu items on a blue background, however, the option on a red and green background in all types of marks means deleting (trash icon) and editing (pencil icon), respectively.
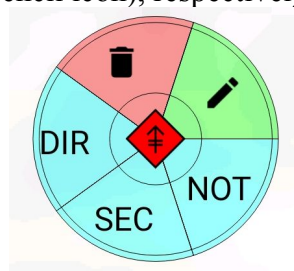
Note! To move the mark, you need to click on the center of the sector menu and, without releasing your finger from the screen, move the mark to the desired location on the map.

Double-clicking opens the "Order" menu with a list of actions that can be ordered to be performed by other users in relation to the label (see the section "Issuing Orders").
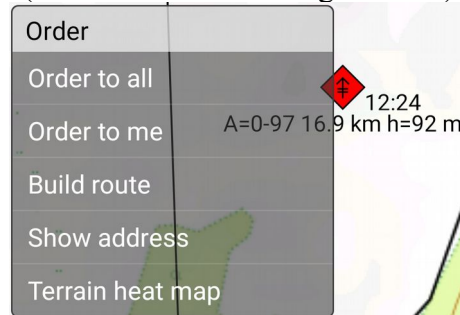
Note: Issuing orders ("Actions") will only work for subordinate users and groups.
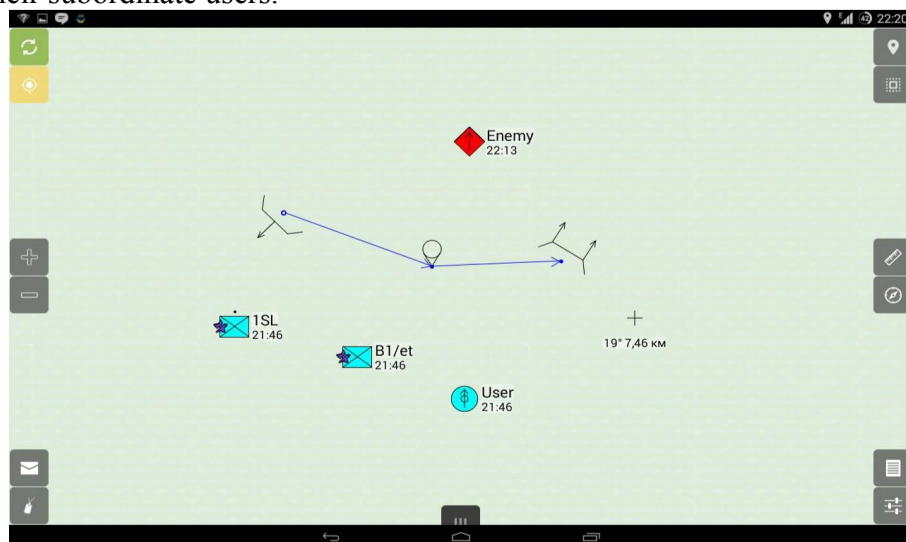
4.1. Global mode

To simplify viewing data on the map, the so-called "Global mode" is implemented.

This mode is activated when the scale of the map reaches a certain threshold specified in the program settings (see the "Program Settings" section).

In this mode, some interface elements are hidden, such as label names and other detailed information, way point icons, and labels of individual users included in groups are not displayed.

This technology allows you not to clutter up the screen with unnecessary information when viewing the map. That is, only marks without any additional information are visible on the map, as well as only groups, without their subordinate users.

(Local mode)
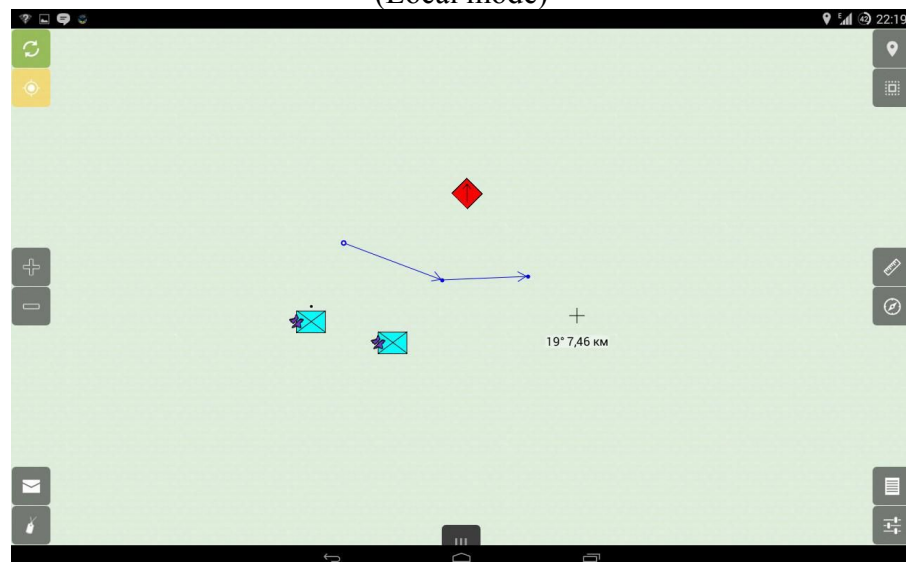
(Global mode)

5. Adding new mark

Marks on the map are of the following types: units, targets, routes and shapes.

To manually add marks of any kind, you need to make a long click at the necessary empty point on the map, where a mark will subsequently be created. This will open the "Add" menu:
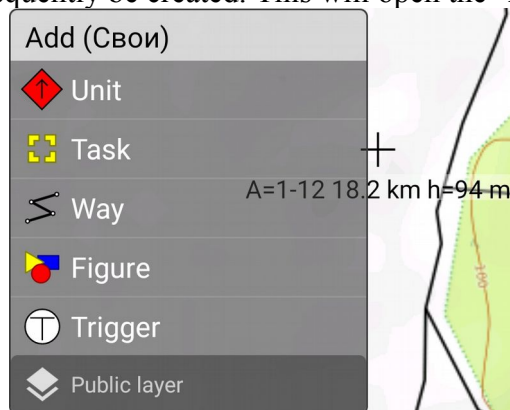
5.1. Adding units

To create units, select "Units" in the above "Add" menu. At the same time, a selection of unit types will appear in the menu:
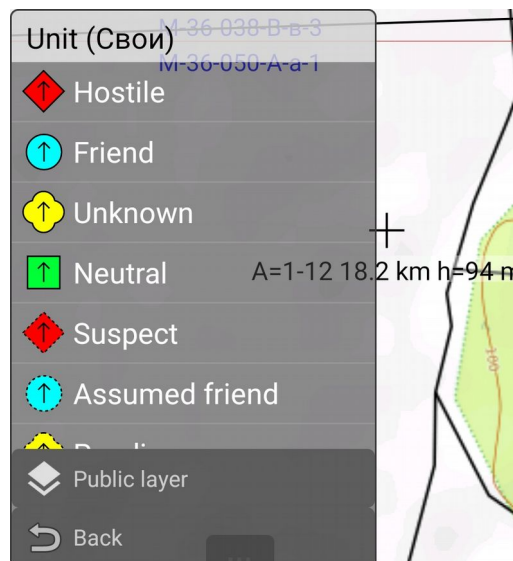
Note! To return to the main menu "Add" you must click on the "Back".

After selecting a unit type, a label of the corresponding type will appear on the map, for example, an enemy, and its sector menu:
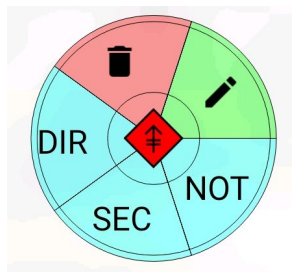
Note! The label will not be added to the map until the user closes the sector menu by clicking anywhere on the map. Before creating a unit label, you can edit its properties (EDIT), set the direction of movement (DIR), the viewing sector (SEC), or cancel the sector and direction (NO).

A unit label has the following properties:

Caption (Equipment)

Comment

Name

6797327911616534204

Coordinates MGRS   ▾

36UUB 26204 14060

Altitude (m) 91.926 ↻

Speed (km/h) 0.0

Affiliation
Hostile   ▾
Symbol Type
Equipment   ▾
Symbol
Machine gun   ▾
Mobility
Unspecified   ▾
Damage
None   ▾
Phone

Lock No   ▾   Added by   TAKE
SAVE   🔗   EDIT
                     PERMITIONS

Caption is the text that is displayed on the map to the right of the label.

Comment is the additional text that is displayed in the information panel.

Name is the mark identifier used in scripts. It is available only to users with the rights of "Game master" or "Fraction commander."

Affiliation defines the visual form and color of the mark: enemy, ally, unknown, neutral.

Unit (Свои)
🔺 Hostile
🔵 Friend
🟡 Unknown
🟩 Neutral   A=1-12 18.
🔻 Suspect
🔵 Assumed friend
    Public layer
↩ Back

Symbol Type defines one of three possible unit types: equipment, subdivision, and building. Depending on the type, the list of labels and some elements of their appearance, as well as a set of additional parameters, such as the size of the subdivision, rank, etc., change. Equipment includes all types of weapons, including small arms. That is, users are of the type - equipment. The units includes all administrative user groups. The building is static, does not move the object on the map.

Symbol Type (Свои)
🔺 Equipment
🔶 Unit
🔳 Installation   A=1-07 18.4 km
🟥 Aviation
🔺 ADD
    Public layer
↩ Back

Symbol defines the essence of the unit, which in turn changes the content of the label depending on the type as follows…

Symbol (Свои)
🔺 Unknown
🔺 Rifle
🔺 Machine gun
🔺 Grenade launcher   A=1-07 18.4 km
🔺 Mortar
🔺 Rocket launcher
🔺 ADD
    Public layer
↩ Back

Symbol (Свои)
🔺 Unknown
🔶 Infantry
🔶 Reconnaissance
🔶 Armor   A=1-07 18.4 km
🔶 Motorized infantry
    Artillery
🔶 ADD
    Public layer
↩ Back

Symbol (Свои)
🔺 Unknown
🔳 Military base
🔳 Transport
🔳 Airport   A=1-07 18.4 km
🔳 Railroad station
    Sea port
🔳 ADD
    Public layer
↩ Back

Unit size determines the quantitative equivalent of a unit: fire team, squad, section, platoon, company, battalion, regiment, in turn, complements its appearance with the following symbols:
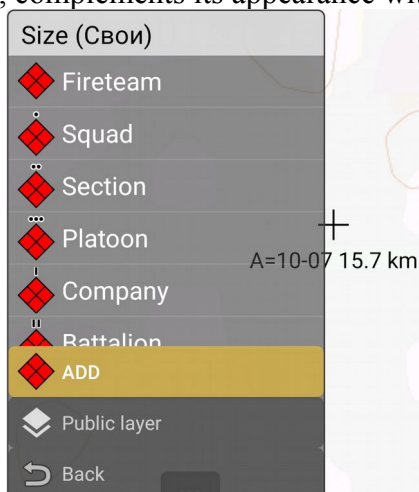
Unit rank - you can also select a "rank" in the user's labels so that the application can determine the priority of command transfer in the group in case of loss of a commander, and also just for reference (see the section "User hierarchy").

Mobility - indicates the type of vehicle with which the unit is moving at the moment.
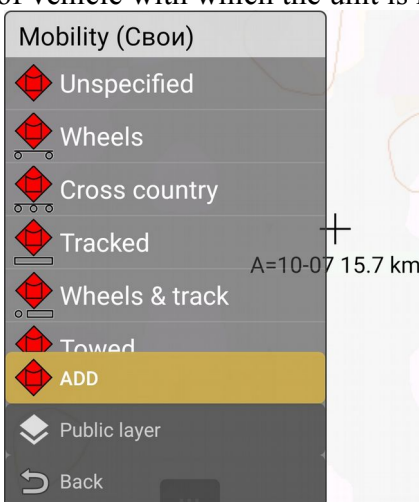
Damage - indicates the current status of the unit's ability to act. A unit may be destroyed, neutralized, or there may be no damage. This item affects the label output. Destroyed label is displayed as a red cross.

Coordinates define current mark location. Coordinate system in which a value is displayed and entered can be entered to the right of the coordinate output field.

Altitude is the height of the label above sea level. Implemented for compatibility with future versions of the program.

Speed - the speed of the object is indicated by a label. For users it is taken by GPS, and for intelligence can be selected manually.

Added and **Lock** - displays the name of the user who added the mark and allows you to protect the mark from being changed by other users, except for the organizer or party commander.

Button "Save" saves attribute changes and closes the window.

Button "Access Rights" opens the window for managing the rights of visibility of the label (see Section "Rights Management").

5.2. Adding tasks

To create a task, you need to select "Task" item in the "Add" menu above. At the same time, a selection of task types appears in the menu:

Note: To return to the "Add" main menu, click on the "Back" item.

After choosing the type of task, a label with the corresponding name will appear on the map, for example, "Capture", and its sector menu will open:
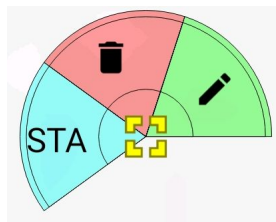
Note: If you select the task type "Other", the parameter editing menu will immediately open.

STA option allows you to quickly change the status of your task to "Done" or "Not Done", even without access to edit the attributes of the task (when blocking the mark). The option is available only if the "Status is changed by the user" checkbox is selected in the task's properties and the current task status is Actual.
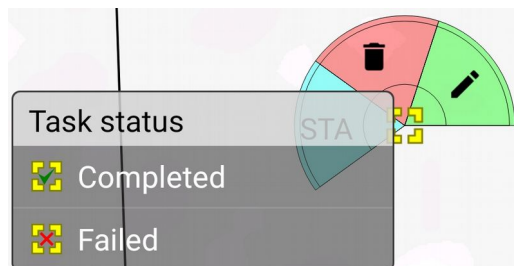
The task, which relates specifically to the user, is displayed on the map in bright yellow, and the task for another user whose current user is the creator or member of the group for which the task was set, but not its commander, is displayed in dull yellow:
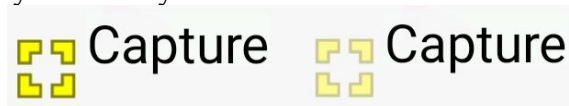
Completely other tasks, which the user is neither the recipient, nor the creator, nor a member of the group, are not displayed on the map and on the list of tasks (see below).

The task attribute screen looks like following:

Caption is the text that is displayed on the map to the right of the reference mark.

Comment is additional text that is displayed in the information panel, as well as on the task list screen under the name.

Name is a mark identifier used in scripts. Accessible only to users with the rights "Game Organizer" or "Side Commander".

Task status is the current status of the task, may have the value "Actual", "Completed" and "Failed", changes the task icon accordingly:
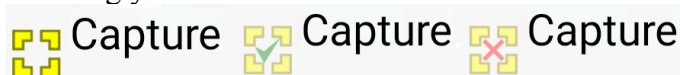
Status can be changed by player activates the STA option in the sector menu and the list of tasks, allows users to change the tasks, even if the label is blocked by the creator (see below).

Secret code for changing status - if the code is set, the user cannot change the status from the sector menu or the task list screen without knowing this code. The function is used to place a code confirming the completion or failure of a task on physical objects in space during a training event.

Signal time and **New status after countdown** allow you to set the date and time for completion of the task and the status that will be automatically set at the end of the timer.

Note! The rest of the time is displayed on the map after the task is named:
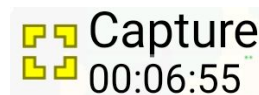
Countdown enabled switch and **Show notify** - switches on the timer itself for the above mentioned date and time, and also allows you to switch on or off periodic text and sound reminders about the end of the timer.

Coordinates define current mark location. Coordinate system in which a value is displayed and entered can be entered to the right of the coordinate output field.

Altitude is the height of the label above sea level. Implemented for compatibility with future versions of the program.

Layer is visible to all sides - if flag is set, the unit will be visible to users of all parties. The option is available only to the user with the rights "Game Organizer" or "Side Commander". It is used, for example, to display general data of allies or to drain the location of objects of the enemy side in training.

Added and **Lock** displays the name of the user who added the mark and allows you to protect the mark from being changed by other users, except for the game organizer or side commander. Other users will be able to change the status of the task through the sector menu (STA) or the "Mission Tasks" screen if the "Status changes by player" checkbox is selected.

Button "Save" saves the change of attributes and closes the window.

Button "Access Rights" opens the window for managing the task by recipients (see the section "Rights Management").
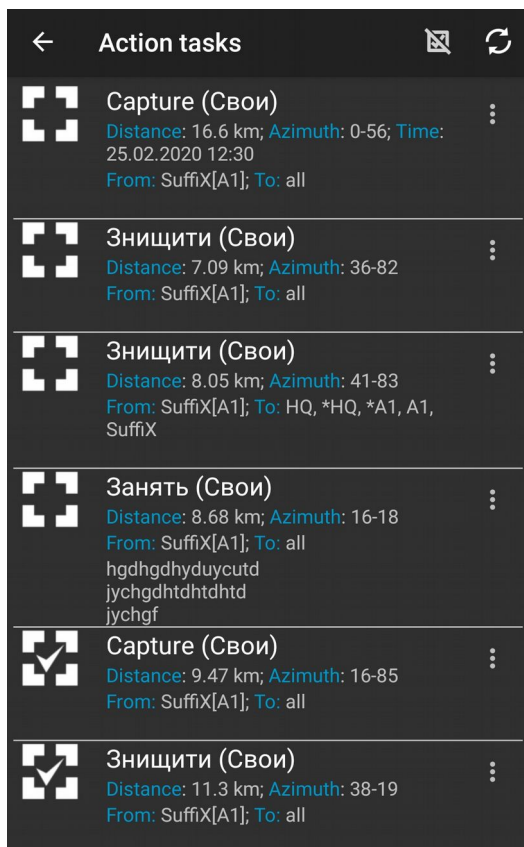
To quickly view your tasks, there is a "My tasks" screen, which is called up from the main menu of the program with the "Tasks " item:

This screen allows you to view all the tasks set by you, your group or someone you set, the status of their implementation, as well as quickly change the status of your tasks, go to the attribute editing screen or delete a task.

Your tasks are displayed in white in the list, and others in gray.

Completed or failed tasks do not have a list for quick status changes, as well as an item in the sector menu.

On the left, the icon displays the current status of the task, similar to the icon on the map.

The Refresh button is required to update the list of tasks forcibly before the synchronization period.

5.3. Adding routes

To create routes, select "Routes" in the above "Add" menu. At the same time, the choice of types of way points appears in the menu:
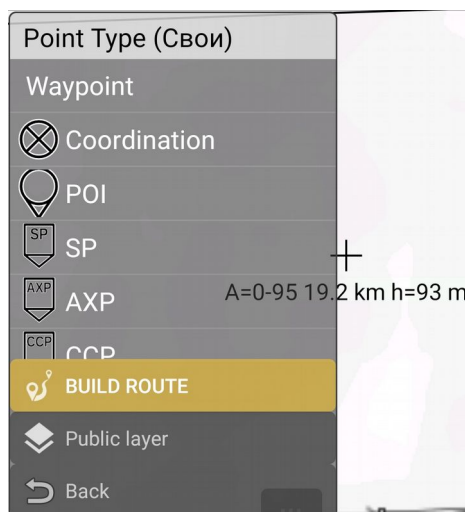
Note: To return to the "Add" main menu, click on the "Back" item.

After selecting the type of way point, a mark with the corresponding symbol and its sector menu will appear on the map. In the sector menu, you can quickly change the type of point (TYP), link point with next one (LNK) or set the direction of the symbol (DIR).
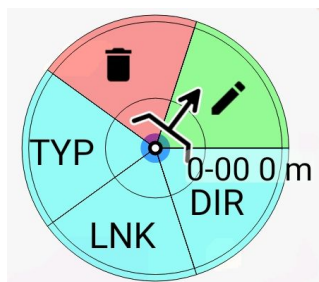
The way point properties window is as follows:

Caption is the text that is displayed on the map to the right of the way point.

Comment is an additional text that is displayed in the information panel.

Name is a mark identifier used in scripts. Accessible only to "Game master" and "Fraction leader".

Coordinates define current mark location. Coordinate system in which a value is displayed and entered can be entered to the right of the coordinate output field.

Altitude is the height of the mark above sea level.

Color sets the color of the way point and line. The color of all points and lines of the same route should be the same. Therefore, when changing the color of any point, the color of the entire route changes.

Point type - in the properties window, you can select the type of point symbol to be displayed, similar to the sector menu item (TYPE).

Way point radius – is a minimum distance to way point when automatic navigation will switch to next point.

Added and **Lock** - displays the name of the user who added the mark and allows to protect the mark from being changed by other users, except for the game master.

Button "Save" saves the change of attributes.

The "Access rights" button opens the label visibility rights management window.

To draw a route (as well as a line and a polygon, see below), you need to draw a chain of way points. Each new point is automatically connected by a line with the current active point (highlighted by a blue circle). Each new point becomes the current active by default.
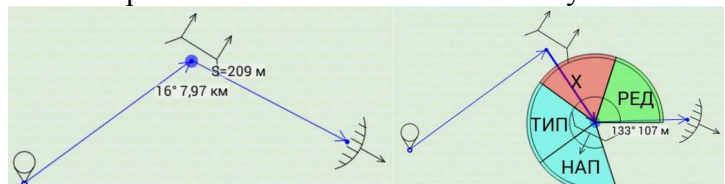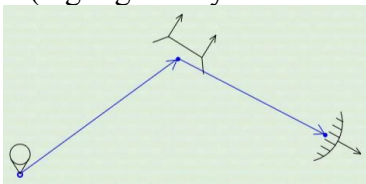
Note: If you need to insert an intermediate point of the route, you can change the current active point by clicking on the necessary intermediate point with a short click, and then create a new point after the selected one and before the next one.

Note: If you need to draw a new route, you need to deselect the current active point. To do this, click on an empty place on the map.

Note: To delete the entire route, just delete the first point of the route. Removing the intermediate points causes the line to connect the previous and next points.

Note: To the right of the name in way points when highlighting them with a short click, there displays the length of the route to this point. By default, the length of all route segments from the first way point to the selected point is displayed.

However, if the user has navigation to one of the route points, the distance from the user's label to the selected way point through the point selected as navigation is displayed.
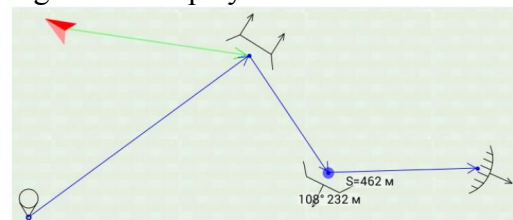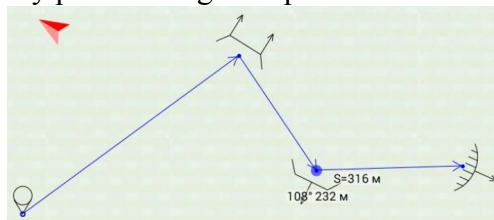
5.4. Adding shapes

To create shapes, select the "Shapes" item in the "Add" menu above. At the same time, a menu will select the types of shapes:
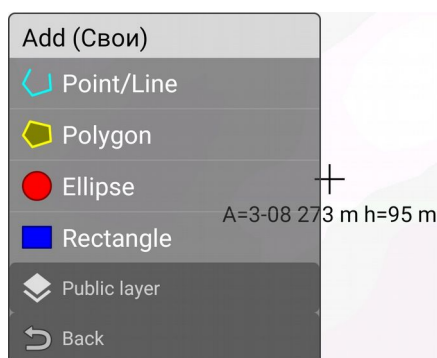

Note: To return to the "Add" main menu, click on the "Back" item. As you can see from the menu, there are four types of shapes: point / line, rectangle, circle and polygon.
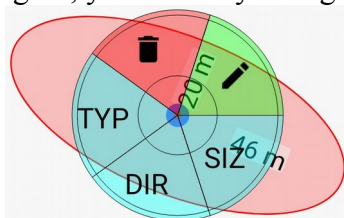
If you select the "Point / line" view, a point similar to the route appears on the map, except that the line between the points of the figure does not have a direction arrow, and the point itself does not have any types or additional icons. This figure is used to outline certain areas on the map. Creation and deletion of a line is similar to a route line (see above). The line does not have additional buttons in the sector menu.

When you select the "Rectangle" view on the map, a square area appears, filled with a translucent background. In the sector menu of this figure, you can change its size (SIZ) and rotation angle (DIR).
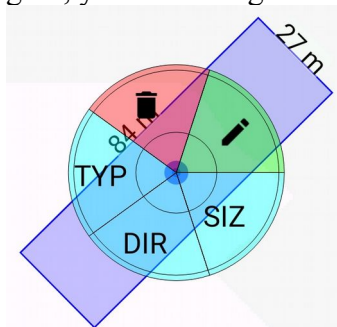
When you select the "Circle" view, a round area appears on the map, filled with a translucent background. In the sector menu of this figure, you can only change the size (SIZ).

If you select the Polygon view, a point similar to the dot / line shape will appear on the map, except that the first and last points of the line will always be closed, and the area inside the polygon will be filled with a translucent color. A shape is used to indicate certain areas of irregular shape.
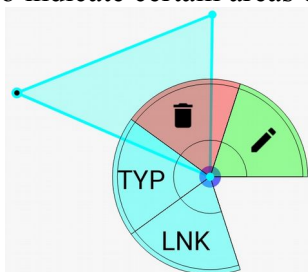
The properties window for all shapes is the same:

Caption is the text that is displayed on the map to the right of the point or inside the center of the shape.

Comment is the additional text that is displayed in the information panel.

Name is the mark identifier used in scripts. Accessible only to users with the rights "Game Organizer" or "Side Commander".

Color sets the color of the point, line and background of the translucent area inside the shape. The color of all points of the same shape should be the same. Therefore, when changing the color of any point, the color of the entire line changes.

Point type defines the icon at point position from the set of available icons.

Coordinates define current mark location. Coordinate system in which a value is displayed and entered can be entered to the right of the coordinate output field.

Altitude is the height of the mark above sea level.

Added and **Lock** displays the name of the user who added the mark and allows you to protect the mark from being changed by other users, except for the game organizer or side commander.

Button "Save" saves attribute changes and closes the window.

Button "Access Rights" opens the control of visibility rights (see. Section "Rights Management").

5.5. Layers maintenance

For the convenience of organizing labels, the application provides such a function as "Layers". Layers allow you to group labels and control centrally their visibility both manually on the interface and through scripts (see the section "Triggers and scripting language"). Also, when a layer is deleted, all labels that were on it are automatically deleted.

One of the many cases when it is convenient to use layers is to split the plans of various missions of one event relating to layers and then manually or automatically display the contents of the desired mission to users at the right time.

To manage the layers, a special screen is provided, which is called up from the main menu item "List of layers". On the screen we see:
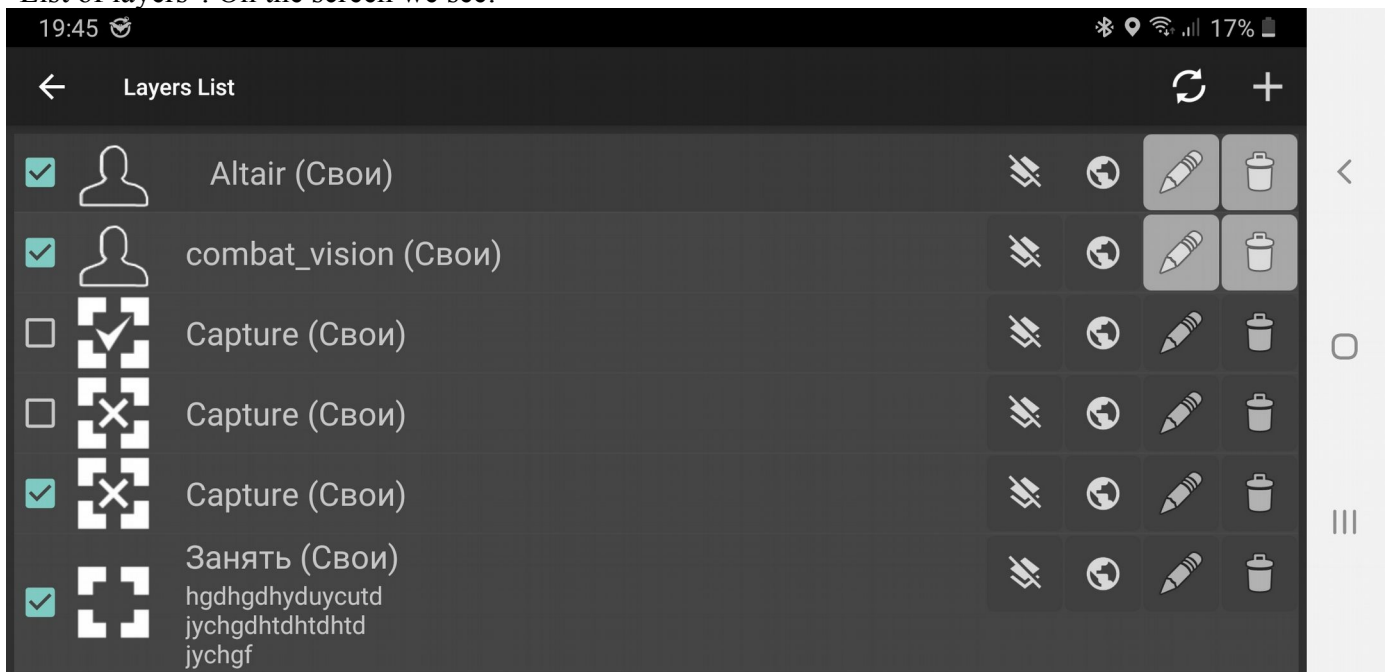
Button "New ⊕ **"** allows you to create a new layer and opens the screen of its properties.

Button "Refresh ⟳ **"** updates the list of layers before the synchronization period.

A list of layer names with the following elements for each layer:
Layer visibility checkbox enables layer visibility on the map.

Button "Select ⊙ **"** makes the layer current and opens the main screen of the program. All new marks on the map are created in the current layer. The current layer in the list is highlighted in green and the word "(current)".

Button "Edit ✎ **"** opens the properties screen of an existing layer and allows you to change its attributes (see below).

Button "Clear ✕ **"** removes all marks from the layer. **Be careful!**

Button "Delete 🗑 **"** deletes a layer and all its contents. **Be careful** when removing the layer!

Note: The main layer cannot be edited or deleted; it exists by default in every game.

The layer attributes screen is as follows:

Caption is the name of the layer displayed in the list of layers.

Comment is the additional information about the layers.

Name is the identifier of the layer used in scripts. Accessible only to users with the rights "Game Organizer" or "Side Commander".

Temporary hide layer from all - the checkbox allows you to create layers and labels on them, visible only to the creator of the layer. It is convenient to use the organizer of the game or the commander of the side when preparing the next mission during the event, so as not to display the draft of the mission to all users, as well as for making notes on the map by the user only for himself.

Layer visible to all sides - if flag is set, the layer will be visible in the list to all sides. Convenient for simultaneously displaying relevant missions to all parties. In this case, the ownership and visibility of labels on the layer is controlled by their own attributes. That is, on one common layer there may be marks visible to different sides, while not necessarily visible to all sides at once.

Added and **Lock** displays the name of the user who added the layer and allows you to protect the layer from changes by other users, except for the game organizer or side commander.

Button "Save" saves changes to the attributes of the layer and returns the screen of the list of layers.

The "Access rights" button opens the layer visibility rights control (see the section "Rights Management").

Note! The visibility rights of a layer can be inherited by its labels, if the "Inherit layer rights" checkbox is selected in them (see the "Access Control" section).

In the properties of each label there is **a parameter "Layer"**, changing which you can move the label between the layers. That is, the label is not fixed rigidly to a specific current layer during creation, but can be moved between layers as many times as desired at any time.

Note: If you move the label to a hidden layer, it will disappear from the map. To see it again, you need to display the layer.

6. Mission briefing

The system allows you to create an HTML page for each side of the game on the server to describe the main points of the game - to create a so-called "Briefing" (see the section on server management for "Game Management"). To look through the briefing page created by the organizer of the game on your side, select the "Briefing" item in the "Activities" menu on the main window.

The briefing screen is as follows:
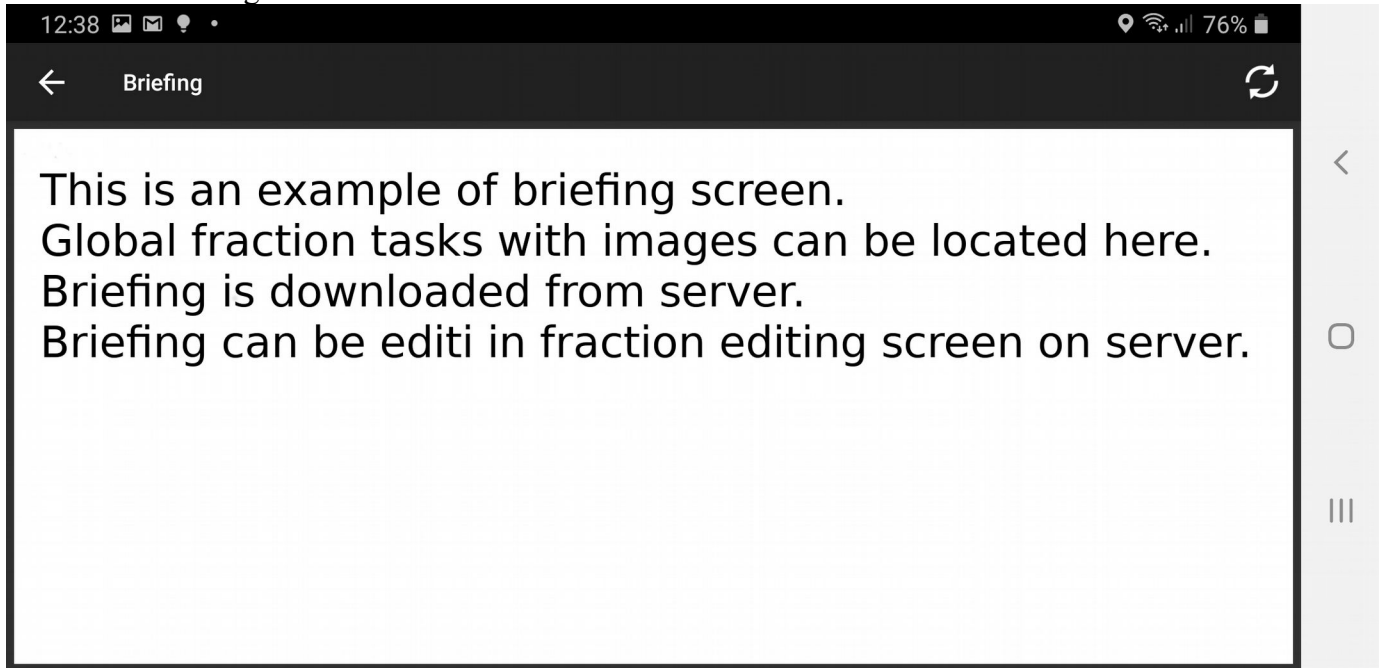
On the screen we see the output area of the HTML page with an example of a briefing and the **"Refresh"** button to update the information on the screen.

Note! The briefing is cached in the application and does not require a connection to the server when the briefing window is reopened.

Note! The briefing is automatically updated after re-entering the program if it has been changed on the server. The Refresh button is necessary only if the briefing has been changed while working with the system.

7. User hierarchy maintenance

First, each user of the system refers to a specific team created on the WEB-server of the system and attached to the current game by the organizer. Subdivisions on the WEB server allow you to specify a general list of party participants and their roles in the game (see WEB server instructions), however, when the game starts, participants of all teams are presented by default as a flat list of non-subordinate users. This is due to the fact that the unit on the server is not always in the game is one structural unit. Several teams in the game can be part of one group, or vice versa - a team can consist of several groups. Also in the process of an event, the composition of a party can dynamically change due to losses, etc.

Directly during the event in each specific game, users of the system are able not to enter any group and not to obey anyone, or enter a specific group and obey its commander. Moreover, groups among themselves can also be subordinate to each other. In this case, the commander of the lower group is the direct subordinate of the commander of the higher group. This subordination determines the authority to issue orders by one user to others and their right to change the structure of groups lower in the hierarchy, and also participates in determining the rights to view objects.


To implement the hierarchy, the concept of "Group" was introduced into the program. In fact, this is a container for users and other subgroups, each of which has its own commander. On the map, the group is

displayed with a rectangular label, and users with a round label. In a group's mark, unlike the user, the number (symbols above the mark) and the type of troops can be set instead of weapons (inside the mark).

The group mark replaces the mark of the commander of that group on the map. The name of the group commander is written after the name of the groups through the symbol "/". On the left there is an example, the "B1" group, commanded by the user "et" and subordinate to which has the user "User". The image shows the line between the group and the subordinate user, since the group is highlighted by a short click.

To control the hierarchy of users and groups, as well as to select users and groups of recipients of an order or message in the program, there is a special screen that is called up from the main menu ![icon] the "Participants" item.

By default, a list of members of the group of the current user opens.
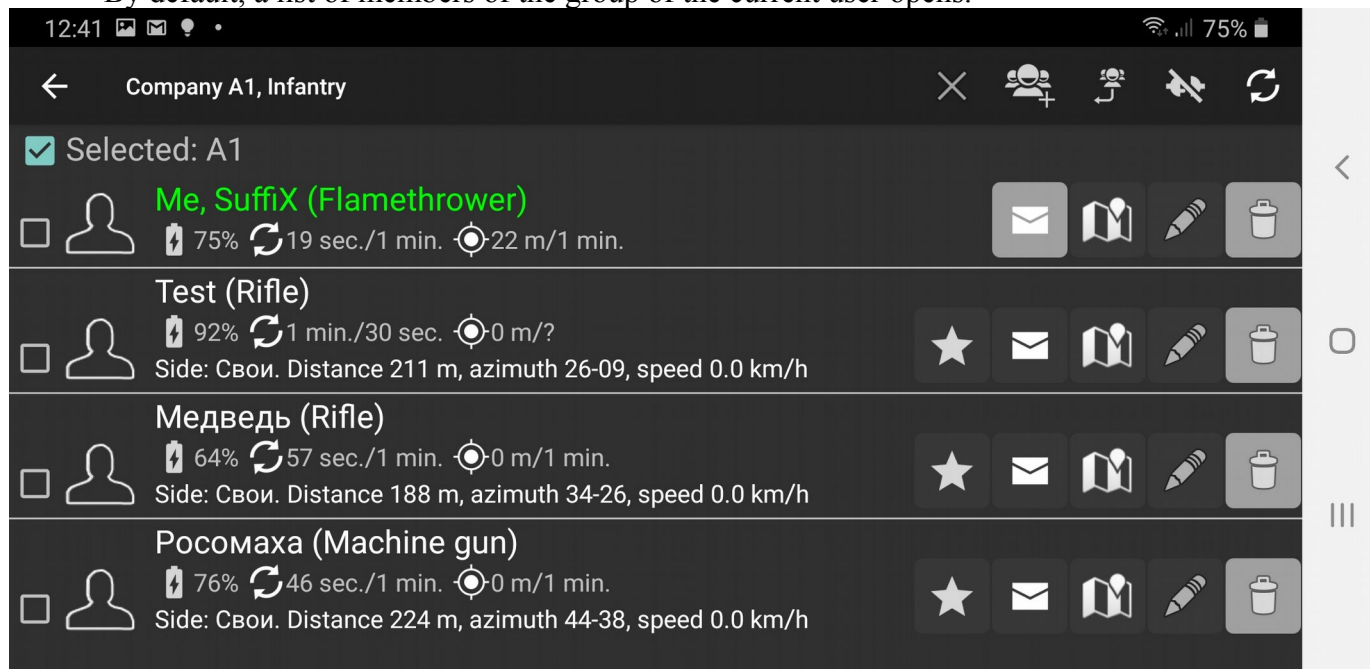
For example, we give a screen with a list of members of a higher group:
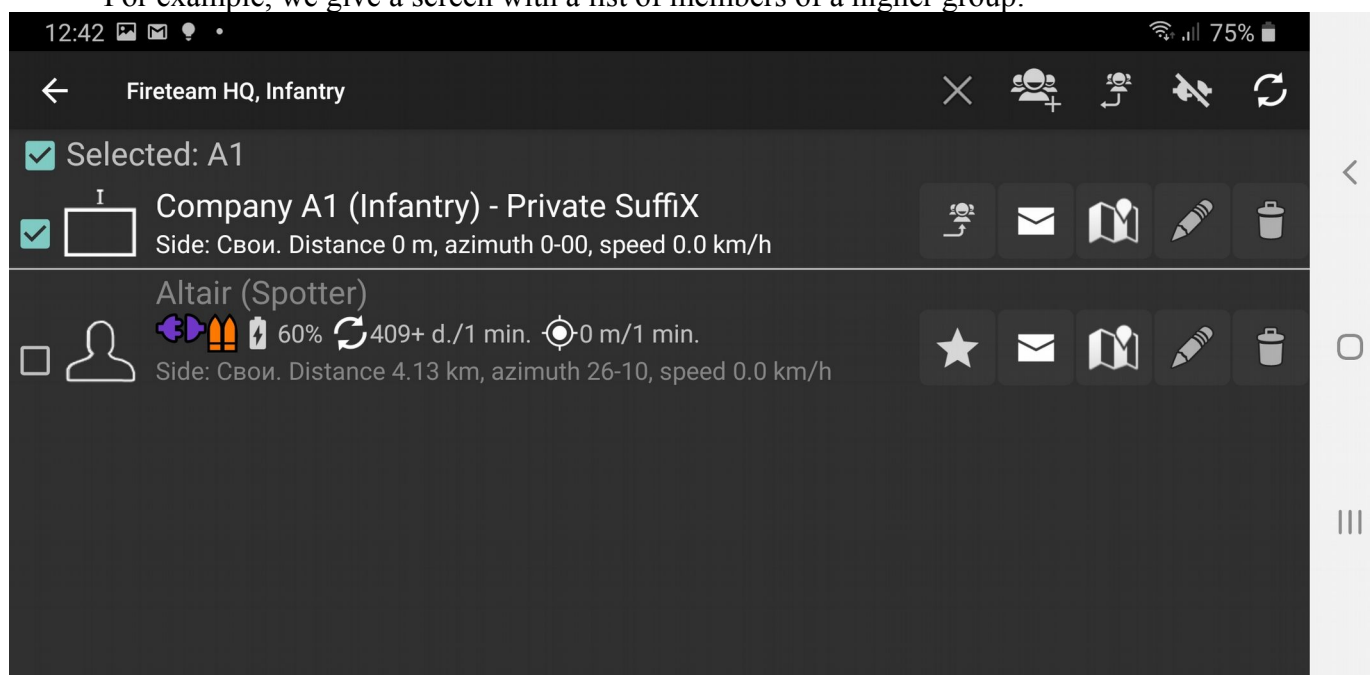
On the screen we see the following elements:

The name of the current group - in the left corner of the window title there is the name of the group, a list of which is displayed on the screen, as well as its strength and type of troops. Being at the root of the hierarchy, the text "Select subdivisions" is displayed instead of the name.

The Refresh button ⟳ allows you to update the list of users and groups forcibly before the synchronization period begins.

Button "Up ^" allows you to go to the display of the contents of the hierarchy higher group. When the root node of the hierarchy is displayed on the screen, the button turns into the **"Close ✕"** button and allows you to enter to the main program screen.

Button "New group 👥₊" allows you to create a new group subordinate to the current one displayed on the screen. At first, when all the participants are not in any group, the addition occurs to the root node. Groups added to the root node of the hierarchy and users in it are not subordinate to anyone except the organizer of the game.

Button "Delete" transfers selected users and groups to the root node, making them not subordinate to anyone, however, all users who are in the root node are "common" and can be included by any commander in their group (see below the mechanism of adding to the group).

Button "Show ⟷ / Hide ⊘ offline" allows you to filter participants in the list on the screen and the output of participants on the map who are logged out for a while (not connected).

The "Select all □ Выбраны:" checkbox selects all users and groups in this subgroup. If you click again, it clears highlights from all users and groups at all levels of the hierarchy and makes the selection list empty.

To the right of the checkbox for selecting all after the word "Selected:" there is a line with **a list of currently selected** users and groups.

The screen below displays a list of users and subgroups in the current group.

Each list item has its own components.

In the line with the user, it is displayed:

1. His rank, name and weapons in brackets. The current user is highlighted in **green**, the group leader is highlighted in **blue**, and the inactive user who is logged out or lost connection is gray.

2. The combat and technical statuses of the user.

⟷ ⚠ 🔋 6% ⟳ 3532 мин./60 сек. ⊕ 24 м/60 сек.

Among the technical statuses there is the information about the battery level of the device, the time since the last synchronization with the user, the period of data synchronization, positioning accuracy and the period of updating GPS coordinates.

1. Distance and azimuth to the user from the owner of the device, as well as the speed of the user.

Side: Свои. Distance 211 m, azimuth 26-09, speed 0.0 km/h

2. □ 👤 A checkbox for selecting user in the list and an icon indicating the type of label "User".

3. The button "Show on map 🗺" opens the main screen of the program and centers it on the selected user, while highlighting only in focus.

4. Button "Relinquish command ★" allows you to relinquish command of the current group to this user. Available to higher commanders, the organizer of the game, the commander of the party, or all if the current commander is not in touch.

5. "Edit" button ✎ allows the user to edit his attributes (similar to the "Profile" button on the program settings screen), or to the game organizer.

6. "Delete" button 🗑 allows the game organizer, side commander or higher commanders to remove the offline user's label, who with a high probability will no longer return to the system so as not to clog the map.

The following items are displayed **in the line with the group**:

1. The size of the group, its name and type of troops in brackets, then through a hyphen the rank and name of the group commander.

Company A1 (Infantry) - Private SuffiX

Red color indicates groups without a commander or groups in which the commander is not in touch.

2. Combat statuses of the group, if any.

3. Distance and azimuth to the group from the owner of the current device, as well as the speed of the group commander.

4. A checkbox for selecting a group from the list for issuing an order or sending a message and an icon showing the size of the group.

5. **Button "Show on map** **"** opens the main screen of the program and centers it on the selected group, while highlighting the group in focus.

6. **The button "Insert into group** **"** allows you to insert selected users and subgroups into the subordination of this group. The option is active only for commanders of higher groups, the organizer of the game and the commander of the party. An ordinary user cannot change the structure of a hierarchy, and a group leader can only change the structure of a lower branch. You can insert into a group only users located in the root node of the hierarchy or users and groups that are subordinate below the hierarchy.

7. **Button "Edit** **"** allows you to edit the attributes of the group.

8. Button "Delete **"** allows you to delete the selected group, while all immediate subordinates go under the command of the parent group shown on the screen.

Note! To view the subordinates of a group, click on its name. To go back, use the Up button (see above).

Group properties editing screen looks as follows:

Caption is the text that is displayed on the map and in the list on the "Participants" screen.

Comment is the additional text that is displayed in the info panel if a group is selected.

Name is the mark identifier used in scripts. Accessible only to users with the rights "Game Organizer" or "Side Commander".

Symbol defines the type of troops of the unit, which in its turn changes the content of the label (see Section "Units").

Size determines the size of the group: fire team, squad, section, platoon, company, battalion, regiment, which in turn complements its appearance with appropriate signs (see the "Units" section).

Damage indicates the degree of readiness of the group to complete tasks. Do not confuse with status. **The group status** is a dynamic characteristic, and damage indicates the fact that the current group has finally left the group.

Coordinates are the current location coordinates of the group label. On the right in the drop-down list, you can select a coordinate system for displaying and entering values.

Altitude is the height of the group above sea level.

Speed is the speed of the commander of the group.

Layer is visible to all sides - if the flag is set, the group will be visible to users of all parties. The option is available only to "Game master" or "Fraction commander".

Added and **Lock** displays the name of the user who created the group and allows you to protect the properties of the group from changes by other users, except for the game organizer or side commander.

Button "Save" saves the change of attributes and closes the window.

**Button "Access Rights"** opens the control of visibility rights (see. Section "Rights Management").

7.1.Selection of users and groups

There are three ways to select users and groups to send them messages or give orders:

1) Double-click on the user / group label on the map of the orders menu and click on "Select". The name of the selected user or group is surrounded by a frame. To deselect, select the item in the same menu, "Unselect" appears to deselect the current label or "Clear selection" to clear all selected users and groups.
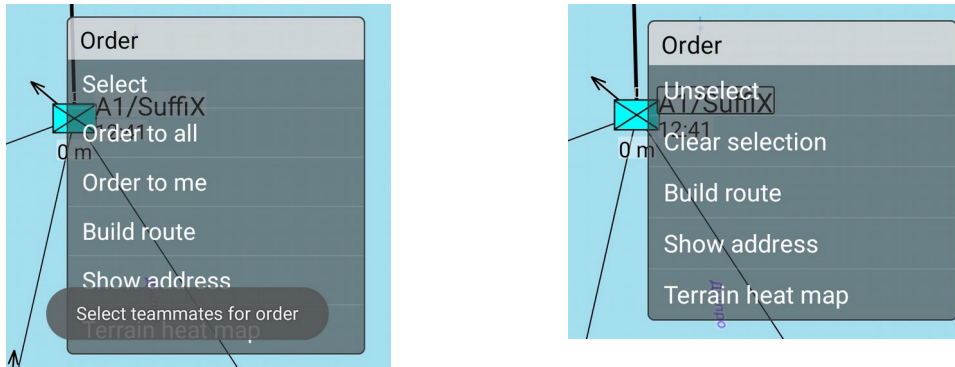
2) By checking the box next to the desired user / group on the "Participants" screen (the "Participants" item is called up from the main menu of the program). The list of selected users and groups is displayed on the screen above after the word "Selected:"
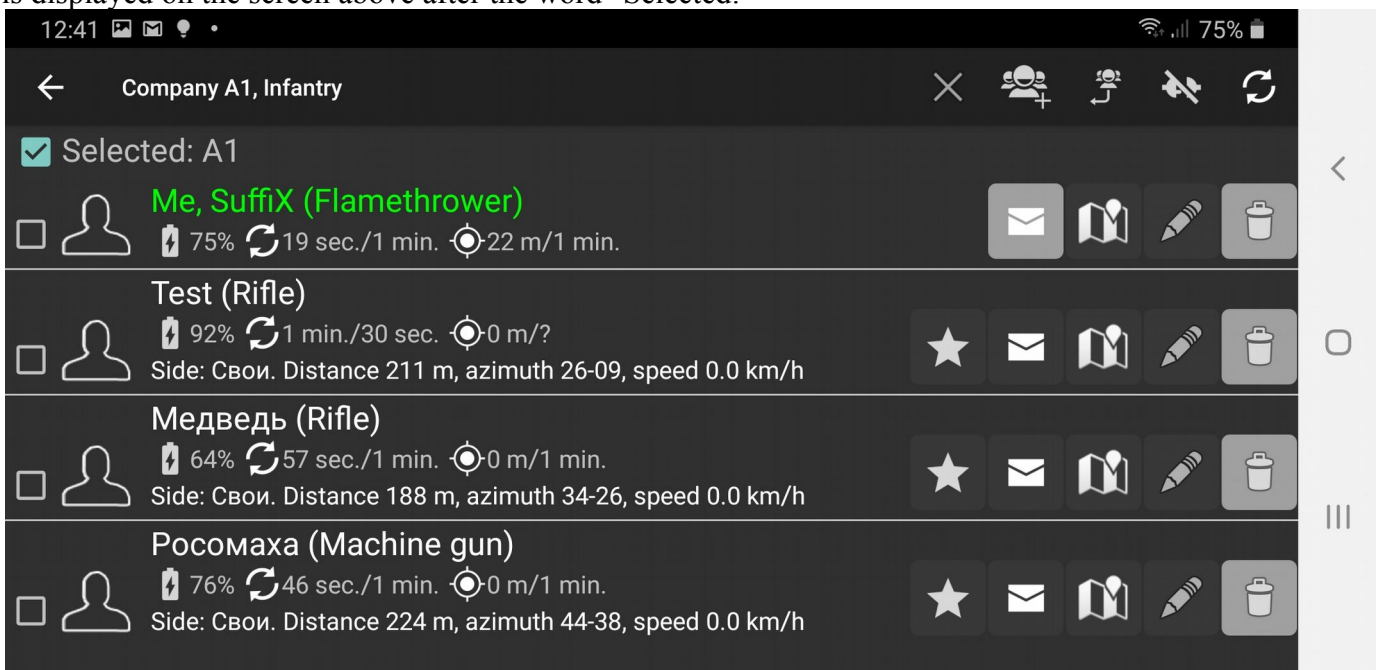
3) Click on the user or group label in the commander's tab.
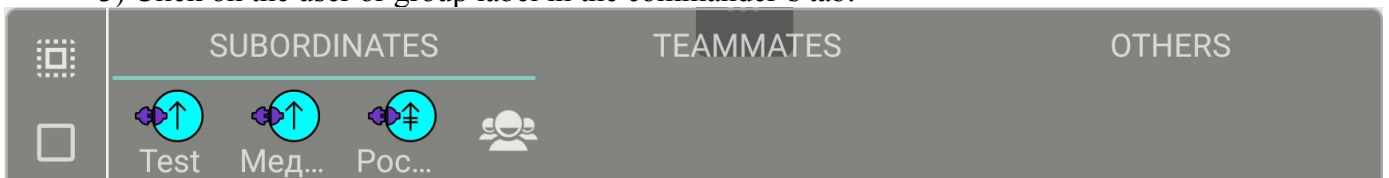
Note! All three methods complement each other. You can select one part of users or groups on the map, another part through the "Participants" screen or subordinates panel. All of them will be highlighted on the map and in the subordinates panel. Also they will be displayed on the "Participants" screen, highlighted by check-marks in the list, and in the text after the word "Selected:".

Note! If no group or user is selected, then to quickly select all of his subordinates, you can double-click on any label on the map and select the "Order to all" item in the "Orders" menu. In this case, the names of all subordinate marks will be circled and added to the favorites list, after which a list of actions for this mark will open. Similarly, to quickly give an order to yourself, you can select the "Order to me" item, then the list of favorites will be cleared and only one mark of the current user will be highlighted.

## 7.2.Giving orders to users and groups

The application allows some users to give orders, others - to set goals.

Orders can only be given to subordinate users and groups according to the hierarchy (see Section "User Hierarchy"), or having the rights of the game organizer.

If an order is given to a group, the current group commander receives it. If you change the commander for any reason, the old commander will lose the order, and the new commander will receive it again.

There are two types of orders: above a specific label and general.

Under **the action on the label** the issuance of an order for: movement, attack, training, reconnaissance of a certain mark is understood. In order to give such an order, it is necessary to select the proper recipients of the order (see Section "Selection of Users and Groups"), and then double-click on the label on which the action should be performed. As a result, the "Orders" menu with a list of actions will be displayed:
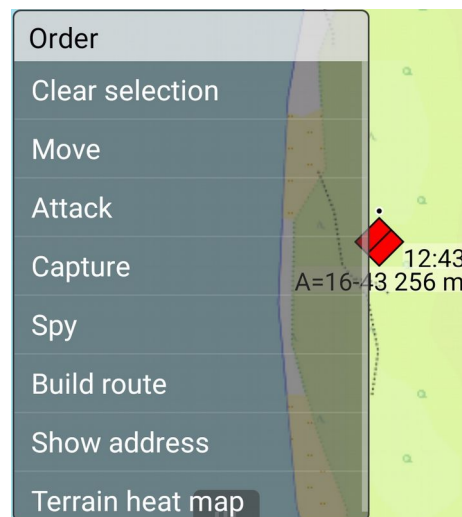
After choosing one of the actions between the recipients of the order and the target, dashed lines with arrows of a certain color will appear (depending on the type of order), and the text "ORDER 000* (00h) 99.9m" will appear at the top of the screen, where ORDER is a word with type of order (see below); 000 * is the azimuth from the user to the target; 00h is the direction to the target in hours, relative to the vector of the user's current movement; 99.9m is the distance from the user to the target. When you open the compass screen, a green circle with an azimuth to the target will appear on it (see the Compass section).

After receiving the order, the user device automatically sends a confirmation of receipt to the sender, and the arrow to the target of this user becomes solid:
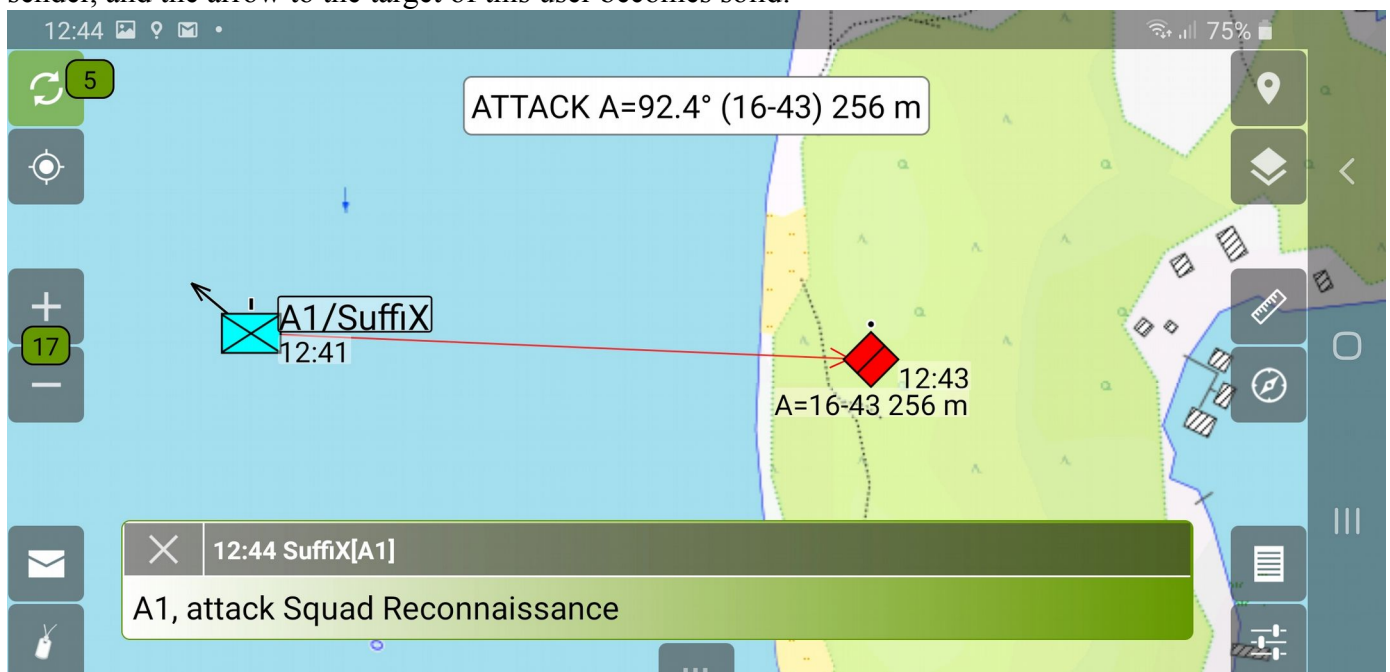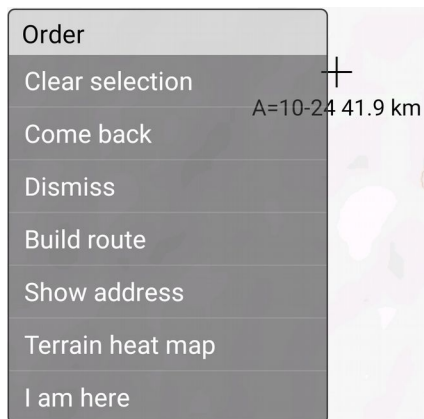
Orders over marks are of the following types:

Move is a short text above "GO", **the color of the arrow is green**, used to issue an order to move to the mark.

Attack is a short text above "ATTACK", **the color of the arrow is red**, is used to issue an order to attack the specified mark.

Capture is the short text above "CAPTURE", **the color of the arrow is blue**, is used to issue an order to occupy and maintain positions in a building or equipment.

Spy is a short text above "SPY", **the color of the arrow is yellow**, is used to issue an order for intelligence of the surroundings of the specified mark or area specified by the shape.

General orders are orders that do not have a specific label as a target, such as: stand down and to service. To give an order of this type, you must select the recipients (see Section "Selection of Users and Groups"), double-click on an empty place on the map and select the desired item in the orders menu:

Order
Clear selection
Come back
Dismiss
Build route
Show address
Terrain heat map
I am here

A=10-24 41.9 km

Come back means moving to your immediate commander. The commander of each user is read automatically and a gray arrow is drawn on it, while the short text at the top has the value "COMMANDER", it is used to quickly return all selected units to the stowed position.

Dismiss is cancellation of the previous order to the recipients. After receiving this order, the arrow on the target and the text at the top of the screen disappear, and the user goes offline without a target.

In order to export the coordinates of the target to the ballistic calculator, just quickly double-click on the desired location on the map and select the Shot item, after which the device will switch to the operating mode in the ballistic calculator.

Note! For this function to work, it is necessary that the "Ukrop soft" calculator be installed and activated.

8. Messenger subsystem

The program allows users to exchange text messages with each other. Messages can be sent at the initiative of the user or automatically. Automatic messages are created when a user performs certain actions, for example, sending his status, changing a unit commander, creating or changing a target, giving an order, etc.

To open the chat window, click on the button in the main window.

Note! The number on the red background in the corner of the button indicates the number of unread messages. All messages reviewed on the chat screen automatically become read. The chat screen looks like this:
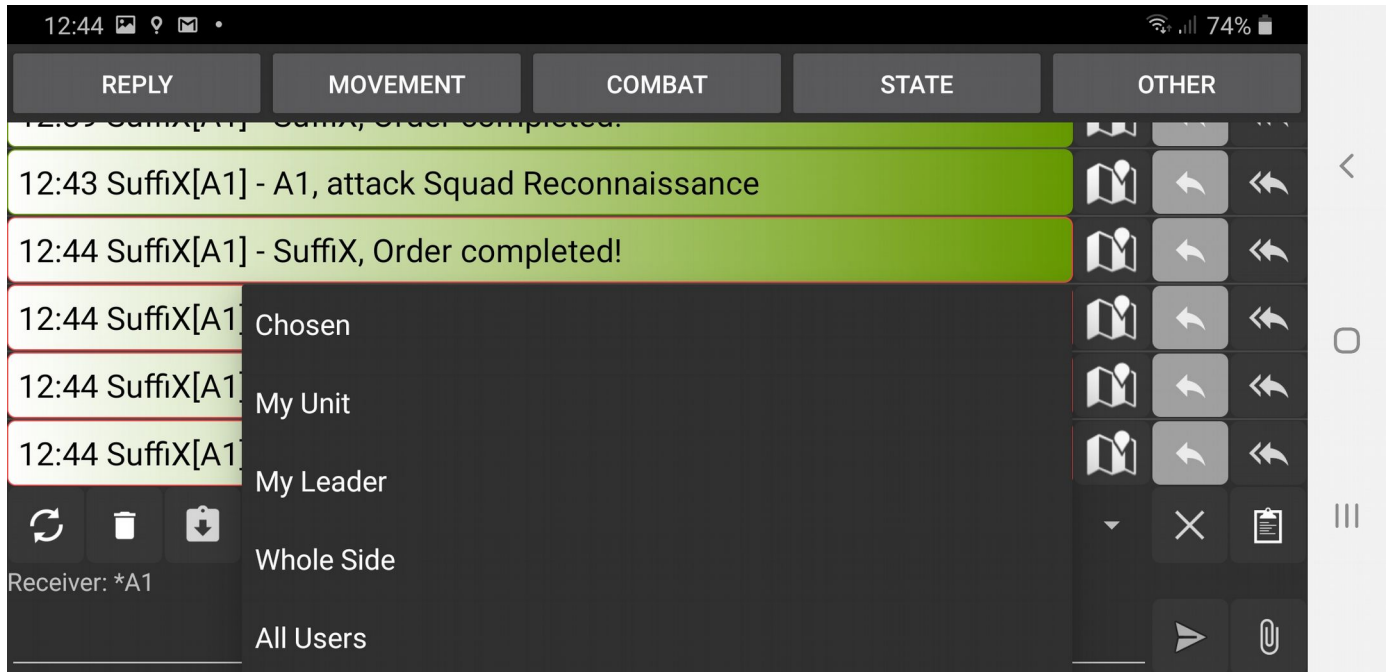
At the top of the screen there are five buttons to call the quick message menu, grouped by topic. The fifth category contains a set of user messages (see Details below).
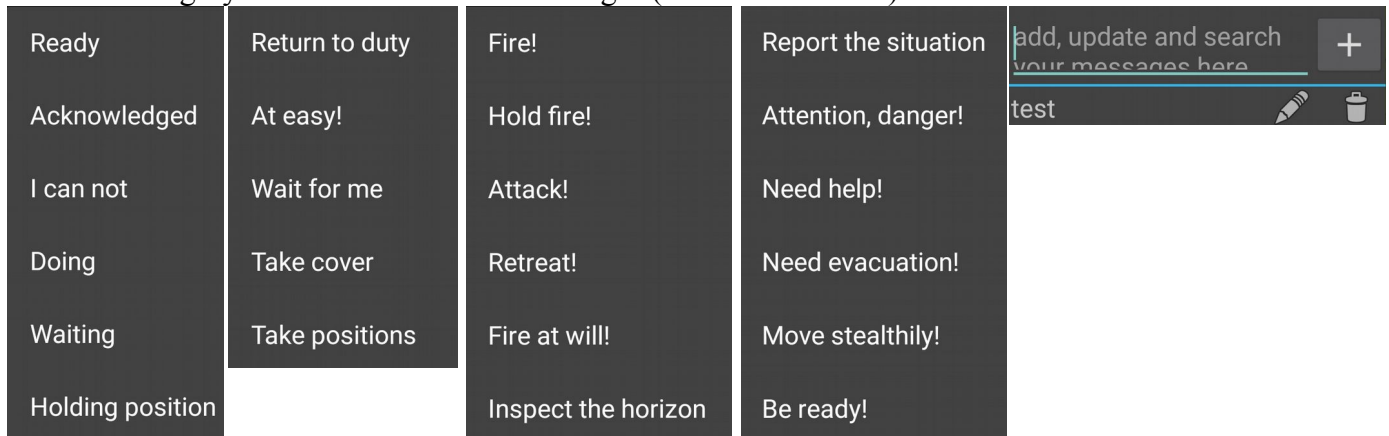
Note! If you simply click on the quick message in the menu, it is immediately sent, and if you hold your finger on the selected message for more than 2 seconds, it is inserted into the message input area and the program allows you to change the text before sending.

In the middle of the screen there is the main message output area. The blue messages are incoming, and the green messages are outgoing.

Note! Try scrolling through the list of messages above the first message to load additional 10 old messages from the server. The operation can be repeated until the old messages run out.

The message has the form "00:00 User [Group]: Target1, Target2 - text", where 00:00 is the time the message was sent; User is the name of the user who sent the message; [Group] is the name of the group to which the sender belongs, if any; Target1, Target2 is a list of message recipients; text is the actual text of the message.

At the bottom of the screen there is:

A text input field is a field where you can enter a new message or edit a message from the quick message menu.

Button to send a message ➤ sends messages to the server entered in the field.

Note! If you hold the send message button for 2 seconds, the program will offer to save this message to the menu of quick user messages.

Drop-down **list for selecting a sending mode**. There are four message sending modes:

To selected means that the message will be sent to users or groups selected on the map or in the list of participants (see the "Selecting Users" section)

To Group means that the message will be sent to all members of your current group and commanders of subgroups (see the section "User Hierarchy")

To the commander means that the message will be sent to the current commander of your group.

To all means that the message will be sent to all participants in the game on your side

Note! The "To Group" and "To Commander" modes are available only if you are in a group, and the "To all" mode is available only to the game organizer.

The button for **clearing selected recipients** ✕ and the button for **switching to the contacts screen** 📋 for selecting recipients. For details on selecting recipients, see the "Selecting Users" section.

A forced synchronization button ⟳ can be used to check for new messages before the automatic synchronization period begins.

**Field "Recipient"** reflects the actually selected recipients of the message.

In addition to the chat window, all incoming and automatic outgoing messages can be seen in a pop-up window on the main screen of the map:

✕	18:10 SuffiX[A1]

HQ, unit status: ready;

A pop-up window appears when messages are received, it shows each message for 5 seconds, and then disappears in 30 seconds. All unread messages can be viewed on the chat screen. To skip the current message, click on the pop-up window. To close the pop-up window and thereby skip all messages in the queue, click on the cross in the left corner.

A long click on the program message icon displays all unread messages again.

Note: Messages will be considered read only after you *go* to the chat screen and review them there. To enter your own quick messages there is a fifth button of the "Other" menu, which opens the following screen:
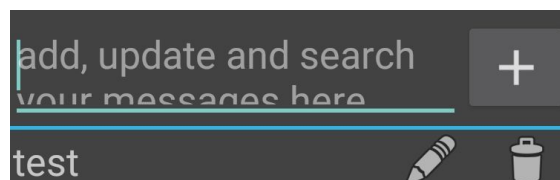
On this screen you can:

1)   Enter part of the message in the input field and thereby filter the list of previously saved messages to select the one you need.

2)   Enter a new message in the input field and click on the "Add ✛" button to save it in the list.

3)   Click on the "Edit ✎" button to change the existing message in the input field. To save changes, click on the same button opposite the input field.

4)   Press the "Delete 🗑" button to delete the previously saved message.

9. Map items access control

To differentiate access to data on the map, a system of changing rights was introduced in the application.

Each mark and layer on the map can have a list of users or groups to which it is visible, while other users will not receive it from the server at all.

Any mark belongs to a certain layer and can inherit its visibility rights so that it is not necessary to affix the same rights to each label individually.

To control access rights, click the **"Access Rights"** button on the item edit screen for any mark type or layer. The rights editing screen looks like this:
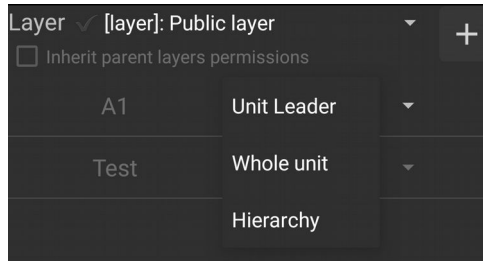

At the top of the screen there is:

The checkbox "inherit parent layer permissions" - when set, the rights of the object are replaced with the rights of the layer and cannot be changed. If you uncheck the box, the rights of the layer are copied to the rights of the label and you can edit them

Button "Add **"** adds selected users and groups to the access list.

The "Already selected units" list shows which users and groups have been selected to be added to the access list.

In the central area of the screen there is a list of users and groups who are allowed access to view the current object. If the list is empty, the access is allowed to all users. To take away viewing rights from a specific user or group, click the "Delete" button opposite the required line.

Rights can be given both to the user personally, and directly to the commander of the indicated group, to all members of the group, or to all members of the hierarchy of subordinate groups. It is regulated by the value in the drop-down list opposite the groups in the list ("Commander", "The whole Subdivision", "Hierarchy").To add a user and subdivision, click the "Add" button , windows for selecting a subdivision and/or user are opened:
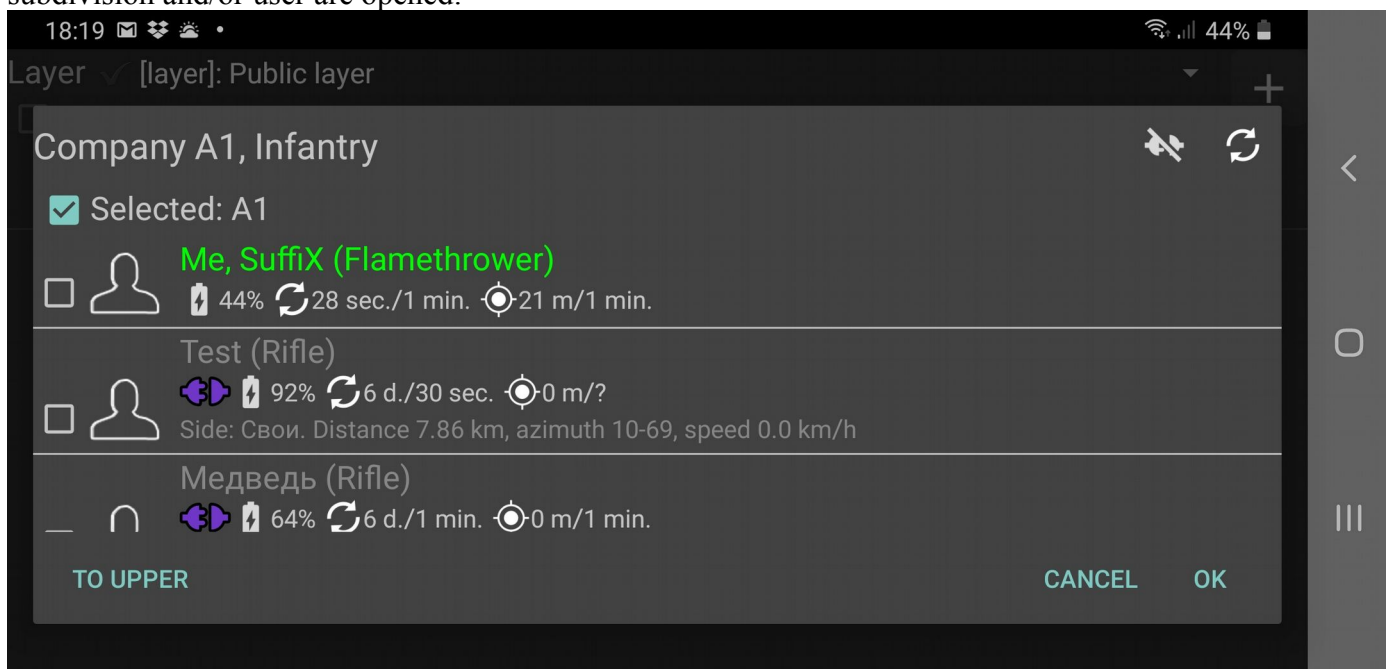
The **"To upper"** button switches to the parent unit. Mark checkboxes to selects specific users.

To apply the changes, click **OK**. To cancel the changes, click the **"Cancel"** button.

10. Map items and messages attachments

You can add a file to each mark. It can be either images, an audio file, or any other file with any extension. Files are uploaded to the server and saved there. Having a connection with the server, the user can download the file to the device and work with it.
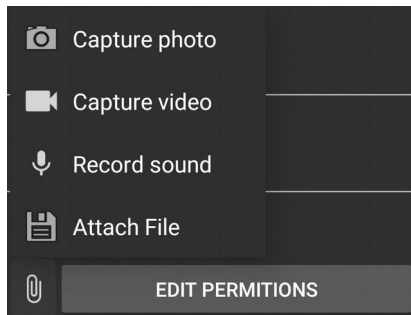
To add a file to the mark, go to the mark settings and click on the clip :

The **Camera** item allows you to enter the photo mode, take a picture and send it to the server.

The **Item Voice Recorder.** The recorder is built into the device.

The **File item** opens a list of file managers where you can select a file that is saved on the device.

After adding the file, the program offers to make the following parameters:

• **Attachment name** - its unique name is for quick search among other attachments;

• **Automatic start** - immediately sends attachments to the server;

• **Delete after sending** - deletes the attachment file from the device. For further access to the attachment, it will be necessary to apply for it to the server.

To view existing attachments for a specific mark, click on the information panel button and tap on the item with text **"Tap to view"**. This action will open a "Gallery screen" (see next section).
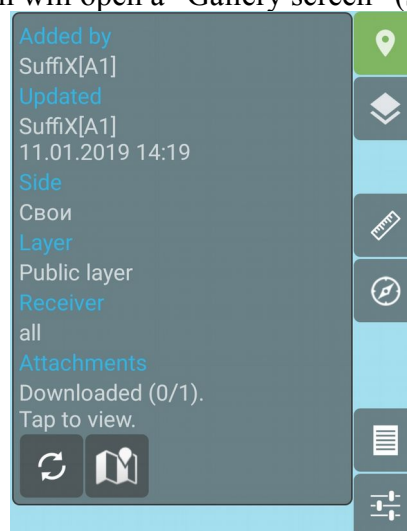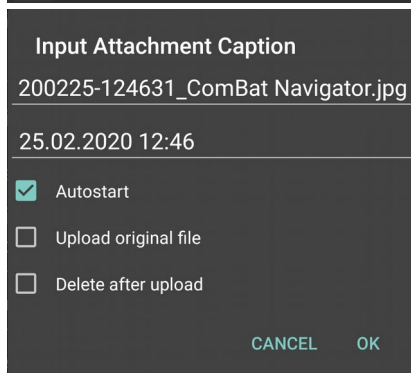
Note: it's important that the used communication type could transmit multimedia files.

To view all the attachments and their status, you need to go to the supplemental windows menu and select Attachment menu.

Attachments are **in operation** means that the device is processing the file, **stopped** means that the device has not completed the file processing, and **completed** means that the files are ready for use.
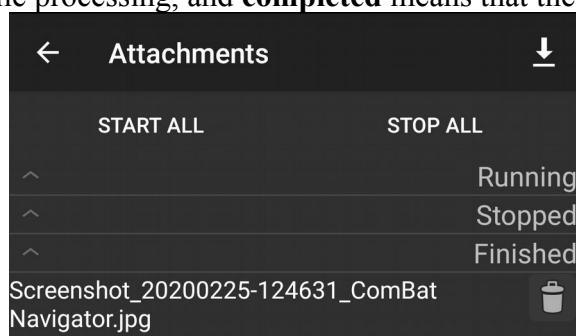
10.1. Attachments gallery

To view attachments assigned to the mark, there is a built-in gallery activity in application. Its screen looks like following:
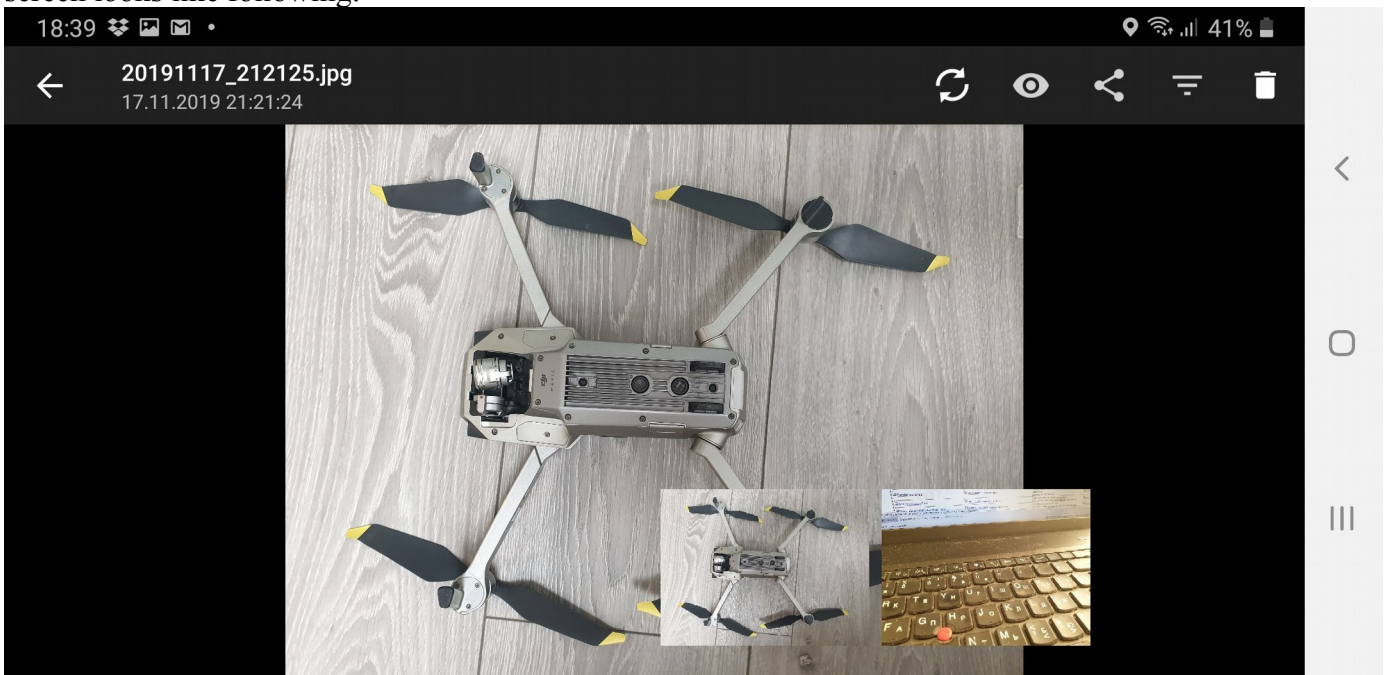
Attachment screen toolbar contains following elements:

Attachment title and **modification date** of current viewing file.

Refresh button requests new attachments list from server to check if something changed.

View button opens external application to view attachment. Useful for non-multimedia files.

Share button opens list of possible applications which can import current file type.

Delete button requests deletion of attachment file from server.

Filter button opens filter options screen, which allows to reduce visible attachments list by type and date.

Attachment filter looks like following:

11. User movement tracks

When you turn on the GPS-receiver and activate the function "Update GPS-coordinates" the user has the opportunity to record the track of his movement. The track is formed sequentially from the places on the map in which the program received GPS coordinates from the device.
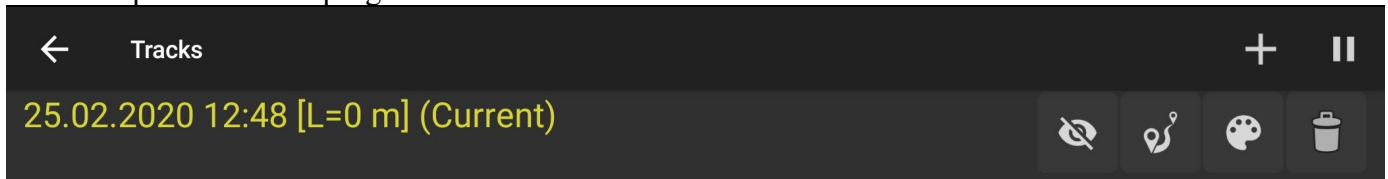
Adding tracks takes place by pressing the or buttons (in this case, the layer immediately becomes the current one). The current track is the track in which coordinates are currently being recorded. The pause button stops recording coordinates in the track. In order not to display the track by activating the "Show Tracks" function, you must click the hide track button . To convert a track to a route (other users do not see your track, if you want to show it, you need to convert the track to a route and synchronize with the server or send using P2P), click on the conversion button . To change the displayed color of the track, click on the palette and select the desired color. To delete a track, click on the basket .

Note! If the user stopped recording a track, created the next one and started to record coordinates in a new track, the user will not be able to start recording coordinates in previous tracks.

12. Triggers and scripting language

For software automation of the training process, the application provides the so-called triggers and the scripting language. This mechanism allows you to process the characteristics of labels on the map, the facts of their interaction with each other and with users, in order to change the required characteristics of other labels based on various logical designs. For example, to automatically display a layer with a subsequent mission when the status of a certain preliminary target changes to the value "Completed", or automatic messages of the user when entering the "minefield" zone indicated by some shape.

For detailed scripting language features and trigger usage examples, see the separate scripting language manual.

To add a trigger to the map, you must select the "Trigger" item in the "Add" menu (see the "Adding Mark" Section). The trigger label has no additional items in the sector menu. Triggers are visible only to users with the rights "Game Organizer" or "Side Commander", their location on the map is purely organizational in nature and does not affect the operation of the trigger in any way. The trigger for activation uses the facts of user interaction with other marks.
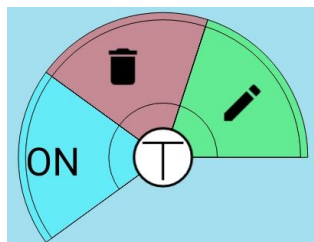
The trigger properties screen is as follows:

Caption (Trigger)
Comment
Name
6797334329677060117
Coordinates MGRS ▾
36UUA 24698 97919
Altitude (m) NaN ⟳
Condition
On activate
On deactivate
☑ Is repeatable, delay (sec) 0
☐ Global trigger   ☐ Trigger ON
Lock No ▾   Added by TAKE
SAVE   📎 EDIT PERMITIONS

Caption is the text displayed above the trigger label.

Comment is a detailed description of the purpose of the trigger.

Name is a mark identifier used in scripts.

Condition is a logical condition for trigger activation. For a list of possible logical constructs, see the scripting language manual.

On activate, a script that is executed when the trigger activation condition is met. List of possible script commands (see the Scripting Language Guide).

On deactivate, a script that is executed when the trigger activation condition is no longer met. List of possible script commands (see the Scripting Language Guide).

Is repeatable, delay (sec) means that the condition of activation and deactivation will be repeated continuously upon the occurrence and termination of the condition. If the checkbox is not selected, the condition for activation and deactivation will be fulfilled only once. The number of a delay in seconds means that re-activation is possible no earlier than after a specified period of time.

Global trigger means that the fact of activation of the trigger is recorded on the server and, if the activation condition is met on one of the user's devices, all subsequent devices do not execute the activation and deactivation script. That is, the activation and deactivation code is executed only on the device on which the trigger worked first in time.

Trigger on means that the trigger is on and monitors the activation condition. If the checkbox is not selected, the activation condition is not monitored and the activation and deactivation script will never be executed. This item can be changed automatically from a script, which allows you to create dependent triggers - the activation of some triggers is turned on when others run the script.

Coordinates are current coordinates of the label location.

Added and **Lock** displays the name of the user who created the group and allows you to protect the properties of the group from changes by other users, except for the game organizer and side commander.

Button "Save" saves the change of attributes and closes the window.