



ActiveMap Mobile Android user manual 18.1 (5.42)

Activemap Computer Systems Design

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GENERAL INFORMATION

1.1 Application information

ActiveMap Mobile is a part of the ActiveMap applied software suite for automated control of field employees, as well as for performing works at service objects (hereinafter referred to as the System).

ActiveMap is an online system for organizing the interaction between field workers and the dispatcher (task coordinator). The system helps to plan and manage the production work and to operationalize quality control of field services.

Capabilities of ActiveMap:

- Flexible customization to meet the needs of the company.

You can adapt ActiveMap to any business process. A list of work types, steps and deadlines can be set up for each organization cluster.

- Adding tasks and controlling their execution.

The system allows users to add operational and planned tasks, including scheduled tasks on a given template.

- Object inventory.

ActiveMap helps to carry out an inventory of objects: update information on the status of existing objects, identify nonexistent, and to create new ones.

- Control of field employees.

The system helps to control employees with real-time tracking of their location, viewing the history of their movement, and recording the execution of requests.

- Convenient and quick interaction between field employees and work coordinators.

ActiveMap speeds up the process of exchanging results between the field employee and the work coordinator. The coordinator can promptly update task information, which is immediately communicated to the field employee. The coordinator can also quickly return the task to the fieldworker for execution based on the results of the fieldwork.

- Using photo and video fixation materials and GPS data.

The system can verify that tasks were carried out using photos, video recordings, and location data. This avoids the necessity of field inspection of executed orders.

- User rights configuration.

The system enables the configuring of user rights. Each user is assigned a certain role. The role of the system user determines access to the list of tasks, rights to edit and manage these tasks. The roles vary from simple executors to the administrator of the entire system.

- Displaying service objects on a map.

ActiveMap allows users to create tasks based on service objects with the automatic filling out of coordinates and task fields.

- Creating electronic documents.

The system allows users to create reports on the work with tasks and user activity based on the document form of the organization, as well as invoices issued by field employees.

More information about the comprehensive capabilities of the ActiveMap system can be found on the website of the Activemap Computer Systems Design company <https://activemap.me/>.

ActiveMap Mobile is a mobile application for the Android operating system. It implements the client part of the task management module of the ActiveMap software suite. ActiveMap Mobile allows setting tasks and monitoring the status of their execution. The application helps to coordinate the work of office and field staff, which increases the efficiency of mobile workers.

ActiveMap Mobile capabilities (Fig. 1.1):

- **Real-time data collection.** Workers send photos and videos from event locations to the dispatcher. The files are georeferenced and show where the footage was taken.
- **Tasks.** Mobile workers receive tasks through the app. The dispatcher sends tasks and monitors their execution. Quick assignment of tasks increases the productivity of mobile teams.
- **Interactive maps.** ActiveMap Mobile provides access to corporate maps. The application works with data layers. Layers are georeferenced data sets. Companies mark real estate objects, clients, communications, and more on them. Everything that is outside the office and is of interest to the company is added with tags to the map.
- **Data Analysis.** ActiveMap Mobile allows generating statistics and reports on the effectiveness of employees' work.

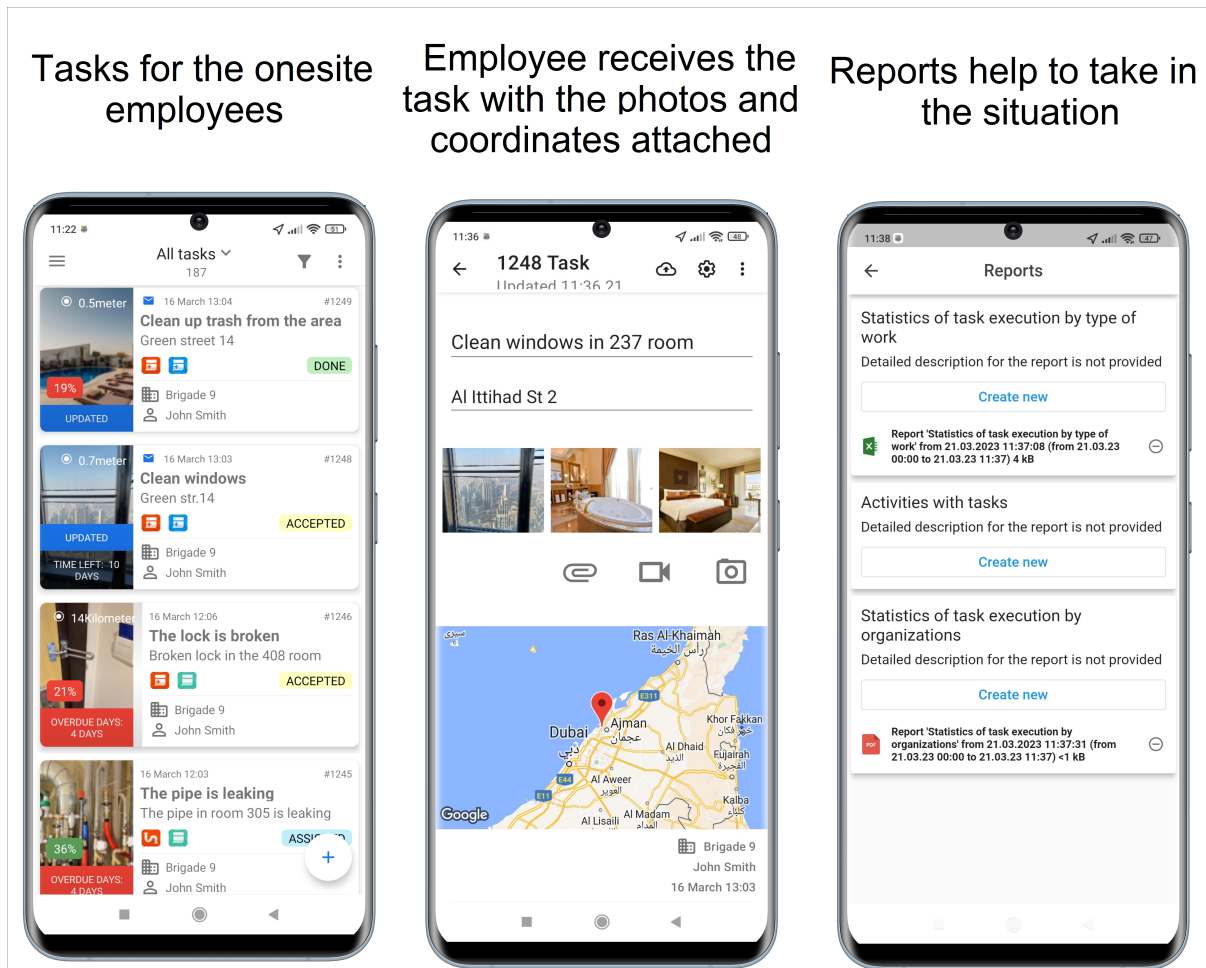


Fig. 1.1: ActiveMap Mobile capabilities

The ActiveMap Mobile application is designed to accomplish the following tasks:

- prompt receipt and execution of tasks with the necessary information specified (location, photo angles, deadline, work description, checklist, etc.);
- full functionality in offline mode¹;
- real-time task creation and assignment to employees;
- control of employee location and ability to track removal from the area of responsibility in real time;
- distribution of planned tasks among employees using schedules with the ability to make real-time changes;
- generation of reports and invoices;
- automated photo comparison;
- user login via invitation links;
- creation of tasks with linkage to service objects.

¹ The application allows users to add and save tasks on the mobile device without access to the Internet. Sending user tasks to the server and viewing the tasks registered on the server is possible only when the Internet is available.

1.2 Software and hardware requirements

The application works on mobile devices with Google Android 5.0.0 and higher. The following is required to work in the ActiveMap Mobile:

- Internet connection¹,
- availability of a built-in camera,
- permission to access:
 - camera and media files of the device,
 - device location,
 - personal information (email address, user IDs, phone number),
 - files and documents,
 - application and performance information,
 - User device IDs.

The permissions for the ActiveMap Mobile application can be expanded after each update. You can find more information about permissions in the app description in the Google Play store.

1.3 Installing the app

Attention: If you have a link to ActiveMap Mobile from the Administrator of your organization, you can directly access the application in Google Play store. After installation, the application opens and automatically logs in to the user account. When following a single link for all users of the same organization, you have to enter a phone number to register a new user.

To install ActiveMap Mobile on the mobile device, open Google Play store. Use the app search form to find the ActiveMap Mobile app (Fig. 1.2).

¹ The application allows users to add and save tasks on the mobile device without access to the Internet. Sending user tasks to the server and viewing the tasks registered on the server is possible only when the Internet is available.

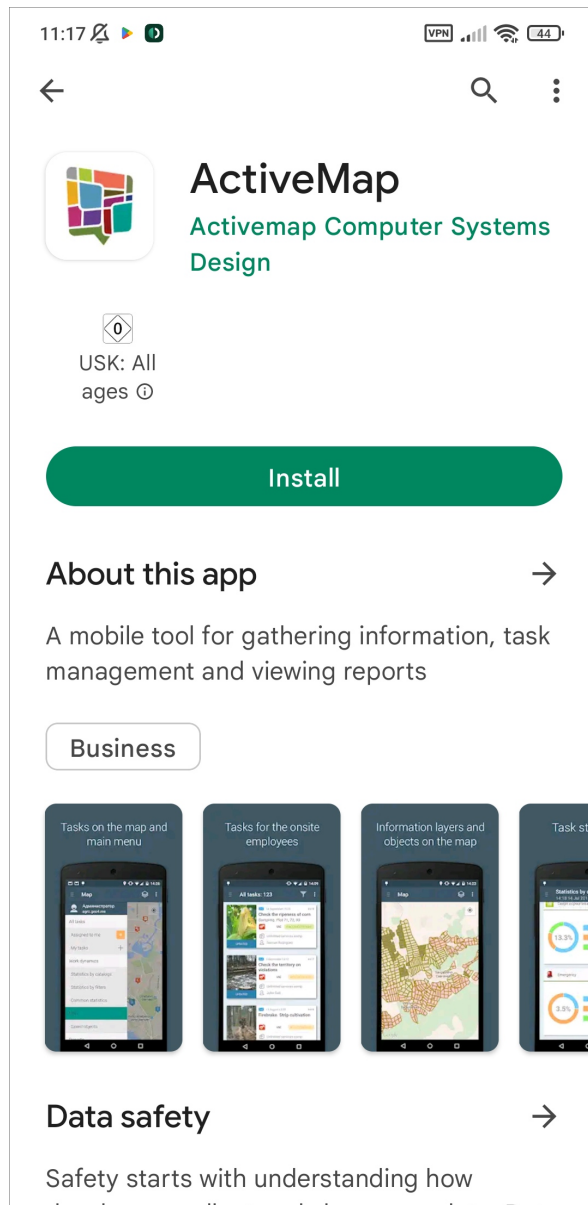


Fig. 1.2: ActiveMap Mobile app on Google Play Store

Click “Install” and accept the necessary permissions to run the application. The ActiveMap Mobile download process starts on the device. Once the download process is complete, the ActiveMap Mobile launch icon appears in the application list (Fig. 1.3).

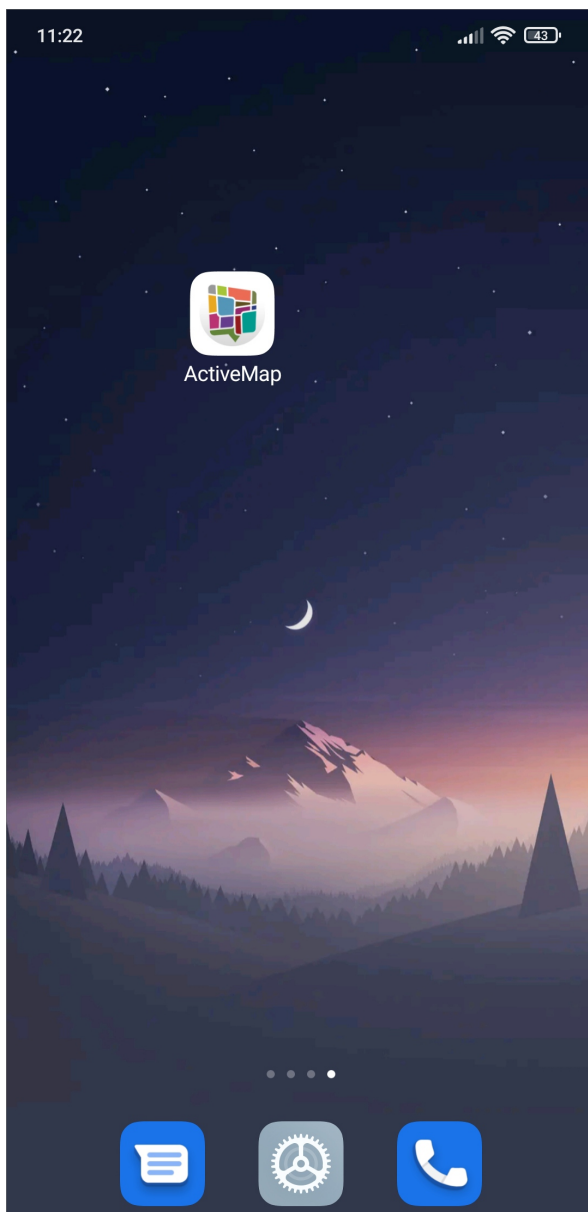


Fig. 1.3: ActiveMap Mobile launch icon in the application list

When an update is released, a message about the new version is displayed at the moment the application is launched. Click “Update” to install the new version (Fig. 1.4). This opens the application page in Google Play. You need to complete the standard steps to update applications on the device.

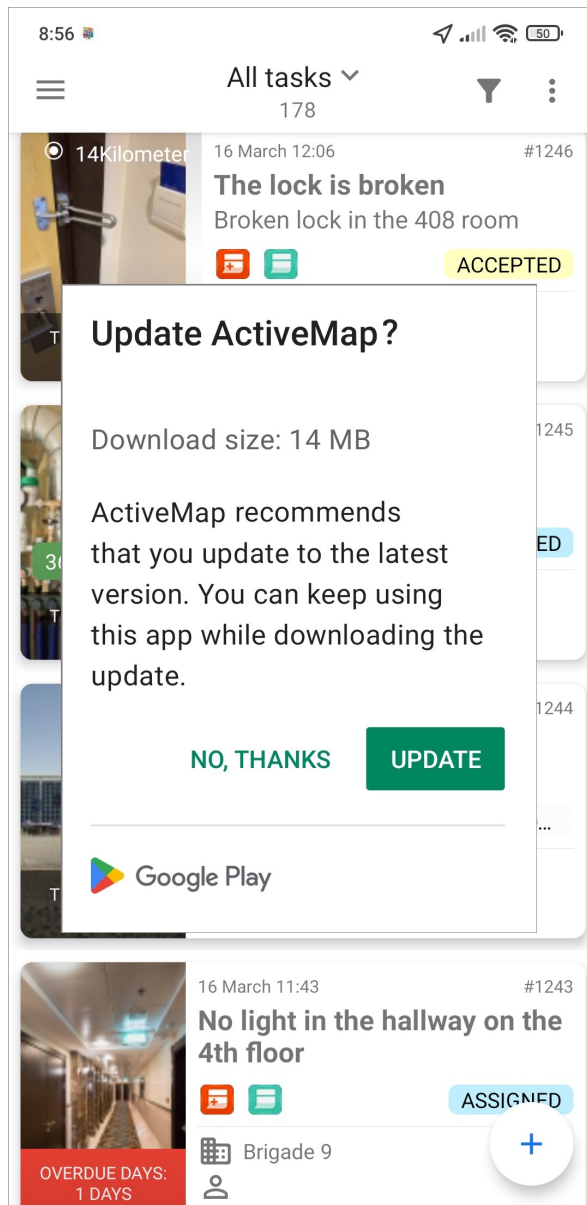


Fig. 1.4: Updating the application

WORKING IN THE APP

2.1 Authorization and account management

2.1.1 Registration in the app

To run ActiveMap Mobile, use the application shortcut located in the list of applications of mobile device. After launching, an information window appears on the screen. Click “Register a company” to register in the app (Fig. 2.1).

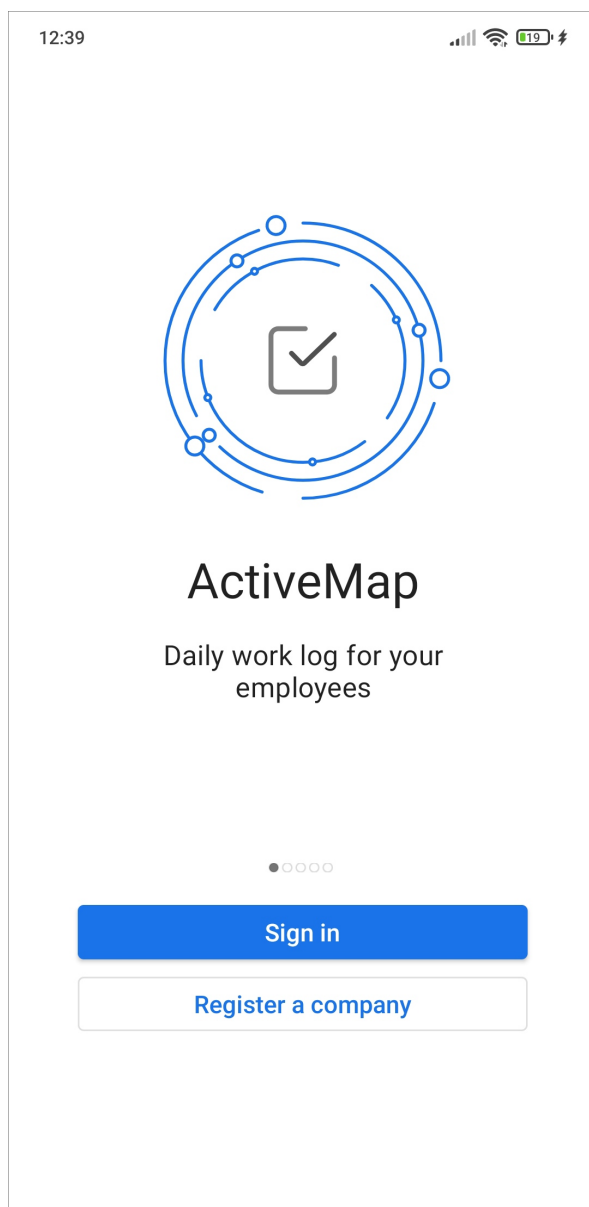


Fig. 2.1: Getting started window in ActiveMap Mobile

User registration in the application is the creation of an account or several accounts on a common server. After completing the registration, follow the link received. The application automatically authorizes under the user account. When registering by the phone number and following an invitation link, an account with the “Executor” role is created.

To register a company, enter the company’s name, your name, phone number or e-mail (Fig. 2.2). By default, an organization is created with the following settings:

- Business area: Other services.
- Types of work: Worklog.
- I want to see location of employees on the map: Yes.
- I want tasks for employees to be created automatically according to the schedule: Yes.
- Create auto-tasks from 9:00 to 18:00.

- Accounts for colleagues will be created later.

The screenshot displays the ActiveMap mobile app interface for company registration. It is divided into two main sections:

- Left Panel (Registration Form):**
 - Header: "ActiveMap Start 2.5" with status icons.
 - Text: "Already created an company? Restore access"
 - Section: "Create a new company"
 - Field: "Name of your company" with input "LLC COMPANY".
 - Text: "for example, LLC 'Company'"
 - Field: "Your location:" with input "United Arab Emirates, Dubai" and a "CHANGE" button.
 - Text: "Automatically determine the time zone and open the map in the specified city."
 - Section: "The company will be created with the following default settings:"
 - Business area: Other Services
 - Types of works: Worklog
 - I want to see location of employees on the map: Yes
 - I want tasks for employees to be created automatically according to the schedule: Yes
 - Create autotasks from 09:00 to 18:00
 - Accounts for colleagues will be created later
- Right Panel (Settings and Confirmation):**
 - Text: "I want tasks for employees to be created automatically according to the schedule: Yes"
 - Text: "Create autotasks from 09:00 to 18:00"
 - Text: "Accounts for colleagues will be created later"
 - Section: "CHANGE SETTINGS" with a dropdown arrow.
 - Field: "Your name" with input "John Smith".
 - Field: "phone number or email" with input "smith@gmail.com".
 - Text: "Phone number must be entered in international format including '+'"
 - Text: "Accept this consent to the processing of personal data. By continuing, I confirm that I have read and agree to the privacy policy"
 - Checkbox:
 - Button: "Create a company"
 - Text: "Do you have any questions?"
 - Text: "Request a consultation"
 - Text: "Copyright © 2023 ActiveMap Computer Systems Design"
 - Text: "www.activemap.me"

Fig. 2.2: Company registration in ActiveMap

There is also an extended version of the registration, where you can change the business area, add types of work, and create accounts for employees. You can read our privacy policy in the get started window: <https://app.activemap.me/policies-privacy-en/>. Please read our privacy policy carefully to know what information we collect and for what purposes we use it.

If anything remains unclear, you can request a consultation. Our staff will do their best to assist you. To do this, click "Request a consultation", fill in the form, and click "Submit" (Fig. 2.3).

12:48

ActiveMap^{Start}_{2.5}

Request for a consultation

Your question

Tell me more about the system

Please select your preferred consultation time:

From 14:00 Until 16:00

Your location: United Arab Emirates, Dubai CHANGE

Your name

John Smith

phone number or email

+98796547189

Phone number must be entered in international format including "+"

Send

Fig. 2.3: Consultation request form

2.1.2 Authorization

To add and view tasks, log in to the ActiveMap Mobile application. Authorization is possible only for registered users. For more information about registering users in the application, see *Registration in the app* (page 8) .

Attention: Unregistered users have no access to the System.

When authorizing via a personal link, authorization in the application occurs automatically. For standard authorization, click “Sign in” and enter the server address (Fig. 2.4):

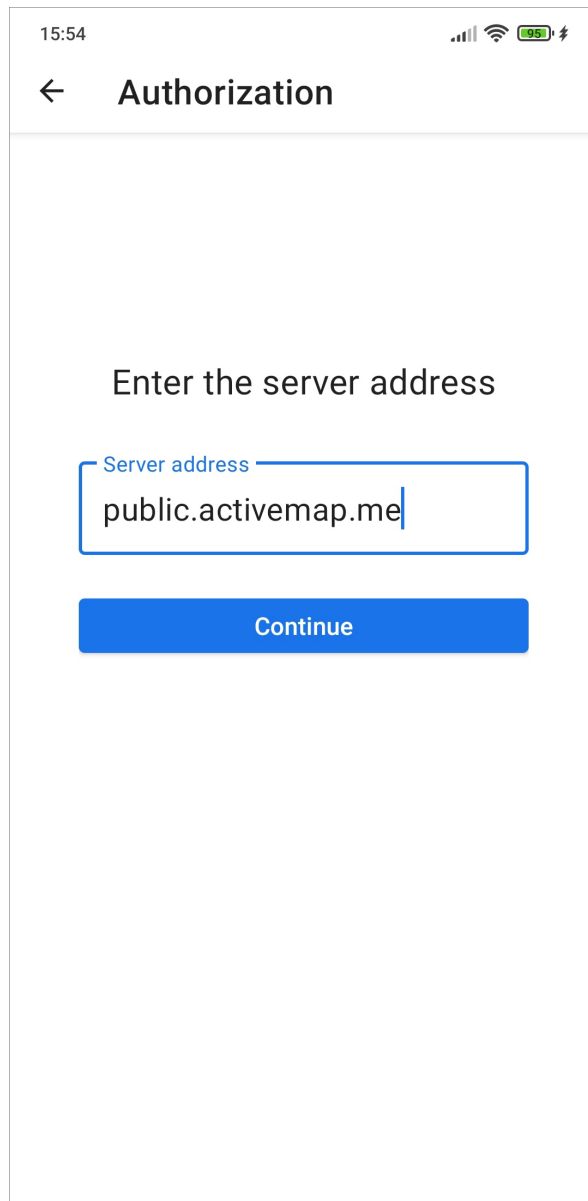
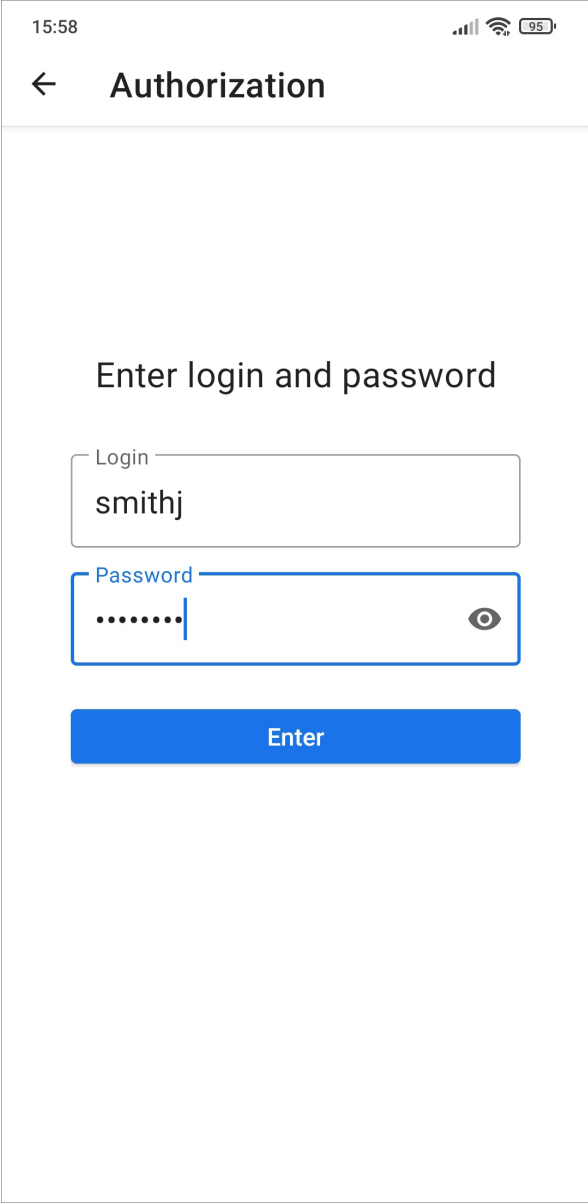


Fig. 2.4: Entering the server address

In the next window enter the user registration data (login and password) and click “Enter” at the bottom of the registration form (Fig. 2.5).



15:58

← Authorization

Enter login and password

Login

smithj

Password

.....

Enter

Fig. 2.5: Authorization on the server

The application uses the credentials entered the last time when you start the application. If you try to log in to ActiveMap Mobile without entering the specified parameters, the application displays the messages about the necessity of filling in the fields.

If background geolocation monitoring is enabled in the user account, allow access to the device location to work correctly at startup. To do this, click “Ok” (Fig. 2.6) in the opened window:

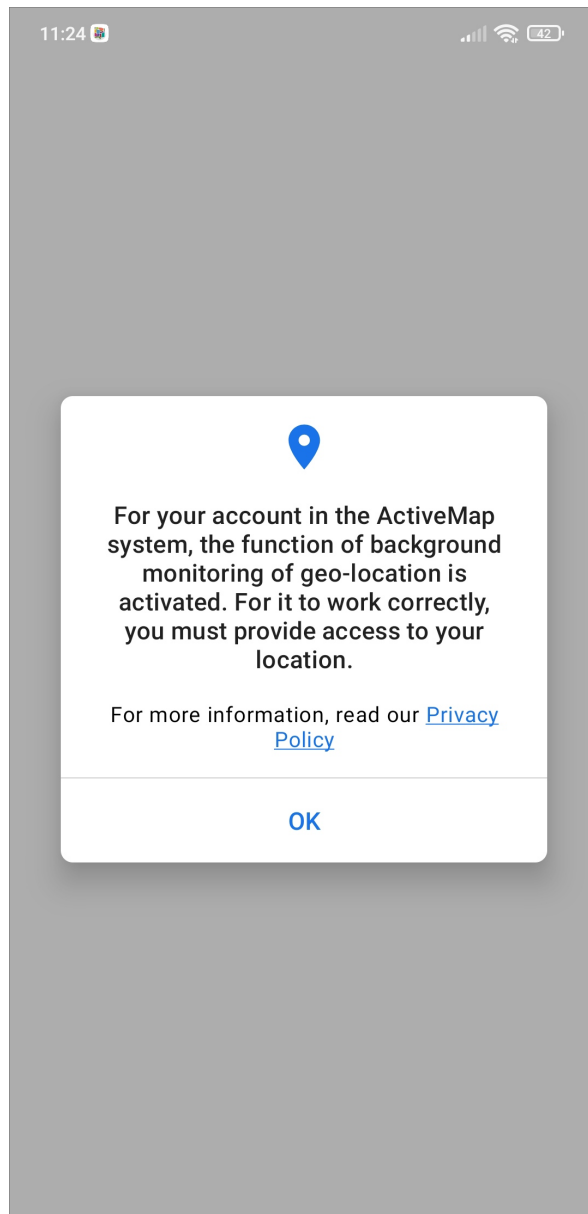


Fig. 2.6: Warning about turning on the location monitoring function

Click “While using the app” or “Only this time” in the next window (Fig. 2.7):

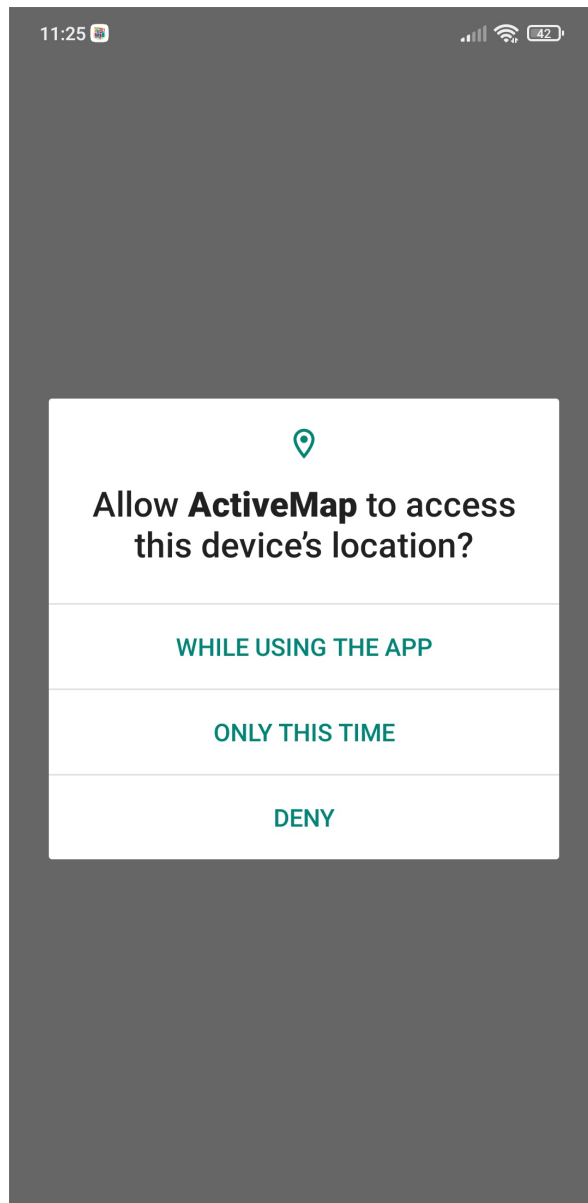



Fig. 2.7: Permission to access the user's device location

The application is ready to work. You can start executing tasks.

It is possible to authorize under more than one account on the same device. The authorization window shows lists of servers and all added accounts. To authorize in ActiveMap Mobile with saved accounts, click on the desired account. To remove an account from the list of saved accounts, click "Delete"  next to the account name.

You can change password without logging out of your account if the system forced a password change while working in the application. For further work, enter a new password and click "Confirm".

2.1.3 Account management and roles in the system

To get into the account of an authorized user, go to the navigation sidebar. User profile is placed at the top of the sidebar. It shows the user's photo (if any), the server on which the user works, an indicator of the geo-location monitoring, and the user's organization (Fig. 2.8).

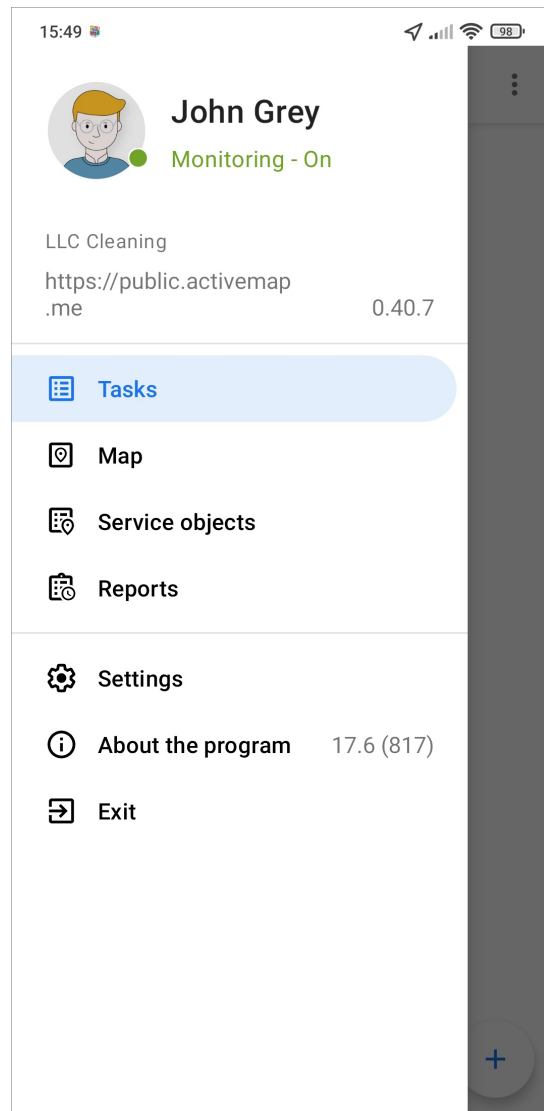


Fig. 2.8: User profile in the navigation sidebar

To see full information about a user's account, click on the profile in the navigation sidebar. "My Profile" account window opens with the user registration data (Fig. 2.9):

- Full name,
- main organization,
- role in the system,
- login,
- e-mail.

In this window, you can enable or disable background monitoring of geolocation, mark the location, and view the user's movement history. Clicking "History of Movements" opens a window with a map, track, and a calendar for selecting the day and time interval. In addition, there is as a "Manage layers" button to enable available layers. The user's movements can be displayed as a list. For more information about working with layers and about the history of user moves, see *Working with the map* (page 95) section.

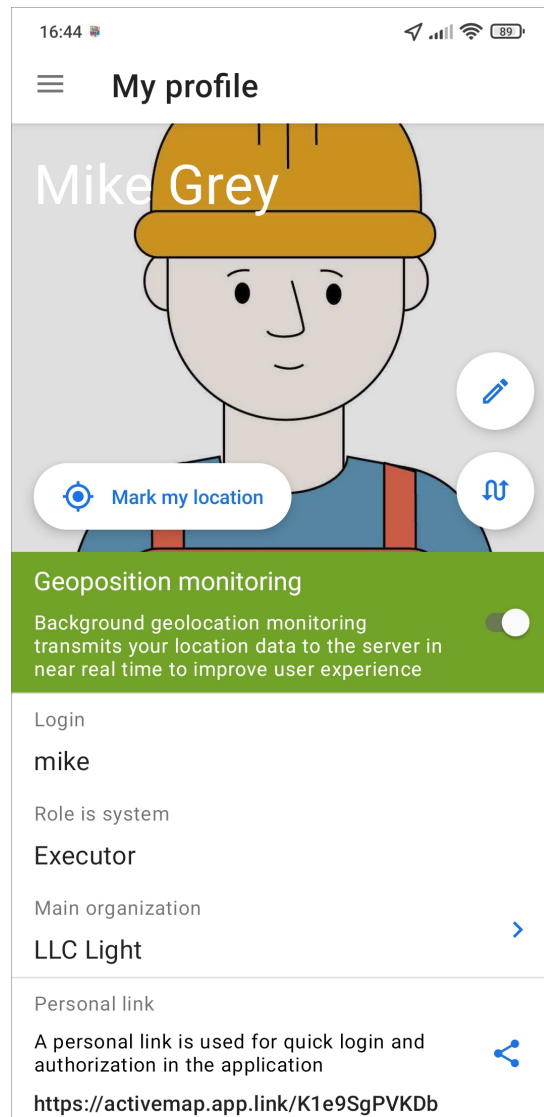



Fig. 2.9: My Profile window

To edit user's account, click "Edit"  in the upper right corner. The user can change:

- Full name,
- photo,
- login,
- password,
- tags,
- telephone,

- e-mail,
- user type,
- user role,
- main organization,
- additional organizations.

The ability to modify certain user data depends on the role. Users with administrator roles can add and edit tags. However, only users with the Chief Administrator role can create new tags. Some roles can create users in the navigation menu section: *Map* → *User Management*. For more information about creating users, see *Creating users* (page 102).

Administrators assign the roles when creating user accounts. They differ from each other in the set of actions they can perform in the ActiveMap system components.

- The “**System Administrator**” is responsible for the system configuration, including the management of clusters, organizations, users of all roles, contracts, directories, and for the distribution of access rights to the different layers and reports.
- The “**System Inspector**” manages the tasks of all clusters.
- The “**Cluster Administrator**” is responsible for cluster administration, namely: managing organizations and users of his or her cluster, assigning access rights to layers and reports within the cluster, and for managing cluster tasks.
- The “**Cluster Inspector**” manages the tasks of the cluster.
- The “**Organization Administrator**” is responsible for administering the organization, namely: creating users, granting access rights to layers and reports within the organization, and managing tasks of the organization.
- The “**Organization Inspector**” manages the tasks of the organization.
- The “**Executor**” creates new tasks and executes the assigned tasks in the System.

All user roles can be configured to view, edit, and manage layers. All roles can create and upload layers.

2.2 Application interface

2.2.1 Task management window

After successfully logging into the application, the task management window appears (Fig. 2.10).

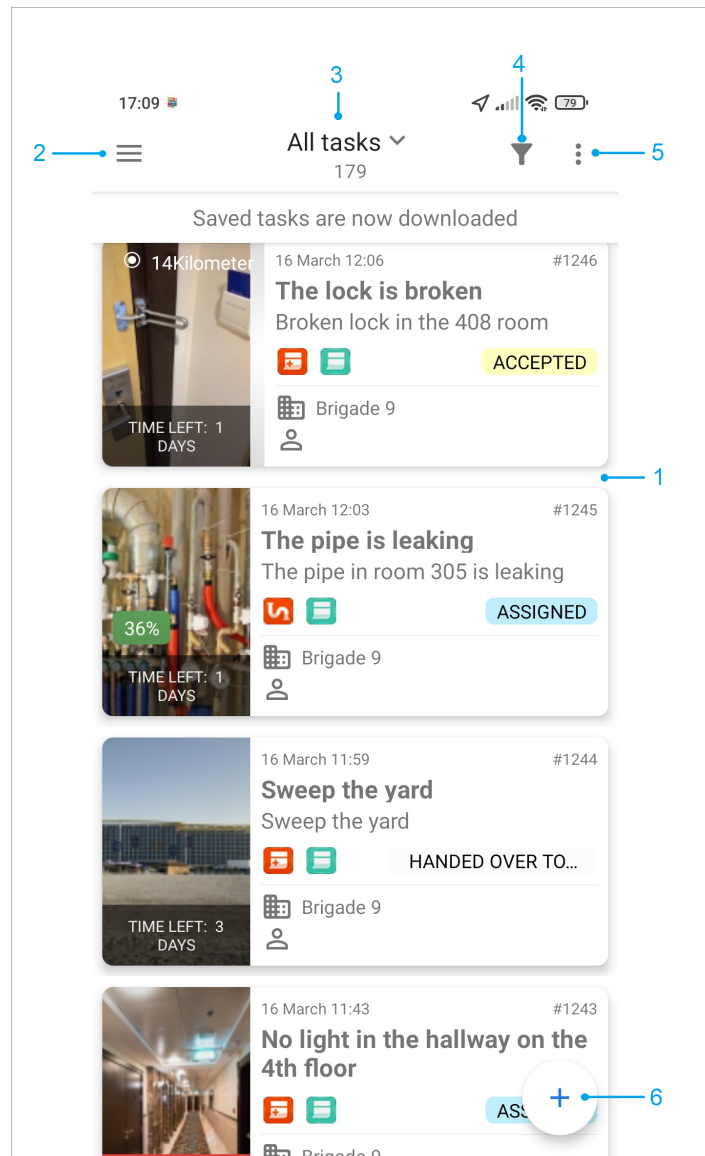



Fig. 2.10: Task management window

1 – task viewing window, 2 – navigation sidebar, 3 – task list settings, 4 – task filter and advanced sorting, 5 – window menu, 6 – adding a new task.

You can perform the following actions in the task management window:

- view tasks created on the server,
- add new tasks and send them to the server,
- modify tasks and send changes to the server.

2.2.2 Navigation sidebar

To open the navigation sidebar, click  in the upper left corner of the task management window.

Sidebar consists of the following sections:

- “My profile” – information about the user account (*Account management and roles in the system* (page 16));
- “Tasks” – task management window opening (*Task management window* (page 18));
- “Schedules” – creation of planned tasks according to a template. The section is available under the roles of administrators and inspectors (*Schedules* (page 107));
- “Employees” - managing users. This section is available for the administrator roles and the System Inspector role (*User management* (page 60)).
- “Map” – working with tasks on the map and adding geometric objects (*Working with the map* (page 95));
- “Service objects” – the list of service object layers (*Service objects* (page 84));
- “Reports” – generating and viewing reports created in the ActiveMap web system. The section is available under the roles of administrators and inspectors (*Reports* (page 110));
- “Settings” – configuring ActiveMap Mobile application parameters (*Application settings* (page 120));
- “About” – displaying information about the ActiveMap Mobile application (*About application* (page 118));
- “Logout” – logging out from the user account (*Exiting the application* (page 130));

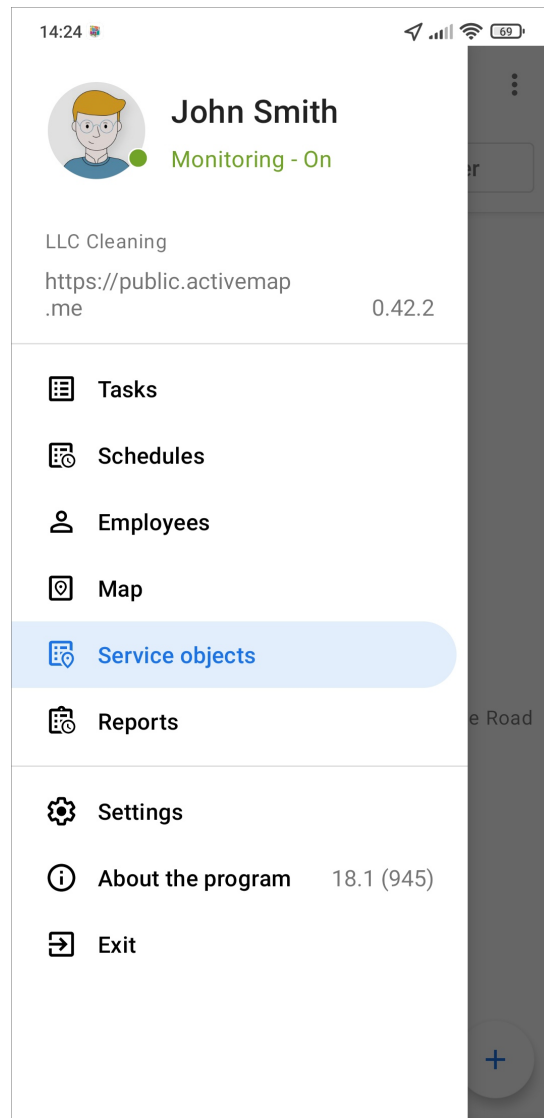


Fig. 2.11: Navigation sidebar

2.2.3 Setting up a task list

You can set up a task list in the task management window. To do this, open the drop-down list at the top of the window (Fig. 2.12):

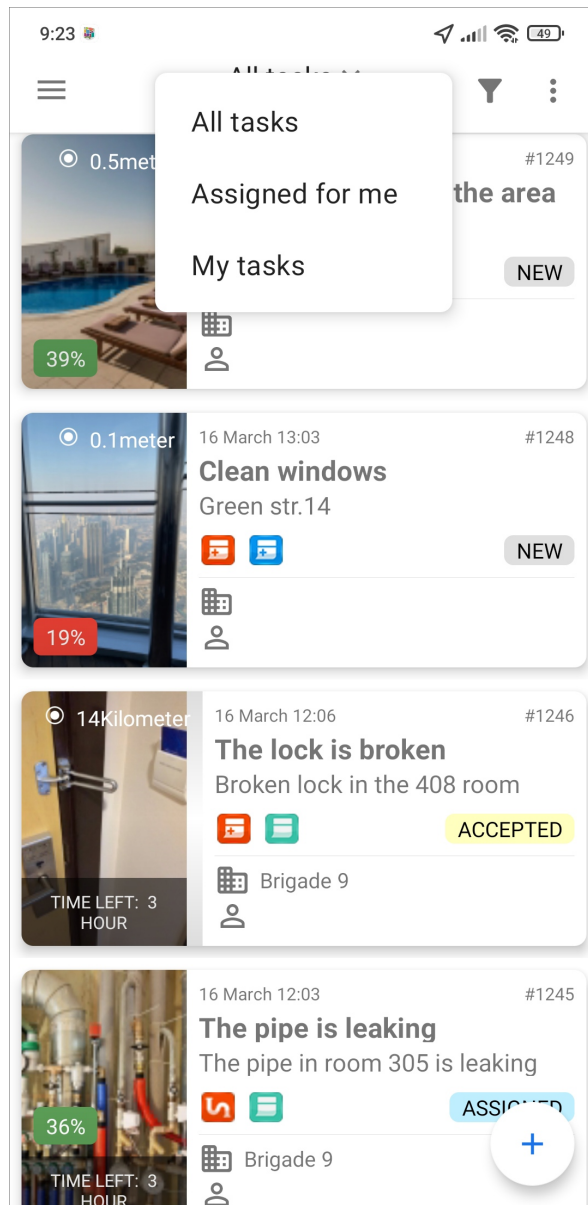


Fig. 2.12: Task list settings


The task list includes the following sections:

- “All tasks” – a list of tasks registered on the server and available to the user;
- “Assigned for me” – a list of tasks assigned to the current user;
- “My tasks” – a list of tasks added by the user, including those not sent to the server (drafts).

The task lists in the same sections may differ for users with different roles (for more information about roles, see *Account management and roles in the system* (page 16)).

For an Executor, the “All tasks” group contains only tasks assigned to them and the tasks created themselves. Organization administrators see all the tasks assigned to employees of their organization in this group. The details of working with the specified task lists are described in the *Viewing registered tasks* (page 27) section. For each task list, the number of tasks is indicated at the top of the window.

2.2.4 Task filter and advanced sorting

The filter button  is used to filter tasks in the list by the following parameters (Fig. 2.13):

- ID – task number in the system;
- text – searching for a task in the list by the entered text;
- task status – all possible task statuses in the system (rejected, in progress, closed, all);
- update date – start and end dates of the task update time interval;
- deadline – start and end dates of the task execution deadline time interval;
- creation date – start and end dates of the task creation time interval;
- only overdue – when the checkbox is selected, only overdue tasks are displayed;
- work step – all possible task steps in the system (new, assigned, accepted, completed)¹;
- priority – all possible priorities in the system (e.g. planned, unplanned, etc.);
- work type – all types of work entered in to the system;
- custom fields – all custom attributes added to the system (for more information, see *Working with custom fields* (page 33));
- created organization;
- assigned organization;
- assigned executor.

Steps, priorities, and types of work are created by system administrators as reference tables (dictionaries) with several possible values.

¹ reference tables (dictionaries) can be modified according to the individual requirements of the client.

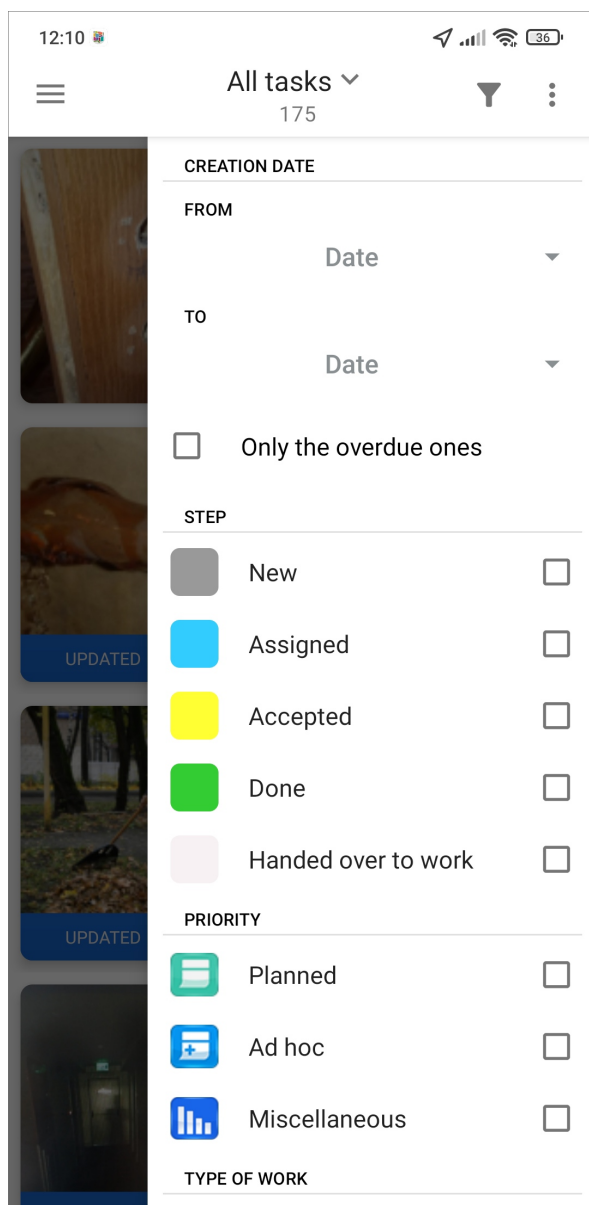


Fig. 2.13: Filter settings window

To work with filters, select the required parameters, set the parameter values corresponding to the request. The filter is applied automatically. The “Reset filter” button allows resetting all filtering parameters that have been set.

In the filter window, you can set the task sorting parameters (Fig. 2.14):

- by ordinal number,
- in alphabet order,
- by creation date,
- by update date,
- by deadline,
- by priority,

- by distance².

You can also set the sort direction here:

- ascending,
- descending.

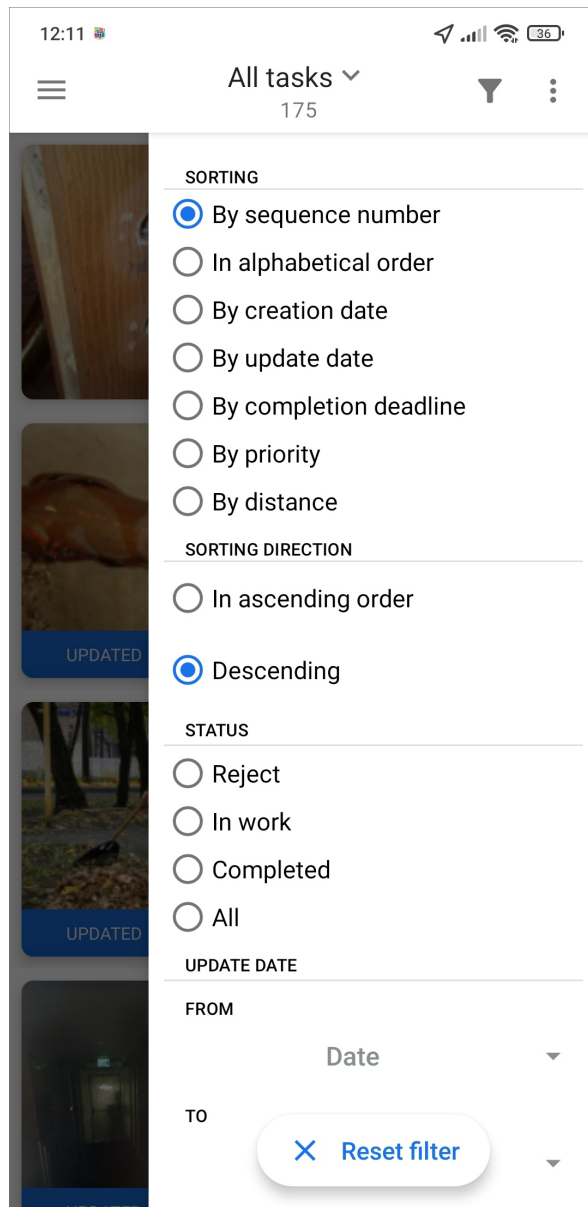



Fig. 2.14: Setting sorting parameters in the filter settings window

² in this case, it refers to the distance from the location of tasks to the user. Active – when the user's geolocation monitoring is turned on, inactive – when the geolocation monitoring is turned off".

2.2.5 Window menu

The “Window menu” button  is located in the upper right part of the application screen. The window menu contains the following sections (Fig. 2.15):

- “Synchronize data” – updating information on tasks by synchronizing with the server;
- “Clear the update history” – deleting the “Updated” caption from unviewed tasks modified by other users;
- “Remove drafts” – deleting all tasks with the “Draft” status from the list;
- “Send drafts” – bulk sending of all tasks with the “Draft” status to the server;
- “Send changes” – bulk sending of all changes on tasks to the server;
- “Show downloaded” – preview of the list of tasks displayed offline;
- “Download tasks” – downloading tasks to the cache for offline work (including media files of tasks).

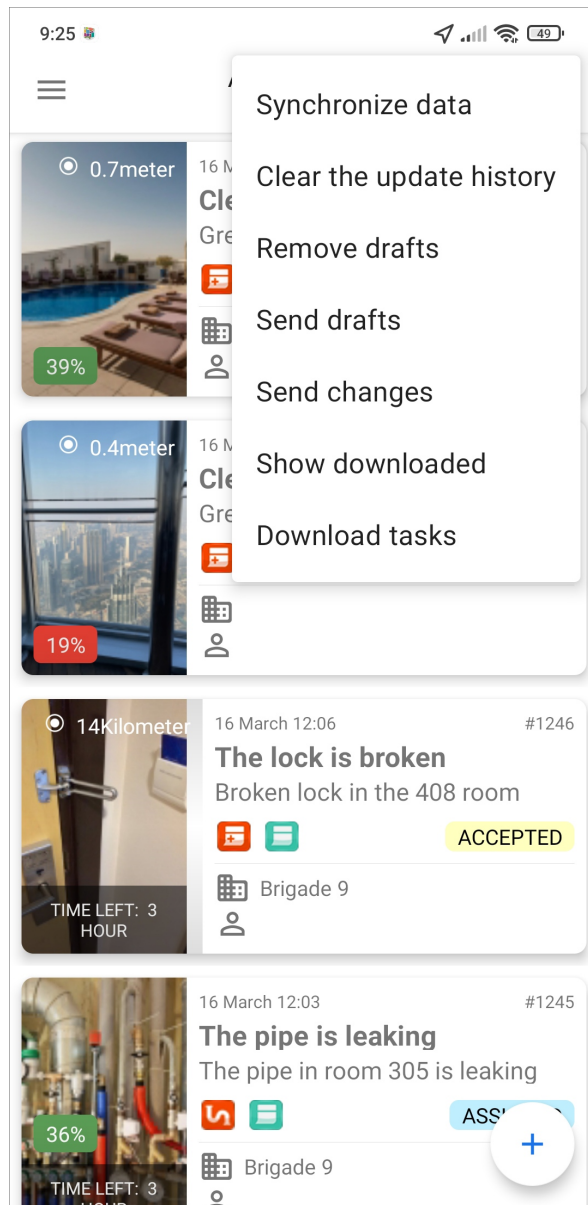


Fig. 2.15: Window menu

2.3 Viewing registered tasks

The “All tasks” section displays a list of all registered tasks on the server available to the current user. The ability to see and edit tasks is determined by the user’s role in the ActiveMap Mobile application. Further, we use the notion of “tasks” only for the tasks available to the user according to his/her role in the system (for more information about the roles in the system, see *Account management and roles in the system* (page 16)).

Tasks in the list are arranged in descending order of their ordinal number by default. Tasks are arranged in a “tile” view. The tile for each task contains the following information (Fig. 2.16):

- the main photo of the task (if available);
- distance to the task destination (only for tasks with geolocation);

- unread task icon (blue envelope icon);
- date and time of task creation;
- task number;
- labels:
 - “Overdue” – for overdue tasks, with the number of days overdue;
 - “Modified” – for tasks modified by the user if the changes have not yet been sent to the server or an attempt to send the changes to the server has failed;
 - “Updated” – for tasks modified by other users;
 - “Draft” – for tasks that have not been sent to the server;
 - “Remaining: number of days” – how many days are left for completing the task;
 - “Photo result match score” – the minimum percentage of similarity of the added photos to the photo-sample.
- task title;
- short summary of the task;
- work type icon;
- task priority icon;
- work step;
- assigned organization;
- assigned executor.

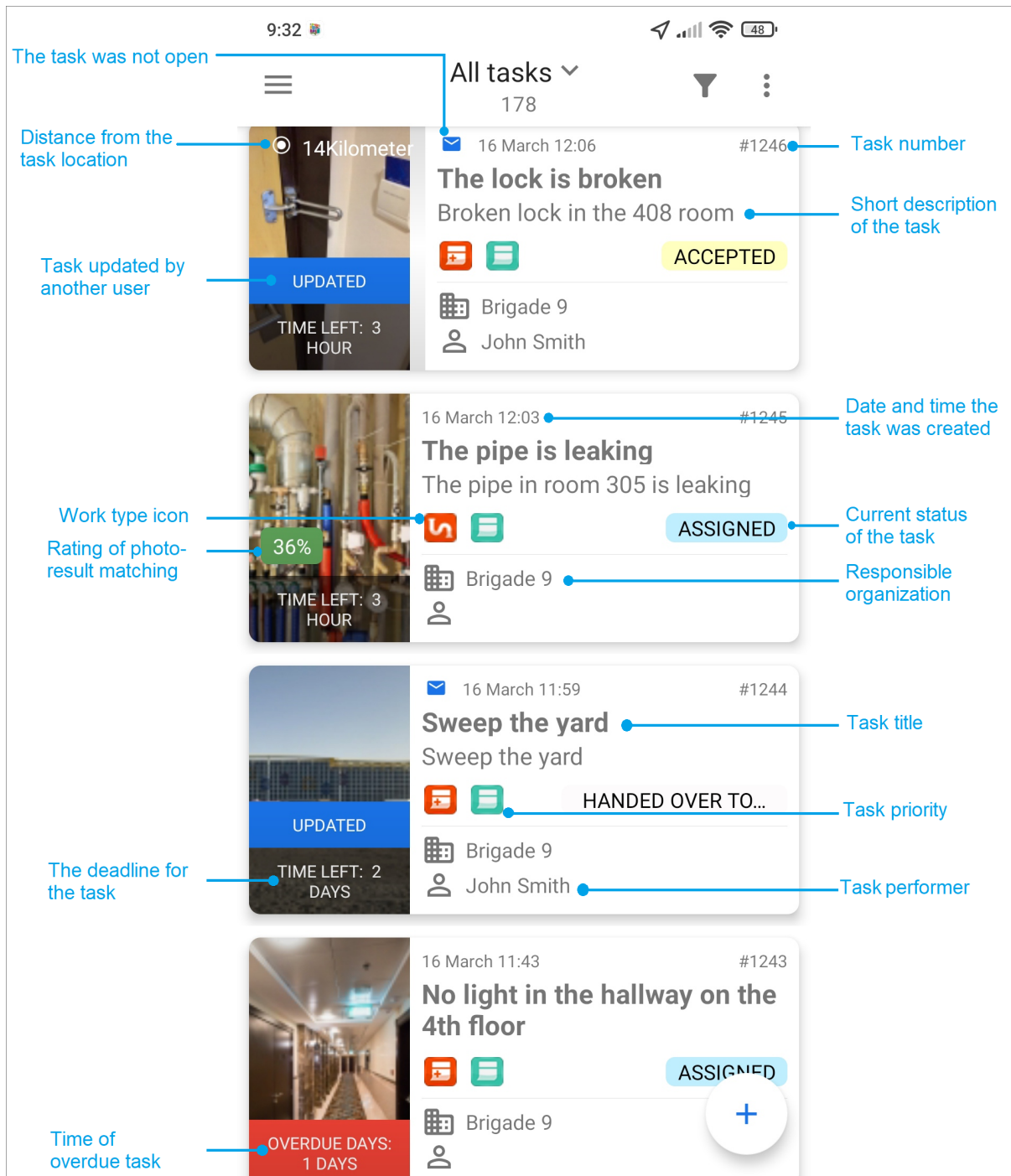


Fig. 2.16: Scheme of the task management window

You can set the task deadline manually when creating (assigning) the task. In addition, the deadline can be filled in automatically depending on the type of work. Administrator of the Organization configures these settings through the ActiveMap system's web interface.

You can update the task list using a swipe gesture from top to bottom. Use sorting and filters to customize the display of tasks according to the user's preferences. For more information, see *Setting up a task list* (page 21) and *Task filter and advanced sorting* (page 23).

2.4 Creating tasks

You can create new tasks using three approaches:

1. Standard – creating tasks (with or without linking to an object) from the task management window (*Creating new tasks* (page 30)).
2. From layer objects – creating tasks with object attachment from “Service objects” or “Map” windows (*Service objects* (page 84)).
3. From user – creating tasks from executor (*User management* (page 60)).

2.4.1 Creating new tasks

To create a new task, click  in the bottom right corner of the task management window. The “Creating task” window opens (Fig. 2.17).

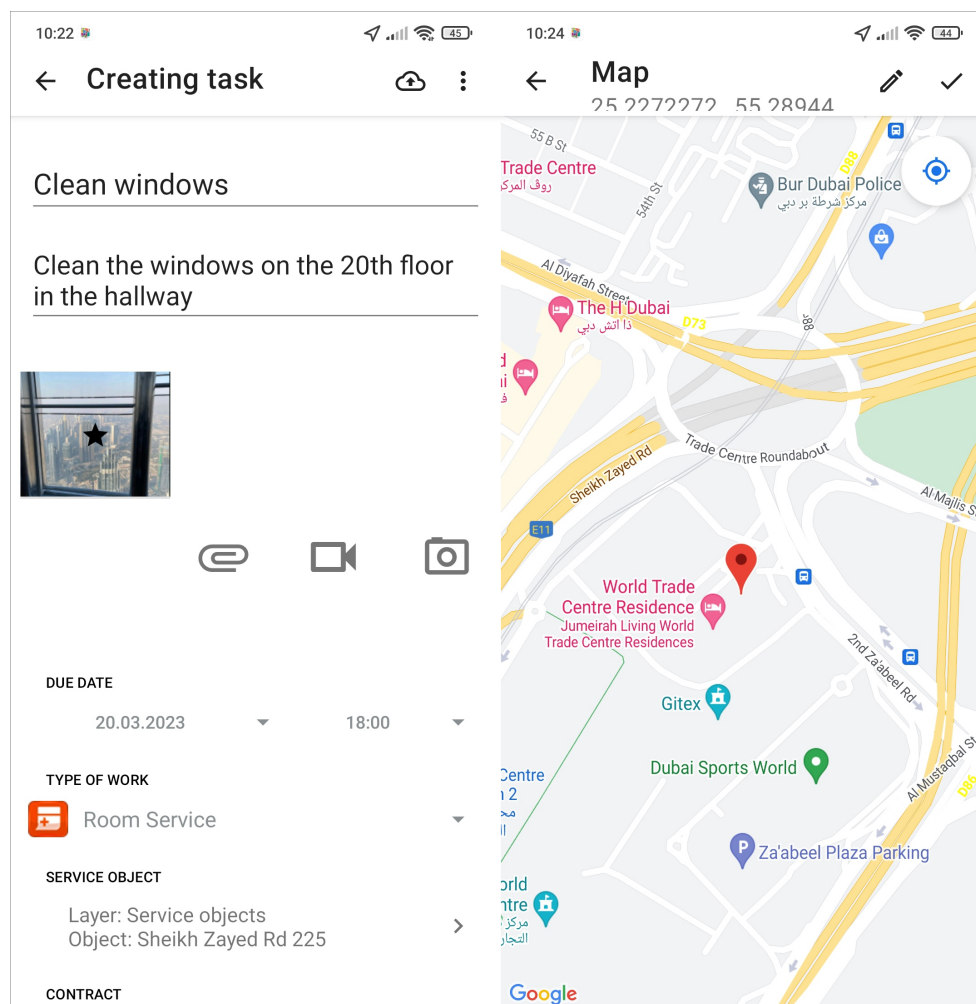



Fig. 2.17: Creating task window

A task template includes the following fields to fill in:

- title;

- task text;
- deadline;
- type of work¹;
- service object (layer name, service object name);
- priority (e.g. planned, unplanned, etc.);
- assigned organization (if there are rights to assign organizations for execution of tasks);
- assigned executor (if there are rights to assign task executor);
- attachment of media files to the task (more about working with media files: [Adding files and media](#) (page 35));
- custom fields available for the selected work type (more about custom fields: [Working with custom fields](#) (page 33));
- location of the task object on the map;
- contract (if available for the current role).

To send tasks to the server, click . Tasks that have been saved but not sent to the server are marked as “Draft” and highlighted in green in “My tasks” list (Fig. 2.18). For more information about customizing lists, see [Setting up a task list](#) (page 21). The application implements background sending of new and modified tasks to the server. This means that if a group submission of tasks or changes is initiated, the application is still available for work, and there is no need to wait for the upload to the server to finish.

¹ all reference tables can be changed according to individual Customer requirements.

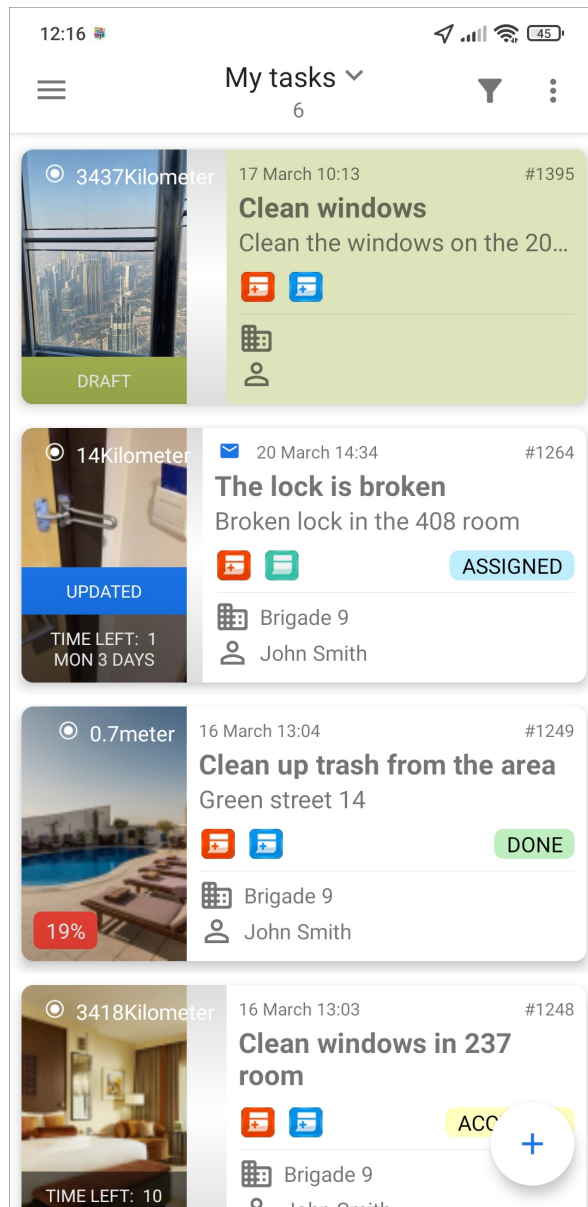


Fig. 2.18: My tasks

The access rights to fill in part of the fields depend on the role of the user. System Administrator, Cluster Administrator, and Organization Administrator can regulate the roles (for more information about user roles, see *Account management and roles in the system* (page 16)).

On tablets, the “New task” window is divided into two parts: basic information about the task is entered on the left side of the window, and additional information (due date, type of task, service object, priority, assigned organization, assigned performer, and information in custom attribute fields) is entered on the right side of the window (Fig. 2.19).

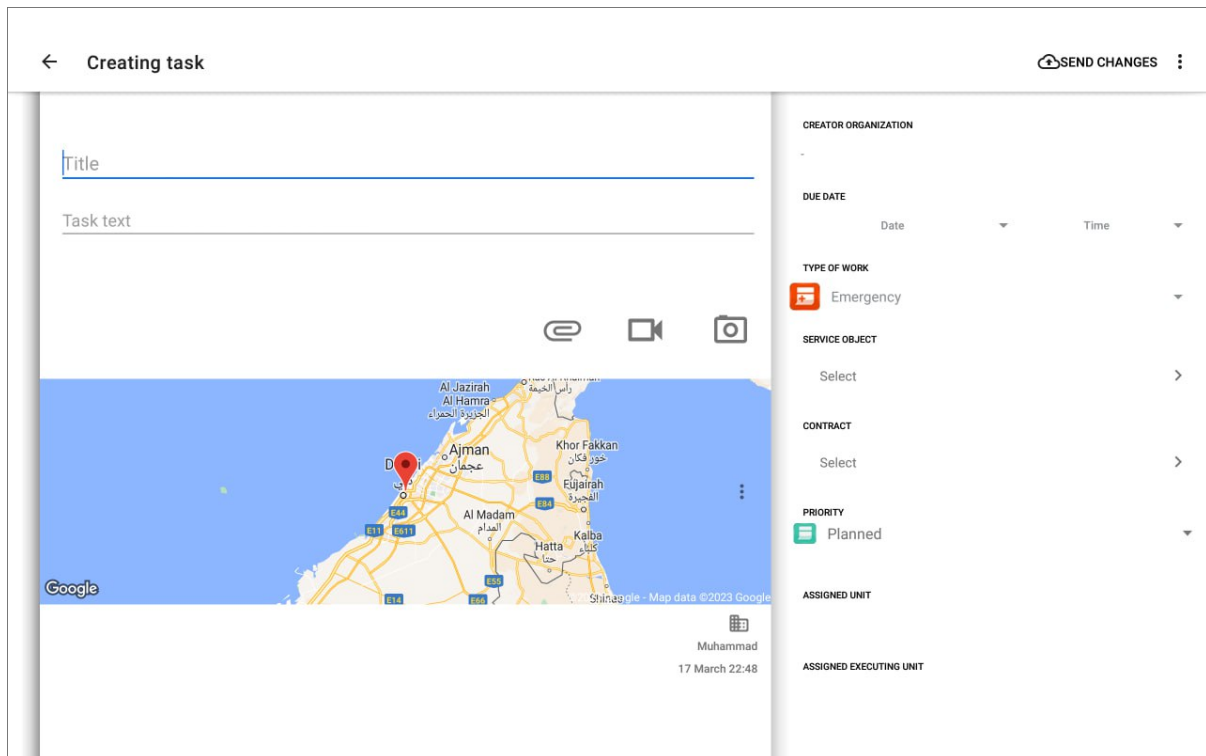


Fig. 2.19: “Creating task” window on tablets


2.4.2 Working with custom fields

Users with administrative access rights may add custom fields via the ActiveMap web interface in the “Administration” -> “Jobs” -> “Custom fields” tab. The following field formats are supported:

- integer,
- boolean value,
- real number,
- date,
- list (selection from a drop-down list),
- string,
- phone number,
- text,
- bar code,
- geometry (to add additional geometrical objects to the map – point, line, or polygon).

You can specify a default value or a regular expression for all custom fields (except for the geometry format field). A regular expression is a pattern string that specifies a template for the custom field. It is also possible to configure a list of tasks (by work type) for which the custom field is available. You can group custom attribute fields. You can make the

attribute field mandatory to fill in. When creating a custom attribute field, you can specify the minimum and maximum length of the field.

After adding new custom fields via the ActiveMap web interface under “Administration”, update the data in the task management window (“Window menu” -> “Synchronize data”). The custom fields are displayed in the “Task” and “Draft” windows. Custom fields are located in the right sidebar, which you can open in the task window using the  button. Custom fields are available for filling and editing if the user has appropriate rights (Fig. 2.20).

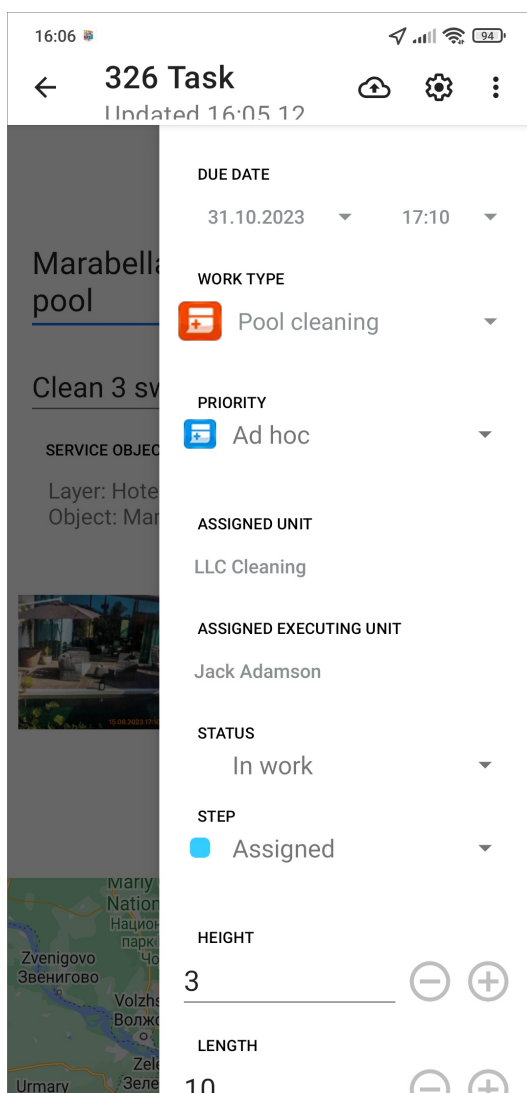





Fig. 2.20: Filling the custom fields

To create a new geometric object and attach it to a task, click the “Create” button in the “geometry” data type field. For more information about geometric objects, see [Adding geometric objects on the map](#) (page 75), [Adding point objects](#) (page 81), [Adding linear and polygonal objects](#) (page 82).

2.4.3 Adding files and media

There are several buttons for attaching files (Fig. 2.21):

- “Add media” 
- “Add video” 
- “Add photo” 

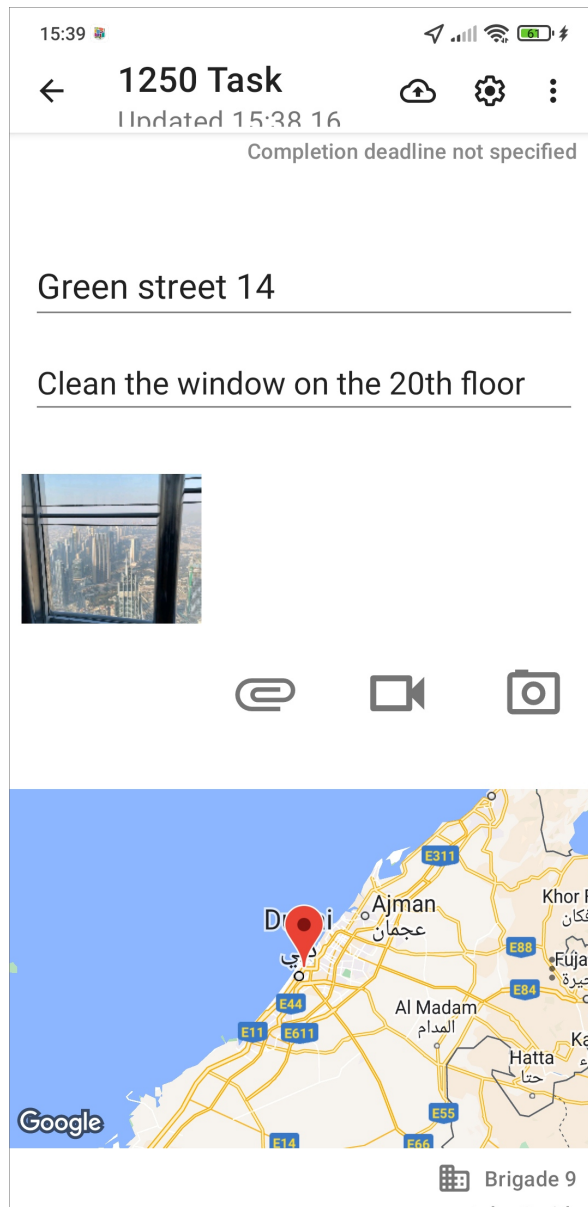


Fig. 2.21: Adding media files to a task


Clicking “Add Media” allows you to choose a file from the device or to create a new one:



- photo from the gallery²,
- make a photo,


² The ability to add files from the gallery is determined by user rights.

- video from gallery³,
- record a video,
- record a timelapse video,
- audio from collection,
- record audio,
- signature,
- add file,
- invoice.

When choosing the **“Photo from Gallery”**, **“Video from Gallery”**, **“Audio from Collection”** options, specify the location of the file in the gallery. The ability to add files from the gallery is determined by user rights.

When selecting the **“Record video”**, the device switches to the video recording mode using the device’s standard camera. When you click **“Save”**, the recorded video is attached to the task. When selecting the **“Record Timelapse Video”**, the device switches to the mode of recording accelerated (timelapse) video. In this mode, the geographic coordinates of the camera location are recorded simultaneously with the accelerated video. This makes it possible to create tasks from the frames of this video. You can attach the current frame as a main photo of the task and geolocation in the ActiveMap Desktop application. The user makes a record that characterizes the task. After stopping the video recording, it is attached to the task. When you click the quick access button , the device switches to the video recording mode using the implemented camera interface.

When selecting the **“Record Audio”**, the device switches to sound recording mode. After creating a recording that characterizes the task, stop the recording by clicking the  button. Click **“Upload”**  to attach the recording to the task.

When selecting the **“Signature”**, the device switches to drawing mode. You can add your signature by drawing it directly on the device screen. To change the brush color, click **“Manage”** , choose the desired color from the color palette by moving the slider to the left or


right, and click **“Done”** (Fig. 2.22). Click **“Save”**  to save the signature. If something goes wrong, click **“Clear”** to start again.

³ The ability to add files from the gallery is determined by user rights.



Fig. 2.22: Creating media file of the “Signature” type

Selecting “**Add file**” allows you to attach documents in txt, rtf, docx, pdf, xlsx, or pptx formats to the task.

Selecting “**Take a photo**” or clicking  switches the device in the photo mode. You can attach a sticker to the photo. Sticker is a text note on the photo. It helps to quickly track the before and after state of tasks or to mark a sample for creating photos. When you click “Save”, the taken photo is attached to the task. More detailed instructions for working with the built-in camera are described in the *Using the application built-in camera* (page 39) section. You can use the standard camera of the device to create high-resolution photos in the application. To do this, apply the appropriate settings in the ActiveMap Web. The standard camera also has the ability to attach stickers to photos.

The “Invoice” attachment type is available for selection if you use the online work cost calculation methodology. This module requires additional settings based on the list of services and materials used by the user’s organization. More information about working with the

module is described in the *Invoice module* (page 111) section.

A long press on the icon of a media file attached to a task brings up a menu bar for working with that file (Fig. 2.23).

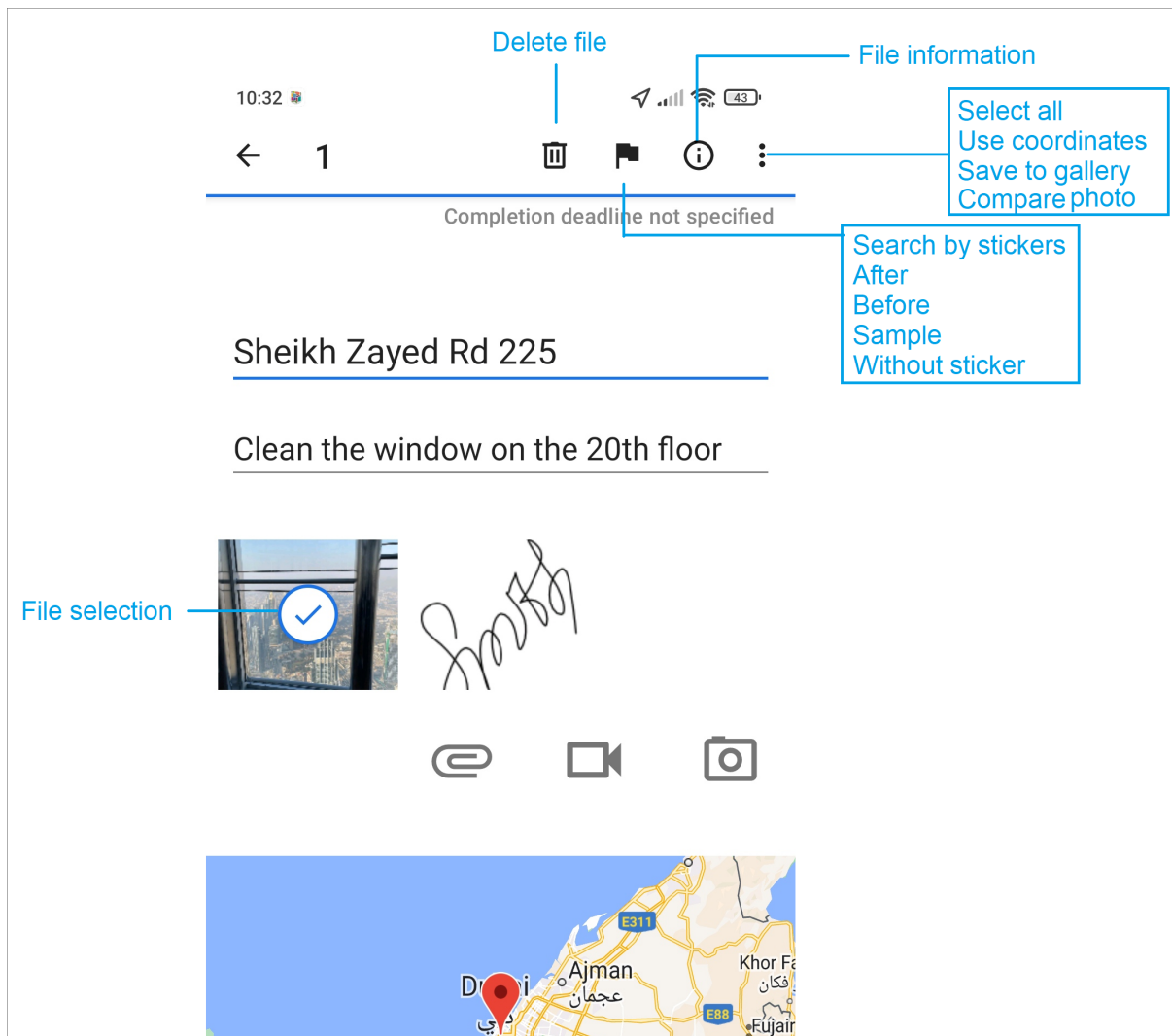




Fig. 2.23: Scheme of the “Creating task” window in the mode of working with media files

Clicking “Window menu”  opens a list of functions (the list may vary according to user rights and file format):

- “Detach sticker” – move the file to the “no sticker” category;
- “Select all” – select all files attached to the current task;
- “Use coordinates” – update the task coordinates from the added photo if the media file has geolocation;
- “Save to gallery” – save the file to the user’s mobile device in the corresponding software folder;
- “Compare angles” – conduct online comparison of photos.

Clicking the information button  opens a window with detailed information about the

media file (Fig. 2.24). The information in the “Create” and “Attach” tabs is filled depending on whether the media file was created directly from the app or attached from the device’s file storage.

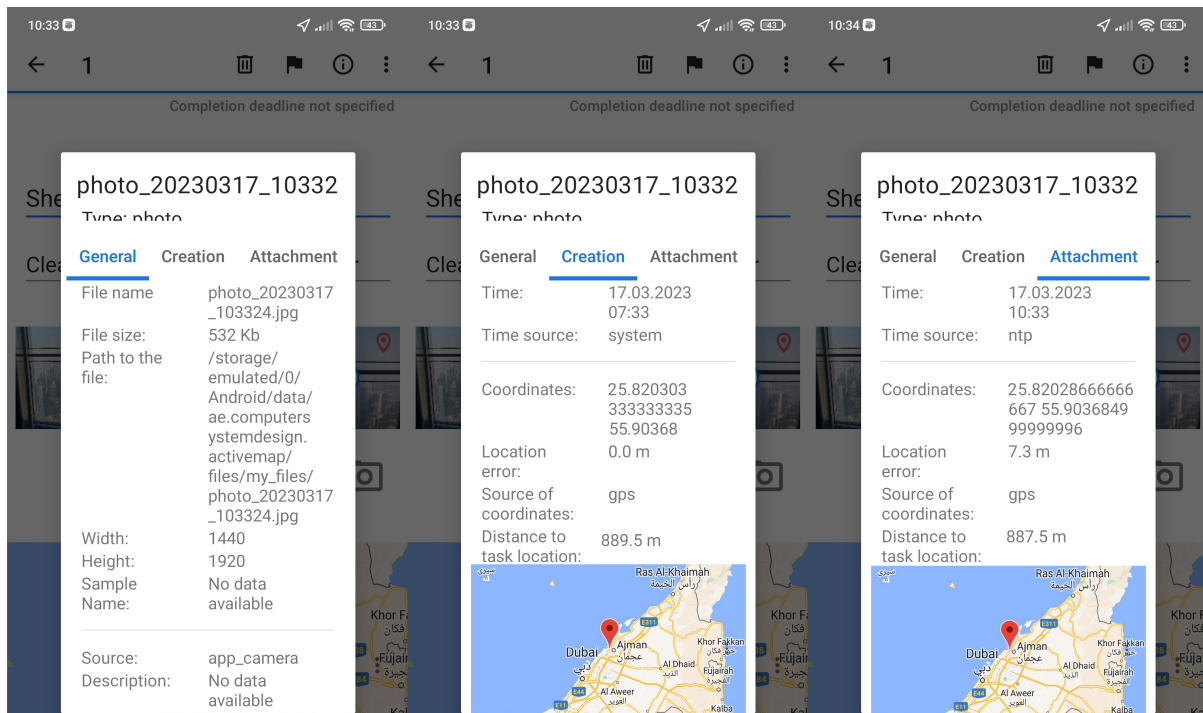



Fig. 2.24: Media file information window

To add a sticker to the photo (before, after, sample), click .

You can remove added media files using the “Delete” button .

2.4.4 Using the application built-in camera

The built-in application camera is designed for additional control over the task execution process. When using a custom camera, application records the information about the date, time, and coordinates of the photo capture. Turn on GPS and disable fake locations.

Select “Create photo” on the media file attachment panel to switch to the camera mode (Fig. 2.25), or click the camera shortcut button .



Fig. 2.25: Using the application built-in camera

There are two types of GPS status indicators:



– location monitoring is on, correct data is transmitted to the server.



– no current GPS data is available, or location monitoring on the device is disabled.

In camera mode, you can customize the flash mode and switch the camera (main/frontal). To configure the flash mode, select one of the modes (Fig. 2.26).

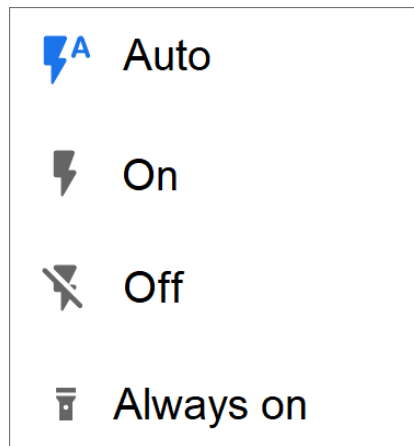


Fig. 2.26: Flash mode selection menu

Camera usage conditions are set up through the ActiveMap web system. The settings allow you to set various requirements for taking photos (maximum distance to the task point, stamping with the exact time, date, etc.) and define them for specific groups or individual users. When the established requirements are violated, the application may display the following informational windows (Fig. 2.27) and stop taking pictures until the conditions are met:

- the task point is far from the photo taking point,
- the geoposition monitoring of the device does not work correctly during task execution.

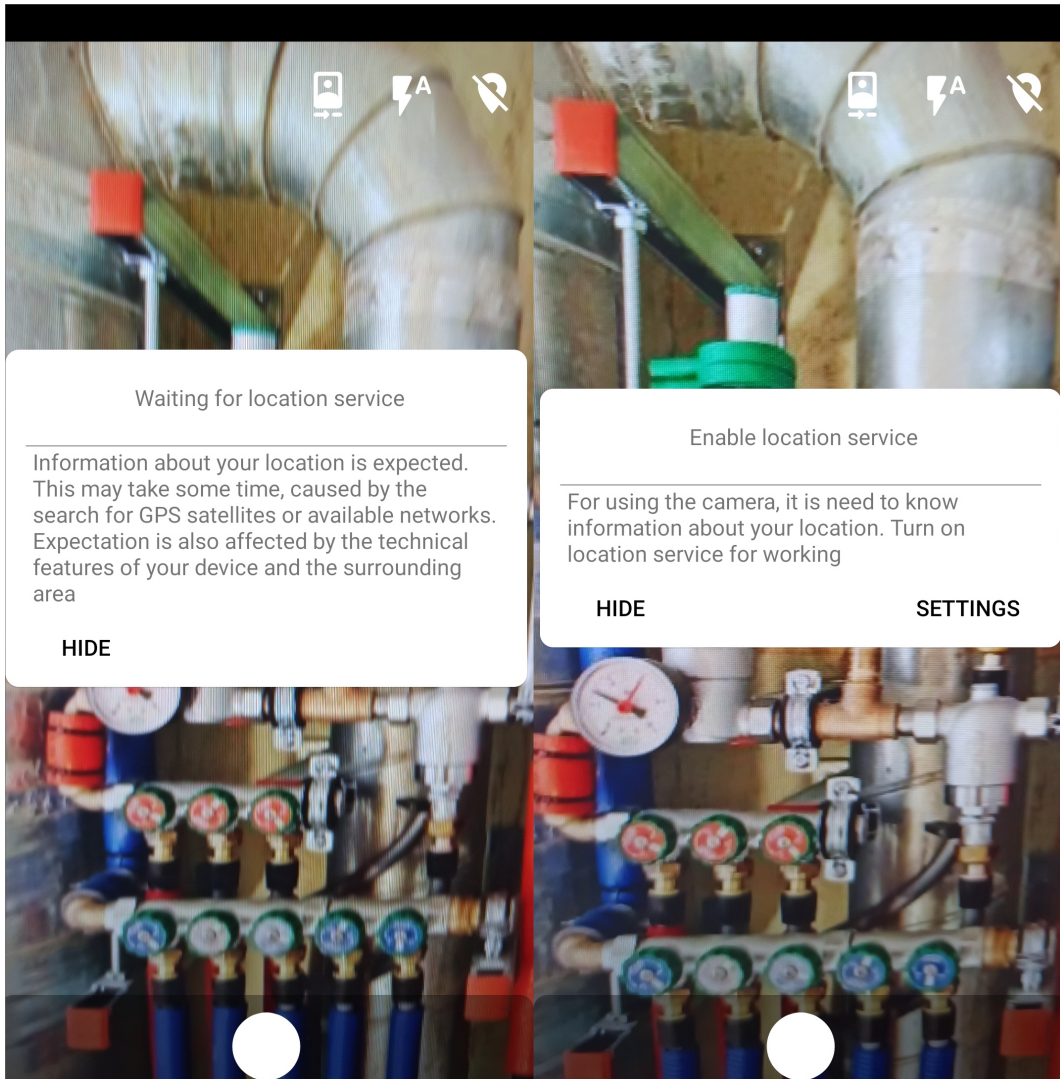


Fig. 2.27: Examples of messages about violations of the built-in camera usage restrictions

After taking a photo, the photo editing toolbar opens (Fig. 2.28). After clicking “Save”, the photo is processed and attached to the task. The date and time when the photo was taken is displayed on the photo.

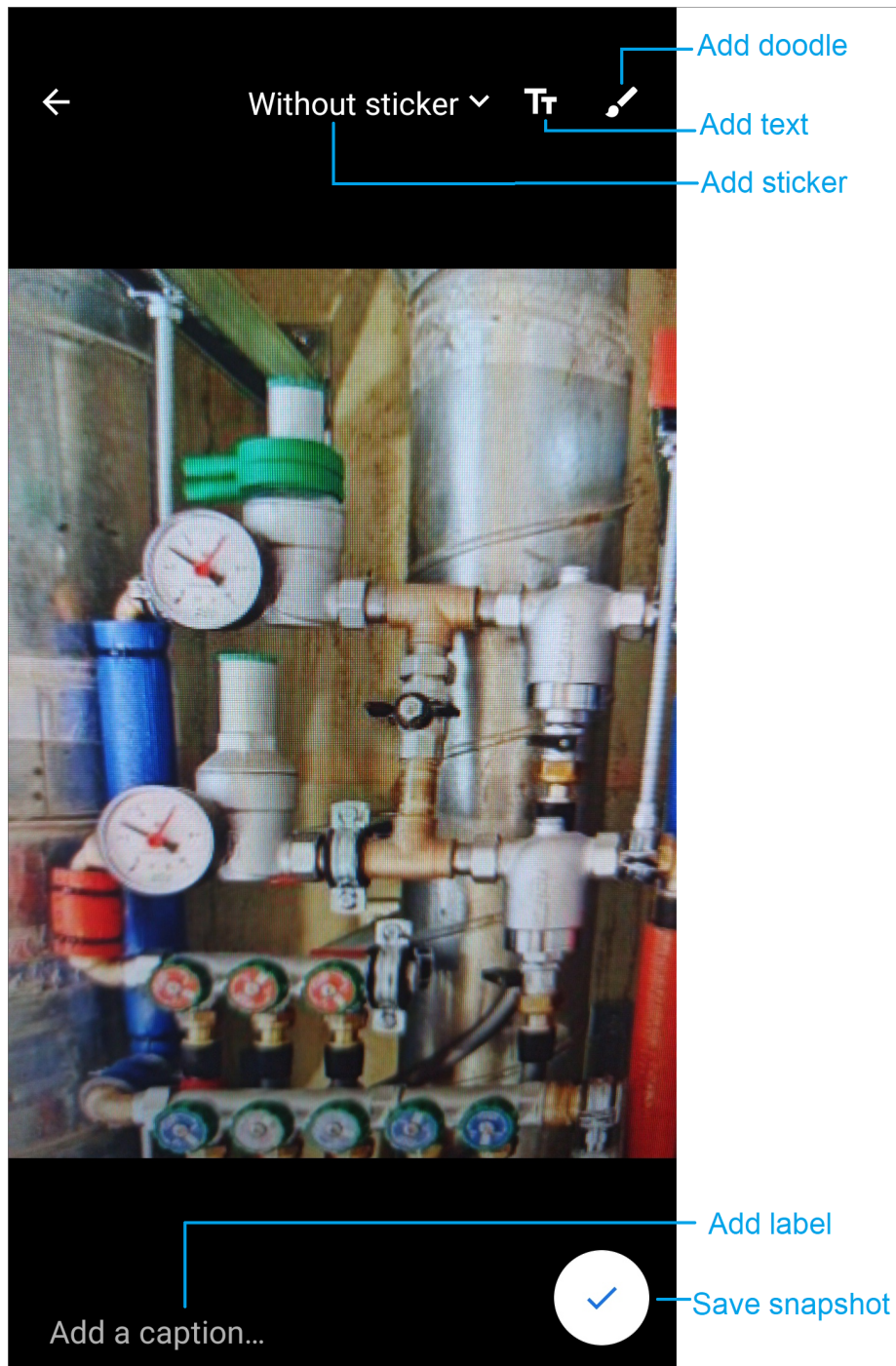


Fig. 2.28: Photo editing mode

2.4.5 Selecting service objects

You can attach the task to a service object in the application. To do this, click “Select” in the “Service object” field. The list of objects in the “Service objects” layer opens. If this layer is the target, select the desired object. If you click on the “Service objects” field, you can select another layer from the available ones. For convenience, there is a “Service layers only” toggle at the top of the layer selection window. When it is enabled, only layers with the “Service Object” status become available. After selecting a layer, you can sort, filter, or search for an object. You can read more about how to use these tools in the *Service objects* (page 84) section.

After sending the task to the server, information about the object appears in the task. This is the name of the object, which can be configured in the ActiveMap Web, and the layer name. Before sending the task, there is only identifiers of the layer and object.

You can see all the tasks associated with an object. For more information about service objects, see *Service objects* (page 84) section.

2.4.6 Attaching the contract

The list of contracts is created by the System Administrator or the Cluster Administrator, they operate within the cluster. The System Administrator, System Inspector, Cluster Inspector, and Assigned Organization Inspector have rights to view the contract. Users who see the task created under the contract, also receive minimal information (id, title). You can create a task within one contract, it is not possible to add two contracts. However, you can attach multiple tasks and schedules to one contract. When deleting a contract, operational tasks created under it are saved (the name of the contract is displayed in the task). Already created scheduled tasks are also saved, but the schedule itself is deleted.

Important: When creating a task with a contract, be sure to select the service object and type of work specified in the contract. Otherwise, a task creation error occurs.

To attach a contract, click “Select” in the contracts block, find and mark the required contract (Fig. 2.29). Before sending the task to the server, you can change or delete the contract by clicking the cross to the right of it. Once the task has been sent to the server, you cannot edit or delete the contract. When attaching a contract, the assigned organization is automatically filled in (after sending the task to the server). If the entered data do not correspond to the contract, the application generates an error and the task is not sent until all the discrepancies are corrected. It may be necessary to correct the contract settings (service objects and work types specified in the contract) rather than the task itself.

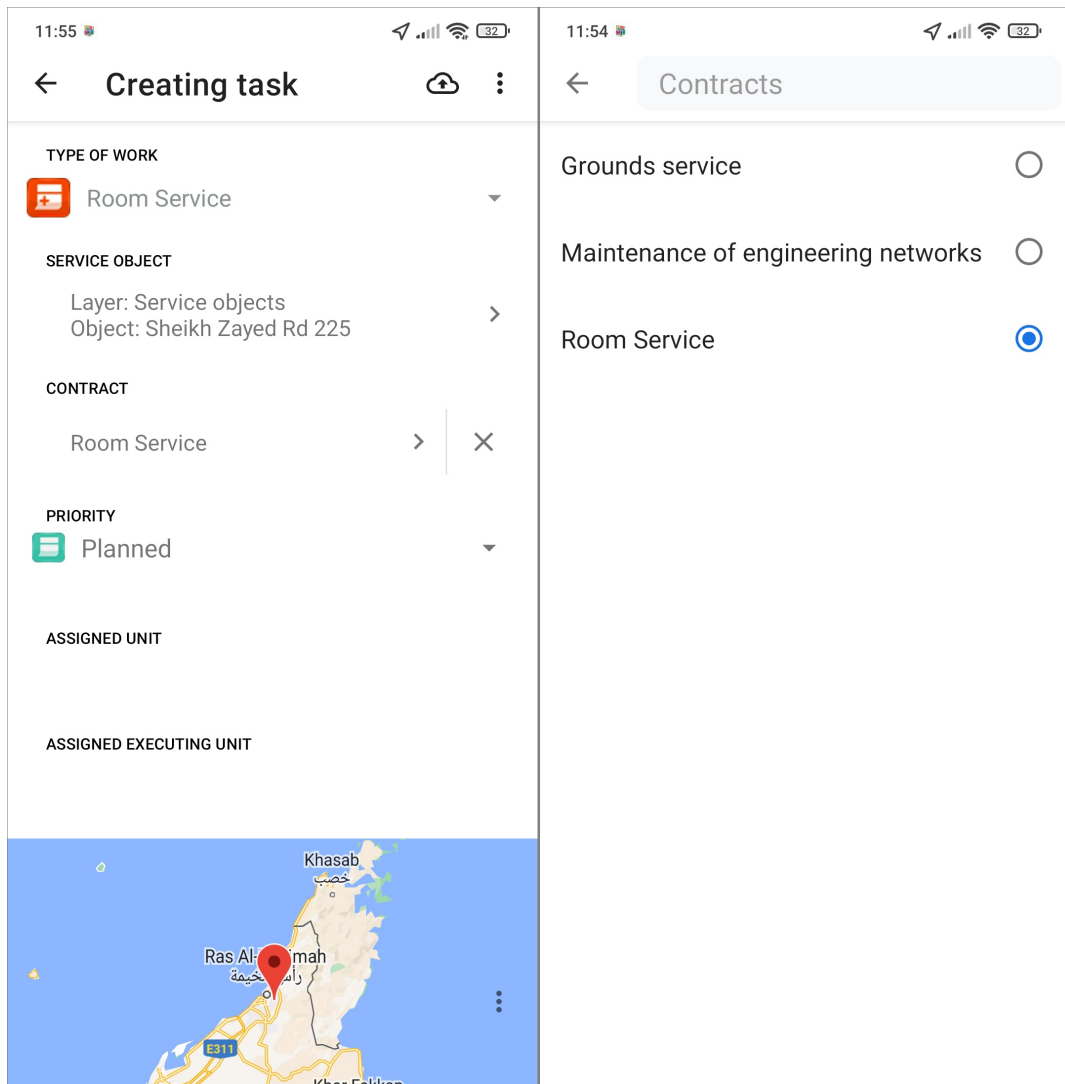


Fig. 2.29: Attaching a contract

2.4.7 Geolocation of tasks

The application provides the ability to geographically positioning the added task to the target location. If you have not previously set up location sources on the device, configure them to determine the location of the user's device. If the navigation signal receiving conditions are good, the user's location is marked with a geolocation mark on the map (Fig. 2.30) after a few seconds.

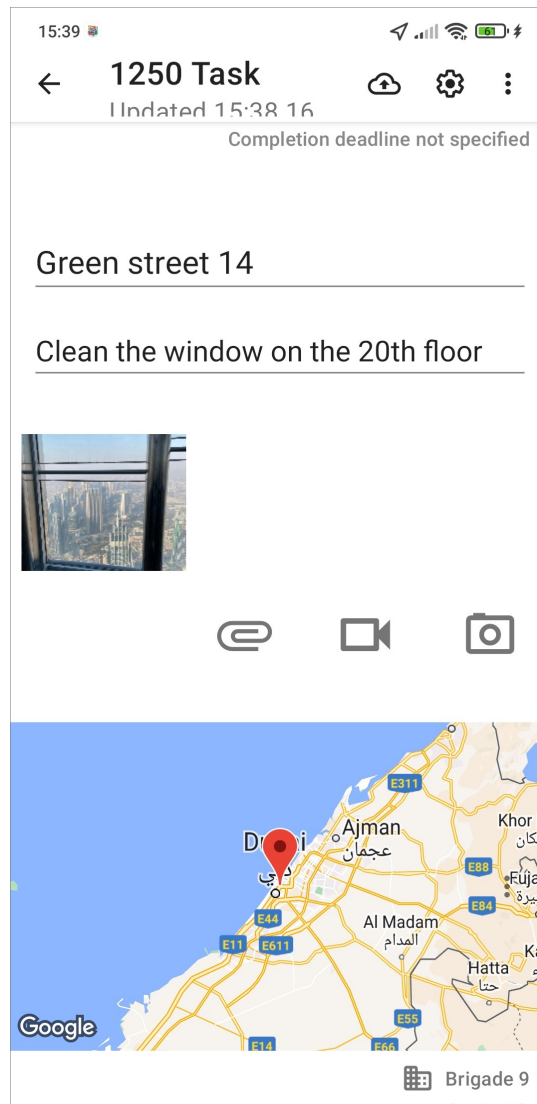


Fig. 2.30: Displaying a location in the task window

By default, the user's current location is attached to the task. To change the location, go to the "Task map" window that opens when you click on the map in the task window. Geographic coordinates are indicated in the upper part of the window (in the Longitude/Latitude coordinate system on the WGS 84 ellipsoid – EPSG:4326). To change the location on the map, mark another location by long-pressing the desired location and click the "Save" button in the upper right corner (Fig. 2.31).

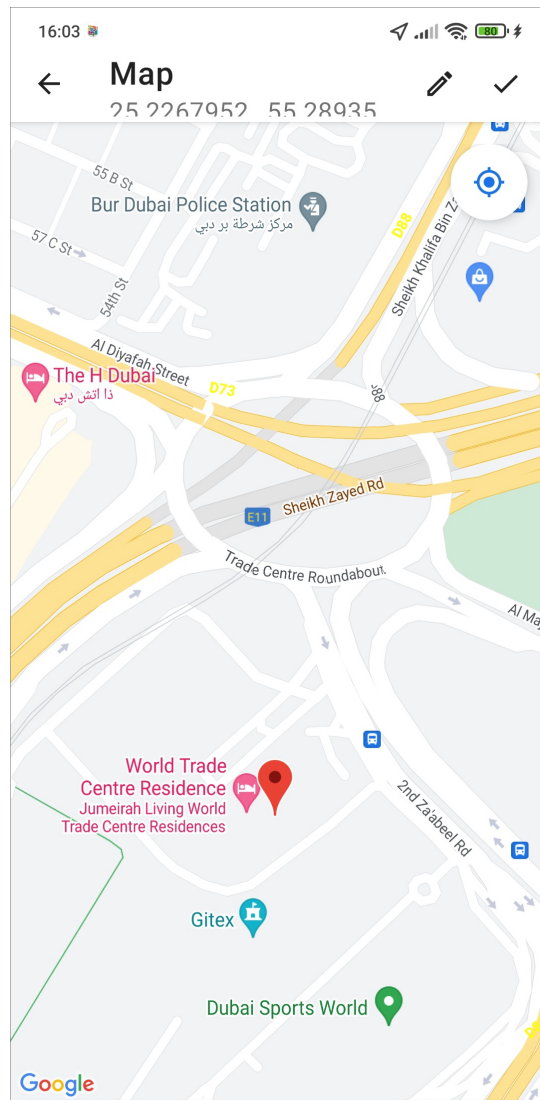




Fig. 2.31: Displaying a location in the task map window

To change the coordinates precisely, click “Change of coordinates” . In the “Change coordinates” window, you can select from a drop-down list the coordinates format. Enter/edit the exact coordinates in the selected format (Fig. 2.32) in the corresponding fields. To change the hemisphere, click on the north/south hemisphere (west/east hemisphere) image to the left of the latitude/longitude input field. After changing the hemisphere, the sign of the corresponding coordinates appears at the bottom of the window changes. Click “Edit” and save your changes .

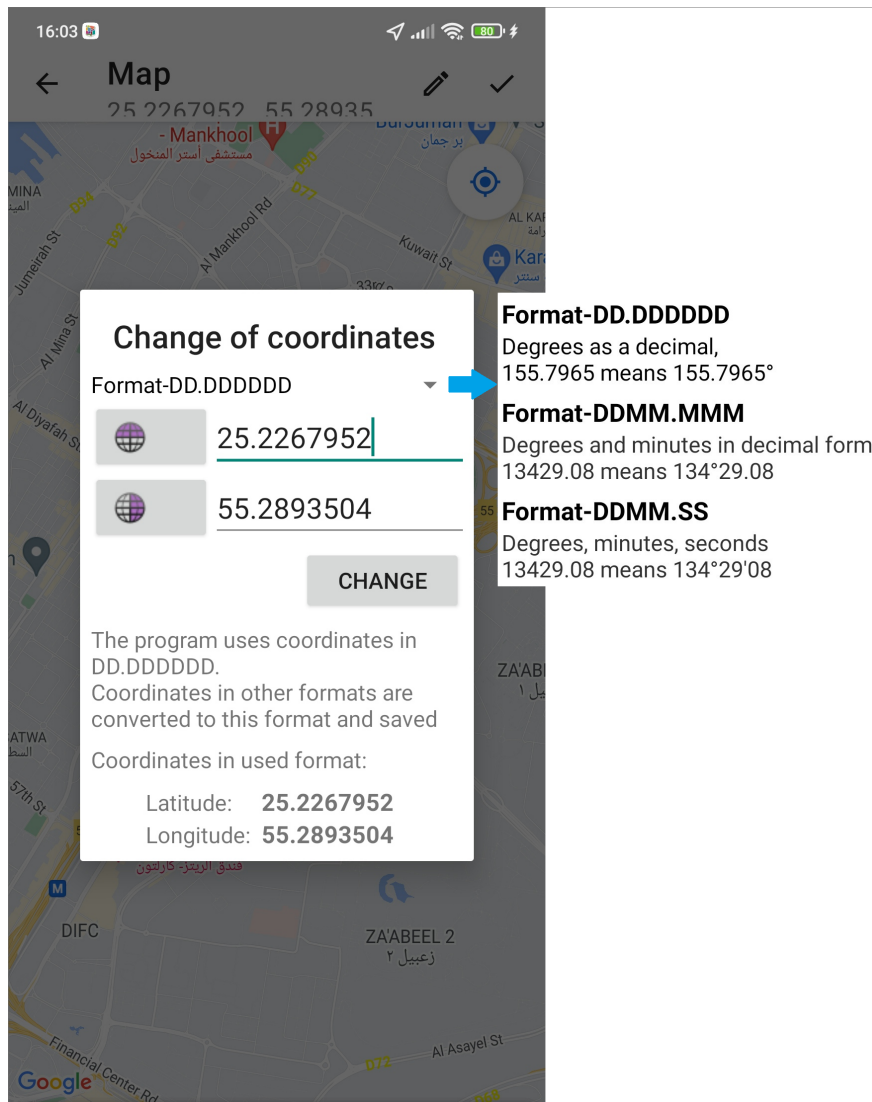





Fig. 2.32: Changing coordinates

You can save a task and send it to the server without geographic coordinates. After entering information on the task, attaching files and location, the task is automatically saved and added to the list of your own tasks (drafts) in the “My tasks” section. To send tasks to the server, click the “Submit” button  at the top of the task window.

The application has an option of applying photo coordinates to the task. To do this, make a long press on the photo and open menu . Select “Use coordinates” and confirm the action by clicking “Use”. The coordinates of the task are updated if the media file is georeferenced.

2.5 Editing and managing tasks

2.5.1 Viewing and editing a task

The ability to edit task fields and manage the task depends on the user's role. For more information on user roles, see *Account management and roles in the system* (page 16). To send the changes made to the task to the server, click "Submit" . Otherwise, the changes will not get into the system, but will remain only on the user's device.

Clicking on the task you want to edit opens the task window (Fig. 2.33). The task window is used to view, edit, and manage detailed information about the task (see details in *Viewing registered tasks* (page 27) and *Creating new tasks* (page 30)):

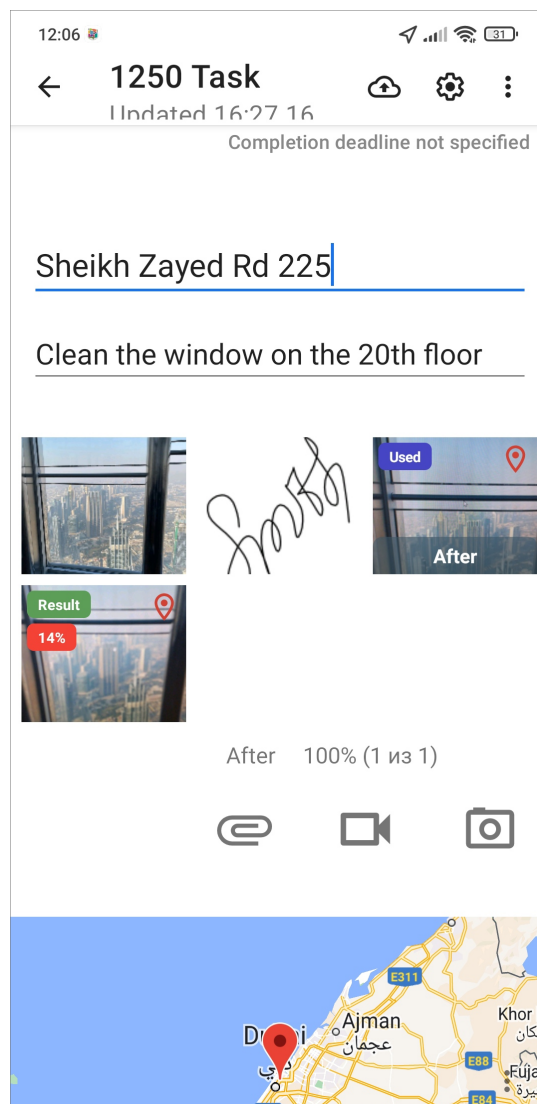



Fig. 2.33: The task window in view and edit mode

In the task window, you can edit the task title, text, and location, work with media files, add a service object (if it was not previously specified), and add comments. The task window also contains the right sidebar of task information, where you can edit other fields (Fig. 2.34).

You can open the sidebar by swiping to the left or by clicking .

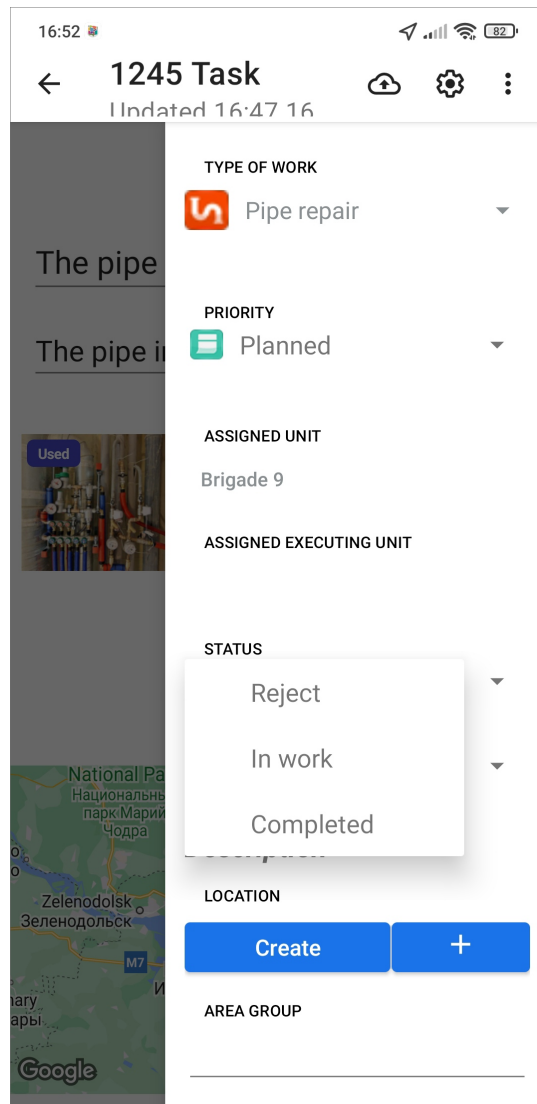


Fig. 2.34: Control panel in view and edit mode

Task parameters that the user cannot edit are highlighted and marked with a lock icon. Clicking the lock icon allows you to see the reasons for the parameter blocking (Fig. 2.35).

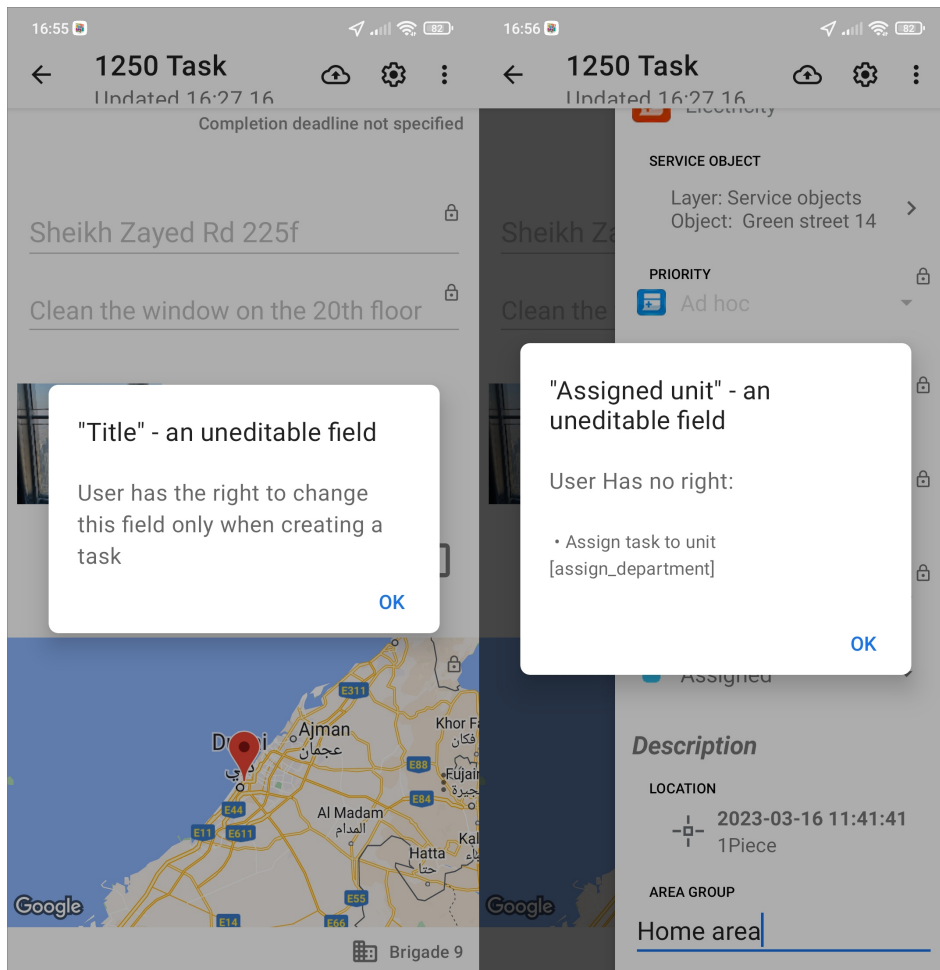



Fig. 2.35: Possible reasons for blocking field editing


You can view attached photos, videos and listen to audio recordings by clicking on the thumbnail image of the file in the task window. To add a new media file, click “Add media file” or the camera shortcut button. To save/delete and view detailed information about a file, press and hold the attached file until the menu panel appears. For more information about working with media files, see [Adding files and media](#) (page 35)).

The location point on the task map indicates the geographic reference to the task location. If a task does not have a geographical reference, the task map window displays current location, and if you try to open the map in full-screen mode, the “no point” message appears. Click the map thumbnail to expand the map to full screen, view, and edit the location.

The menu of the task map window enables selecting the mode of viewing task location using mobile map services. These services help to build a route to the desired point, calculate travel time, view street panoramas, etc.

After editing task information, the changes are automatically saved on the user’s device. Upon returning to the tasks list, such tasks are marked with the “There are changes” label. The application allows users to edit the necessary tasks separately and then send all the changes to the server at once. This may be necessary if there is no internet connection at the task location. Field staff edits the tasks, attaches media files, and when an internet connection is established, can send all of the edited tasks to the system. To do this, click “Window menu” in the task list view window and select “Submit Changes”. For more information about the “Window menu”, see [Window menu](#) (page 26).

Important: To send the changes made to the task to the server, click “Send” . Unsent changes remain on the user’s device until they are deleted or sent to the server marked as “Changed”.

If the user does not have rights to edit the task, but the information should be transferred to the executor or Administrator of the Organization, the application provides adding comments in such cases. To create a new comment to a task, click the “Add comment” button  at the bottom of the task window in the “Comments” block. Enter the text in the “Add comment” window and click “Save” (Fig. 2.35). A new comment is displayed at the beginning of the list of comments. The comment is automatically sent to the server after saving. You can also add your own comments to the updates made by other users.

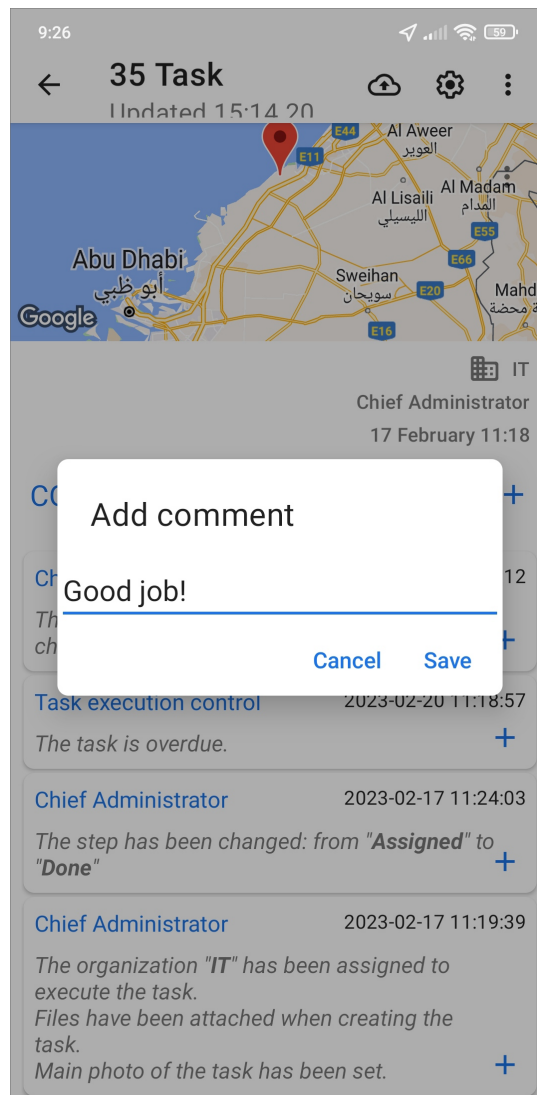



Fig. 2.36: Adding a comment to a task

2.5.2 Task management

The “Window menu”  is used to manage the task and contains the following items:

- **“Show changes”** – view all changes made before they are sent to the server;
- **“Undo changes”** – return to the original information on the task and delete the changes made by the user;
- **“Update data”** – update information on the task by synchronizing with the server. If other users have changed tasks, they are displayed after the update. Swipe from top to bottom on the screen to update the task list.
- **“Make a copy of the task”** – create a copy of the task with the possibility to select the data of the original task (for more information, see *Copying a task* (page 58));
- **“Show photo-links”** – detect errors in task photos. Shows the order in which photos were added and the number of the basis of which subsequent photos were taken when using the template photo mode (for more details, see *Using a template photos* (page 57));
- **“Show child tasks”** – display all copies of the task;
- **“Delete”** – delete the task from the system (for more information, see *Deleting a task* (page 59)).

Tasks with the “Draft” status have an additional menu item – “Make copy of draft”. To copy a draft of the task with entered data, select “Make a draft copy” menu item in the task window. Use the counter to select the number of copies by moving the counter to the right or left (Fig. 2.37). The maximum number of copies is 100. All tasks with the “Draft” status are available in the “My Tasks” list. For more information, see *Setting up a task list* (page 21) section.

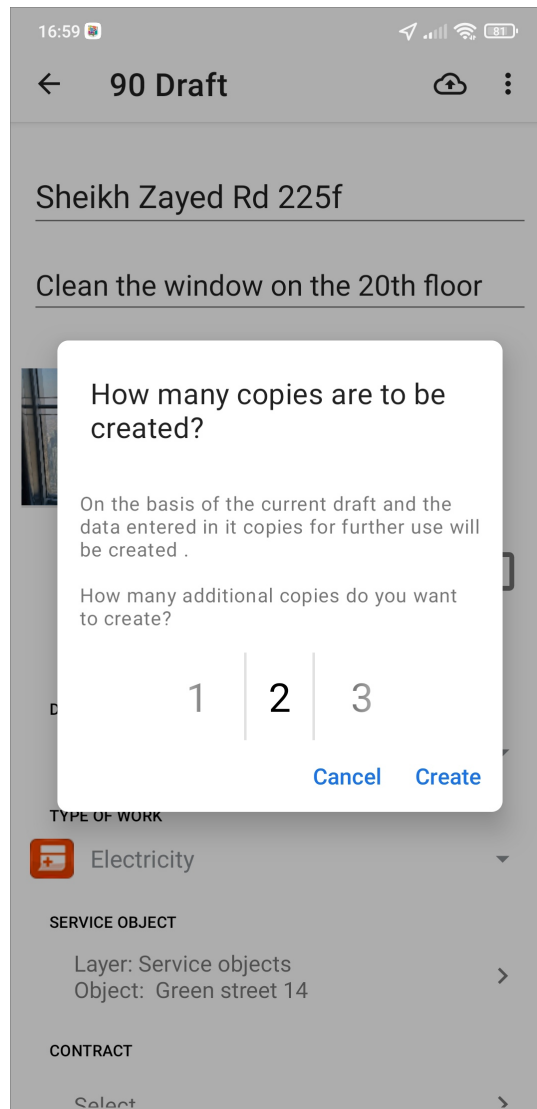



Fig. 2.37: Selecting the number of task copies

2.5.3 Loading tasks

To have access to all task information in offline mode (including photos and files), the application implements mass loading of tasks. To do this, open the list of tasks for downloading (e.g. assigned tasks). Open the  window menu, select “Download tasks” before departure, when there is access to the Internet. A dialog box (Fig. 2.38) appears, where you can cancel or confirm the download. Notification bar displays the process of downloading tasks. Wait for the download to complete. The waiting time depends on the number of tasks, the amount of information in them, and the speed of the Internet.

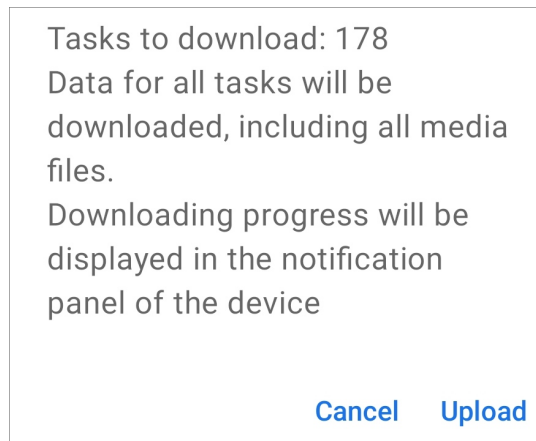


Fig. 2.38: Tasks load dialog

To check that all tasks have been loaded after the download is complete, open the window menu and select “Show downloaded”. All tasks loaded into the application cache are displayed. An information message appears at the top of the task list stating that currently downloaded tasks are displayed. All information on these tasks is available in offline mode (Fig. 2.39).

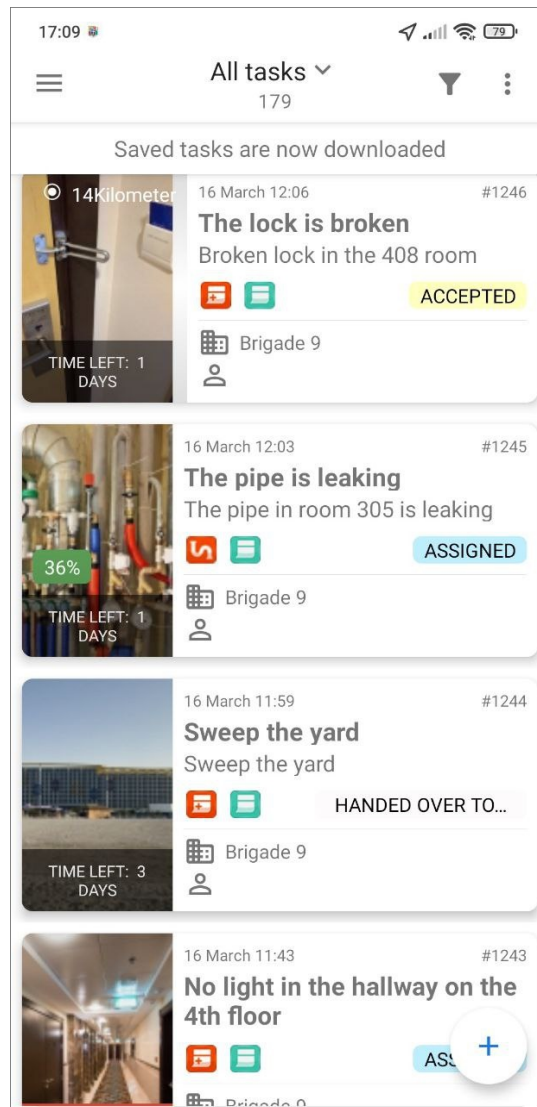



Fig. 2.39: Message about working with downloaded tasks

Attention: Changes to tasks made by other users will not applied to downloaded tasks. Updating tasks requires reloading tasks after making changes to the user's device.

The task window displays information on the time for which the downloaded task is up-to-date (task download time). Clear the cache to delete loaded tasks from memory (Settings/Clear cache, for more information, see *Application settings* (page 120)). Clearing the cache deletes not only the task information but also the loaded service objects.

2.5.4 Using a template photos

To take a photo in a template photo mode open a photo from the list of attached media files (sample photo) and click  in the lower right corner. Select one of the display modes for the template photo on the bottom panel (Fig. 2.40). You can take photos in the template photo mode without a custom camera. To do this, disable the use of the built-in camera in the settings via the ActiveMap web system.

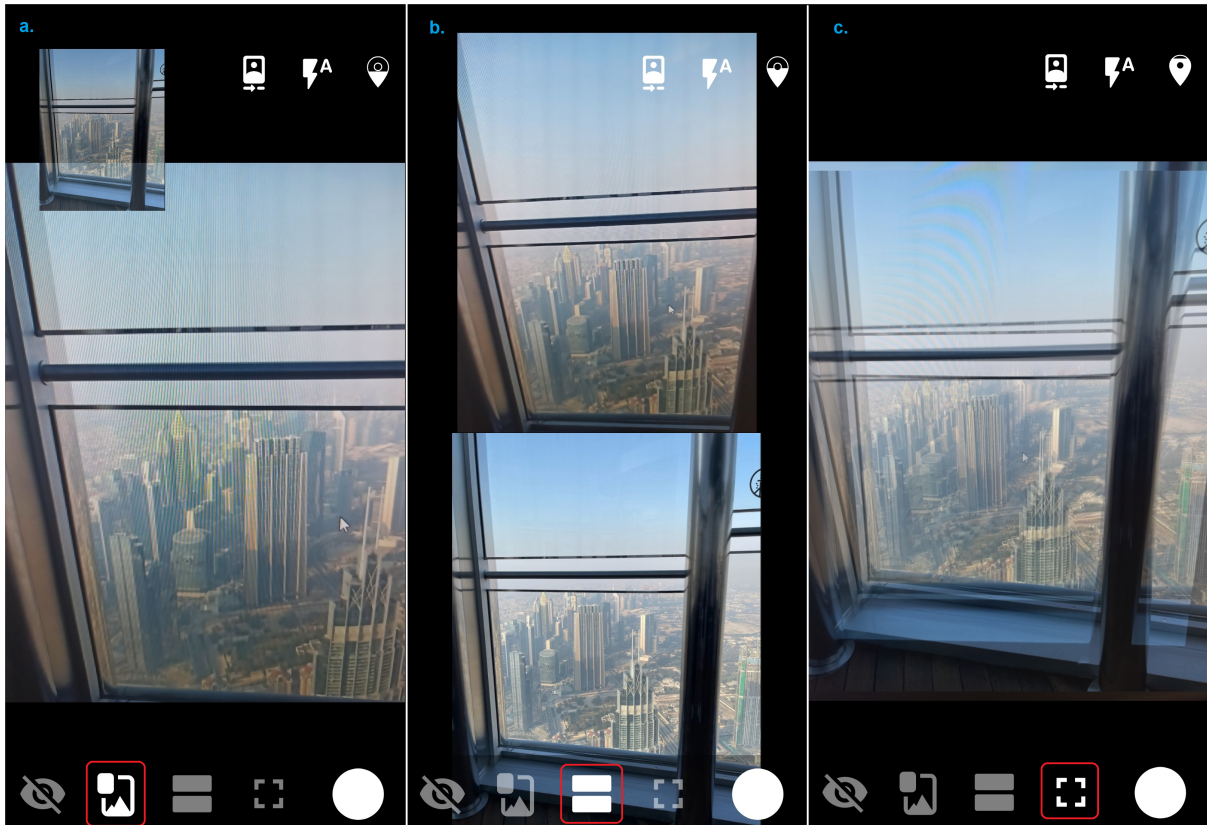


Fig. 2.40: Setting the sample photo display modes: a – sample photo in the form of a small thumbnail, b – sample photo at the top of the screen, c – template photo overlaid in full screen.

Photo links are displayed as labels on the taken photos. To see them, go to the task window menu and select “Photo links” (Fig. 2.41). Numeric labels with arrows appear on the photos. The arrow points from the sample photo to the resulting photo. There can be several photo samples. The resulting photo can also be a template photo for further work.

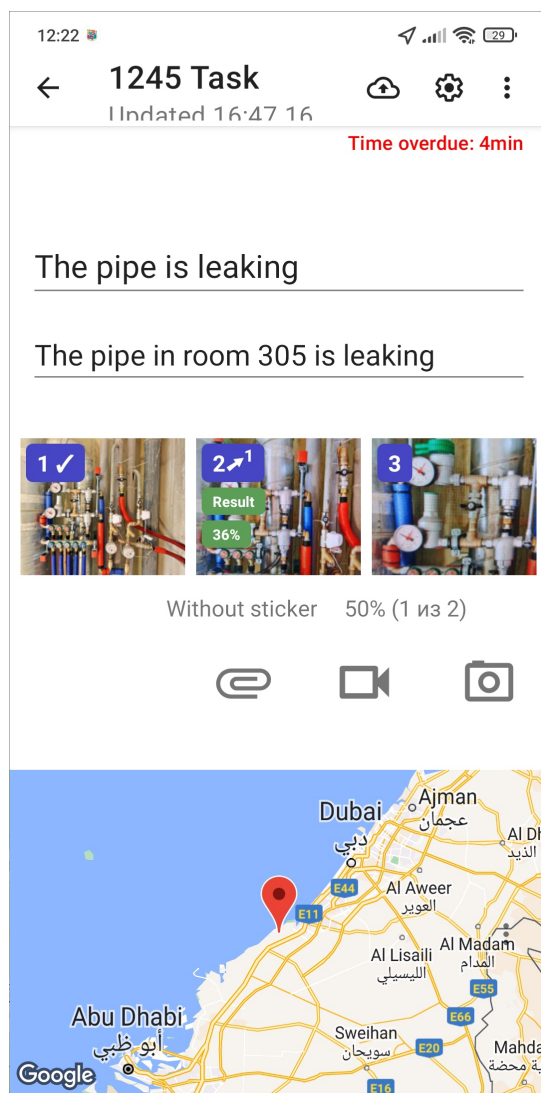




Fig. 2.41: Displaying “Photo links”

2.5.5 Copying a task

If you want to create new tasks of the same type and need to enter the same data, you can use task copying. To do so, create one original task, fill in the required data, and add media files. Next, open the task, click “Window menu” , select “Make a copy of the task” and information you want to copy to the new task:

- Title;
- Task text;
- Priority;
- Work type;
- Service object;
- Location;
- Custom fields (all custom fields are copied if you select this option);


- Media files (all media files are copied if you select this option).


After choosing the data, click “Select”. A task creation window opens with the information already filled in. You can make changes if necessary and then send the new task to the server or leave it in the draft list. To view all tasks created from a single task, open that task, click “Window menu”  and select “Show child tasks”. A list of all tasks created by copying the initial task is displayed.

Note: If the copied task uses a work type that belongs to a specific organization, it is copied to the new task even if you do not select the work type. If a work type is common for all organizations and you do not check the box for a work type when copying, the default work type is used in the child task.

Note: When copying a task under the role of the System Administrator or the Cluster Administrator, it is necessary to specify the creating organization. If copying is done under a user with a specific organization, then the creating organization is automatically copied to the child task.

2.5.6 Deleting a task

“Delete” menu item in the “Task” window is not available to all users. Its availability depends on the user’s role. Quick access to deletion involves holding the task card in the task list. Quick access applies only to registered tasks and does not work for tasks with a “Draft” status. When deleting, confirmation of the action is required. All users can delete tasks with a “Draft” status from the task window menu. All tasks with a “Draft” status are available in “My tasks” list. For more information about setting up task lists, see *Setting up a task list* (page 21). To delete a draft, open the task, click , and select “Delete”. When deleting, you are always asked to confirm the action.

If necessary, you can delete all tasks with a “Draft” status at once. To do this, click  in the task list view window and select “Remove drafts” (Fig. 2.42), then confirm or cancel the deletion.

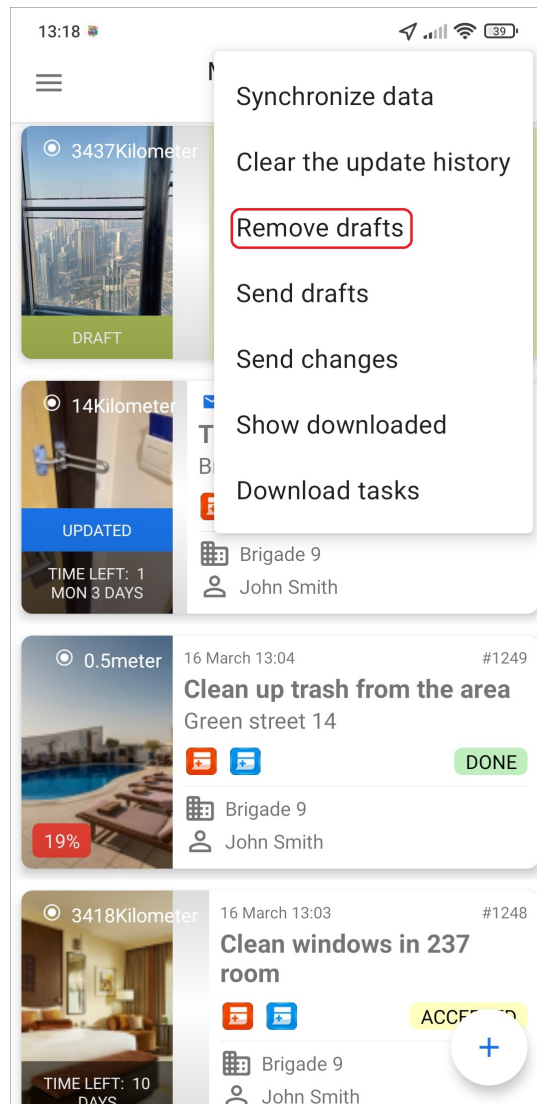


Fig. 2.42: Deleting tasks with “Draft” status

2.6 User management

The section is available for the Organization and Cluster Administrator roles. There are two ways to access the list of users in the application:

1. The “Employees” section of the side menu.
2. *Map* → *User management*.

The first way is below, and the second one is in the *Users on the map* (page 100) section.

2.6.1 Viewing the list of users

The System Administrator can see all users of all clusters. The Cluster Administrator can see all users of all organizations in the cluster. The Organization Administrator see all users of the organization. Additional organization users are available for viewing and editing.

To see the user list, open the navigation sidebar and select the “Employees” section. A window in the form of a list opens (Fig. 2.43). You can use the search to find a specific user.

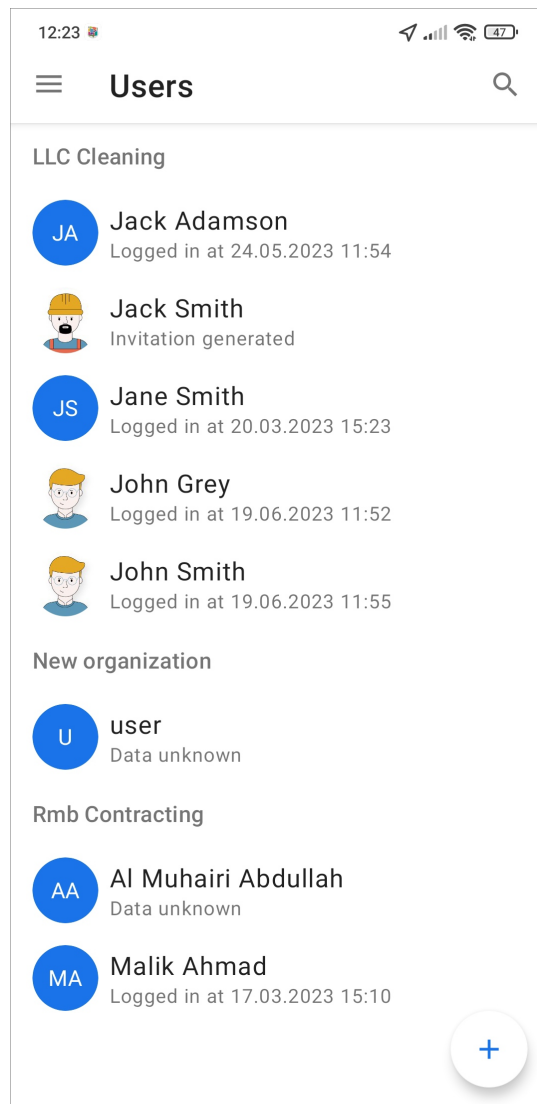





Fig. 2.43: Viewing the list of users

To get information about the user, click on the user card in the list. The profile opens with all user’s data. Here you can view the user’s track by clicking , selecting the day and time range of interest. You can move the marker of the user’s location on the track and view the information at each point of movement. The track is displayed on the map, but you can view the track points in the form of a list (Fig. 2.44). To do this, click . To update the user’s location data, click “Refresh” .

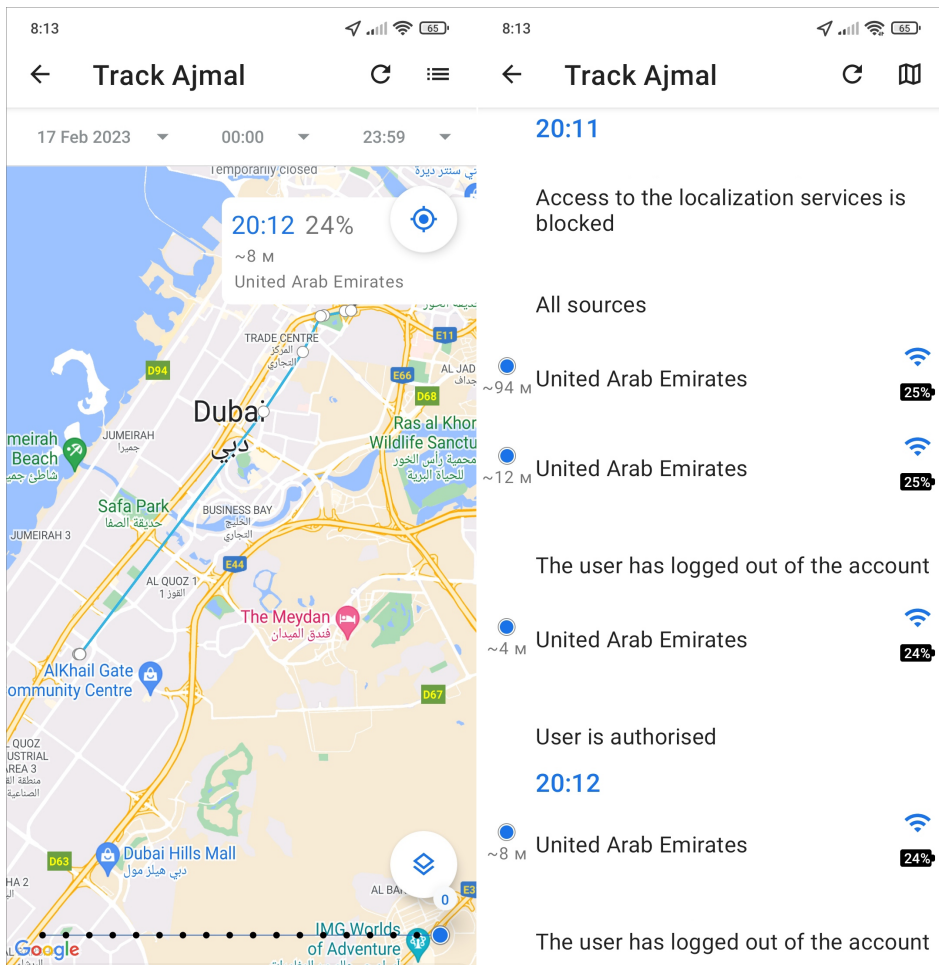


Fig. 2.44: Viewing the user track

In the user’s profile, you can see the number of tasks assigned to this user with the “In progress” status (Fig. 2.45). Here you can also assign an already created task to this user. To do this, click “Assign task”, then select the necessary task. To create a new task, click “Create” and follow the steps of creating the task. The “Assigned organization” and “Assigned executor” fields are filled in automatically.

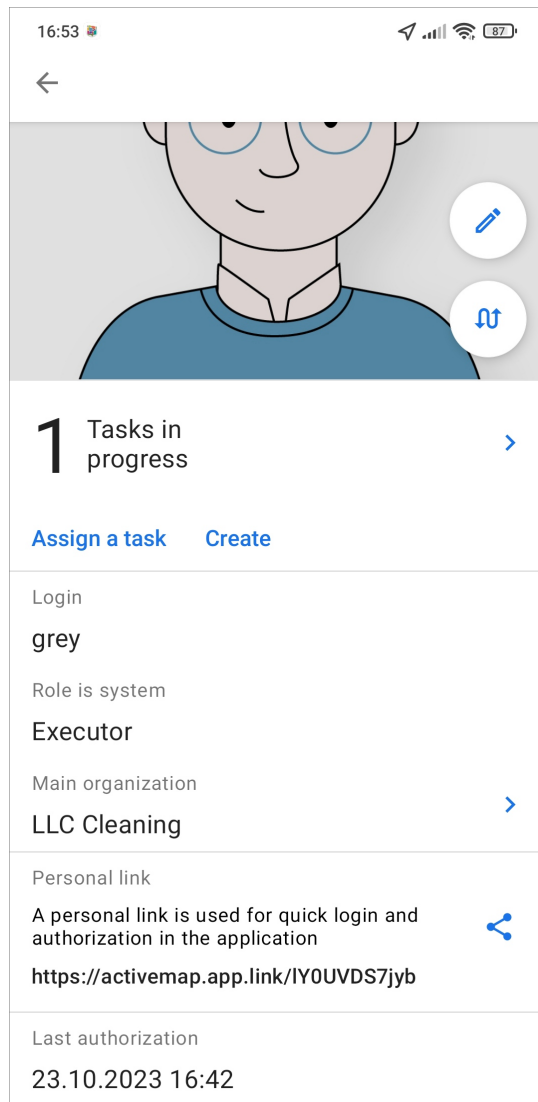



Fig. 2.45: User profile

2.6.2 Creating users

To create new users, go to the “Employees” section of the navigation menu and click  to create a new user. This feature is not available to all user roles.

System Administrator can create users with the following roles:

- System Administrator,
- System Inspector,
- Cluster Administrator,
- Cluster Inspector,
- Organization Administrator,
- Organization Inspector,

- Executor.

Cluster Administrator can create users with the following roles:

- Cluster Administrator,
- Cluster Inspector,
- Organization Administrator,
- Organization Inspector,
- Executor.

Organization Administrator can create users with the following roles:

- Organization Administrator,
- Organization Inspector,
- Executor.

Fill in the data in the opened window and click “Create” (Fig. 2.46). To create a user it is enough to enter data in the “Full name” field and click “Create”. A user with the “Executor” role is created. To enter detailed information about the user, click “Show details” and fill in the required fields. In this window, you can enable/disable geolocation monitoring.

12:08

← Creation CREATE

Geoposition monitoring

Full name
Jack Smith

^ Hide details

Login
jacksmith

Password
.....

Tags

iPhone 13 pro max ✕

+ Add

Phone
+9716118899

E-mail
jacksmith@gmail.com

Fig. 2.46: Filling in data for a new user

A new user appears in the system. The application immediately offers to send a link for downloading the application and authorization of the new user.

The user, upon receiving the link, opens it and immediately logs in to the app if the application is installed on the device (Fig. 2.47). If the application is not installed, the link opens in the GooglePlay store. The authorization occurs after the app is installed.

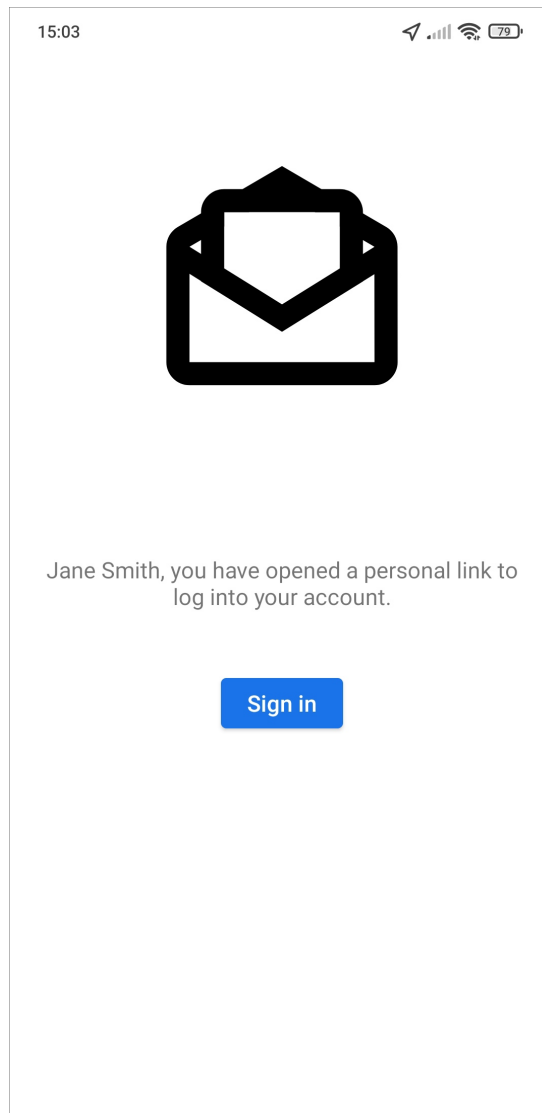



Fig. 2.47: User authorization via link

2.6.3 Importing users

New users can be uploaded from the smartphone's contact book or by manually entering the full names of employees with a line break. This feature is available for the roles of Cluster Administrator and Organization Administrator. The System Administrator cannot import users.

Attention: User import works only with Internet access.

Go to the “Employees” tab and click  to import users. Next, select the desired upload option:

- Import from contacts,
- Import from text.

Selecting “Import from contacts” opens a list of contacts on the user’s device (you need to provide the requested permissions first). Use the search bar to find the desired contact. Then select it and click “Done”. You can select multiple contacts. If necessary, select a contact and open the window for editing the future user profile. Click “Done” to quickly import the contacts. An account with the “Executor” role and the “Person” type is created in the system by default. Login and password are generated automatically. The created user is displayed in the opened window. Click “Share” to send a link to the employee for authorization in the application (Fig. 2.48).

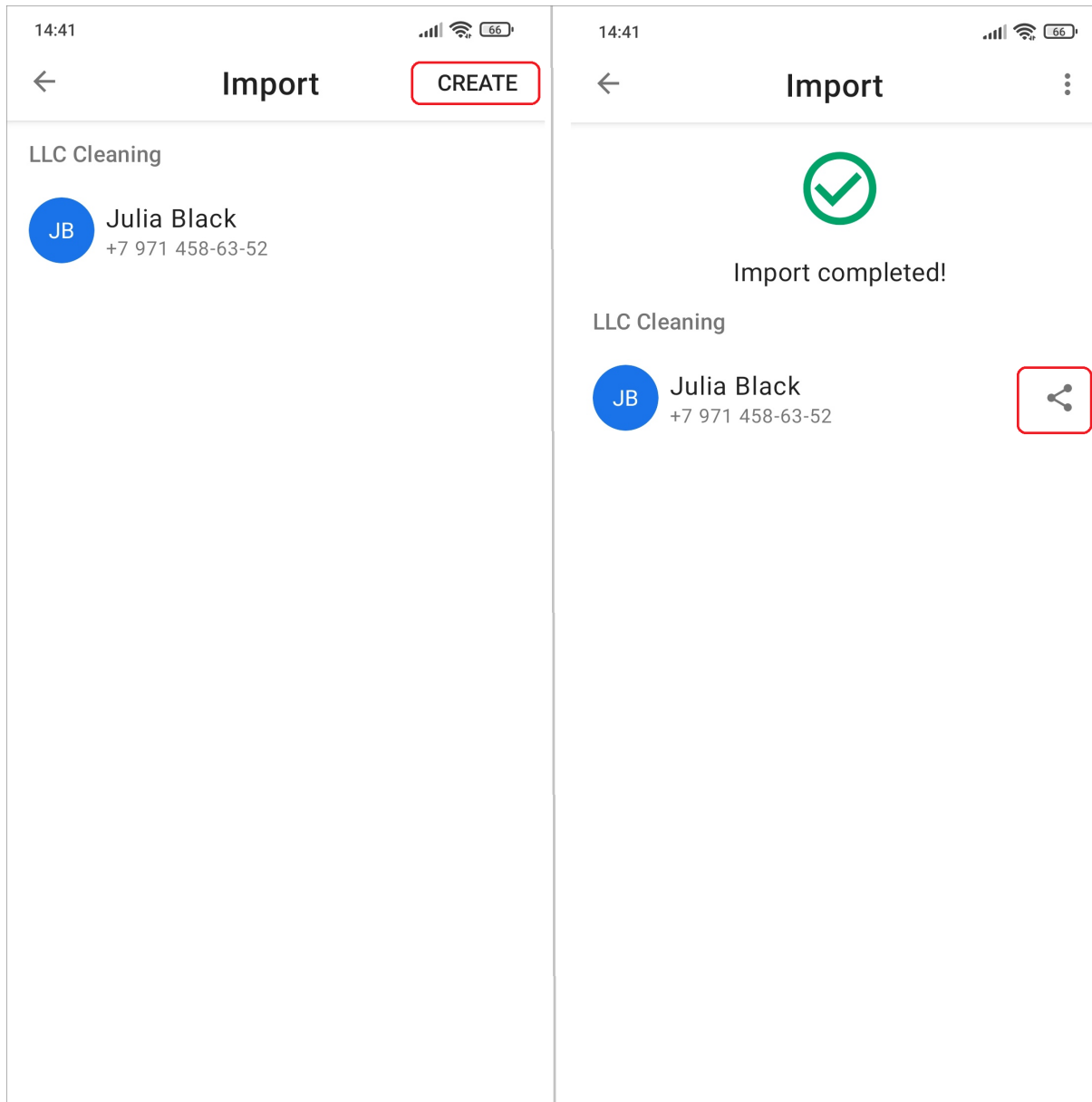


Fig. 2.48: Importing users from contacts

Selecting “Import from text” opens a window where you have to specify the users’ full names. You can do it using a line break (Enter) or paste the prepared and copied list of users’ full names from the clipboard. Then click “Done”. If necessary, select a contact and open the window for editing the future user profile. Click “Done” to quickly import contacts from the text. An account with the “Executor” role and the “Person” type is created in the

system by default. Login and password are generated automatically. The created user is displayed in the opened window. Click “Share” to send a link to the employee for authorization in the application (Fig. 2.49).

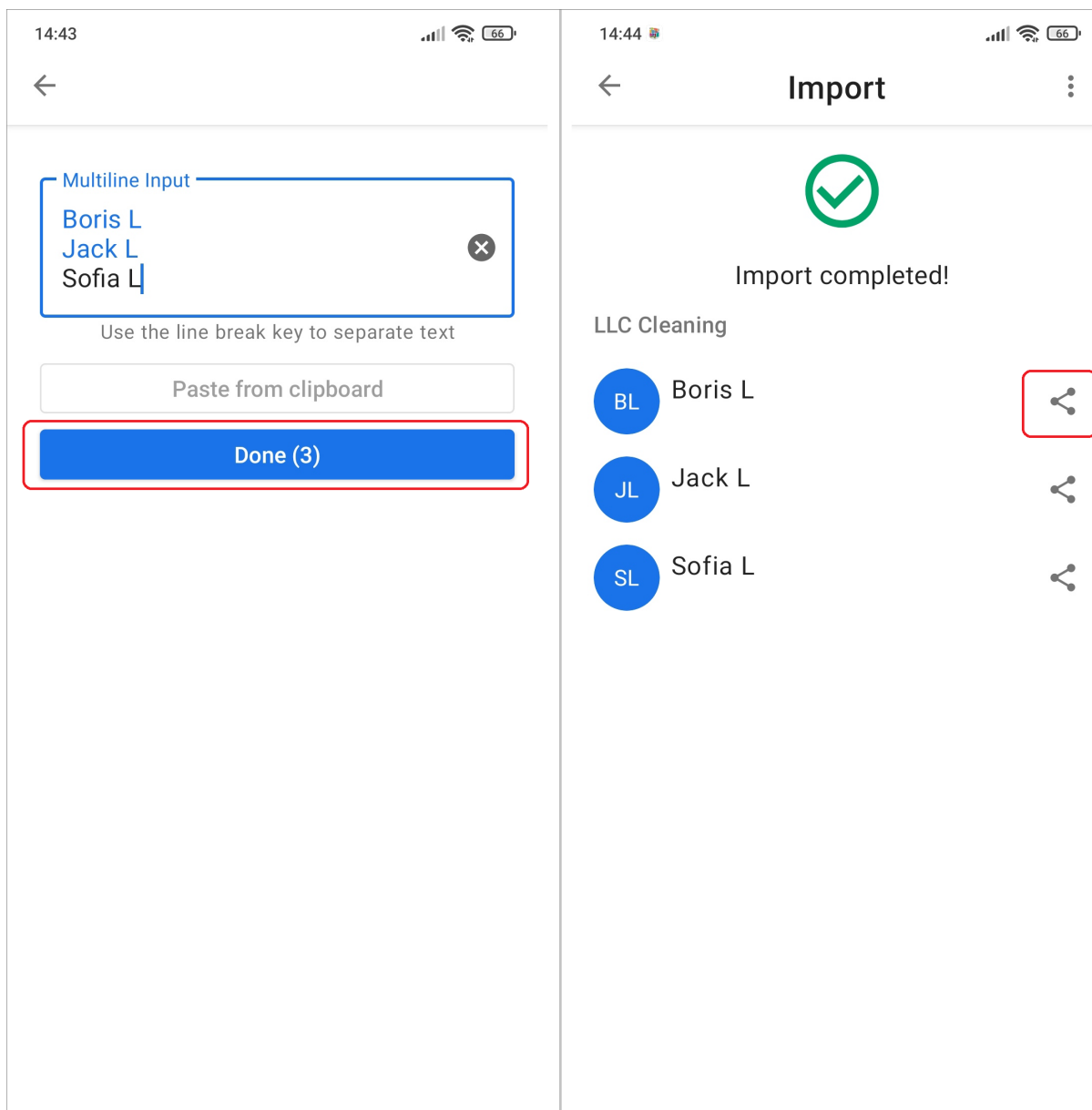




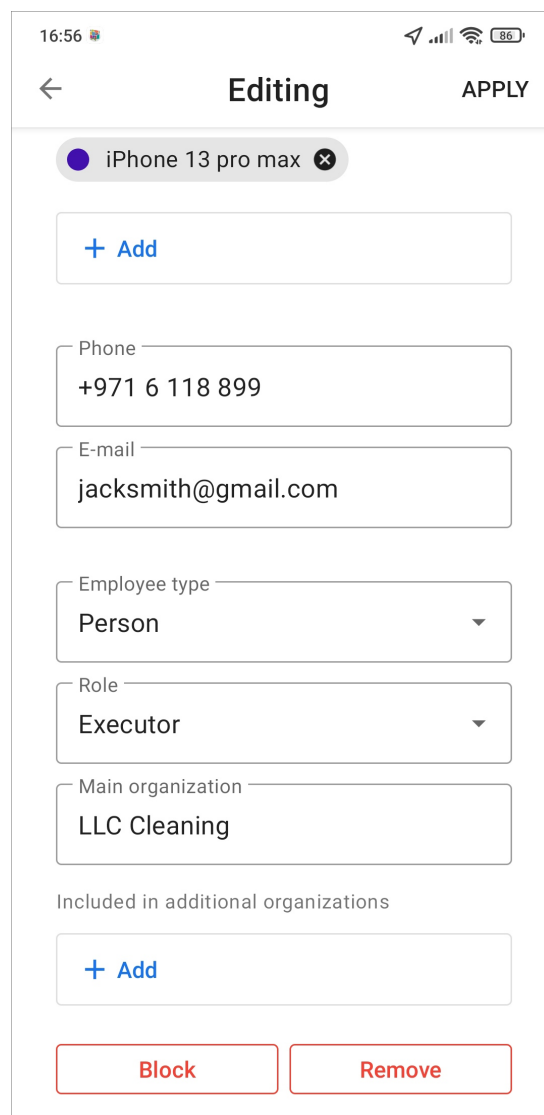
Fig. 2.49: Importing users from text

Importing users is also available at the bottom of the “Employees” page.

2.6.4 Managing user accounts

To make changes to a user's profile (not the current one), find the user in the “Users” section of the navigation sidebar. You can use the search to find a specific user. Clicking the user name opens the account card. Next, click , make changes, and click “Apply”. To access the current user's profile, go to the navigation sidebar (*Account management and roles in the system* (page 16)).


The application provides the functions of blocking and deleting users. These functions are not available to all user roles. To block a user, find the user in the “Users” section of the navigation sidebar. Use the search to find a specific user. Clicking the user name opens the account card. Click , scroll down, click “Block”, and confirm your action (Fig. 2.50). The user disappears from the list of users in the application. Blocked user cannot log in to the application. You can unblock the user only in ActiveMap Web.



The screenshot shows the 'Editing' screen for a user profile. At the top, the time is 16:56 and the battery is at 86%. The screen has a back arrow on the left, the title 'Editing' in the center, and an 'APPLY' button on the right. Below the title, there is a toggle for 'iPhone 13 pro max' with a close icon. A '+ Add' button is present. The form contains the following fields: 'Phone' with the value '+971 6 118 899', 'E-mail' with 'jacksmith@gmail.com', 'Employee type' set to 'Person', 'Role' set to 'Executor', and 'Main organization' set to 'LLC Cleaning'. Below these fields is a section for 'Included in additional organizations' with another '+ Add' button. At the bottom, there are two red buttons: 'Block' and 'Remove'.



Fig. 2.50: Editing user profile

To delete a user, find the user in the “Users” section of the navigation sidebar. Use the search

to find a specific user. Clicking the user name opens the account card. Click , scroll down, click “Delete”, and confirm your action (Fig. 2.50). You cannot delete the account under which you are currently authorized.

2.7 Organization management

2.7.1 Creating an organization

Organization creation is available to the System Administrator and the Cluster Administrator. To create an organization, go to the “Employees” section of the navigation sidebar or to the profile of the current user. Then open any user card, click , scroll to the “Main organization” block, and click on it (Fig. 2.51). In the opened window, click  to create a new organization.

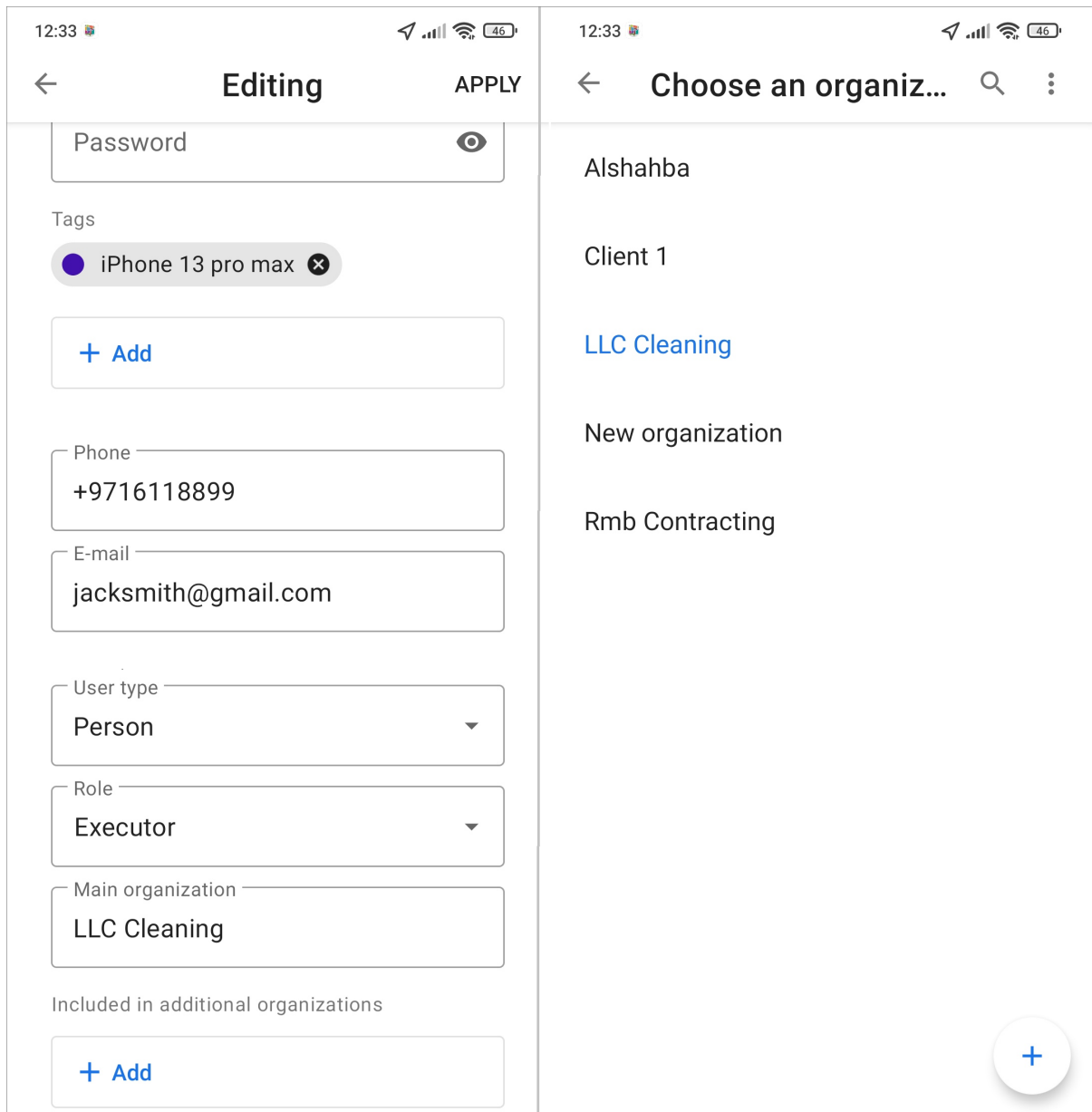
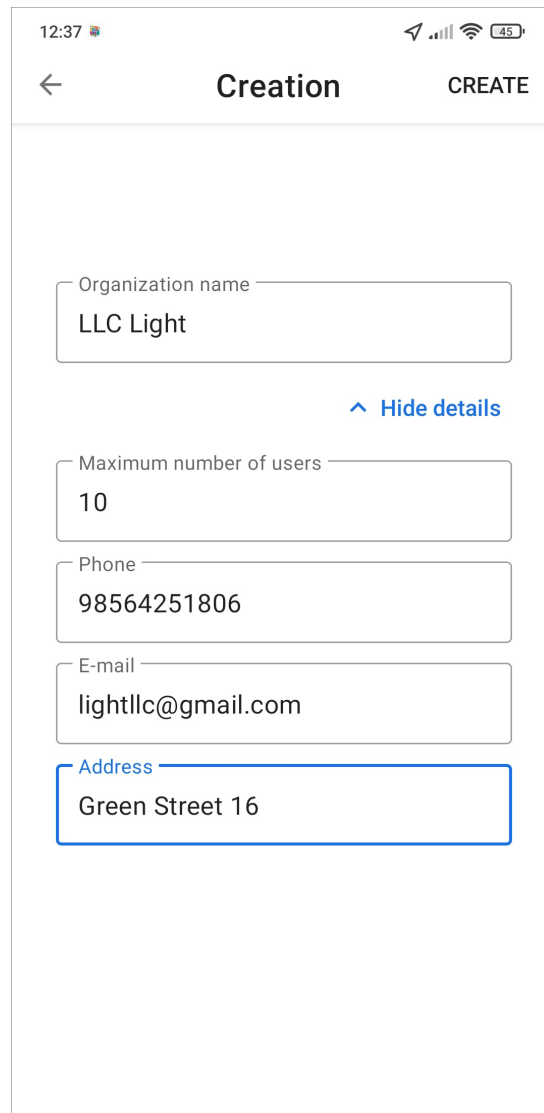


Fig. 2.51: Creating an organization

Fill in only the full name or click “Show details” and fill in all the suggested fields, then click “Create” (Fig. 2.52). The organization appears in the list of organizations. It is automatically inserted into the value of the “Main organization” field. To change the user organization to a new one, click “Apply”, to cancel - exit the user profile without saving changes. The created organization automatically has rights to those types of work (global or this organization’s cluster) for which the “For all organizations” option is activated.



12:37

← Creation CREATE

Organization name
LLC Light

^ Hide details

Maximum number of users
10



Phone
98564251806

E-mail
lightllc@gmail.com

Address
Green Street 16

Fig. 2.52: Creating an organization

2.7.2 Editing an organization

Organization editing is available to the System Administrator and the Cluster Administrator. To edit an organization, go to the “Users” section of the navigation sidebar or go to the profile of the current user. Then open any user card, click , scroll to the “Main organization” block, and click on it. Open the window menu and select “Edit” . The list of organizations opens in the edit mode (Fig. 2.53).

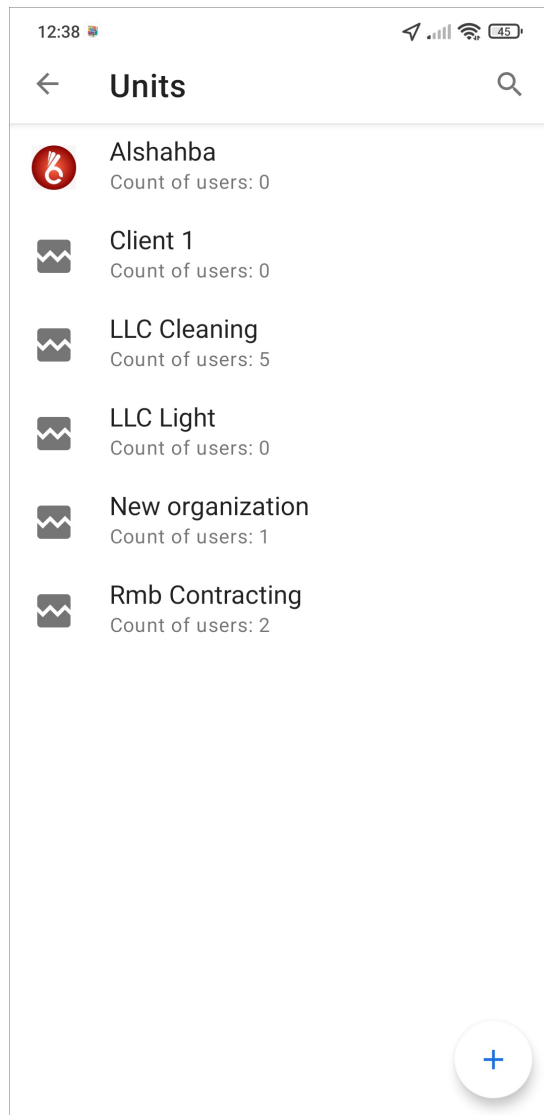
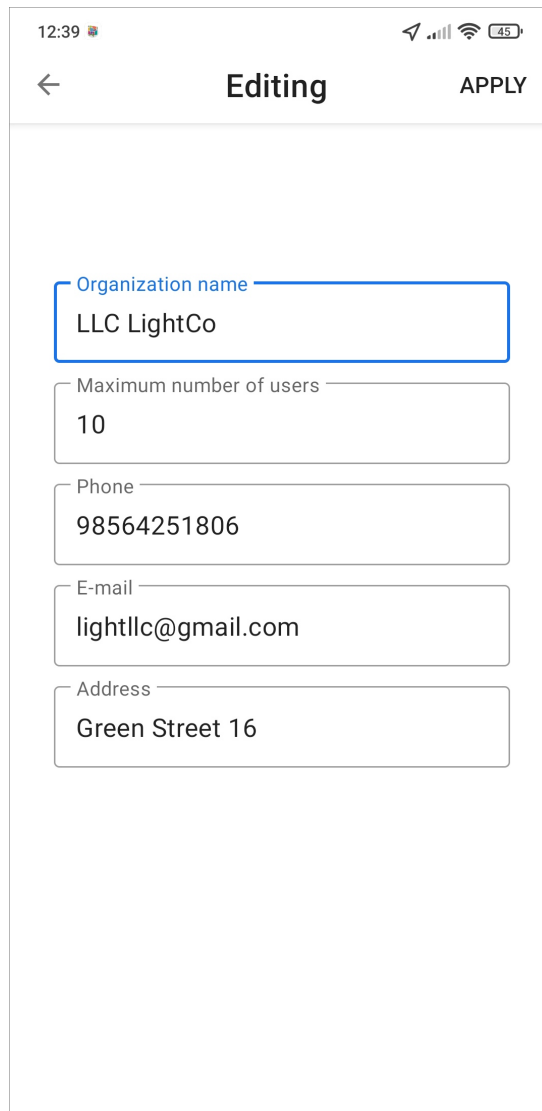


Fig. 2.53: Organization editing window

Next, select the organization, make changes in the editing window, and click “Apply” (Fig. 2.54).



12:39

← Editing APPLY

Organization name
LLC LightCo

Maximum number of users
10

Phone
98564251806

E-mail
lightllc@gmail.com

Address
Green Street 16

Fig. 2.54: Editing an organization

The last selected organization is automatically inserted into the main organization. To undo changes, exit the user profile without saving the changes.

2.8 Updating reference tables

The ActiveMap system has a number of reference data (dictionaries):

- Organizations and users;
- Types of work, groups of types of work, steps, priorities, custom fields;
- Settings, service objects, etc.

When reference tables change, the system quickly delivers them to client applications. You can enter new values into reference tables in the ActiveMap Web. Update the data in the ActiveMap Mobile application after adding.

Updating data in ActiveMap Mobile occurs during any access to the server (for example,

when the user updates the task list, opens the task card). When the application starts, reference tables are automatically updated. If the data remains the same, force it to update (for more information, see *Other settings* (page 125)). Data is updated within a minute from the last data addition on the ActiveMap Web. If there were several actions at once to add new values to ActiveMap Web, then the application is updated no earlier than one minute after the last change to ActiveMap Web.

If you are creating or editing a task (layer object) in the ActiveMap Mobile application at the time the reference tables are being updated on ActiveMap Web, the reference tables will not be updated in the application. This is because the application do not send requests to the server during creation or editing. In this case, exit the task creation/editing mode (all changes are saved) and update the task list. Then return to the task draft (set “My tasks” filter) or edited task and continue filling it with updated reference tables. The delivery time of reference tables updates is about a minute.

2.9 Using additional data formats in the application

2.9.1 Adding geometric objects on the map

You can add point (multi-point), linear, and polygonal objects to the map in the application. You can create objects using the current location, by explicitly specifying coordinates on the map, or by recording a route track. Geometric objects can be attached to the tasks that have a custom field of the “geometry” type (for more information, see *Working with custom fields* (page 33)). You can add geometric objects during adding a task as well as independently of tasks.

To add an object in the custom field of “Geometry” type, click the “Create” button. In the opened window, there is a map, window menu, and buttons for adding objects of different geometry types (Fig. 2.55):

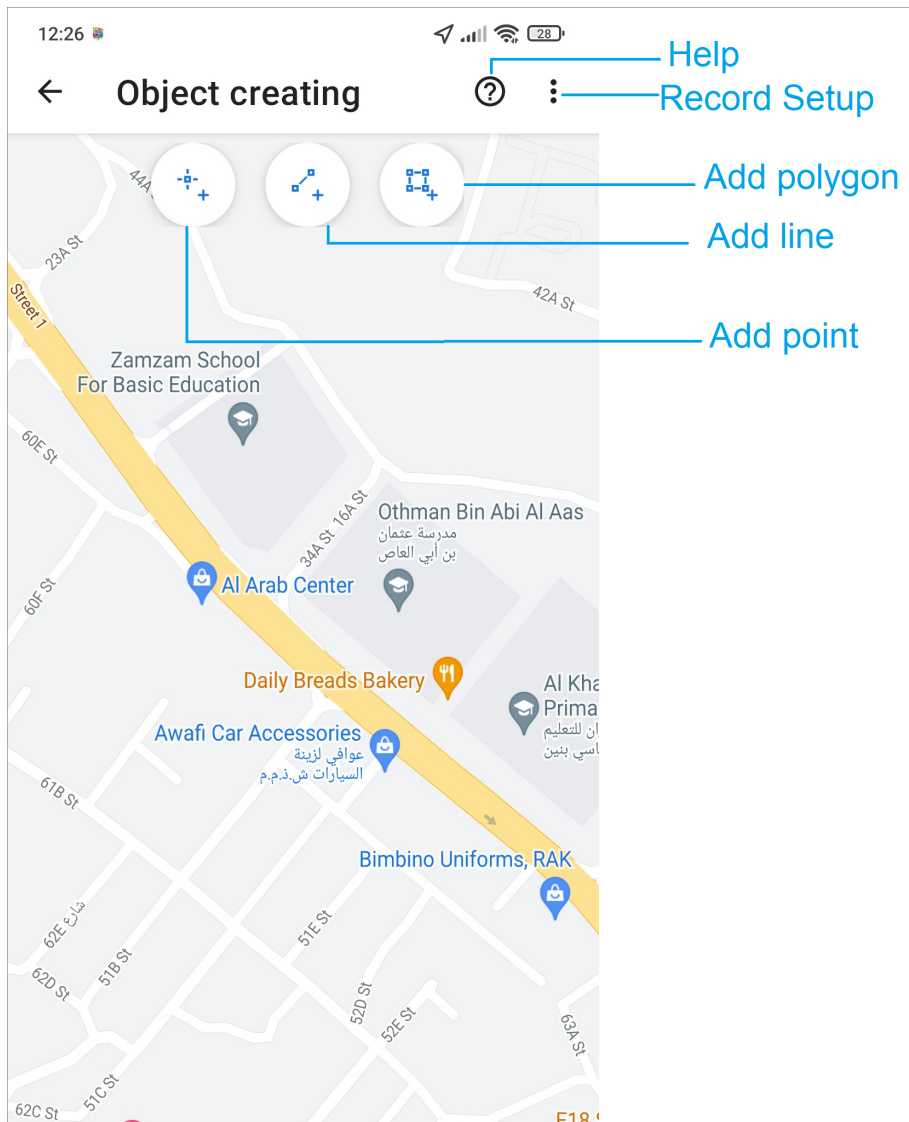


Fig. 2.55: Geometric object creation window

After selecting the geometry type and clicking the corresponding button (“Add Points”, “Add Line”, or “Add Polygon”) you are switched to the object adding mode.

In the “Create object” window there is a “Record settings” section for setting the minimum distance and time between adjacent points during route track recording. To use the current location and record the track, it is necessary to connect the location sources of the device and provide good conditions for receiving the navigation signal (Fig. 2.56). Being in buildings greatly reduces the accuracy of the navigation signal.

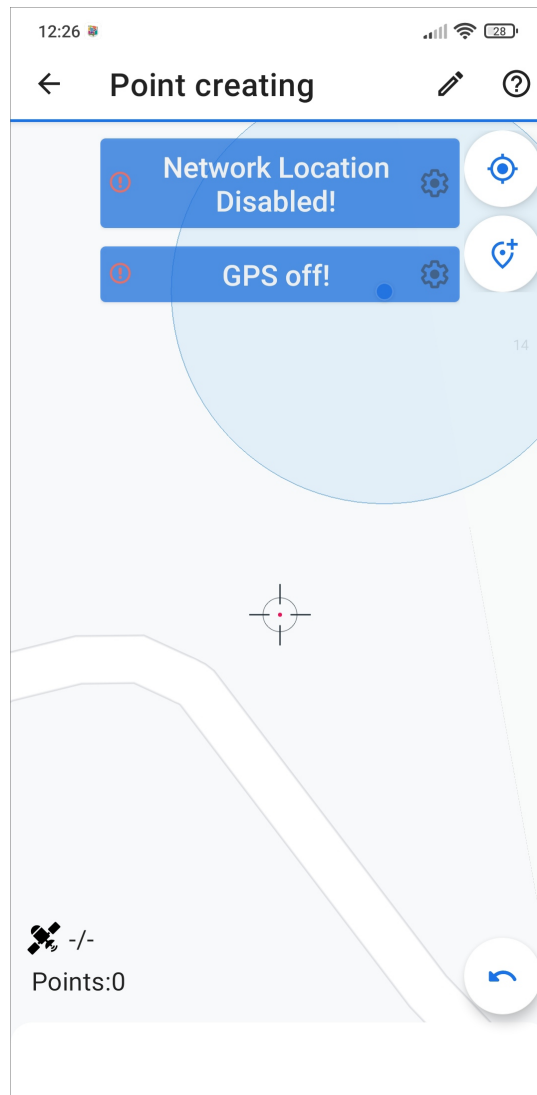



Fig. 2.56: Messages about location settings

“Network positioning is off!”, “GPS is off!” messages notify that not all positioning settings have been configured. To configure location sources, go to the “Location” window by tapping “Location settings” . Here you can set up the GPS receiver, enable Wi-Fi and mobile data transmission. The more sources are included, the more accurately the location is determined. After enabling the required sources, return to the location window (Fig. 2.57). Determine the current location by built-in means of the device or enter coordinates manually (enter exact coordinate values or specify location on the map).

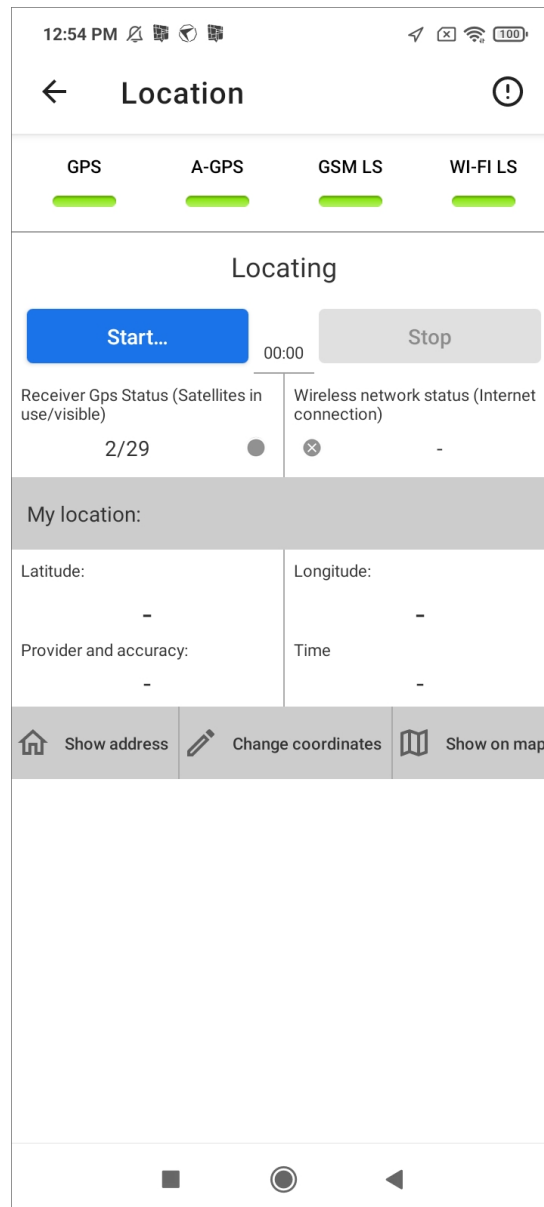


Fig. 2.57: Location window

In the upper part of the window, there is a status bar for location sources (GPS, A-GPS, GSM LS, WI-FI LS). It contains status indicators for location sources and a button to update the panel data. The indicator panel allows you to change the status of sources. Clicking on the selected indicator opens the extended panel with a list of system settings and permissions for source operation (Fig. 2.58). The controls allow you to change system settings and permissions by navigating to the appropriate settings windows.

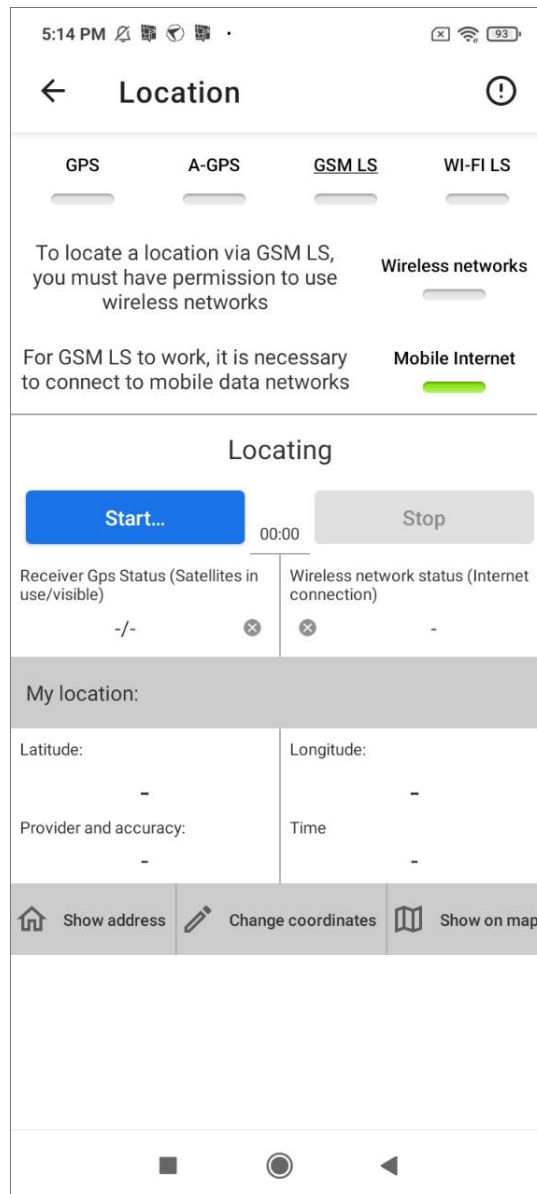


Fig. 2.58: Changing system settings for selected positioning source

To determine the location using the selected sources, click “Start”. The device’s location detection process begins, a timer starts. The number of used and visible GPS satellites is displayed in the “GPS receiver status” field (Fig. 2.59). When the position has been determined, an appropriate message is displayed. The process of determining (refining) the position continues. “My Location” field displays the coordinates found (in the WGS 84 ellipsoid coordinate system – Latitude/Longitude – EPSG:4326) and the accuracy of the found coordinates in meters. To stop the positioning process and refine the position, click “Stop”. Click “Use” to apply the found coordinates with the obtained accuracy.

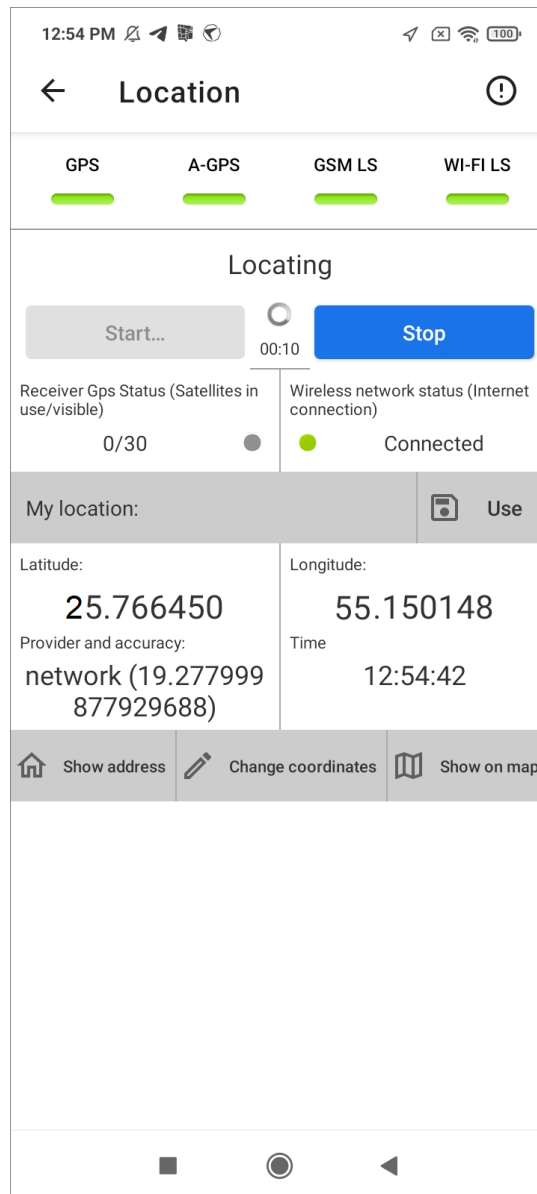





Fig. 2.59: Determining the location using selected sources

“Show address” button displays the address according to the found coordinates. “Show on map” button allows displaying and editing the found coordinates on the map. The attached location is marked with a red label. You can move the label by dragging it to the desired location. The exact changed coordinates are displayed at the bottom of the window. Use the “Edit coordinates” button  in the “Location” window for manual input/editing of coordinates. You can do it similarly to changing task coordinates (*Geolocation of tasks* (page 45) section).

To edit an object, click the “geometry” task field. The “View Object” window opens, where you can edit the object positions (like when adding objects). To remove an object from the list, click “Delete”  in the object view window. When deleting, confirmation of the action is always requested.

2.9.2 Adding point objects

You can add a point (multi-point) object using the current location or by explicitly specifying coordinates on the map. After clicking “Add points”, the “Create a point” window opens (Fig. 2.60). The menu of this window contains a “Help” button for calling up help on adding points to the map. At the bottom of the window there is a “Location settings” button  for switching to the current location source settings window (for more information, see [Adding geometric objects on the map](#) (page 75)).

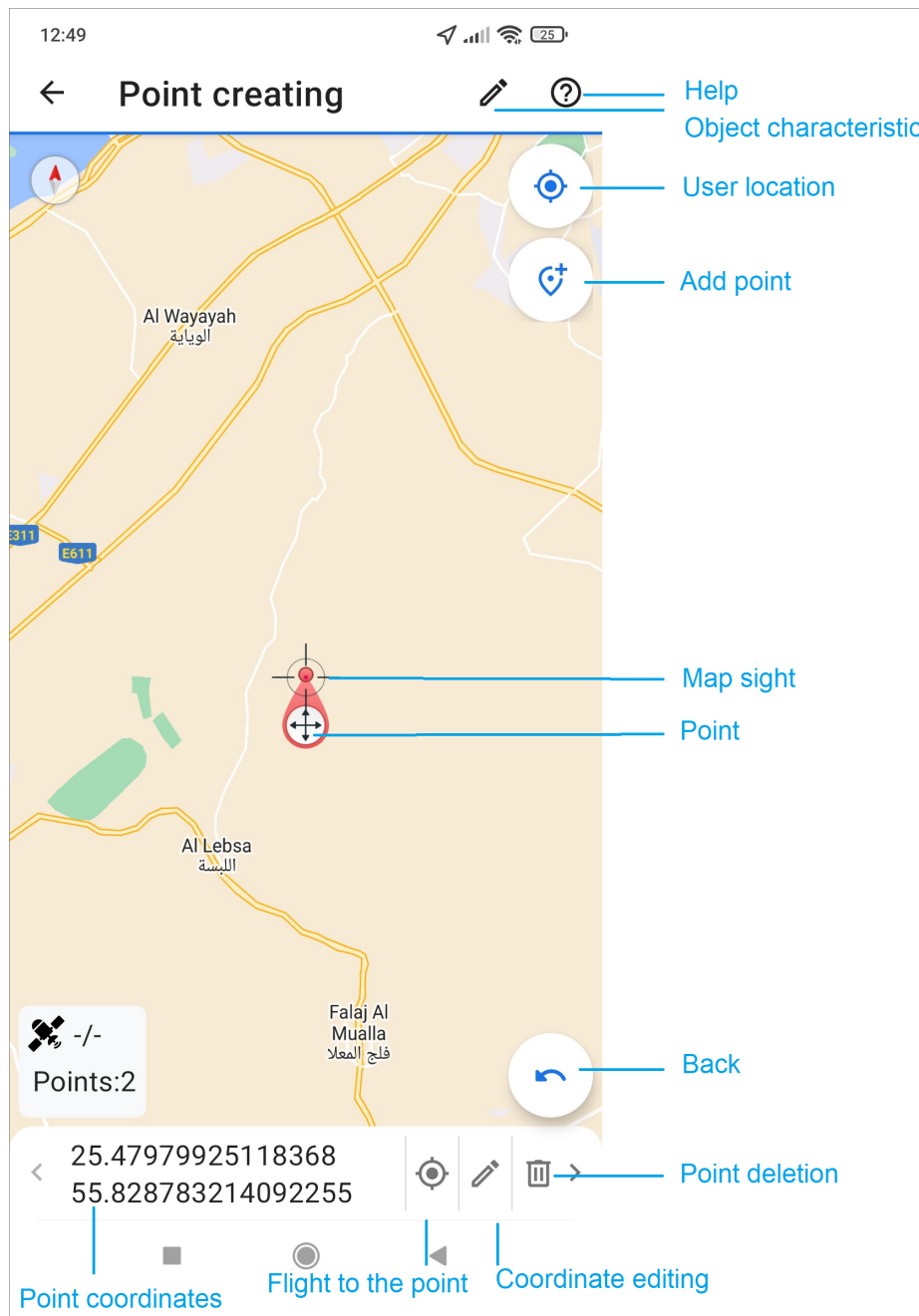


Fig. 2.60: Window for adding point objects


To add points on the map:

- place the map cursor at the desired position on the map and click “Add point”,




- mark the point with a long press.

During the process of adding points, use the “Back” button to delete the last point added. The number of points and their exact coordinates are displayed at the bottom of the window. Added points are available for editing. You can change point position in two ways:

- select a point on the map by short pressing on it (the map cursor is placed on the point),
- scroll through the list of points at the bottom of the window (from left to right or right to left), during the scrolling process the map cursor is placed in the current point.

To edit the coordinates of the selected point, you can move it. To do this, make a long press on the point and move it to another location, or click “Edit” and correct the coordinates of the point in the opened window. To remove a point, click “Delete”. After adding and editing points, you can add the name and description of the point by clicking “Edit” . You should fill in the information in the opened window. The point is saved automatically. When you leave the point creation window, the “Object properties” window appears. You can do the same actions to create a multipoint object (consisting of several points). In the point creation window the desired number of points is added instead of just one point.

2.9.3 Adding linear and polygonal objects

You can construct linear and polygonal objects using the current location, by explicitly specifying coordinates on the map, or by recording a route track. To add an object, click “Add Line” or “Add Polygon”. To record a route track, click “REC”  (Fig. 2.61). During the route track recording you can use the “Pause”  and “Stop”  buttons to control the recording process. During the recording, the following parameters are displayed in the map window: number of visible GPS satellites from the number of available GPS satellites, track recording time, and number of found points.

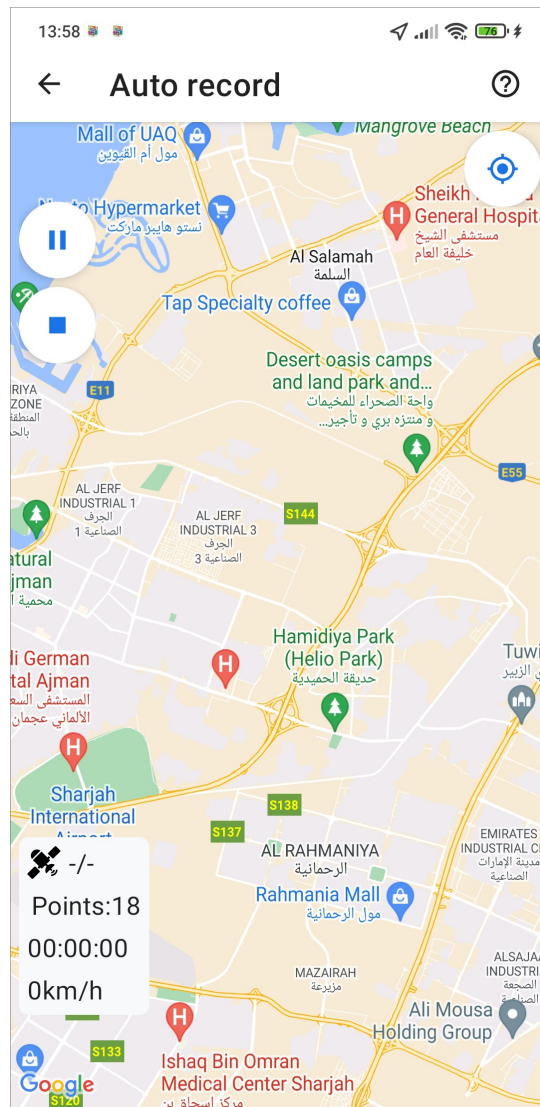



Fig. 2.61: Creating objects using route tracking

To add an object manually, mark the line vertices by long pressing on the map or place the map cursor in the desired location on the map and click “Add Point”. The fixed (specified) points are connected by a line. The line is closed into a polygon in case of creating a polygonal object. During the process of adding points, you can use “Back” button, which deletes the last added point. The number of points and their exact coordinates is displayed at the bottom of the window. Added vertices of the object are available for editing. You can change point position in two ways:

- select a vertex on the map by short pressing on it (the map cursor is placed on the point),
- scroll through the list of vertices at the bottom of the window from left to right or from right to left (map cursor is placed at the current vertex during the scrolling process).

To edit coordinates of the selected vertex you can move it. To do this, make a long press on the point and move it to another place or click “Edit” and correct the coordinates of the vertex in the opened window. To remove a vertex, click “Delete”. You can add the name and description of the object after adding and editing it. Click the “Edit” button  in the

upper part of the object creation window to do it. The “Object properties” window opens. Objects are automatically saved. If you leave the object creation window, the “Object View” window appears. Object can be saved without filling characteristics, then the date and time of creation is written in the object name.

2.10 Service objects

2.10.1 Creating and managing service objects

The “Service objects” section is located on the navigation sidebar. The “Service objects” window is intended for viewing the objects of interest of the organization, creating tasks to these objects, and viewing all existing tasks by objects. Objects of interest are represented as layers (Fig. 2.62). By default, the objects of the “Service objects” layer are displayed. When you click on the “Service Objects” line, a search box appears where you can select another layer.

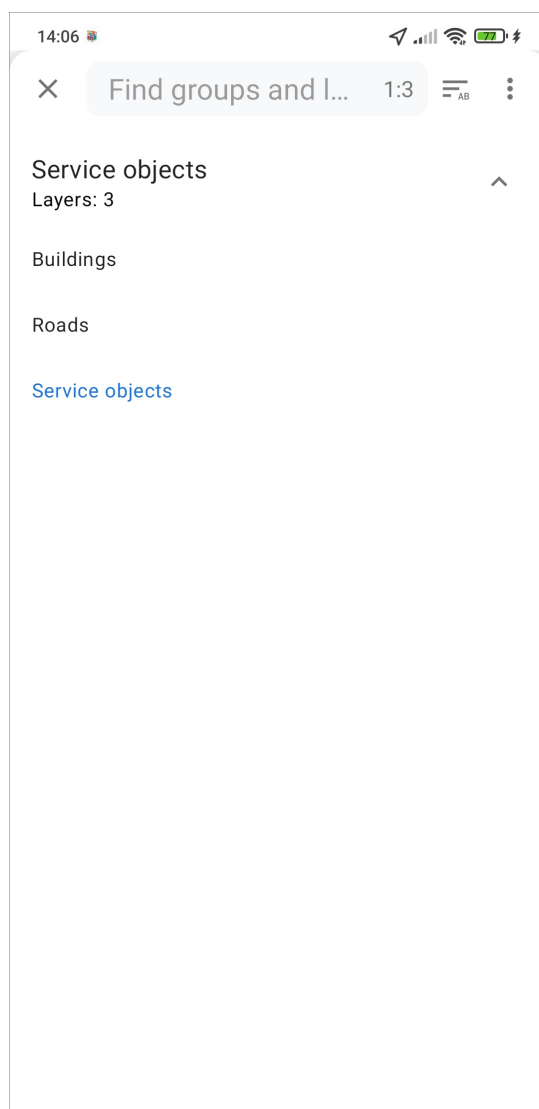



Fig. 2.62: Selecting a layer from the “Service objects” list

Clicking  opens menu, where you can select the following actions for the layers:

- Update data,
- Expand groups,
- Collapse groups.

After selecting a layer, a window with a list of layer objects opens. To find an object quickly, use the sort and filter buttons at the top of the window (Fig. 2.63).



Fig. 2.63: Sorting and filtering service objects

The sort button shows the attribute by which objects are sorted by default (object title). The default sort direction is ascending. You can also search by attributes in the sorting window (Fig. 2.64).

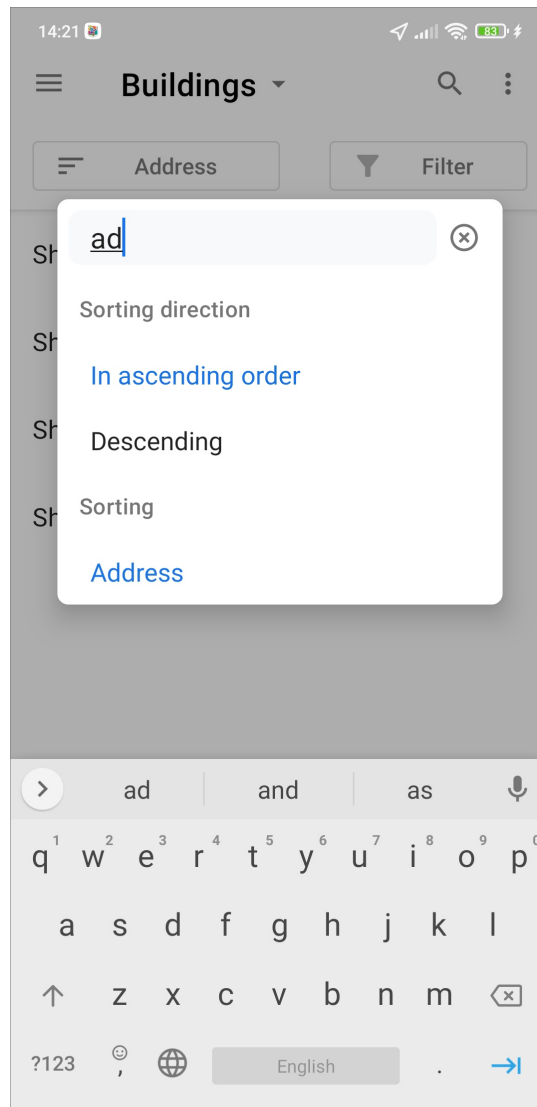


Fig. 2.64: Service objects sorting window

In the filter window, you can set the necessary conditions for displaying the list of objects (Fig. 2.65). It is possible to use logical AND/OR operators depending on the user's request.

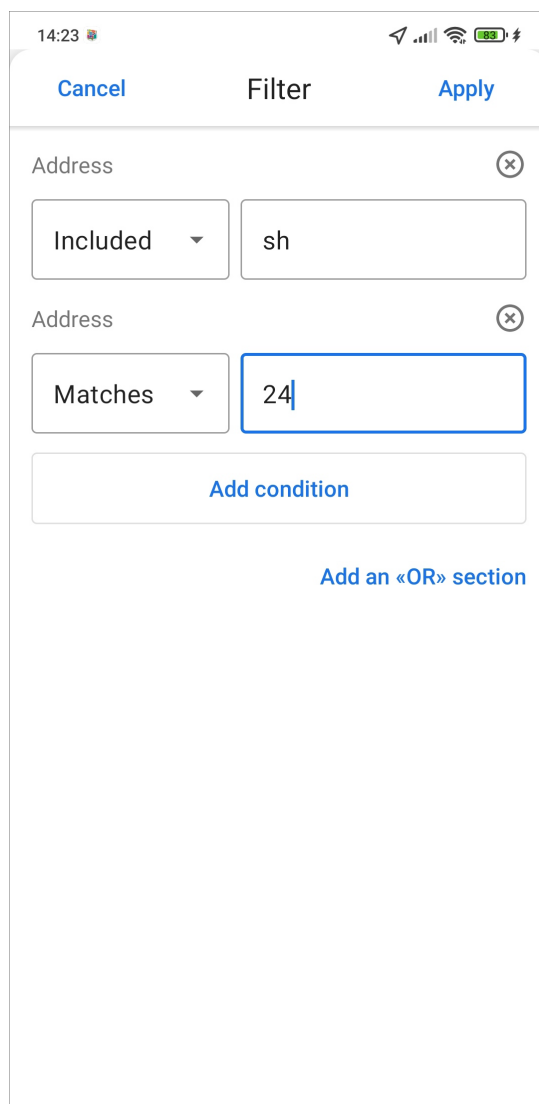



Fig. 2.65: Service objects filtering window

You can search objects by titles, including offline search for downloaded objects. The title is formed by concatenating (combining) fields with corresponding attributes in the ActiveMap Web. You can search an object by name or using a QR code. You can add new objects to

layers by clicking , filling in attributes and coordinates, adding files and links if necessary. The “Current Location” block is automatically filled if geolocation is enabled on the phone and the application is given permission to determine the geolocation. If geolocation is inactive, it remains blank. You can stop auto-detection of the current location and delete existing coordinates of the object. To do this, go to the “Current location” block and click “Clear”. The coordinates are deleted and the “Not filled” message appears. When you select the block again, the map opens, where you can place the object in the desired location (Fig. 2.66). You can repeat the operation if necessary.

16:59

← Object creating

Number of photos: 0 ADD PHOTO

name •
Motel Qweens

address •
Rd Street 345

organization •
LLC Cleaning

material •
asphalt

object •
DoubleTree by Hilton Sharjah Waterfront
Hotel & Residences


responsible employee •
Butler Jacob



Current location
25.45429, 55.78 CLEAR ALL

ADD LINK

ADD A FILE

Fig. 2.66: Changing object coordinates

The “Date” and “Date+Time” fields support manual data entry and date selection from the built-in calendar, time selection from the built-in clock. After filling in all the data for the object, send all changes to the server by clicking . The object name should be filled in. If the title is not filled in, id is specified as the name of the object.

To make a change, first select a layer, then use the text search or the search by QR code to find the object of interest, and click on it. In the opened “Service Object” window, click , make changes, and send them to the server by clicking . If you exit the service object edit window before the changes are sent to the server, the application specifies if the changes should be sent or deleted (Fig. 2.67). The time for which the object is up-to-date is indicated under the title in the “Service Object” window. This is important for working with loaded objects. If you forget to clear the cache, the up-to-date time will be different from the current time, the time of uploading to the cache will be indicated there.

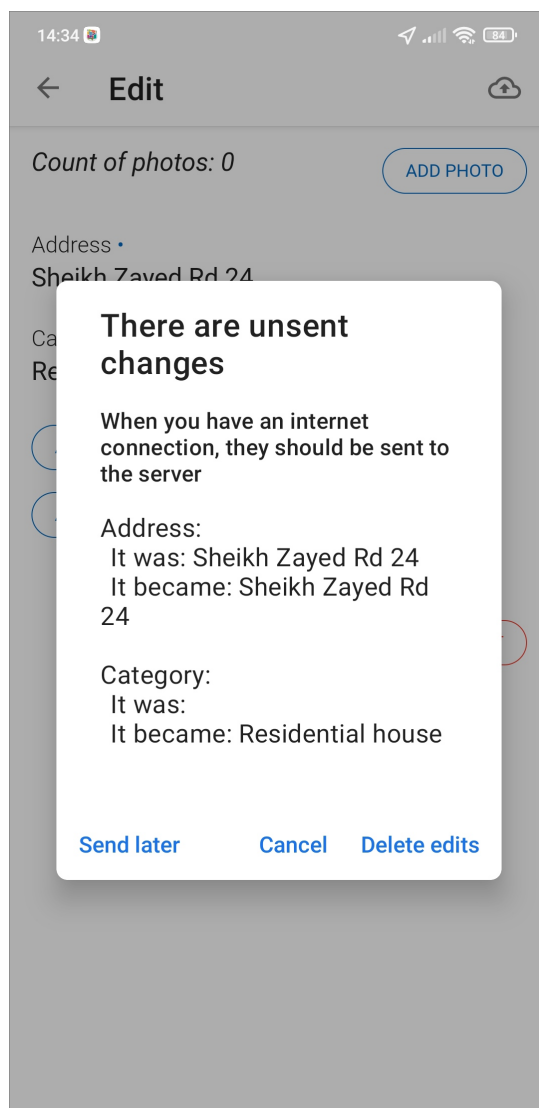


Fig. 2.67: Submit or discard changes

When you select “Send later”, the application saves the new object in the cache and assigns it the “Draft” status. You can create a draft service object online and offline. The created draft appears in the “Drafts” subsection of the Service objects list interface (Fig. 2.68).

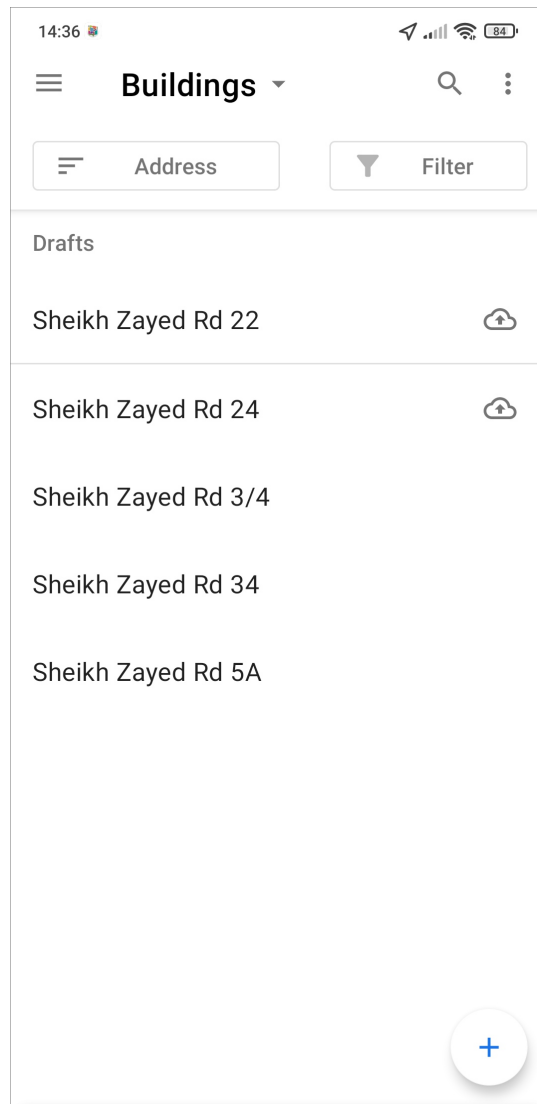




Fig. 2.68: “Service object drafts” subsection.

Next to the draft, there is a  button for sending a draft to the server from the object list interface. To send all new objects or changes to objects at once, click  and select the desired item. The window menu contains the following items (Fig. 2.69):

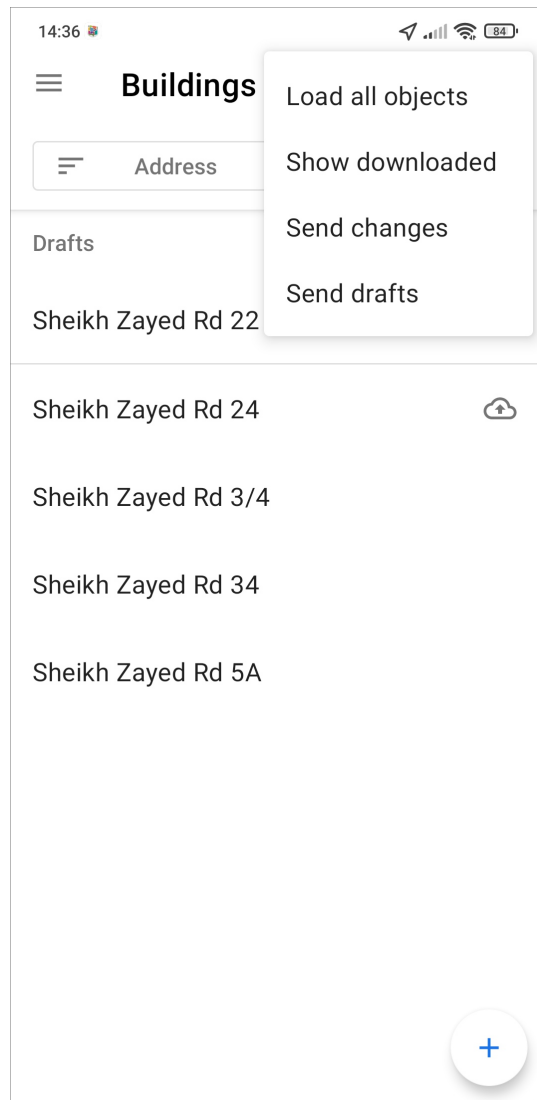



Fig. 2.69: Service objects list interface window menu

- Load all objects – load all layer objects in the cache to work with them offline.
- Show downloaded – preview of the object list that displayed in offline mode.
- Send changes – send changes of objects to the server.
- Send drafts – send all new objects to the server.
- Import from text – upload new objects into the layer from the text.


To work with the service objects in offline mode, load all the layer objects into the application cache. Open the layer objects list, click  and select the “Load all objects” item. You can also do this from the “Create task” window when you select a service object. The “Downloading started” information message appears at the bottom of the screen. After completing the download, the “Saved objects are currently loaded” message appears at the top of the list of objects.

If service objects are loaded and there is an Internet connection, objects are searched only by the data in the internal storage until the user updates the loaded data.

To remove loaded service objects from memory, clear the cache (Settings/Clear cache, for

more information, see [Application settings](#) (page 120)). When clearing the cache, information about service objects and loaded tasks is deleted.

Attention: Regardless of the presence of an Internet connection, downloaded service objects remain in the state at the time of download until the user updates the data. It is necessary to update the data and download the objects again before starting to work with them.

You can also delete the object in the window for editing the service object. Click “Delete object” to do this. To see the object on the map, click . The map window with the object’s point opens.

To see all the tasks related to the selected object, click “Related tasks” (Fig. 2.70). A list of all tasks attached to the object opens, displaying the total number of tasks attached to the object. To create a new task with a link to the selected object, click “Create task” in the “Service object” window. For more information, see [Creating new tasks](#) (page 30). Layer name and name of the object are displayed in the task. The object name format is configured in the ActiveMap Web.

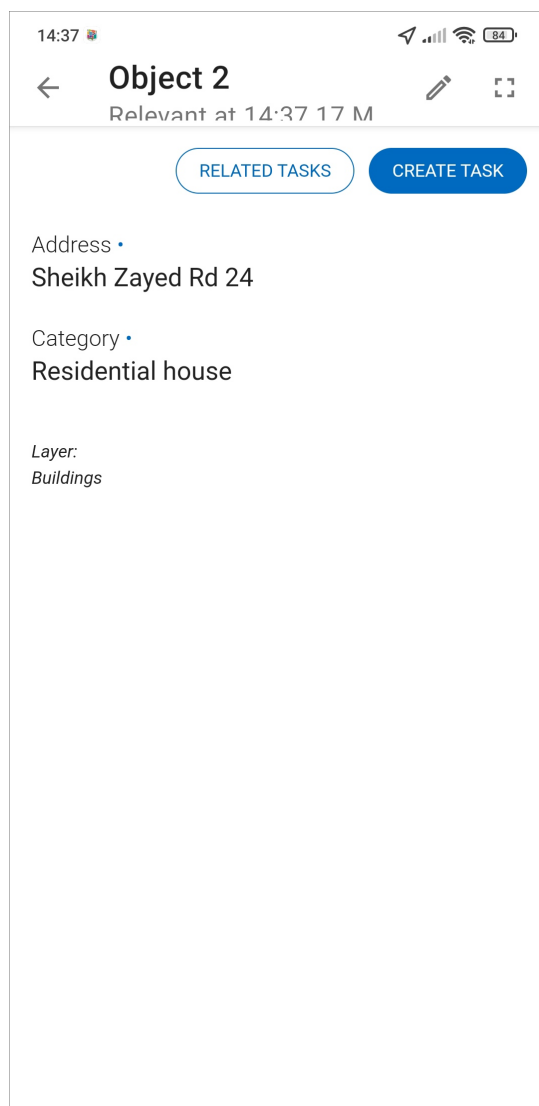


Fig. 2.70: “Service object” window

Hint: Similarly, you can create a task for any object in any available layer in the “Map” section.


2.10.2 Importing service objects


Attention: The import of service objects is possible only with Internet access.

You can use bulk import to add new objects. For correct import, consider the following:

- you should have rights to edit the layer,
- the layer should have a title with the “text” field type for loading the imported information to (if there are several fields, the first one should be of the text type),

- empty lines, as well as spaces at the beginning and the end of a line are not taken into account during import,
- the total limit for uploading objects via import should be more than 0,
- you cannot create a new layer in this way,
- the objects will not have geometry,
- you cannot add any other attributes except the name.

First, prepare a text for import with object names separated by commas, or a text list with one object name on each line. To start the upload, go to the “Service Objects” tab. Select the layer and click . Next, select “Import from text”. A window for mass object creation opens.

Clicking  opens a window where you can choose the separator between the objects. Then click “Paste from clipboard”. If necessary, you can add objects manually. After all objects are specified, click “Create” (Fig. 2.71).

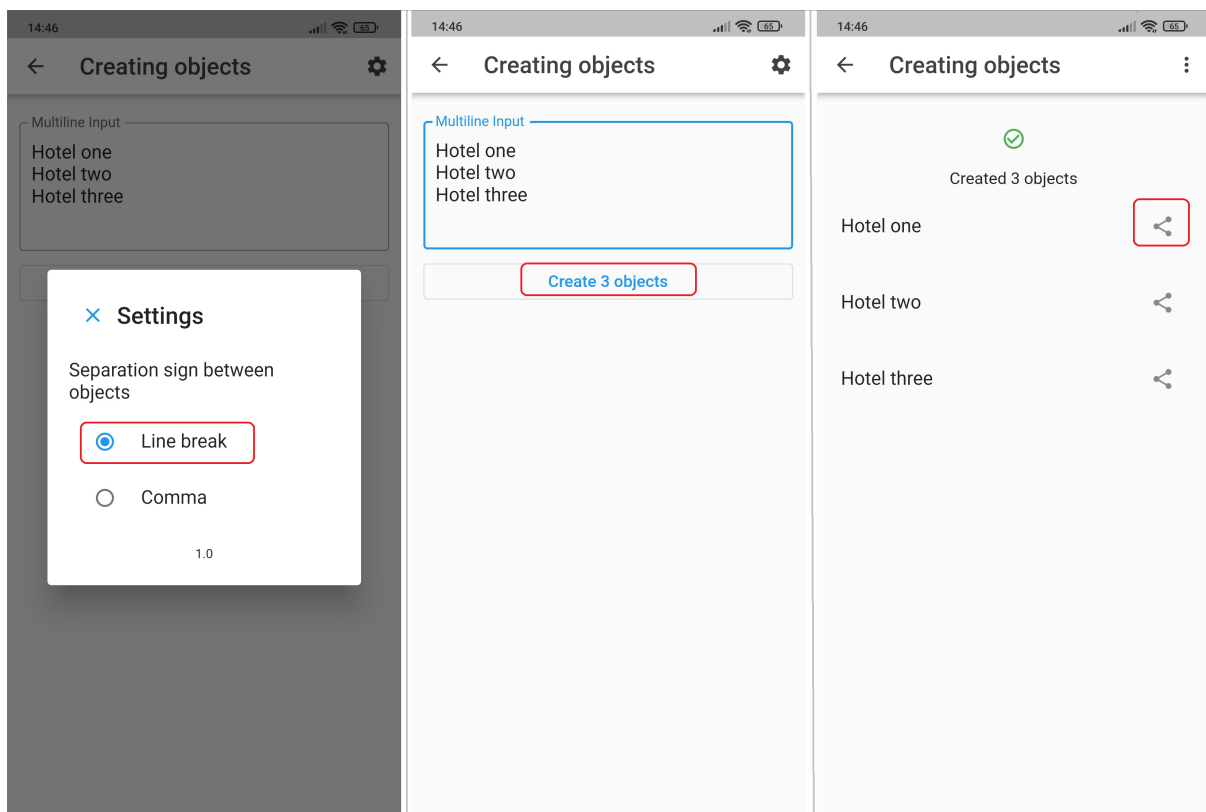


Fig. 2.71: “Import service objects” window

A list of created service objects appears on the screen. If needed, you can share the links to the objects with other users.

Attention: If you try to upload already imported objects into a layer, the system generates an error.

2.11 Working with the map

2.11.1 Managing layers

In addition to georeferencing of tasks, the application offers the following features for working with geospatial data:

- online visualization of georeferenced data (location of users, tasks by steps of work, service objects, information layers);
- search in the list of information layer objects;
- obtaining cartographic information (list of layers, objects, their attribute data and attached media files at a selected point on the map);
- viewing tracks of user movement for the selected day;
- creation of tasks from a layer of service objects;
- creation and assignment of tasks from the user's monitoring window.

These features are available in the “Map” section on the navigation sidebar. The “Map” window displays an electronic map of the world. You can change the scale of the map with pinch and spread motions. To navigate, move the map to the desired area.

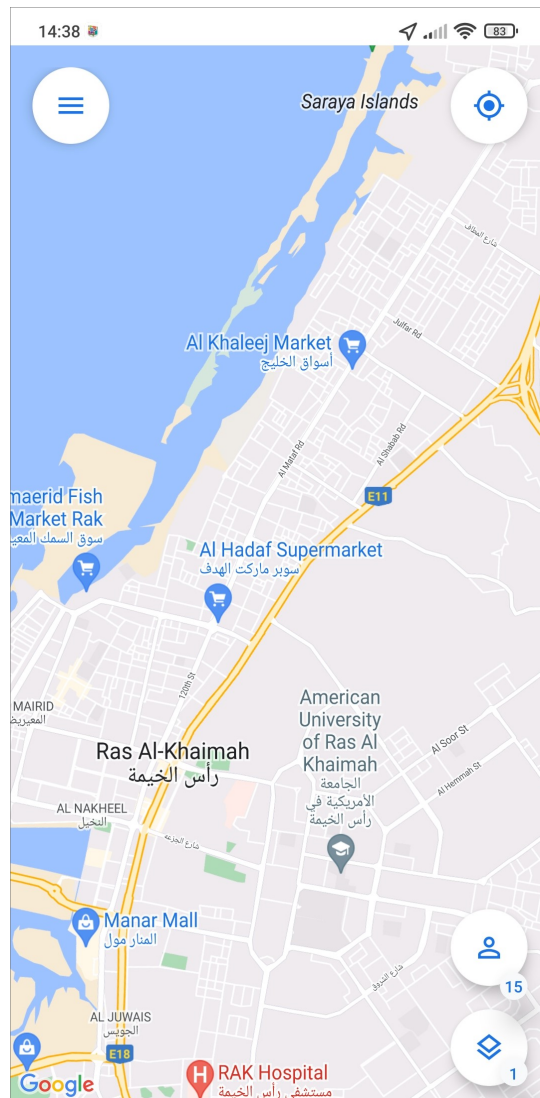




Fig. 2.72: Map window

The “Map” window displays (Fig. 2.72):

- enabled layers on the map, including tasks,
- location of users – users are displayed as icons of different colors, depending on their last activity,
- status of the last user geoposition monitoring data transfer,
- “My location” button,
- “User management” button with the number of connected users,
- “Manage layers” button with the number of enabled layers,
- navigation sidebar button .

The Layers control panel is designed to work with layers and view georeferenced tasks on the map. The panel opens by clicking the Layer control button  at the bottom of the window. The Layer control panel displays groups of layers available to the user, including the “Tasks” group (Fig. 2.73).

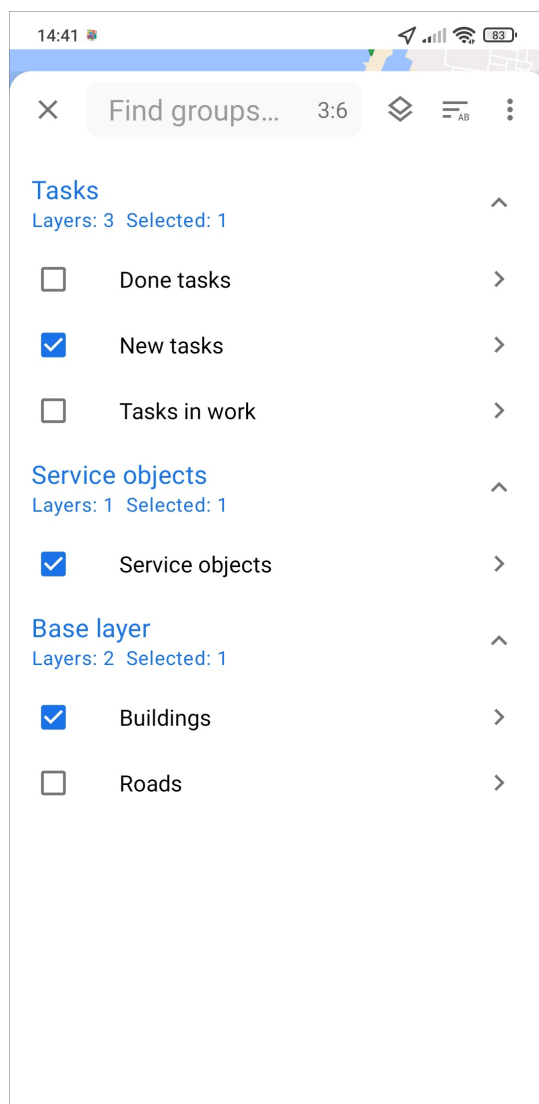




Fig. 2.73: Layer control panel

To display layers on the map, check the visibility control located on the left of the layer name. Objects of the selected layers are displayed on the map. To make it easier, there is a search function in the Layer Management window to sort the layers in alphabetical order or by the sequence number. Clicking  in the upper right corner opens the window menu with the following items:

- Refresh data – updating the data of layers and groups of layers,
- Turn off all – disabling the visibility of all enabled layers on the map,
- Expand groups – expanding all available layers in groups,
- Collapse groups – hiding layer names (makes visible only layer groups).

If you click on the “Tasks” group, a list of layers is displayed according to the steps of task completion. If you put a tick in the layer visibility control field, the tasks are displayed on the map with geographical reference to the area. The number of groups and layers is displayed to the right of the search field. If the search field is empty, the total number of groups and layers is displayed on the right. When you enter values in the search field, the number of groups and layers satisfying the search conditions is displayed on the right.

Clicking on the selected layer opens a list of layer objects. To move to the entire layer on the map, click  and select “Fly to Layer”. Other items are also available in the menu:

- Load all objects – load all objects of the layer into the cache for working with them offline,
- Show downloaded – preview of the list of objects to be displayed offline,
- Send changes – send object changes to the server,
- Send drafts – send all new objects to the server.

To find the required object in the list, the application implements a search for objects by title (Fig. 2.74). The title is configured in the ActiveMap Web web system.

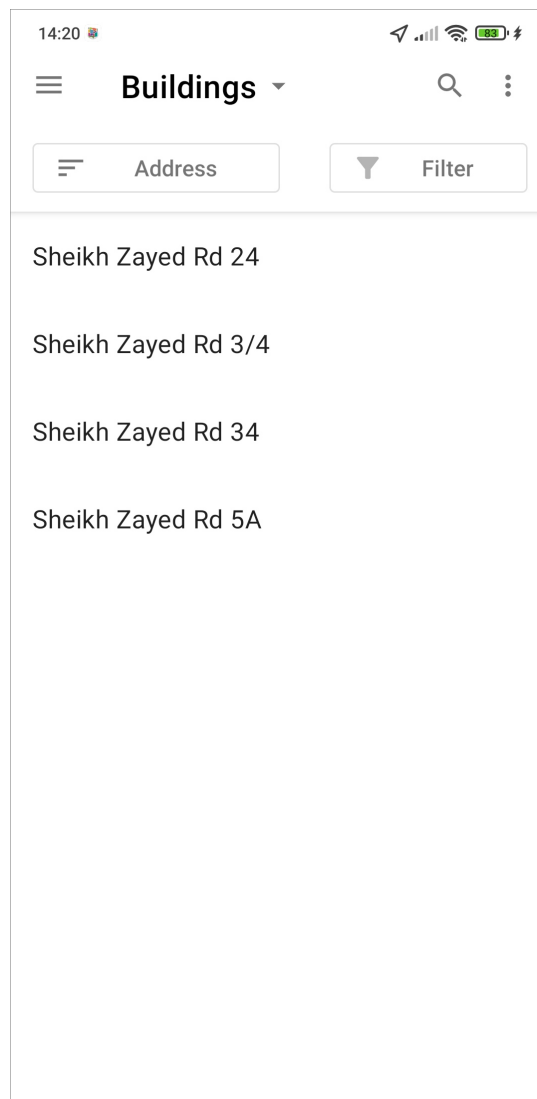




Fig. 2.74: Search in the object list

To get attributive information, find the required object in the list of layer objects and select it. The “View object” window opens, containing attributive information on the selected object (Fig. 2.75). Click “View attached files” to view media files attached to the object. To navigate to an object on the map, click . To get attribute information (list of layers, objects, their

attribute data, and media files) at the selected point on the map, mark a point on the map by tapping. The “View objects” information window with the list of layers and objects that are located in the marked point of the map appears. This window also contains information about the number of layer objects at the selected point. To get detailed information about an object, select the object in the list by touching the screen. The “View object” window opens. The application also allows adding, editing, and deleting layer objects if the user is granted the proper access rights (for more information, see *Service objects* (page 84)). To edit or delete an object, click  and perform the necessary actions on the object in the opened window.

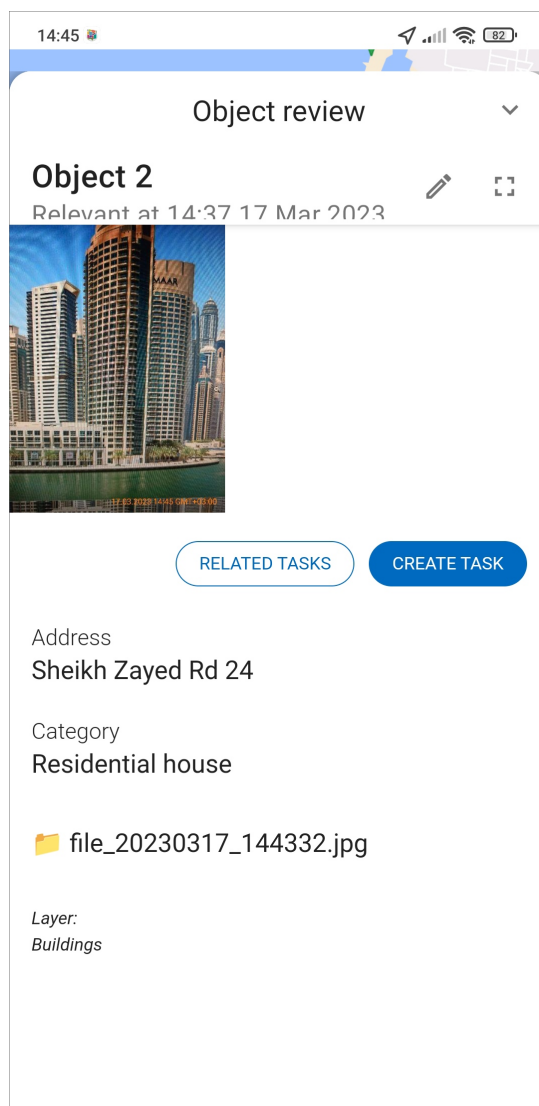



Fig. 2.75: “View object” window

2.11.2 Users on the map

Viewing users and their movements

The “Map” section provides the ability to track user locations. This function is available for inspectors and administrators. Users with other roles can only track their own movements. This feature allows monitoring the movement of executors in real-time and viewing their movement history. In addition, it allows obtaining the following information about the user: movement speed, battery level, last data transfer time, distance, number of assigned tasks in work, membership in organizations, role in the system, account information, and network connection status.

To get information about users, click “Manage users”  in the “Map” window. The button also displays the total number of users authorized on the server. The opened window displays a list of users formed according to activity data (Fig. 2.76). By default, users are sorted by the time of the last data transfer.

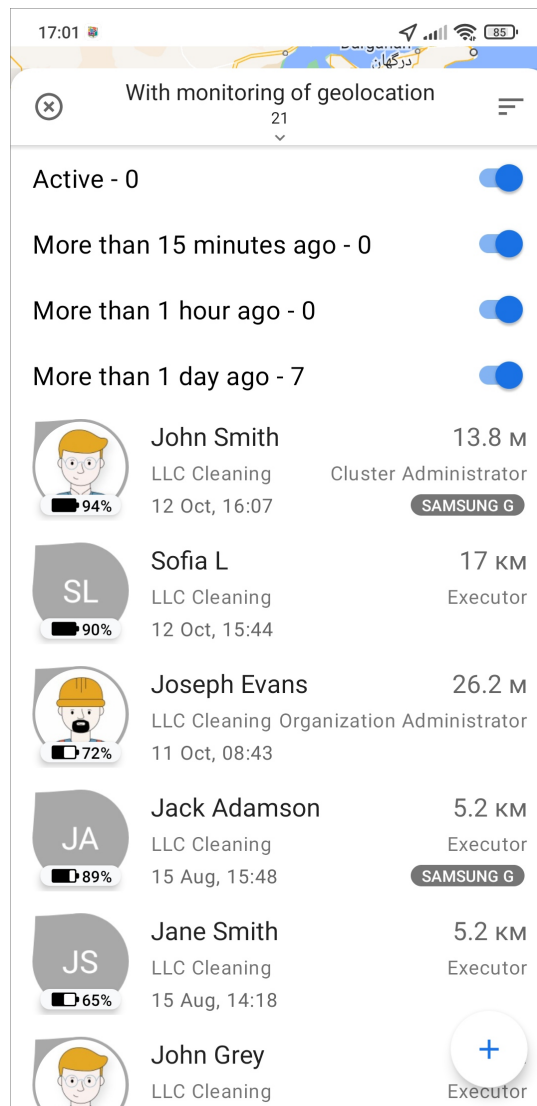



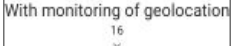
Fig. 2.76: “Users” window

User icons on the map change color depending on when the coordinates data was last trans-

mitted to the server. You can change the intervals for the activity of the latest data transmission in the settings of the “Users” system layer in the ActiveMap Web. By default, the following activity intervals of the last transmitted coordinates by users are set:

- green color – coordinates sent to the server less than 15 minutes ago,
- orange color – coordinates sent to the server less than 60 minutes ago,
- red color – coordinates sent to the server less than 24 hours ago,
- grey color – coordinates are missing for more than 24 hours.

Using the switches located to the right of the categories, you can filter users according to their activity. You can change user display order using quick filters  in the top right corner (by name, time, and distance from the user). Also you can use the advanced filtering

, which displays a list of possible characteristics (Fig. 2.77). By default, the filter displays all users whose geolocation tracking is enabled.

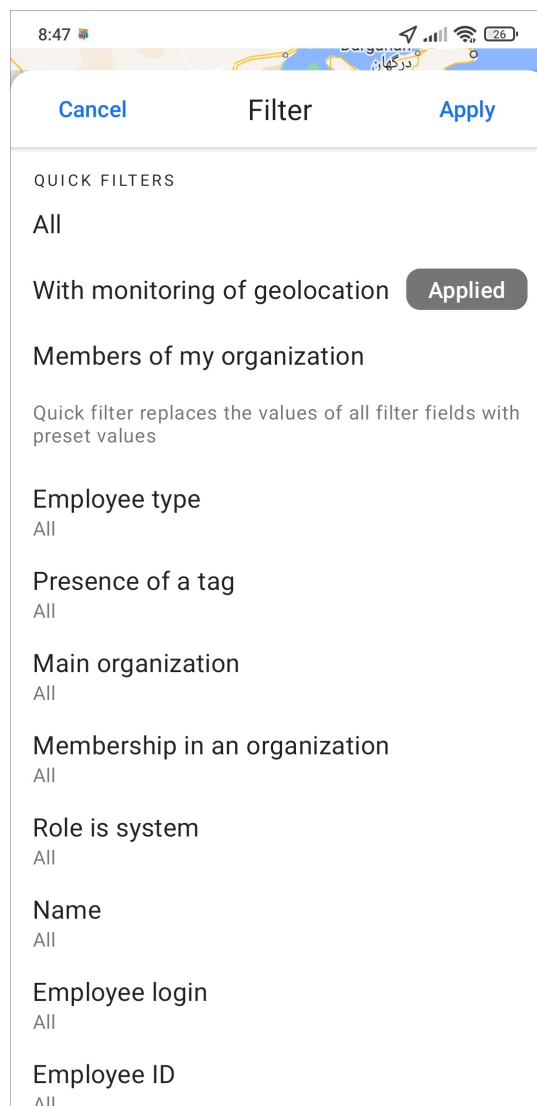





Fig. 2.77: Advanced user filter window

To get information about the user, click on the user card in the list or on the map. The

system displays the user's position on the map and information about the movement speed, battery level, time of last activity, and distance to the user (if set correctly). In addition, you can see the user's track. To do this, click , select the day and time interval. The track is displayed, where you can move the user's location marker and view information at each point of movement. The track appears on the map, but you can view the track points as a list (Fig. 2.78). To do this, click . To update the user's location data, click .

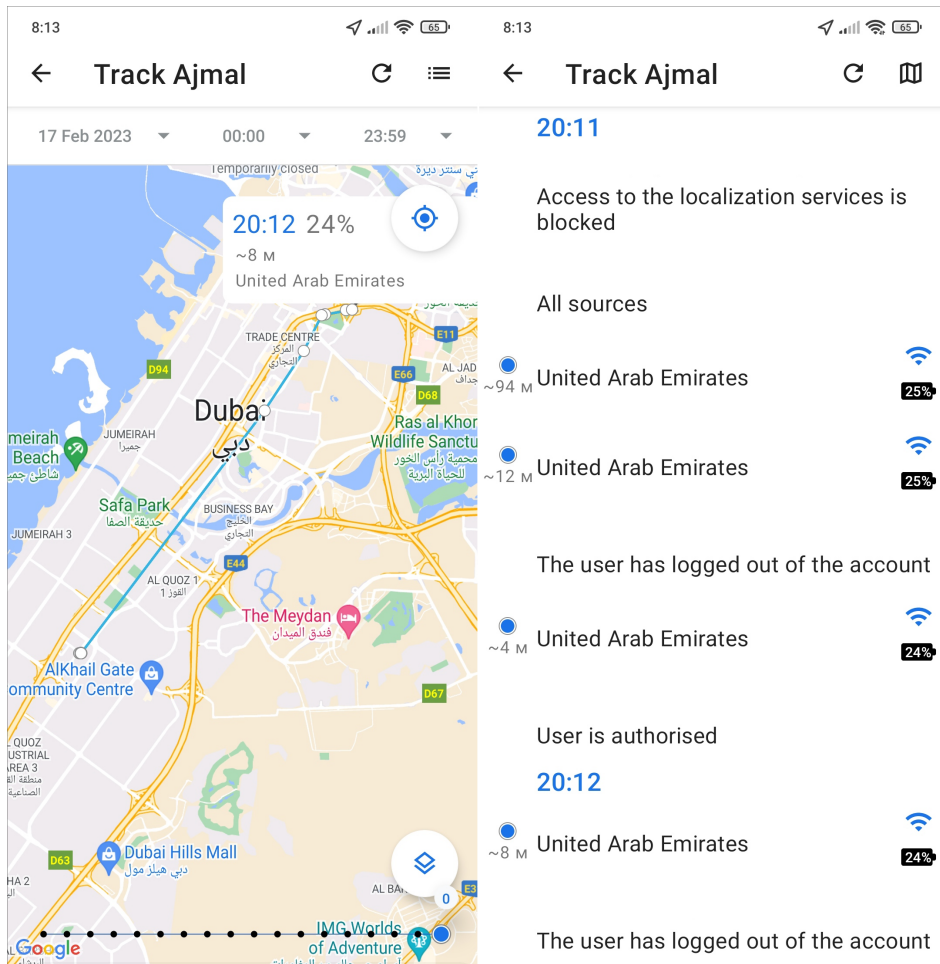




Fig. 2.78: Viewing the user's track

Creating users

To create new users, go to the navigation menu section *Map* → *Manage Users*  and click  (Fig. 2.79). This functionality is not available to all user roles.

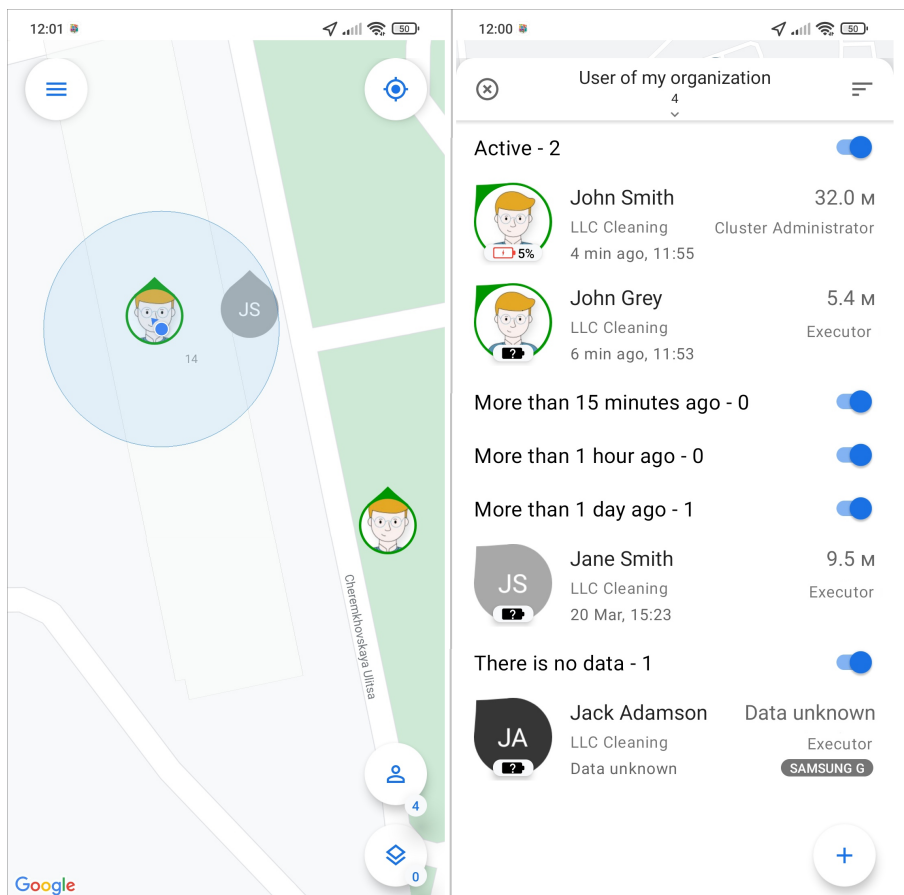
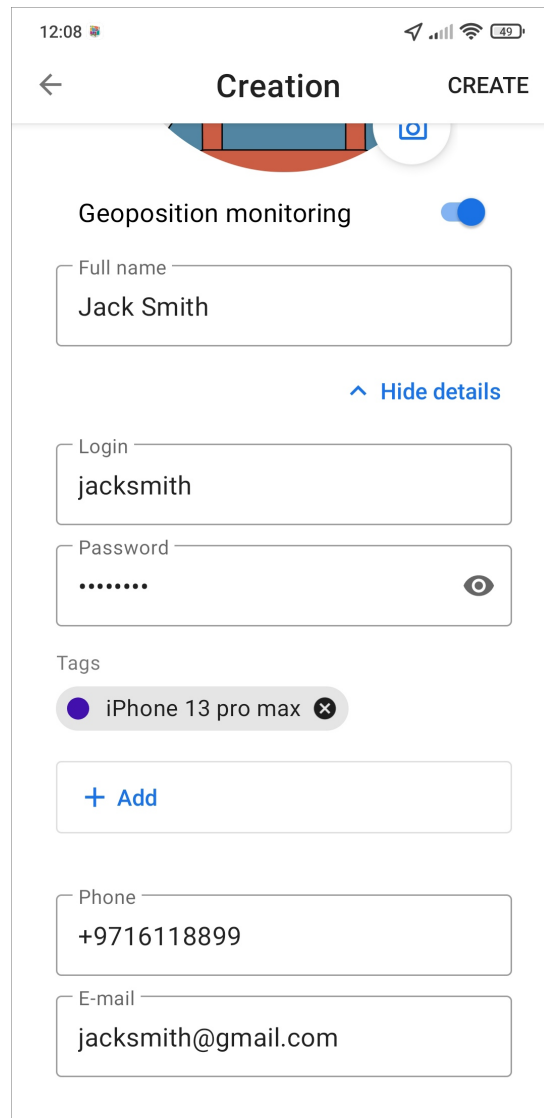


Fig. 2.79: Adding a new user

In the opened window, fill in the data and click “Apply” (Fig. 2.80). In this window, you can enable/disable geolocation monitoring.



12:08

← Creation CREATE

Geoposition monitoring

Full name
Jack Smith

^ Hide details

Login
jacksmith

Password
.....

Tags

iPhone 13 pro max

+ Add

Phone
+9716118899

E-mail
jacksmith@gmail.com

Fig. 2.80: Filling in the data for the new user

A new user appears in the system. To send a link to an employee, go to the profile of the user, generate a personal link, and send it via any convenient messenger (Fig. 2.81). You can create the link an unlimited number of times for any registered user.

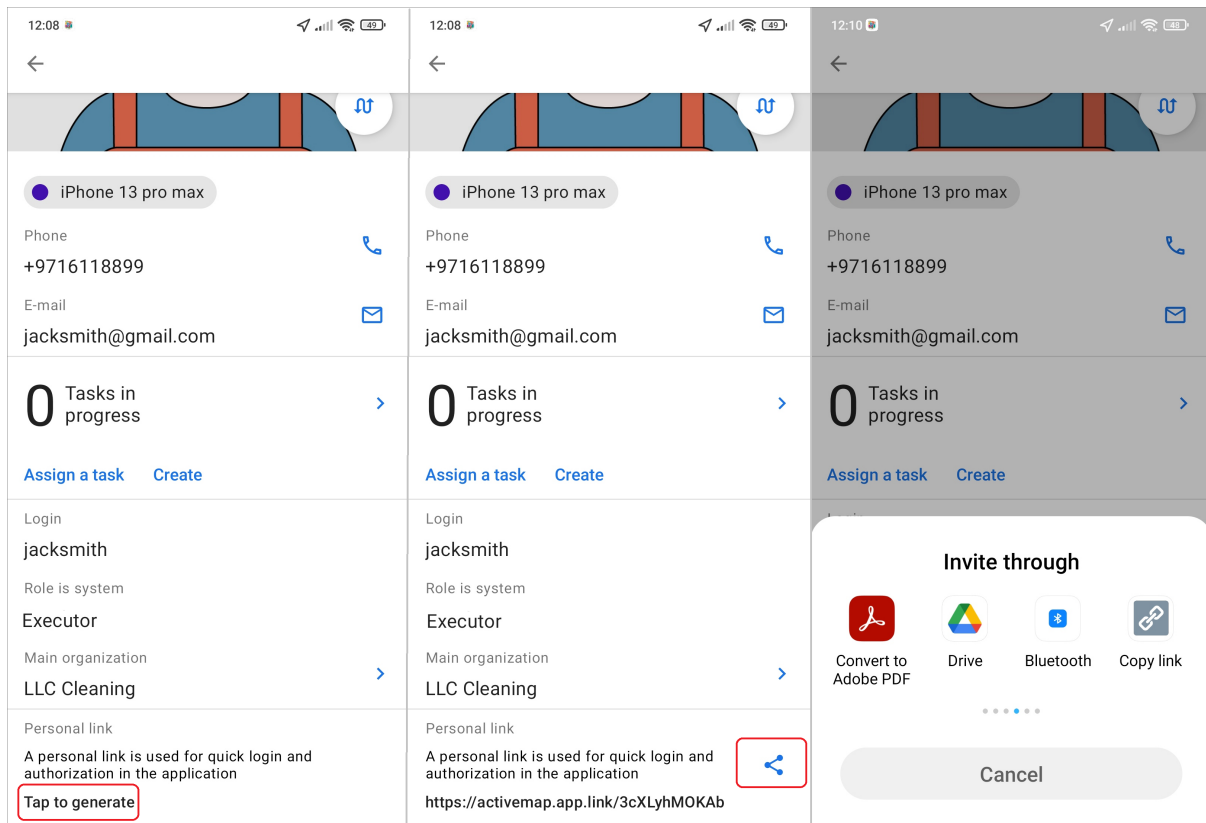


Fig. 2.81: Generating and sending a link for a new user

The employee who receives the link opens it and immediately logs in if the application is installed on the device (Fig. 2.82). If the application is not installed, the link opens in the Google Play store, and authorization appears after the application is installed.

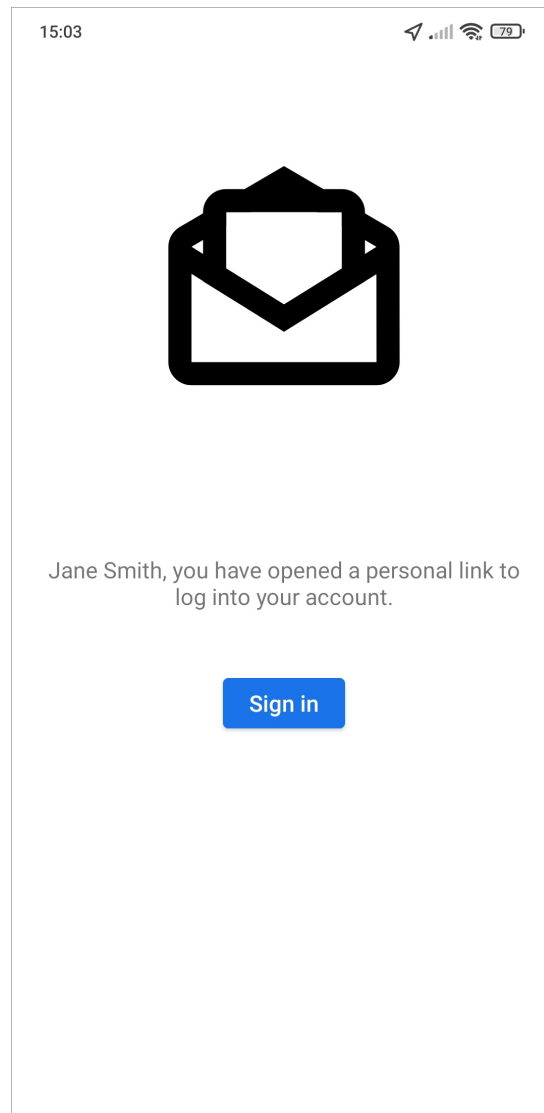

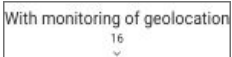



Fig. 2.82: User authorization via link

Managing user accounts

To make changes to a user profile (not the current one), find the user in the navigation sidebar *Map* → *Manage Users* . You can use the filter options . Click on the user and open the account card. Then click on edit profile , make changes, and click “Apply”. You can access the current user’s profile from the navigation sidebar (*Account management and roles in the system* (page 16)).


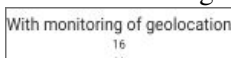


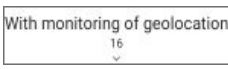

The application has functions for blocking and deleting users. These functions are not available to all roles. To block a user, find the user in the navigation sidebar *Map* → *Manage Users* . You can use the filter options . Click on the user and open the account card. Then click on edit profile , scroll down, click “Block”, and confirm your action (Fig. 2.83). The user disappears from the list of users in the application and will not be able to authorize in the application. A user can be unblocked only in ActiveMap Web.


Fig. 2.83: Editing user profile

To delete a user, find the user in the navigation sidebar *Map* → *Manage Users*  using the filter parameters . Click on the user and open the account card. Then click , scroll down, click “Delete”, and confirm your action (Fig. 2.83). The users cannot delete the account under which they are currently authorized.

2.12 Schedules

The application allows creating, editing, and deleting schedules. This section is available for administrator and inspector roles. Schedules becomes necessary when there is a large number of planned tasks of a similar type, that is, for tasks that should be performed constantly at certain time intervals.

When you select the “Schedule” section of the side navigation menu, the list of existing

schedules opens. To create a schedule, click “Add”  in the lower right corner. Specify the name of the schedule, select the creating organization, and click “OK” in the opened window. Leave the organization blank for using the schedule by multiple organizations. After that the “Schedule” window opens, where the author, title, organization, and due date are indicated. Add existing task templates or create new ones, specify the start time (it can be deleted/disabled) and dates for creating the tasks (Fig. 2.84).

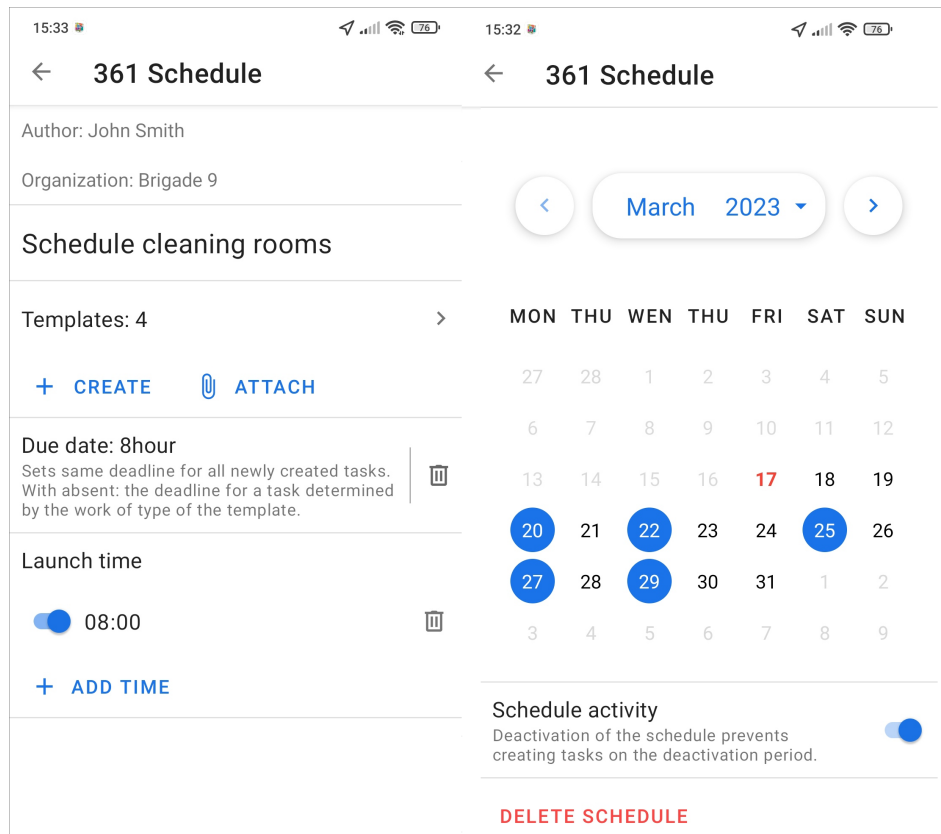




Fig. 2.84: Creating a schedule

You can also disable the schedule in this window to stop creating new tasks based on templates and remove the schedule from the system. To disable and enable the schedule, use the switch located to the right of the “Schedule Activity” block.

To create a new template task, click  **CREATE**. Fill in the form for creating a task template (similar to creating an operational task *Creating new tasks* (page 30)). If the organization that created the template differs from the organization that created the schedule, the system does not allow attaching the task template to the schedule and gives an error. To attach a previously created template, click  **ATTACH** and select the required task template from the list. If the task template is not displayed in the list, clear the filter (for more information, see *Task filter and advanced sorting* (page 23)).

The schedule is created online. To exit the schedule creation mode, click “Back” arrow in the upper left corner. To edit the schedule, find the necessary one in the list of schedules and click “Edit” (Fig. 2.85). This window also shows the total number of schedules in the system and the number of template tasks in each schedule. The schedule editing window is identical to its creation window.

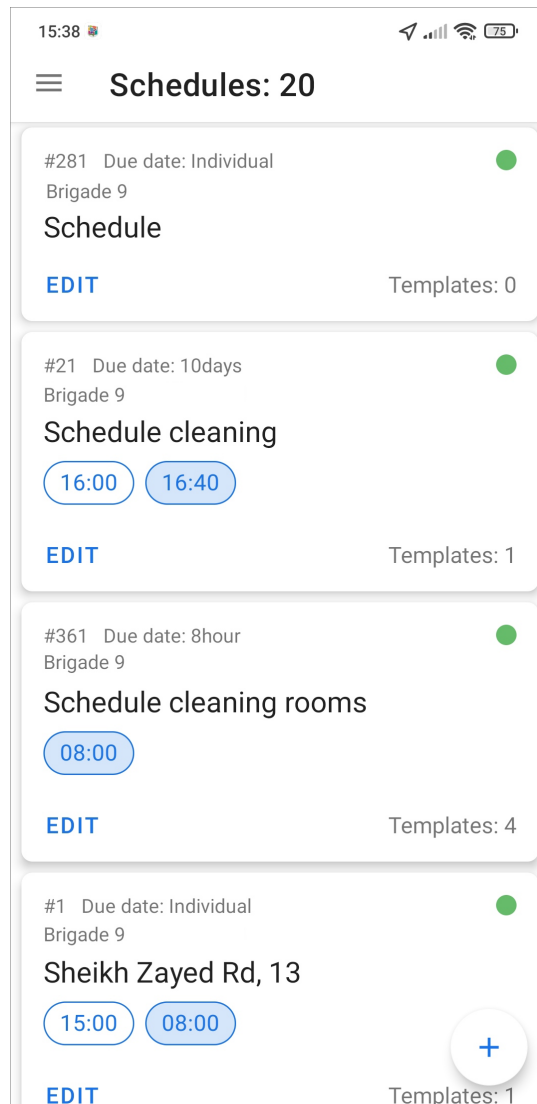


Fig. 2.85: List of schedules

You can delete the schedule in the editing window by clicking “Delete schedule” at the bottom of the window.

To detach a task template from a schedule or delete a task template from the system, click on the field with task templates in the schedule editing window. Press and hold on the task template until the toolbar appears. Then confirm the selected action.

Attention: If you delete a task template, it is removed from the system. To remove a template from the schedule while keeping the template task in the system, you need to detach the task template.

2.13 Reports

This section is available for administrator and inspector roles. To generate reports, select the “Reports” section from the navigation sidebar. The list of available reports opens. Select the desired report and click “Generate new report”. A window with the input of additional parameters (Fig. 2.86) opens. By default, this is a date and time range, output file format, but the list can be extended depending on the reports in the system.

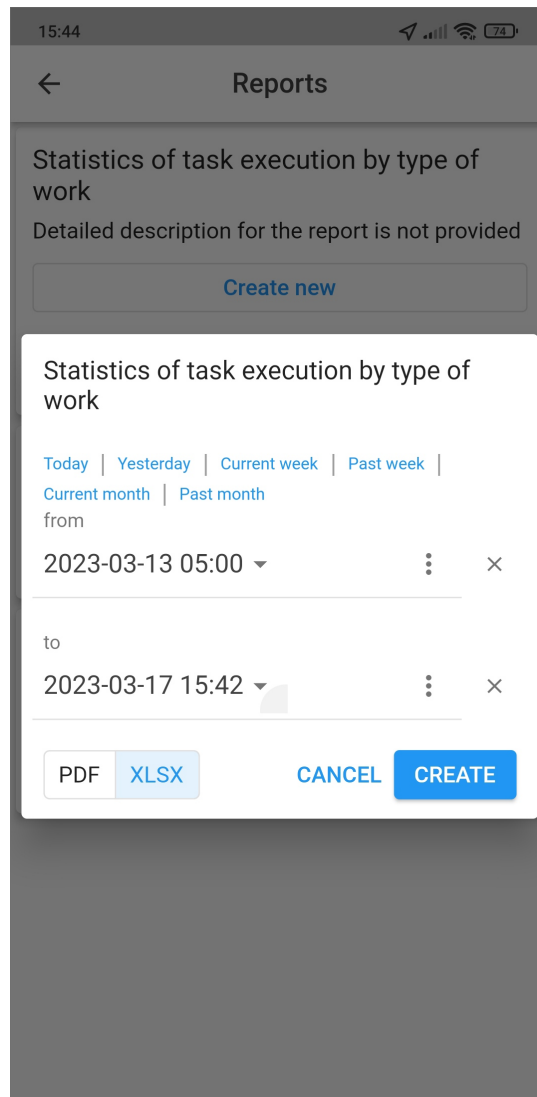


Fig. 2.86: Parameter input window

Click “Create” after entering the parameters. You can open the generated report file (Fig. 2.87) on the device with the appropriate applications for viewing the required formats.

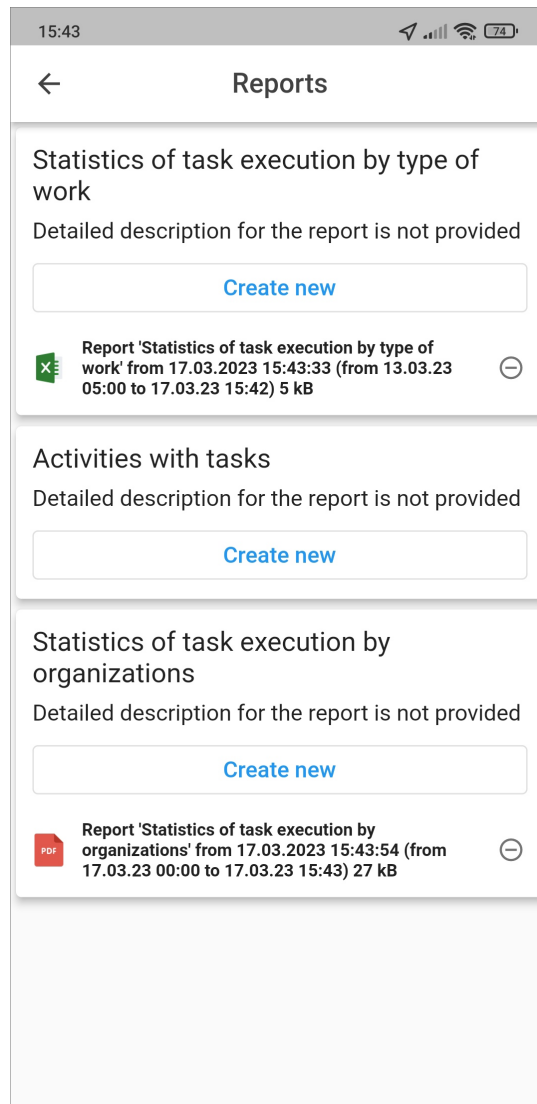


Fig. 2.87: Reports window

Non-standard reports are created upon request to Technical Support. Access to reports is granted in the ActiveMap Web web system.

2.14 Invoice module

The **“Invoice”** module is used to calculate the cost of work online. This module requires customization based on the list of services and materials used by the organization.

To generate an invoice, enable the **“Invoice”** module in the settings of the ActiveMap Mobile mobile application in the ActiveMap Web. Fill in information about organizations – the customer and the executor (legal name, account details, logos, signatures, seals, and other necessary information for display on invoices). All fields of the **“Materials and Services”** table should be filled in based on the data of the list of services and materials used by the organization. The **“Materials and Services”** table is filled in the desktop component of ActiveMap system. After filling in the table, proceed to generate an invoice. To do this, click **“Add Media”** and select **“Invoice”** while creating or executing the task. The **“Invoice”** window opens (Fig. 2.88). You can add the entire list of required materials and services by

clicking the “Add position”, set the quantity of provided materials and services in the given units.

15:55

← Invoice DONE

Task No. 1261

Client:
Brigade 9 (John Smith)

Description:
Sheikh Zayed Rd 225

Executor:
Brigade 9 (John Smith)

Materials and services

ADD POSITION +

shampoo, units ✖

20 currency — +

TOTAL: 40.00 currency

Save Generate invoice

Fig. 2.88: Forming an invoice

In the materials and services selecting window, you can use the search, which provides suitable results when you enter the text (Fig. 2.89). To add a material or service to the invoice, click on it.

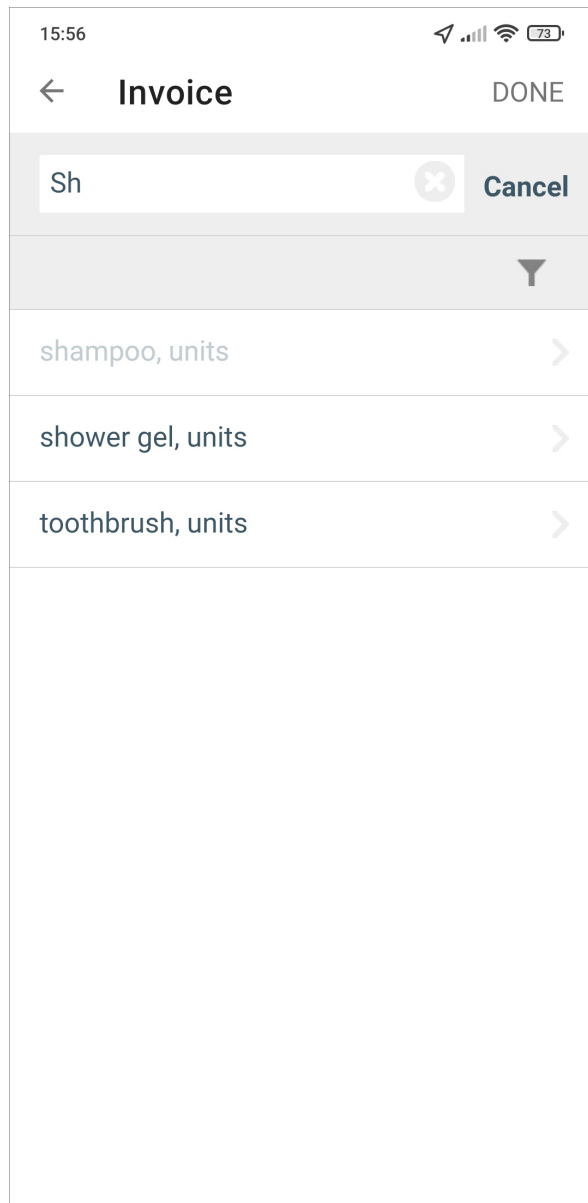



Fig. 2.89: Searching for materials and services

If the server is configured to use material and service groups, you can use the filter by clicking . On the left you see a field for selecting material groups and services, click on it. A list of groups of materials and services appears. Select the desired one. After making your selection, click the plus sign to the right of the selected group name and click “Apply”. A filtered list is displayed, from which you should select the desired materials or services (Fig. 2.90).

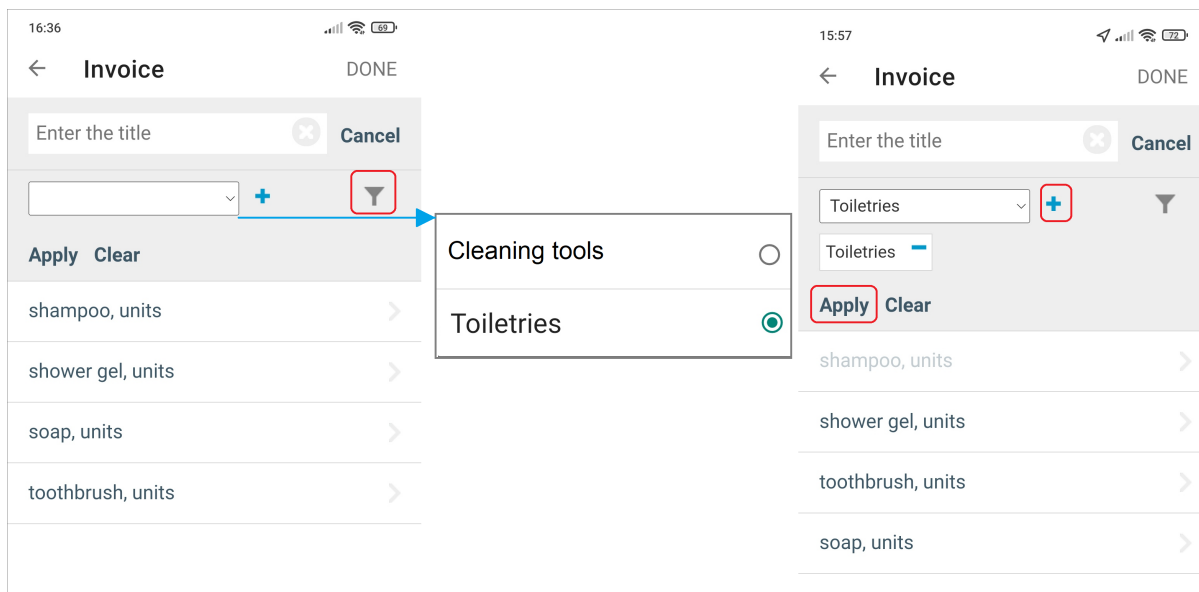


Fig. 2.90: Filter by material and service groups

To add other items to the invoice, repeat the above steps. To change the amount of materials and services, use the buttons to increase/decrease the quantity in the area of added materials and services. To remove an item from the invoice, click on the cross in the block with the item. After adding all the items, start creating an invoice by clicking “Generate invoice”. Upon successful creation of the invoice, a message appears: “The invoice has been created and attached to the task”. To return to creating/editing the task, click “Done”. You can save changes in the invoice. If there are unsaved changes in the calculations, the application shows a warning when exiting the “Invoice” window.

The invoice is automatically attached to the task in pdf format. Other users (with have access to the task) are able to see it immediately after it is generated (Fig. 2.91).

Invoice 1261-13-17-15-58 Date 17.03.2023

Purveyor
(Executor): LLC Cleaning

Buyer (client): LLC
Welcome Hotels

Base: Invoice 1261-13-17-15-58 Date 17.03.2023

Nº	Product (service)	Number	Qty	Price	Amount
1.	shampoo	2.0	units	20,00	40,00
2.	shower gel	2.0	units	20,00	40,00
3.	soap	1.0	units	10,00	10,00
4.	toothbrush	2.0	units	50,00	100,00

Fig. 2.91: Invoice

2.15 Automated photo comparison

If you need to compare photos with some sample and get a quantitative result of the comparison, use the automated comparison of photos. The application has a mode of comparing photos without annotation, in which the entire image is compared. There are two comparison options: local (works when there is no internet connection) and online. The added photo is compared with the already attached sample. After the comparison the application gives the result in the range from 0 to 100. These are not the usual percentages, but calculated on the basis of the similarity threshold. The similarity threshold is set empirically for the group of photos being analyzed (e.g., 40 or 50). You can enable and configure the automated photo comparison function in the ActiveMap Web web component.

A sample photo is required for comparison. For more information about photo links, see *Using a template photos* (page 57). Immediately after taking a photo in the template photo mode, a local comparison takes place. Its result appears in the right corner. If it exceeds the set similarity threshold, the result is highlighted in green and the photo can be saved. If it is below the threshold, it is highlighted in red. Try to take another photo for a more accurate result (Fig. 2.92). If the similarity threshold is not specified in the settings, the background of the result is white. The local comparison result data is saved in the system.

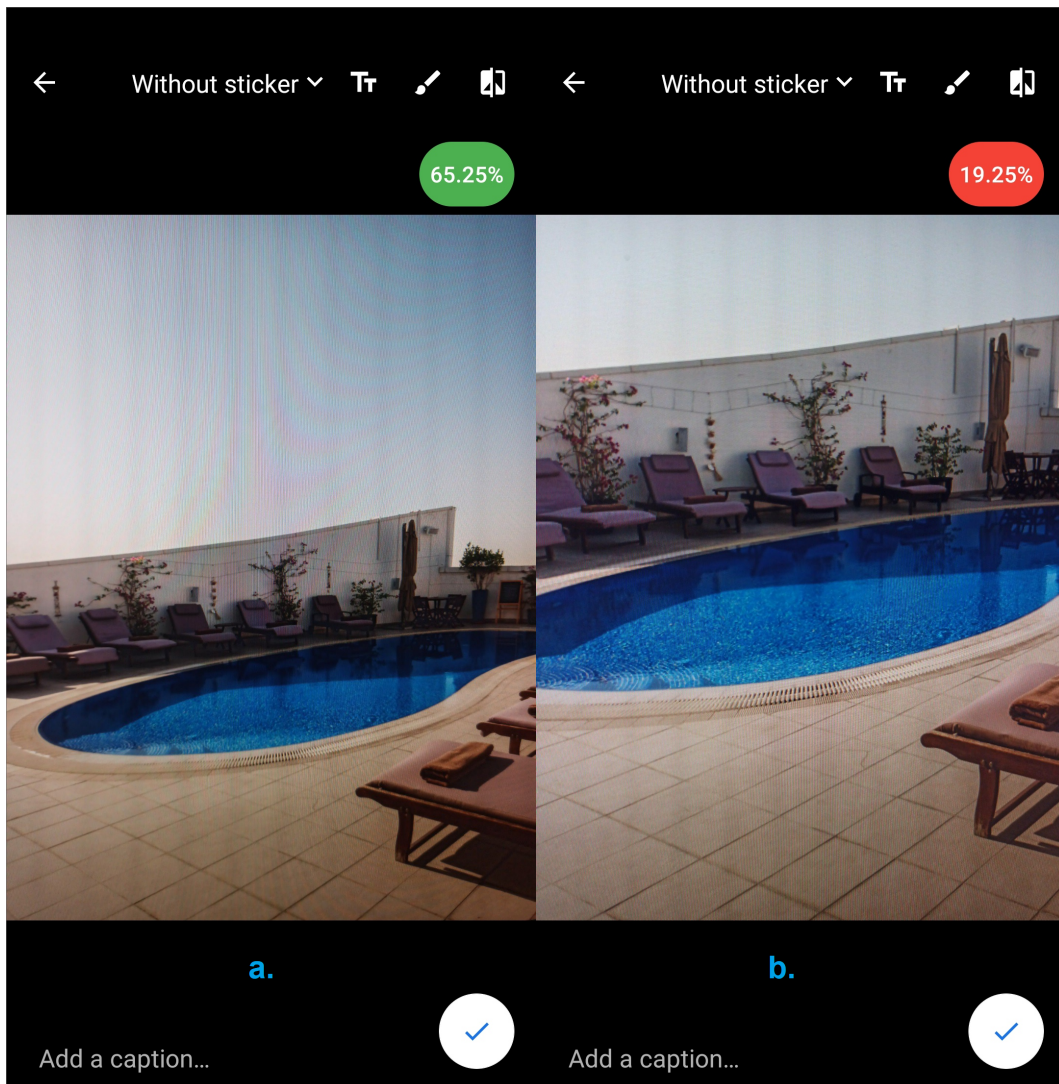


Fig. 2.92: Image comparison: a – similarity found, b – no similarity found

The minimum value of the similarity percentage from all results of automated local photo comparison with their photo sample is displayed in the task list view (Fig. 2.93).

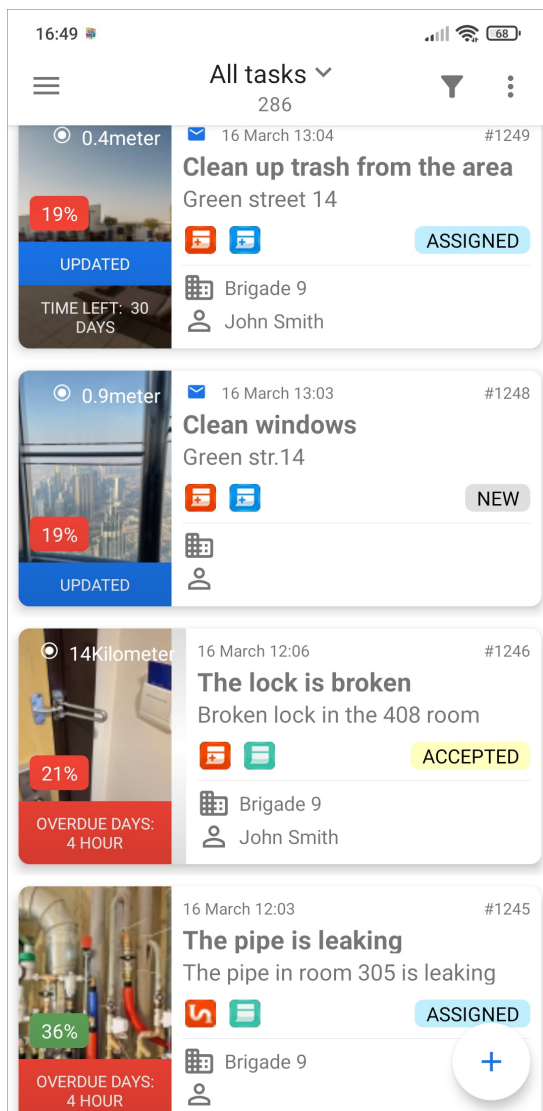



Fig. 2.93: Displaying the results of local photo comparison

If an online comparison result is required, you can use the  button in the top right corner of the photo editing window. Different models are used for comparison, so the comparison results differ. Online comparison results can be accessed using the “Compare angles” option in the media file editing menu (for more information, see [Adding files and media](#) (page 35)).

ABOUT APPLICATION

To get detailed information about the application, select the “About” section from the navigation sidebar. A window opens containing the following sections (Fig. 3.1):

- About the company,
- About the software,
- History of changes,
- Privacy Policy.

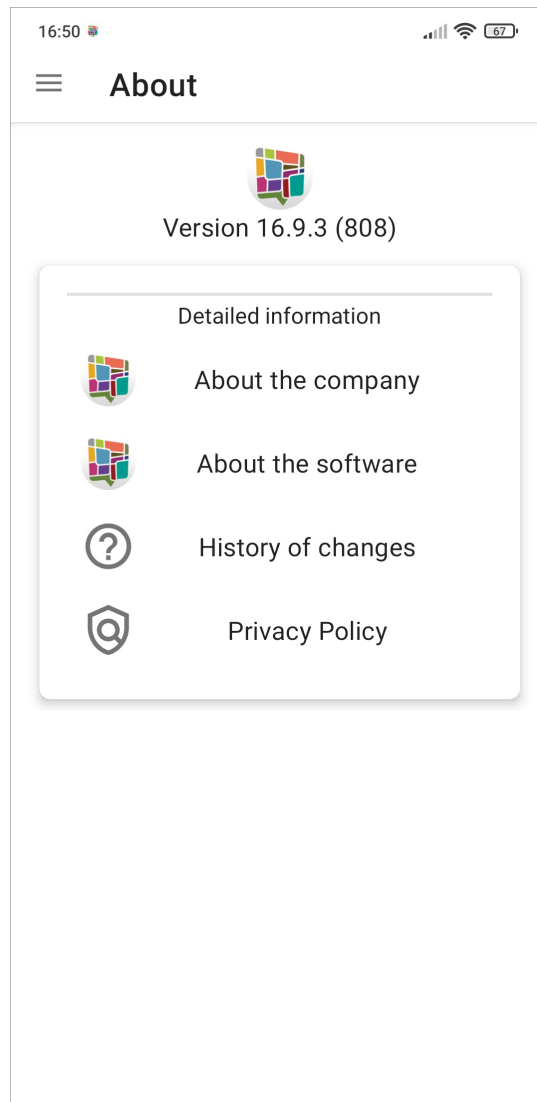


Fig. 3.1: “About” window

The “About” window contains information about the current version of the application installed on the user’s device. In addition, you can see the version on the navigation sidebar to the right of the “About” section.

“**About the company**” section shows brief information about the Activemap Computer Systems Design company. The “Details about the company” button at the bottom of the window contains a link to the website: <https://activemap.me/>.

“**About the software**” section displays information about the functions and features of the application. In the lower part of the window there is the “Details about the ActiveMap complex” button with the link to the company’s website (<https://activemap.me/>). Here you can view detailed information about the ActiveMap software package, which includes this application.

“**History of changes**” section displays information about the improvements and changes in functionality in the application versions.

“**Privacy Policy**” section opens a link to the privacy policy information.

SETTINGS

4.1 Application settings

To access the application settings, select “Settings” on the navigation sidebar (Fig. 4.1). Calling the navigation sidebar is described in *Navigation sidebar* (page 20).

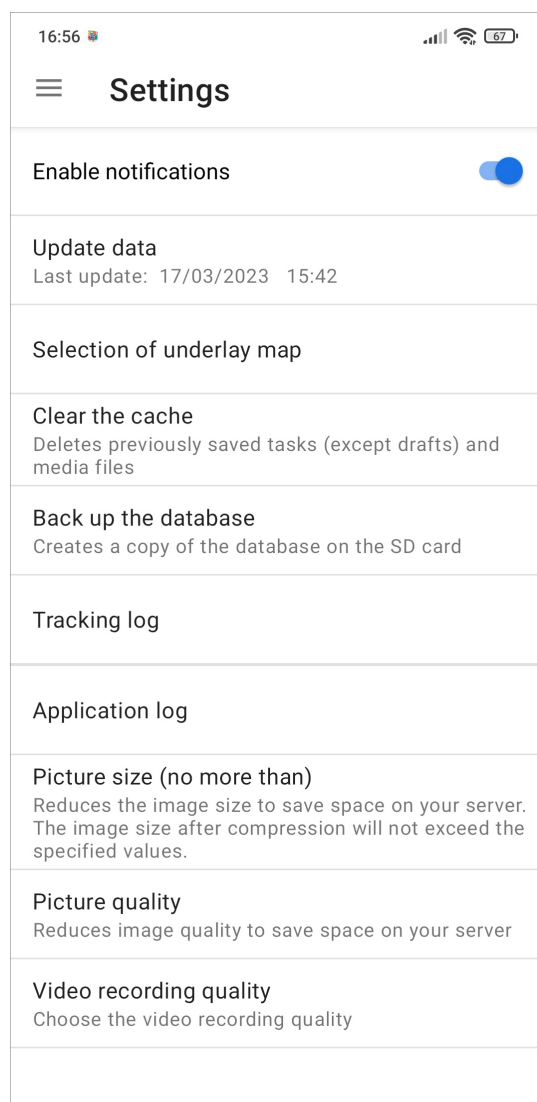


Fig. 4.1: “Settings” window

4.1.1 Enabling notifications

In the “Settings” section of the navigation sidebar there is a toggle switch “Off”/”On” to disable/enable the mechanism of PUSH notifications. PUSH notifications are displayed in the notification bar of the user’s device (Fig. 4.2).

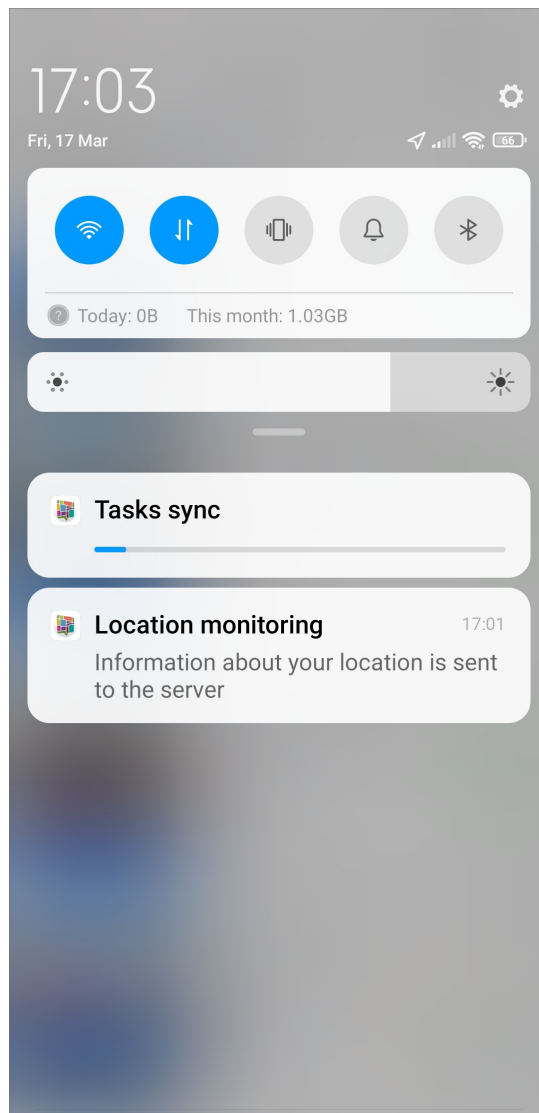


Fig. 4.2: Displaying application notifications on the device notification panel

Clicking on a PUSH notification allows you to go to the updated task (if the notification contains information about one task) or to the list of tasks (if the notification contains information about updating several tasks).

4.1.2 Choosing a basemap

This section allows you to change the map background. The list of basemaps includes maps to choose from (Fig. 4.3).

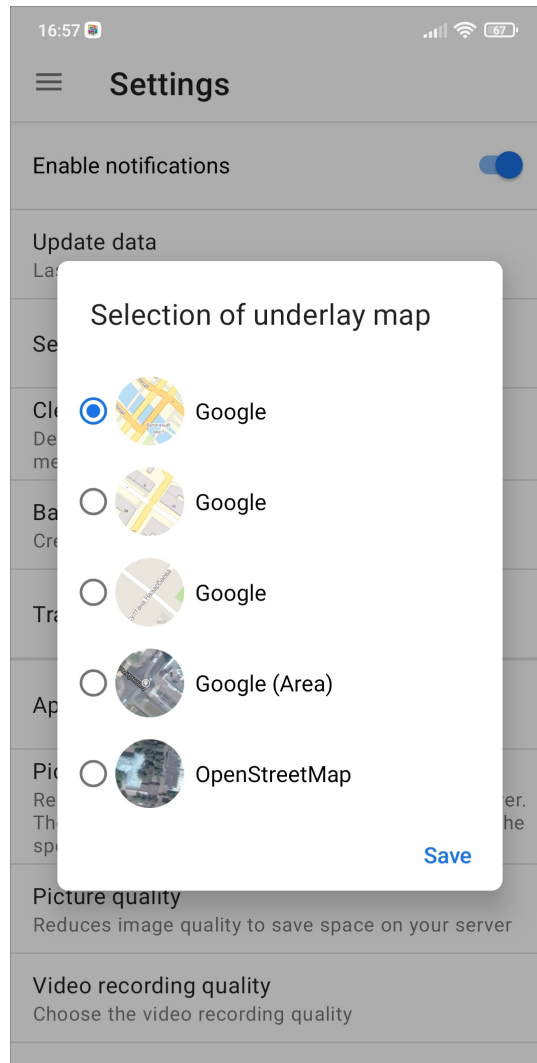


Fig. 4.3: Selecting a basemap

4.1.3 Media files settings

These settings are available in the following sections of the navigation menu:

“Image size (no more than)” – setting the image size to save space on the server. Image size after compression does not exceed the specified values in pixels (Fig. 4.4).

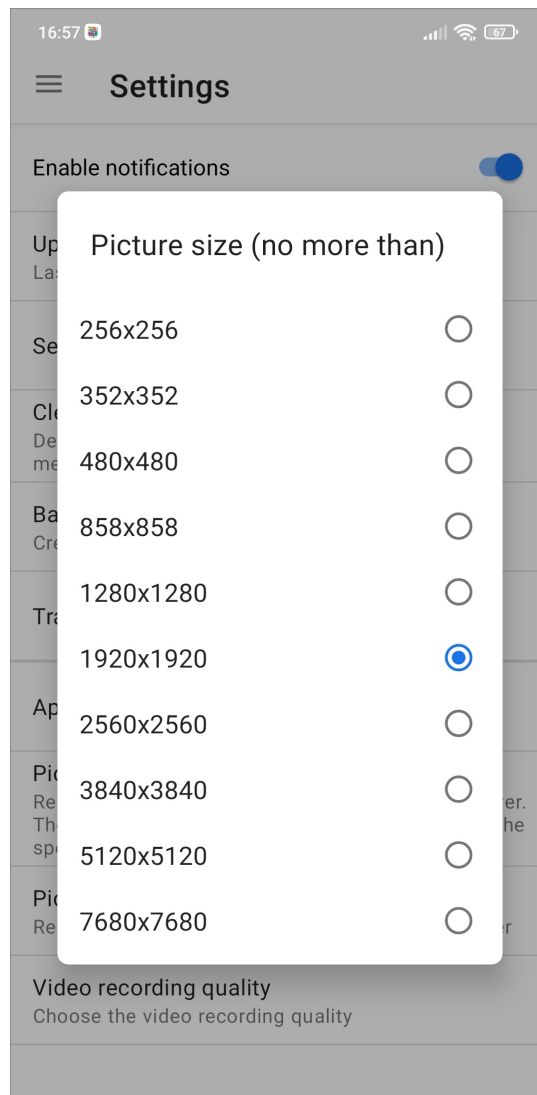


Fig. 4.4: Setting the image size

“Image quality” – setting the image quality to save space on the server (Fig. 4.5).

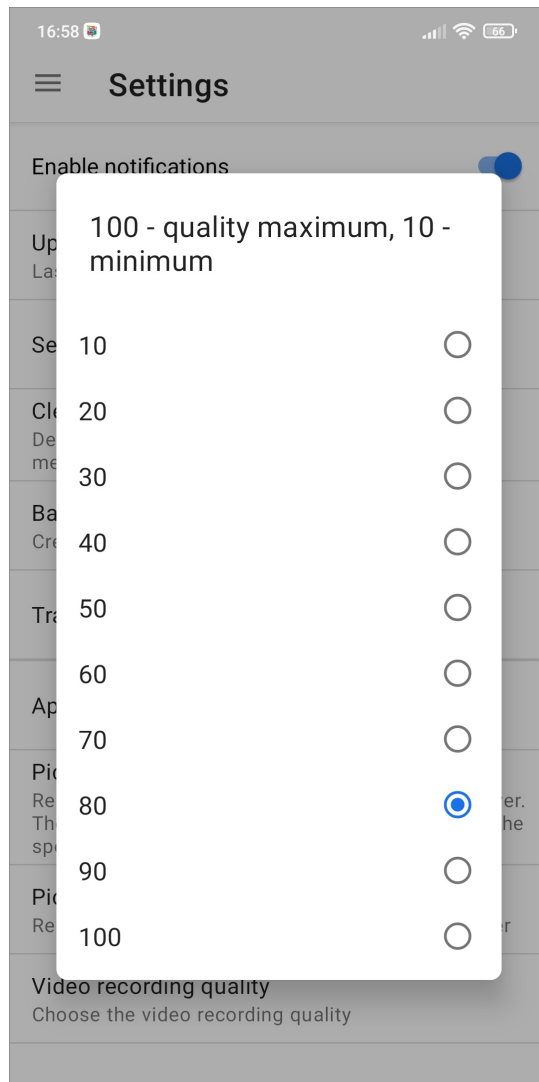


Fig. 4.5: Setting the image quality

“**Video recording quality**” – setting the quality of recorded video files (Fig. 4.6).

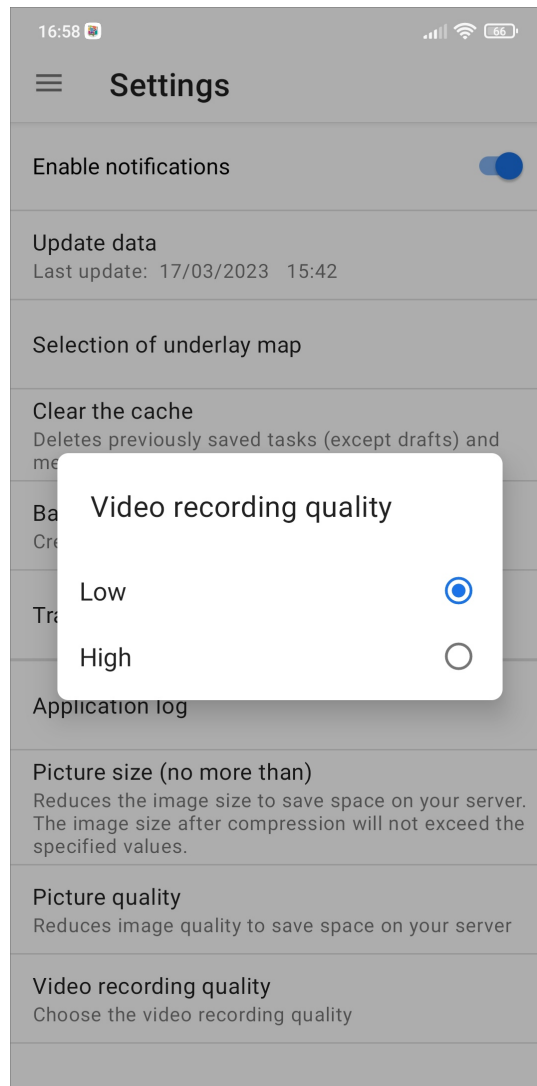


Fig. 4.6: Setting the recording quality

4.1.4 Other settings

Navigation sidebar has the sections of general application settings:

- **“Update data”** – explicit update of all data by synchronizing with the server (required when updating settings on the server).
- **“Clear cache”** – deleting temporary files. When cleaning is completed, the “Cache cleared successfully” message appears on the screen.
- **“Make a backup copy of the database”** – creating a copy of the database on the memory card of user’s device with the possibility of further use on the computer. When copying is completed, the “Backup is successfully created” message and the path to the saved copy appear on the screen.
- **“Tracking log”** – exporting logs of the mobile device movement into a txt file. You can send this file for the user in any convenient way.
- **“Application log”** – exporting application logs to an archive. You can send this file for the user in any convenient way.

4.2 Settings in ActiveMap

4.2.1 Access to settings

Danger: Changes in this block may cause system failure or termination of its functionality.

Only the System Administrator has access to the ActiveMap system component settings. However, in this section, you can find out what other settings are available for a convenient and efficient work in the application. The settings are made in the ActiveMap Web, in the “Management” block, “Settings” -> “Mobile application” section.

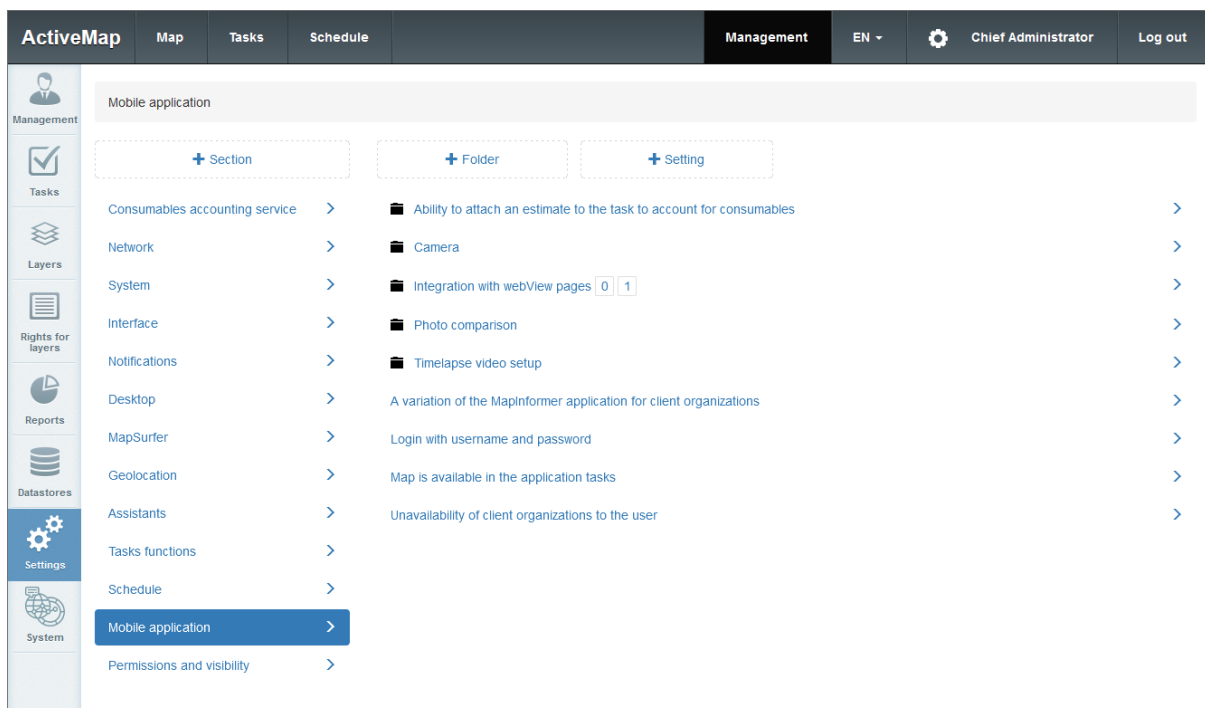


Fig. 4.7: Mobile application settings

Attention: The settings are applied to Android and iOS applications.

Settings can be applied to specific users, individual roles, organizations, or all users in the system. You can also configure task state parameters under which the selected setting is working.

4.2.2 Ability to attach an estimate to the task to account for consumables

This feature allows users to generate an invoice for the services and materials on site or to calculate the balance of provided materials. The balance of provided materials represents how much material is distributed and how much is used during the execution of tasks. It requires the creation of reports and additional settings in the work organization. Here you can also change the header text of the output file (“Invoice” by default).

4.2.3 Camera

In this folder, you can configure individual parameters for the standard or custom camera in the application.

- **Consider the distance from the task point** – together with the “Prohibit photographing” setting allows displaying a message about the impossibility of taking a photo due to a large location error. If the “Prohibit photographing” setting is turned off, the geolocation icon turns red to indicate location error. Disabled by default.
- **GPS Only** – sets the source for determining location to GPS only. If this setting is disabled, coordinates can also be determined using A-GPS. Disabled by default.
- **Geolocation control when using a camera** – prevents taking a photo until the user’s location is determined. Enabled by default. If disabled, the application does not prevent taking photos even if coordinates have not been determined yet.
- **Is caption to the photo obligatory?** – makes it mandatory to add a caption to the attached photo. A user cannot attach the photo to the task without adding a caption. Disabled by default.
- **Maximum distance from the task point** – sets the maximum distance (in meters) from the task point at which users can take a photo. The default is 150 m.
- **Maximum location delay** – sets the time (in milliseconds) of device geolocation validity after losing the GPS signal when using the built-in camera. By default, it is 10000 ms. If the location is received after the specified time and the “Prohibit photography” setting is enabled, the application does not allow taking a photo until it receives a point that meets the requirements.
- **Maximum location error** – allows setting the acceptable error (in meters) for determining the device’s geolocation when using the built-in camera. The default is 50 m. If the obtained location has a larger error and the “Prohibit photographing” setting is enabled, the application does not allow taking a photo until it receives a point that meets the requirements.
- **Necessity of exact time** – prevents taking a photo until the time is synchronized with the exact time (from the Internet or GPS). Synchronization is required once and saved until the device is switched off. If the setting is disabled, synchronization is still performed, but it does not interfere with taking a photo. This results in the time of the device being attached to the photo. Disabled by default.
- **Prohibit photographing** – prevents taking a photo if the user is outside of the task zone, if the geolocation function on the device is turned off, or if geolocation services cannot determine the location of the device with the specified accuracy. Disabled by default.
- **Select a sticker after taking a picture** – does not allow attaching a photo to the task without first specifying a sticker. Disabled by default.
- **Select a sticker before starting the camera** – does not allow taking a photo without first specifying a sticker. Disabled by default.

- **Show photo editing window** – opens the photo preview and editing window immediately after taking a photo. Enabled by default.
- **Stamp the date on the photo** – allows adding a date and time stamp to the photo. Enabled by default.
- **The presence of a field for adding a caption to the photo** – allows adding descriptions to a photo in the photo editor. Enabled by default.
- **Use of custom camera** – prohibits using of the device's standard camera when working with a mobile application. Enabled by default.

4.2.4 Integration with webView pages

This setting allows adding sections of third-party web applications and services to the navigation menu of the ActiveMap Informer mobile application. By default, this setting is disabled. You can give your own name to the added section.

4.2.5 Time-lapse video setup

A timelapse is a set of photos captured at a specific interval between shots that are combined into a single video clip. The result is an accelerated video showing what happens to objects over a long period of time or distance. Each photo retains its coordinates. This allows users to create tasks from video frames attaching the current frame (as a task photo) and geoposition in the ActiveMap Desktop application.

This folder includes the following settings:

- **Allow location recording** – recording the device's movement track and location while recording the current frame. You can view it in the ActiveMap Desktop desktop application. Disabled by default.
- **FPS (View)** – the number of frames per second for video viewing. The default is 5.
- **Maximum error in meters** – allowable coordinate error when recording a timelapse-video. If the coordinate exceeds this error, it is not taken into account during recording. By default, the allowable error is 100 meters.
- **Minimum change in distance in meters** – the minimum distance between location updates when recording video. The default is 5 meters.
- **Quality** – the quality of recorded frames. The default is 480 pixels.
- **FPS (Recording)** – the number of frames per second for video recording. The default is 2.

4.2.6 Photo comparison

It is often necessary to return an object to its original state – the sample state. For example, to clean a bus stop and bring it to a certain appearance. If you have a sample photo, you can enable photo comparison of the sample and the completed work photo with the calculation of the similarity percentage in the following settings:

- **Allowable percentage comparison of two photos** – a number of the threshold percentage value, after which the photo is considered similar to the sample. If the photo percentage is above the threshold, the percentage information background is colored in green. If the photo percentage is

below the threshold, it turns red. If the field is not filled, the background is not colored. It is usually 40 or 50.

- **Offline (URL to file)** – the URL to the file that is loaded with the reference tables (dictionaries). Once the file is successfully uploaded, the photo editing window displays the percentage of similarity with the sample. If you enter the photo result editing window during the file upload, a loading pictogram is displayed instead of the percentage. After the download is complete, the pictogram disappears, and the percentage of similarity between the two photos is shown.
- **Online (URL to service)** – the URL to the service that implements the comparison of the sample photo and the result. If this field is not filled in the photo result editing window, the photo comparison button is not available.

4.2.7 Login with username and password

The setting activates user authorization in the ActiveMap Informer mobile application using a login and password instead of a phone number. By default, this setting is disabled.

4.2.8 Map is available in the application tasks

This setting allows to enable or hide the map window in tasks in mobile applications. By default, this setting is enabled.

4.2.9 Unavailability of client organizations to the user

The setting is intended for selecting an organization when registering a user in the ActiveMap Informer mobile application. If this setting is enabled, the user cannot select an organization. By default, this setting is disabled.

EXITING THE APPLICATION

You can close the app on your device to terminate. However, if geolocation monitoring is enabled, the location data is still sending to the server in the background. To stop sending data, disable location monitoring in the user account (for more information, see *Account management and roles in the system* (page 16)). After that, you can close the application. It is also possible to exit the user account without disabling the monitoring settings. To do this, click “Logout” on the navigation sidebar and close the application.

FREQUENTLY ASKED QUESTIONS

6.1 How to contact Technical Support?

There are two ways to contact Technical Support:

1. Call the hotline. To do this in the app, open the navigation sidebar (*Navigation sidebar* (page 20)), find the “About the program” section, open it, and select “Call the hotline”. The device enters phone dialing mode. Click the call button and contact the employee of the Activemap Computer Systems Design company. Technical support experts are ready and pleased to offer you all-encompassing help and support.
2. Write an e-mail. To do this in the app, open the navigation sidebar (*Navigation sidebar* (page 20)), find the “About the program” section, open it and select “Write to technical support”. Select the available email service on your device in the opened window. Selected email service opens with a pre-filled sending address, information about the user’s device, and the server to which the ActiveMap Mobile app is connected. Describe the issue in detail and send the email. After sending, you receive an email confirming the submission of the request and the assigned request number. When contacting Technical Support again, please provide the request number. Technical support staff helps to resolve the issue as soon as possible.



If these ways of communication do not work, check the contacts on the company’s website: <https://activemap.me/>. Technical Support email – support@activemap.me.

6.2 What should I do if I don’t receive notifications from the app?

If you do not receive notifications from the application, check if they are enabled in the application settings. This is described in the *Enabling notifications* (page 121) section. If you still do not receive notifications, check the notification settings on the device. For most smartphones running Android, the path to notification settings is the same: Settings -> Applications -> ActiveMap Mobile -> Notifications or Settings -> Notifications -> Application Notifications -> ActiveMap Mobile. Here you need to enable, if disabled, the display of notifications. Also, you can configure other notification options: allow pop-up notifications, enable lock screen notifications, and others, depending on the user’s device model. You can customize the display of specific categories of app notifications. If the notifications still do not appear, please contact Technical Support.

6.3 How to filter tasks by custom (additional) field?

To filter tasks by custom (additional) field, follow these steps:

1. Open the application and go to the tasks list.
2. Open the filter .
3. In the “Custom fields - Select” block, select an appropriate attribute from the drop-down list in the “Custom fields” window.
4. Below, select the comparison operator and choose or enter a value as per customized field format.
5. If necessary, add other filters by clicking .
6. Go back to the list of tasks. They are filtered as per your input now.

GLOSSARY

Account is a set of data about a user stored in the system, necessary for the authentication and providing access to personal data and settings.

Activation code is a file containing an encrypted hardware code, information about the number of users, and the license period.

Applied software suite is a set of interconnected programs designed to solve problems of a certain class of a particular subject area and interact with the user.

Attribute data are values describing features of the objects. Attribute data types are: integer, real, text, date, date and time, geometry.

Band is an object that is placed directly on the report page. It is a container for the other objects, such as “Text”, “Picture”, etc.

Basemap is the dominant or underlying layer in a given map that provides geographical context to the map and other dataset layers above it. Users visualize tasks, service objects, and thematic layers above the basemap. They use it for navigation through a map and for getting general information about the area of interest.

Centroid is the center of a geographical object on a map. For most objects, the centroid coincides with the center of the rectangle described around the object.

Client organization is an association of users who make their requests via the mobile application, monitor their status, who are capable of evaluating the work performed. User rights for operating the System are restricted.

Cluster is an association of several organizations for the purpose of enabling the in-process control of the performance of departments.

Cluster Administrator is a user role in the System, responsible for cluster administration, namely: managing organizations and users of the cluster, granting access rights to layers and reports within the cluster, and managing cluster tasks.

Cluster Inspector is a user role in the System, responsible for managing tasks within the cluster.

Clusterization is the representation of raster layer objects located nearby by a single label on a map.

Contract is an entity for accounting and planning the task to be performed by organizations under contractual obligations.

Custom fields are attribute fields, which can be customized in the system versus features of a project underway, and be referenced to the certain work items.

Data export is a data loading from the Program database to an external file.

Data table is a set of the related data stored in a structured format in a database.

DBF data format is a data storage format used as one of the standard ways of storing and transmitting information by database management systems, spreadsheets, etc.

Drag and Drop is a way to manipulate interface elements in the user interfaces using a mouse or a touch screen. The method is implemented by “grabbing” (pressing and holding the left mouse button) the object displayed on the screen, which is available for such operation, and then moving it to another place (to change its location) or “dropping” it to another element (to call the corresponding action in the program).

Executor is a user role for creating new tasks and performing the assigned tasks in the System.

GDAL (Geospatial Data Abstraction Library) is a translator library for raster and vector geospatial data formats. As a library, it presents a single raster abstract data model and a single vector abstract data model to the calling application for all supported formats.

Geographic coordinates are the mathematical values that designate a position on the earth relative to a given reference system.

GeoJSON data format (Geographic JavaScript Object Notation) is a format for representing various geographic data structures. A GeoJSON object can be represented by a geometry, a feature, or a feature collection. GeoJSON supports the following geometry types: Point, LineString, Polygon, MultiPoint, MultiLineString, MultiPolygon and GeometryCollection. A feature in GeoJSON consists of geometry and additional properties. Feature collection consists of a set of features.

Geographic Information System (GIS) is an information system designed to collect, store, analyze, and display spatial data and related information about presented GIS objects.

GPS is a satellite navigation system that measures distance, time and determines the location in the WGS 84 world coordinate system. It can accurately determine the three-dimensional coordinates of an object equipped with a GPS receiver: latitude, longitude, height above sea level, as well as its speed, direction of movement, and current time.

File label (sticker) is a textual mark in a picture.

Hardware code is a file that contains encrypted information about the server characteristics and the license key.

Hatching is a set of drawings and colors used to fill polygonal objects.

Image sticker (file label) is a text mark on the photo.

Import object coordinates is a data loading from external files into the Program database.

Information display panel is a panel designed to display specific information related to user actions, as well as messages that correct user actions (warning messages, tips).

Installer is a program that installs files on the end user’s computer.

Interval is a data table that is used to configure the display styles of layer objects on the map depending on their specific numerical characteristics. The Program uses intervals of (a, b) type.

Invitation (an invite link) is a link containing information on the server address, login, and password of a user to simplify the process of authorization in the mobile application.

Layer is a visual representation of geographical data in the environment of any digital map.

Layer group is a set of layers grouped according to thematic or other specified criteria.

Layer object visibility on the map is a displaying the layer object on the map as a certain symbol, line, or polygon.

Layer visibility on the map is a displaying of all layer objects on the map as a group of symbols, lines, or polygons.

LDAP (Lightweight Directory Access Protocol) is an open, vendor-neutral, industry standard application protocol for accessing and maintaining distributed directory information services over an Internet Protocol (IP) network.

Legend is a set of symbols and explanations on a map.

License is a file containing information on the acceptable quantity of users and validity period, allowing to link the server software of the System to the equipment.

License key is a character string provided to the customer by the software vendor after purchasing the license, used to activate the product and obtain a digital license for a fixed server. Contains the maximum number of users and the license period in an encrypted form.

Linear object is an object on a digital map that represents a place or item that has length but no area at a given scale.

Managing map layers is the set of actions for managing layer visibility, creating and editing the geometry of layer objects on the map.

Map scale is the ratio of a distance on a map to the corresponding distance on the ground. A scale of 1:100,000 means that one unit on the map corresponds to 100,000 of the same units of measurement on the ground.

Mapping is a correspondence between a layer attribute and a task field.

MapInfo Interchange Format (MIF) is a MapInfo text data format that includes geographic data (objects) and a description of the data table containing attribute information related to objects.

Multi-object is a combination of several objects. Multi-objects can be of point, line, and polygon geometric types.

Multiservice is the ability to represent any layer as a layer with service objects.

Node is the point representing the beginning or ending of an edge of a linear or polygonal object, topologically linked to all the edges that meet there.

Object attributes (attribute data) are values describing the object properties. Attribute data types are: integer, real, text, date and time, geometry.

Object geometry is the measurements and properties of points, lines and surfaces. In GIS, geometry represents spatial components of geographic objects.

One-to-many relationship is a relation between two sets of data where one record in a parent table can be associated with one or more records in another table (child data table).

Operational tasks are the tasks created to solve current issues.

Organization Administrator is a user role in the System, responsible for administering the organization, namely: creating users, granting access rights to layers and reports within the organization, and managing tasks of the organization.

Organization Inspector is a user role in the System, responsible for managing tasks within the organization.

Point object is a cartographic object that does not have length or area in the accepted scale.

Polygonal (area) object is a cartographic object that bounds the area at a given scale.

Program user (User) is a person (employee) or organization that uses the current Program to perform a specific function.

Raster layer represents data in the form of geographically-referenced images as well as fragments of raster images displayed in the same projection and prepared for each level of map detail.

Reference table (dictionary) is a table with systematically organized data intended to help users to handle attribute information on objects.

Service objects are the layers containing the objects of interest of the user organization due to their relation to business activity of the involved organization.

Schedule is a tool that allow users to automatically create and assign template tasks at a certain time with a specified periodicity.

SHP data format is a vector format of geographic files. It allows users to store the following types of geometric objects: points (polypoints), lines (polylines), polygons, and other objects. A file can contain only one object type. Each entry in the SHP file can have multiple attributes to describe its geometry.

Scheduled tasks are the tasks created at a specified date and time according to a template.

Spatial database is a database optimized to store and access spatial data or data that defines a geometric space.

SQLite is an in-process library that implements a self-contained, serverless, zero-configuration, transactional SQL database engine.

SQLite Data Format is the SQLite relational database file format.

Sub-object is an object included in the multi-object.

Symbol is a graphical representation of a geographic object or a class of spatial objects, which helps to identify and distinguish them from other spatial objects on the map.

System Administrator is a user role in the System with the maximum rights, responsible for its configuration, including managing clusters, organizations, users of all roles, contracts, directories, as well as for distributing access rights to layers and reports.

System Inspector is a user role in the System, responsible for managing tasks across all clusters.

System reference table is a reference table generated automatically based on data entered into the system. System reference tables include tables of system users, priorities and types of work.

TAB data format is the format of MapInfo vector spatial data files (MapInfo files).

Task is a key element of the system, assigned to a user, which can contain instructions for execution, information about the contract, service object, type of work, creation date, deadline, priority, and execution step. Additional files (documents, photos, videos) can be attached to the task.

Task priority is a characteristic of the urgency of the task.

Task status is a characteristic of the completion degree of work on the task, determined by the dispatcher or administrator when accepting the task.

Task step is a stage in the sequence of actions for completing a task changed by the task executor.

Thematic layer is a spatial data bank layer which objects are interrelated by the same topic.

Timelapse-video is a video file comprising a series of pictures taken via a video camera during a long time period.

Tile Map Service (TMS) is a specification for storing and retrieving cartographic data that provides access to the map tiles rendered at a specific scale level. These resources are accessed via the “REST” interface.

Toolbar is a graphical user interface with buttons for performing Program commands.

Tiled Web Map Service (TWMS) is a specification for storing and retrieving map data that provides pre-built georeferenced map images. TWMS relies on technologies for building and transmitting large images to the Internet using tiles – small, standard-sized image fragments. A TWMS service may also include one or more styles, dimensions, or tiling schemes to define how the TWMS layer is displayed. Accessing data via the TWMS protocol requires preprocessing of the source cartographic data by creating tiles for the full range of scales, over the entire area. This technology allows locally caching an image by building a tile grid.

User profile is a characteristic of an individual system user, represented by a set of attributes, such as full name, email, phone number, etc.

User rights management is a set of actions for registering and managing user rights in the Program.

User tags is an entity allowing to group users against a specified attribute (e.g., the phone model).

User type is a user characteristic (a human being or a vehicle) to determine the user mapping settings versus the type selected.

Vector image is a representation of graphical objects and images based on the use of geometric primitives such as points, lines, and polygons.

Webhook is an automated launching of http requests in response to operations on entities (comments and tasks).

Web Feature Service (WFS) is a web service for querying spatial data that includes a standardized API. Unlike the Web Map Service (WMS), which returns a map image (rendered data), the WFS service returns actual objects with geometry and attributes that can be used in any type of geospatial analysis. WFS services also support filters that allow users to perform spatial and attribute queries on the data.

Web Map Service (WMS) is a standard protocol for serving geographically referenced images over the Internet, generated by a cartographic server based on data from the GIS database. The WMS service may also include a Styled Layer Descriptor (SLD) to define how the WMS layer should be displayed. The WMS service layer consists of three elements arranged hierarchically in the table of contents. At the top is the name of the WMS service, which contains all the layers of the WMS map. The next level down contains the WMS composite layers whose only function is to organize the WMS sublayers into appropriate groups. There is at least one WMS composite layer, but there can be any number of composite WMS layers (and even nested groups within groups). WMS composite layers do not contain map layers. This is the third group, WMS sublayers that actually contain map layers.

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