



ActiveMap Web admin manual 3.47.0 (5.47)

Activemap Computer Systems Design

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ANNOTATION

This document is intended to provide an overview of the general information, structure, and configuration of the ActiveMap Web Program for individual conditions, requirements, and application areas of the software.

GENERAL INFORMATION

1.1 About the Program

ActiveMap Web (administrator) is the administrative part of the ActiveMap Web program that allows you to add and structure a variety of geographic information, as well as configure access rights to user information and user interface settings.

ActiveMap Web is part of a multi-component web-based ActiveMap system for remote employee management.

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/>.

1.2 System requirements

The Program is created using web technologies, allowing it to run from any personal computer with Internet access. To organize the dispatcher's workplace, a personal computer with technical specifications that meet the following minimum requirements is needed:

- Processor: Intel Core i5,
- Operating system: Windows 10,
- Internet access speed of at least 10 Mbps.

The Program does not require additional installation of third-party software on the workstation. The Program opens using internet browsers such as Internet Explorer, Mozilla Firefox, Opera, Google Chrome, or Microsoft Edge.

WORKING IN THE PROGRAM

2.1 Running the Program

To run the Program, open an Internet browser (Internet Explorer, Mozilla Firefox, Opera, Google Chrome, Microsoft Edge) and enter the address of the web page of the Program in the address bar. The start window (Fig. 2.1) appears.

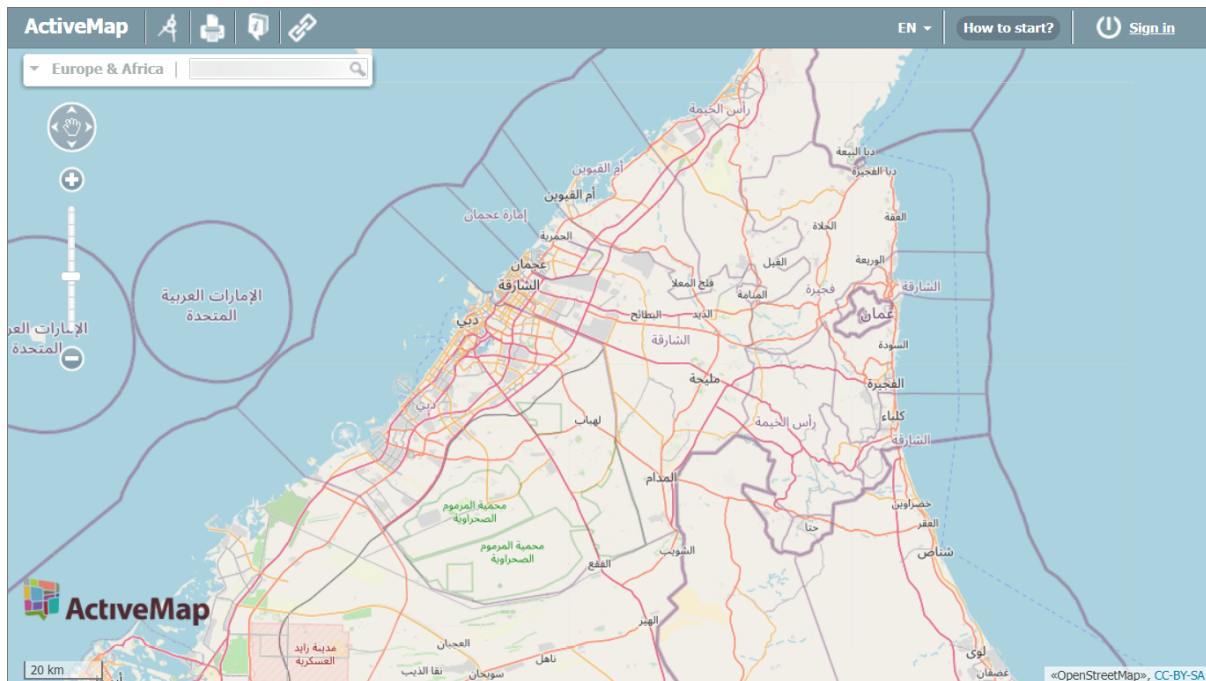


Fig. 2.1: Start window

To log in you need to enter your credentials: login and password. Then the start web page is loaded (Fig. 2.2).

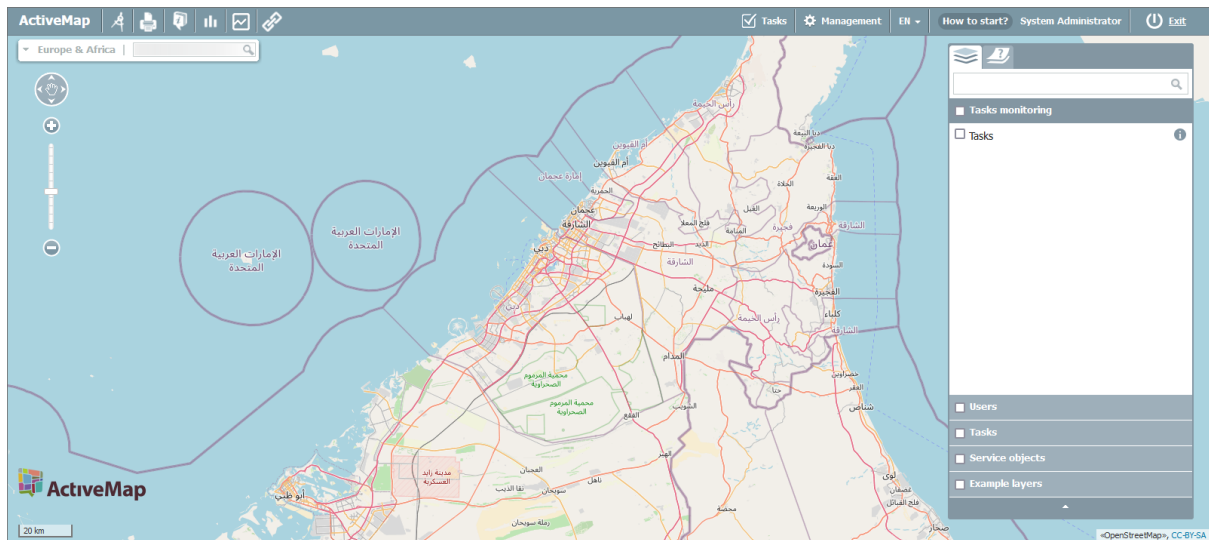


Fig. 2.2: Start page of the program

The main window of the Program contains (Fig. 2.3):

1. Map displaying area
2. Toolbar
3. Basemap controls with a search bar
4. Control panel for thematic layers
5. User panel
6. Scale bar
7. Scale ruler
8. Map navigation panel

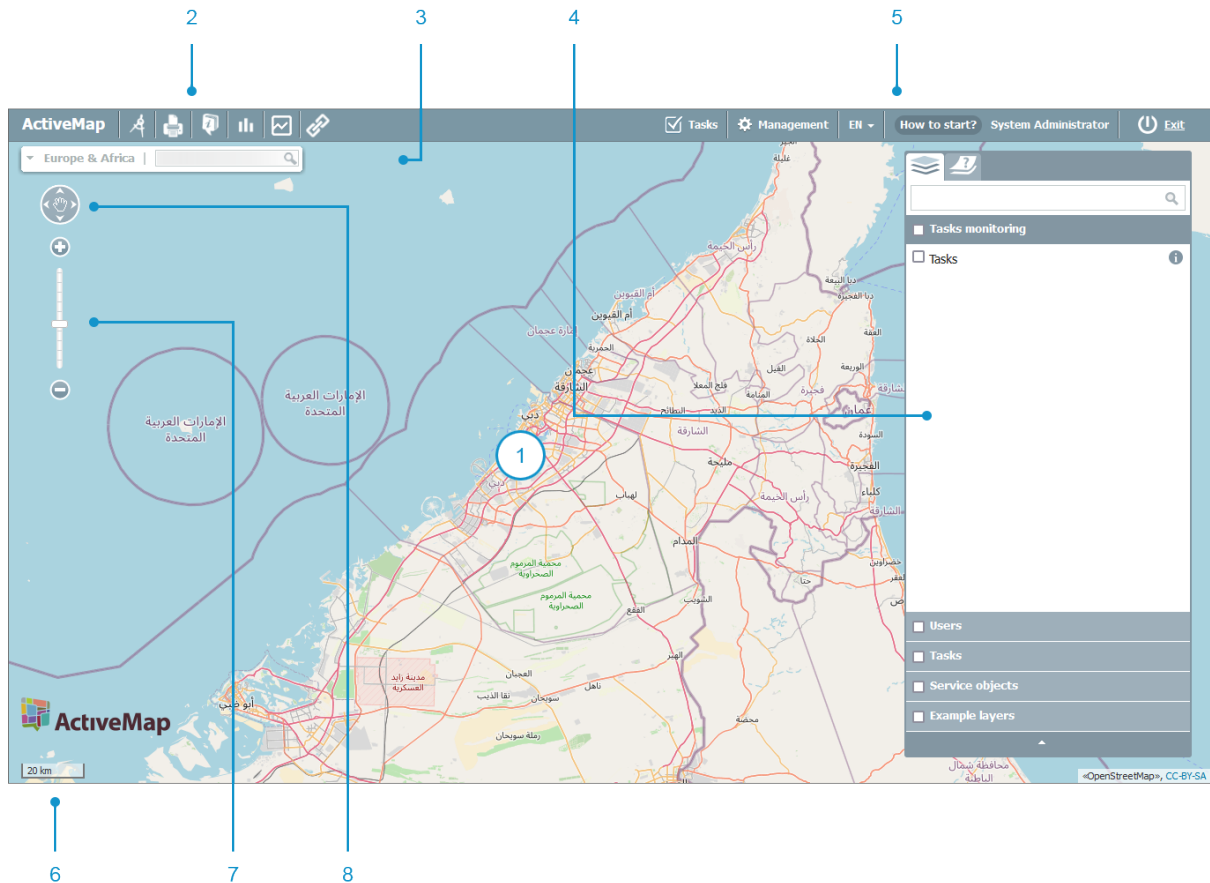


Fig. 2.3: Elements of the main window

Working with administration tools is available in the “Tasks” and “Management” modules. You can access them through the user panel at the top of the main program window (Fig. 2.4).

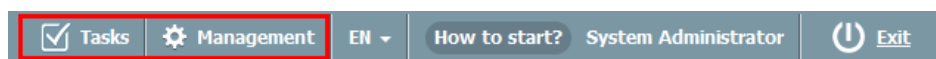


Fig. 2.4: Switching to the “Tasks” and “Management” modules

2.2 Tasks module

The task module allows users to work with contracts, create operational and planned tasks in the system.

Operational tasks are created to solve current issues. Planned (scheduled) tasks are created on a date and time specified in the schedule according to a given template.

You can create tasks within the contracts, concluded with an organization, and independently of them. The ability to view, create, and edit contracts and tasks depends on the user’s role in the system. User roles are defined by the Organization Administrator or Cluster Administrator.

To go to the tasks module, click “Tasks” (Fig. 2.5) on the user panel of the main page of the geoportal:



Fig. 2.5: Accessing the task module

2.2.1 Contracts

2.2.1.1 Contracts in ActiveMap

A contract is an agreement for the provision of services made with an organization or client. Users with the System Administrator or Cluster Administrator permissions can create, edit, and delete contracts. Contracts operate within the cluster. The cluster is selected automatically. When creating a contract, the cluster of the customer organization is used. In another cluster, this contract is not available to users. The System Inspector, Cluster Inspector, Administrator and Inspector of the Assigned Organization have rights to view the contract. Users, who see the task created under the contract, also receive minimal information (id, title).

A contract may include a list of service objects and types of work. You can create tasks only within one contract. You cannot add the same tasks to a different contract. However, you can attach multiple tasks and schedules to one contract. If necessary, you can delete a previously selected contract from the task and add a new one. If you delete a contract from the system, the ad hoc tasks created under it and the tasks created under the schedule are preserved (the contract name is displayed in the task), but the schedule itself is deleted.

2.2.1.2 List of contracts

To access the window with contracts in the “Tasks” module, click “Contracts” on the top panel of the page. In the opened window (Fig. 2.6), the System Administrator and System Inspector can see the entire list of contracts entered into the system. The Cluster Administrator and Cluster Inspector can view the cluster contract list. The Organization Administrator and Organization Inspector can see the organization contract list. All other users see the list of contracts for available tasks.

ActiveMap				Map	Tasks	Schedule	Management	EN +	System Administrator	Log out
				Contracts	Map	Tasks	Create	Edit	Delete	Found 8 records
#, Name, ID										
Any										
Cluster										
Any										
Customer										
Any										
Executor										
Any										
Clear filter										
#	Nu...	Name	Start d...	Finish ...	Grant t...	Executor	Cluster			
3	745/8	Atlantis, The Palm (Hotels)	01.03.2023	01.09.2023	<input checked="" type="checkbox"/>	Helping	Helping			
23	523	Bulgari Resort Dubai	01.06.2023	01.09.2023	<input checked="" type="checkbox"/>	Cleaning	Helping			
24	547	Chelsea Plaza Hotel	01.06.2023	01.09.2023	<input checked="" type="checkbox"/>	Cleaning	Helping			
21	786	Hyatt Place Dubai Jumeirah	01.06.2023	01.09.2023	<input type="checkbox"/>	Cleaning	Helping			
25	591	Mandarin Oriental Jumeira	20.05.2023	31.05.2023	<input checked="" type="checkbox"/>	Cleaning	Helping			
22	501	Nikki Beach Resort & Spa Dubai	20.05.2023	31.08.2023	<input checked="" type="checkbox"/>	Cleaning	Helping			
1	№458/8	Contract	01.01.2023	01.05.2023	<input checked="" type="checkbox"/>	Aishahba	By default			
2	415/9	Contract	01.03.2023	01.06.2023	<input checked="" type="checkbox"/>	Champion Cleaners Center	Champion Cleaner...			

Fig. 2.6: List of contracts

The contracts window has a search by contract number, name, and ID. You can also set up filters by attributes:

- Cluster
- Customer
- Executor

The list of contracts is presented in the form of a table, which includes all the basic information on the contract. For convenience, there is sorting in two directions, which works by clicking the attribute name.

2.2.1.3 Creating a contract

Only users with System Administrator or Cluster Administrator permissions can create, edit, and delete contracts. To add a new contract, click “Create”. A window opens (Fig. 2.7) with the following fields in the “Main” tab:

- **Name** (mandatory field) — name of the contract;
- **Number** — contract number;
- **Start date** and **Finish date** — the period of the contract, during which the work is performed and tasks are created (if these fields are not filled in, it is impossible to create a scheduled task);
- **Customer** (mandatory field) — the organization that orders the execution of the work (the cluster of this organization is assigned to the contract);
- **Executor** (mandatory field) — the organization, executing the contract, to which tasks are automatically assigned when this contract is selected;

- **Grant task creation to executor** toggle (disabled by default) – if it is disabled, users are not able to select this contract when creating a task;
- **Description** — a comment to the contract.

The screenshot shows the 'ActiveMap' web admin interface. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks' (selected), 'Schedule', 'Management', 'EN', 'System Administrator', and 'Log out'. Below the navigation bar, there are tabs for 'Contracts' (selected), 'Tasks', and 'Map'. A 'Create' button and a 'Cancel' button are visible. The main form area contains the following fields:

- Main**: A text input field.
- Groups of objects and types of work**: A text input field with a '+ Add' button.
- Name**: A text input field containing 'Contract'.
- Number**: A text input field containing '485/9'.
- Start date**: A date picker showing '01.01.2023'.
- Finish date**: A date picker showing '31.12.2025'.
- Customer**: A text input field containing 'Rmb Contracting'.
- Executor**: A text input field containing 'Champion Cleaners Center'.
- Grant task creation to executor**: A toggle switch that is currently turned off.
- Description**: A large text area for entering a comment.

Fig. 2.7: Creating a contract

You can add types of work to the contract and specify the list of service objects for which to perform work. To do this, click “Add” in the “Groups of objects and types of work” tab. The block of selecting service objects and types of work is added. Click “Change” to add a value. When changing a service object, a window opens where you have to select the layer and objects. For convenience, the window has a search line and the ability to select all or individual objects (Fig. 2.8).

Choose elements

Layers

#	Name
28	Office centers
27	Hotels
30	Objects
5	Service objects

Objects

Search by ID or name

#	Name
2	Atlantis, The Palm
1	Dubai Marine Beach Resort & SPA
4	Jumeirah Beach Hotel
5	Mandarin Oriental Jumeira
3	Marbella Resort

Cancel Apply

Fig. 2.8: Linking a contract to service objects

When you change the type of work, a window opens for selecting the required types of work. For convenience, there is a search line, the ability to select types of work, and a filter to display all types of work or only selected ones (Fig. 2.9).

Choose elements

Search by ID or name

1 2 Found 11 records Picked All

#	Name
36	Clean up
43	Cleaning service for glass facades
38	Expertise
39	Road maintenance
40	Road signage
2	Sample creating
35	Sanitization
42	School Transport Service
1	Task
37	Tidy the rooms

Cancel Select

Fig. 2.9: Linking a contract to work types

After saving the contract data, you can create tasks only for the selected types of work and service objects during the specified contract period. You can create several groups of objects and types of work within one contract. The Program also checks whether the selected types of work are available to the assigned organization. If the organization has no rights, the contract is not saved, as this can cause errors in the creation of tasks in the future. When selecting an object that has a connection to an organization/cluster, the task must be created in the specified organization. If this organization has no rights to the selected type of work, the contract is not saved.

After entering all the data for the contract, click “Create”. The contract becomes available for attaching to tasks in the ActiveMap system software products: ActiveMap Web, ActiveMap Desktop, ActiveMap Mobile.

2.2.1.4 Contract management

To edit a contract, select it and click “Edit”. A window similar to the creation window opens, where you can make and save edits.

When changing the customer, the new customer organization must be in the same cluster as the organization executing the contract. When changing the executor, for example, when transferring work from a contractor to a subcontractor, the previous contract executor will see previously created tasks, but not the schedule runs that created them. Conversely, the new executor will not see previously created tasks, but will see the runs that created them.

To delete a contract, select it and click “Delete”. When a contract is deleted, the operational tasks created under it and the tasks created according to the schedule are preserved (the name of the contract is displayed in the task), the schedule itself is deleted.

2.2.2 Task map

To switch to the task map window, click the “Map” button on the top panel of the task module page. In the opened window, you will see a map with tasks that have coordinates (Fig. 2.10).

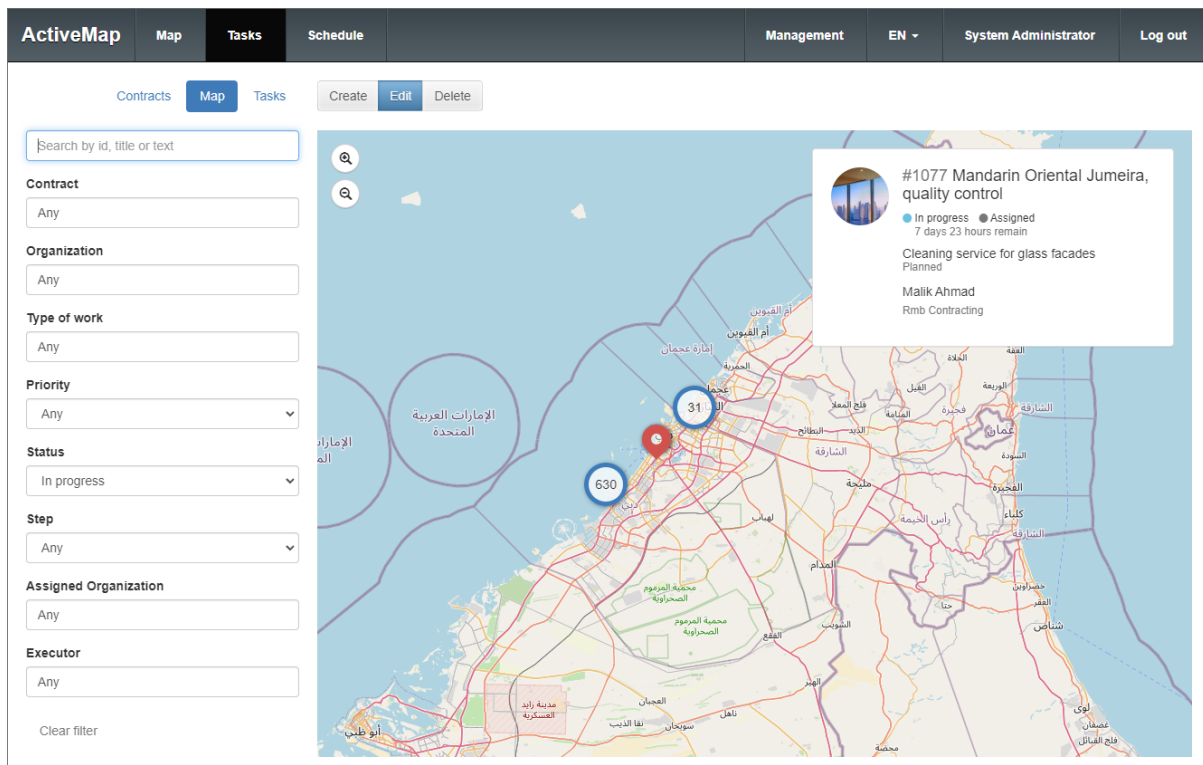


Fig. 2.10: Map of tasks with coordinates

Clustering is used when displaying icons on the map. Clustering is the display of a group of point layer objects located nearby with a single mark on the map (more about clustering in

Editing a layer (page 105) section). The circle indicates the number of tasks grouped into the cluster.

The color of the task icon depends on its current status:

- In progress – blue;
- Completed – green;
- Rejected – gray.

The colors are fixed and you cannot edit them.

You can select a task on the map and view detailed information about it. When clicked, the task icon turns red. The task card displays the following information:

- ID
- Title
- Status
- Step
- Deadline
- Type of work
- Priority
- Assigned organization
- Executor

If the task was created by a schedule, the schedule name is also displayed. You can switch to the schedule or template editing mode (Fig. 2.11).

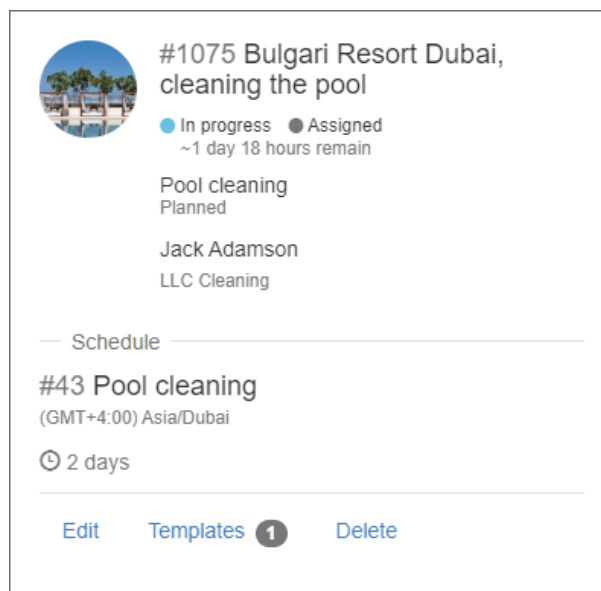


Fig. 2.11: Task information on the map

To the left of the map there is a filter area for selecting tasks based on various parameters:

- Search by Id, title or text;

- Contract (if you have access);
- Organization;
- Type of work;
- Priority;
- Status;
- Step;
- Assigned organization;
- Executor.

To search for a task, enter part of its number, name, or description. To filter tasks by status, type of work, step, priority, organization, performing organization, or executor, select values from the dropdown list. After entering and selecting all filtering parameters, the map displays tasks that meet the specified criteria.


2.2.2.1 Creating an operational task

To generate a new operational task, click the “Create” button. A window opens with “Main” and “Files” tabs ([Fig. 2.12](#)).

Create task

MainFiles

Select a service object



Title *

Contract

Not specified

Organization *

Not specified

Type of work *

Not specified

Priority *

Planned

Assigned Organization

Not specified

Executor

Not specified

Description

Until

dd.mm.yyyy



--:--

Cancel

Create

Fig. 2.12: New task creating window

The “Main” tab displays a map to specify the location of the object and fields to fill in the task characteristics.

To mark the location of the task object on the map, zoom in to the area of interest using  and  buttons and/or mouse and click on the map. You can also enter the address of the object in the search field. The search results are displayed as a list. When you hover over each of them, the Program moves to the specified address on the map (Fig. 2.13). If the task is not bound to a specific location, the geolocation can be omitted.

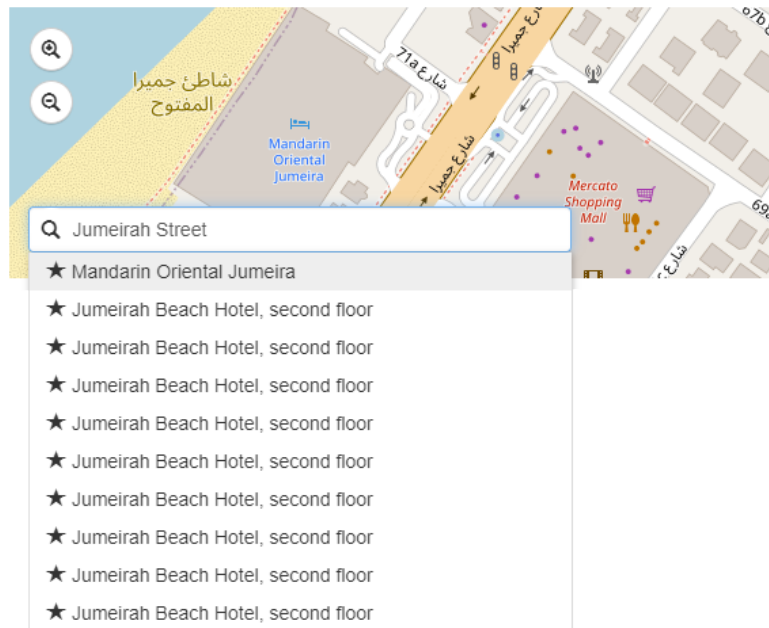


Fig. 2.13: Search for object address on the map

You can link a task to a service object. To do this, click “Select a service object” above the map. Choose the service object layer in the left part of the opened window in the “Layers” tab. After that, objects of this layer are displayed in the “Objects” tab in the right part of the window. You can use the search line in each of the tabs. Select an object in the list and click “Select” (Fig. 2.14).

Choose service object

Layers

Search by ID or name

#	Name
2	New tasks
3	Tasks in work
4	Done tasks
5	Service objects
27	Hotels
28	Office centers
77	Shopping centers

Found 7 records

Objects

Search by ID or name

#	Name
2	Atlantis, The Palm
9	Bulgari Resort Dubai
8	Chelsea Plaza Hotel
1	Dubai Marine Beach Resort & SPA
7	Hyatt Place Dubai Jumeirah
4	Jumeirah Beach Hotel
5	Mandarin Oriental Jumeira
3	Marbella Resort
10	Riyami Apartment

Found 9 records

Cancel

Select


Fig. 2.14: Service object selection window

The selected service object is displayed on the map in the task window, the task fields are filled in according to the configured mapping. You can edit filled fields and enter values into empty fields (mandatory fields are marked with an asterisk) (Fig. 2.15):

Create task

Main Files

By Object Mandarin Oriental Jumeira ✕



Title

Mandarin Oriental Jumeira, hotel network maintenance

Contract

Not specified

Organization *

Network Installers

Type of work *

Task

Priority *

Planned

Assigned Organization

Network Installers

Executor

James Brown

Description

Check the condition of the hotel network and fix any problems

Until

01.03.2025 18:00

Cancel Create

Fig. 2.15: Task creation window with the selected service object and filled fields

- **Title** – a brief description of the problem/goal of the task (mandatory field).
- **Contract** – the contract under which the work is carried out.
- **Organization** – the organization on whose behalf the task is created (mandatory field). This field is available to the System Administrator, System Inspector, Cluster Administrator, and Cluster Inspector.
- **Type of work** – type of work for the task (mandatory field).
- **Priority** – a characteristic of the urgency of the task (mandatory field). You can choose from the list: planned, unplanned, additional, etc.

- **Assigned organization** – the organization to which the task is assigned for execution. When you select a contract, the system automatically fills in the field with the value specified in the contract. When you select an organization, it uses the value from the organization card.
- **Executor** – the user responsible for performing the task.
- **Description** – a detailed description of the task.
- **Until** – the date and time by which the task should be completed.
- **Custom fields** – additional fields of different formats previously created and linked to a specific type of work.

If there are composite fields among the custom fields, the task creation window displays the specified minimum number of nested fields of the composite field and the “Add” button (Fig. 2.16). You can add nested fields up to the maximum number set in the settings and delete them down to the minimum. Once the threshold values are reached, the “Add” button becomes inactive. If both the minimum and maximum number of instances for a field are set to 1, you cannot add or remove nested fields. These rules apply to composite fields at both the first and second levels.

Create task

Inspection results

✕

ID *

113

Model

N300 Wireless N Outdoor Access Point

On

Inspection report

PDF

report_113....

✕

ID *

114

Model

AC1200 Wireless MU-MIMO Gigabit Indoor/Outdoor Access Point

On

Inspection report

Cancel

Create

Fig. 2.16: Filling in composite fields in the task creation window

If the task has a custom field of the “File” format, you can attach files to the task by clicking the corresponding button under the field name (Fig. 2.17).

2.2. Tasks module

19

Create task

Inspection results

ID *
113

Model
N300 Wireless N Outdoor Access Point

On

Inspection report

PDF
report_113....

ID *
114

Model
AC1200 Wireless MU-MIMO Gigabit Indoor/Outdoor Access Point

On

Inspection report

Add

Documents

Cancel Create

Fig. 2.17: Adding a file to a custom field in the task creation window

Icons indicate which file types (one or more) are available for upload: photo, video, audio, or document (for other file types). If the photo added to the custom field was the first one, it becomes the main one. Changing the allowed file types does not affect already uploaded files, but applies to new uploads.

The number and size of attached files cannot exceed the set minimum and maximum values. If no minimum and maximum values are set, you can add any number of files of any size. Changes to the minimum and maximum values do not affect existing tasks, but apply to newly created ones.

In addition to using the custom field, you can also attach files to a task in the “Files” tab (Fig. 2.18). These can be photos, videos, audio recordings, or text files.

The screenshot shows a 'Create task' window with two tabs: 'Main' and 'Files'. The 'Files' tab is active. Below the tabs, there is a section titled 'Attach a file' with icons for a file, a photo, a video, and an audio file. A file named 'way-1.jpg' is shown as attached. At the bottom right of the window are 'Cancel' and 'Create' buttons.

Fig. 2.18: Adding files to a new task in the “Files” tab

2.2.2.2 Editing a task

The ability to edit task fields depends on the role of the user. To edit a task, click on its icon and then click “Edit” at the top of the window. The task opens in the edit mode. Here you can fill in/modify the available fields (Fig. 2.19).

The screenshot shows the 'Task editing window' in the ActiveMap application. The window has a top navigation bar with 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management', 'EN', 'System Administrator', and 'Log out'. The 'Tasks' tab is selected. The task details for '#422 Bulgari Resort Dubai, hotel network maintenance' are displayed. The task is in 'Planned' status, assigned to 'Peter Jones' and 'Helping' organization. The description is 'Check the condition of the hotel network and fix any problems.' The 'Until' date is '20 04 : 2024' and the 'Height' is 'Integer'. A map of the resort area and a photo of the resort are also shown. The window includes 'OK', 'Apply', 'Cancel', and 'Close' buttons at the top.

Fig. 2.19: Task editing window

You can attach new files to a task. Click the  icon on the right side of the window, select the file type, and press Enter to submit a comment (Fig. 2.20).

are linked to a specific custom field. However, users can delete these files in other system applications, such as ActiveMap Desktop or ActiveMap Mobile.

To delete a file from a custom field, click on the preview and check if a trash bin icon appears instead of it (Fig. 2.22). Then, click the “OK” or “Apply” button. This action removes the selected file from the custom field.

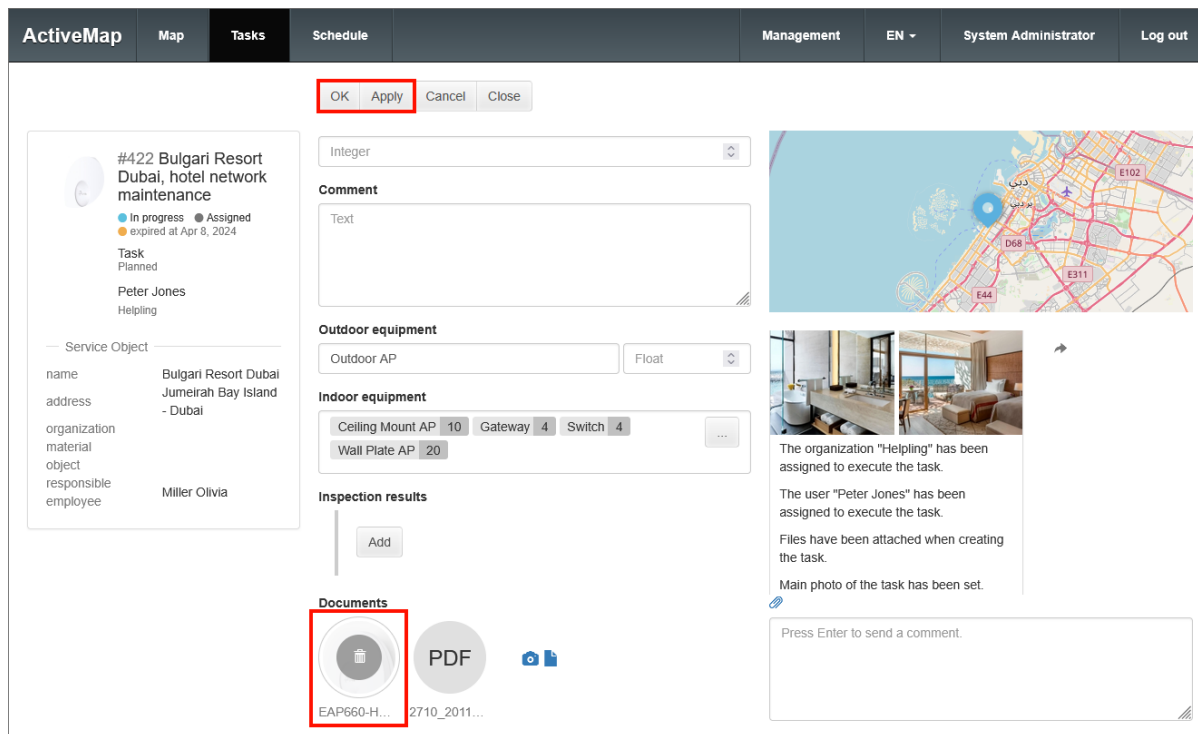


Fig. 2.22: Deleting an attached file from a custom field

After making the changes, click one of the buttons located at the top of the editing window:

- “OK” – saves changes and go to the list of tasks.
- “Apply” – saves changes without closing the editing window.
- “Cancel” – cancels all changes made before saving.
- “Close” – closes the editing window (changes are not saved if they are not saved before closing).

When saving the changes made in the “File” format field, the system checks the type, number and size of newly entered files. If any condition is not met, the system displays a corresponding message and does not save the changes.

If the task is not editable, only the “Close” button is active.

2.2.2.3 Deleting a task

To delete an existing task, click on its icon and then click “Delete” at the top of the window. Confirm the action in the pop-up information window (Fig. 2.23).

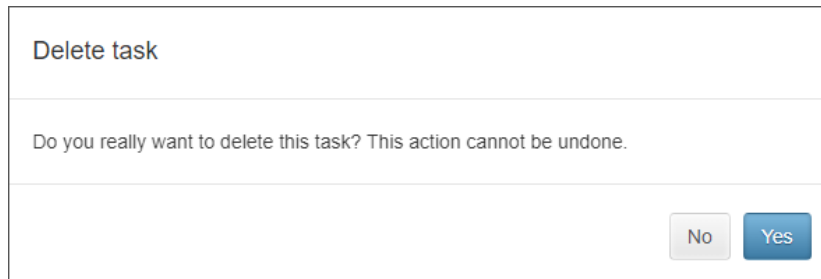


Fig. 2.23: Deleting a task

If the user does not have access to deleting tasks, a “No access rights” message appears.

2.2.3 Task list

To access the task list, click “Tasks” on the top panel of the “Tasks” module page. In the window that opens, you can see all the tasks created so far, including tasks without georeferencing (Fig. 2.24).

Date	Task Name	Status	Assigned User
Sep, 18 10:22 #1078	Bulgari Resort Dubai, quality control	Assigned	Samuel Adamson
Sep, 18 10:22 #1077	Mandarin Oriental Jumeira, quality control	Assigned	Malik Ahmad
Sep, 18 10:18 #1076	Riyami Apartment, cleaning the hallway	Assigned	Adam Grey
Sep, 18 06:00 #1075	Bulgari Resort Dubai, cleaning the pool	Assigned	Jack Adamson
Sep, 17 19:00 #1074	Atlantis, The Palm	Assigned	Cooper George

Fig. 2.24: List of tasks available to the user

Just like in the task map window, you can filter, edit, and delete existing tasks in the task list window, as well as create new operational tasks.

The filter area located to the left of the list of tasks is intended for searching in the general list. After entering and selecting all the filtering parameters, the list displays the tasks that meet the specified criteria.

To create a new operational task, click the “Create” button, fill in the fields in the opened window, and save the changes. Creation of tasks is described in detail in the [Creating an operational task](#) (page 13) section.

To edit a task, select the required task and click “Edit” at the top of the window or double-click on the task. In the window that opens, make the necessary changes and save them. Editing tasks is described in detail in the [Editing a task](#) (page 21) section.

To delete an existing task, select it, click “Delete”, and confirm your action in the opened window.

2.2.4 Schedules

Schedules allow users to generate tasks automatically, based on templates (typical tasks), at a certain time with the required frequency. To go to the section with schedules and task templates, click “Schedule” on the top panel of the page. The schedule window with a calendar opens (Fig. 2.25).

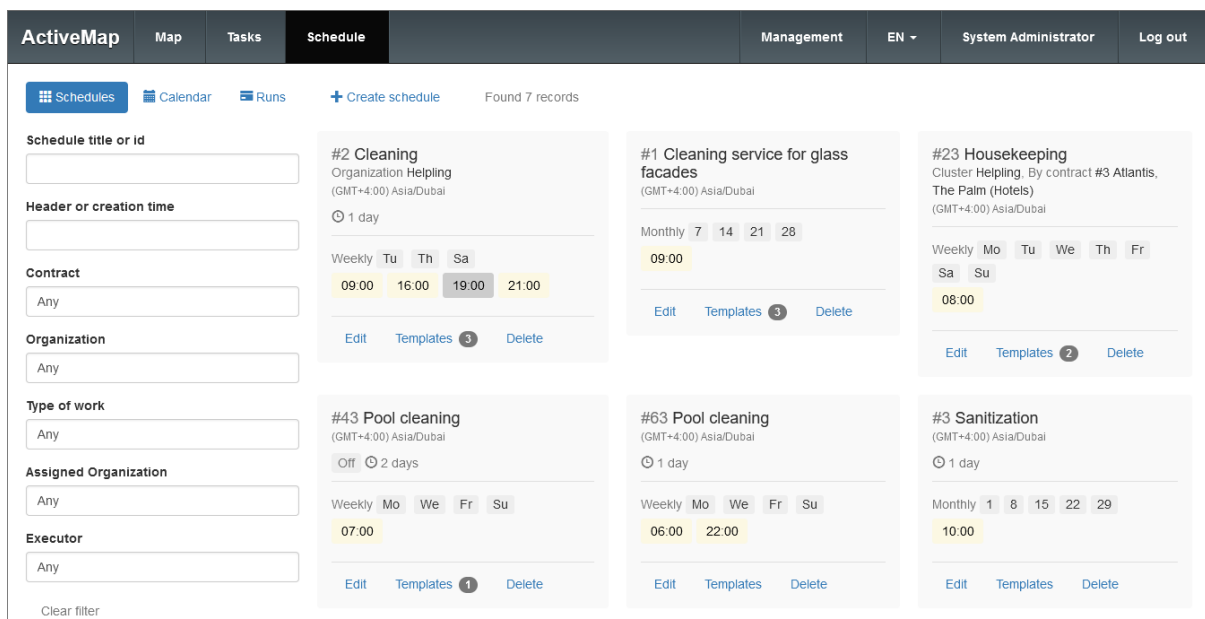


Fig. 2.25: Schedule window with calendar

The window contains the following elements:

1. “Schedules” button – switches to the cards of all available schedules.
2. “Calendar” button – switches to the calendar with schedule launches (the calendar is opened by default when you go to the schedules section).
3. “Runs” button – switches to the cards of schedules with launches for the selected date.
4. “New schedule” button – switches to the schedule creation window.
5. Legend of the status of creating tasks with the ability to turn on/off.

6. Filter panel.
7. Calendar with marked task status.

When you click the “Schedules” button, you switch to the cards of all available schedules. The schedule card displays its name, organization, cluster, contract, launch (task creation) time, and a button taking to the list of templates attached to the schedule (Fig. 2.26).

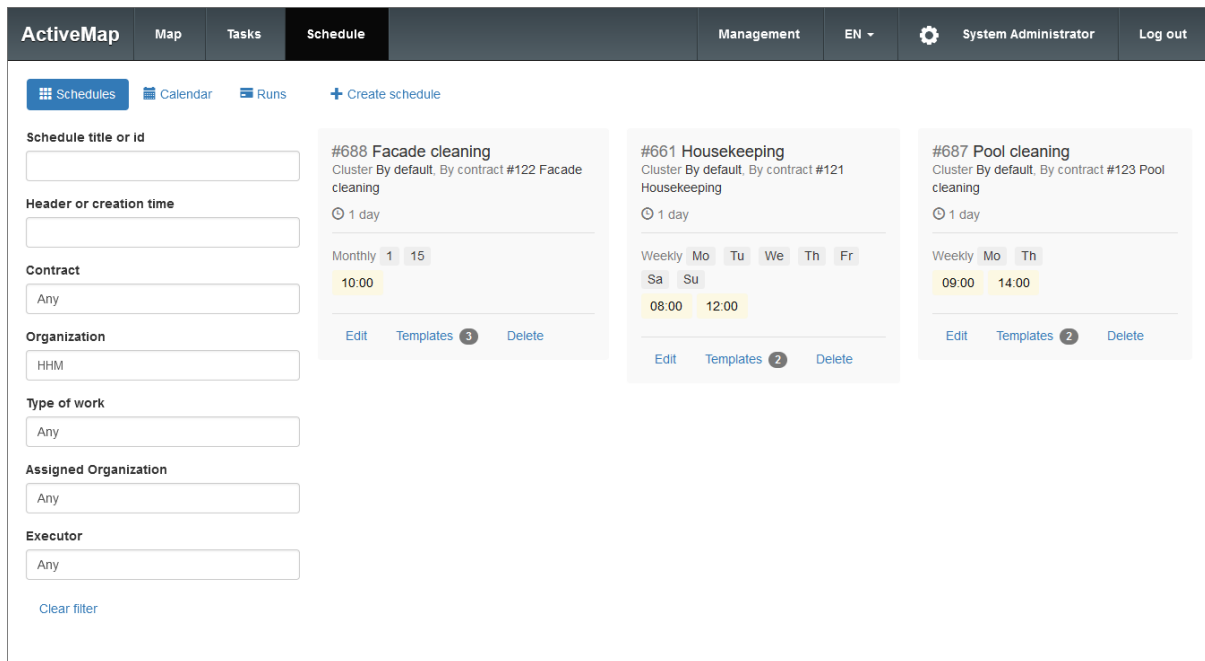


Fig. 2.26: Schedule cards

Clicking the “Calendar” button takes you to the calendar with schedule launches. The calendar with the current month is opened by default when switching to the schedules section (Fig. 2.25). The calendar cells display the number of tasks created by the schedule for the day. Tasks are grouped and color coded by status. The colors of the status are displayed in the legend in the upper right part of the window (completed, in progress, planned, and failed). Click a status name to enable/disable displaying of the corresponding tasks in the calendar. Double-clicking a date in the calendar opens the launches window for that day.

You can go to the same window by clicking the “Runs” button. In the left part of the window, there is a smaller version of the calendar with task status marks (Fig. 2.27).

The screenshot displays the 'Schedule' module in the ActiveMap Web admin interface. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management', 'EN', 'System Administrator', and 'Log out'. Below the navigation bar, there are tabs for 'Schedules', 'Calendar', and 'Runs', along with a '+ Create schedule' button and status filters: 'Completed', 'In progress', 'Planned', and 'Failed'. The main content area is divided into three sections. On the left is a calendar for June 2024, with the 19th selected. In the center and right are two schedule cards. The first card, '#43 Pool cleaning', shows a launch at 07:00 with 1 template. The second card, '#23 Housekeeping', shows a launch at 08:00 with 2 templates and a 'Restart' button. Below the calendar and cards is a form with fields for 'Schedule title or id', 'Header or creation time', 'Contract', 'Organization', 'Type of work', 'Assigned Organization', and 'Executor', each with a dropdown menu set to 'Any'. A 'Clear filter' button is at the bottom left.

Fig. 2.27: Launches for the selected date

The schedule cards with launches for that day are placed to the right of the calendar. The schedule card displays the following information:

- Title.
- Organization, cluster, or contract (if any).
- Time zone.
- Deadline.
- Buttons for editing, going to the list of templates attached to the schedule, and deleting.
- Creation time and number of created tasks with status markings. Clicking on a creation time in the card takes you to the task templates created at that time (Fig. 2.28). You can edit or delete these templates.

Fig. 2.28: Task templates

Creating and editing schedules and task templates are available for the following roles:

- System Administrator
- Cluster Administrator
- Organization Administrator

Depending on the scope and the role of the user creating the schedule, schedules are divided into 3 types:

- Global (system-wide), created and edited by the System Administrator;
- Cluster level, created and edited by both the System Administrator and the Cluster Administrator;
- Organization level, created and edited by the System Administrator, the Cluster Administrator, and the Organization Administrator.

2.2.4.1 Creating a schedule

To create a new schedule, click the “+ Create schedule” on the top panel of the window.

In the form that opens (Fig. 2.29), enter the following information:

- Name of the schedule;
- Time zone;
- Deadline;
- Cluster, contract, or organization (you can leave the field blank or specify only one of these parameters);
- Start date;
- Finish date.

Fig. 2.29: Schedule creation window

If the time zone is not selected, the schedule defaults to the organization’s cluster time zone. Global schedules must also be linked to a reference system, so they default to the server’s time zone. Thus, each schedule has its own time zone, relative to which the start dates and times are set.

The System Administrator can leave the “Cluster,” “Contract,” and “Organization” fields blank. In this case, the schedule will be global, valid in all organization clusters. The System Administrator and Cluster Administrator can select the schedule’s cluster. In this case, the “Contract” and “Organization” fields will be unavailable. The schedule will be cluster-specific, valid within the specified cluster. The System Administrator, Cluster Administrator, and Organization Administrator can select the organization within which the schedule will apply. In this case, the “Cluster” and “Contract” fields will be unavailable.

If you specify a contract with an expiration date when creating a schedule, the finish date is

applied to the schedule. In this case, there is no need to specify the start and finish date and time of the schedule, since the contract expiration date has a higher priority. If the schedule is attached to a contract, its expiration date is automatically synchronized with the contract whenever the dates in the contract change. If the schedule has an expiration date, but the associated contract does not, synchronization does not occur.

Afterward, you should add the start time and configure the schedule's recurrence, excluding weekends if needed. To set the start time, go to the "Weekdays" tab, click "Add", and specify the task creation time. You can add multiple runs (Fig. 2.30).

The screenshot shows the 'Schedule' configuration page in the ActiveMap Web admin interface. The 'Weekdays' tab is selected. The 'Name' field contains 'Pool cleaning'. The 'Creation time' section has a 'Weekly' recurrence selected. Below this, there are two time input fields: '06:00' and '22:00', each with a trash icon and a '+ Add' button. A red box highlights the '+ Add' button and the two time input fields. Other fields include 'Time Zone' (GMT+4:00 Asia/Dubai), 'Cluster' (Not specified), 'Contract' (Bulgari Resort Dubai), 'Organization' (Not specified), 'Deadline' (1 day), 'Start date' (01.01.2024), and 'Finish date' (01.01.2030).

Fig. 2.30: Adding a schedule start time

Next, you should define the days on which tasks will be created. The system provides several options for scheduling: weekly, monthly, yearly, or any dates. If the dates are set outside the schedule validity period, the tasks will not be created on these dates.

If you select the "Weekly" option, a list opens where you can select the days of the week on which tasks will be created during the validity period of the schedule (Fig. 2.31).

The screenshot shows the 'Schedule' configuration page in the ActiveMap web admin interface. The 'Weekly' option is selected under 'Creation time'. The 'On' toggle is turned on. The 'Time Zone' is set to '(GMT+4:00) Asia/Dubai'. The 'Cluster' is 'Not specified'. The 'Contract' is 'Bulgari Resort Dubai'. The 'Organization' is 'Not specified'. The 'Deadline' is set to 1 day, 0 hours, and 0 minutes. The 'Start date' is '01.01.2024' at '06:00'. The 'Finish date' is '01.01.2030' at '20:00'. The 'Weekdays' tab is active, showing a list of days with checkboxes: Monday (checked), Tuesday (unchecked), Wednesday (checked), Thursday (unchecked), Friday (checked), Saturday (unchecked), and Sunday (checked).

Fig. 2.31: Activation of weekly schedule runs

Selecting the “Monthly” option opens the calendar for the month. Mark the dates to run the schedule (Fig. 2.32). Tasks will be created on the specified dates monthly for the duration of the schedule.

The screenshot shows the 'Schedule' configuration page in the ActiveMap web admin interface. The 'Monthly' option is selected under 'Creation time'. The 'On' toggle is turned on. The 'Time Zone' is set to '(GMT+4:00) Asia/Dubai'. The 'Cluster' is 'Not specified'. The 'Contract' is 'Bulgari Resort Dubai'. The 'Organization' is 'Not specified'. The 'Deadline' is set to 1 day, 0 hours, and 0 minutes. The 'Start date' is '01.01.2024' at '06:00'. The 'Finish date' is '01.01.2030' at '20:00'. The 'Holidays' tab is active, showing a calendar grid for the month of January. The dates 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, and 31 are marked with a checkmark, indicating they are selected for the schedule.

Fig. 2.32: Activation of monthly schedule runs

Selecting the “Yearly” option opens a calendar for the year. Mark the dates to run the schedule (Fig. 2.33). Tasks will be created on the specified dates every year for the duration of the

schedule.

The screenshot shows the 'Schedule' configuration page in the ActiveMap web admin interface. The 'Yearly' option is selected under 'Creation time'. The 'Any dates' toggle is also visible. The calendar grid for 2024 shows all dates from January 1st to December 31st marked with blue squares, indicating the schedule is active for the entire year.

Fig. 2.33: Activation of yearly schedule runs

Selecting the “Any dates” option opens a calendar for the current year. Mark specific dates to run the schedule (Fig. 2.34). You cannot select dates prior to the current day. Tasks will be created on the specified dates for the duration of the schedule.

The screenshot shows the 'Schedule' configuration page in the ActiveMap web admin interface. The 'Any dates' toggle is selected. The calendar grid for 2024 shows specific dates marked with blue squares, indicating the schedule is active on those specific dates. The 'Any dates' toggle is also visible.

Fig. 2.34: Activation of schedule runs on specific dates

If the dates in different tabs overlap (for example, Monday and the 1st day), the system will

create a single task without duplication.

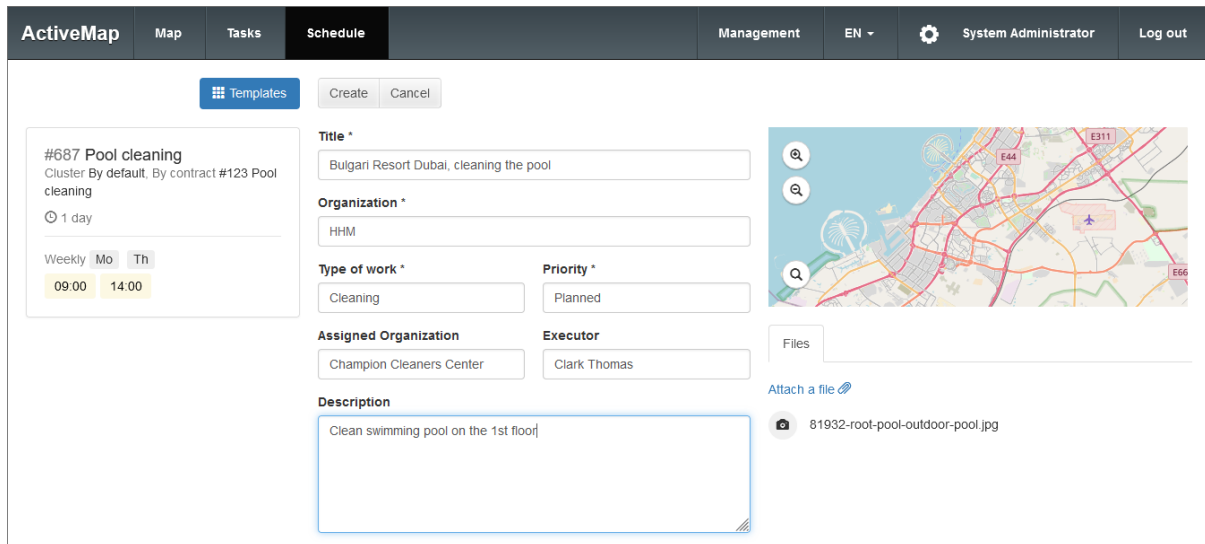
You can set non-working days when it is unnecessary to create schedule tasks. For example, a holiday or vacation of an assigned employee. To do this, switch to the “Holidays” tab after determining the periodicity of creating tasks. Similar to the working days, choose the appropriate tab and mark the non-working days (Fig. 2.35). You can also set non-working days in an already created schedule. In this case, the system removes the start time of tasks on the specified days.

Fig. 2.35: Setting non-working days

To view all task creation dates in the calendar before saving the schedule, click the “Preview” button. The calendar window opens, showing all dates when tasks will be created. Non-working days are highlighted in purple (Fig. 2.36).

2.2.4.2.1 Creating a task template

To create a task template, click the “New template” button, fill in the form, and click “Create” (Fig. 2.37).



The screenshot shows the 'Template creation window' in the ActiveMap web application. The interface includes a top navigation bar with tabs: ActiveMap, Map, Tasks, Schedule, Management, EN, System Administrator, and Log out. The 'Tasks' tab is active, and the 'Templates' sub-tab is selected. The form contains the following fields:

- Title ***: Bulgari Resort Dubai, cleaning the pool
- Organization ***: HHM
- Type of work ***: Cleaning
- Priority ***: Planned
- Assigned Organization**: Champion Cleaners Center
- Executor**: Clark Thomas
- Description**: Clean swimming pool on the 1st floor

On the left side of the form, there is a summary card for '#687 Pool cleaning' with details: 'Cluster By default, By contract #123 Pool cleaning', '1 day' duration, and a weekly schedule from 09:00 to 14:00. On the right, there is a map showing the location of the pool and a file upload section with the file '81932-root-pool-outdoor-pool.jpg' attached.

Fig. 2.37: Template creation window

When selecting a contract in the task template, the “Assigned Organization” field is automatically filled in with the value specified in the contract. When selecting the creator organization, the “Organization” field is automatically filled with the value specified in the organization card. When creating a template, the “Priority” field is automatically set to the first value from the list if all available priorities are either global or from the same cluster.

If the schedule was created under a contract that specifies service objects, you cannot create a task or template based on this contract without service objects.

To add a task template to an existing schedule, go to its card in the “Schedules” tab and click “Templates” (Fig. 2.38).

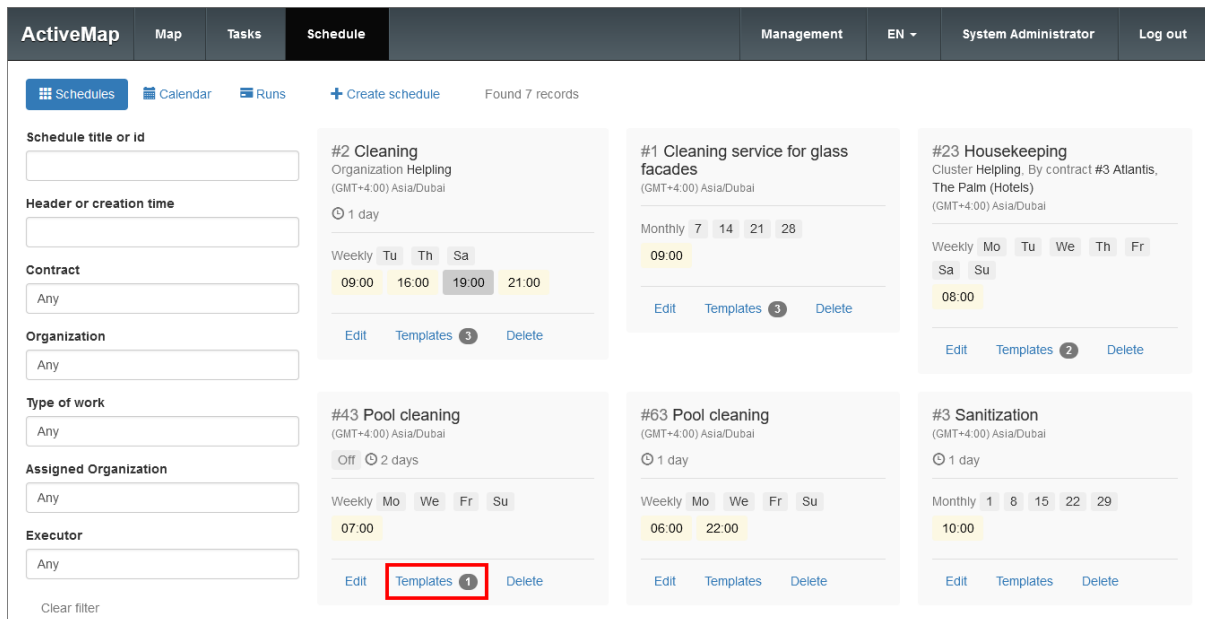


Fig. 2.38: Navigating to templates from the schedule card

In the opened window, click the “New template” button. Perform the same actions as when creating the first template.

2.2.4.2.2 Editing a task template

To change the data of a template, click “Edit template” on the template card (Fig. 2.39).



Fig. 2.39: Template editing

The task template card form opens where you can make changes and save them.

If a type of work, priority, organization, assigned organization, or assigned executor used in a template is deleted from the system, a red marker appears next to the deleted value in the template card (Fig. 2.40).

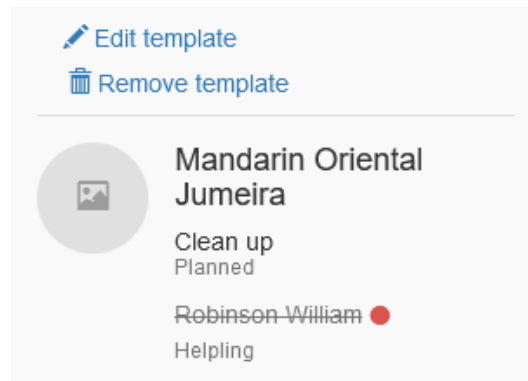


Fig. 2.40: Deleted value marker in the template card

Tasks based on this template will not be created until the deleted value is replaced with an existing one in the template.

2.2.4.2.3 Deleting a task template

To delete a task template, click “Remove template” on the task template card (Fig. 2.41).



Fig. 2.41: Template deletion

2.2.4.3 Schedule editing

To make changes, select the schedule card in the general list of schedules, in the calendar, in the list of launches, or in the task card created according to the schedule and click “Edit” (Fig. 2.42).

ActiveMap | Map | Tasks | **Schedule** | Management | EN | System Administrator | Log out

Schedules | Calendar | Runs | + Create schedule | Found 7 records

Schedule title or id

Header or creation time

Contract

Any

Organization

Any

Type of work

Any

Assigned Organization

Any

Executor

Any

Clear filter

#2 Cleaning
Organization Helping
(GMT+4:00) Asia/Dubai
1 day
Weekly Tu Th Sa
09:00 16:00 19:00 21:00
Edit Templates 3 Delete

#1 Cleaning service for glass facades
(GMT+4:00) Asia/Dubai
Monthly 7 14 21 28
09:00
Edit Templates 3 Delete

#23 Housekeeping
Cluster Helping. By contract #3 Atlantis, The Palm (Hotels)
(GMT+4:00) Asia/Dubai
Weekly Mo Tu We Th Fr
Sa Su
08:00
Edit Templates 2 Delete

#43 Pool cleaning
(GMT+4:00) Asia/Dubai
Off 2 days
Weekly Mo We Fr Su
07:00
Edit Templates 1 Delete

#63 Pool cleaning
(GMT+4:00) Asia/Dubai
1 day
Weekly Mo We Fr Su
06:00 22:00
Edit Templates Delete

#3 Sanitization
(GMT+4:00) Asia/Dubai
1 day
Monthly 1 8 15 22 29
10:00
Edit Templates Delete

Fig. 2.42: Edit button in the schedule card

This opens the schedule editing window. Here you can change its name, due date, add a new start time, configure, disable or delete the current start time (Fig. 2.43).

ActiveMap | Map | Tasks | **Schedule** | Management | EN | System Administrator | Log out

Save | Preview | Close | Weekdays | Holidays

Name

Pool cleaning

Creation time Weekly Monthly Yearly Any dates

☒ On ☒ 06:00 ☒ 22:00 + Add

Time Zone

(GMT+4:00) Asia/Dubai

Cluster

Not specified

Contract

Not specified

Organization

Not specified

Deadline

dd 1 hh 0 mm

Start date

01.01.2024 08:00

Finish date

01.01.2030 18:00

Fig. 2.43: Schedule editing window

2.2.4.4 Deleting a schedule

To delete a schedule, select the schedule card (in the general list of schedules, in the calendar, in the list of runs, or in the card of a task created by the schedule) and click “Delete” (Fig. 2.44).

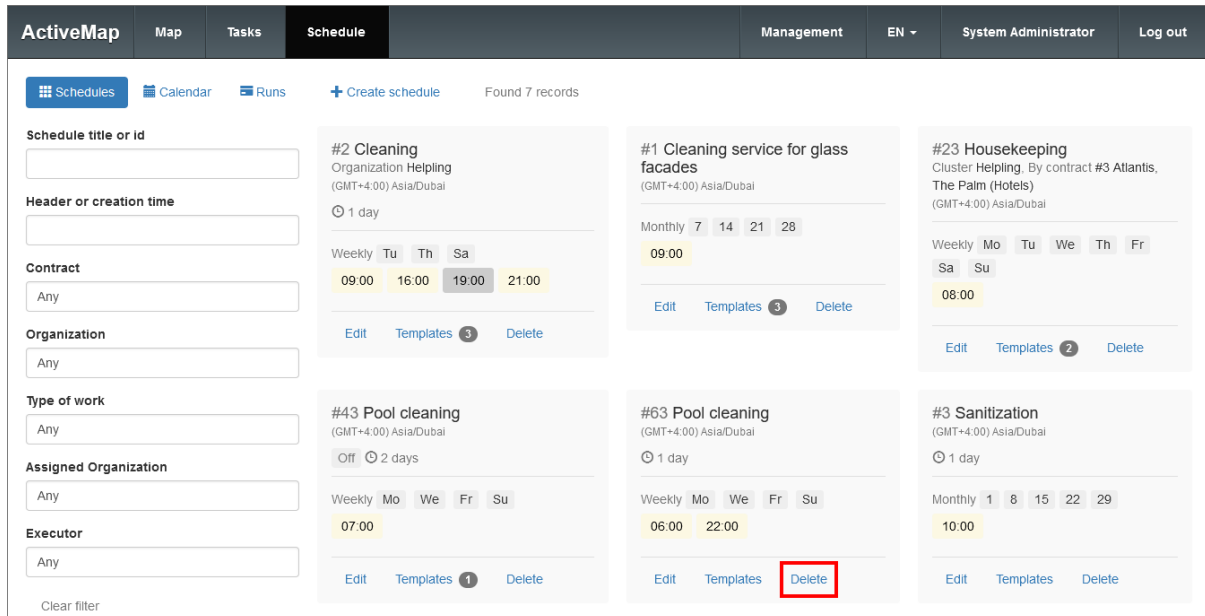


Fig. 2.44: Delete button in the schedule card

Next, you should confirm your actions (Fig. 2.45).

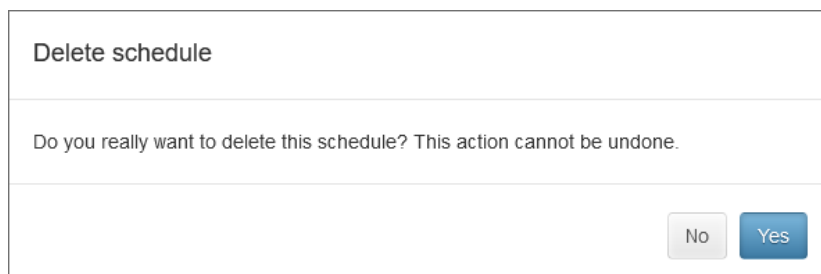


Fig. 2.45: Confirming schedule deletion

After deleting a schedule, all tasks created according to it will remain in the system. The new ones will not be created. The schedule record will remain in the task cards created by the deleted schedule without the ability to navigate to it.

To stop the creation of tasks by a schedule, you can disable the “On” toggle or the time toggles of all runs through the edit form instead of deleting the schedule completely.

2.2.4.5 Restarting a schedule

If a task has not been created according to the schedule for some reason (for example, due to a mismatch of work type, organization, or executor), you can restart the template creation. To do this, click the “Runs” button, select a date and go to the schedule card. Make changes to the template and click “Restart” (Fig. 2.46). The ability to restart the schedule is determined by the role of the user.

However, changing the service object in this way is not possible (changes on the server are not saved). To change the service object, you have to create a new template.

The screenshot shows the ActiveMap web interface with the 'Schedule' tab selected. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management', 'EN', 'System Administrator', and 'Log out'. Below the navigation bar, there are tabs for 'Schedules', 'Calendar', and 'Runs', along with a '+ Create schedule' button and status filters: 'Completed', 'In progress', 'Planned', and 'Failed'. The main content area displays two schedule cards. The first card, '#43 Pool cleaning', shows a calendar for June 2024 with a date selector and a 'Restart' button. The second card, '#23 Housekeeping', shows a similar calendar and a 'Restart' button. Below the cards, there are input fields for 'Schedule title or id', 'Header or creation time', 'Contract', 'Organization', 'Type of work', 'Assigned Organization', and 'Executor', each with a 'Clear filter' button.

Fig. 2.46: Restart from the schedule card

2.3 Management module

The management module is intended for configuring and managing data and system elements: layers, tasks, reports, users, organizations, etc. Only authorized users with certain access rights can work with it.

The main management tools include:

- Exporting, loading, and indexing data;
- Adding, deleting, and editing system elements (tasks, reports, users, and organizations);
- Configuring access rights to the user information.

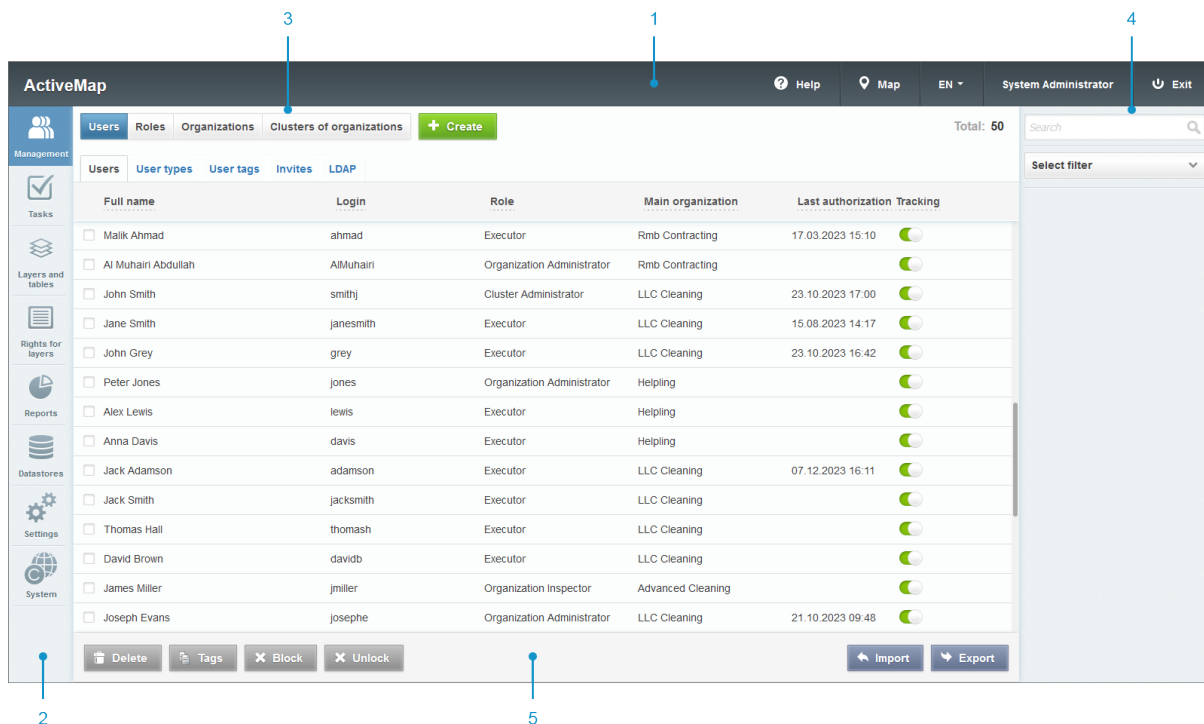


Fig. 2.47: Management module

The management module is divided into the following areas (Fig. 2.47):

1. User panel – contains buttons to access help and map, change program language, and exit the system.
2. Navigation panel of functional blocks – contains the main system management tools.
3. Tab bar – contains information and a set of buttons to manage in each tab.
4. Search string and filter – allows searching for system elements.
5. Administration area – displays selected elements and their components.


2.3.1 Administration area

2.3.1.1 Table sorting

All information about the main system elements (users, organizations, layers, etc.) is presented in the corresponding tabs in a tabular form. Using these tables, you can sort the available data.

To organize information about a particular element of the system, go to the tab with that element and click the title of the column by which the sorting should be done. When you click again on the column header, the sorting is done in reverse order.




2.3.1.2 Search string and filter

A search string  is available on the right side of the page.



To search for an element, enter part of its name in the search string, after which all elements that correspond to the entered query are displayed in the administration area. The search is performed on all elements of the system.



In addition, you can use the filter located below the search string to select data according to specified search criteria. To get the most accurate search results, use the search string and filter at the same time (where both tools are available at once).

2.3.1.3 Adding a new element





To add a new element, go to the section of interest and click . The appropriate rights are required to add new elements. When you click this button, a new window opens, where you have to fill in the required fields and click . To cancel adding a new element, click .

2.3.1.4 Editing an element

To change the data about a certain element, go to the section of interest. Then put the cursor on the element name and click the edit sign  on the right side of the selected row. The edit sign  appears only after hovering over the row with the element name.

Clicking it opens a form where you can enter new information about the selected element and click . To cancel editing the element, click . In addition, you can open the editing form by double-clicking the row with the element name.

2.3.1.5 Deleting an element

To delete a specific element, go to the section of interest. Then hover over the row with the name of this element and click the delete sign  on the right side of the selected row. The delete sign  appears only after hovering over the row with the element name. Clicking it opens a dialog box confirming the deletion of the element. To delete the element from the system, click . To cancel the deletion, click the  button.

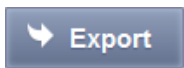
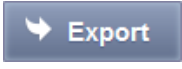
To delete multiple elements, place the mouse cursor on the rows with these elements and select the checkboxes next to their names. After that, the



button becomes available in the lower part of the administration area. When you click it, a dialog box opens, confirming deleting the selected elements.

Note: When you try to delete your user or organization, the message appears in the administration area informing you that deletion is not possible.

2.3.1.6 Data export

The  button is required to export data as a separate Excel file (if you have the appropriate rights). If you use the search string and then click , the downloaded Excel file contains information only about the found elements.

2.3.2 User panel

The user panel consists of the following elements (Fig. 2.48):

- “Help” – redirects from the main system page to the page with manuals.
- “Map” – navigates to the main system page.
- “Interface language” – switches the interface to one of the available languages.
- “User name” – opens a page for editing personal data.
- “Exit” – logs out of the user’s account.

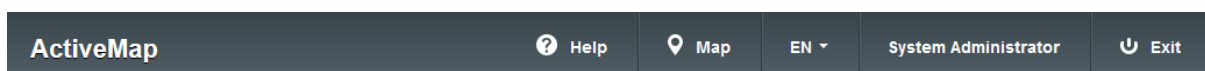


Fig. 2.48: User panel

2.3.3 Navigation panel of functional blocks

The navigation panel has the following functional blocks:

- “Management” – management of organizations, users, and their parameters (*“Management” block* (page 44));
- “Tasks” – management of task parameters (*“Tasks” block* (page 67));
- “Layers” – management of layers, layer groups, and their parameters (*“Layers and tables” block* (page 89));
- “Rights for layers” – management of rights for layers and groups of layers (*“Rights for layers” block* (page 129));

- “Reports” – viewing the list of reports and managing rights to reports (*“Reports” block* (page 133));
- “Datastores” – viewing and creating storages (*“Datastores” block* (page 138));
- “Settings” – viewing and creating system settings (*“Settings” block* (page 141));
- “System” – editing global and language settings of the system, activating licenses (*“System” block* (page 287)).

2.3.3.1 “Management” block

In the “Management” block, you can access detailed information about system users, roles, organizations, and clusters. When navigating to the tabs in the block, the following control elements become available: table sorting, search bar, filters, adding a new entry, editing an entry, deleting an entry, and exporting data.

2.3.3.1.1 “Users” tab

The “Users” tab contains information about registered users in the system, roles, and organizations, and includes second level tabs (Fig. 2.49):

- “Users”
- “User types”
- “User tags”
- “Invites”
- “LDAP”

Users

Basic information about system users is presented in the form of a table with the following columns:


- “Full name” – full name of the user;
- “Login” – username used to log in to the system;
- “Role” – user’s role in the system;
- “Main organization” – user’s affiliation with the organization;
- “Last authorization” – user authorization time in the system applications;
- “Tracking” – management of the user’s monitoring function (enabling the tracking of the user’s movements when using ActiveMap Mobile).

Full name	Login	Role	Main organization	Last authorization	Tracking
<input type="checkbox"/> Al Muhairi Abdullah	AlMuhairi	Organization Administrator	Rmb Contracting		<input type="checkbox"/>
<input type="checkbox"/> John Smith	smithj	Cluster Administrator	LLC Cleaning	23.10.2023 17:00	<input type="checkbox"/>
<input type="checkbox"/> Jane Smith	janesmith	Executor	LLC Cleaning	15.08.2023 14:17	<input type="checkbox"/>
<input type="checkbox"/> John Grey	grey	Executor	LLC Cleaning	23.10.2023 16:42	<input type="checkbox"/>
<input type="checkbox"/> Peter Jones	jones	Organization Administrator	Helping		<input type="checkbox"/>
<input type="checkbox"/> Alex Lewis	lewis	Executor	Helping		<input type="checkbox"/>
<input type="checkbox"/> Anna Davis	davis	Executor	Helping		<input type="checkbox"/>
<input type="checkbox"/> Jack Adamson	adamson	Executor	LLC Cleaning	10.10.2023 13:10	<input type="checkbox"/>
<input type="checkbox"/> Jack Smith	jacksmith	Executor	LLC Cleaning		<input type="checkbox"/>
<input type="checkbox"/> Thomas Hall	thomash	Executor	LLC Cleaning		<input type="checkbox"/>
<input type="checkbox"/> David Brown	davidb	Executor	LLC Cleaning		<input type="checkbox"/>
<input type="checkbox"/> James Miller	jmliller	Organization Inspector	Advanced Cleaning		<input type="checkbox"/>
<input type="checkbox"/> Joseph Evans	josephe	Organization Administrator	LLC Cleaning	21.10.2023 09:48	<input type="checkbox"/>

Fig. 2.49: “Users” tab

If the license information for the number of users has been entered into the system, this tab also displays the information about the maximum number of users available according to the obtained license in the upper right corner. Deleted, blocked, and system users are not taken into account.

Importing users

To upload new users to the system, click  in the lower right corner. A window opens with the following actions (Fig. 2.50):

- “Upload file” – imports an Excel file containing information about users in the form of a table with the structure set in the template.
- “Download template” – exports an Excel template with the structure required for correct import.
- “Cancel” – exits the import window.

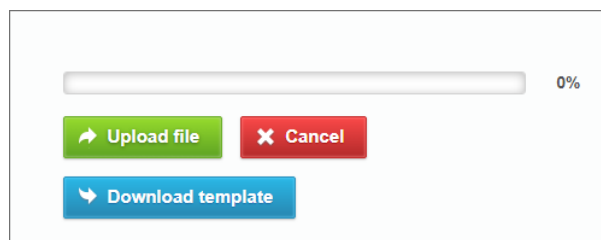



Fig. 2.50: Import users


If the file content is not suitable for import (required fields are not filled in, etc.), the system displays an error message. If you try to import

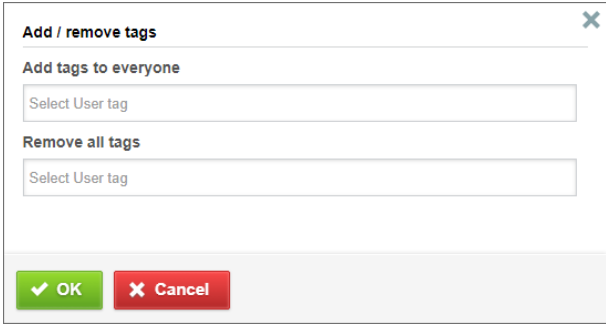
users that already exist in the system, you also receive an error message. After successful import, the new users specified in the file appear in the system.

To export information about users, click  in the lower right corner. A window opens for selecting a directory to save the users.xlsx Excel file. This file contains information about users in the form of a table with the following fields:

- Full name
- Login
- Role
- User type
- Organization
- Cluster
- Additional organizations
- Tracking
- User tags
- E-mail
- Phone
- Address
- Passport

In addition, in the “Users” tab you can bulk add or remove tags to users. To do this, select users by ticking the appropriate checkboxes, then click

 at the bottom of the screen. A window (Fig. 2.51) opens, where you can select tags to add/remove from the drop-down lists.




The dialog box titled "Add / remove tags" has a close button (X) in the top right corner. It contains two sections: "Add tags to everyone" and "Remove all tags". Each section has a text input field with the placeholder "Select User tag". At the bottom, there are two buttons: a green "OK" button with a checkmark and a red "Cancel" button with an X.

Fig. 2.51: Bulk adding and removing user tags

Creating a new user



To add a new user to the system, click . A form ([Fig. 2.52](#)) opens in the administration area, where you have to

- Fill in the personal data of the user (name, login, password, user type, e-mail, phone number, address, and passport).
- Define the user's role in the system (for more information about roles in the system, see [“Roles” tab](#) (page 57)).
- Enable/disable the geoposition monitoring.
- Select the main organization for all roles except System Administrator and System Inspector. Cluster Administrator and Cluster Inspector can leave the main organization field blank.
- Select one or more additional organizations (for all roles except System Administrator and System Inspector).
- Select one or more clusters (when creating users with the Cluster Administrator and Cluster Inspector roles).
- Enable/disable the authorization via LDAP (single authorization system).
- Enable/disable the integration with GIS editor.
- Add an avatar (file in *.jpg format).
- Add user tags (for more information about user tags, see [User tags](#) (page 52)).
- Specify the account expiration date, after which it will be blocked.


The screenshot shows the 'User creating' window in the ActiveMap web admin interface. The window has a dark header bar with the 'ActiveMap' logo and navigation links: 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. A left sidebar contains icons for 'Management' (selected), 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'User creating' and features a form with the following fields and controls:

- Full name ***: Text input field containing 'Malik Ahmad'.
- Geolocation monitoring**: Toggle switch, currently disabled.
- Login**: Text input field containing 'ahmad'.
- Password**: Password input field with masked characters.
- Role**: Dropdown menu set to 'Executor'.
- User type**: Dropdown menu set to 'Person'.
- Main organization ***: Dropdown menu set to 'Advanced Cleaning'.
- Additional organizations**: Searchable dropdown menu.
- LDAP authorization**: Toggle switch, currently disabled.
- Integration with GIS editor**: Toggle switch, currently disabled.
- Avatar**: Image placeholder showing a cartoon character wearing a hard hat.
- User tags**: Text input field containing 'iPhone 13 pro max'.
- Account expiration date (Timezone: Asia/Dubai)**: Date and time picker set to 01 / 01 / 2030 08 : 00.
- E-mail**: Text input field with placeholder 'E-mail'.
- Phone**: Text input field with placeholder 'Phone'.
- Address**: Text input field with placeholder 'Address'.
- Passport**: Text input field with placeholder 'Passport'.

At the top of the form area, there are 'Save and exit' and 'Cancel' buttons. At the bottom of the form area, there are also 'Save and exit' and 'Cancel' buttons.

Fig. 2.52: User adding window

The “Full name” field is mandatory for all user roles. Mandatory fields are marked with an asterisk.

If you leave the remaining optional fields empty, they are automatically filled with default values after clicking  (except for tags and personal data: email, phone numbers, address, and passport details). If you do not specify the account expiration date, it becomes open-ended.


During the simplified creation of a user, an account with the “Executor” role, “Person” type is generated. The login is automatically filled in based on the entered full name. Monitoring is disabled by default. This user is granted access to layers that have the “default rights” setting activated, the layer cluster is not set or match the user’s organization cluster. The main organization is automatically filled with the value of the creator’s main organization (if the creator is not the System Administrator).

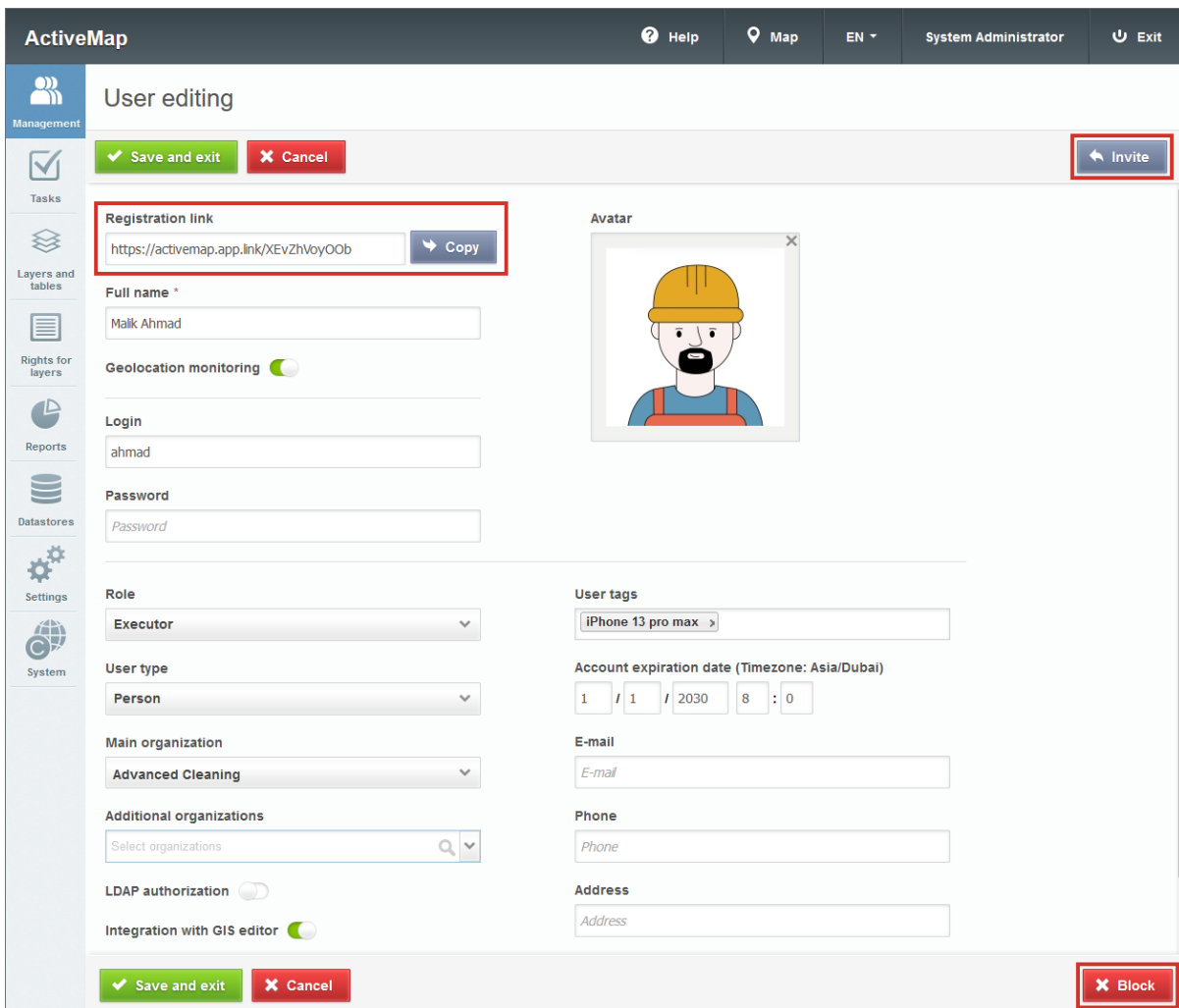
Membership in main and additional organizations allows users of all roles to see the tasks and objects within the layers permitted to the speci-

fied organization. Organization administrators can manage all the added organizations (both main and additional). Selection of additional organizations automatically adds their clusters. The user can see all organizations and users of available clusters. Rights to layers are assigned to each user individually. System and cluster administrators can change the cluster of available layers/data tables.

When creating a user, you can leave the password field empty, and it is automatically generated. In this case, after creating the account, you should generate an invitation and send it to the user. You can set the requirements for password complexity in the system settings (for more information, see [Password Policy](#) (page 283)).

Editing user information



To modify user information, click  or double-click the row with the name of the selected user. A form similar to the adding form opens in the administration area. Here you can fill in/modify the fields with the user information (Fig. 2.53).



The screenshot shows the 'User editing' window in the ActiveMap web administration interface. The window has a dark header bar with the 'ActiveMap' logo and navigation links: 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. On the left, there is a sidebar with icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'User editing' and contains a form with various fields for user information. At the top of the form, there are buttons for 'Save and exit' (green), 'Cancel' (red), and 'Invite' (blue). The form fields include: 'Registration link' (with a 'Copy' button), 'Full name' (text input), 'Geolocation monitoring' (toggle switch), 'Login' (text input), 'Password' (text input), 'Role' (dropdown menu), 'User type' (dropdown menu), 'Main organization' (dropdown menu), 'Additional organizations' (searchable dropdown), 'LDAP authorization' (toggle switch), 'Integration with GIS editor' (toggle switch), 'Avatar' (image input), 'User tags' (text input), 'Account expiration date' (date and time picker), 'E-mail' (text input), 'Phone' (text input), and 'Address' (text input). At the bottom of the form, there are buttons for 'Save and exit' (green), 'Cancel' (red), and 'Block' (red).

Fig. 2.53: User editing window



Additionally, the editing form includes:

-  – closing the user's access to the System.
-  – generating a new invitation for the user.
- The last active invitation link to the System with a copy button.

If a Cluster Administrator or Inspector deletes a cluster, all organizations of this cluster becomes unavailable to them. However, it is not possible to delete the cluster of the main organization.

Deleting users

In the “Users” tab, you can delete one or several users at the same time.

To delete one user, click  on the right side of the user line. To delete several users at the same time, select the checkboxes near user names and click  at the bottom of the screen. For more information about deleting system elements, see [Deleting an element](#) (page 42).

Searching for users

You can use the search bar to find users by their name or login. To find a user by organization, cluster, role, type, tag, login, LDAP authentication status, and lock status, use the filter located below the search bar.

User types

The tab contains a table with information about user types (Fig. 2.54).

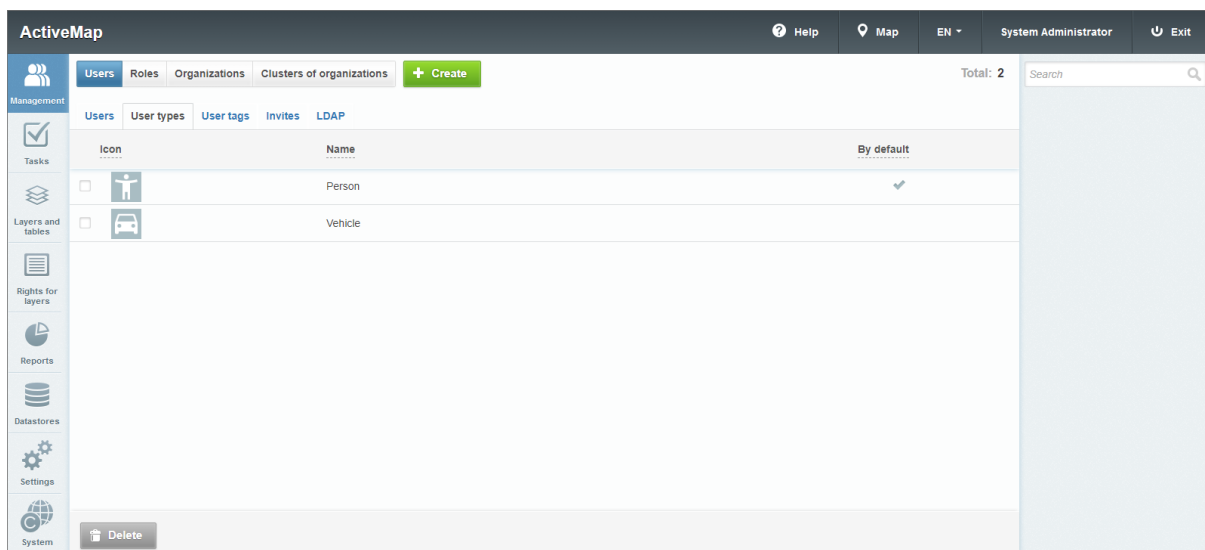



Fig. 2.54: “User Types” tab

There are two user types that are automatically available in the system: “Vehicle” and “Person”. “Person” is always the default type and you cannot delete it. Any other user type cannot be the default.

You can also create other types. To do this, click  at the top of the screen. A window opens (Fig. 2.55), where you should set the type name, add an icon, and specify whether to display the avatar and initials of the user on the map.

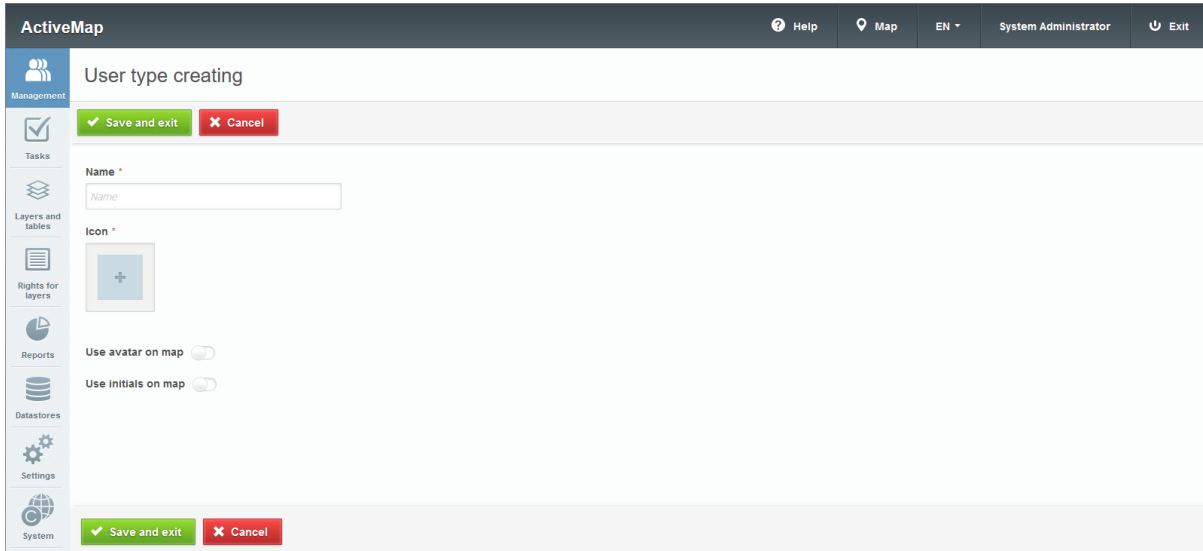





Fig. 2.55: Creating a user type

The name and the icon are mandatory. If both “Use avatar on map” and “Use initials on map” toggle switches are disabled, the icon is displayed on the map. If both toggle switches are enabled, then the avatar has priority (if any), then the initials, then the icon.

To edit the user type, hover over the type row and click . A window similar to the creation window opens, allowing you to enter or modify the information.

To delete one user type, click  on the right side of the row. To delete multiple user types at once, check the corresponding rows and click  at the bottom of the screen. See [Deleting an element](#) (page 42) for more information about deleting system elements.

User tags

The tab contains a list of user tags with colors and names of tags (Fig. 2.56). Tags are used to display information about the user, in addition to the information provided by the system. For example, the user's phone model.

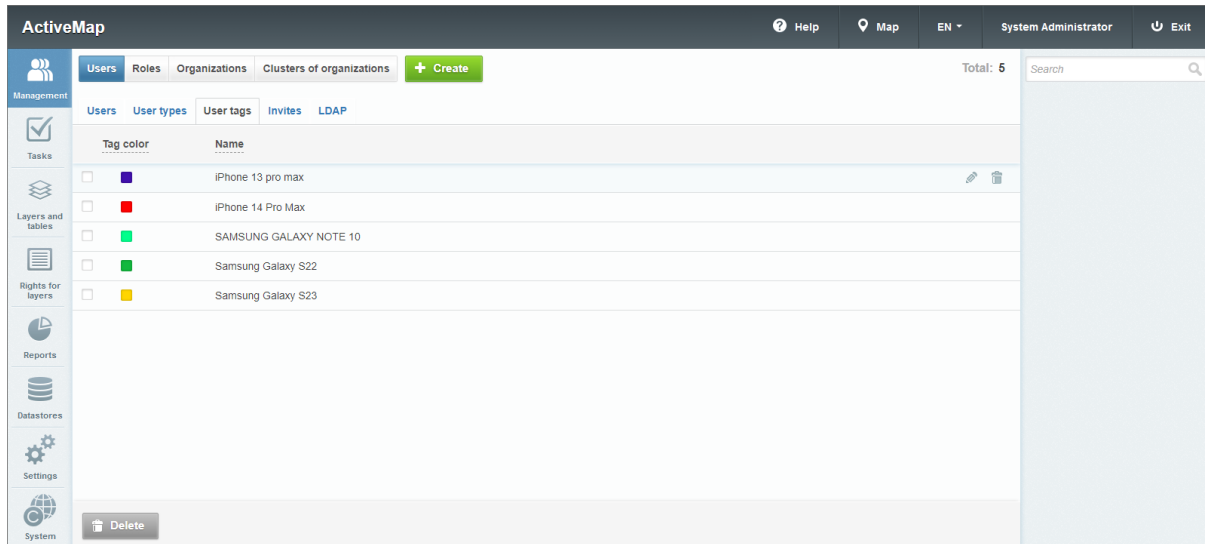



Fig. 2.56: “User tags” tab

To add a new tag, click  and fill in the “Name” and “Tag color” fields. Both fields are required (Fig. 2.57).

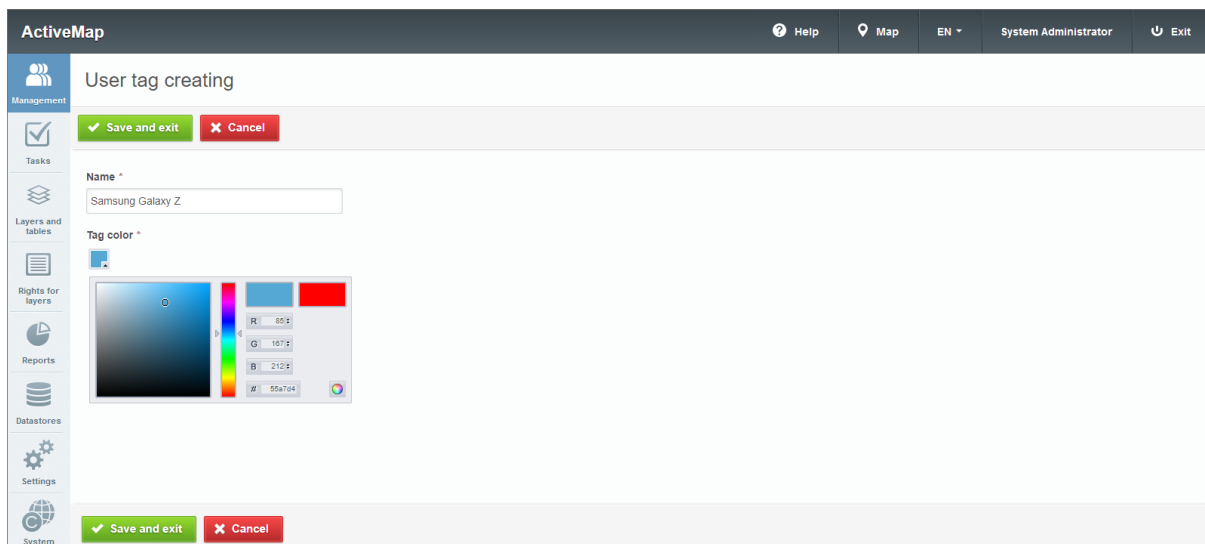


Fig. 2.57: Adding a user tag

After specifying the user's tag in the “Users” tab in the “User tags” field, it appears in the user's card (Fig. 2.58)

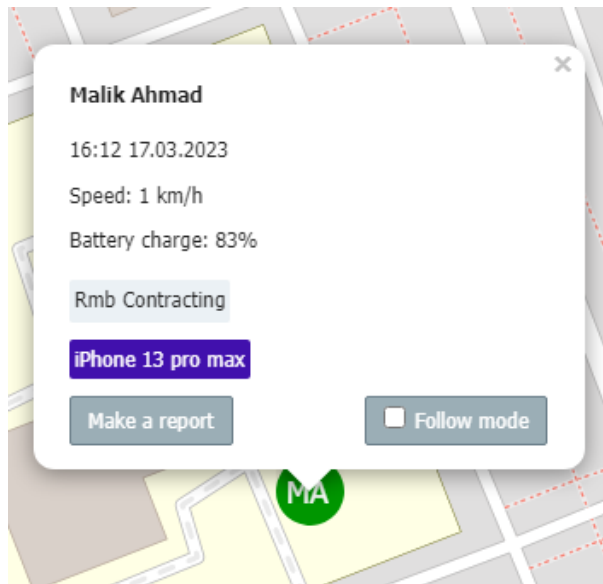





Fig. 2.58: Example of applying a user tag

To edit a user tag, click  on the right side of the tag row. A window similar to the creation window opens, allowing you to modify the tag name and color.

To delete one tag, click  on the right side of the label row. To delete multiple tags at once, select the corresponding rows and click  at the bottom of the screen. For more information about deleting system elements, see [Deleting an element](#) (page 42).

Invites

This tab is used to generate links that allow users to log in the ActiveMap Mobile application without entering the server address, login, and password. Information about created invitations is presented in a table. To sort the data, click the corresponding column header. To search for specific invitations, use the search bar or filter.

To create a new invitation, click . A window opens (Fig. 2.59), where you have to fill in:

- Full name of the user to whom you want to send this link (you can select it from the drop-down list using the search string).
- Link expiration date (you can left it blank for an indefinite link).
- Maximum number of authentication attempts (after exceeding the specified number, the link becomes inactive).

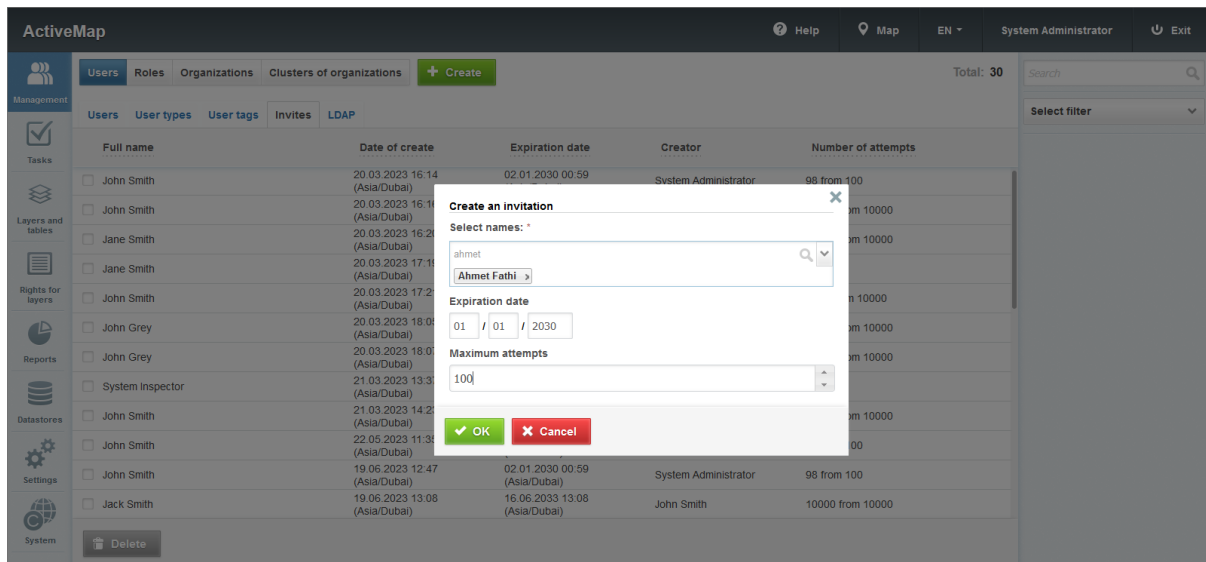



Fig. 2.59: Invitation creation window

Clicking  shows you basic information about the generated invitation with an option to copy this link (Fig. 2.60).

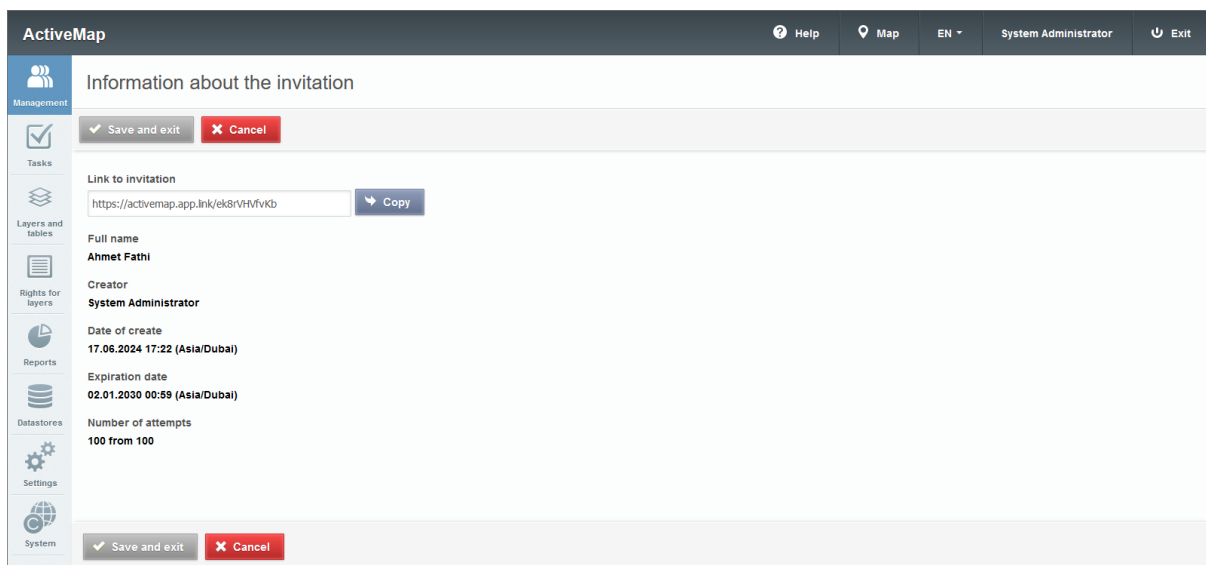



Fig. 2.60: Invitation information

Clicking  opens a window where you can also copy the link (Fig. 2.61).

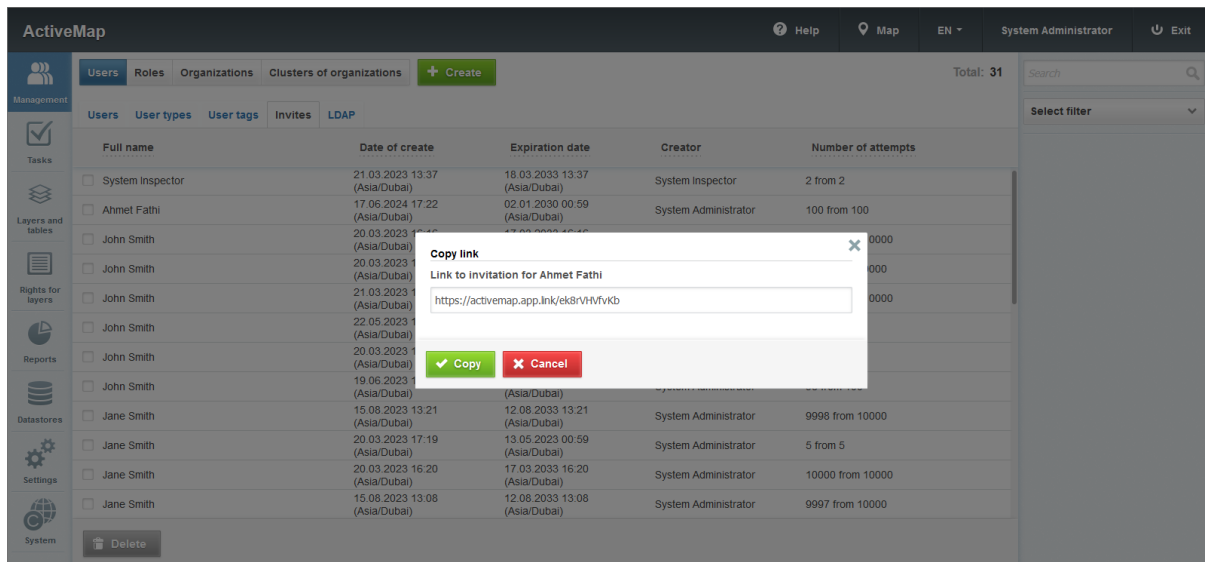


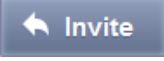


Fig. 2.61: Invitation link

You can send the link to the end user via familiar messenger.

Clicking  deletes the created invitation from the list. You can also delete an invitation by selecting the corresponding row and clicking the  button. If the invitation has been deleted and the user has not yet clicked on the link, you need to create a new invitation and re-send the link to the user. You can also create the invitation from a user's profile by clicking  and entering the necessary details in the opened window (Fig. 2.62). Copy and send the created invitation to the end-user.

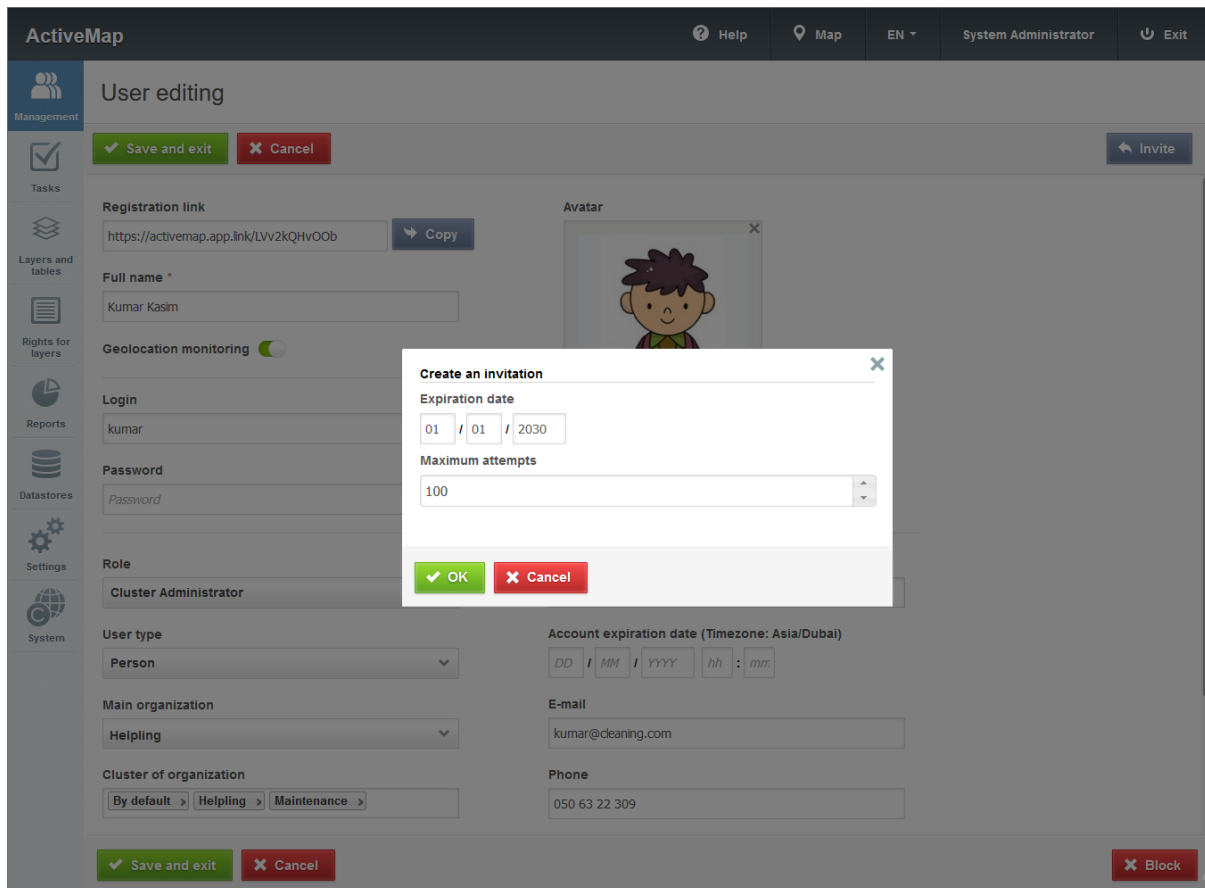


Fig. 2.62: Creating an invitation from a user profile

LDAP

LDAP is an open protocol used to store and retrieve data from a hierarchically structured directory. It is typically used to store information about an organization, its assets, and users. It is a unified authorization system through which all software products work that are used in the organization. The ActiveMap system supports the LDAP protocol by enabling the “Authorize via LDAP” toggle switch in the user settings. The “LDAP” tab (Fig. 2.63) provides settings for integration of ActiveMap with LDAP. By default, the LDAP integration is disabled. If the integration with LDAP is required, fill the configuration fields with data provided by the organization.

Fig. 2.63: Default LDAP configuration





2.3.3.1.2 “Roles” tab

There are several user roles in the ActiveMap system. They are assigned by administrators when creating user accounts. Roles differ from each other in the set of actions that users can perform:

- 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 administration of one or more specified clusters, namely: managing organizations and users, granting access rights to layers and reports, and managing tasks.
- The “**Cluster Inspector**” manages the tasks of one or more specified clusters.
- 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.

The **“Roles”** tab displays a list of roles in the system (Fig. 2.64). To rename a role, hover over the role row and click . After making changes, click the confirmation button . Click the  button if you do not want to save the changes. To change the order in which roles are displayed, drag the role row up or down and click .

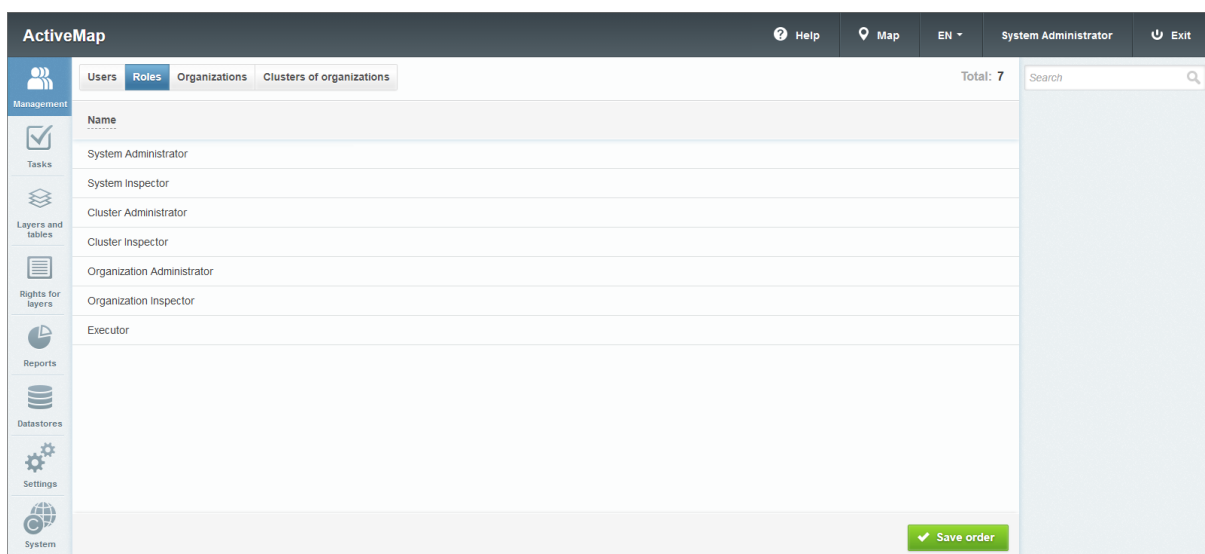


Fig. 2.64: “Roles” tab

2.3.3.1.3 “Organizations” tab

When switching to the **“Organizations”** tab, you can view a list of all existing organizations in the system and their parameters (Fig. 2.65):


- **“Name”** – name of the organization (mandatory field).
- **“Cluster of the organization”** – an association of several organizations for operational monitoring of the work of departments. For more information about the clusters, see *“Clusters of organizations” tab* (page 64).
- **“Client organization”** – an indication of whether the organization is a client. Client organization is an association of users who send their requests through a mobile application, monitor the status of their execution, have the ability to rate the work done, but have limited rights when working in the system.

- “Users” – number of users in the organization.

Name	Cluster of organization	Organization of client	Users
<input type="checkbox"/> Client 1	By default	✓	0
<input type="checkbox"/> New organization	By default		1
<input type="checkbox"/> Rmb Contracting	By default		2
<input type="checkbox"/> Al-Zarar Transportation Company	Al-Zarar Transportation Comp any		6
<input type="checkbox"/> Champion Cleaners Center	Champion Cleaners Center		9
<input type="checkbox"/> Helping	Helping		9
<input type="checkbox"/> Alshahba	By default		0
<input type="checkbox"/> LLC Cleaning	By default		17
<input type="checkbox"/> Cleaning	Helping		1
<input type="checkbox"/> LLC Light	By default		1
<input type="checkbox"/> House light	By default		0
<input type="checkbox"/> Advanced Cleaning	By default		2
<input type="checkbox"/> Profi Cleaning Services	By default		0
<input type="checkbox"/> Motels	Guest businnes		1

Fig. 2.65: “Organizations” tab

Adding a new organization

To add a new organization to the system, click  at the top of the window. A window with fields to fill in (Fig. 2.66) opens in the administration area:

- **Name;**
- **Cluster of organization;**
- **Client Organization** toggle switch;
- **Default implementing organization** – automatically assigned organization (it must belong to the cluster of the creator’s organization);
- **Integration with GIS editor by default** (available only for the administrative roles);

If the System administrator enables this feature for the organization, then all its users created by the Cluster Administrator have integration with the GIS editor by default. If the System administrator adds users, he/she must enable this setting separately for each employee. When activating the integration, the user should enter the password to work in the desktop editor. If integration is not enabled, users are not created in the database and, accordingly, unable to work in the desktop editor. If integration is enabled for the organization,

then all users are created for MapEditor and granted rights to layers and tables. If integration is disabled while editing the organization card, all users are removed from the database.

- **Maximum number of users;**
- **E-mail;**
- **Phone;**
- **Legal name;**
- Organization data (address, fax, TIN, VAT-ID, bank account, bank, correspondent account, SWIFT, BIC, name of the head, and name of the accountant);
- **About** (a field to enter information in any form);
- Logo, stamp, signature of the head, and signature of the accountant.

To add a logo, stamp, and signatures, click “+” and select the photo.

The screenshot displays the 'Creating organization' form in the ActiveMap web admin interface. The form is divided into several sections:

- Form Fields:**
 - Name:** A text input field containing 'Alshahba'.
 - Cluster of organization:** A dropdown menu set to 'By default'.
 - Organization of client:** A toggle switch currently turned off.
 - Default implementing organization:** A dropdown menu set to 'Alshahba'.
 - Integration with GIS editor by default:** A dropdown menu set to 'Not chosen'.
 - Maximum number of users:** A numeric input field set to '50'.
 - E-mail:** A text input field containing 'b.alshahba.uae@gmail.com'.
 - Phone:** A text input field containing 'XXXXX XXXXXXXXX'.
 - Legal name:** A text input field with a placeholder 'Legal name'.
- Map Extent:** A map view showing a geographical area with a red bounding box. It includes a scale bar for 50 km and an 'Apply' button.
- Image Uploads:** Four buttons labeled 'Logo', 'Stamp', 'Head signature', and 'Accountant signature', each with a small image icon and a close button (X).


At the top of the form, there are 'Save and exit' (green) and 'Cancel' (red) buttons. A sidebar on the left contains navigation icons for Management, Tasks, Layers and tables, Rights for layers, Reports, Datastores, Settings, and System.

Fig. 2.66: Creating organization

In addition to the main fields, the organization creation form can contain custom fields. They are configured individually through a table in the database. The custom fields can be either global or local, available within a specific cluster.


To the right of the main input fields there is a “Visible area” – the boundaries of the map visible to organization users when they log in. The administrator can use the scale bar to zoom in or out of the map, as well as move the map by pressing the left mouse button. After selecting the necessary view, click “Apply” to save the new map boundaries.

If there are no mandatory fields, it is enough to fill in the name and

click the  button to add a new organization to the system. If you leave the remaining fields empty, they are automatically filled with default values (except for e-mail, phone number, legal name, and other organization data). You can manually change the automatically assigned data storage, marked as default in the system, in the database. The visible area and the cluster match the main organization of the Cluster Administrator, or the default value if the organization is created by the System Administrator. This organization is automatically granted access to work types (global and/or local) with activated “For all organizations” option.

Importing organizations

The system supports bulk import of organizations from an Excel file.

Clicking  opens a window with the following buttons (Fig. 2.67):

- Upload file
- Download template
- Cancel

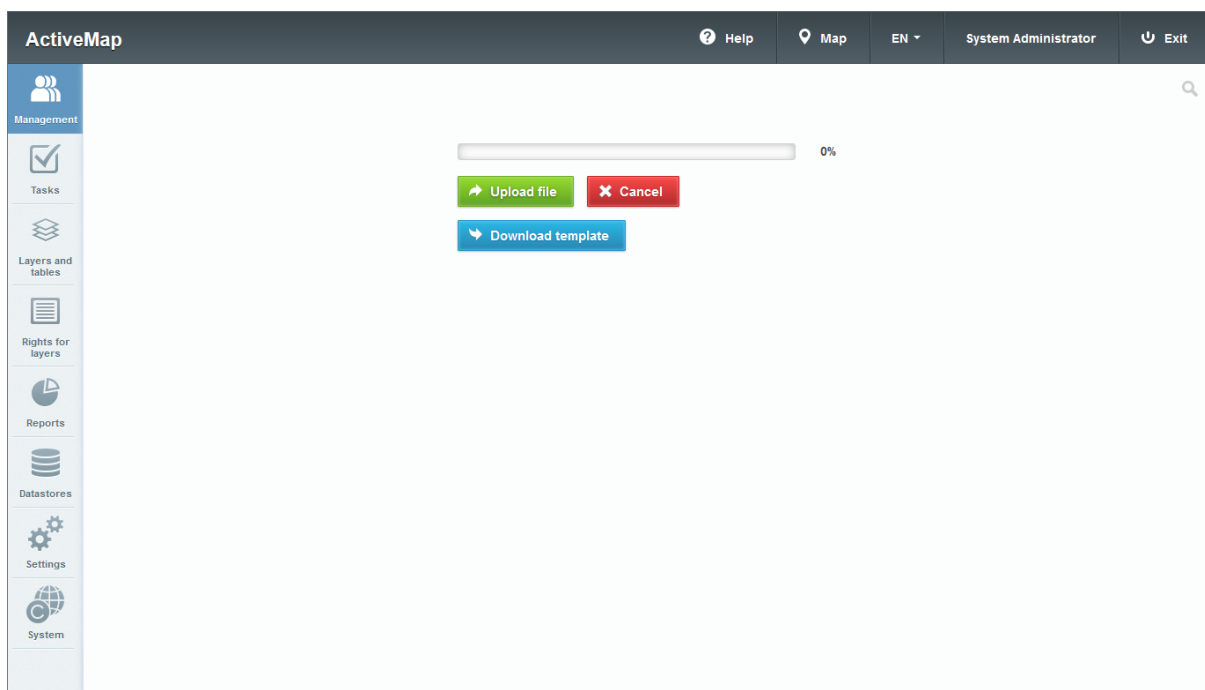

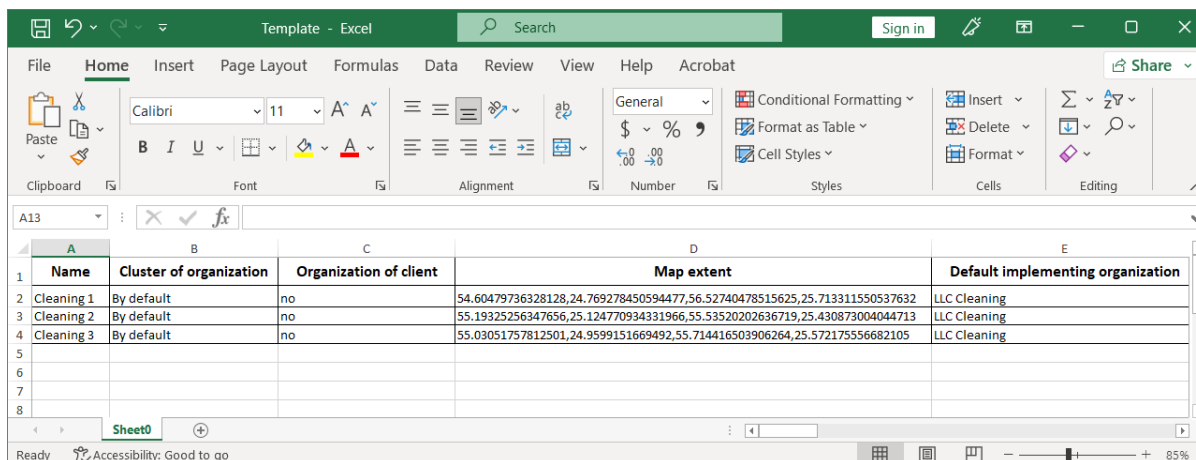


Fig. 2.67: Window for importing organizations


To get a sample file for import, click . Fill the downloaded file with organization data (Fig. 2.68).




	A	B	C	D	E
	Name	Cluster of organization	Organization of client	Map extent	Default implementing organization
2	Cleaning 1	By default	no	54.60479736328128,24.769278450594477,56.52740478515625,25.713311550537632	LLC Cleaning
3	Cleaning 2	By default	no	55.19325256347656,25.124770934331966,55.53520202636719,25.430873004044713	LLC Cleaning
4	Cleaning 3	By default	no	55.03051757812501,24.9599151669492,55.714416503906264,25.572175556682105	LLC Cleaning
5					
6					
7					
8					

Fig. 2.68: Example of an Excel file with imported organizations

When entering data, letters and other symbols (punctuation marks and special characters) are not allowed in integer fields such as “TIN”, “Bank account”, etc. After saving and closing the file, return to the im-

port page and click the  button. If all data is entered correctly, the new organizations will appear at the end of the general organization list.

Editing an organization

Clicking  (or double-clicking the selected organization row) opens a form where you can fill in/change the fields with the information about the organization. You cannot change the cluster after creating the organization.


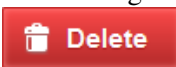
In this form you can get a link to register users in the mobile application ActiveMap Mobile or copy/delete it if it was generated earlier (Fig. 2.69). If you delete a link when editing an organization, it still works.

The screenshot shows the 'Editing organization' page in the ActiveMap Web admin interface. The page has a dark header with 'ActiveMap' and navigation links like 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. A left sidebar contains icons for Management, Tasks, Layers and tables, Rights for layers, Reports, Datastores, Settings, and System. The main content area is titled 'Editing organization' and features a 'Save and exit' button and a 'Cancel' button. The form includes several sections: 'Registration link' with a 'Generate' button; 'Name' with a text input field containing 'Aishahba'; 'Cluster of organization' with a dropdown menu set to 'By default'; 'Organization of client' with a toggle switch; 'Default implementing organization' with a dropdown menu set to 'Not chosen'; 'Integration with GIS editor by default' with a dropdown menu set to 'yes'; 'Maximum number of users' with a numeric input field set to '50'; 'E-mail' with a text input field containing 'b.alshahba.uae@gmail.com'; and 'Phone' with a text input field containing 'XXXXXX XXXXXXXXXX'. There is also a 'Map extent' section with a map of the UAE and an 'Apply' button. At the bottom, there are sections for 'Logo', 'Stamp', 'Head signature', and 'Accountant signature', each with a corresponding image and a close button.

Fig. 2.69: Editing an organization

After receiving a link, the employee opens it on a mobile device and registers by the phone number. Thus, an account with the “Executor” role and “Person” type is created in the system, the login is automatically generated based on the entered phone number, monitoring is disabled by default. This user is granted access to the layers for which the “default rights” setting is activated, the layer cluster is not specified, or matching the user’s organization cluster.

Deleting an organization

To delete an organization, click  on the right side of the row. To delete several organizations at once, select the corresponding rows and click  at the bottom of the screen. For more information about deleting system items, see [Deleting an element](#) (page 42).

When you try to delete your own organization, a dialog box appears, informing that such deletion is not possible.

Searching for an organization

You can use the search bar to search by name in the “Organizations” tab.


2.3.3.1.4 “Clusters of organizations” tab

“Clusters of organizations” tab contains information about the grouping of organizations into clusters and about time zones (Fig. 2.70). Before being set by the administrator, all organizations are located in the “Default” cluster.

Name	Timezone	By default
<input type="checkbox"/> Al-Zarar Transportation Company	Asia/Dubai	
<input type="checkbox"/> Alshahba	Asia/Dubai	
<input type="checkbox"/> By default	Asia/Dubai	<input checked="" type="checkbox"/>
<input type="checkbox"/> Champion Cleaners Center	Asia/Dubai	
<input type="checkbox"/> Guest businnes	Asia/Dubai	
<input type="checkbox"/> Helping	Asia/Dubai	
<input type="checkbox"/> Rmb Contracting	Asia/Dubai	

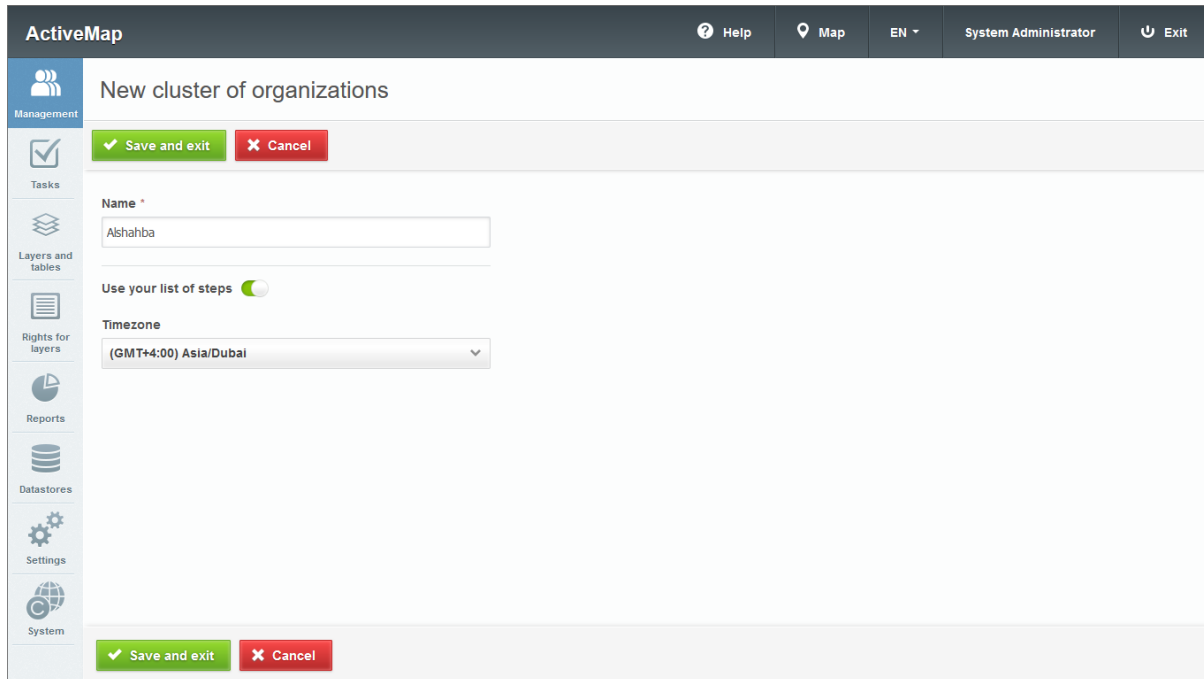
Fig. 2.70: “Clusters of organizations” tab

Adding a new organization cluster

To add a new cluster, click . A window opens in the administration area where you have to fill in the name of the cluster and select the time zone from the drop-down list (Fig. 2.71). You can use the search bar when selecting a time zone. The time zone is set only when the cluster is created. There is no possibility to change it later.

You can activate “Use your list of steps” setting to make the cluster isolated and create separate steps for it. The setting can only be activated when creating a cluster. You cannot add or disable it later. An isolated cluster does not have access to global steps, so it is necessary to create its own steps, otherwise tasks cannot be created. For more information about creating steps, see “Steps” tab (page 71).


After creating a cluster, it becomes available for selection in the organization creation/editing form.



The screenshot shows the ActiveMap web admin interface. The top navigation bar includes 'ActiveMap', 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. The left sidebar contains icons for Management, Tasks, Layers and tables, Rights for layers, Reports, Datastores, Settings, and System. The main content area is titled 'New cluster of organizations'. It features a 'Save and exit' button (green) and a 'Cancel' button (red) at the top. Below these, there is a 'Name' field with the value 'Alshahba'. A toggle switch for 'Use your list of steps' is currently turned on. A 'Timezone' dropdown menu is set to '(GMT+4:00) Asia/Dubai'. At the bottom of the form, there are again 'Save and exit' and 'Cancel' buttons.

Fig. 2.71: Adding an organization cluster

Editing an organization cluster

In the “Clusters of organizations” tab, you can edit information about the organizations of the system. Clicking  (or double-clicking on the cluster) opens the “Main” tab, where you can change the name of the organization cluster (Fig. 2.72).

ActiveMap

Help Map EN System Administrator Exit

Management

Update cluster of organizations

Save and exit Cancel

Main Organizations

Name *

Helping

Use your list of steps

Timezone

(GMT+4:00) Asia/Dubai

Save and exit Cancel

Fig. 2.72: Editing the cluster name

The “Organizations” tab displays a list of cluster organizations (Fig. 2.73). From this list you can go to the organization editing window.

ActiveMap

Help Map EN System Administrator Exit

Management

Update cluster of organizations

Save and exit Cancel



Main Organizations

Nº	Name
84	Cleaning
31	Helping

Save and exit Cancel

Fig. 2.73: List of cluster organizations

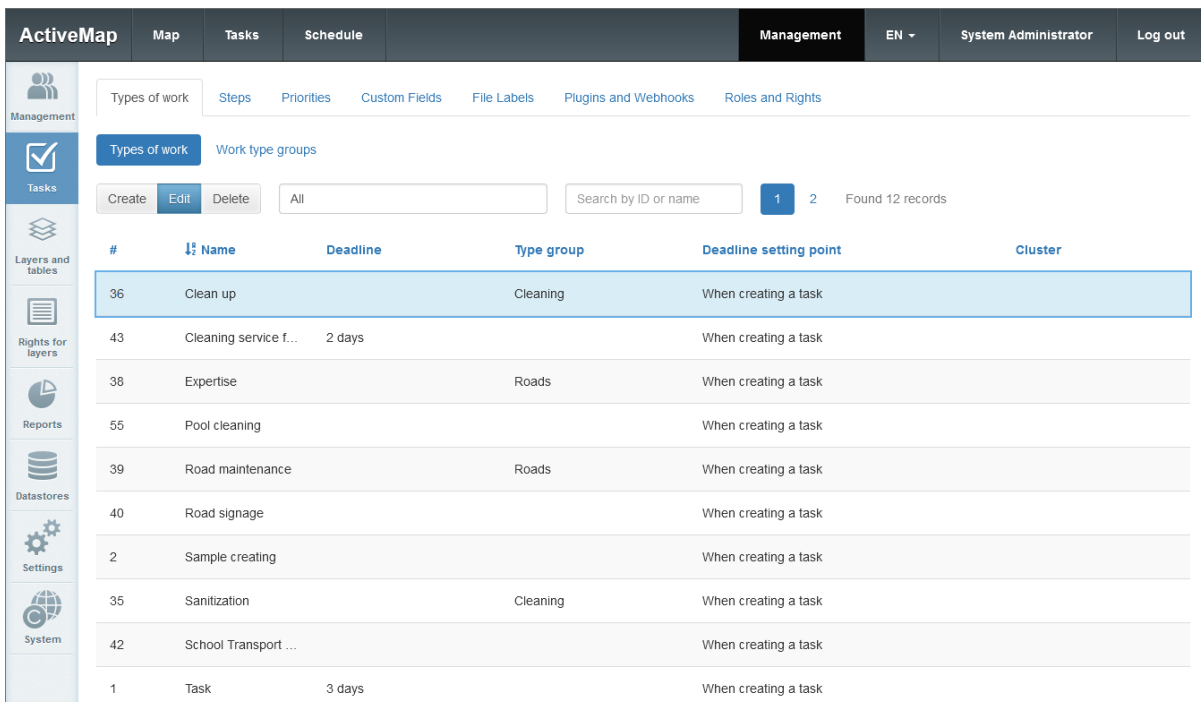
Deleting an organization cluster

To delete one cluster of organizations, click  on the right side of the row. To delete several organization clusters at once, check the corresponding rows and click the  button at the bottom of the screen. For more information on deleting system items, see *Deleting an element* (page 42).

You cannot delete a cluster while there are users in it. You also cannot delete the “Default” organization cluster.

2.3.3.2 “Tasks” block

You can manage task parameters in the “Tasks” block (Fig. 2.74).



#	Name	Deadline	Type group	Deadline setting point	Cluster
36	Clean up		Cleaning	When creating a task	
43	Cleaning service f...	2 days		When creating a task	
38	Expertise		Roads	When creating a task	
55	Pool cleaning			When creating a task	
39	Road maintenance		Roads	When creating a task	
40	Road signage			When creating a task	
2	Sample creating			When creating a task	
35	Sanitization		Cleaning	When creating a task	
42	School Transport ...			When creating a task	
1	Task	3 days		When creating a task	

Fig. 2.74: “Tasks” block

The following sections are located at the top of the window for management:

- “Types”
- “Steps”
- “Priorities”
- “Custom Fields”
- “File Labels”
- “Roles and Rights”

- “Plugins and Webhooks”

Types of work, their groups, steps, priorities, and plugins can be local (associated with a specific cluster) or global (without association). Only the System Administrator can manage global entities. The System Administrator and Cluster Administrator can manage local entities. Local entities are not visible to users outside the specified cluster.

By default, when you go to the “Tasks” block, the “Types” tab opens.

2.3.3.2.1 “Types” tab

There are two subsections in this tab: “Types” and “Work type groups”.

Users outside the specified cluster cannot see local types of work. You can associate local types only with organizations within their cluster. If the “For all organizations” toggle is turned on, then they are available to all organizations in that cluster. You can include local types of work only in local groups.

You can associate global type of works with any organization. If the “For all organizations” toggle is turned on, then the types of work are available to all organizations in all clusters of the system. You can include global types of work only in global groups.

Only the System Administrator can manage global entities. The System Administrator and Cluster Administrator can manage local entities. The Cluster Administrator can edit a global types of work only when associating or disassociating organizations within the cluster (when the “for all” mode is not enabled).

“Types” subsection

The “Types” subsection contains a list of existing types of work (Fig. 2.74). To add a new type of work, click “Create”. A window opens with fields to fill in (Fig. 2.75):

“Main” tab:

- **Name** – name of the type of work.
- **Cluster** – organization cluster to which this type of work is linked. If the cluster is not specified, the type of work is available for all organizations.
- **Type group** – group of works to which this type belongs.
- **Deadline** – time required to complete the task (defined by the task description for this type of work).
- **Moment of setting the deadline** – time from which the deadline is counted:
 - “when creating a task” – at the time the task is created in the system;

- “when assigning a task” – when the task is assigned to a specific executor.

- **Icon** – task icon, which is displayed in the task list in the ActiveMap Mobile and ActiveMap Desktop applications.

“Binding to organizations” tab:

- **For all organizations** toggle switch – makes the type of work available for all organizations in the system (for global types of work) or within the cluster (for local types of work);
- Toggle switches with the names of individual organizations – make the type of work available for the selected organizations.

The screenshot shows the 'ActiveMap' web admin interface. The top navigation bar includes 'Map', 'Tasks', 'Schedule', 'Management' (selected), 'EN', 'System Administrator', and 'Log out'. The left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'Types of work' and includes tabs for 'Steps', 'Priorities', 'Custom Fields', 'File Labels', 'Plugins and Webhooks', and 'Roles and Rights'. The 'Binding to organizations' tab is active, showing a 'Create' button and a 'Cancel' button. Below this, there are input fields for 'Name' (containing 'Cleaning service for glass facades'), 'Cluster' (set to 'Not specified'), 'Type group' (set to 'Not specified'), and 'Deadline' (set to 'dd 2 hh 0 mm 0'). A 'Deadline setting point' dropdown is set to 'When creating a task'. An 'Icon' field shows a red square icon with a white 'X' and a 'Change' link. The 'Binding to organizations' section includes a toggle switch for 'For all organizations' and a search bar with 'Search by ID or name' and 'Found 14 records'. Below this is a table with columns for '#', 'Name', and 'Cluster'. The table lists 14 records, with the first row highlighted in blue.

#	Name	Cluster
124	Advanced Cleaning	By default
29	Al-Zarar Transportation Company	Al-Zarar Transportation C...
32	Alshahba	By default
30	Champion Cleaners Center	Champion Cleaners Center
84	Cleaning	Helping
3	Client 1	By default
31	Helping	Helping
104	House light	By default

Fig. 2.75: Creating a type of work

To edit a type of work, select the row with the required type and click “Edit”. A window similar to creating types of work opens, where you can change the field values.

To delete an existing type of work, select the required type and click “Delete”. Confirm the deletion by clicking “Yes” or cancel it by clicking “No” in the dialog window.

“Work type groups” subsection

The “Work type groups” subsection contains a list of existing groups (Fig. 2.76). Work type groups allow you to visually group objects in the ActiveMap Mobile and ActiveMap Desktop applications.

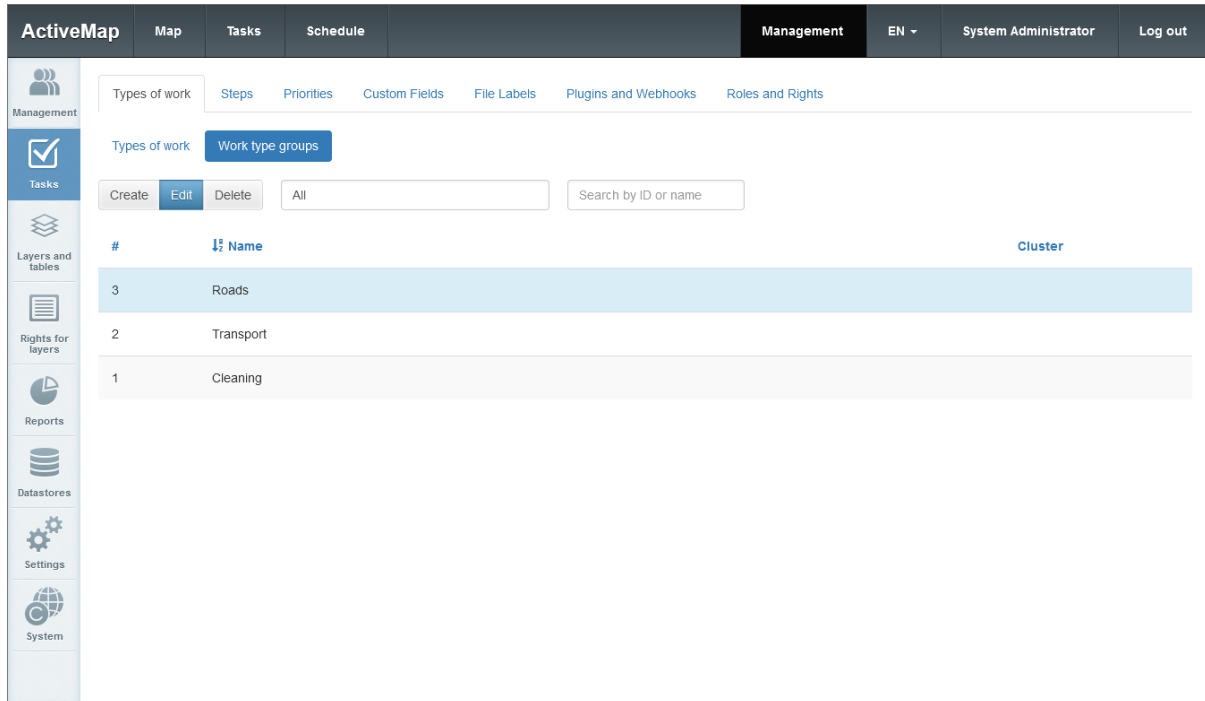


Fig. 2.76: Work type groups

To add a new work type group, click “Create”. A window opens asking you to enter a name for the group. After that, the group becomes available in the corresponding field when creating the work type.

To edit a group of work types, select the group in the list and click “Edit”. A window similar to the creation window opens, where you can change the name of the group.

To delete a group of work types, select it in the list and click “Delete”.

2.3.3.2.2 “Steps” tab

This tab displays a list of existing work steps (Fig. 2.77).

The screenshot shows the ActiveMap web interface. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management' (selected), 'EN', 'System Administrator', and 'Log out'. The left sidebar has icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datasources', 'Settings', and 'System'. The main content area is titled 'Steps' and includes a 'Types of work' dropdown, 'Create', 'Edit', and 'Delete' buttons, a search bar, and a 'Found 6 records' status. A yellow banner states: 'This is global Steps list. Any change will affect all clusters that use it.' Below this is a table of work steps.

#	Name	Visible	By default	Closed	Color	Sequenc...
1 (1)	New	✓	✓		#999999	1
2 (2)	Assigned	✓			#33ccff	2
3 (3)	Accepted	✓			#ffff33	3
5 (5)	In work	✓			#ffff33	4
4 (4)	Done	✓		✓	#33cc33	5
6 (6)	under revision	✓			#ff9933	6

Fig. 2.77: “Steps” tab

Local (cluster-specific) and global (unrestricted) steps of work are distinguished. Steps can be sorted within the group. The System Administrator can sort any group. The Cluster Administrator can sort only local steps in the cluster.

To add a new step, click “Create”. A window opens, where you have to fill in the following fields (Fig. 2.78):

- **Name** – name of the work step.
- **Cluster** – belonging to a cluster of organizations. If no cluster is specified, the step is available for all organizations.
- **Color** – color of step displaying in the list of tasks (specified as RGB code).
- **Visible** toggle switch – visibility of the step being created.
- **Default Step** toggle switch – automatically setting at task creation.
- **Step of a closed task** toggle switch – passing to this step means that the task is closed.

Create a step

Name
Assigned

Cluster
Not specified

Color
33ccff

☒ Visible
☐ Default Step
☐ Step of a closed task

Cancel Create

Fig. 2.78: Creating a step

To edit an existing step, select it and click “Edit”. A new window opens where you can edit the values in the fields mentioned above.

You can set the order of displaying steps in the system. To do this, select the appropriate cluster (if you plan to change the order within an isolated cluster) and click “Change Order”. Drag the step to a new position in the list and save the changes.

To delete a step, select it and click “Delete”. Confirm the deletion by clicking “Yes” or cancel it by clicking “No” in the dialog box.

Only the System Administrator can create, modify, and delete a global step. The System Administrator and Administrator of the corresponding cluster can create a local step. Administrators can only create a local step within an isolated cluster (when “Use your list of steps” setting is activated). To create a local step, select the corresponding cluster from the drop-down list. A list of local steps of the selected cluster is displayed. When creating a new step, name of the selected cluster is filled in automatically. Then you have to enter a new value and save the changes. The created step is available only within the selected cluster.

If the cluster does not have steps and the first one is created, it is automatically assigned the “default” value. You cannot delete the “default” step. If another step is marked as “default”, the mark in the checkbox of the previous step is automatically removed. The first non-“default”, non-closing step is considered as the “assigned” step. If there is no such step, the step does not change when you change the executor. If a task is created or edited within an isolated cluster, you can use only the local steps of that cluster. You can use only global steps within a regular cluster. Global steps are not available to an isolated cluster. When creating such a cluster, it is mandatory to create the steps for it, otherwise tasks cannot be created.

2.3.3.2.3 “Priorities” tab

This tab displays a list of existing work priorities (Fig. 2.79). Priorities allow you to group the types of work by importance.

#	Name	Cluster	Sequence number
2	Ad hoc		2
3	Miscellaneous		3
1	Planned		1


Fig. 2.79: “Priorities” tab

To add a new priority, click “Create”. Specify the name and, if necessary, the cluster of the new priority. Local priority is available only within the selected cluster. Id and serial number are assigned automatically (Fig. 2.80). You can also upload a custom icon or leave the default one.

Create Priority

Name
Planned

Cluster
Not specified

Icon

[Change](#)

Cancel Create

Fig. 2.80: Creating a priority

To edit an existing priority, select it and click “Edit”. This opens a window where you can change the name of the selected priority. To delete an existing priority, select it and click “Delete”. A dialog box opens, where you should confirm the deletion by clicking “Yes” or cancel it by clicking “No”.

2.3.3.2.4 “Custom Fields” tab

This tab displays a list of existing custom fields (Fig. 2.81). Use custom fields to add user-defined fields to the task creation form. You can attach such fields to a certain type of work. For example, for types of work that involve the interaction with a client by a field specialist, you can create a field in the format of “Phone number” to enter the client’s phone number.

#	Name	Format	Default value	For all type...	Required c...	Visible cust...	Fields group	Cluster	Sequence ...
40	Comment	Text		✓		✓			7
55	Geometry	Geometry		✓		✓			8
35	Height	Integer		✓		✓			2
76	Indoor equipment	Data objects		✓		✓			10
39	Installation date	Date				✓			6
36	Length	Integer		✓		✓			3
37	Location	Selecting from ...	home			✓			4
38	Material	Selecting from ...				✓			5
2	Number	Integer	1		✓	✓			1
75	Outdoor equipment	Data objects		✓		✓			9

Fig. 2.81: “Custom Fields” tab



Custom fields can be local (with binding to a particular cluster) and global (without binding). Only the System Administrator can manage global entities. The System Administrator and Cluster Administrator can manage local entities. There is an exception – the Cluster Administrator can edit a global custom field (if “for all” mode is not enabled), while only attaching or detaching local types of work of this cluster.

You can set the order of displaying custom fields in the system. Fields are sorted only within the group. The System Administrator can sort any groups. The Cluster Administrator can sort only local fields within the cluster. To do this, select a group of fields and click “Change Order” (Fig. 2.82).

The screenshot shows the 'Custom Fields' management interface. A dropdown menu is open, displaying a list of field groups. The 'Change Order' button is highlighted in the top right corner.

#	Name	Field type	Field ID	For all type...	Require...	Visible cust...	Fields group	Cl...	Sequence ...
2	Number	Integer	#4		✓	✓			1
76	Indoo...	Date	#1	✓		✓			10
75	Outd...	Date	#6	✓		✓			9
55	Geo...	Geometry	#42	✓		✓			8
40	Com...	Text	#3	✓		✓			7
39	Instal...	Date	#5			✓			6
38	Mate...	Selecting from ...				✓			5
37	Locat...	Selecting from ...	home			✓			4
36	Length	Integer		✓		✓			3
35	Height	Integer		✓		✓			2

Fig. 2.82: Selecting a group of custom fields to reorder

Use  and  to set the order of the custom fields in the task and click “Apply” (Fig. 2.83). The fields are sorted by the “Order” field within the group. If the task has both global and local fields, the global fields are displayed first, and then the local fields in the order specified in the system.

The screenshot shows the 'Custom Fields' management interface after clicking 'Apply'. The 'Sequence number' column is visible, indicating the order of the fields.

#	Name	Sequence number
2	Number	1
35	Height	2
36	Length	3
37	Location	4
38	Material	5
39	Installation date	6
40	Comment	7
55	Geometry	8
75	Outdoor equipment	9
76	Indoor equipment	10

Fig. 2.83: Changing the order of displaying custom fields within a group

To add a new custom field, click “Create”. A window opens with fields to fill in (Fig. 2.84):

“Main” tab:

- **Name** – name of the field;
- **Cluster** – cluster of organizations;
- **Format** – data format of the field, one of the following values should be selected:
 - String – a short text;
 - Text – an extended text;
 - Integer number – an integer;
 - Real number – a real numeric value;
 - Date – date and time;
 - Logical value – a choice from true and false options;
 - Composite – a format that contains one or more nested fields and supports the creation of multiple field instances in a task card;
 - Selection from the list – a format with the possibility of specifying a list of options;
 - Phone number – a format with the possibility of calling a specified number from the task window;
 - Barcode – a numeric decoding of barcode;
 - Geometry – a format that contains information about the type of geometry (point, line, polygon) and coordinates of one or several objects;
 - Data Objects – links to objects of layers, data tables or reference tables (dictionaries);
 - File – a format for adding files.
- **Required custom field** – toggle switch for mandatory filling of the created field;
- **Visible custom field** – toggle switch for visibility of the created field for users;
- **Default value** – automatically filled field value;
- **Fields group** – a set of custom fields.

The list of fields may vary depending on the selected format:

- For fields with the “String”, “Text”, “Integer number”, or “Real number” format you can enter the “Regular expression”. It is a pattern string that sets a template for a custom field.
- For text format fields (of “String” and “Text” type) you can specify the minimum and maximum length of the field.
- For composite fields, you must specify the minimum and maximum number of instances the user can add to the task card. A composite field cannot be mandatory. You cannot set a default value for it.

You must create nested fields for the composite field in the corresponding tab.

- For fields of the “Selection from the list” format you must specify the possible values.
- For the “File” format, you must specify one or more acceptable types: photo, video, sound, or document (for other file types). By default, the “Photo” type is selected. You can set the minimum and maximum number of attached files, the minimum and maximum size in bytes, and enable automatic application of a default sticker. You cannot set a default field value.

“Binding to type of work” tab:

- **For all types of work** toggle switch – makes the field available for all types of work in the system (global custom fields) or within a cluster (local custom fields).
- Toggle switches with names of individual organizations – make the field available for selected types of work.

The screenshot shows the 'ActiveMap' web admin interface. The top navigation bar includes 'Map', 'Tasks', 'Schedule', 'Management' (selected), 'EN', 'System Administrator', and 'Log out'. The left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'Custom Fields' and includes tabs for 'Types of work', 'Steps', 'Priorities', 'Custom Fields' (selected), 'File Labels', 'Plugins and Webhooks', and 'Roles and Rights'. The 'Main' field is being created, with a 'Binding to type of work' tab active. The 'For all types of work' toggle is off. A search bar shows '1' and '2' with 'Found 12 records'. A table lists organizations with toggle switches to bind the field to them. The 'Sanitization' organization (ID 35) is selected.

#	Name	Cluster
36	Clean up	
43	Cleaning service for glass facades	
38	Expertise	
55	Pool cleaning	
39	Road maintenance	
40	Road signage	
2	Sample creating	
35	Sanitization	
42	School Transport Service	
1	Task	

Fig. 2.84: Creating a custom field, “Main” and “Binding to type of work” tabs

“Nested Fields” tab

This tab appears when you select the “Composite” format. It allows you to create and edit nested fields (Fig. 2.85).

The screenshot shows the ActiveMap Web admin interface. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management' (selected), 'EN', 'System Administrator', and 'Log out'. The left sidebar contains icons for Management, Tasks, Layers and tables, Rights for layers, Reports, Datastores, Settings, and System. The main content area is titled 'Custom Fields' and includes tabs for 'Types of work', 'Steps', 'Priorities', 'Custom Fields' (selected), 'File Labels', 'Plugins and Webhooks', and 'Roles and Rights'. Below the tabs are 'Create' and 'Cancel' buttons. The 'Main' tab is selected, showing a 'Name' field with 'Inspection results', a 'Cluster' field with 'Not specified', a 'Format' dropdown set to 'Composite', a 'Visible custom field' toggle, and 'Minimal Field instance count' (0) and 'Maximal Field instance count' (20) fields. A 'Fields group' field is set to 'Inspection'. On the right, the 'Binding to type of work' tab is selected, showing a table with columns: #, Name, Format, Required, Visible, and Sequence... The table is empty, displaying the message 'No data matching the search criteria.'.

Fig. 2.85: Creating a composite field, “Nested Fields” tab

A composite field can consist of one or more nested fields. You can make a field nested only when creating a composite field. You cannot change the nesting or relink it to another composite field. To add a nested field, click “+ New Field”. In the window that opens (Fig. 2.86), fill in the fields:

- **Name** – name of the field.
- **Format** – data format of the field:
 - String – a short text;
 - Text – an extended text;
 - Integer number – an integer;
 - Real number – a real numeric value;
 - Date – date and time;
 - Logical value – a choice from true and false options;
 - Composite – a format that contains one or more nested fields and supports the creation of multiple field instances in a task card;
 - Selection from the list – a format with the possibility of specifying a list of options;
 - Phone number – a format with the possibility of calling a specified number from the task window;
 - Barcode – a numeric decoding of barcode;
 - Geometry – a format that contains information about the type of geometry (point, line, polygon) and coordinates of one or several objects;

- Data Objects – links to objects of layers, data tables or reference table (dictionaries);
- File – a format for adding files.
- **Required custom field** – toggle switch for mandatory filling of the created field.
- **Visible custom field** – toggle switch for visibility of the created field for users.
- **Default value** – automatically filled field value.

The list of fields may vary depending on the selected format.

Fig. 2.86: Creating a nested field

You cannot assign nested fields to any group or link to a specific type of work. Nested fields cannot exist in the system without being linked to a composite field. You can sort the nested fields, by specifying the order in which they are displayed in the task card ([Fig. 2.87](#)).

The screenshot shows the ActiveMap Web admin interface. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management' (selected), 'EN', 'System Administrator', and 'Log out'. The left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'File Labels' and includes tabs for 'Types of work', 'Steps', 'Priorities', 'Custom Fields', 'File Labels' (selected), 'Plugins and Webhooks', and 'Roles and Rights'. Below the tabs are 'Create' and 'Cancel' buttons. The 'Main' tab is active, showing a 'Name' field with 'Inspection results', a 'Cluster' field with 'Not specified', a 'Format' dropdown set to 'Composite', a 'Visible custom field' toggle switch, and input fields for 'Minimal Field instance count' (0) and 'Maximal Field instance count' (20). A 'Fields group' field contains 'Inspection'. A table with columns '#', 'Name', and 'Sequence nu...' is displayed. The table contains three rows: 'ID', 'Model', and 'On'. The 'Sequence nu...' column for the 'ID' row is highlighted with a red box, showing a dropdown arrow.

Fig. 2.87: Sorting nested fields

“File Labels” tab

This tab appears when you select the “File” format. It allows you to set an additional filter for labels (stickers) that can be attached to files in this field (Fig. 2.88). The primary filter links labels to the task type. The “No constraints on stickers for files in this field” toggle switch controls additional filters. If the toggle switch is enabled, there are no additional filters. If it is disabled, only labels activated in the list can be attached to this field. The list displays only the labels available for this field.

If the “Apply sticker automatically if single” toggle switch is enabled and only one label is available for the field (based on the task type and file field sticker restrictions), the server automatically attaches the label (sticker) to new files added to the field.

The screenshot shows the ActiveMap Web admin interface. The top navigation bar includes 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management' (selected), 'EN', 'System Administrator', and 'Log out'. The left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'Management' and has tabs for 'Types of work', 'Steps', 'Priorities', 'Custom Fields', 'File Labels' (selected), 'Plugins and Webhooks', and 'Roles and Rights'. The 'File Labels' tab is active, showing a 'Create' button and a 'Cancel' button. Below these are input fields for 'Main', 'Name' (set to 'Documents'), 'Cluster' (set to 'Not specified'), and 'Format' (set to 'File'). There are also checkboxes for 'Acceptable Types' (Photo, Video, Sound, Any File) and 'Fields group'. A table on the right lists existing file labels with columns for '#', 'Name', and 'Cluster'. The table contains 13 records, including 'Clean up', 'Cleaning service for glass facades', 'Cleaning windows', 'Expertise', 'Pool cleaning', 'Road maintenance', 'Road signage', 'Sample creating', 'Sanitization', and 'School Transport Service'.

#	Name	Cluster
36	Clean up	
43	Cleaning service for glass facades	
75	Cleaning windows	
38	Expertise	
55	Pool cleaning	
39	Road maintenance	
40	Road signage	
2	Sample creating	
35	Sanitization	
42	School Transport Service	

Fig. 2.88: Creating a “File” field, “File Labels” tab

To edit an existing custom field, select it and click “Edit”. A window opens where you can change the values of the fields mentioned above. Changing the number of composite field instances (increasing the minimum or decreasing the maximum) does not remove extra field instances in already created tasks but affects newly created ones.

To delete an existing custom field, select it and click “Delete”. Confirm or cancel the deletion in the dialog box.

2.3.3.2.5 “File Labels” tab

This tab displays a list of existing stickers – file labels (Fig. 2.89). They are used to mark photos when creating and editing tasks. For example, these could be “Before” and “After” labels to indicate photos showing progress in ongoing work.

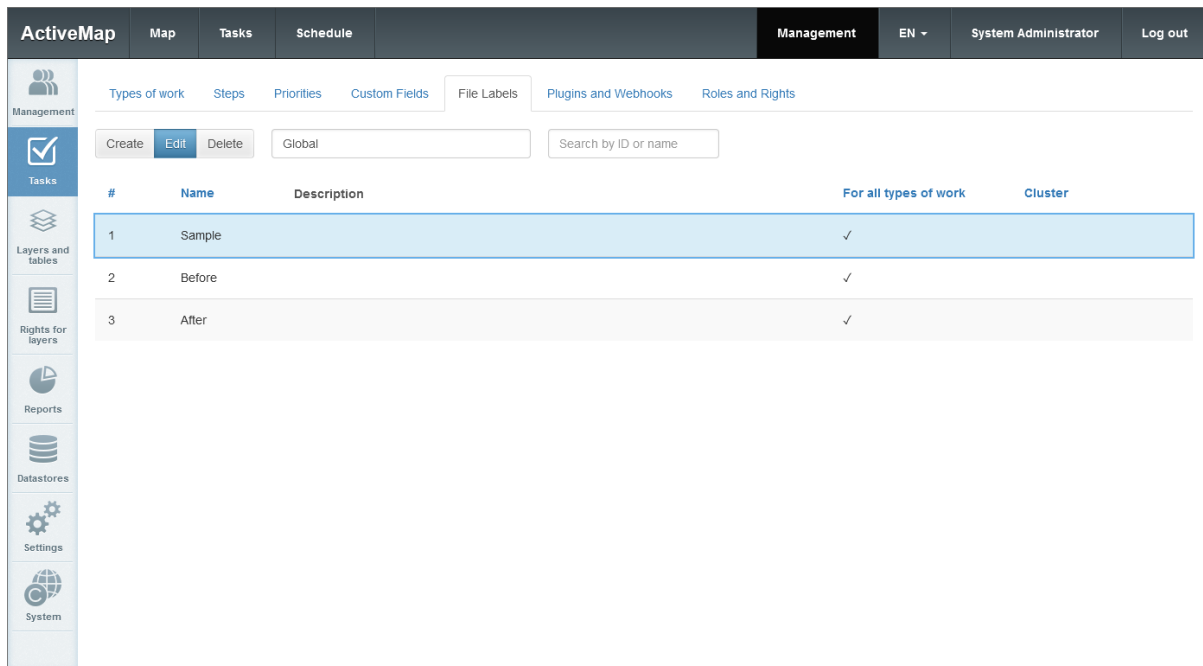


Fig. 2.89: “File Labels” tab

Stickers can be local (linked to a specific cluster) or global (not linked). Only the System Administrator can manage global entities. The System Administrator and Cluster Administrator can manage local entities. There is an exception – the Cluster Administrator can edit the global sticker (when “for all” mode is not enabled), while only attaching or detaching local types of work of the cluster.

To add a new label, click “Create”. A window opens with fields to fill in (Fig. 2.90):

“Main” tab:

- **Name** – name of the label,
- **Description** – brief description of the label.

“Binding to types of work” tab:

- **For all types of work** toggle switch – makes sticker available for all types of work in the system (global sticker) or within the cluster (local sticker).
- Toggle switches with the names of individual organizations – make the sticker available for selected types of work.

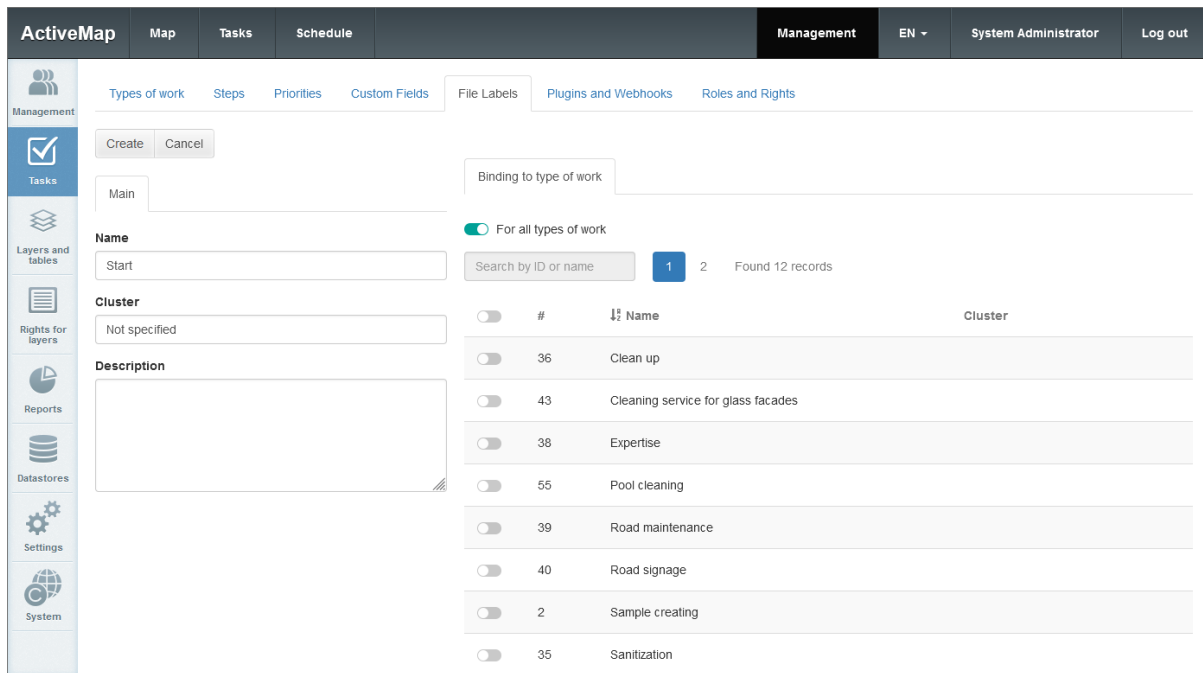


Fig. 2.90: Creating a label for files

To edit an existing label, select it and click “Edit”. A window opens where you can change the values of the fields mentioned above. To delete an existing label, select the row of the desired label and click “Delete”. In the dialog box that appears, confirm deletion by clicking “Yes” or cancel it by clicking “No”.

2.3.3.2.6 “Plugins and Webhooks” tab

This tab displays existing plugins and webhook destination servers (Fig. 2.91). Plugins are scripts written in Python. They are used to automate actions with tasks, comments, and users and further adapt the system to operating peculiarities, e.g., for automatic:

- Creation of new tasks after the occurrence of certain conditions in the performed task;
- Transferring tasks to another status or step when attaching a certain number of files or filling in the specified fields;
- Adding a comment on any change in the task;
- Attaching files to the task and stickers to files;
- Setting the main photo of the task;
- Assigning a task when creating a new user.

The screenshot shows the 'Plugins and Webhooks' tab in the ActiveMap Web admin interface. The interface includes a top navigation bar with 'ActiveMap', 'Map', 'Tasks', 'Schedule', 'Management', 'EN', 'System Administrator', and 'Log out'. A left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area has tabs for 'Types of work', 'Steps', 'Priorities', 'Custom Fields', 'File Labels', 'Plugins and Webhooks', and 'Roles and Rights'. Under 'Plugins and Webhooks', there are sub-tabs for 'Validation', 'Response', and 'All'. A table lists two tasks:

#	Model	Name	Webhook de...	Cluster
1	Task	Checking count of photos Validation, Edit		
2	Task	Send files to layer object Response, Edit	localhost	

Fig. 2.91: “Plugins and Webhooks” tab

Scripts and webhook destination servers can be local (bound to a specific cluster) and global (unbound). You can specify a cluster when creating a script/destination server but cannot change or delete it from the script/destination server. If the script is local, you can specify only a global server or a local server of the same cluster. If the script is global, you can specify any script. Priorities and types of work can be specified both local in relation to its cluster and global. Local scripts are applied to tasks and comments only in their own cluster. Only System Administrator can create, edit, and delete global and local scripts.

“Plugins and Webhooks” subsection

To add a new plugin, go to the corresponding subsection and click “Create”. The plugin creation window opens (Fig. 2.92).

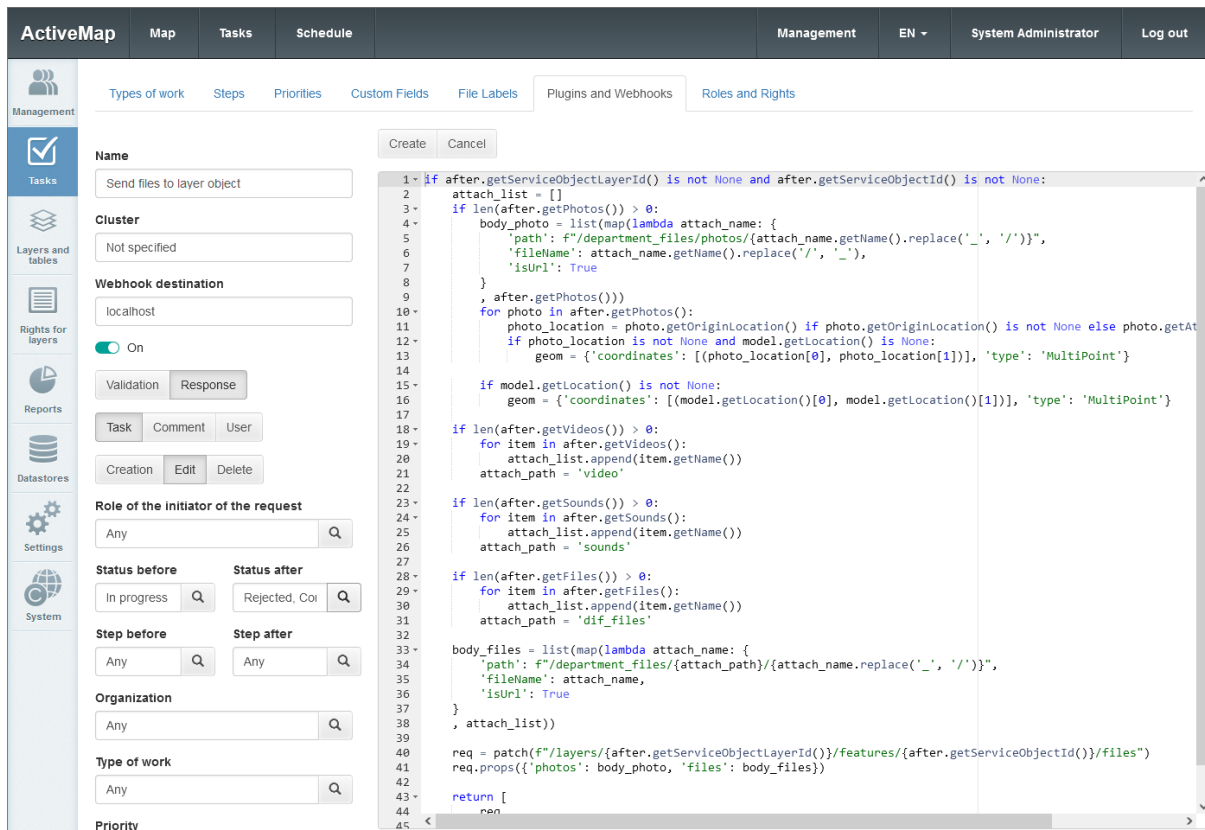


Fig. 2.92: Plugin creation

In the left part of the opened window, configure the parameters: fill in the “Name” and “Description” fields, specify the cluster if necessary, switch the “Enabled” toggle to the desired position.

Select the values of the following fields:

- **Type** – type of plugin (validation or reaction).

Validation is performed before saving, reaction – after saving the task in the database.

Validation allows checking the correctness of a task when creating/editing it, performing certain actions when creating/editing/deleting users. The validator plugin should return one of three possible values:

- *valid()* – everything is correct, you can save it.
- *invalid()* – error, you cannot save it.
- *invalid(String error)* – error, you cannot save it, show the given error message.

Reaction allows you to send a request for another operation on the same task or several such requests in response to a successful operation on the task. For example, in response to attaching new files to a task, send a request to change the custom field in the same task that stores the number of files. The request is executed in a separate thread from the reaction. In reaction you can specify the user on behalf of whom the request to create/edit the task is executed. If the reaction has an attached

server and generates a relative request, the request is sent to the attached server (the request is ignored if the server is turned off or removed).

Webhooks are the special kind of reaction. This is an automated launch of http requests in response to operations on entities (tasks or comments). Unlike regular reactions, you can write webhooks both for tasks and comments. For webhooks on tasks, operations for creating/editing/deleting tasks are available. Only the operation of creating a comment is available for webhooks on comments. To send a request, the reaction should return the result of executing one of the special functions:

- *return post(url)*
- *return patch(url)*
- *return put(url)*
- *return delete(url)*
- *return get(url)*
- **Model** – the entity on which the operation is performed (task or comment).
- **Operation** – the operation that triggers the plugin (creation/editing/deletion for tasks, creation for comments).

Depending on the selected type, model, and type of operation, the following fields are displayed:

Validation when creating/deleting a task:

- **Subject Role** – user roles that can use the plugin;
- **Organization** – task-creating organizations that have access to the plugin;
- **Type of work** – types of work for which the plugin works;
- **Priority** – priorities for which the plugin works.

Validation when editing a task:

- **Subject Role** – user roles that can use the plugin;
- **Status before** – task statuses for which the plugin works;
- **Status after** – the status to which tasks are transferred after the plugin is triggered;
- **Step before** – steps of task execution for which the plugin works;
- **Step after** – the step to which tasks are transferred after the plugin is triggered;
- **Organization** – task-creating organizations that have access to the plugin;
- **Type of work** – types of work for which the plugin works;
- **Priority** – priorities for which the plugin works.

Validation when creating a comment:

- **Subject Role** – users with which role can use the plugin.

In all of the above fields, you can select multiple values. “Destination server” can be added to this list of fields – the address of the server to which relative requests are sent.

The field on the right should be filled with a Python script. Roles, statuses, before/after steps, organizations, types of work, and priorities can be specified directly in the script in more complex combinations than can be enabled by turning toggles in the left part of the window. If these field values are mentioned in the script, default values (“any”) can be left for them in the left part.

You can see script examples in the [Plugin script examples](#) (page 317) section.

After filling in all the required fields, click “Create”. The created plugin appears in the general list of plugins. If necessary, you can edit or delete each plugin in the list.

“Webhook destinations” subsection

Destination servers are needed for grouping webhooks and for the fast change of the destination server. For example, if you have 5-10 webhooks and their API entry point has changed, you have to change only the destination server address. If the reaction has an attached server and generates a relative request, the request is sent to the attached server (the request is ignored if the server is turned off or removed).

To add a new server, go to the appropriate subsection and click “Create”. In the window that opens, fill in the “Name”, “Cluster” (if necessary), and “URL” fields, switch the “Enabled” toggle to the desired position (Fig. 2.93).

Create Webhook destination

Name *

Cluster

URL *

☒ On

Cancel

Create

Fig. 2.93: Creating a destination server

The created server appears in the general list of webhook destination servers (Fig. 2.94). If necessary, you can edit or delete the server data in the list (except for the cluster). You can set the cluster when the destination server is created, but you cannot change or delete it.

ActiveMap

Map

Tasks

Schedule

Management

EN

System Administrator

Log out

Management

Types of work

Steps

Priorities

Custom Fields

File Labels

Plugins and Webhooks

Roles and Rights

Plugins and Webhooks

Webhook destination servers

Create

Edit

Delete

All

Search by ID or name

#	Name	On	URL	Cluster
1	localhost	<input checked="" type="checkbox"/>	http://127.0.0.1:9000	

Fig. 2.94: List of webhook destination servers

2.3.3.2.7 “Roles and Rights” tab

This section allows you to view the permissions of users with different roles (Fig. 2.95). For a detailed description of the possible roles, see “*Roles*” tab (page 57).

Fig. 2.95: “Roles and Rights” tab

To view the rights of a specific role, select it in the “Role” window. The list on the right side of the screen displays the permissions for that role. To view roles that have a specific permission, select them in the “Privilege” window. The result is displayed in the list on the right side of the screen. “Clear Filter” button resets the role and permission selection. As a result, all roles and all rights are displayed in the list.

2.3.3.3 “Layers and tables” block

The “Layers and tables” block is intended for working with cartographic layers of the system, tables, and their groups. If you switch to the “Layers”, “Groups”, “Tables”, or “Icons” tabs, you get access to the following controls: sorting of tables, search bar, adding new records, editing records, deleting records, and exporting data (Fig. 2.96).

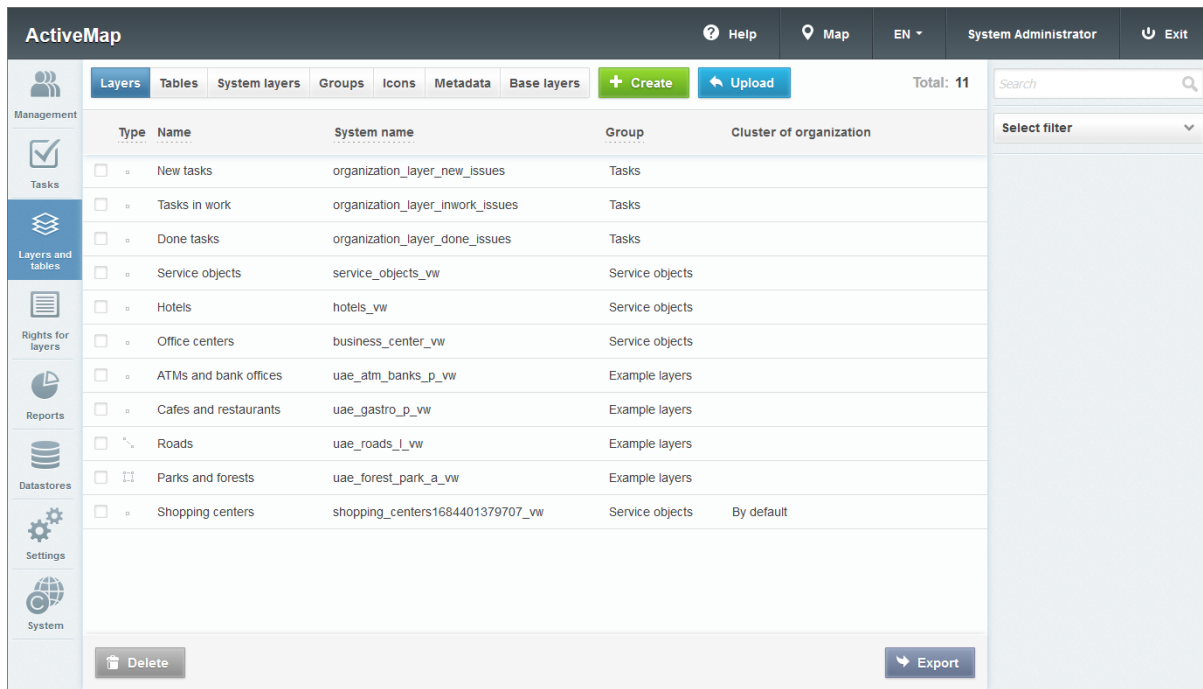


Fig. 2.96: “Layers” block

2.3.3.3.1 “Layers” tab


In the “Layers” tab you can view detailed information about the system layers, create, or load new layers. A layer is a visual representation of a set of geographic data on any digital map.

When you switch to the “Layers” tab in the administration window, a table with the following columns becomes available (Fig. 2.96):

- “Type” – geometry type (point, line, polygon, or raster) that determines how the layer object appears on the map;
- “Name” – name of the layer in the interface;
- “System name” – name of the layer in the database;
- “Group” – belonging to a certain group of the system;
- “Cluster of organizations” – an association of several organizations for operational monitoring of the work of departments (for more information about clusters, see *“Clusters of organizations” tab* (page 64)).

In the “Layers” tab you can use search strings and filters (by group, data store, geometry type, belonging to raster layers, by service objects and cluster), tools for creating new layers, and editing/deleting the existing ones.

Creating a new layer

To create a new layer in the system, click . The layer creation window opens, containing the tabs: “Main”, “Attributes”, “Service Objects” and “Default rights”.

“Main” tab

The first tab that opens is the “Main” tab, where you have to fill in the following fields (Fig. 2.97):

- **Layer cluster** – belonging to the cluster of organizations. Cluster selection is available when creating a layer as a System Administrator. When creating a layer as an Cluster Administrator, affiliation with the cluster is automatically determined.
- **Name** – name of the layer in the interface.
- **System name** – name of the layer in the database. It should consist of letters from the Latin alphabet, without spaces or special characters. It is generated automatically when entering information in the “Name” field. If a non-Latin script title is entered in the “Name” field, transliteration is used. If you are not satisfied with the received name, you can enter your own version in this field. Automatic input does not work if you first fill in the “System name” and then the usual “Name”. Unlike the name, you cannot edit the system name after the layer has been created.
- **Group** – group of layers in which the layer is displayed.
- **Datastore** – database in which the layer is stored.
- **Geometry type** – point, line, or polygon.
- **Layer protocol**:
 - WMS – providing information in the form of a geographically referenced images;
 - WFS – providing information in the form of geospatial data.
- **Projection** – code of one of the common geographic projections.
- **Use for search** – indexing the layer to search for its objects.
- **Style** – description of the layer display properties on the screen (color, size, transparency, and other properties of the layer objects and their labels).
- **Can edit the style** – the ability to switch between styles of different complexity (basic, simple, and advanced) during further layer editing.

The screenshot shows the 'Creating layer' form in the ActiveMap Web admin interface. The form is titled 'Creating layer' and has a 'Main' tab selected. The form contains the following fields and options:

- Layer cluster:** A dropdown menu with 'Alishahba' selected.
- Name:** A text input field with 'Objects' entered.
- System name:** A text input field with 'objects' entered.
- Group:** A dropdown menu with 'Service objects' selected.
- Datastore:** A dropdown menu with 'activemap_store' selected.
- Type of geometry:** A dropdown menu with 'Point' selected.
- Layer protocol:** A dropdown menu with 'WFS' selected.
- Projection:** A dropdown menu with 'EPSG:4326' selected.
- Can user for search:** A toggle switch that is currently turned off.
- Style:** A dropdown menu with 'Base' selected.
- Can edit style:** A toggle switch that is currently turned off.

The form has 'Save and exit' and 'Cancel' buttons at the top and bottom. The left sidebar shows the 'Layers and tables' menu item highlighted.

Fig. 2.97: Creating a layer

When creating and editing a layer, you can select one of the following styles:

- **Basic** – default style (point, line, or polygon).
- **Simple** – style, where you can select an attribute for the caption and set its color, background, transparency and size (Fig. 2.98).

Layer cluster

Alshahba

Name *

Objects

System name *

workspace:objects_vw

Group *

Service objects

Datastore *

activemap_store

Type of geometry *

Point

Layer protocol *

WFS

Can user for search ☒

Style *

Simple

Signature ☒

Select option

Signature

Size

12

Figure

Circle

Background

Size

10

Opacity

100 %

Stroke ☐

Width

1

Fig. 2.98: Simple layer style

If you select the simple style and the point geometry type, you can set the form of displaying points for each object (circle, triangle, or square) or choose a style with an icon. You can set the background color and icon size and outline the shape. If you use the style with icon, you should select one of the icons from the drop-down list and specify its size. The system also supports loading your own icons (more details in “*Icons*” *tab* (page 121)).

If you select the line as the geometry type, you can set the background color and line thickness. To set a color for the stroke, select the appropriate stroke option.

If you select polygon as the geometry type, you can set not only the colors and sizes for the stroke, but also the background transparency.

- **Advanced** – a style generated using the GeoCSS language with support for filters and a legend. When you select this style, a separate form with a code (Fig. 2.99) appears to the right of the input fields. See *Attachment 2. Examples of advanced layer styles* (page 318) for examples of extended styles. For more details on the rules for creating geocss styles, see <https://docs.geoserver.org/stable/en/user/styling/workshop/css/css.html>.

Layer cluster
 Aishahba

Name *
 Objects

System name *
 workspace:objects_vw

Group *
 Service objects

Datastore *
 activemap_store

Type of geometry *
 Point

Layer protocol *
 WFS

Can user for search ☒

Style *
 Advanced

```

*{
  mark: symbol("circle");
}
:mark{
  fill:#0000FF;
  fill-opacity:1;
  size:10;
}
  
```

Fig. 2.99: Advanced layer style

“Attributes” tab

To add new attributes, fill in the “Name” and “Type” fields and click

 (Fig. 2.100).

ActiveMap Help Map EN System Administrator Exit

Management

Creating layer

Save and exit Cancel Main Attributes Service Objects Default rights

Title format: {title} Subtitle format: {address} Limiting the visibility of objects by: organization

Name: Type: String + Add

Name	System name	Type	For search	Show	Can be edited	
<input type="checkbox"/> name	title	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional
<input type="checkbox"/> address	address	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional
<input type="checkbox"/> organization	sys_org_id	Organization connection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional
<input type="checkbox"/> material	material	Dictionary: "Material" Fields: gid, name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional
<input type="checkbox"/> object	object	Layer: "Office centers" Fields: gid, name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional
<input type="checkbox"/> responsible employee	responsible_employee	Data table: "Employees" Fields: gid, full name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional

Save and exit Cancel

Fig. 2.100: Adding layer attribute data

The following types of attribute fields are supported:

- String – a text field;
- Integer – an integer field;
- Big integer – a numeric type that makes it possible to work with integers of arbitrary length;
- Boolean – a choice of true and false;
- Float – a field with a real numeric value;
- Date – selection of date from the calendar (day-month-year);
- Date and time – selection of date (day-month-year) and time (hours-minutes);
- Dictionary – selection from a list of values from the specified reference table (dictionary);
- Data table – selection from a list of values from the specified data table;
- Layers – selection from a list of objects from the specified layer;
- Organization connection – selection from a list of available organizations;
- Cluster connection – selection from a list of available clusters;
- User connection – selection from a list of available users;
- Work type connection – selection from a list of available work types;
- Priority connection – selection from a list of available work priorities.
- RFID tag – a text field for storing information obtained by scanning the tag in the ActiveMap Mobile Android mobile application.

After creating an attribute, a table with the name, system name, and attribute type opens in the administration area. The system name is automatically assigned to the attribute based on transliteration of the entered name or based on the type for the following attribute types:

- Organization connection – sys_org_id
- Cluster connection – sys_clr_id
- User connection – sys_usr_id
- Work type connection – sys_typ_id
- Priority connection – sys_prt_id

If there are several fields in a layer with one of the specified types, then {current date} is automatically added at the end of the system attribute name.

New attribute appears in the first line of the table (Fig. 2.100). The following actions are available to the administrator:

- changing the attribute's name;
- defining additional parameters of the attribute:
 - “Title” – clicking on the line makes attribute the title of the object's card displayed when you click on the object on the map.
 - “Subtitle” – clicking on the line makes attribute the subtitle of the object's card displayed when you click on the object on the map.
 - “For search” – toggle switch to use the attribute for search.
 - “View” – toggle switch for showing attribute for users.
 - “Can be edited” – toggle switch for attribute editing availability.

To see two more parameters, click “Additional” (Fig. 2.101):

- “HTML escape” – toggle switch to interpret the attribute as HTML content (expands the possibilities of filling in attribute fields, for example, their content can be a link or a formatted text).
- “View in pop-up window” – toggle switch to display the attribute in the object's card that is displayed when you click on the object on the map.

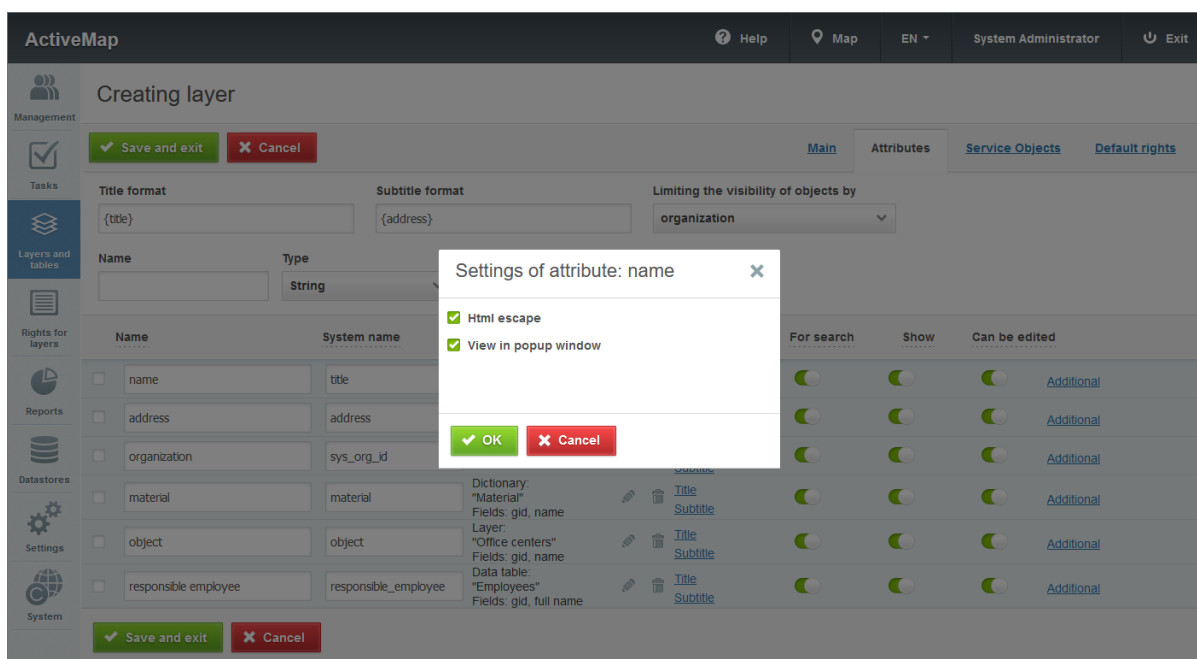
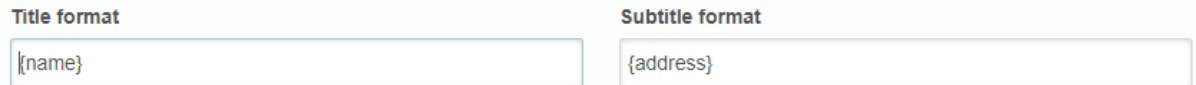


Fig. 2.101: Additional attribute parameters

To add the next attribute, fill in the form with fields again and click



In the upper part of the window, there are the “Title format” and the “Subtitle format” fields. You can form the title/subtitle using a mask for the layer from one or several attributes. To set up a new mask, click “Title” or “Subtitle” on the desired attribute. You can add a brief explanation for better perception.



Title format	Subtitle format
{name}	{address}

Fig. 2.102: Example of setting a title and subtitle mask

You can limit the visibility of objects of the same layer for different clusters, organizations, and users in the system. To do this, you have to:

1. Create a field with one of the following data types: “Organization connection”, “Cluster connection”, or “User connection”.
2. Select its name from the drop-down list in the “Limit the visibility of objects by” field at the top of the window.
3. After saving the layer attribute structure, fill the connection field with values by selecting from the drop-down list.

Objects of this layer are visible only for the users of the cluster (or organization) specified in this field or for the users listed in the “User connection” field.

Users with “System Administrator” and “System Inspector” roles can leave the system filter field empty when creating an object and the object becomes available to all users. For other users, the field is filled by default with the name of the main organization or main cluster of the user. The object is accessible only to users of this organization or cluster.

To facilitate the process of filling the created attribute fields and to filter objects on the map by attribute values, you can set the link to a reference table, to a data table, or other thematic layers. To do this, create a table in the “Tables” tab of the “Layers” block (*“Tables” tab* (page 111)) and select “Reference table (dictionary)” or “Data Table” as the field type of the current layer. To link to a thematic layer, select the “Layers” type and select the thematic layer. A drop-down list with the names of available tables appears to the right of the field type. After selecting a particular table, specify the “Value Field” with “integer” data type (the source field for the link) and the “Name Field” with “String” data type (the field that stores the names of the elements) (Fig. 2.103).

ActiveMap Help Map EN System Administrator Exit

Creating layer

Save and exit Cancel Main Attributes Service Objects Default rights

Title format {name} Subtitle format {adress} Limiting the visibility of objects by organization

Name	Type	Dictionary	Field with value	Field with name	
Material	Dictionary	Material	gid	name	+ Add

Name	System name	Type	For search	Show	Can be edited
<input type="checkbox"/> name	title	String	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/> Additional
<input type="checkbox"/> address	address	String	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/> Additional
<input type="checkbox"/> organization	sys_org_id	Organization connection	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/> Additional

Save and exit Cancel

Fig. 2.103: Attaching a reference table to the layer field

After attaching a reference or data table (Fig. 2.104) you can select one of the values from the drop-down list instead of entering an attribute value when creating new layer objects and when filtering.

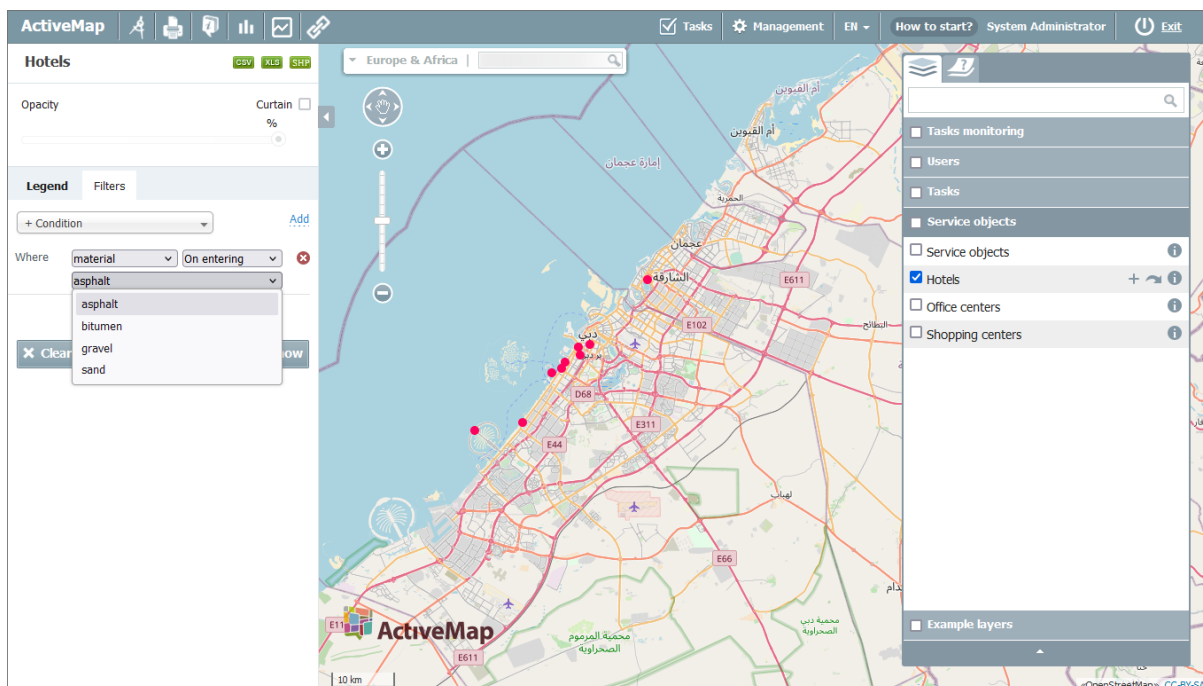


Fig. 2.104: Using reference table to filter layer objects

Fields with “Cluster connection”, “Organization connection”, “User connection”, “Work type connection”, and “Priority connection” types allow you to connect system reference tables (dictionaries). System dic-


tionaries are generated automatically based on data entered into the system.

“Service Objects” tab


Service objects are layers containing objects of interest of the user organization related to its activities. In this tab, you can set the mapping between the fields of this layer and the fields of tasks that are created based on the service objects. This means that when creating tasks with a link to service objects, all or part of the task fields are automatically filled with data about this service object. The mapping determines which fields it is.


You can define a layer as a service layer in the “Rights for layers” block (for more information, see *“Rights for layers” block* (page 129)). Depending on the settings in the “Rights for layers” block, some users can use the layer as a service layer, while others can use it as a regular layer.

To configure service objects, enable the corresponding toggle switch. Then select an attribute for the name of the service object from the layer

fields and click . The name format displays its mask. The name can consist of several attributes. To do this, create an appropriate mask by adding new attributes.

To set the mapping of service layer attributes and task fields, click

 **Add a match**. Select the layer attribute and the task field from

the drop-down lists. To delete the mapping, click  next to the mapping. The attribute format can include several layer fields. You can also add an explanation to this line to help you understand the information in the tasks.

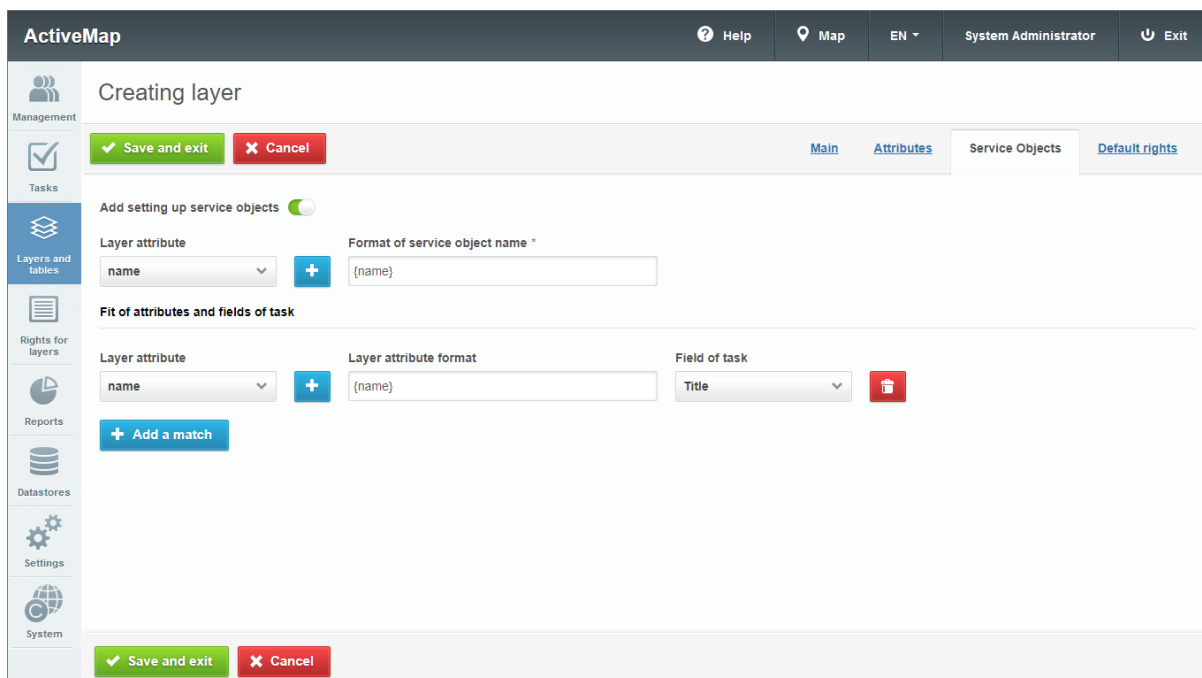



Fig. 2.105: “Service objects” tab

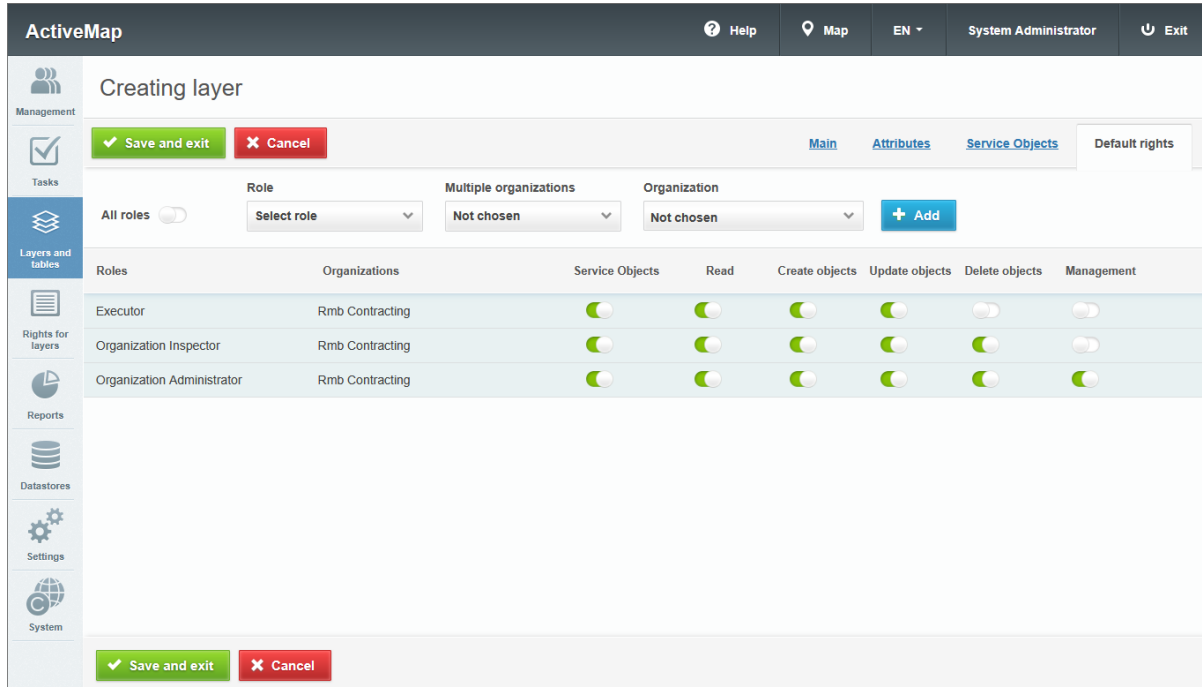
“Default rights” tab

In this tab you can set the default rights for viewing/editing/managing and set the rights for using the layer as a layer with service objects. To set the rights, select the options from the drop-down lists:

- “All Roles” – granting rights to all roles;
- “Role” – selecting roles to set rights for;
- “Multiple organizations” – selecting all client organizations or all non-client organizations, or all regardless of this criterion;
- “Organization” – selecting the organization to set rights for.

After selecting the parameters, click . A new row appears in the table below. Set the necessary rights using the following toggle switches:

- Service Objects
- Read
- Create objects
- Update objects
- Delete objects
- Manage



Roles	Organizations	Service Objects	Read	Create objects	Update objects	Delete objects	Management
Executor	Rmb Contracting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization Inspector	Rmb Contracting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Organization Administrator	Rmb Contracting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Fig. 2.106: “Default rights” tab

For more information about the rights, see *“Rights for layers” block* (page 129).

Uploading a layer

To upload a layer into the system, click  at the top of the “Layers” tab. A pop-up window appears where you can select a layer from the computer. You can upload archived vector shape files in zip format and georeferenced raster images in GeoTIFF format.

Layer uploading includes the following steps:

1. Preliminary import;
2. Setting layer parameters;
3. Creating a layer in the system based on the imported data.

Preliminary import starts immediately after selecting a file to upload. You can see the import progress in the current window ([Fig. 2.107](#)).

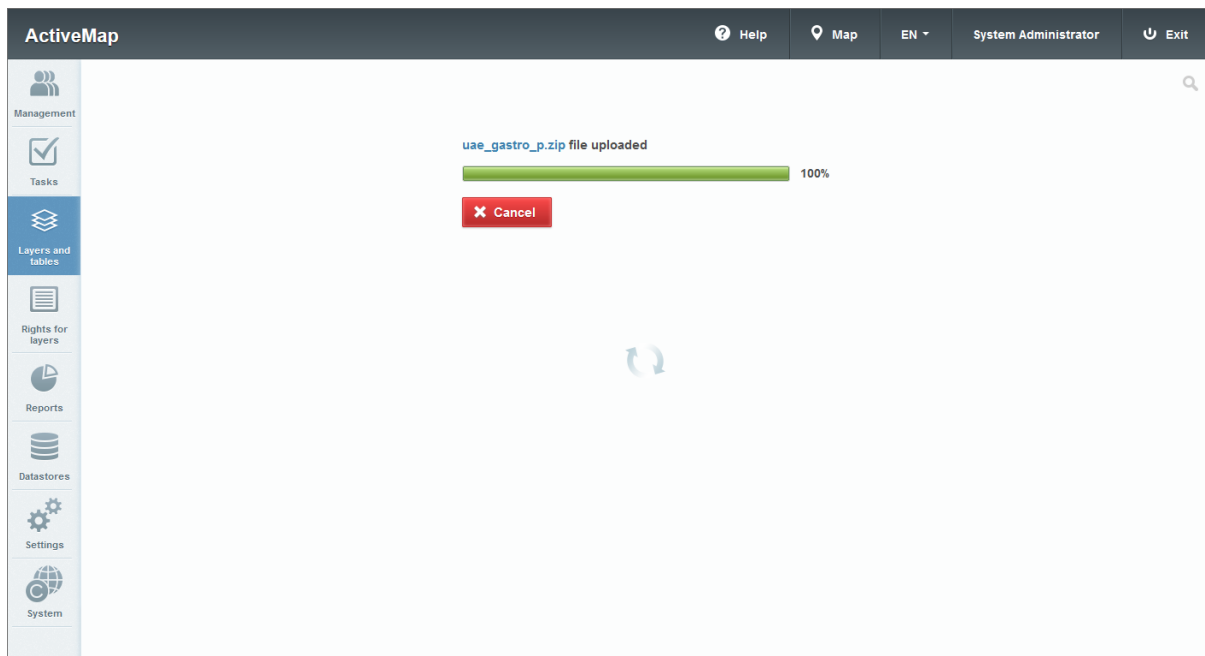


Fig. 2.107: Progress of preliminary layer import

Uploading vector layers

After the preliminary import, the same window opens as when creating a layer (Fig. 2.108). In the “Main” tab, the geometry type is automatically determined. You have to fill in the remaining fields.

The screenshot shows the 'Creating layer' window in the ActiveMap web application. The interface includes a top navigation bar with 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. A left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'Creating layer' and features a 'Main' tab (selected), along with 'Attributes', 'Service Objects', and 'Default rights' tabs. At the top of the main area are 'Save and exit' and 'Cancel' buttons. The form contains the following fields and controls:

- Layer cluster:** A dropdown menu set to 'No cluster'.
- Name:** A text input field containing 'Cafes and restaurants'.
- System name:** A text input field containing 'uae_rest_p'.
- Group:** A dropdown menu set to 'Service objects'.
- Datastore:** A dropdown menu set to 'activemap_store'.
- Type of geometry:** A dropdown menu set to 'Point'.
- Layer protocol:** A dropdown menu set to 'WFS'.
- Projection:** A dropdown menu set to 'EPSG:4326'.
- Use for search:** A toggle switch that is currently turned on.
- Style:** A dropdown menu set to 'Base'.
- Can edit style:** A toggle switch that is currently turned on.

At the bottom of the form are 'Save and exit' and 'Cancel' buttons.

Fig. 2.108: Main parameters of the uploaded vector layer

The “Attributes” tab shows the attribute fields of the imported layer (Fig. 2.109). You cannot delete them at this step before creating a layer. You can only configure their display parameters and add new fields if necessary. New fields will be empty. You can fill them after creating a layer in the system.

ActiveMap

Help Map EN System Administrator Exit

Management

Tasks

Layers and tables

Rights for layers

Reports

Datastores

Settings

System

Creating layer

Save and exit Cancel

Main Attributes Service Objects Default rights

Title format Subtitle format Limiting the visibility of objects by

{name} Select attribute

Name	System name	Type	For search	Show	Can be edited	
<input type="checkbox"/> osm_id	osm_id	String	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Title Subtitle Additional
<input type="checkbox"/> code	code	Big integer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Title Subtitle Additional
<input type="checkbox"/> fclass	fclass	String	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Title Subtitle Additional
<input type="checkbox"/> name	name	String	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Title Subtitle Additional

Save and exit Cancel

Fig. 2.109: Attributes of the uploaded vector layer

When importing a layer from a shapefile, the system automatically identifies some attribute types if the attribute field name starts with the following words:

- sys_org_id – “Organization connection” type
- sys_clr_id – “Cluster connection” type
- sys_usr_id – “User connection” type
- sys_typ_id – “Work type connection” type
- sys_prt_id – “Priority connection” type

Setting up service objects and default rights is done in the same way as when creating a layer. After setting all the parameters, click

✓ Save and exit

to complete the import and create a new layer in

the system, or click

✗ Cancel

to cancel the import.

The stages of creating a vector layer are displayed in the information window (Fig. 2.110).

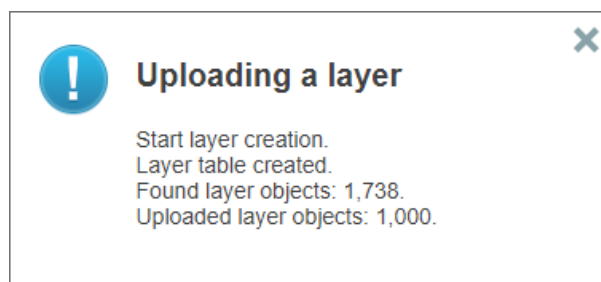


Fig. 2.110: Stages of vector layer creation

Uploading raster layers

Before uploading raster images, it is recommended to compress the GeoTIFF file (LZW compression) and build pyramids for it. You can do it using the tools of the GDAL library (<https://gdal.org/>). After the preliminary import is completed, the layer creation window opens (Fig. 2.111).

Fig. 2.111: Main parameters of the uploaded raster layer

In the “Main” tab, the layer display protocol (WMS) and the EPSG projection code are automatically determined. You have to fill in the following fields:


- Layer cluster
- Name
- System name
- Group


You can enable transparency display for different parts of the raster using the following flags:

- Transparent overlay color
- Transparent background color


As a rule, they are used for raster schemes and drawings.

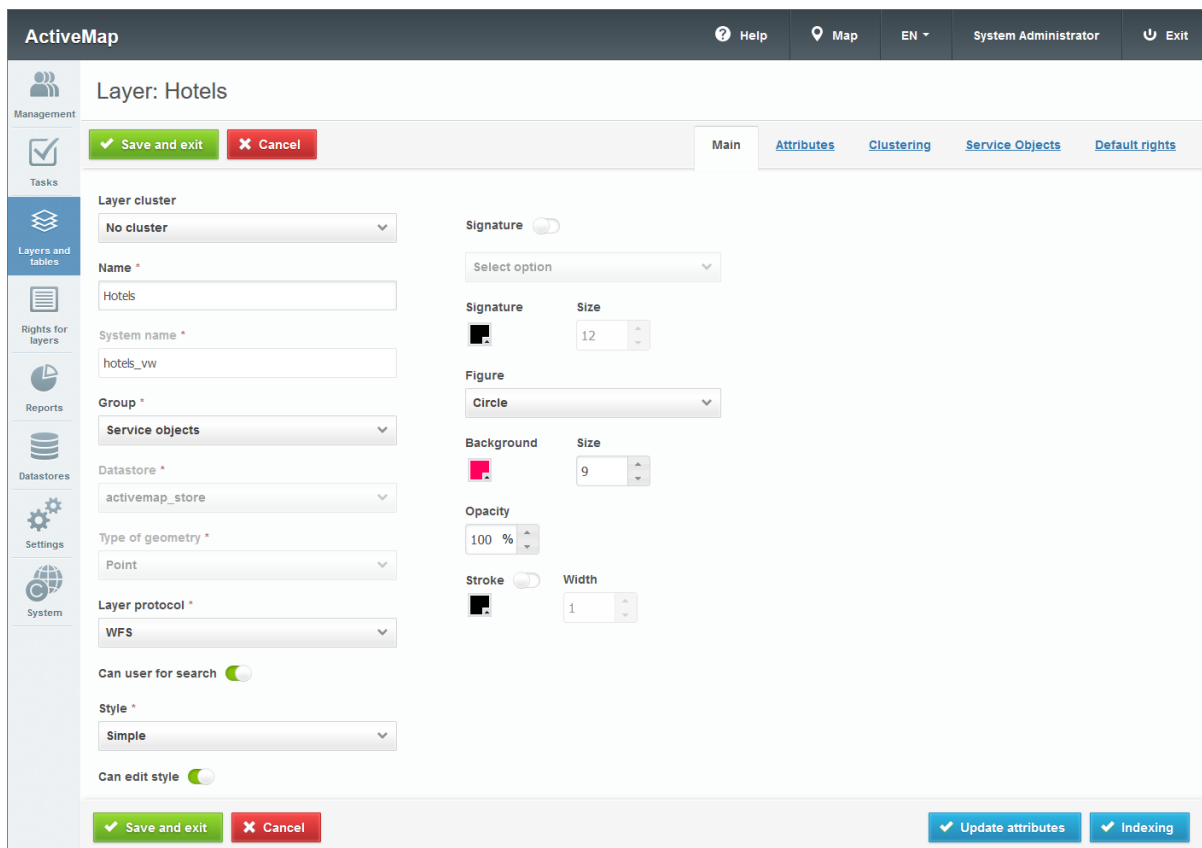
The default rights are set up in the same way as when creating a layer.

After setting all the parameters, click  to com-

plete the import and create a new layer in the system or  to cancel the import. The stages of creating a raster layer are displayed in the information window, as when loading a vector layer.

Editing a layer

To edit a layer, click  or double-click on the row with the selected layer name. A form (similar to the add form) opens in the administration area. Here you can fill in/change the fields of the layer (Fig. 2.112).



The screenshot shows the 'Layer: Hotels' editing window in the ActiveMap administration interface. The window has a dark header with 'ActiveMap' and navigation links like 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. A left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'Layer: Hotels' and includes a 'Save and exit' button and a 'Cancel' button. Below these are tabs for 'Main', 'Attributes', 'Clustering', 'Service Objects', and 'Default rights'. The 'Main' tab is active, showing various configuration fields: 'Layer cluster' (No cluster), 'Name' (Hotels), 'System name' (hotels_vw), 'Group' (Service objects), 'Datastore' (activemap_store), 'Type of geometry' (Point), 'Layer protocol' (WFS), 'Can user for search' (toggle), 'Style' (Simple), and 'Can edit style' (toggle). On the right, there are settings for 'Signature' (toggle), 'Figure' (Circle), 'Background' (color swatch), 'Opacity' (100%), 'Stroke' (toggle), and 'Width' (1). At the bottom right, there are 'Update attributes' and 'Indexing' buttons.

Fig. 2.112: Layer editing window

When you change cluster membership, users in the new cluster are automatically granted rights to the layer, configured by default. Users in the previous cluster retain their rights to the layers and can edit them if necessary.

To change information about layer attributes, switch to the “Attributes” tab in the layer editing window (Fig. 2.113).

ActiveMap Help Map EN System Administrator Exit

Layer: Hotels

Save and exit Cancel Main Attributes Clustering Service Objects Default rights

Title format: {title} Subtitle format: {address} Limiting the visibility of objects by: organization

Name: Type: String Add


	Name	System name	Type		For search	Show	Can be edited	
<input type="checkbox"/>	name	title	String	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional
<input type="checkbox"/>	address	address	String	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional
<input type="checkbox"/>	organization	sys_org_id	Organization connection	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional
<input type="checkbox"/>	material	material	Dictionary: "Material" Fields: gid, name	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional
<input type="checkbox"/>	object	object	Layer: "Office centers" Fields: gid, name	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional
<input type="checkbox"/>	responsible employee	responsible_employee	Data table: "Employees" Fields: gid, full name	Title Subtitle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional

Save and exit Cancel Update attributes Indexing

Fig. 2.113: Editing layer attributes

Here you can see the fields for adding and editing attributes. You can also change the display order of attributes by moving the attribute rows up or down relative to each other.

To edit the relationships between tables, you should:

1. Click the  button in the link attribute line.
2. In the window that opens, set a new relationship for this attribute by selecting values from the drop-down lists (Fig. 2.114).

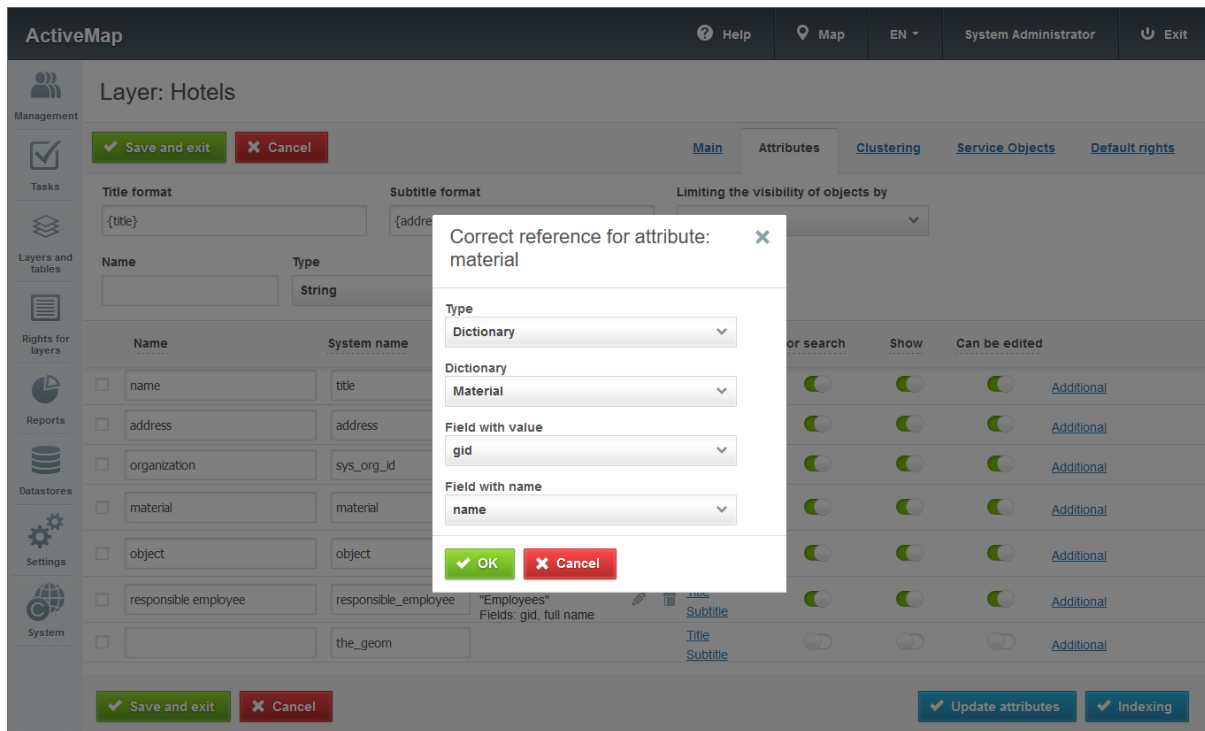




Fig. 2.114: Changing the relationship for an attribute

3. Save changes by clicking .

You can see the established relationship in the layer card. After selecting a new linked table, value field, or name field, this field will be automatically filled with new values.

To delete the attribute's relationship with a directory or table, click the  button in the "Type" column of the link attribute line and confirm your actions in the opened window (Fig. 2.115).

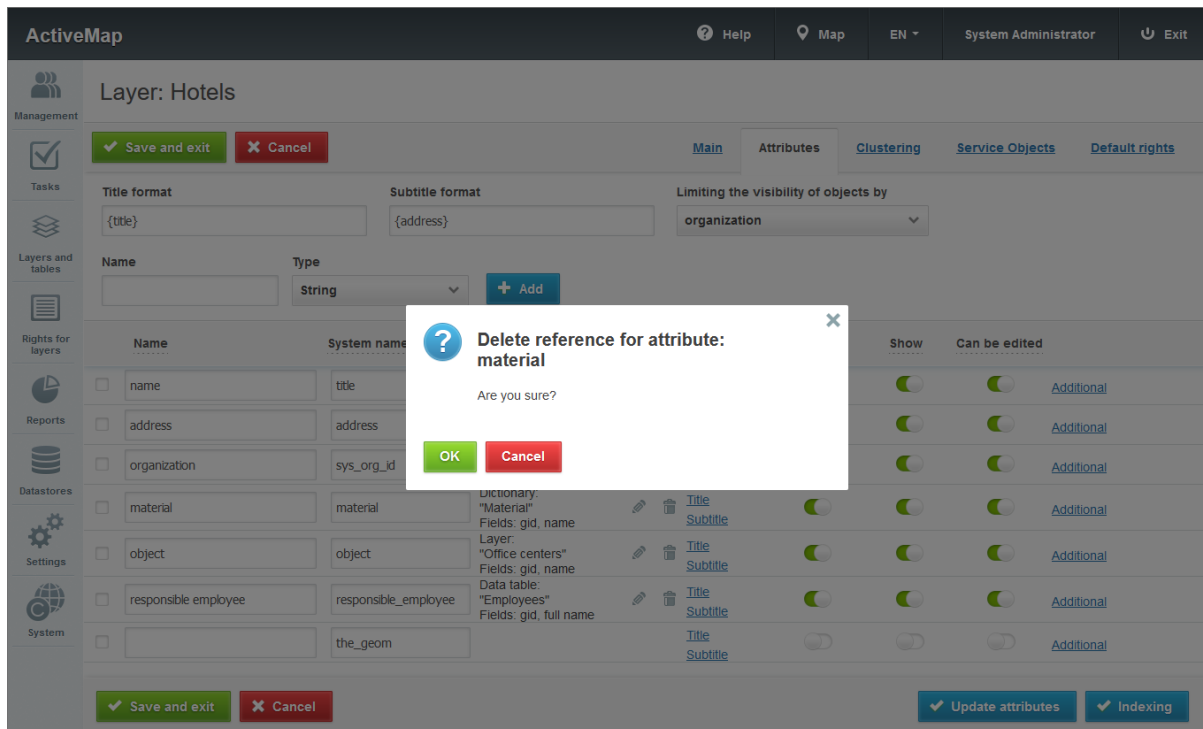







Fig. 2.115: Confirming the deletion of an attribute's relationship

To completely remove the attribute, click  on the right side of the line.

In the editing window, the "Update attributes"  and "Indexing"  buttons become available to the administrator. The  button allows you to reset the cache when adding attributes to a layer and reload them from the database. Clicking  generates a full update of the information about the selected layer. The administrator can use this button if new information has been added and is temporarily absent in the search results.

To save the changes made, click . To cancel editing the layer, click .

When editing a point layer (i.e., a layer with the "Point" geometry type), the "Clustering" tab appears in the administration area in addition to the "Main" and "Attributes" tabs.

Clustering is the display of a group of point layer objects located nearby with a single mark on the map. Clustering is possible only for point layers with the WFS display method. The amount of objects grouped into a cluster is displayed as a number. The proximity of objects to be included in the cluster is calculated based on the scale.

When you switch to the “Clustering” tab in the editing window, a form opens. Here you can enable clustering, set the maximum zoom level, and create a new cluster (Fig. 2.116). Here you can see the graphs with the following headers: object count, icon, and label color.

ActiveMap

Help Map EN System Administrator Exit

Layer: Hotels

Save and exit Cancel Main Attributes Clustering Service Objects Default rights

Enable clustering

Max zoom for clustering


5

1000 flag_blue + Add

Count objects	Icon	Label color
<input type="checkbox"/> 5		
<input type="checkbox"/> 10		
<input type="checkbox"/> 20		

Save and exit Cancel Update attributes Indexing

Fig. 2.116: Layer clustering settings

To add a new cluster, specify in the input field the number of objects contained in this cluster. Select the image displayed on the map, set the label color, and click .

The “Object count” column shows the range of the number of objects that corresponds to a specific cluster. If the number 5 is next to the first cluster, 10 is next to the second, and 15 is next to the third (as shown in Fig. 2.116), it means that up to 5 objects fall into the first cluster, from 6 to 10 in the second, and from 11 to 15 in the third. If the third cluster with 15 objects is the last in the list, then there will be no finite number of objects for it.

The “Icon” column stores cluster images that become available when viewing the map. The “Label color” column displays the color used for the caption on the map.


Searching for a layer


You can work with the search bar and filters in the “Layers” tab. There are filters by group, geometry type, layer type (raster/vector), service objects, and clusters.



For example, when choosing the filter “By geometry type”, a form appears where you have to select one of the types (point, line, or polygon) from the drop-down list to filter out layers. After that, layers with the selected geometry type appear in the administration area.

To clear the filtering results, click “Clear all”.

Deleting a layer

To delete a layer, click  on the right side of the layer row. To delete multiple layers at once, select the corresponding rows and click

 at the bottom of the screen. The delete confirmation window appears with a choice of layer deletion modes: “Remove from geoportal”, “Remove from geoserver”, and “Remove from database” (Fig. 2.117). You can choose multiple options. To completely delete a

layer, select all 3 items. Click  to confirm the deletion. Click  to cancel.

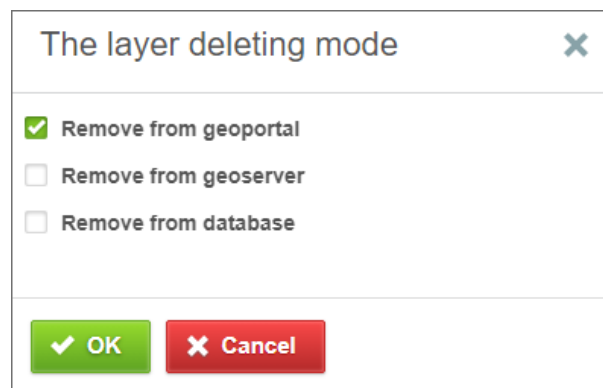


Fig. 2.117: Layer deletion confirmation

“Tables” tab

The “Tables” tab contains information about data tables and reference tables (dictionaries) of the system. Data tables and reference tables, unlike layers, do not contain spatial information about the location of objects such as geometry or coordinates of objects.

Reference tables and associated data tables are used to solve the following tasks:

- Simplification of filling attribute fields. With linked reference or data table, users can select the value of the attribute field from the suggested variants instead of entering it manually.
- Filtering layer objects on the map.
- Creation of thematic maps based on reference tables.
- Applying style according to the reference table.

When switching to the “Tables” tab, a table with the following columns becomes available (Fig. 2.118):

- “Title” – name of the table in the interface;
- “name in DB” – name of the table in the database (consisting of the letters of the Latin alphabet, transliteration of the “Title” field by default);
- “Table type” (“Data table” or “Dictionary” (“Reference table”));
- “Cluster of organization” – name of the organization cluster to which the table belongs.

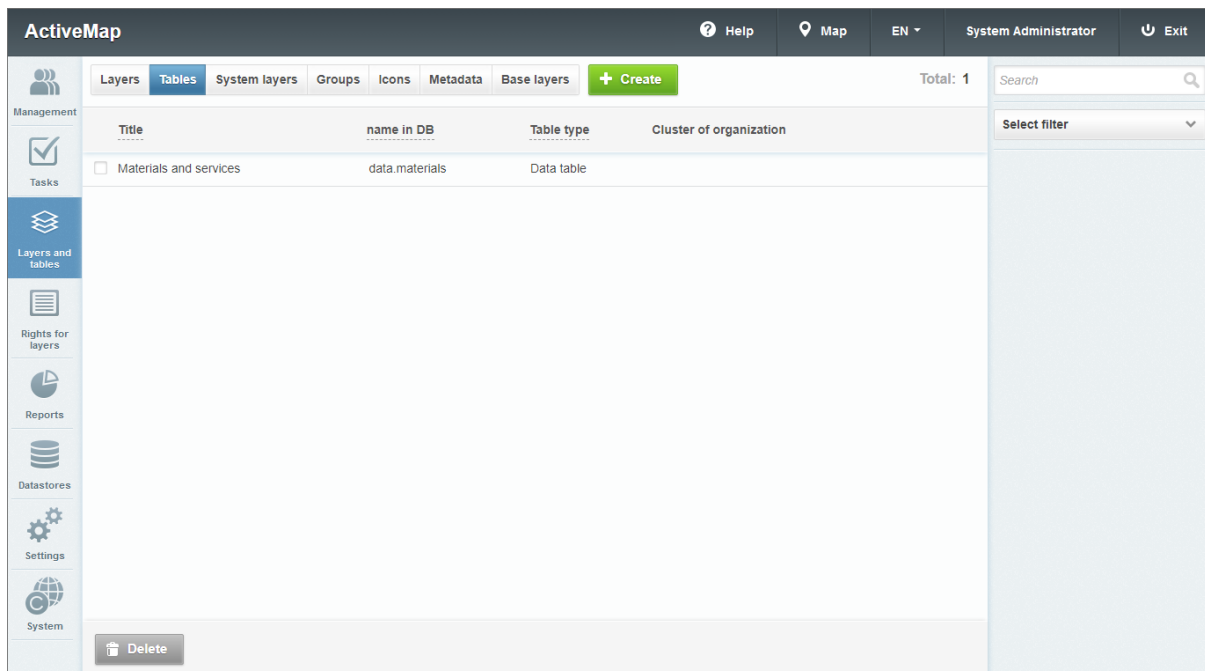



Fig. 2.118: “Tables” tab

To add a new table, click  at the top of the window. The “Main” tab appears, similar to the layer creation form (Fig. 2.119).

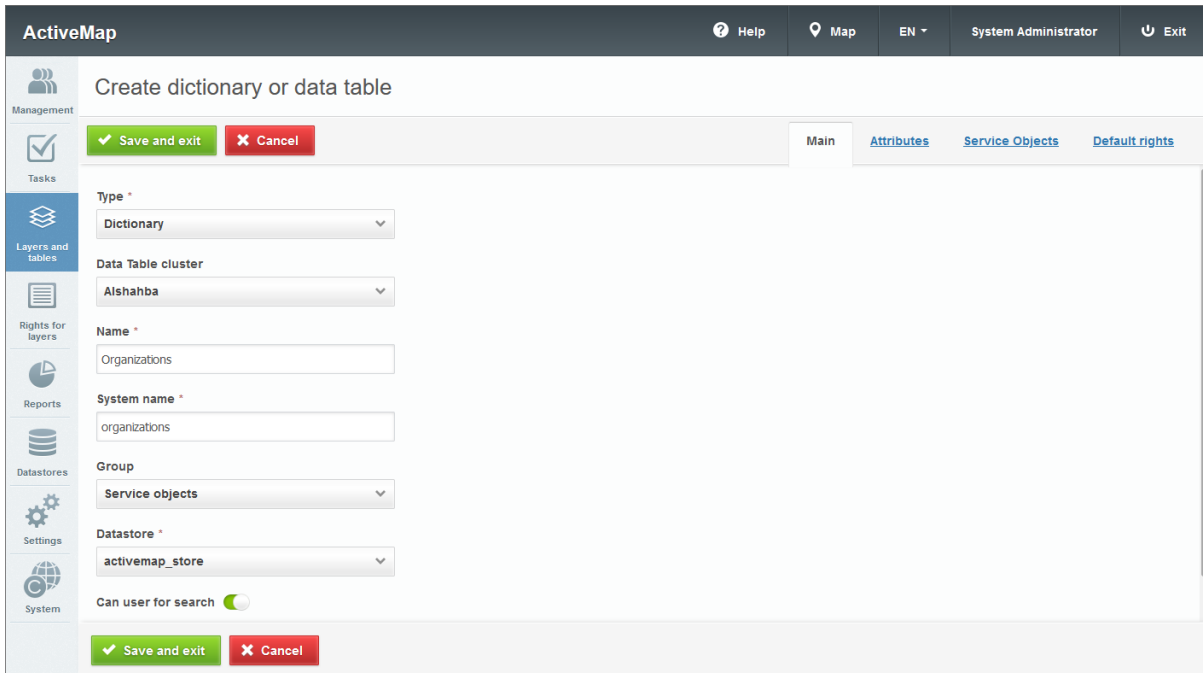


Fig. 2.119: Creating a table

Fill in the following fields:

- **Type** – type of the table (reference table (dictionary) or data table).
- **Data table cluster** – belonging to the cluster of organizations. Cluster selection is available when creating a table under the role of a System Administrator or a Cluster Administrator managing multiple clusters. When creating a table under the Organization Administrator role, the cluster belonging is determined automatically.
- **Name** – name of the table in the interface.
- **System name** – name of the table in the database, consisting of the letters of the Latin alphabet, without spaces and special characters. It is formed automatically when entering information in the “Name” field. If you enter a non-latin title in the “Name” field, the transliteration is used. If you are not satisfied with the received name, you can enter your own variant in this field. Automatic entry does not work if you fill in the “System name” first, and then the usual “Name”. Unlike the name, you cannot edit the system name after the table is created.
- **Group** – the group in which the table is displayed.
- **Datastore** – the database in which the table is stored.

You can enable the following toggles:

- **Use for search** – includes table data in the full-text search in the

ActiveMap Desktop application. It is enabled automatically when activating the “Service objects” setting.

- **Attach files and photos** – enables the ability to attach files and photos to the layer objects.

The “Attributes”, “Service Objects” and “Default rights” tabs are filled in similarly to the tabs of the same name in the layer creation form (section *Creating a new layer* (page 91)).

In order to link a data table or reference table (dictionary) to another table, the attributes must include a source field with integer values (“id” or “gid”) and a value field with element names (Fig. 2.120). The values in the source field for the link must be unique.

ActiveMap

Management

Tasks

Layers and tables

Rights for layers

Reports

Datastores

Settings

System

Create dictionary or data table

Save and exit Cancel

Main Attributes Default rights

Title format Subtitle format

Limiting the visibility of objects by

Select attribute

Name Type

String Add


Name	System name	Type	For search	Show	Can be edited	Additional
<input type="checkbox"/> gid	gid	Integer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional
<input type="checkbox"/> name	name	String	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional

Save and exit Cancel Update attributes

Fig. 2.120: Reference table (dictionary) attributes



After entering all the necessary information, click



To modify a table, click  on the right side of the corresponding line. A window similar to the table creation window opens, where you can modify data, add new entries, and change the display order of attributes.

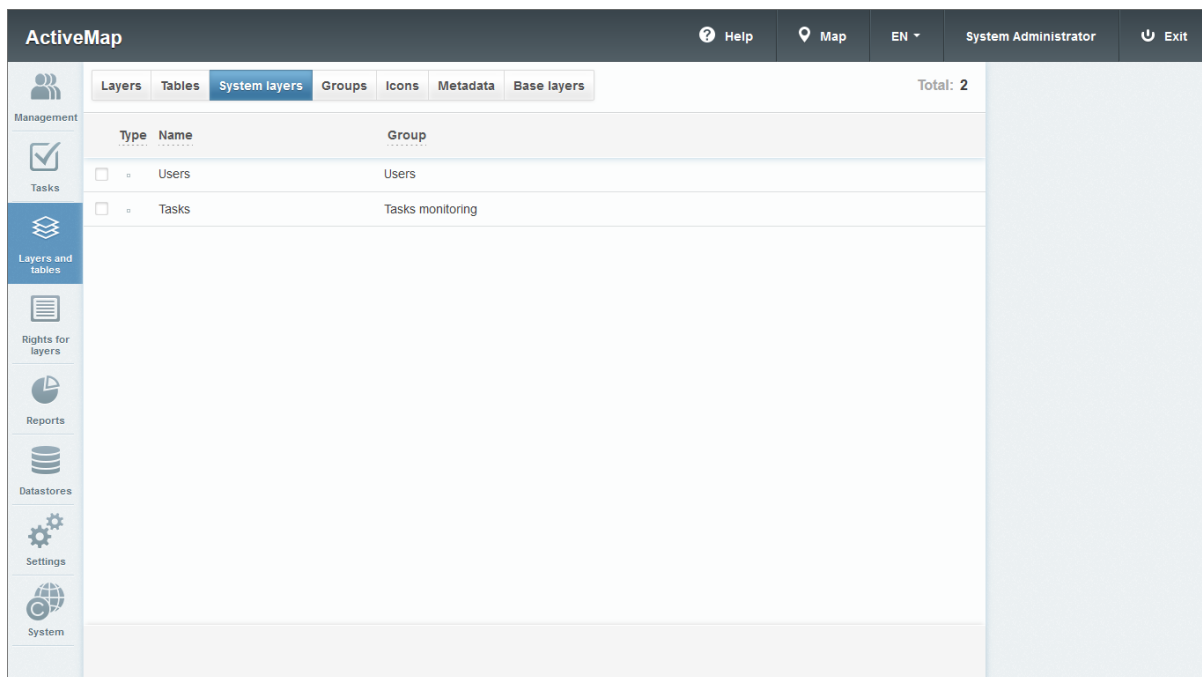
If you activate the “Service Objects” setting when editing a table, a full-text search of table data in ActiveMap Desktop will not be enabled automatically, as when creating a layer. In this case, you have to activate the search manually, if necessary.

When changing the cluster membership, default permissions for the table are automatically granted to the users of the new cluster. Permissions for the table for users of the previous cluster are saved. You can edit them, if necessary.

To delete a table, click  on the right side of the corresponding line. To delete multiple tables at once, check the corresponding lines and click  at the bottom of the screen. For more information about deleting system elements, see [Deleting an element](#) (page 42).

2.3.3.3.2 “System layers” tab

The “System layers” tab displays system-created layers ([Fig. 2.121](#)). Usually, there are two layers: “Users” and “Tasks”.



Type	Name	Group
<input type="checkbox"/>	Users	Users
<input type="checkbox"/>	Tasks	Tasks monitoring

Fig. 2.121: “System layers” tab

Only the System Administrator can edit system layers. Other roles, if they have rights to this layer, can only grant permissions to other users within their cluster or organization. Geographic data for the “Users” layer is taken from the coordinates of ActiveMap system mobile application users. The style for this layer is set programmatically. User icons are color-coded based on the activity interval – the time when the system last received their coordinates ([Fig. 2.122](#)).

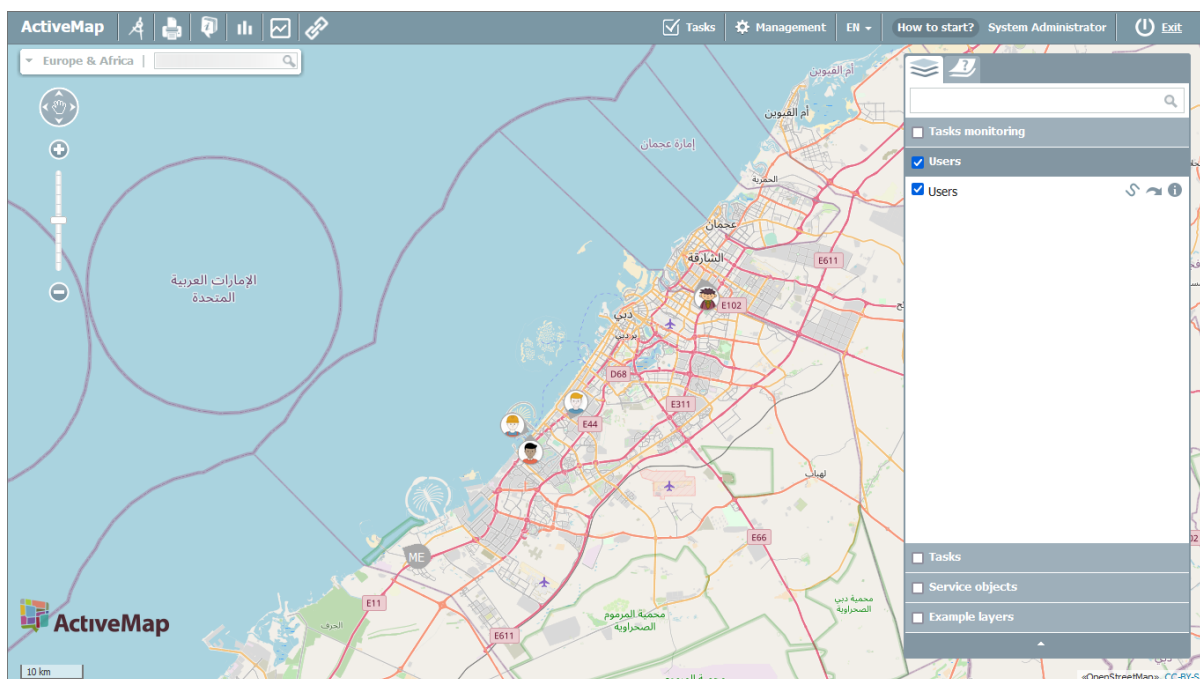



Fig. 2.122: Displaying the “Users” system layer on the map


The System Administrator can set a custom color palette and layer legend elements for the system layer, as well as define default permissions.

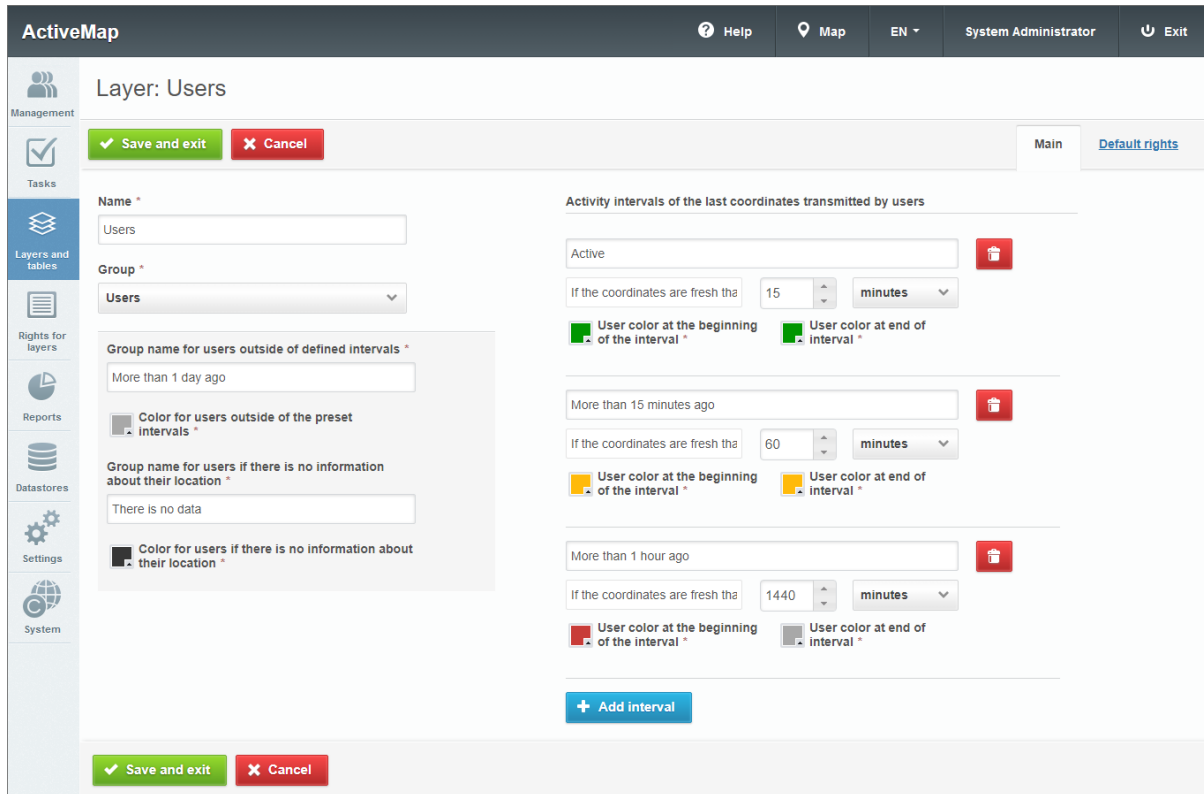
To do this, click  on the right side of the layer row or double-click on the row. The “Main” tab opens, where you can configure the following parameters (Fig. 2.123):

- **Name** – name of the layer.
- **Group** – group of layers in which the system layer is located.
- **Activity intervals of the last coordinates transmitted by users** – time intervals of receiving coordinates. They are divided into three groups by default:
 - Active – coordinates received no more than 15 minutes ago (green color);
 - More than 15 minutes ago – coordinates received from 15 to 60 minutes ago (yellow icon);
 - More than an hour – coordinates received more than an hour ago (red icon).
- **Group name for users outside of defined intervals** – name for the users whose coordinates were last transmitted before the latest time interval (by default, before a day).
- **Group name for users with no information about their location** – name for users whose geolocation is disabled.

You can set your own color for each parameter.

You can also set your own activity intervals. To delete an existing in-

interval, click  to the right of the interval. To create a new interval, click the “Add interval” button at the bottom of the window, fill in the field “Name of interval in the interface”, and set the time interval and color of the icon.



The screenshot shows the ActiveMap Web admin interface. The top navigation bar includes 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. The left sidebar contains icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Datastores', 'Settings', and 'System'. The main content area is titled 'Layer: Users' and has two tabs: 'Main' (selected) and 'Default rights'. The 'Main' tab contains the following fields and controls:

- Name ***: A text input field containing 'Users'.
- Group ***: A dropdown menu with 'Users' selected.
- Group name for users outside of defined intervals ***: A text input field containing 'More than 1 day ago'.
- Color for users outside of the preset intervals ***: A color selection button.
- Group name for users if there is no information about their location ***: A text input field containing 'There is no data'.
- Color for users if there is no information about their location ***: A color selection button.
- Activity intervals of the last coordinates transmitted by users**: A section with three intervals:
 - Interval 1**: 'Active' (text input), 'If the coordinates are fresh tha' (15 minutes), 'User color at the beginning of the interval' (green square), 'User color at end of interval' (green square).
 - Interval 2**: 'More than 15 minutes ago' (text input), 'If the coordinates are fresh tha' (60 minutes), 'User color at the beginning of the interval' (yellow square), 'User color at end of interval' (yellow square).
 - Interval 3**: 'More than 1 hour ago' (text input), 'If the coordinates are fresh tha' (1440 minutes), 'User color at the beginning of the interval' (red square), 'User color at end of interval' (grey square).
- + Add interval**: A button to add a new interval.

At the bottom of the form are 'Save and exit' and 'Cancel' buttons.

Fig. 2.123: The “Main” tab of the “Users” layer

In the “Default rights” tab you can set the rights to view/edit/manage, as well as to use the layer as a layer with service objects for different user roles in different organizations (Fig. 2.124).

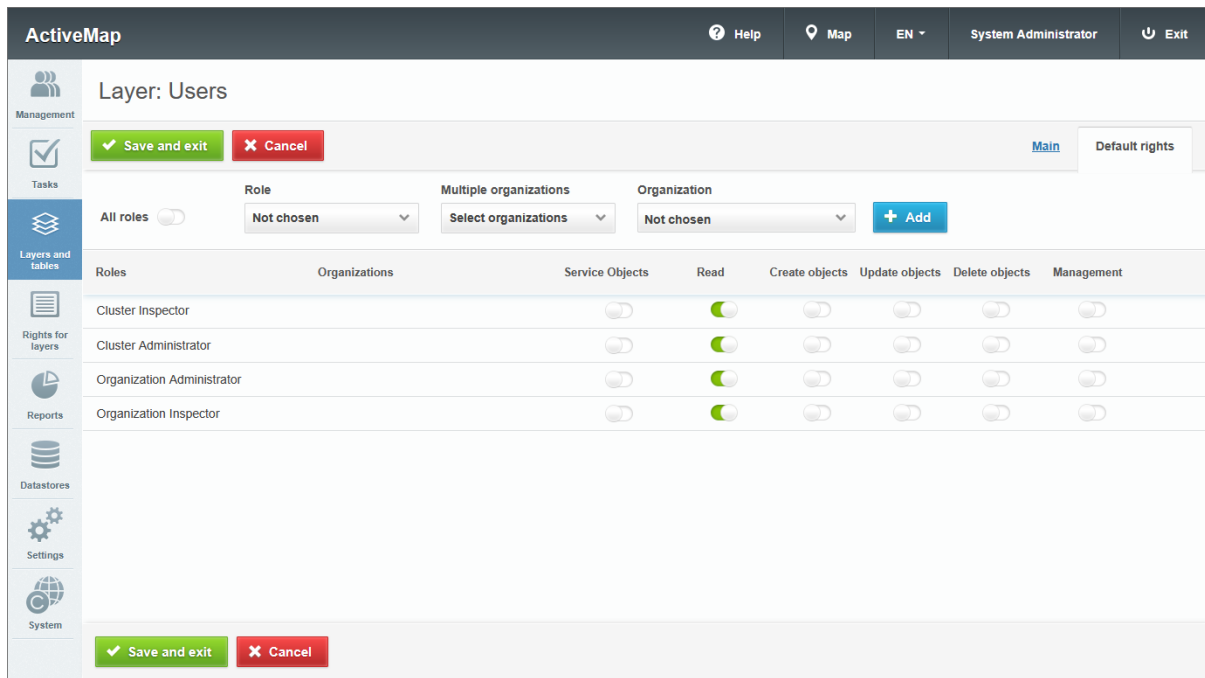


Fig. 2.124: The “Default rights” tab of the “Users” layer

After all the changes have been made, click



In the “Tasks” layer, tasks with coordinates are displayed on the map using clustering. The icon color depends on the current task status (Fig. 2.125):

- In Progress – blue;
- Completed – green;
- Rejected – gray.

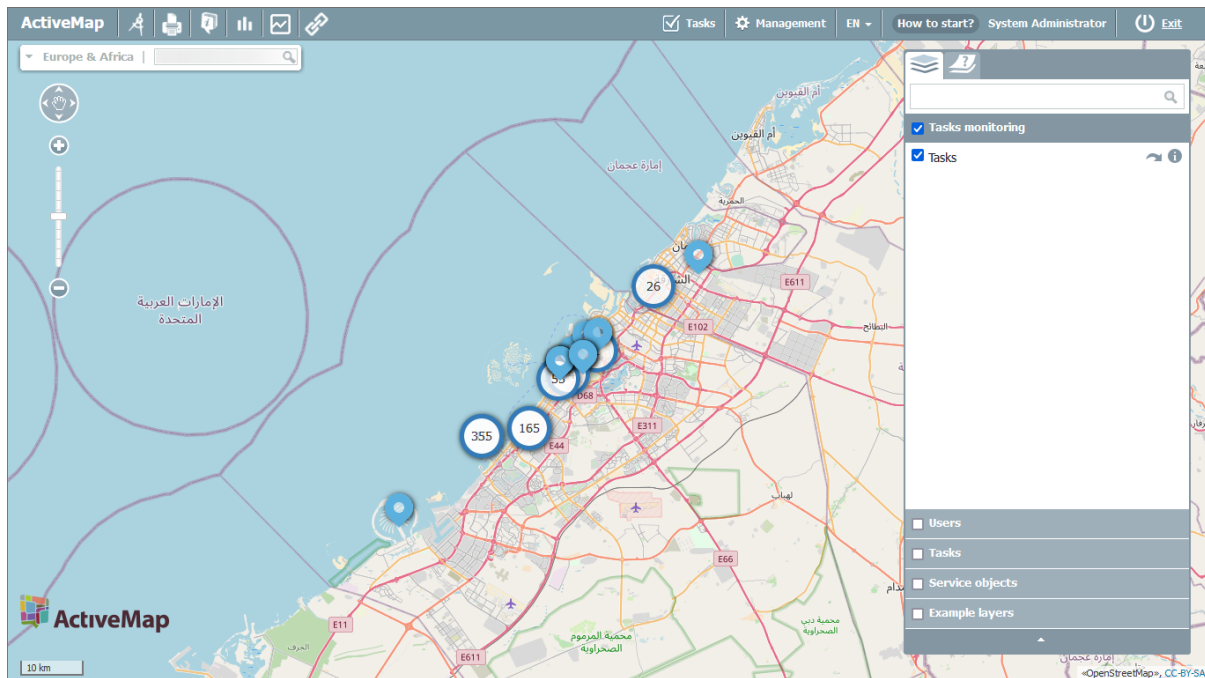




Fig. 2.125: Displaying the “Tasks” system layer on the map

To edit the “Tasks” layer, click  on the right side of the layer row or double-click on the row. The “Main” tab opens, where you can configure the following parameters (Fig. 2.126):

- **Name** – name of the layer.
- **Group** – group of layers in which the system layer is located.
- **Stage color scheme** – colors of icons and legend captions for the specified task statuses. By default, the following stages are set:
 - In Progress – blue;
 - Completed – green;
 - Rejected – gray.

Fig. 2.126: The “Main” tab of the “Tasks” layer

In the “Default rights” tab you can set the rights to view/edit/manage for different user roles in different organizations. After making all the changes, click 

2.3.3.3.3 “Groups” tab

Groups combine layers and tables by thematic or other defined criteria. When you switch to the “Groups” tab in the administration area, a table appears with the following headings (Fig. 2.127):

- “Ordinal number” – place in the list of layer groups on the main page of ActiveMap Web, occupied by the group;
- “System group” – indication that a group contains system layers (by default, “User monitoring” is a system group);
- “Name” – name of the group;
- “Cluster of organizations” – belonging to the cluster of organizations;
- “Layers” – number of layers and tables in the group.

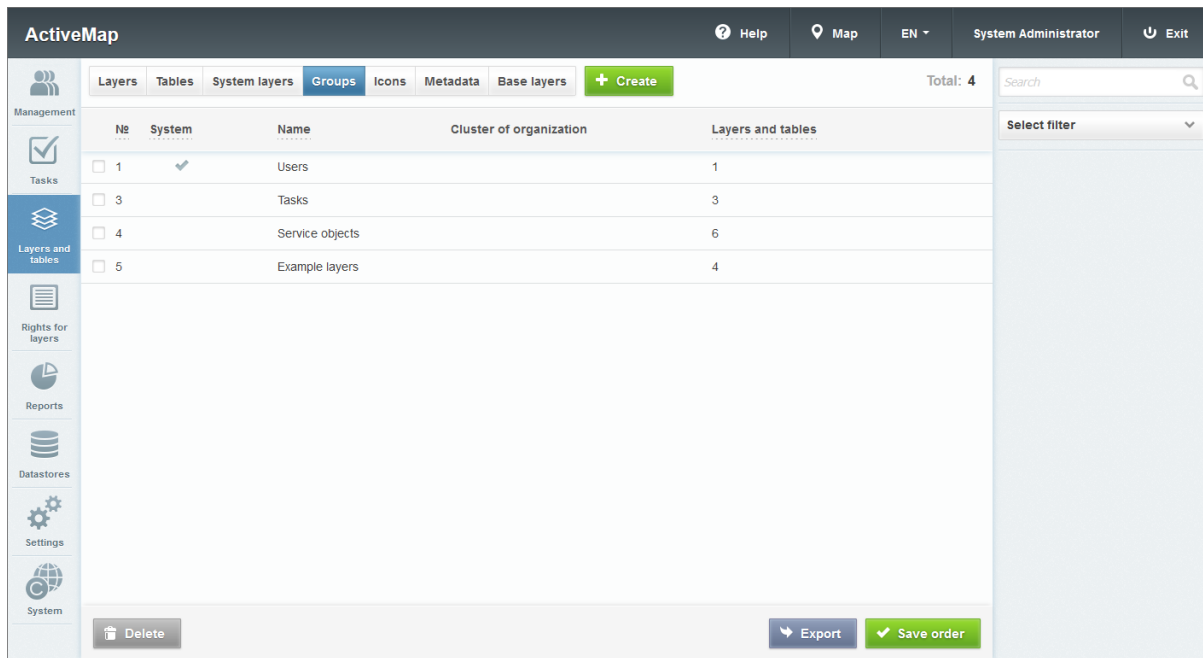


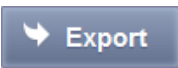



Fig. 2.127: “Groups” tab

In the “Groups” tab, the administrator has access to the “Save order” button . It is used to sort groups alphabetically (or in ascending/descending order of layers) and save the resulting order in the system. Clicking the button automatically changes the sequential numbers (in the “No.” column) for the sorted groups.

To rearrange groups, click on a certain group and, without releasing the button, move it to the desired line, and click . When switching to the “Groups” tab, you can use the search bar, as well as tools for creating new groups and editing/deleting existing ones.

In addition, in the “Groups” tab, you can save information about groups to your computer. To do this, click  and select a directory to save the Excel file. This file contains a table with the names of groups and the number of layers and tables in each group.

Adding a new group



To add a new group to the system, click  at the top of the window. A form opens in which the user can enter the name of the new group.

Editing a group

When editing a group in the administrative area, a new window opens with the following tabs: “Main”, “Layers”, and “Tables”. In the “Main” tab you can edit the name of the group. When switching to the “Layers” tab, you can view information about the layers belonging to the group (sequential number, name, and system name). In the “Tables” tab, you can view information about the tables belonging to the group (sequential number, name, and system name).

To swap layers or tables, click on a layer/table name and move the layer/table to the desired row without releasing the button.

Deleting a group

To delete a group, click  on the right side of the corresponding row. To delete several groups at once, select the checkboxes of corresponding rows and click  at the bottom of the screen. For more information about deleting system elements, see [Deleting an element](#) (page 42).

Searching for a group

You can use the search bar to search for groups by their names and filter by clusters in the “Groups” tab.

2.3.3.3.4 “Icons” tab

When switching to the “Icons” tab, you can see a table with the following columns: icon and name (Fig. 2.128). You can use icons when creating styles and adding clustering to the point layers (for more information about clustering, see [Editing a layer](#) (page 105)).

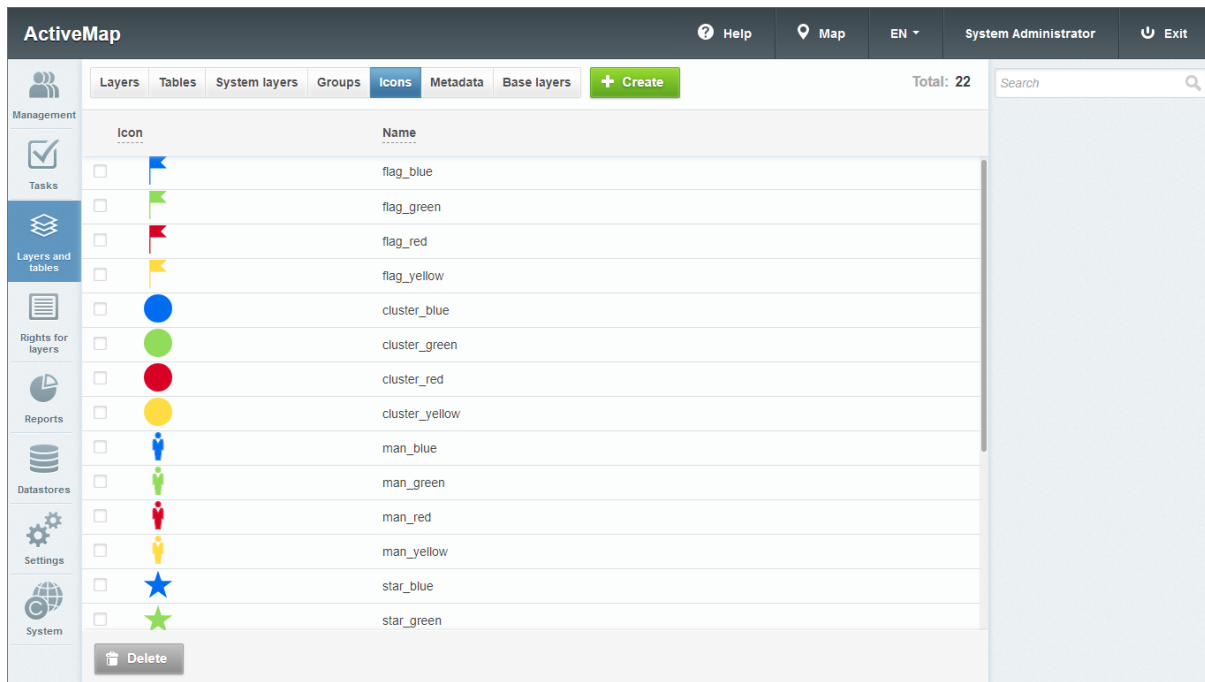




Fig. 2.128: “Icons” tab

The “Icons” tab contains a search bar and tools for adding new icons and editing/deleting existing ones.



Adding an icon

To add a new icon, click  at the top of the window. A window opens to enter the icon’s name and upload the image by clicking on the corresponding upload form.

Editing an icon

When clicking  (or double-clicking the row with the selected icon), a form opens in the administration window (with the same fields as the form for adding an icon) where you can fill/change the fields with information about the selected icon.

Deleting an icon

To delete an icon, click  on the right side of the corresponding row. To delete multiple icons at once, select the corresponding rows with checkboxes and click  at the bottom of the screen. For more information about deleting system elements, see *Deleting an element* (page 42).

Searching for an icon

You can use the search bar to search for images by their names.

Getting a link

To get a link to an icon, hover over it, right-click, and select “Copy image URL” or “Copy link to image” depending on the browser used. You can use this link when creating an advanced layer style with icons.


2.3.3.3.5 “Metadata” tab

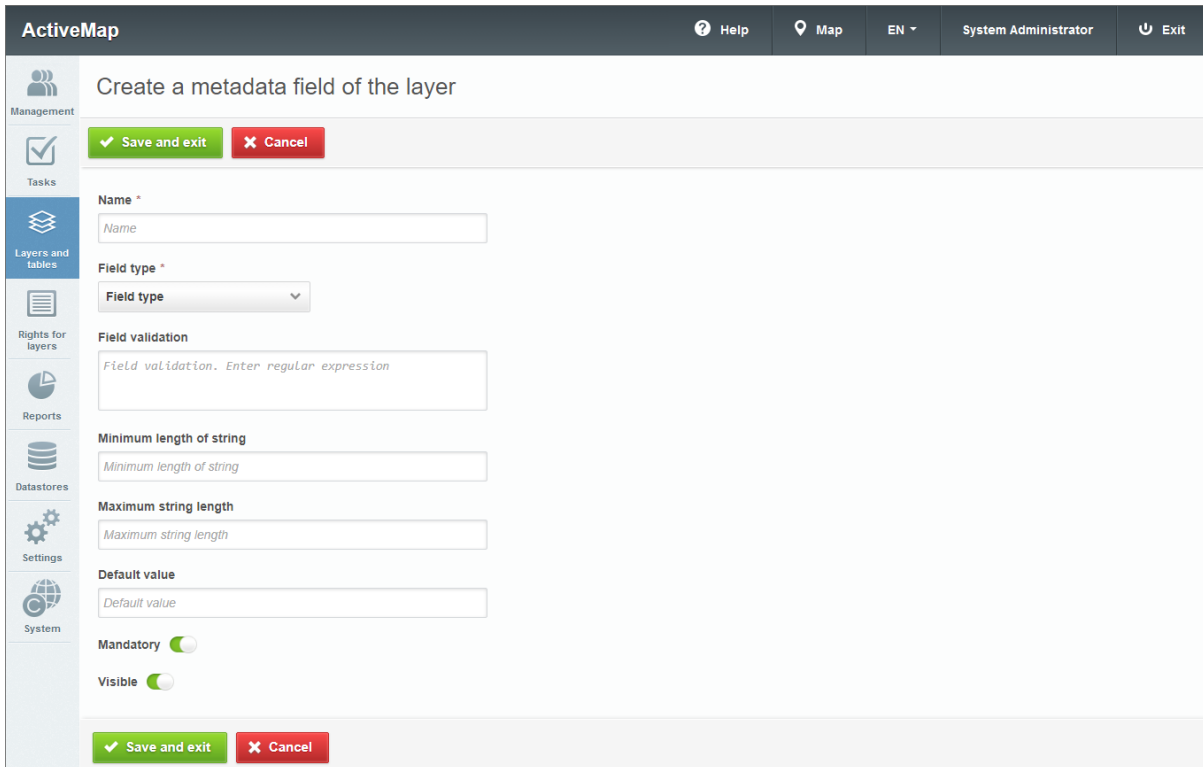
In the “Metadata” tab, you can view the custom fields that are displayed in the “Additional” tab when creating or editing a layer, as well as in the information window in the client part of the site. When switching to the “Metadata” tab, you can see a table with the following columns:

- “Name” – name of the custom field;
- “Field type” – input data type (string, integer, fraction, list, condition, or date);
- “Default value” – data that is initially specified in additional field;
- “Mandatory” – mandatory flag for filling in this field;
- “Visible” – the flag for displaying the field in the “Metadata” tab when creating or editing a layer, as well as in the information window in the client side of the site.

In the “Fields” tab, you have access to a search bar as well as tools for adding new fields and editing/removing existing ones.

Adding layer metadata

In the “Metadata” tab, you can add a new field for entering additional information about the created layer. To do this, click  at the top of the window. A field creation window opens. Fill in the suggested fields (Fig. 2.129).




The screenshot shows the 'Create a metadata field of the layer' form. The form is titled 'Create a metadata field of the layer' and has a sidebar on the left with icons for Management, Tasks, Layers and tables, Rights for layers, Reports, Datastores, Settings, and System. The form itself has a title bar with 'ActiveMap' and navigation buttons like 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. The main content area contains the following fields and controls:

- Name ***: A text input field with a placeholder 'Name'.
- Field type ***: A dropdown menu with 'Field type' selected.
- Field validation**: A text input field with a placeholder 'Field validation. Enter regular expression'.
- Minimum length of string**: A text input field with a placeholder 'Minimum length of string'.
- Maximum string length**: A text input field with a placeholder 'Maximum string length'.
- Default value**: A text input field with a placeholder 'Default value'.
- Mandatory**: A toggle switch that is currently turned on.
- Visible**: A toggle switch that is currently turned on.



At the top and bottom of the form are two buttons: 'Save and exit' (green) and 'Cancel' (red).

Fig. 2.129: Adding metadata

Editing layer metadata

To edit the information, click  or double-click on the row with the name of the selected field. A form similar to the creation form opens, where you can modify the information about the additional fields of interest.

Deleting metadata

To delete a field, click  in the right part of the corresponding row. To delete multiple fields at the same time, select the corresponding rows by selecting their checkboxes and click the  button at the bottom of the screen. For more information about deleting system elements, see [Deleting an element](#) (page 42).

Metadata search

In the “Metadata” tab, you can use the search bar to search for additional fields by their names. In addition, there is a filter located under the search bar to search by criteria such as “Field Type”, “Required Field” and “Visible”.

2.3.3.3.6 “Base layers” tab


A base layer (basemap) is a layer that is the main or primary one in a particular map. Users visualize tasks, service objects, and thematic layers above the basemap, as well as use it for navigation through a map and getting general information about the area of interest. When switching to the “Base layers” tab, you can see a table of basemaps with the following columns (Fig. 2.130):

- “Type” – a type that determines the basemap access mechanism and its possible parameters;
- “Name” – name of the basemap displayed in the system;
- “URL” – a link to access the basemaps data;
- “Space shot” – a mark indicating that the basemap is interpreted as a satellite image (raster image).

Type	Name	URL	Space shot
<input type="checkbox"/> OpenStreetMaps	OpenStreetMaps	https://tile.openstreetmap.org/{z}/{x}/{y}.png	
<input type="checkbox"/> TMS	Europe & Africa	https://basemap.activemap.ae/worldmap/{z}/{x}/{y}.png	
<input type="checkbox"/> GoogleRoadMap	Google	https://mt1.google.com/vt/lyrs=m&x={x}&y={y}&z={z}	
<input type="checkbox"/> GoogleHybrid	Google Hybrid	https://mt1.google.com/vt/lyrs=y&x={x}&y={y}&z={z}	
<input type="checkbox"/> GoogleSatellite	Google Satellite	https://mt1.google.com/vt/lyrs=s&x={x}&y={y}&z={z}	

Fig. 2.130: “Base layers” tab

Adding a basemap

To add a new basemap, click  at the top of the window. The basemap creation window opens (Fig. 2.131).

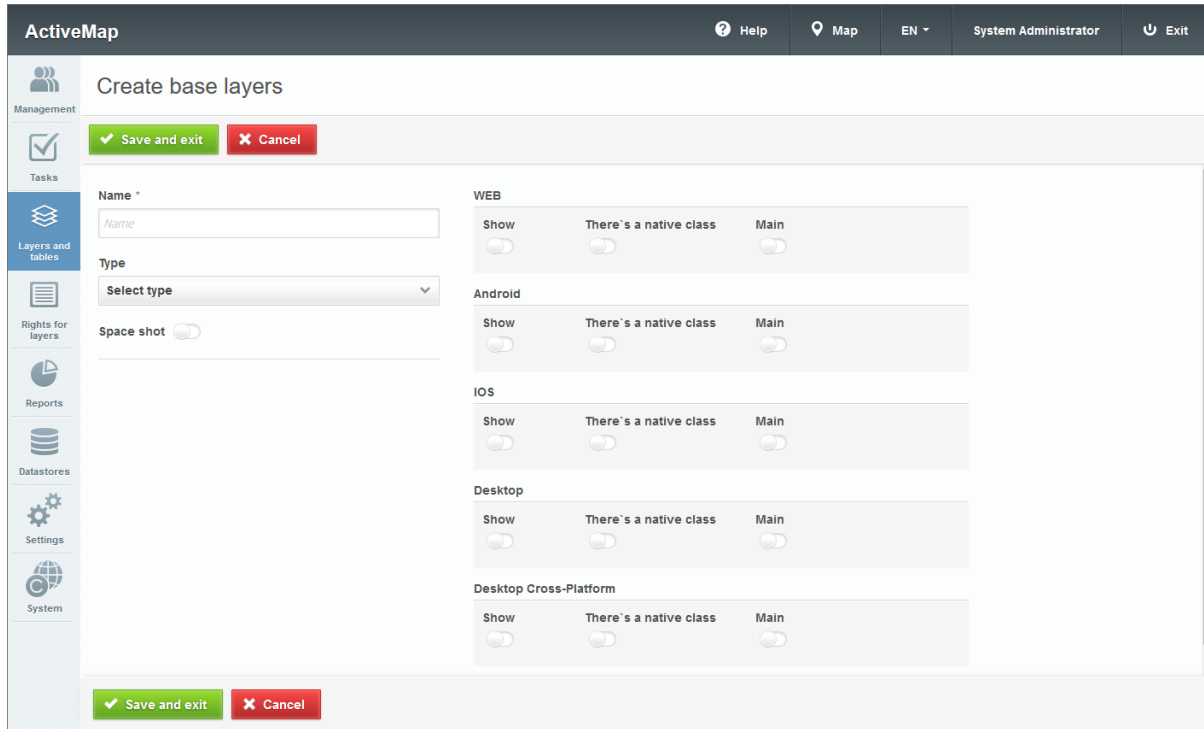


Fig. 2.131: Basemap creation window

Fill in the main fields:

- **Name** – name of the basemap displayed in the system.
- **Type** – a type that determines the basemap access mechanism and its possible parameters. Select one of the types from the drop-down list. A list of additional parameters appears that differ for different types. Some parameters have default values, but you can edit them (Fig. 2.132).
- **Space shot** toggle switch – mark for raster image.

The screenshot shows the 'Create base layers' form in the ActiveMap Web admin interface. The form is divided into several sections:

- Form Fields:**
 - Name:** OpenStreetMaps
 - Type:** OpenStreetMaps (dropdown)
 - Space shot:** ☐
 - URL:** https://tile.openstreetmap.org/{z}/{x}/{y}.png
 - Projection:** EPSG:3857 (dropdown)
 - Min zoom:** 0
 - Max zoom:** 19
 - Tile size:** 256
 - API key:** API key
 - Attribution:** ©;
- Platform Settings:**
 - WEB:** Show (checked), There's a native class (unchecked), Main (unchecked)
 - Android:** Show (checked), There's a native class (unchecked), Main (unchecked)
 - iOS:** Show (unchecked), There's a native class (unchecked), Main (unchecked)
 - Desktop:** Show (checked), There's a native class (unchecked), Main (unchecked)
 - Desktop Cross-Platform:** Show (checked), There's a native class (unchecked), Main (unchecked)

The interface includes a sidebar with navigation icons (Management, Tasks, Layers and tables, Rights for layers, Reports, Datastores, Settings, System) and a top bar with user information (System Administrator) and help links.

Fig. 2.132: Additional parameters of a basemap

Additional parameters of a basemap:

- **URL** – a link to access the basemaps data.
- **Projection** – the code of one of the commonly used geographic projections.
- **Min zoom** – the minimum supported scale.
- **Max zoom** – the maximum supported scale.
- **Tile size** – the tile length/width in pixels. In map services, a tile is one of many images that a map is divided into. Most map services use square tiles of 256x256 pixels. Tiles are organized in a pyramid. The whole world is divided into several scale levels, each of which is divided into equal squares. Scale numbering starts from zero, with zero scale represented by a single tile and the entire planet shown on it.
- **API key** – an access key for rights-protected third-party organizations, such as Google maps.
- **Attribution** – a link to copyright holders, displayed in the lower right corner of the map.


Mandatory parameters are marked with a red asterisk.

The right part of the creation window contains settings for displaying the basemap in different components of the system: WEB (ActiveMap Web), Android (ActiveMap Mobile Android), IOS (ActiveMap Mobile IOS), Desktop (ActiveMap Desktop), and Desktop Cross-Platform (ActiveMap Desktop Cross-Platform).



You can enable the following toggle switches for each component:

- **Show** – displays the basemap in the dropdown lists with the ability to replace the main basemap with this one.
- **There's a native class.**
- **Main** – displays the basemap by default.

Editing a basemap

To edit the parameters of a basemap, click  in the right part of the row of the selected basemap. A form similar to the creation form opens, where you can modify the information about the base map.

Deleting a basemap

To delete a basemap, click  in the right part of the corresponding row. To delete multiple basemaps simultaneously, select the corresponding rows and click the  button at the bottom of the screen. For more information about deleting system elements, see [Deleting an element](#) (page 42).

Searching for a basemap

To find a basemap by its name, you can use the search bar. Under the search bar there is a filter, that allows you to find:

- Main map for a specific system component,
- Basemaps available in specific system components,
- Basemaps of a certain type,
- Space image basemaps.

If you select the “Space image” option and then uncheck it, all the basemaps that are not satellite images will be displayed.

2.3.3.4 “Rights for layers” block

Access control is the process of granting users the necessary permissions to access system tables.

A user can receive the following rights:

- Service objects – using layer or table objects as service objects and creating tasks linked to these objects with automatic filling of task fields according to the configured mapping (matching of layer or table attribute and task field).
- Read – viewing layer or table data in all software packages of the system.
- Create objects – adding new objects to a layer or table.
- Update objects – editing existing objects in a layer or table.
- Delete objects – deleting objects from a layer or table.
- Management – changing the structure of tables, layer styles, and other characteristics, deleting layers and tables.

To search for rights, you can use the search string or the filter panel.

2.3.3.4.1 “Access control” tab

In the “Access control” tab, you can view the list of rights, available to the users of the system (Fig. 2.133). When switching to this tab, a table with the following columns becomes available:

- “User” – user name (login is specified in brackets).
- “Group” – group to which the layer belongs.
- “Layer” – name of the layer for which the access is defined.
- “Service Objects” – toggle switch for granting the right to use the layer as a list of service objects. The same layer can operate as a service for some users and as a normal layer for others.
- “Read” – toggle switch for granting the right to view the layer.
- “Create objects” – toggle switch for granting the right to add new objects to a layer.
- “Update objects” – toggle switch for granting the right to edit existing objects in a layer.
- “Delete objects” – toggle switch for granting the right to delete objects from a layer.
- “Management” – toggle switch for granting the right to change the layer structure, style, and other characteristics.

The screenshot shows the 'Access control' tab in the ActiveMap web administration interface. The interface includes a top navigation bar with 'Help', 'Map', 'EN', 'System Administrator', and 'Exit'. Below this is a sidebar with icons for 'Management', 'Tasks', 'Layers and tables', 'Rights for layers', 'Reports', 'Databases', 'Settings', and 'System'. The main content area displays a table with columns: 'User', 'Group', 'Layer', 'Service Objects Read', 'Create objects', 'Update objects', 'Delete objects', and 'Management'. The table lists permissions for 'Oliver Smith (smith)' across various layers like 'New tasks', 'Tasks in work', 'Done tasks', 'Service objects', 'Users', 'Hotels', 'Office centers', 'ATMs and bank offices', 'Cafes and restaurants', 'Roads', 'Parks and forests', 'Shopping centers', 'Tasks monitoring', and 'Shopping centers and malls'. Each row has toggle switches for the permissions. A search bar and 'Total: 686' are at the top right. An 'Export' button is at the bottom right.

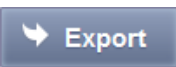
User	Group	Layer	Service Objects Read	Create objects	Update objects	Delete objects	Management
Oliver Smith (smith)	Tasks	New tasks	<input type="checkbox"/>	<input type="checkbox"/>			
Oliver Smith (smith)	Tasks	Tasks in work	<input type="checkbox"/>	<input type="checkbox"/>			
Oliver Smith (smith)	Tasks	Done tasks	<input type="checkbox"/>	<input type="checkbox"/>			
Oliver Smith (smith)	Service objects	Service objects	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Users	Users	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Service objects	Hotels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Service objects	Office centers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Example layers	ATMs and bank offices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Example layers	Cafes and restaurants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Example layers	Roads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Example layers	Parks and forests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Service objects	Shopping centers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Tasks monitoring	Tasks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oliver Smith (smith)	Service objects	Shopping centers and malls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 2.133: “Access control” tab

When enabling the toggle switch in the column header, the corresponding right is granted to all users currently displayed in the administration area. Thus, you can use a filter to select users by any parameter and grant them all rights at the same time. Similarly, permissions can be revoked by enabling the toggle switch in the row for a specific layer, or by enabling the toggle switch in the column header for user categories. After enabling the toggle switch in the column header, the system asks to confirm the action.

To sort the rows alphabetically or by the toggle’s on/off status, click the corresponding column header. Click it again to reverse the sorting order.

The “New tasks”, “Tasks in work”, and “Done tasks” layer rows do not have the “Create objects”, “Update objects”, “Delete objects”, and “Management” toggle switches. This is explained by the fact that the system automatically enters objects into these layers on the basis of tasks. Users are not allowed to enter objects in this layers.

Clicking  opens a window for selecting a directory for saving the accesses.xlsx Excel file. The structure of this file repeats the structure of the table in the current tab. Field sorting is not preserved during export, but if you apply a filter before export, only selected rows are exported.

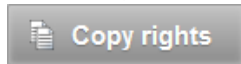
2.3.3.4.2 “Copy access” tab

In the “Copy access” tab, you can copy user rights (Fig. 2.134).

Full name	Login	Organization	Role
<input type="checkbox"/> Miller Olivia	miller	Champion Cleaners Center	Executor
<input type="checkbox"/> Ali Abdullah	ali	Champion Cleaners Center	Organization Administrator
<input type="checkbox"/> Ahmet Fathi	ahmet	Champion Cleaners Center	Organization Inspector
<input type="checkbox"/> Allen Liam	allen	Al-Zarar Transportation Company	Organization Administrator
<input type="checkbox"/> Brooks Mason	brooks	Al-Zarar Transportation Company	Organization Inspector
<input type="checkbox"/> Sanders Jack	Sanders	Al-Zarar Transportation Company	Executor
<input type="checkbox"/> Jenkins James	jenkins	Al-Zarar Transportation Company	Executor
<input type="checkbox"/> Khan Marzuk	khan	Al-Zarar Transportation Company	Organization Administrator
<input type="checkbox"/> Khalid Al Shehhi	khalid	Al-Zarar Transportation Company	Organization Inspector
<input type="checkbox"/> Malik Ahmad	ahmad	Rmb Contracting	Executor
<input type="checkbox"/> Al Muhairi Abdullah	AlMuhairi	Rmb Contracting	Organization Administrator
<input type="checkbox"/> John Smith	smithj	LLC Cleaning	Cluster Administrator
<input type="checkbox"/> Jane Smith	janessmith	LLC Cleaning	Executor
<input type="checkbox"/> John Grey	grey	LLC Cleaning	Executor

Fig. 2.134: “Copy access” tab

To do this, select a user for whom you want to copy the rights and click



. In the window that opens, select the cluster and then the user whose rights you want to copy (Fig. 2.135).

Fig. 2.135: User selection window for rights source

2.3.3.4.3 “Access for groups” tab

In the “Access for groups” tab, you can grant organizations the rights for groups of tables and layers by enabling the “Access” toggle switch in the line of the desired group (Fig. 2.136). You can select a specific group, organization, user, or cluster group with a filter for convenience.

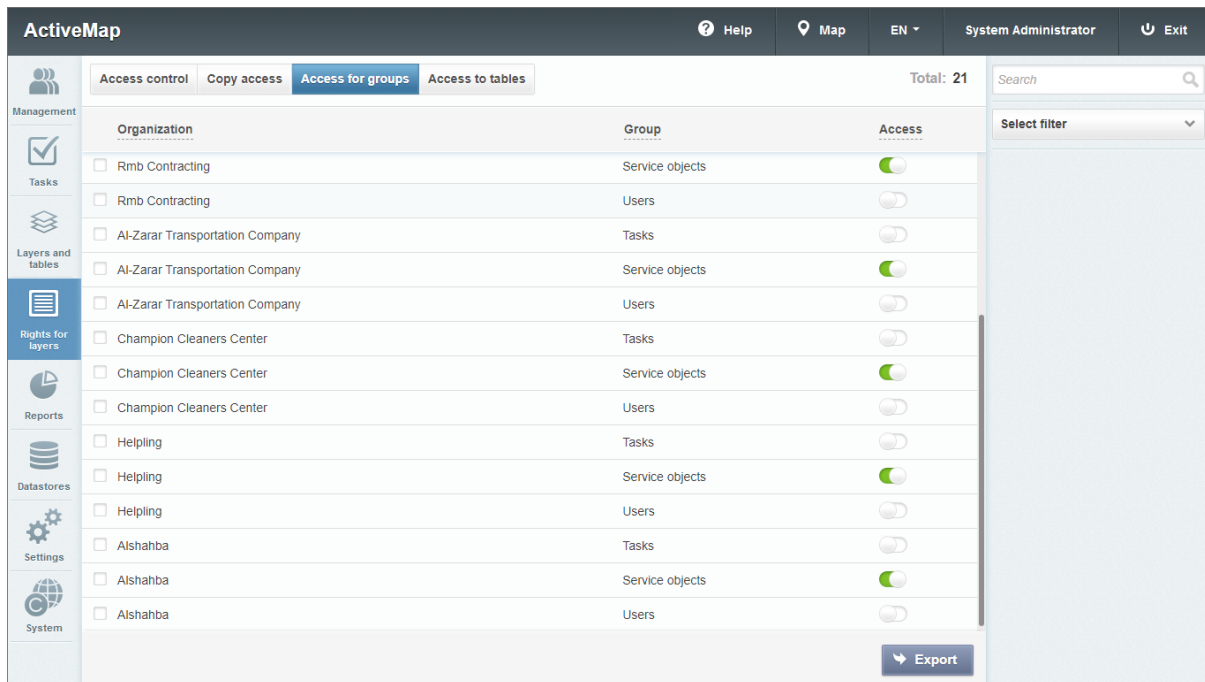
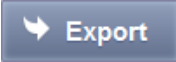


Fig. 2.136: “Access for groups” tab

You can save the table of organizations with the rights granted to them for groups to a computer. To do this, click . A window for selecting a directory for saving the groups.xlsx Excel file opens.

2.3.3.4.4 “Access to tables” tab

In the “Access to tables” tab, you can grant users the rights to tables similar to rights to layers in the “Access control” tab (Fig. 2.137). You can filter a specific organization, user, user cluster, or cluster of data tables and select users with appropriate rights.

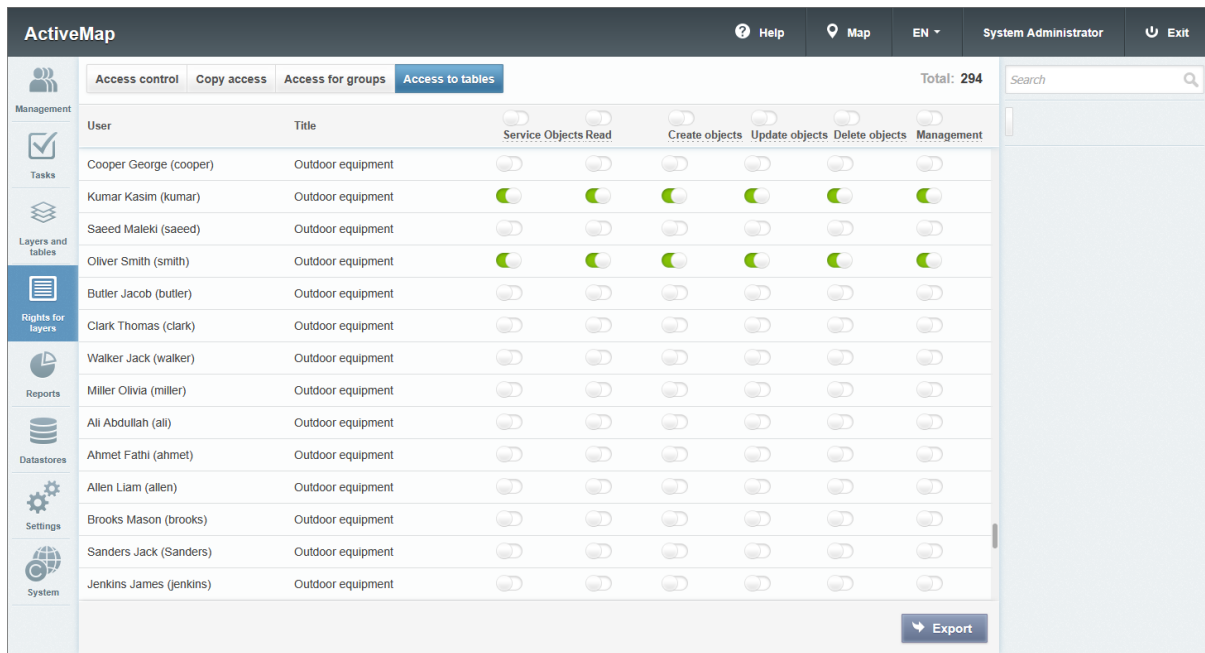


Fig. 2.137: “Access to tables” tab

2.3.3.5 “Reports” block

In the “Reports” block, you can manage report templates [JasperReports](https://ru.wikipedia.org/wiki/JasperReports)¹ displayed in the system (Fig. 2.138).

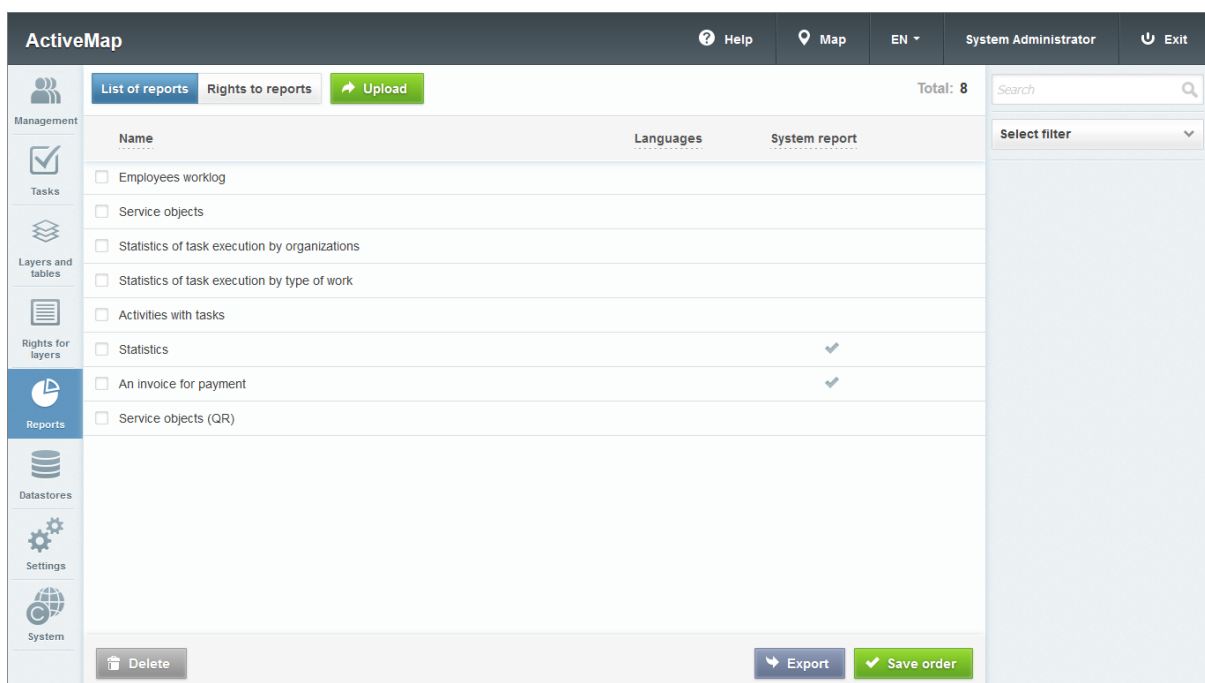
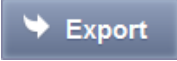


Fig. 2.138: “Reports” block


¹ <https://ru.wikipedia.org/wiki/JasperReports>

2.3.3.5.1 “List of reports” tab

In the “List of reports” tab, you can view all system reports, upload new ones, and edit/delete existing ones.

In this tab you can also change and save the order in which the reports are displayed in the system. Using the  button, you can export the Excel file jreports.xlsx containing information about the reports and the fields they contain.

Uploading a report

To add a report to the system, click  at the top of the window. A pop-up window opens to select a report from your computer. You can upload the files in jrxml format.

After successfully uploading the report to the system, the report creation window opens (Fig. 2.139). Fill in the following fields in the “Main” tab:


- **Name** – the name under which the report is displayed in the system.
- **Data storage** – selection from the list of available databases.
- **Preferred report format** – selection of the format in which the report is created by default (when creating the report, you can choose another format: PDF, Word, RTF).
- **Report description** – the description that accompanies the report in the system.
- **Report type** – selection of the report type: general, by tasks, or by the layer. A general report is generated for all types of work and tasks in the system. Report by tasks allows you to set a particular type of work. Report by the layer allows you to specify the thematic layer for which the report is generated.
- **Languages for which the report is available** – selection of the system language(s) for which the report is displayed when switched to. The list of available languages corresponds to those activated in the “System” block. If the language is not set, then the report is available for all languages. The System Administrator can see the entire list of reports for easy management in the “Administration” mode.
- **System Report** toggle switch – marks the system reports.
- **Report parameters:**
 - “Parameter name” – name of the parameter.
 - “Mandatory” – toggle switch for the parameter that is mandatory to fill in for report generation.



- “System” – toggle switch for internal use. The parameter is not displayed in the generated report.
- “Combine with next in the period” – toggle switch combining parameters in the “from-to” period and automatically filling in parameters with a date type when selecting a standard period (today, yesterday, this week, etc.).
- “Parameter description” – description of the properties and usage of the parameter.
- group of parameters: “Start date”, “Sign”, “Days”, “Hours”, “Minutes and seconds” – creating a default date displayed when filling in report parameters (it can be changed).

Fig. 2.139: Creating a report

In the “Default rights” tab you can set the rights to view/manage the report. The same logic is implemented here as for granting default rights to layers (for more information, see [Creating a new layer](#) (page 91)).

Editing a report

Clicking  (or double-clicking on a row with a selected report) opens a form similar to the creation form, where you can fill in/edit the fields with information about the selected report (Fig. 2.140). The following buttons become available while editing:

-  **Update report** – reload the original jrxml report file.
-  **Source file** – export the created report template in jrxml format.

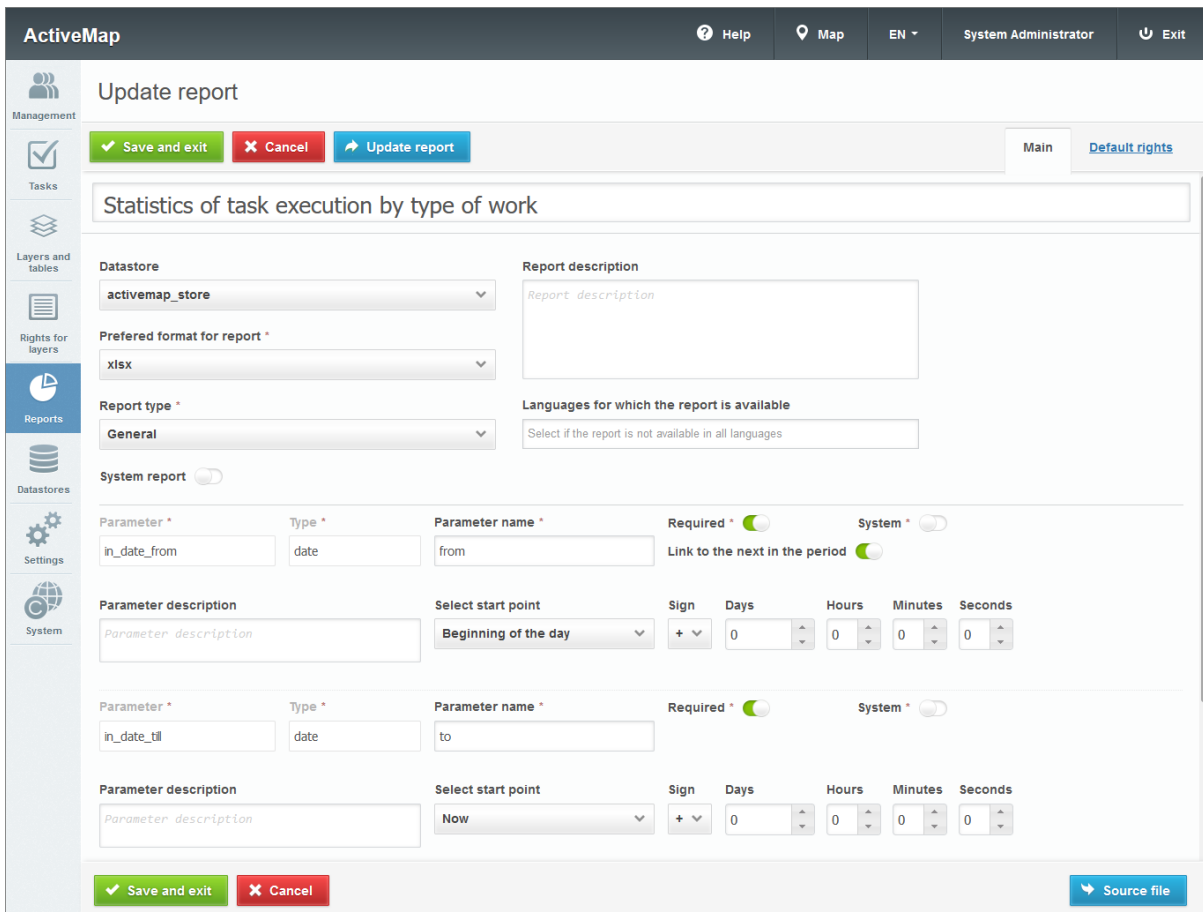




Fig. 2.140: Editing a report

Deleting a report

To delete a report, click  on the right side of the corresponding row. To delete several reports at the same time, check the corresponding lines and click  at the bottom of the screen. See [Deleting an element](#) (page 42) for more information about deleting system items.

Searching for a report

In the “Report List” tab, you can use the search bar to search for reports by their names.

2.3.3.5.2 “Rights to reports” tab

When switching to the “Rights to reports” tab in the administration area, the following columns appear:

- “User” – user’s full name;
- “Report” – name of the report;
- “Read” – toggle switch indicating whether this report is available to the selected user for viewing in the information window;
- “Edit” – toggle switch indicating whether this report is available to the selected user for management.

ActiveMap

Help

Map

EN

System Administrator

Exit

Management

Tasks

Layers and tables

Rights for layers

Reports

Datascenes

Settings

System

List of reports

Rights to reports

Total: 132

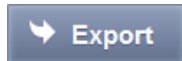
Search

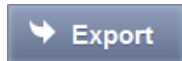
Select filter

User	Report	Read	Edit
Morris Emma	Statistics of task execution by type of work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Morris Emma	Statistics of task execution by organizations	<input type="checkbox"/>	<input type="checkbox"/>
Morris Emma	Activities with tasks	<input type="checkbox"/>	<input type="checkbox"/>
Morris Emma	Service objects (QR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Morris Emma	An invoice for payment	<input type="checkbox"/>	<input type="checkbox"/>
Cooper George	Statistics	<input type="checkbox"/>	<input type="checkbox"/>
Cooper George	Statistics of task execution by type of work	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooper George	Statistics of task execution by organizations	<input type="checkbox"/>	<input type="checkbox"/>
Cooper George	Activities with tasks	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cooper George	Service objects (QR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooper George	An invoice for payment	<input type="checkbox"/>	<input type="checkbox"/>
Robinson William	Statistics	<input type="checkbox"/>	<input type="checkbox"/>
Robinson William	Statistics of task execution by type of work	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Robinson William	Statistics of task execution by organizations	<input type="checkbox"/>	<input type="checkbox"/>

Export

Fig. 2.141: “Rights to reports” tab



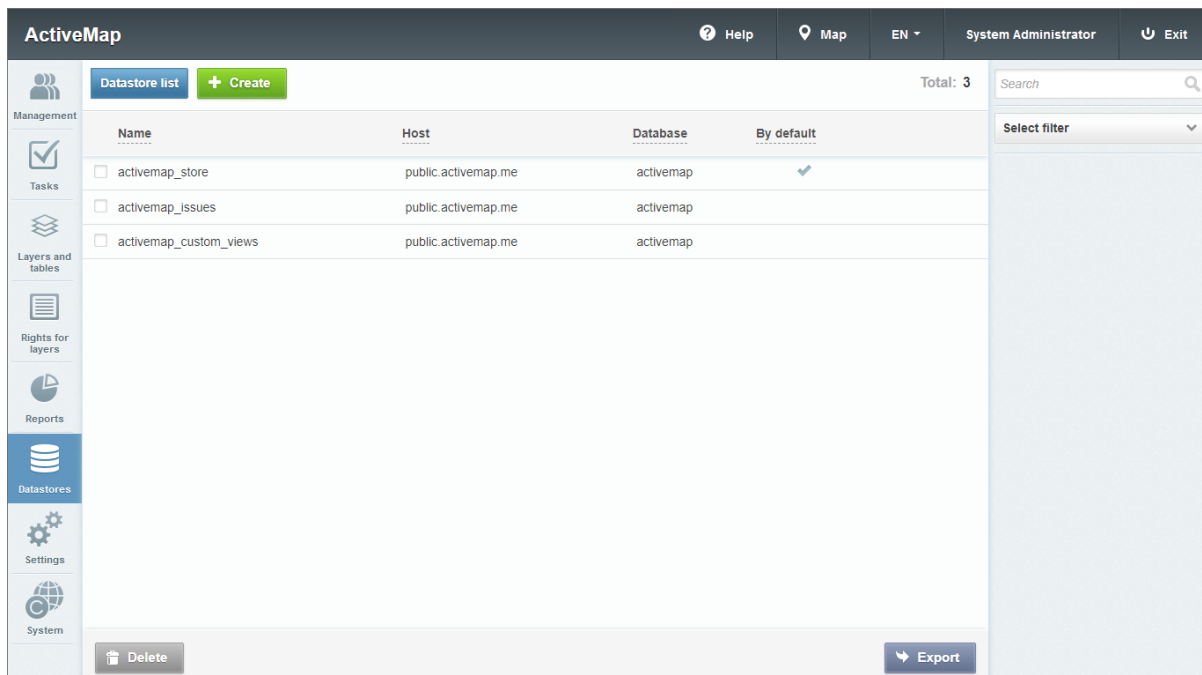
Using the  button, you can export an Excel file `accesses.xlsx` containing information about users and their rights to reports.

Search for rights to reports

When switching to the “Rights to reports” tab, you can use the search bar to search for reports by their names and a filter selected from the drop-down list for searching by the user’s full name, report name, main organization, user cluster, role, and rights to view and delete reports.

2.3.3.6 “Datastores” block

In the “Datastores” block, you can view detailed information about databases presented in a table with the following columns: name, host, database, by default (Fig. 2.142).




Name	Host	Database	By default
<input type="checkbox"/> activemap_store	public.activemap.me	activemap	<input checked="" type="checkbox"/>
<input type="checkbox"/> activemap_issues	public.activemap.me	activemap	<input type="checkbox"/>
<input type="checkbox"/> activemap_custom_views	public.activemap.me	activemap	<input type="checkbox"/>


Fig. 2.142: “Datastores” block

A mark next to the storage name in the “Default” box means that when you create or load a layer (report), the system automatically moves the layer (report) to the default storage (when you do not select a specific data store from the presented list).

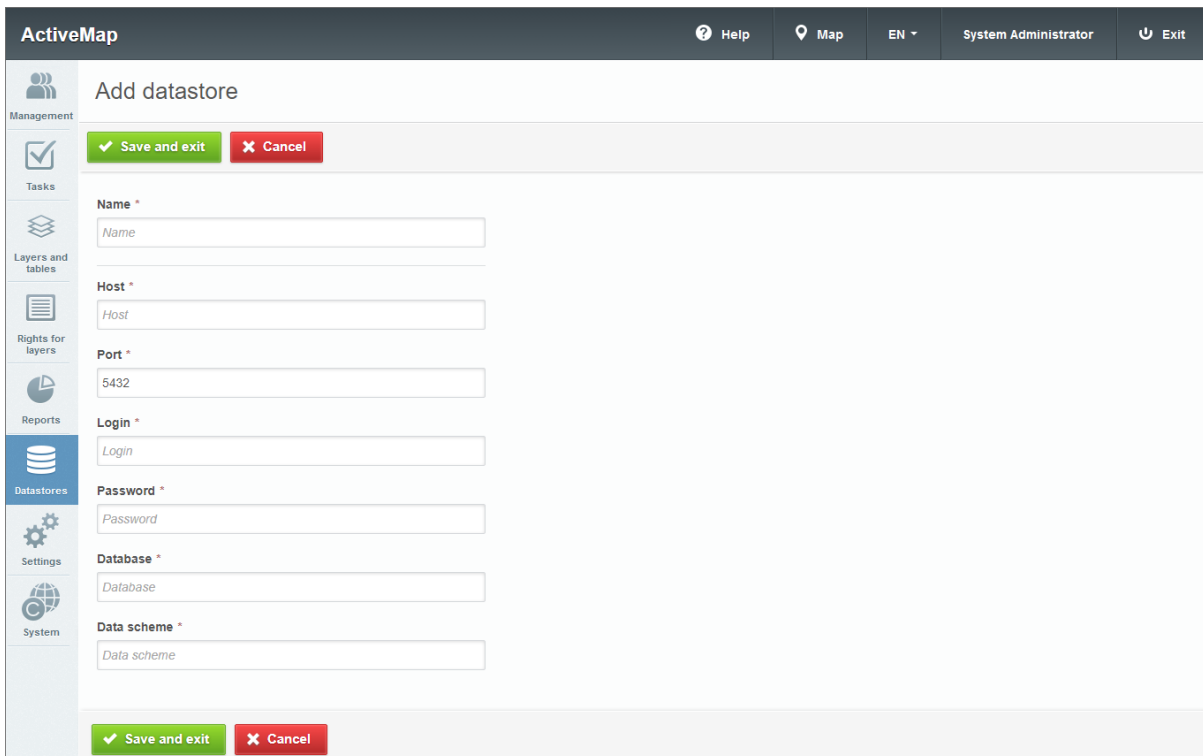


To export data about datastores, click . A window for selecting a directory opens to save the “datastores.xlsx” Excel file on the computer. The exported table contains the following data: name, host, port, datastore, and data schema.

2.3.3.6.1 Adding a new datastore

To add a new datastore to the system, click  at the top of the window. Fill in the following fields in the opened window (Fig. 2.143):

- **Name** – datastore name,
- **Host** – server address,
- **Port** – port for database connection,
- **Login** – login for access to the datastore,
- **Password** – password for access to the datastore,
- **Database** – name of the database in which the datastore is created,
- **Data scheme** – element of the data storage structure.




The screenshot shows the 'Add datastore' window in the ActiveMap application. The window has a dark header bar with 'ActiveMap' on the left and 'Help', 'Map', 'EN', 'System Administrator', and 'Exit' on the right. A sidebar on the left contains icons for various management functions, with 'Datastores' highlighted in blue. The main content area is titled 'Add datastore' and contains a form with the following fields:

- Name ***: A text input field with a placeholder 'Name'.
- Host ***: A text input field with a placeholder 'Host'.
- Port ***: A text input field with the value '5432'.
- Login ***: A text input field with a placeholder 'Login'.
- Password ***: A text input field with a placeholder 'Password'.
- Database ***: A text input field with a placeholder 'Database'.
- Data scheme ***: A text input field with a placeholder 'Data scheme'.



At the top of the form area, there are two buttons: a green 'Save and exit' button and a red 'Cancel' button. At the bottom of the form area, there are also two buttons: a green 'Save and exit' button and a red 'Cancel' button.

Fig. 2.143: Adding a new datastore

2.3.3.6.2 Editing a datastore

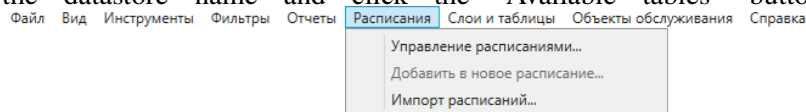
To edit datastore information, click  (or double-click the row with the selected data store). A form appears in the administration area with the same fields as in the add form. Here you can fill in/change the fields of interest with information about the selected datastore. The administrator has access to all fields for editing, except for the “Name” field.

2.3.3.6.3 Deleting a datastore

To delete data store, click  on the right side of the corresponding row. To delete several data stores at once, check the corresponding rows and click  at the bottom of the screen. For more information about deleting system elements, see *Deleting an element* (page 42).

2.3.3.6.4 Layer publishing

To publish a layer in the system, hover over the row with the datastore name and click the “Available tables” button



A new window opens where you can view the full list of available datastore layers and their geometry types (Fig. 2.144).

In addition, you can view which layers are available for publishing and which ones are already published. For published layers, the “Published” column has a checkmark, and to the right of the names of unpublished layers, there is a “Publish” button.

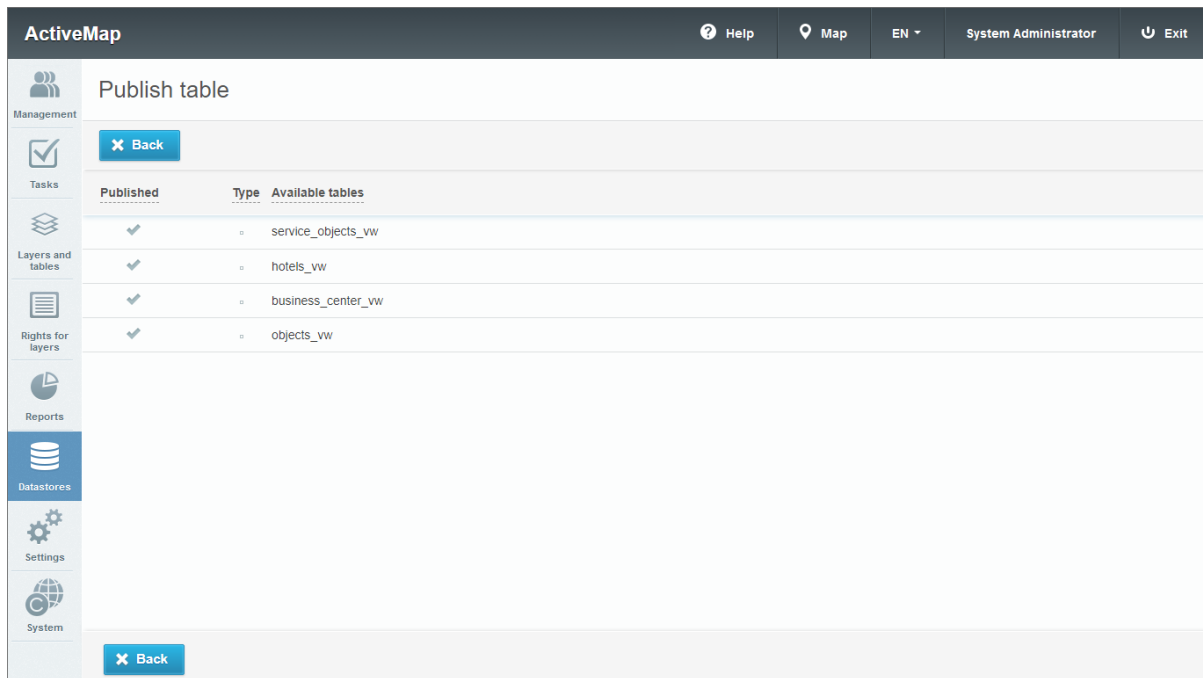
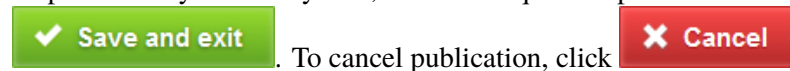


Fig. 2.144: Available tables in the datastore

Clicking “Publish” takes you to the window for editing the selected layer. In this window, you have to select a group for publishing the layer, define its style, change its name, and, if necessary, add new attributes (in the “Attributes” tab) and additional fields (in the “Additional” tab).

To publish a layer in the system, fill in the required input fields and click



. To cancel publication, click

2.3.3.6.5 Searching for datastores

In the “Datastores” block, you can use the search bar to search for a datastore by its name, database name, or host name. In addition, you can search using the “From infrastructure” filter, which allows users to find datastores that work with the MapEditor program.

2.3.3.7 “Settings” block

Danger: Developers verified the values of the existing settings during debugging. Changes in this block may cause the system to malfunction or stop working.

In the “Settings” block, you can configure various elements of the system (Fig. 2.145).

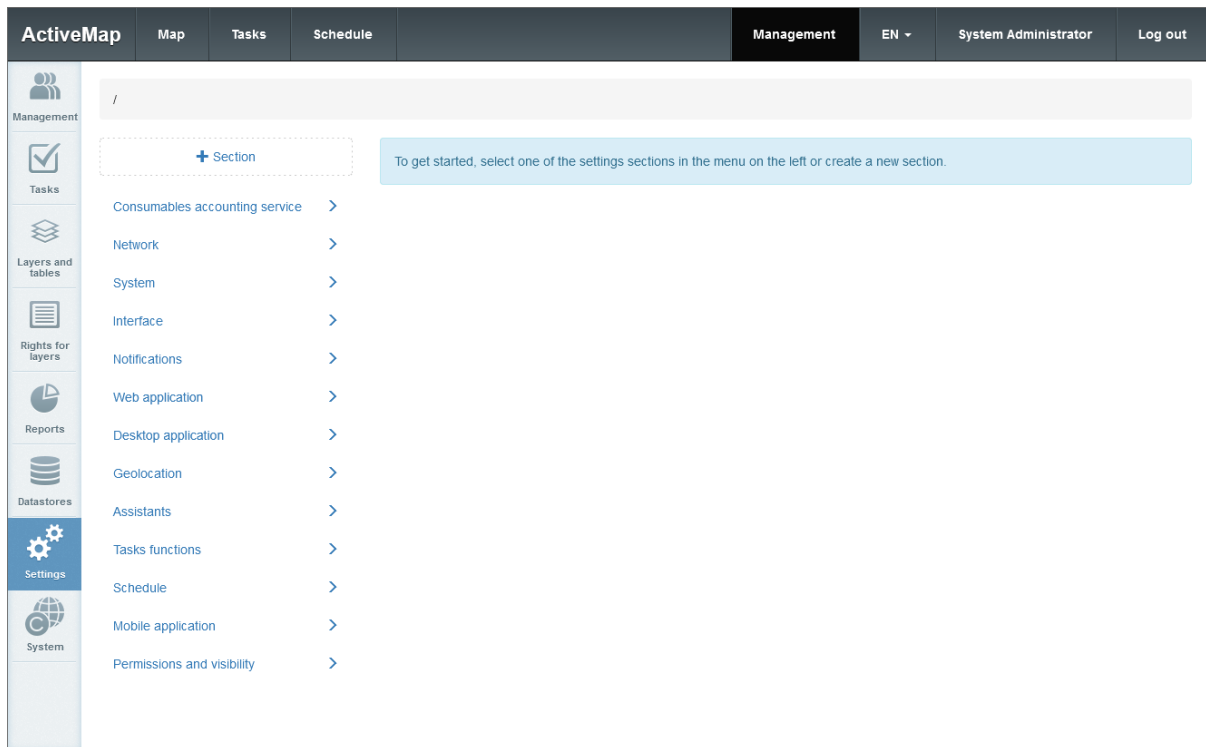


Fig. 2.145: “Settings” block

They are divided into thematic sections. Each section contains folders and subfolders with settings and their values (Fig. 2.146).

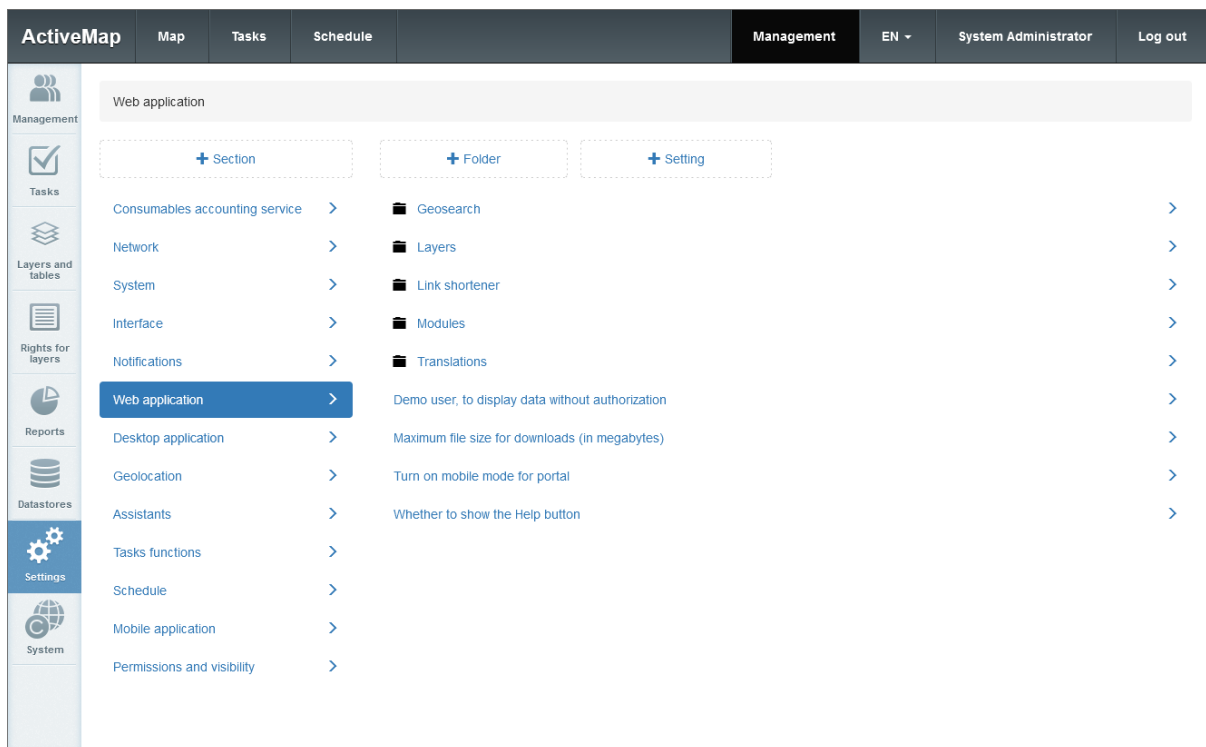


Fig. 2.146: Structure of the “Settings” block

Editing and deleting the default settings values is not available.

To add a new setting to an element of the system, select the appropriate section, then click the “+ Settings” button. A form opens with fields to fill in (Fig. 2.147):

- “Key” – name in the system in Latin alphabet characters;
- “Name” – name in the interface;
- “Type” – data type (string, integer number, logical value, or real number).

Fig. 2.147: Creating the setting

To set a new value for the setting, select the setting and click “+Value”. A window opens with fields to be filled in (Fig. 2.148):

- “Value” – value the setting is equal to in the system (depends on the data type specified when creating the setting);
- “Organization” – organizations to which this setting is applied;
- “User” – users to whom the setting is applied;
- “Role” – user roles to which the setting is applied;
- “State” – statuses of the task to which the setting is applied.

The screenshot shows the 'Create value' dialog in the ActiveMap web admin interface. The dialog is titled 'Create value' and contains the following fields:

- Value:** A toggle switch.
- Organization:** A text input field with the value 'Not specified'.
- User:** A text input field with the value 'Not specified'.
- Role:** A dropdown menu.
- State:** A list box containing the following values: confirmed, assigned, assigned_to_user, assigned_my_department, assigned_me, belongs_to_me, belongs_to_my_department, not_assigned, people_department, not_confirmed, and not_confirmed.

At the bottom of the dialog are two buttons: 'Save' and 'Cancel'.

Fig. 2.148: Adding a value

Attention: The setting can be specified either for a particular user or for a role in the system. If the “Organization”, “User”, and “Role” fields are not filled in, the setting is available to all users of the system.

To edit the added value, click . Make the changes in the opened window and click “Save”. To delete the added value, click . Confirm or cancel the deletion in the dialog box.

2.3.3.7.1 “Consumables accounting service” section

To use the method of calculating the cost of work online, configure the “Invoice” module in the application. This section allows users to add settings to this module (Fig. 2.149). You can set a new value by selecting the setting, then clicking “+ Value”. In the window that opens, enter the required name and fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

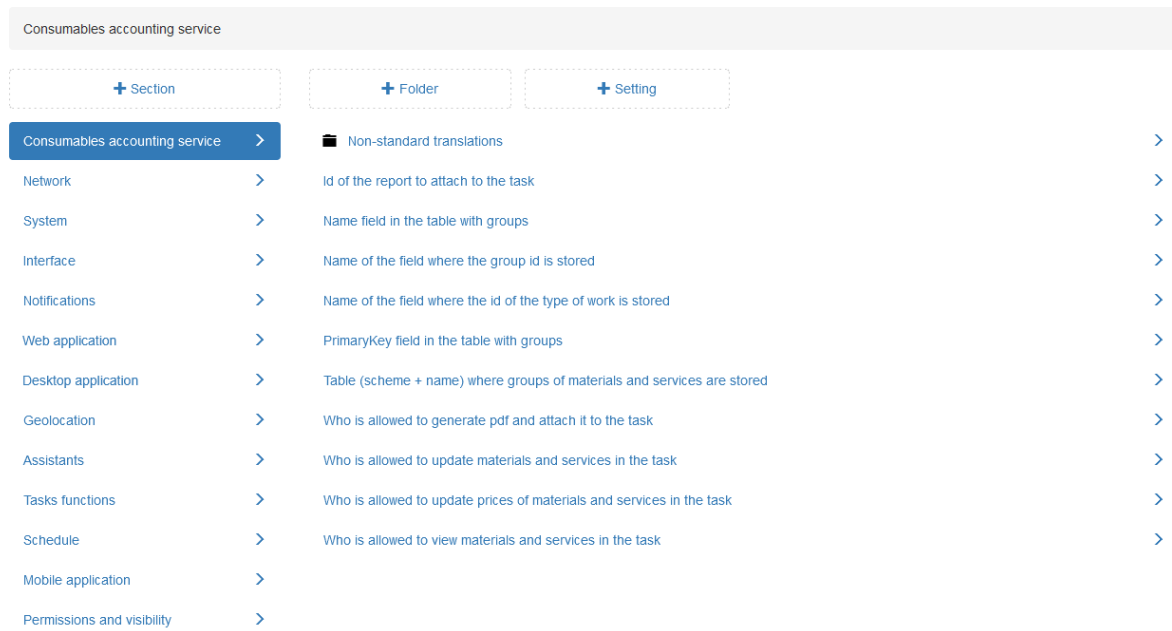


Fig. 2.149: “Consumables accounting service” section

Non-standard translations

In this folder, you can rename fields of the module. Select a language from the list presented, then click “+ Setting”. Enter the appropriate values in the opened window (Fig. 2.150):

- “Key” – key in the system to be renamed;
- “Name” – name of the field to be renamed;
- “Type” – data type (in this case, a string).

Fig. 2.150: Changing the field name

Next, set a new value for this setting (Fig. 2.151). Restart the service to apply the new value.

Consumables accounting service / Non-standard translations / English

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		«List of available products» For all users
Network >	"Invoice" title >		
System >			
Interface >			
Notifications >			
Web application >			
Desktop application >			
Geolocation >			
Assistants >			
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.151: Adding a new value

Id of the report to attach to the task

This setting displays the ID of an existing report in the system, which is loaded when an invoice is generated in the task card in PDF format. By default, the system uses a report with ID 343 (Fig. 2.152). Restart the service to apply the new value.

Consumables accounting service

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Non-standard translations >		
Network >	id of the report to attach to the task >		
System >	Name field in the table with groups >		
Interface >	Name of the field where the group id is stored >		
Notifications >	Name of the field where the id of the type of work is stored >		
Web application >	PrimaryKey field in the table with groups >		
Desktop application >	Table (scheme + name) where groups of materials and services are stored >		
Geolocation >	Who is allowed to generate pdf and attach it to the task >		
Assistants >	Who is allowed to update materials and services in the task >		
Tasks functions >	Who is allowed to update prices of materials and services in the task >		
Schedule >	Who is allowed to view materials and services in the task >		
Mobile application >			
Permissions and visibility >			

Fig. 2.152: Specifying the report ID

Name of the field where the group id is stored

To add a filter by material and service groups in the ActiveMap Mobile application, create a table with material and service groups, for example, “Group of materials”. Then add this reference table (dictionary) to “Materials and services” table. The field should have **sys_group_id** database name (Fig. 2.153), as it is recognized in the database by default.

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Non-standard translations		Default value «sys_group_id»
Network >	Id of the report to attach to the task		
System >	Name field in the table with groups		
Interface >	Name of the field where the group id is stored >		
Notifications >	Name of the field where the id of the type of work is stored		
Web application >	PrimaryKey field in the table with groups		
Desktop application >	Table (scheme + name) where groups of materials and services are stored		
Geolocation >	Who is allowed to generate pdf and attach it to the task		
Assistants >	Who is allowed to update materials and services in the task		
Tasks functions >	Who is allowed to update prices of materials and services in the task		
Schedule >			
Mobile application >	Who is allowed to view materials and services in the task		
Permissions and visibility >			

Fig. 2.153: The name of the field where the group ID is stored

Next, fill in the **Table (scheme + name) where groups of materials and services are stored** setting, specifying where the group of materials and services is stored (Fig. 2.154).

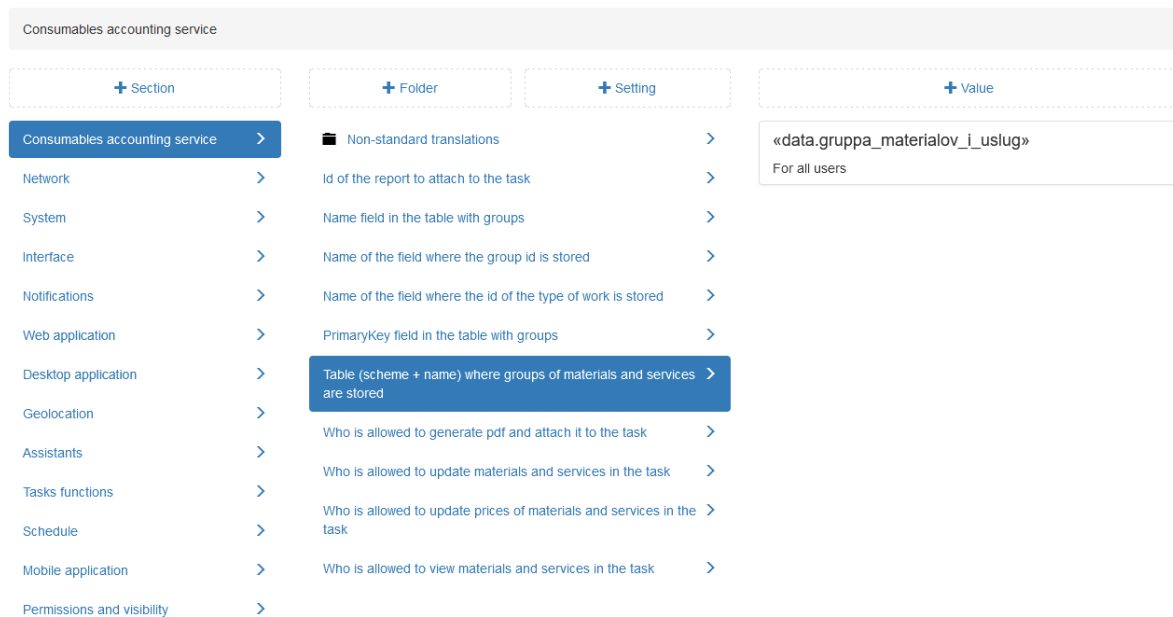


Fig. 2.154: Table where material and service groups are stored

In the **PrimaryKey field in the table with groups**, add a new value, for example gid (Fig. 2.155).

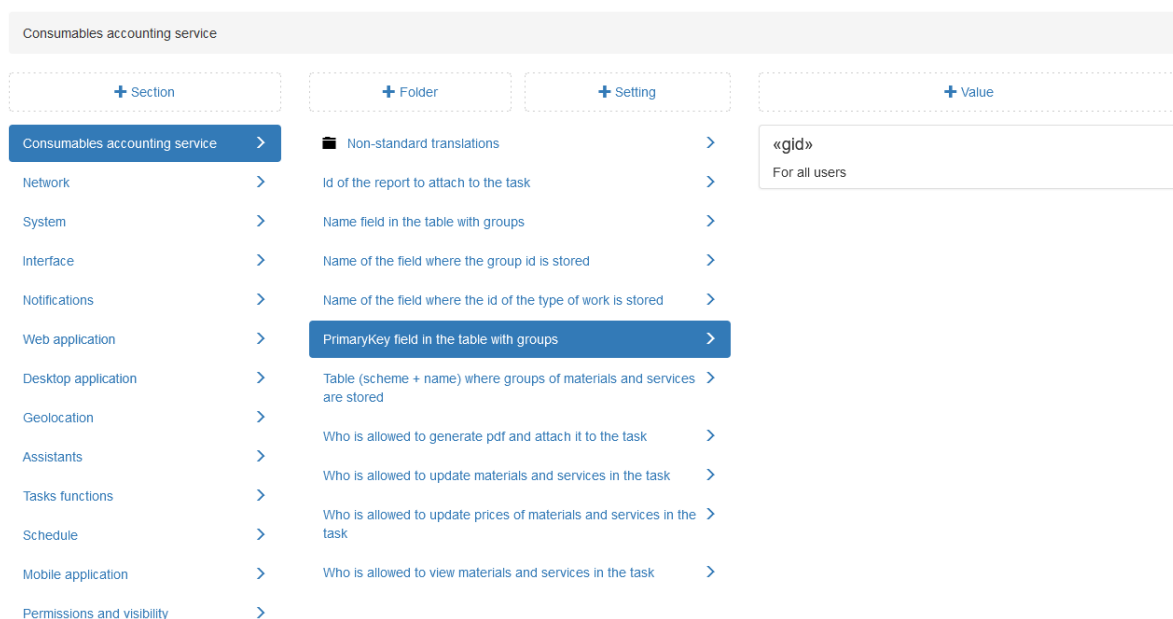


Fig. 2.155: PrimaryKey field in the table with groups

In the **Name field in the table with groups** setting, specify the name of the field where the group names from the material group table are stored (Fig. 2.156).

Consumables accounting service

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Non-standard translations >		«naimen» For all users
Network >	Id of the report to attach to the task >		
System >	Name field in the table with groups >		
Interface >	Name of the field where the group id is stored >		
Notifications >	Name of the field where the id of the type of work is stored >		
Web application >	PrimaryKey field in the table with groups >		
Desktop application >	Table (scheme + name) where groups of materials and services are stored >		
Geolocation >	Who is allowed to generate pdf and attach it to the task >		
Assistants >	Who is allowed to update materials and services in the task >		
Tasks functions >	Who is allowed to update prices of materials and services in the task >		
Schedule >			
Mobile application >	Who is allowed to view materials and services in the task >		
Permissions and visibility >			

Fig. 2.156: Name field in the table with groups

Next go to the MapEditor or ActiveMap Desktop desktop application and fill in the newly created reference table, adding the appropriate groups, and then the “Materials and services” table with the appropriate values. Restart the service to apply the new setting.

Name of the field where the id of the type of work is stored

To add a filter by types of work in the “Invoice” module of the ActiveMap Mobile application, define the name of the attribute in the table with materials and services where the work type ID is stored. The default name is **sys_type_id** (Fig. 2.157). Next, add the corresponding attribute to the table with materials and services (“Integer” field type). Then open the table management in the MapEditor desktop application and select the “Materials and services” table. Fill in the **sys_type_id** field by specifying the IDs of the necessary work types. Restart the service to apply the new value.

Consumables accounting service			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Non-standard translations >		Default value «sys_type_id»
Network >	Id of the report to attach to the task >		
System >	Name field in the table with groups >		
Interface >	Name of the field where the group id is stored >		
Notifications >	Name of the field where the id of the type of work is stored >		
Web application >	PrimaryKey field in the table with groups >		
Desktop application >	Table (scheme + name) where groups of materials and services are stored >		
Geolocation >	Who is allowed to generate pdf and attach it to the task >		
Assistants >	Who is allowed to update materials and services in the task >		
Tasks functions >	Who is allowed to update prices of materials and services in the task >		
Schedule >			
Mobile application >	Who is allowed to view materials and services in the task >		
Permissions and visibility >			

Fig. 2.157: Name of the field where the id of the work type is stored

Who is allowed to generate pdf and attach it to the task

This setting allows users to generate a PDF invoice and attach it to the task (Fig. 2.158). However, the specified user must first be granted rights to the corresponding report. Otherwise, it is not possible to generate an invoice.

Consumables accounting service			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Non-standard translations >		Default value FALSE
Network >	Id of the report to attach to the task >		
System >	Name field in the table with groups >		TRUE State 5
Interface >	Name of the field where the group id is stored >		
Notifications >	Name of the field where the id of the type of work is stored >		TRUE Role Organization Administrator State 4
Web application >	PrimaryKey field in the table with groups >		
Desktop application >	Table (scheme + name) where groups of materials and services are stored >		
Geolocation >	Who is allowed to generate pdf and attach it to the task >		TRUE Role System Administrator State
Assistants >	Who is allowed to update materials and services in the task >		
Tasks functions >	Who is allowed to update prices of materials and services in the task >		
Schedule >			
Mobile application >	Who is allowed to view materials and services in the task >		
Permissions and visibility >			

Fig. 2.158: Providing access to generate an invoice

Who is allowed to update materials and services in the task

This setting allows you to grant the right to edit an invoice (add materials, change the quantity) and save the changes made within the task. However, this setting does not allow you to generate an invoice within the task (Fig. 2.159).

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Non-standard translations		Default value FALSE
Network >	Id of the report to attach to the task		
System >	Name field in the table with groups		TRUE State 5
Interface >	Name of the field where the group id is stored		
Notifications >	Name of the field where the id of the type of work is stored		TRUE Role Organization Administrator State 4
Web application >	PrimaryKey field in the table with groups		
Desktop application >	Table (scheme + name) where groups of materials and services are stored		
Geolocation >	Who is allowed to generate pdf and attach it to the task		TRUE Role System Administrator State
Assistants >	Who is allowed to update materials and services in the task		
Tasks functions >	Who is allowed to update prices of materials and services in the task		
Schedule >			
Mobile application >	Who is allowed to view materials and services in the task		
Permissions and visibility >			

Fig. 2.159: Granting access to edit an invoice

Who is allowed to update prices of materials and services in the task

This setting allows you to specify the roles or users who can change prices of materials and services in the invoice within the current task (Fig. 2.160).

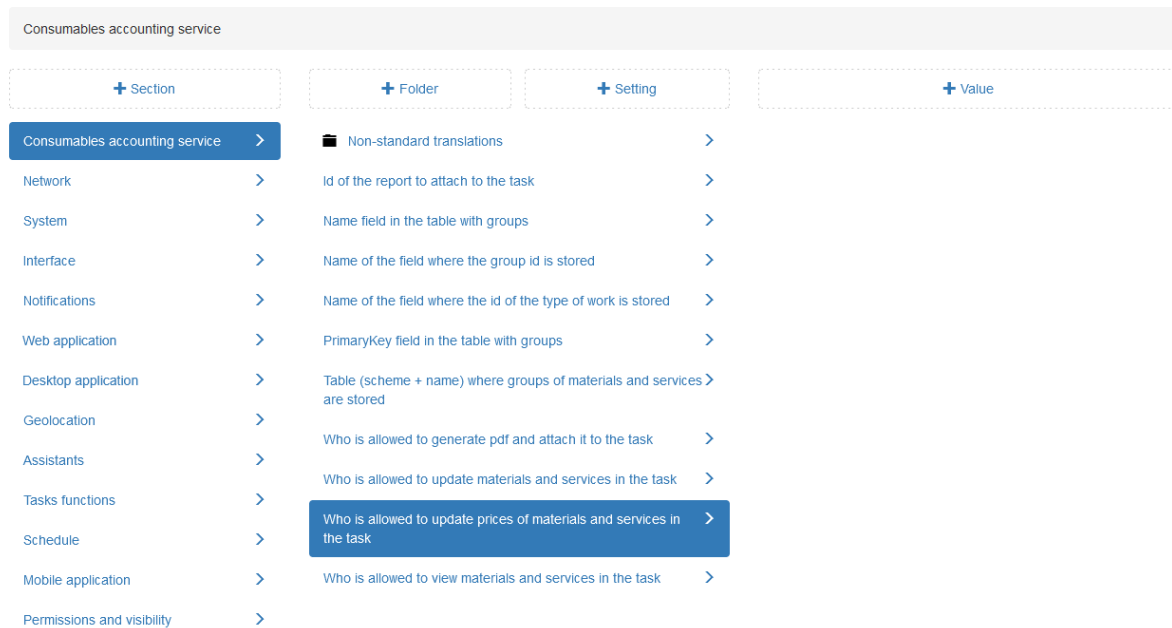


Fig. 2.160: Granting access to edit the invoice

Who is allowed to view materials and services in the task

This setting allows you to specify users who can view an invoice generated by another user (:Fig. 2.161).

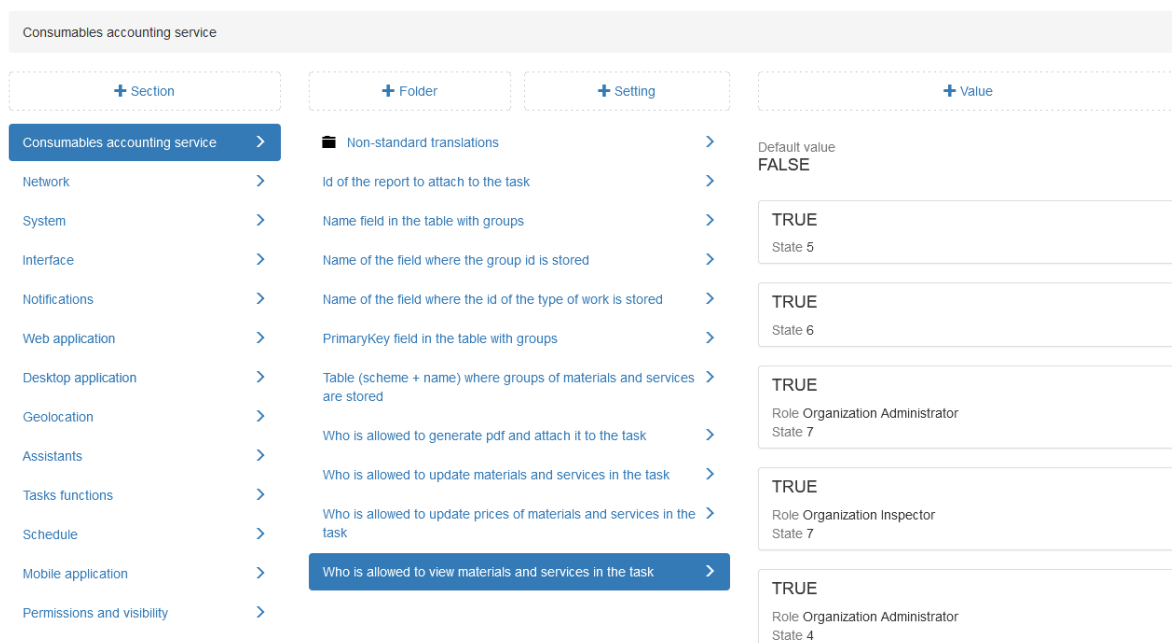


Fig. 2.161: Providing access to view an invoice

2.3.3.7.2 “Network” section

In this section, you can add a public server that is automatically displayed when logging into the mobile application. In this case, you do not need to enter the address manually. Click on the server and proceed to enter the login and password (Fig. 2.162). If necessary, you can set a new value by selecting the setting and then clicking “+Value”. In the opened window, turn on/off the toggle switch or enter the required name, and then fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

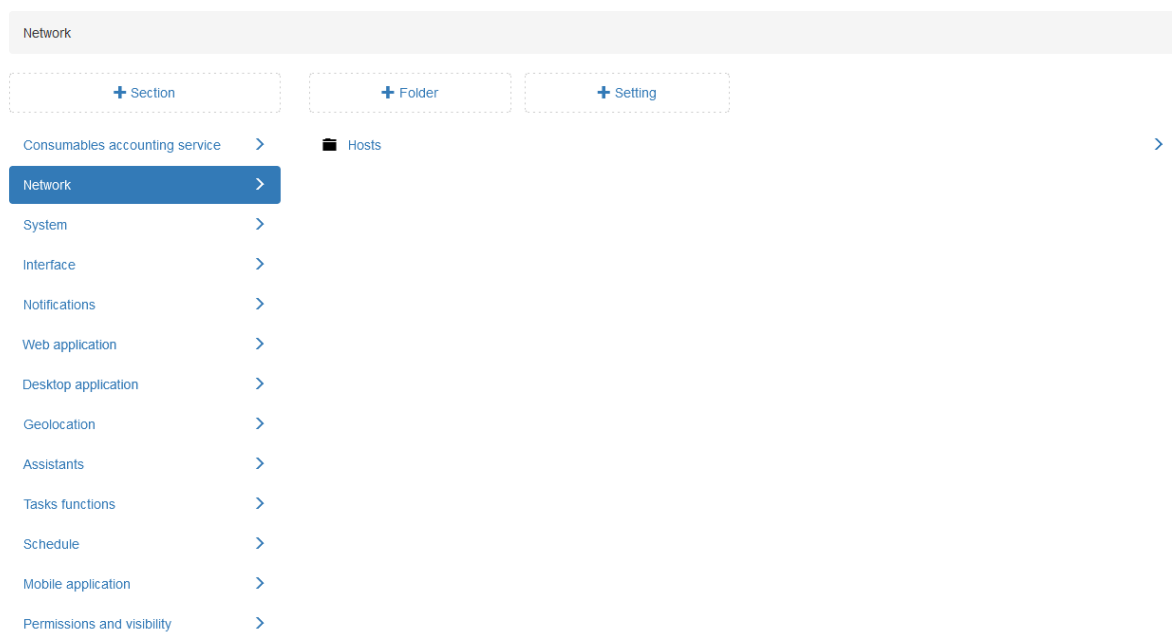


Fig. 2.162: “Network” section

Attention: The setting works only if the server address is registered in the mobile application.

Hosts

To add a public server, add the following settings in this folder by clicking “+ Setting” and entering the corresponding names:

- Use SSL (key – is_secure, data type – boolean) (Fig. 2.163);
- Server name (key – label, data type string) (Fig. 2.164);
- Host (key – host, data – type string) (Fig. 2.165).

The screenshot shows a web form titled "Create setting". It contains three input fields: the first is a text box with "is_secure", the second is a text box with "Use SSL", and the third is a dropdown menu with "Logical value" selected. Below the fields are two buttons: "Save" with a floppy disk icon and "Cancel" with an "X" icon.

Fig. 2.163: Use SSL

The screenshot shows a web form titled "Create setting". It contains three input fields: the first is a text box with "label", the second is a text box with "Server name", and the third is a dropdown menu with "String" selected. Below the fields are two buttons: "Save" with a floppy disk icon and "Cancel" with an "X" icon.

Fig. 2.164: Server name

The screenshot shows a web form titled "Create setting". It contains three input fields: the first is a text box with "host", the second is a text box with "Host", and the third is a dropdown menu with "String" selected. Below the fields are two buttons: "Save" with a floppy disk icon and "Cancel" with an "X" icon.

Fig. 2.165: Host

Next, set the corresponding value for each setting by selecting it from the list (Fig. 2.166).

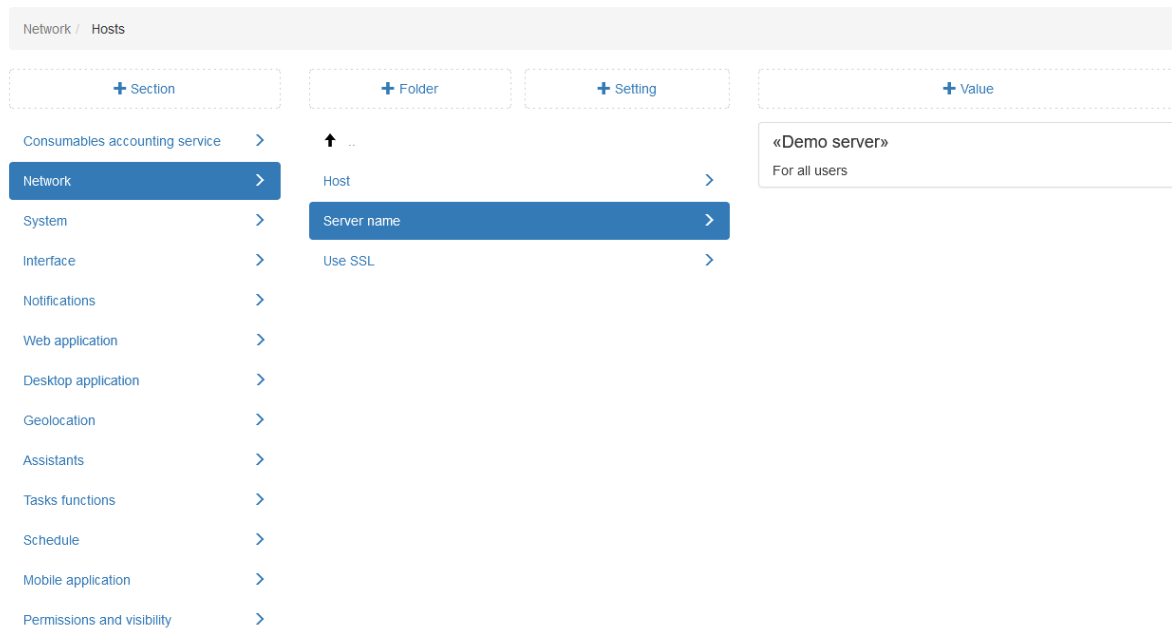


Fig. 2.166: Name of the demo server

2.3.3.7.3 “System” section

This section contains additional settings for the Cerebellum (Fig. 2.167).

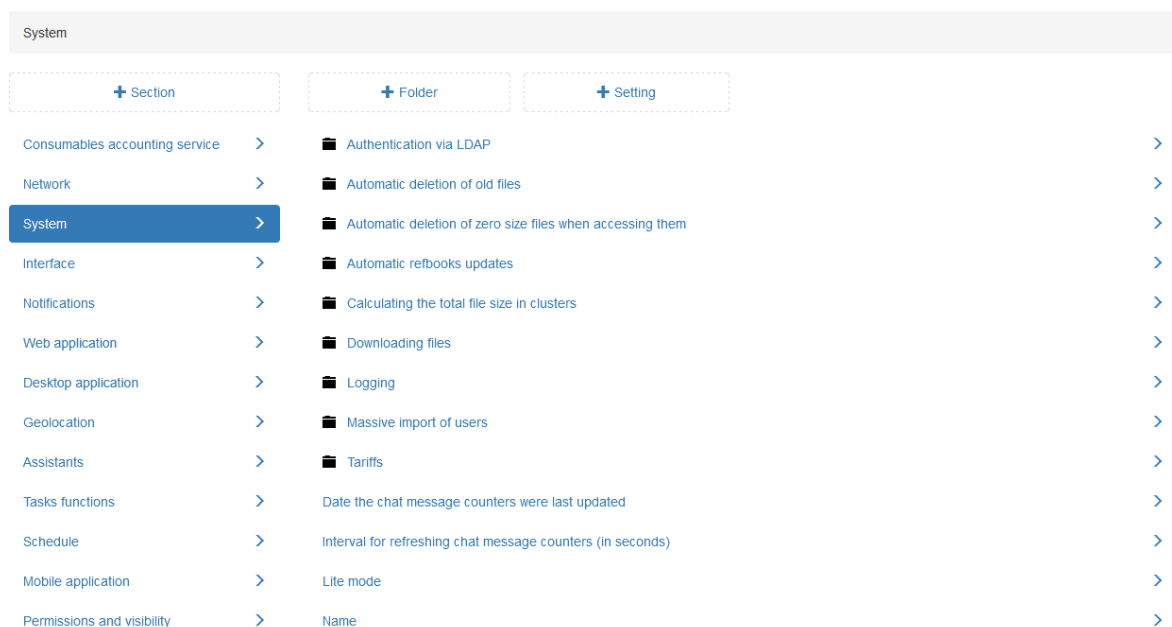


Fig. 2.167: “System” section

Authentication via LDAP

The system has a setting for integration with LDAP. LDAP is a single authorization system used by all software products in an organization. By default, LDAP is disabled.

To connect user authorization via LDAP, set the appropriate values in the **“Host”** and **“Port”** settings. Next, fill in **“Administrator login”** and **“Administrator password”** by entering the LDAP user data under which authorization and search of other users is performed (Fig. 2.168).

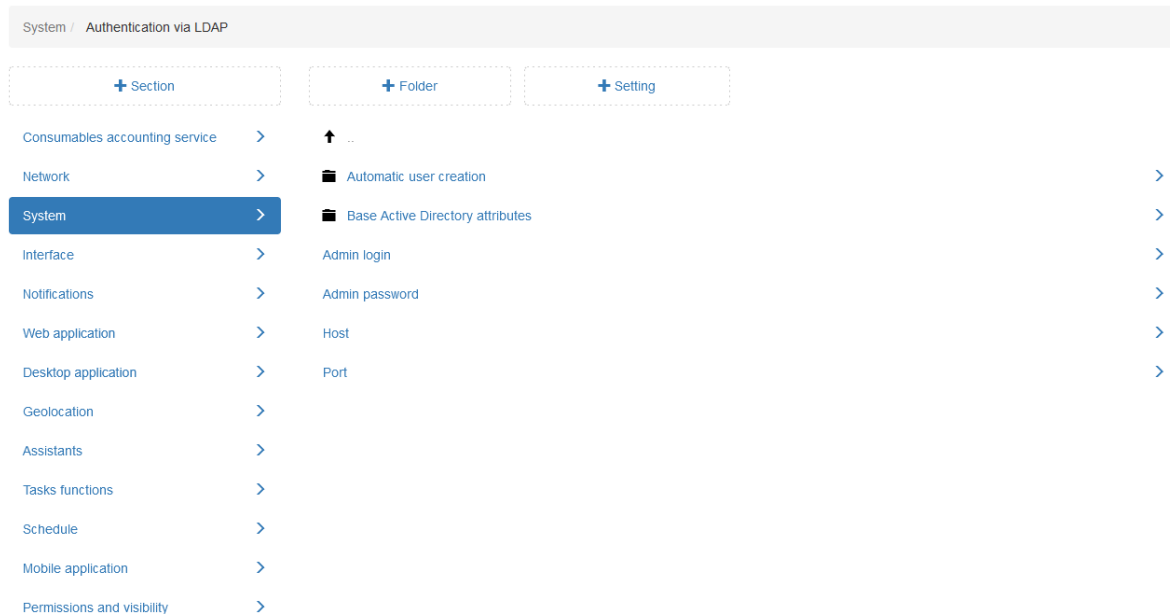


Fig. 2.168: Authentication via LDAP

Automatic user creation

The system has a setting for automatic creation of a new user if this user account exists in the Microsoft Active Directory. Users are created in one organization with the role of “Executor”. Later, the administrator can transfer the data of these users to the necessary organization and change their role in the system (Fig. 2.169).

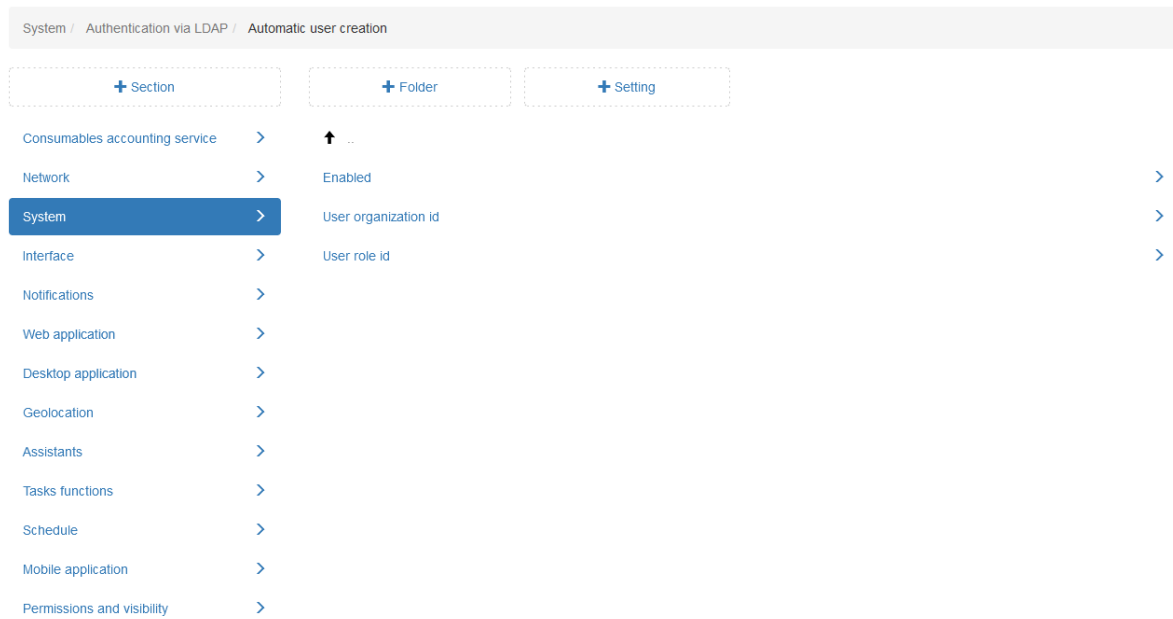


Fig. 2.169: Automatic user creation

Base Active Directory attributes

In this folder, the administrator should register the correspondence of the standard fields of the ActiveMap system user and LDAP fields (Fig. 2.170).



Fig. 2.170: Base Active Directory attributes

Automatic deletion of old files

The system has a limit on the maximum total volume of task files. This includes all files, for which there are records in the database, including logically deleted files, template task files, and others. Cerebellum receives information from the database about files to be deleted and cleans them at the specified time, if necessary. Files to be deleted are stored in the following order:

- Deleted files,
- Files of deleted tasks,
- Files of tasks not in the “In Progress” step.

Cerebellum periodically checks whether the volume of files exceeds the limit on the total volume. If it exceeds the limit, files are retrieved for deletion in the specified order. This setting is disabled by default (Fig. 2.171).

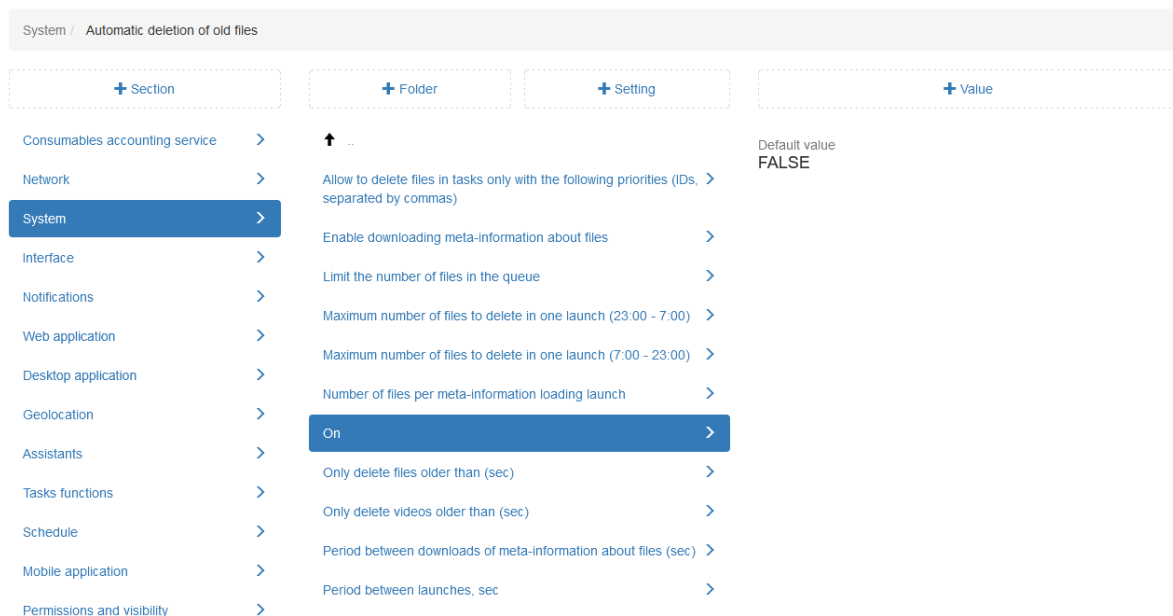


Fig. 2.171: Automatic deletion of old files

Allow to delete files in tasks only with the following priorities

In this setting, you can specify the IDs of the task priorities where files should be deleted (Fig. 2.172). You can specify priorities using identifiers (IDs) separated by commas.

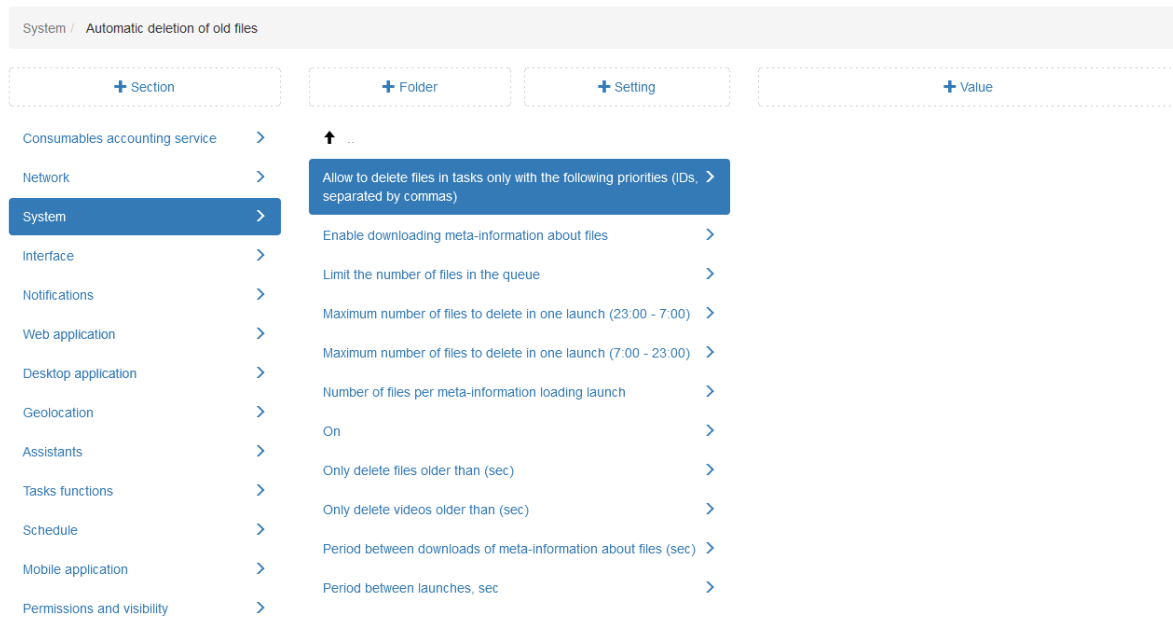


Fig. 2.172: Allow to delete files in tasks only with the following priorities

Enable downloading meta-information about files

This setting enables downloading metadata about files that are to be deleted. Metadata can include various file attributes such as name, size, creation date, etc. By default, this setting is disabled (Fig. 2.173).

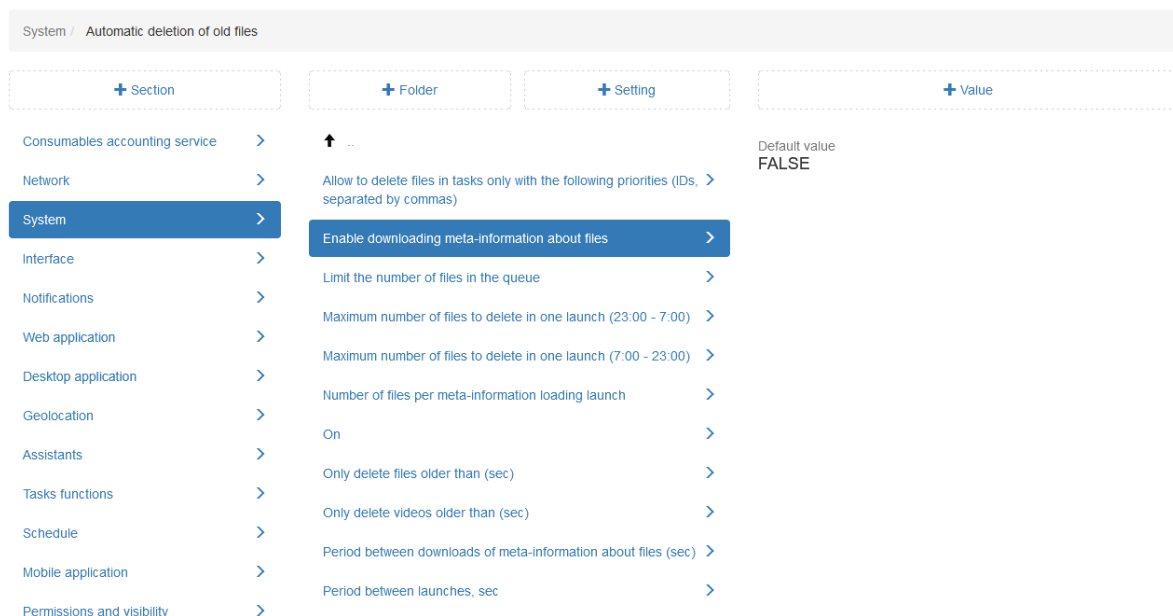


Fig. 2.173: Enable loading file metadata

Limit the number of files in the queue

Here you can set the maximum number of files that can be queued for deletion. When files are added to the queue, the auto-deleter gradually

deletes them according to the set parameters. The default is 10000 files (Fig. 2.174).

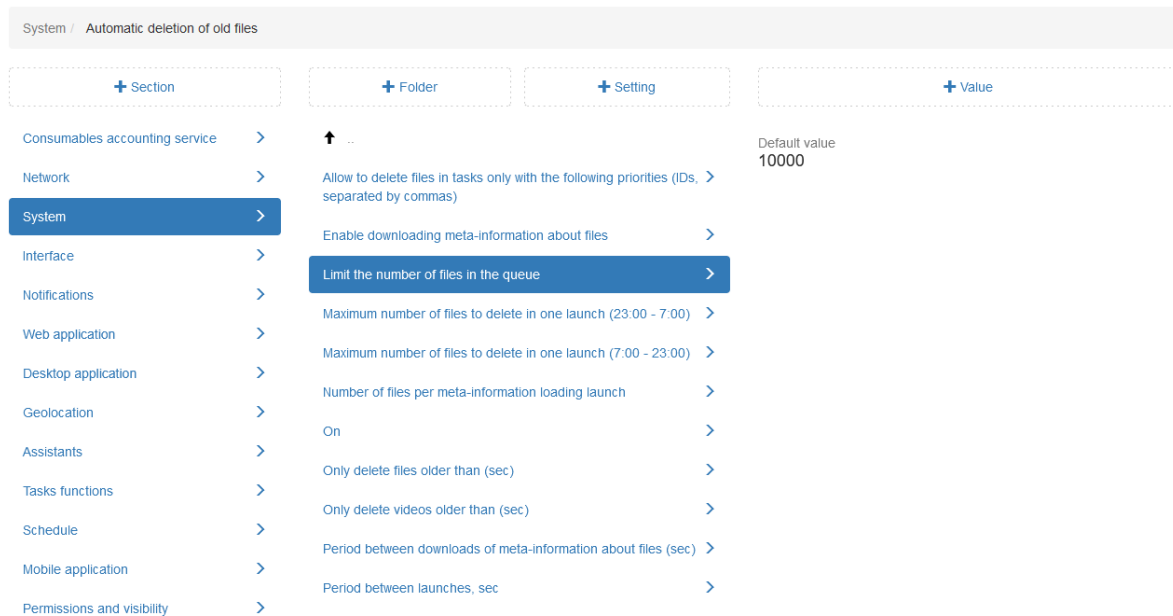


Fig. 2.174: Limit on the number of files in the queue

Maximum number of files to delete in one launch (7:00 – 23:00)

The setting specifies a limit on the number of files that can be deleted at one time in the specified time interval. For example, if the value is set to 50, the auto-deleter deletes no more than 50 files within the specified time period. The default is 1 file (Fig. 2.175).

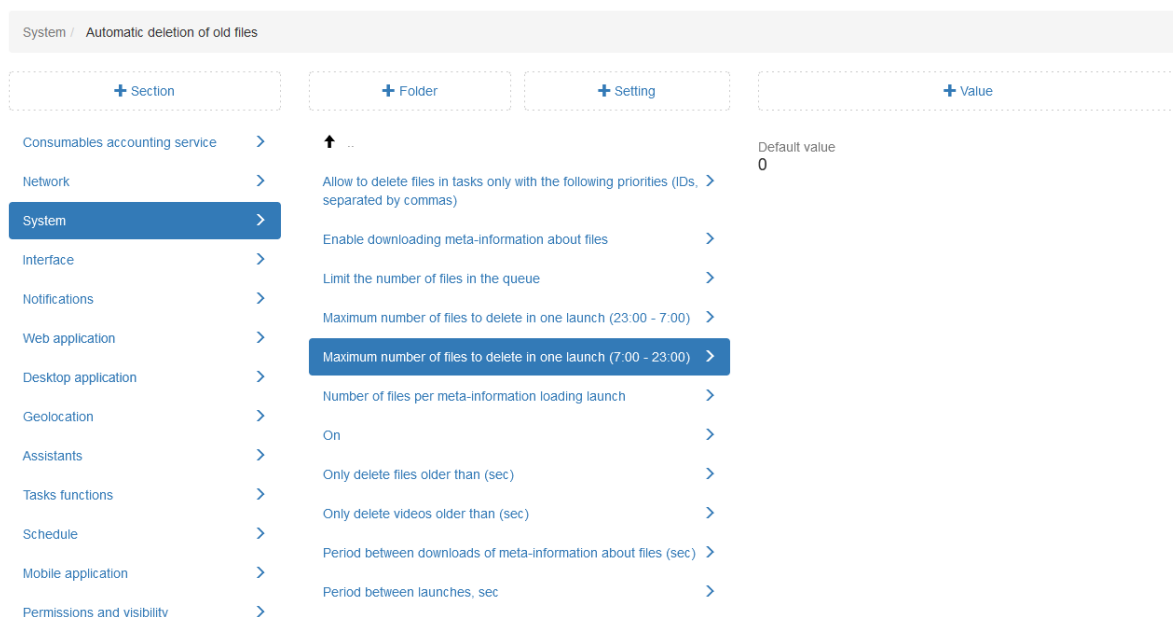


Fig. 2.175: Maximum number of files to delete in one launch (7:00 – 23:00)

Maximum number of files to delete in one launch (23:00 – 7:00)

The setting specifies a limit on the number of files that can be deleted at one time during the specified time interval. For example, if the value is set to 50, the auto-deleter deletes no more than 50 files within the specified time period. The default is 1 file (Fig. 2.176).

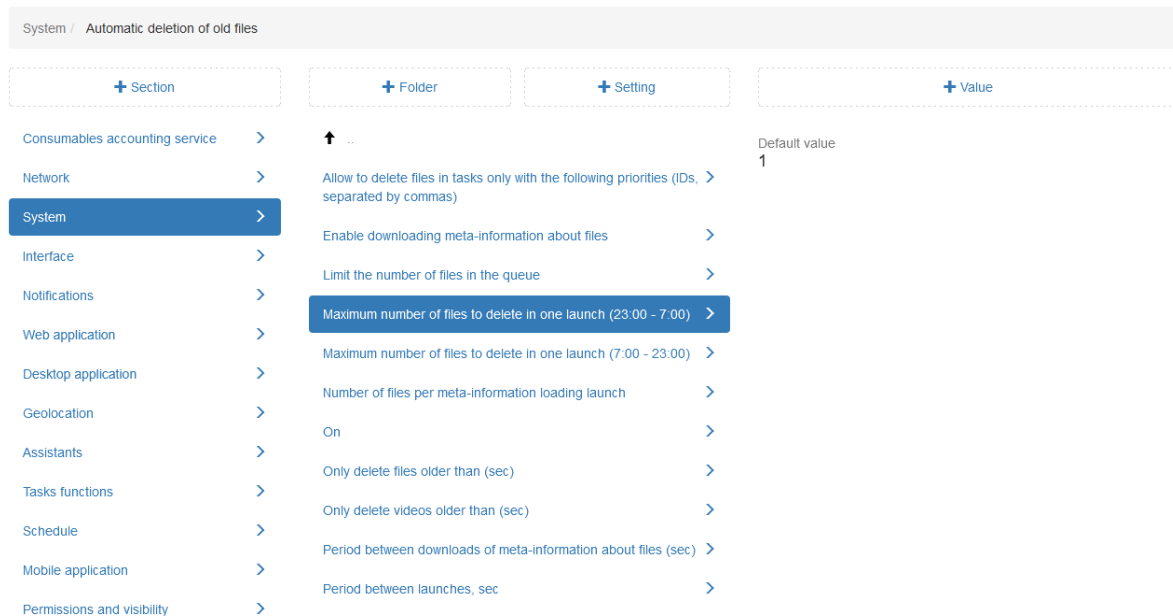


Fig. 2.176: Maximum number of files to delete in one launch (23:00 – 7:00)

Number of files per meta-information loading launch

This setting determines the number of files for which metadata is requested in each upload cycle. For example, if set to 100, the auto-deleter requests metadata about 100 files per operation. The default is 1000 files (Fig. 2.177).

System / Automatic deletion of old files			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value 1000
Network >	Allow to delete files in tasks only with the following priorities (IDs, > separated by commas)		
System >	Enable downloading meta-information about files >		
Interface >	Limit the number of files in the queue >		
Notifications >	Maximum number of files to delete in one launch (23:00 - 7:00) >		
Web application >	Maximum number of files to delete in one launch (7:00 - 23:00) >		
Desktop application >	Number of files per meta-information loading launch >		
Geolocation >	On >		
Assistants >	Only delete files older than (sec) >		
Tasks functions >	Only delete videos older than (sec) >		
Schedule >	Period between downloads of meta-information about files (sec) >		
Mobile application >	Period between launches, sec >		
Permissions and visibility >			

Fig. 2.177: Number of files per meta-information loading launch

Delete files only older than (sec)

The setting specifies the storage time for task files (in seconds). If files have been stored for longer than the specified time, they are automatically deleted. The default is 180 days (Fig. 2.178).

System / Automatic deletion of old files			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value 15552000
Network >	Allow to delete files in tasks only with the following priorities (IDs, > separated by commas)		
System >	Enable downloading meta-information about files >		
Interface >	Limit the number of files in the queue >		
Notifications >	Maximum number of files to delete in one launch (23:00 - 7:00) >		
Web application >	Maximum number of files to delete in one launch (7:00 - 23:00) >		
Desktop application >	Number of files per meta-information loading launch >		
Geolocation >	On >		
Assistants >	Only delete files older than (sec) >		
Tasks functions >	Only delete videos older than (sec) >		
Schedule >	Period between downloads of meta-information about files (sec) >		
Mobile application >	Period between launches, sec >		
Permissions and visibility >			

Fig. 2.178: Delete files only older than (sec)

Delete videos only older than (sec)

The setting specifies the storage time for the task video files (in seconds). If a video has been stored for longer than the specified time, it is

automatically deleted. The default setting is 45 days (Fig. 2.179).

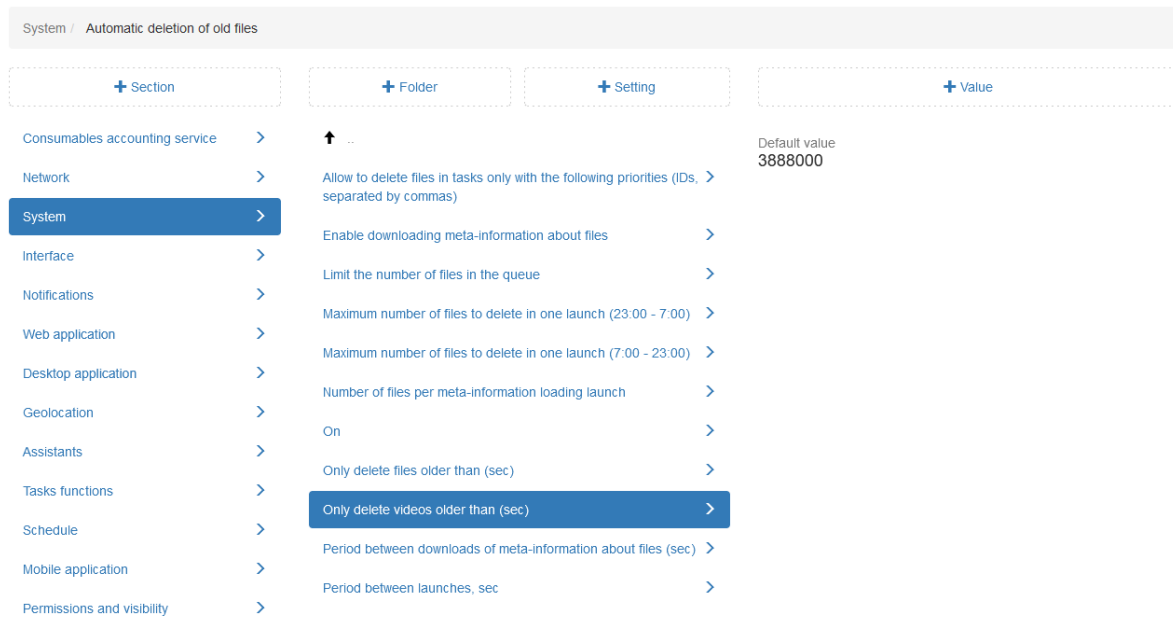


Fig. 2.179: Delete videos only older than (sec)

Period between downloads of meta-information about files (sec)

This setting determines the time interval (in seconds) after which the auto-deleter downloads file meta-information. For example, if the value is set to 3600, then the meta-information is loaded every hour. The default is 300 seconds (Fig. 2.180).

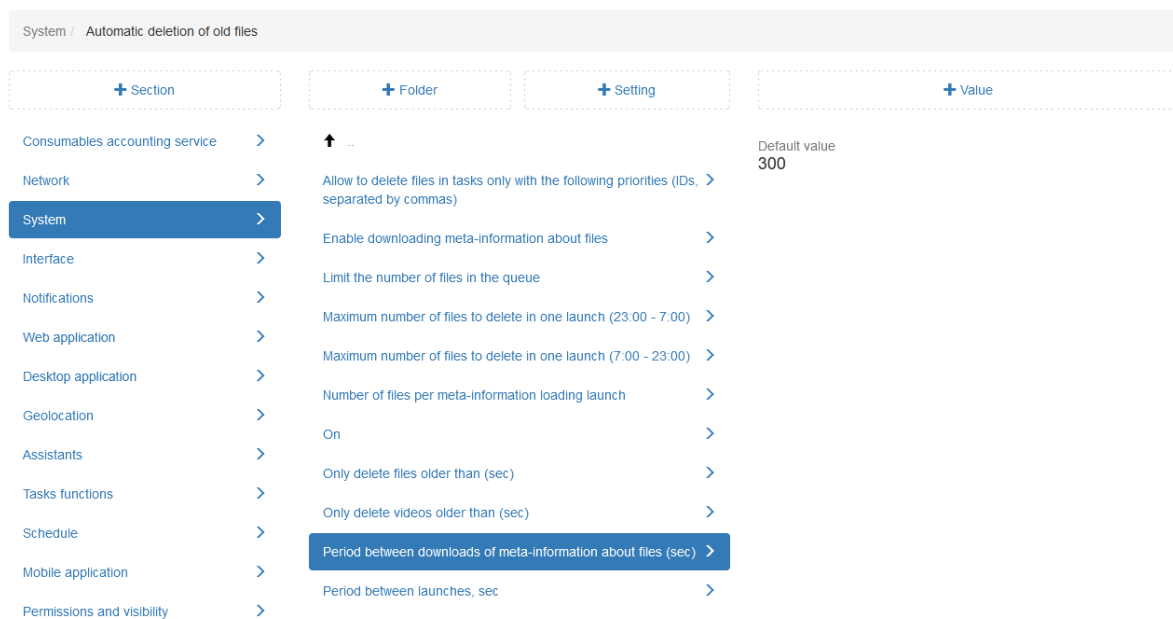


Fig. 2.180: Period between downloads of meta-information about files

Period between launches

The setting determines the time interval (in seconds) between successive launches of the auto-deleter. For example, if the value is set to 3600, the auto-deleter runs every hour. The default is 1 second (Fig. 2.181).

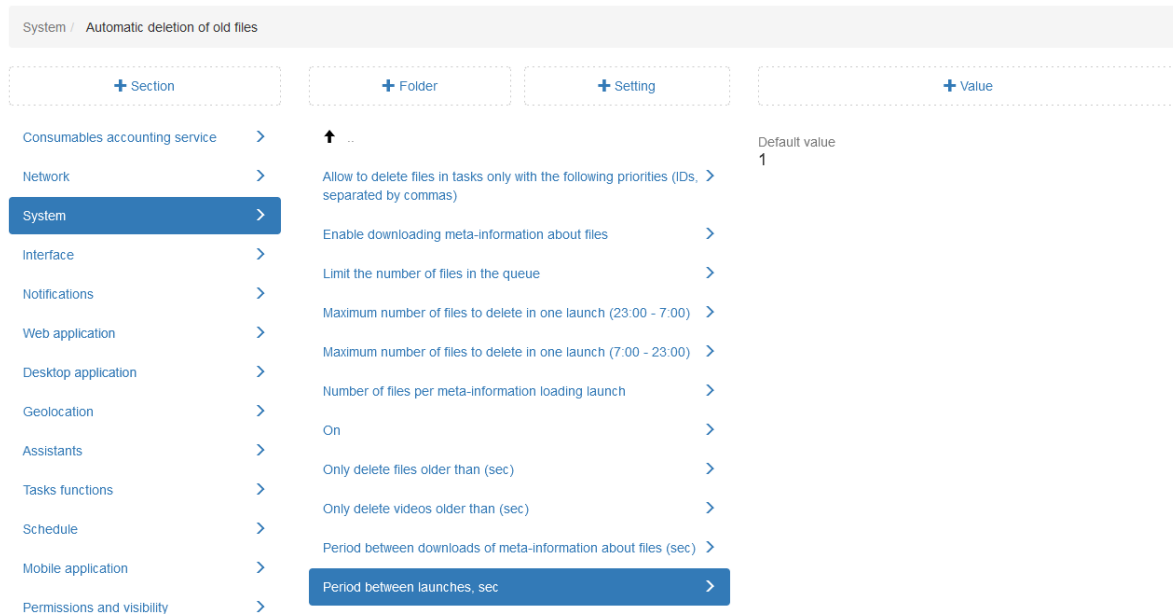


Fig. 2.181: Period between launches

Automatic deletion of zero size files when accessing them

When a file is deleted, information about it may remain in the database. Storing such information increases the storage space used. Use this setting to delete such empty records. The setting is disabled by default (Fig. 2.182).



Fig. 2.182: Automatic deletion of zero size files when accessing them

Automatic refbooks updates

This folder contains system settings responsible for updating data in reference tables and types of work (Fig. 2.183).

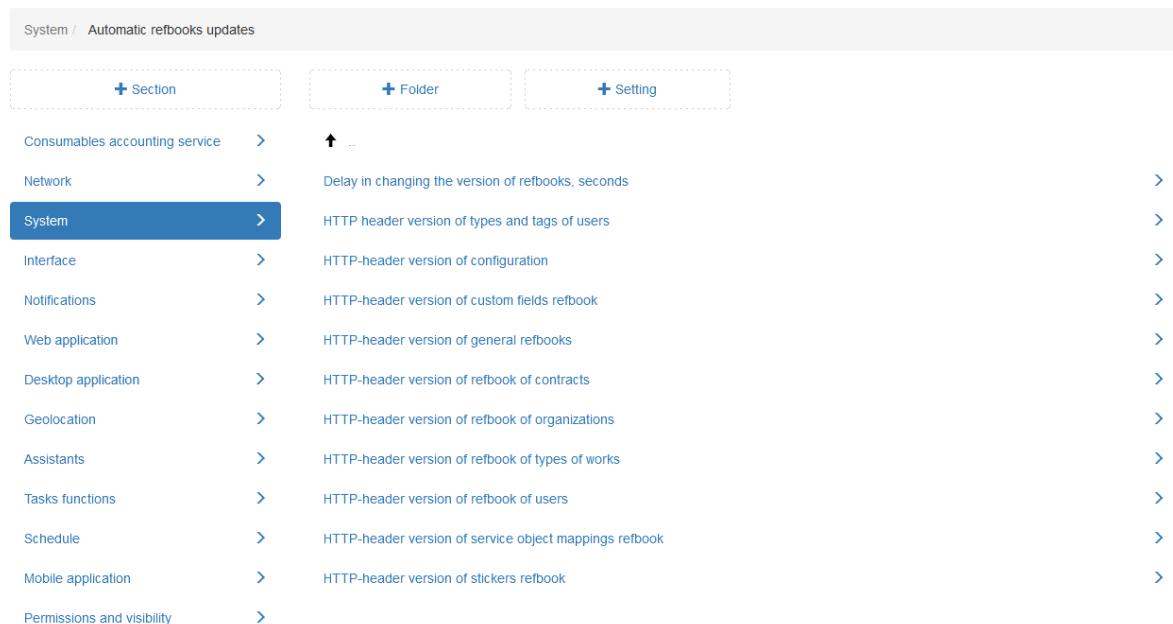


Fig. 2.183: Automatic updating of reference tables

Delay in changing the version of refbooks, seconds

When adding a value to a reference table (work type, priority, custom

field, etc.), the system can automatically update data in the applications. This setting specifies, how often (in seconds) the system sends data to all applications (Fig. 2.184). In this case, the user does not need to update the data manually to get the actual values.

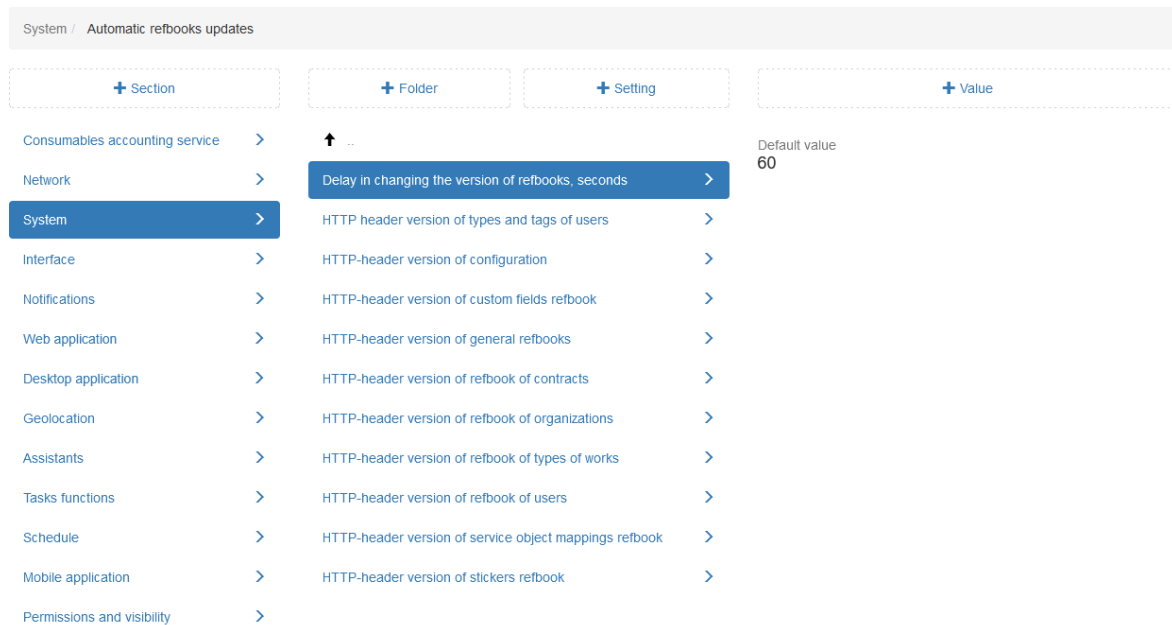


Fig. 2.184: Delay in changing the version of reference tables, seconds

Calculating the total file size in clusters

The setting allows you to set the maximum size of the disk space change list per cluster. It specifies how many changes per cluster should be skipped before making an update when calculating the total file size in clusters. The default is 5000 changes (Fig. 2.185).

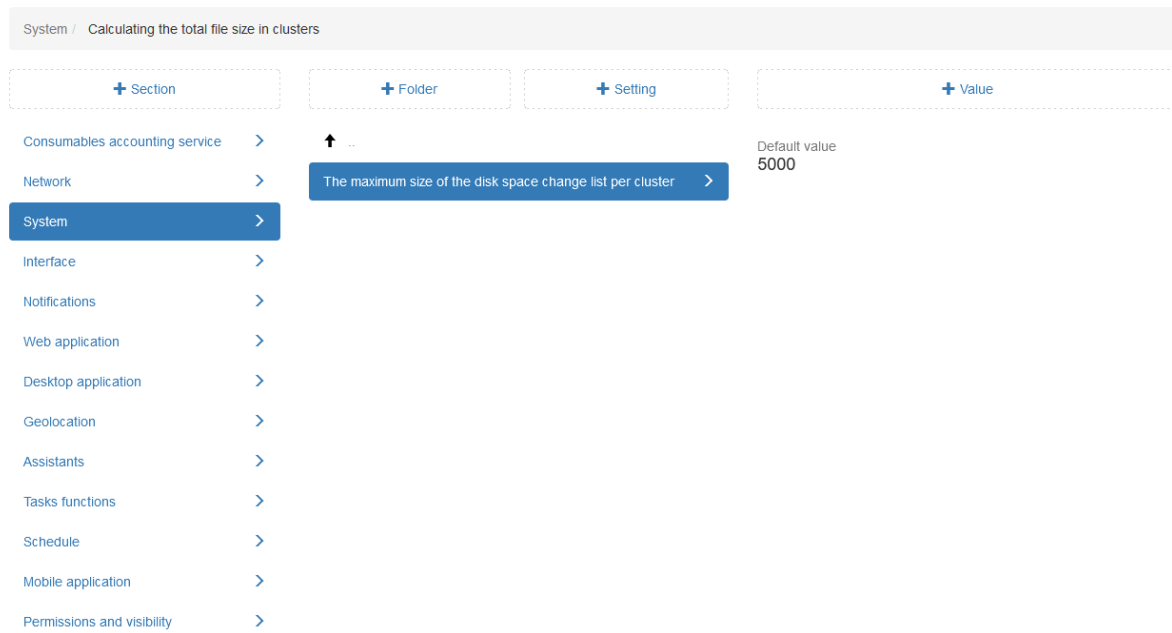


Fig. 2.185: Configuring the maximum size of the disk space change list per cluster

Downloading files

When connecting an external server for data storage, you can specify the storage location for each directory in this setting. After that, this directory is created on the server, and the files are stored in the specified location (Fig. 2.186).

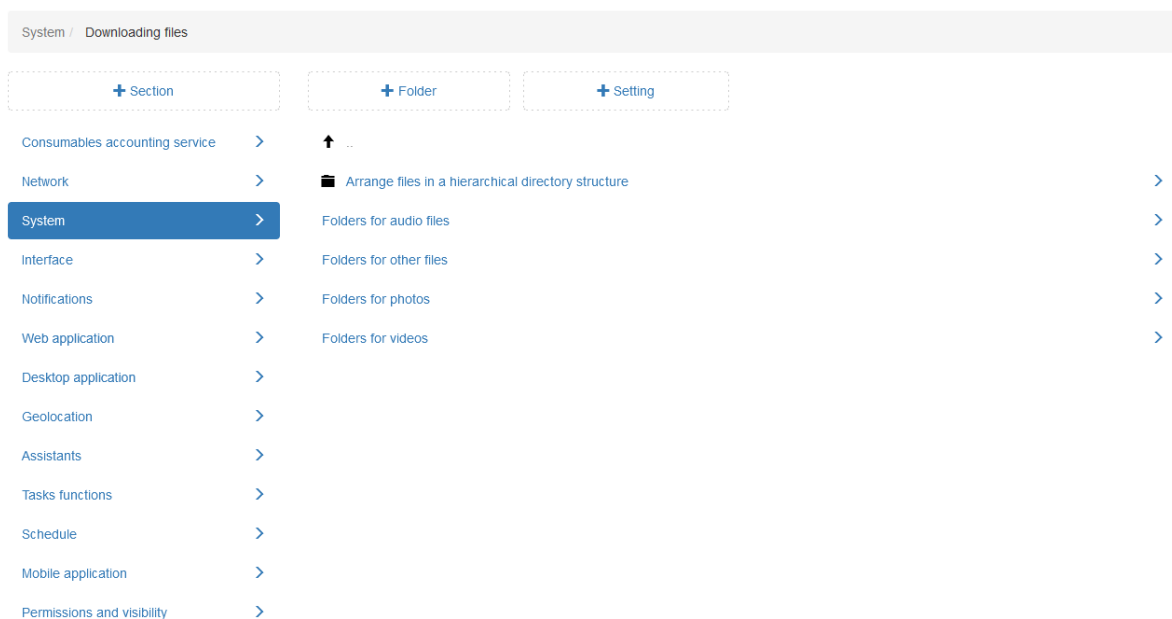


Fig. 2.186: Downloading files

Keys

This setting allows you to register access keys for basemaps protected by third-party organization rights for use in different applications of the System (Fig. 2.187).

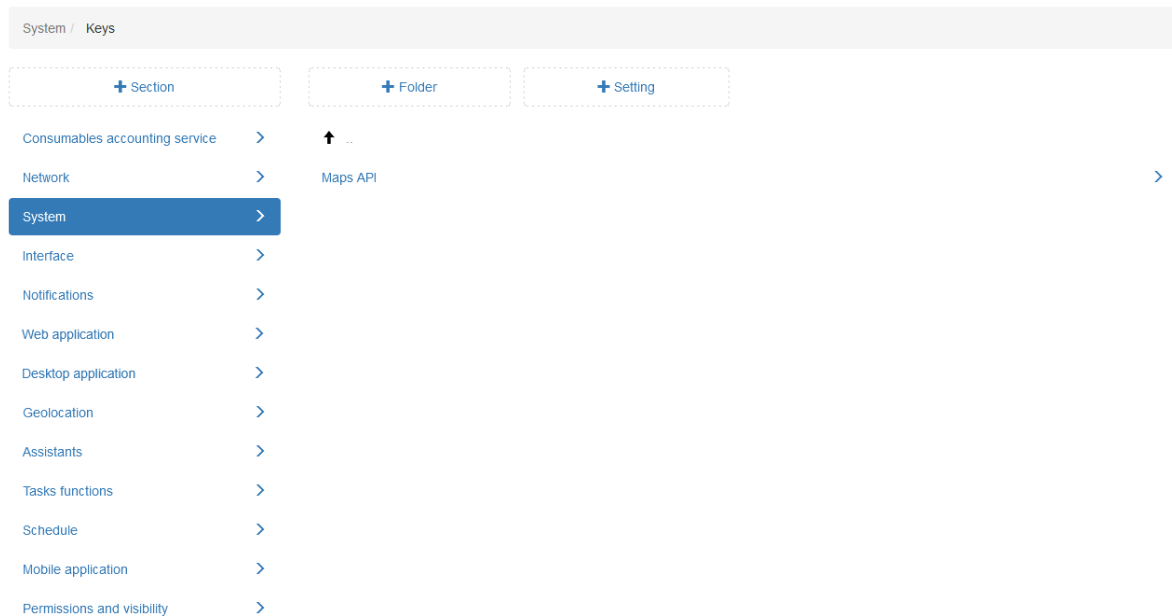


Fig. 2.187: API key setting

Logging

The setting allows you to automatically record in chronological order the events that occur with the task (creation, commenting). This setting is enabled by default (Fig. 2.188).

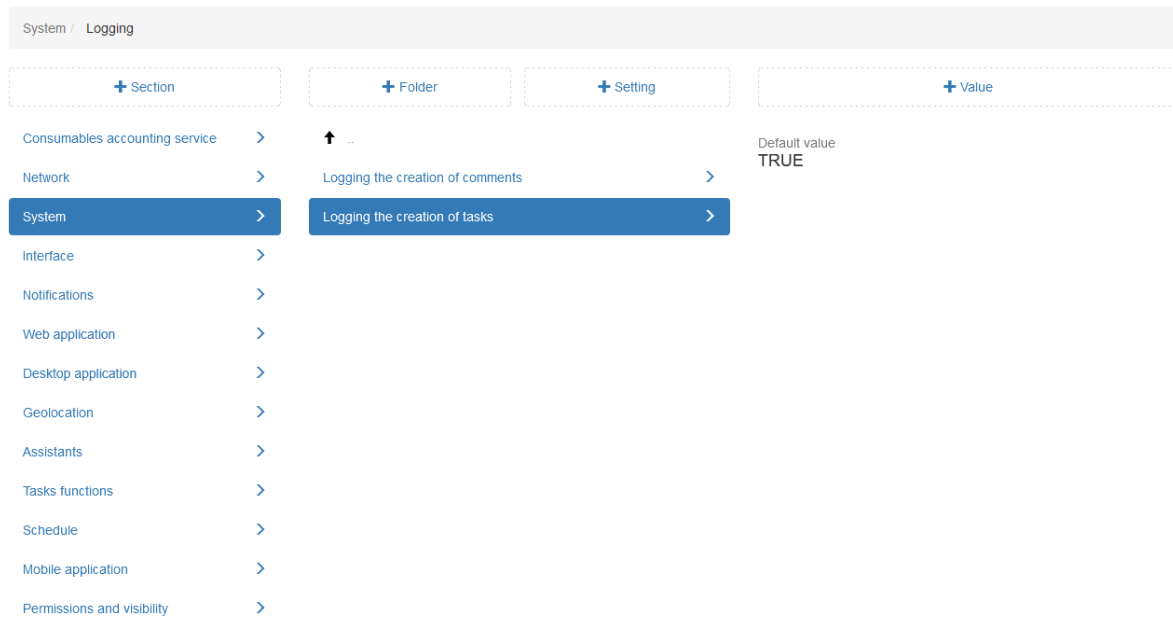


Fig. 2.188: Logging

Massive import of users

The setting allows you to set the maximum number of users imported into the system in a single request. The default is 1000 users (Fig. 2.189).

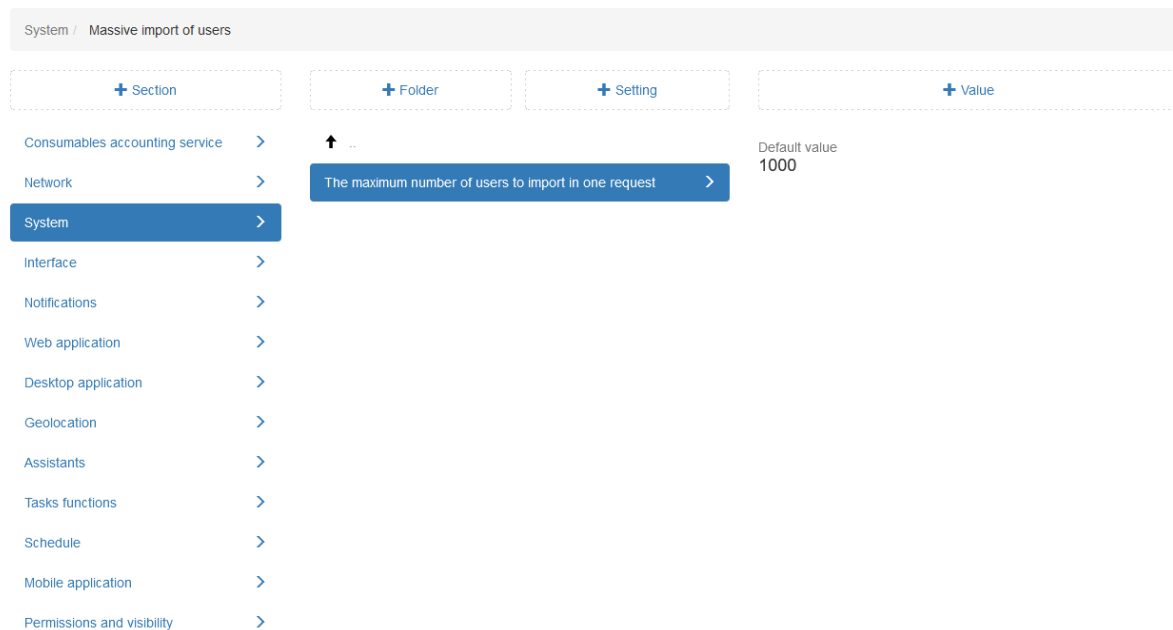


Fig. 2.189: Setting the maximum number of users to import in one request

Date the chat message counters were last updated

Engineering setting. This value is for developer use only during debugging.

Interval for refreshing chat message counters

Engineering setting. This value is for developer use only during debugging.

Lite mode

This setting allows using the system without providing a dedicated server for each organization. By default, this setting is disabled.

2.3.3.7.4 “Interface” section

This section allows you to configure the display of task ratings (Fig. 2.190). Users set ratings in a simplified version of the mobile application. You can also view them in the ActiveMap Desktop. If necessary, you can set a new value for each setting in this folder by selecting it and clicking “+ Value”. Turn on/off the toggle switch or enter a new value and then fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

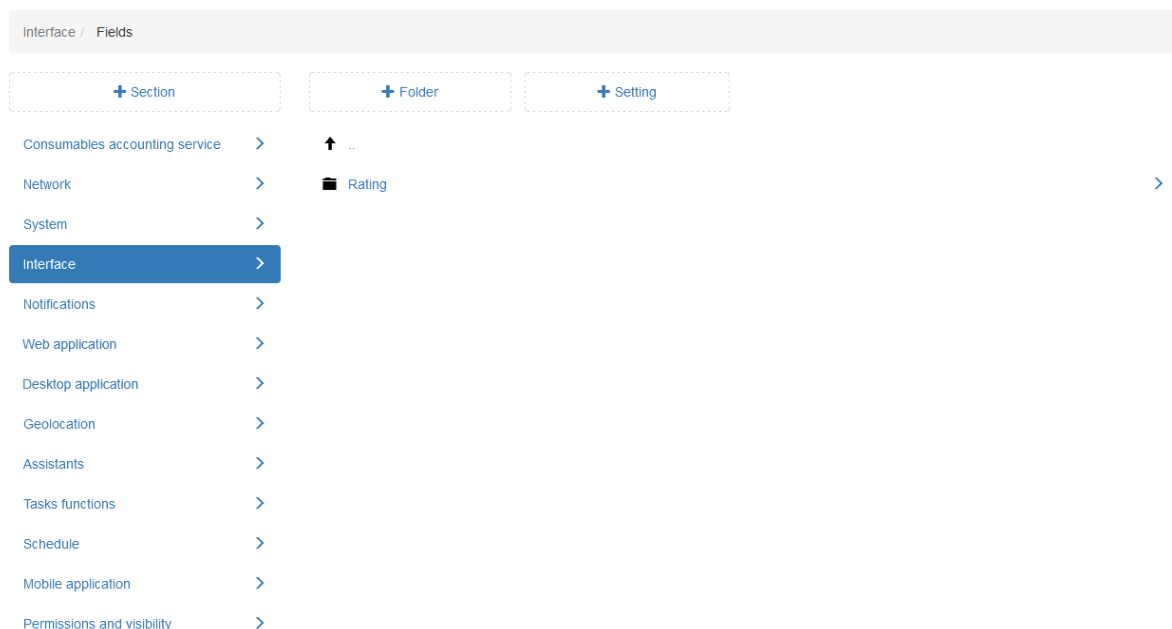


Fig. 2.190: “Interface” section

Fields/Rating

Scale [3-5]

The system allows you to set a scale (from 3 to 5) for rating completed tasks. By default, a 4-point system is set to display ratings in the ActiveMap Desktop (Fig. 2.191).



Fig. 2.191: Scale [3-5]

Simulate the presence of rating in its absence

This setting is a system setting that allows you to avoid errors when there is no set rating in the task.

Use emotion

This setting allows using emojis to display ratings in the ActiveMap Desktop. This setting is enabled by default (Fig. 2.192). With the toggle turned off, users see the scores in the ActiveMap Desktop in the form of stars, not emoji.

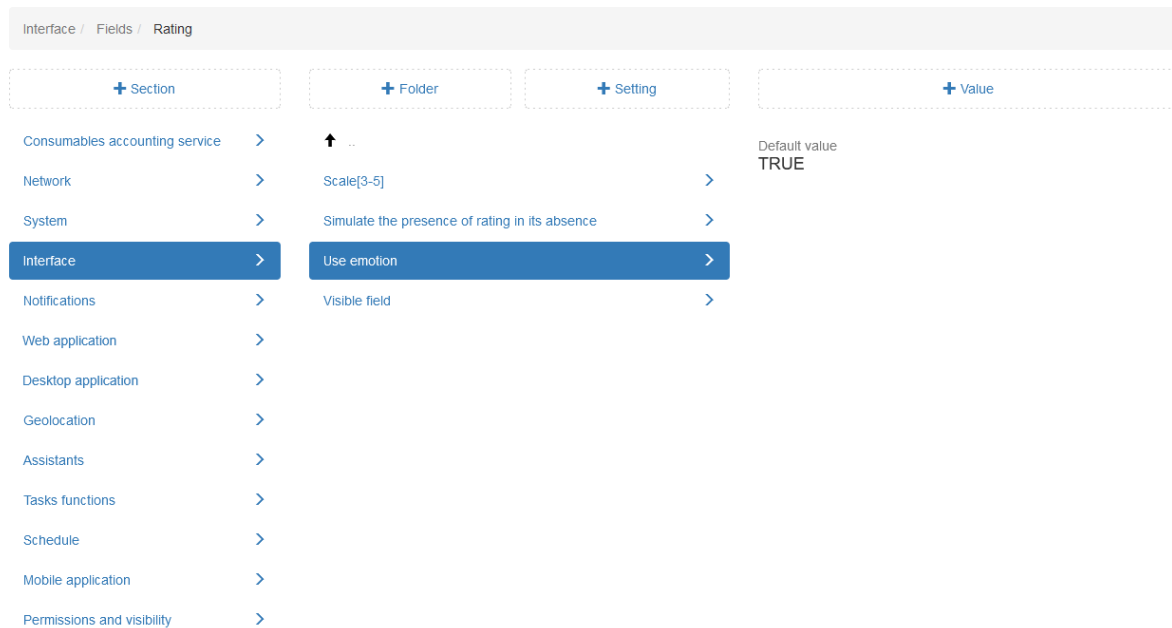


Fig. 2.192: Using emoji

Visible field

In this setting, you can enable the visibility of the rating in the ActiveMap Desktop. By default, this setting is disabled (Fig. 2.335).

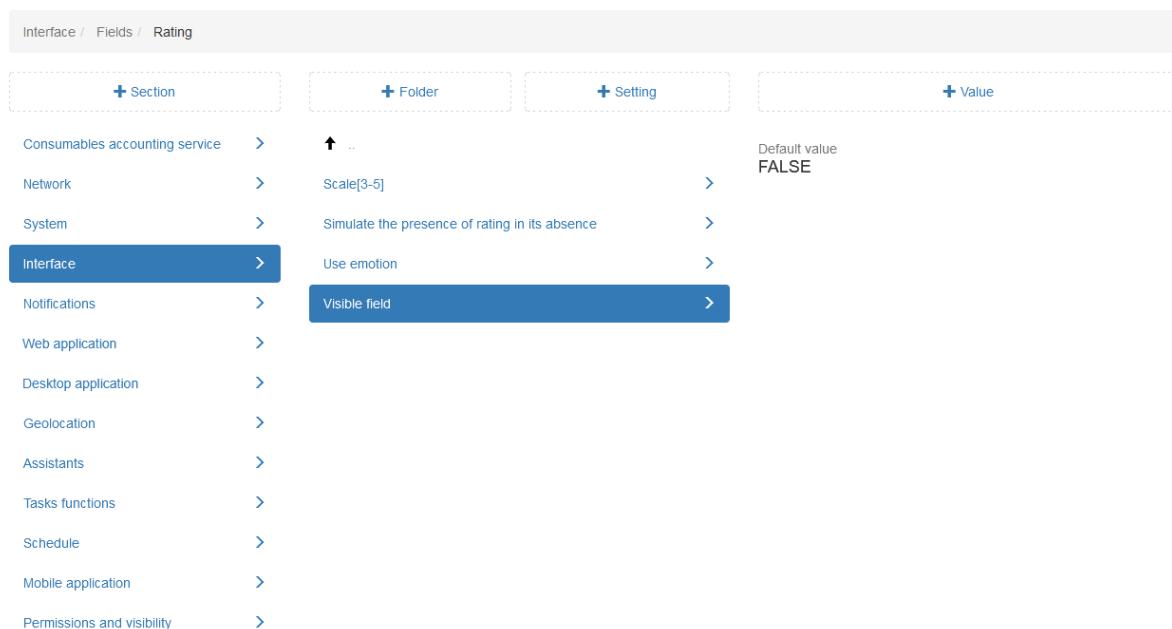


Fig. 2.193: Setting the visibility of the rating

2.3.3.7.5 “Notifications” section

This section allows configuring PUSH notifications and webhooks (Fig. 2.194). You can set a new value by selecting the setting and then clicking “+ Value”. In the window that opens, enable/disable the toggle switch or enter a value, then fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

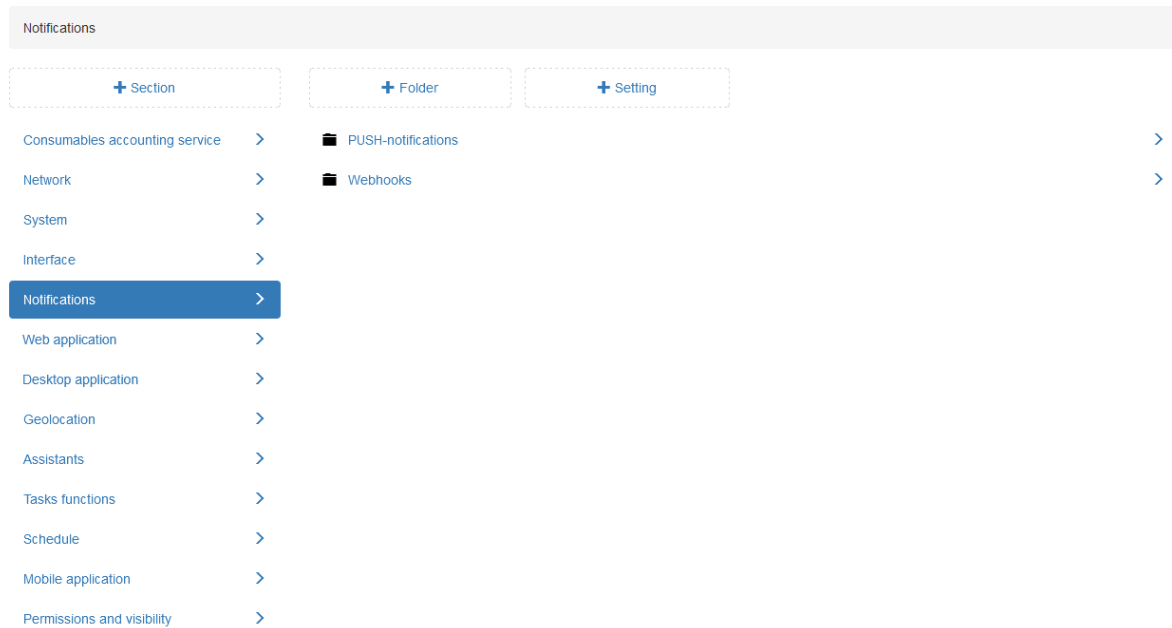


Fig. 2.194: “Notifications” section

PUSH-notifications

In this setting administrator sets PUSH-notifications for such actions as creating, changing, deleting tasks, adding comments, etc. (Fig. 2.195).

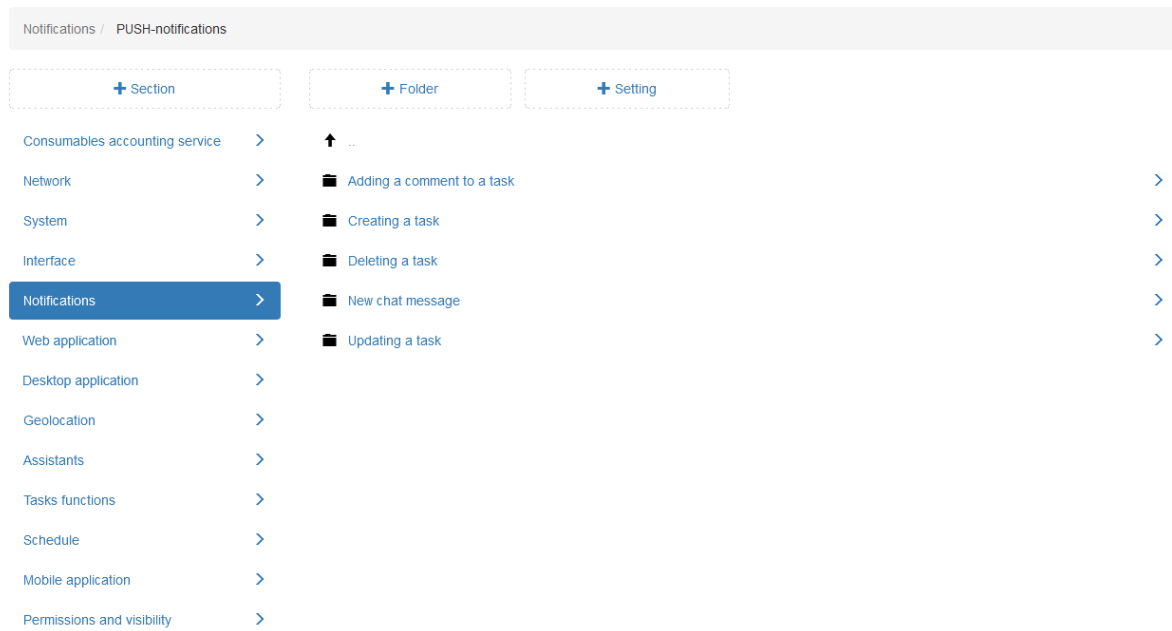


Fig. 2.195: PUSH-notifications

PUSH-notifications for each of the presented actions are configured for user roles (Fig. 2.196).

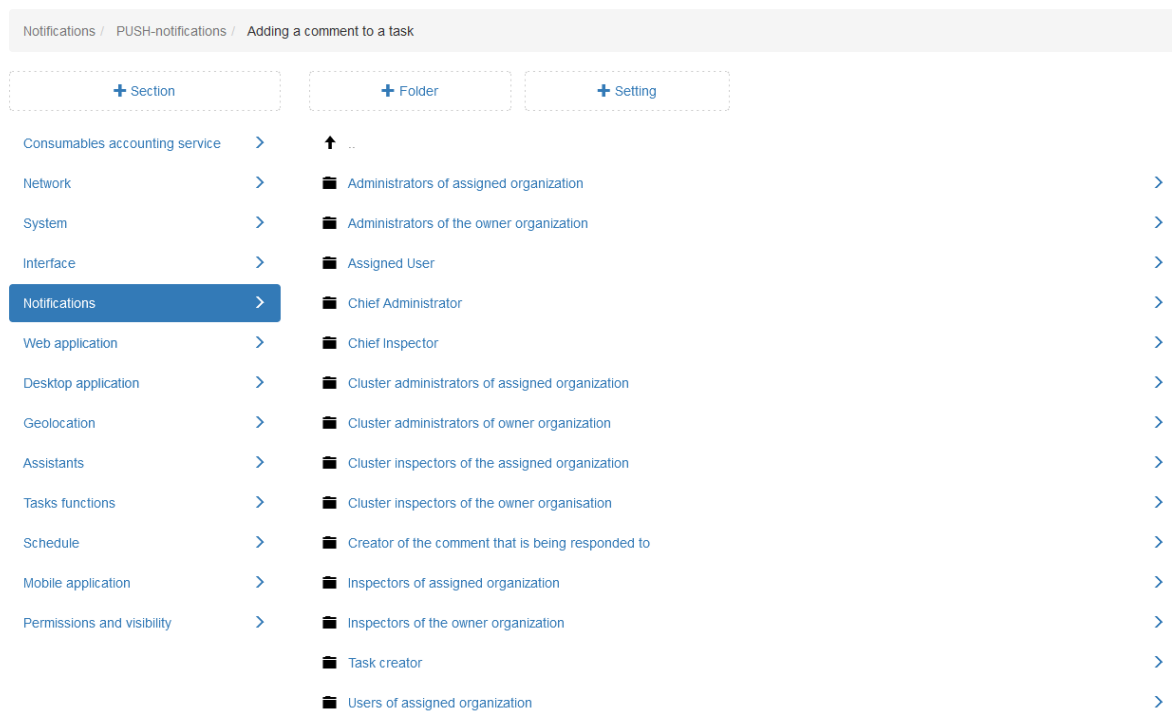


Fig. 2.196: PUSH-notifications configured for user roles

Webhooks

This setting specifies how many requests can be sent simultaneously to the server with the selected data transfer protocol. The default is 10 requests (Fig. 2.197).

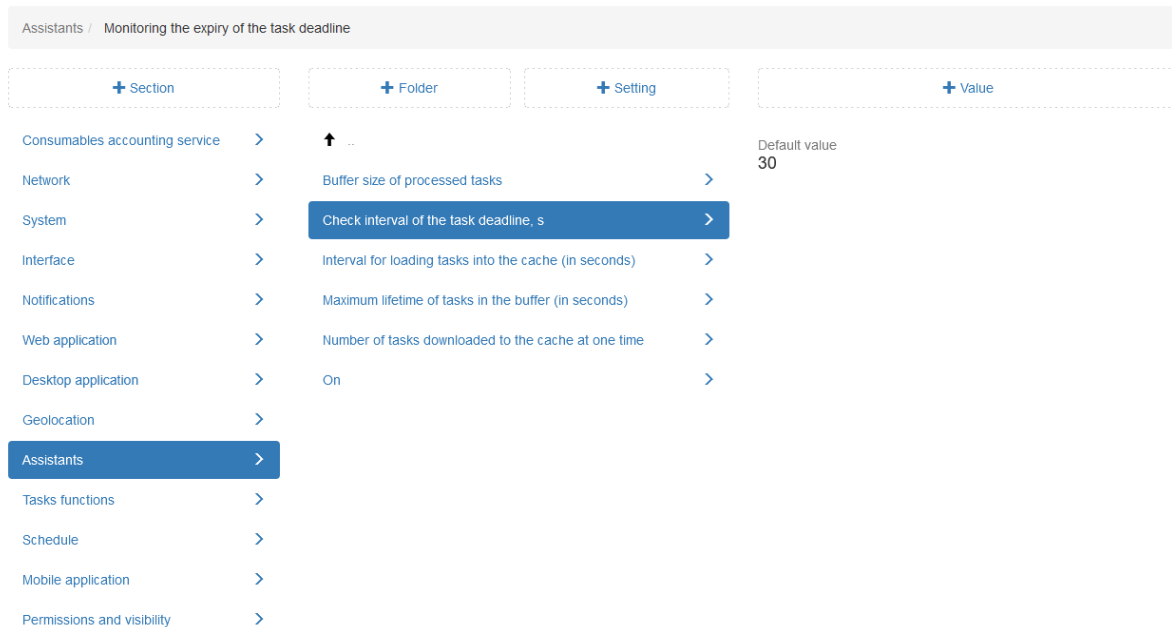


Fig. 2.197: Maximum number of simultaneous requests per server

2.3.3.7.6 “Desktop application” section

In this section, you can configure additional options to work in the ActiveMap Desktop (Fig. 2.198). You can set a new value by selecting the setting and clicking “+ Value”. In the window that opens, enable/disable the toggle switch or enter the desired name and then fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

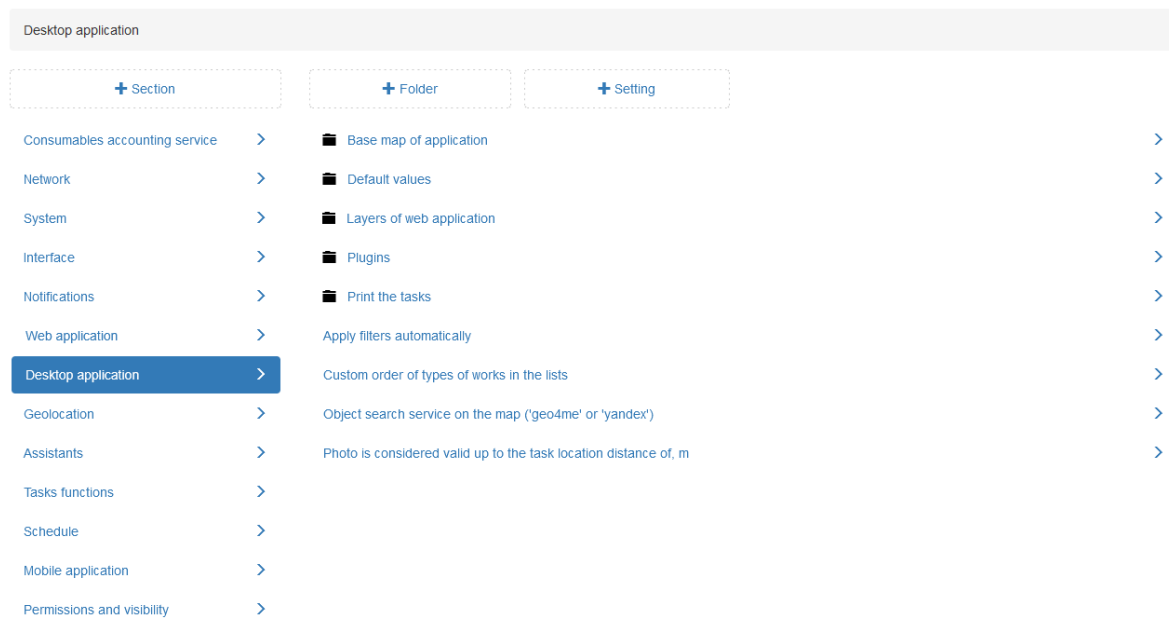


Fig. 2.198: “Desktop application” section

Basemap of application

The setting allows adding a map as a base layer to work in the ActiveMap Desktop.

Name of the folder for the cache

The setting allows setting a new folder to store the map cache to work in the ActiveMap Desktop.

Projection of basemap

In this setting, you can enter the projection for the map’s base layer (in PROJ.4 format).

URL of TMS-service

In this setting, you can enter the URL of the TMS service to specify the map as the base layer (Fig. 2.199).

Desktop application / Base map of application

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value
Network >	Name of the folder for the cache >		«https://abasemap bbasemap cbasemap.geo4.me/worldmap/\$ (x) / \$ (x) / \$ (y).png»
System >	Projection of base map >		
Interface >	URL of TMS-service >		
Notifications >			
Web application >			
Desktop application >			
Geolocation >			
Assistants >			
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.199: Application basemap

Default values

You can specify values that are automatically filled in when tasks are created in the ActiveMap Desktop (Fig. 2.200). Thus, after adding a value, the user does not need to fill in these fields manually when creating a task. They are filled in automatically.

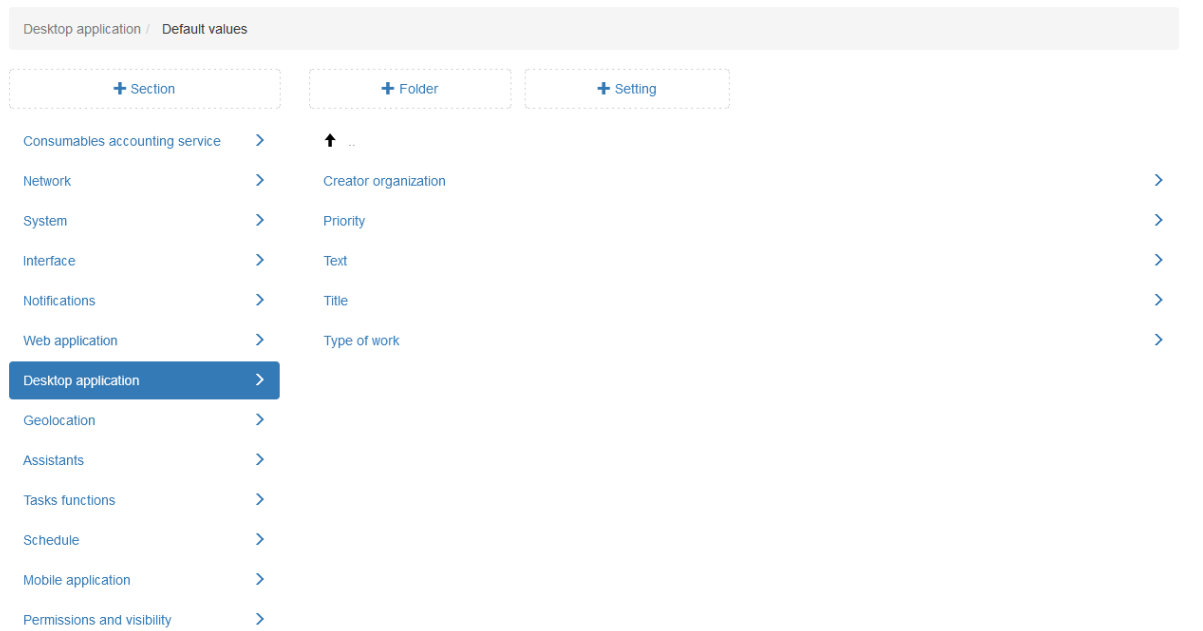


Fig. 2.200: Default values

Layers of web application

This setting allows you to specify the comma-separated IDs of the layers that are displayed by default on the task map window (Fig. 2.201).

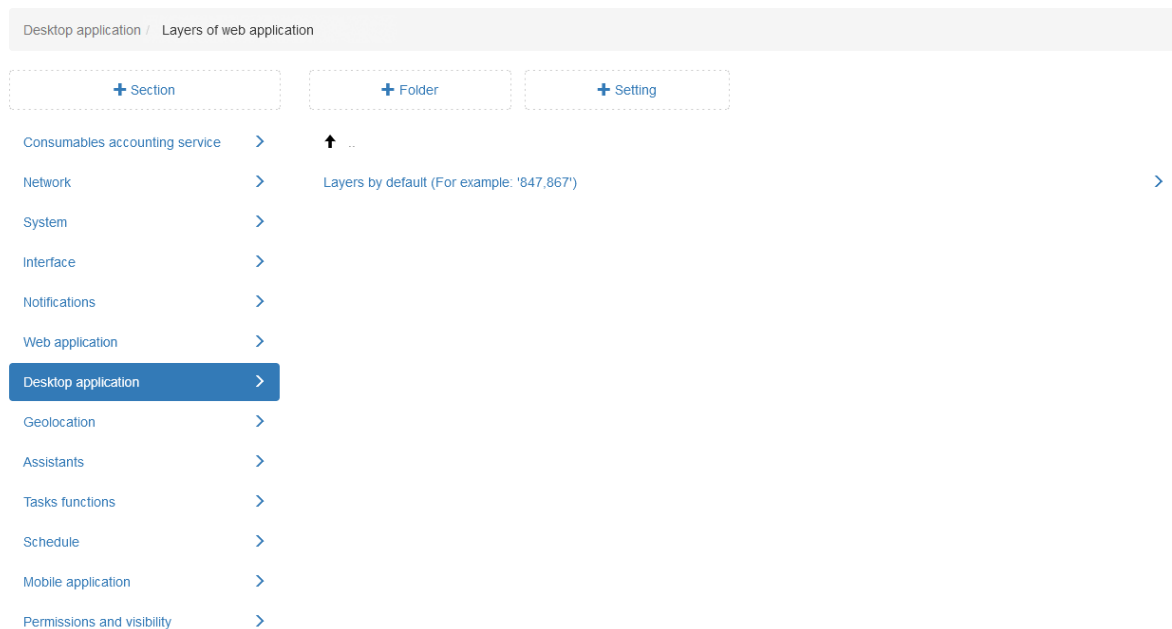


Fig. 2.201: Default values

Plugins

In this folder, you can connect additional plugins for working in the ActiveMap Desktop desktop application.

To connect a new plugin, you should follow these steps:

1. Check if there is a “Plugins” folder within the “Desktop” section.
If it doesn’t exist, you need to create it with these parameters:
 - “key” field: “plugins”
 - “name” field: “Plugins”
2. Add a new setting named “Plugin name” and set its value to the name of the plugin you want to add (Fig. 2.202).

Setting parameters:

- “key” field: “name”
- “name” field: “Plugin name”
- “type” field: “String”

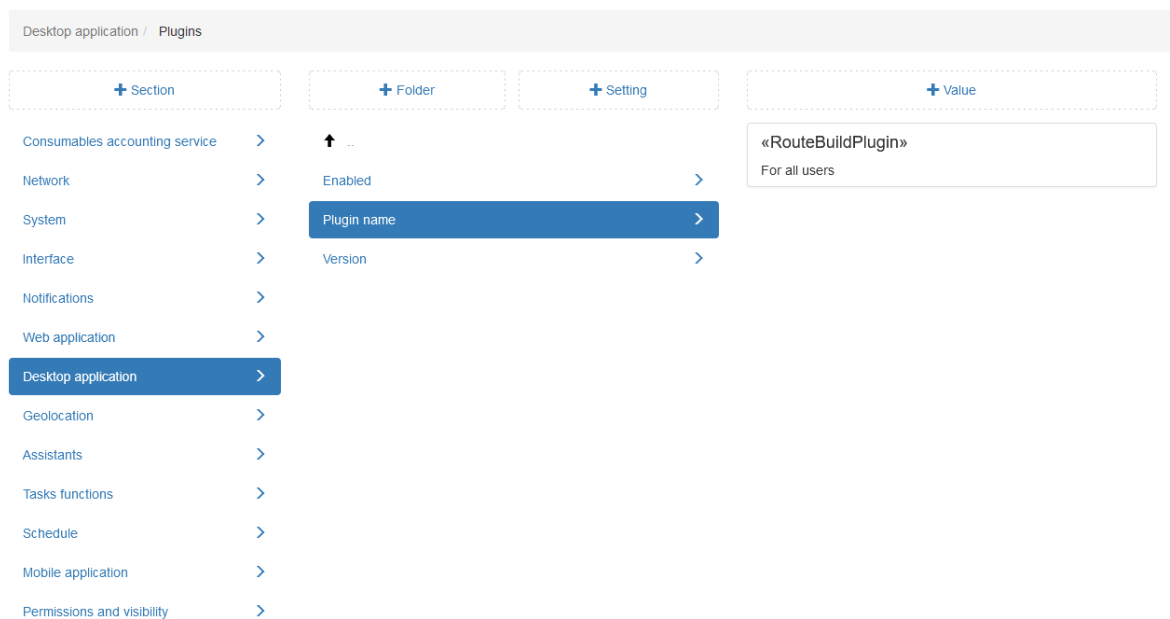


Fig. 2.202: Plugin name setting

3. Create an “Enabled” setting to control whether the plugin should be downloaded and activated. Assign a value to this setting, which can be either “True” to enable the plugin or “False” to disable it. By default, it is set to “False” if no value is provided.

Setting parameters:

- “key” field: “enabledPlugin”
- “name” field: “Enabled”

- “type” field: “Logical value”

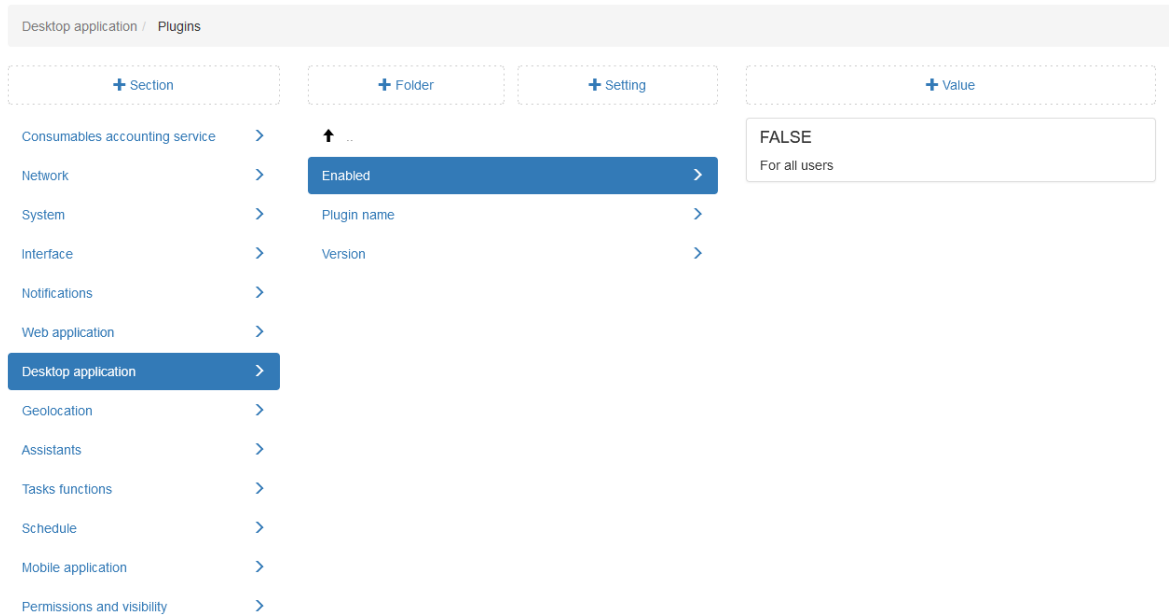


Fig. 2.203: Setting for enabling the plugin

4. Add a “Version” setting to specify the version number of the plugin and enter its value (Fig. 2.204). If you leave it blank, the latest version of the plugin will be used.

Setting parameters:

- “key” field: “version”
- “title” field: “Version”
- “type” field: “String”

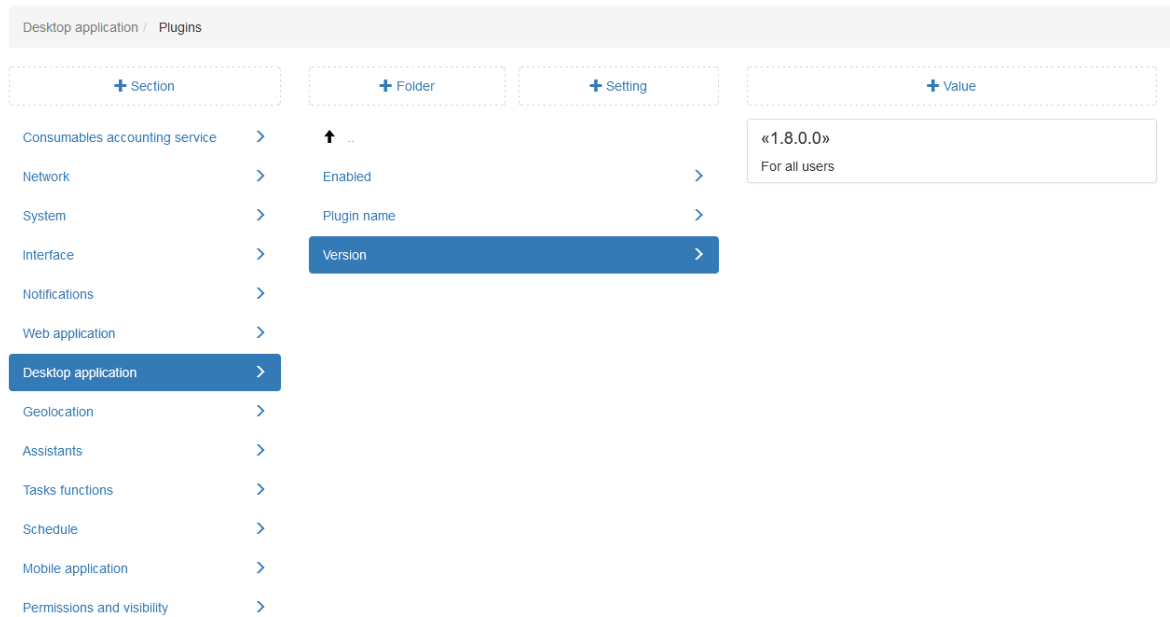


Fig. 2.204: Plugin version setting

Print the tasks

The setting allows you to optionally hide the map when printing tasks in the ActiveMap Desktop (Fig. 2.205).

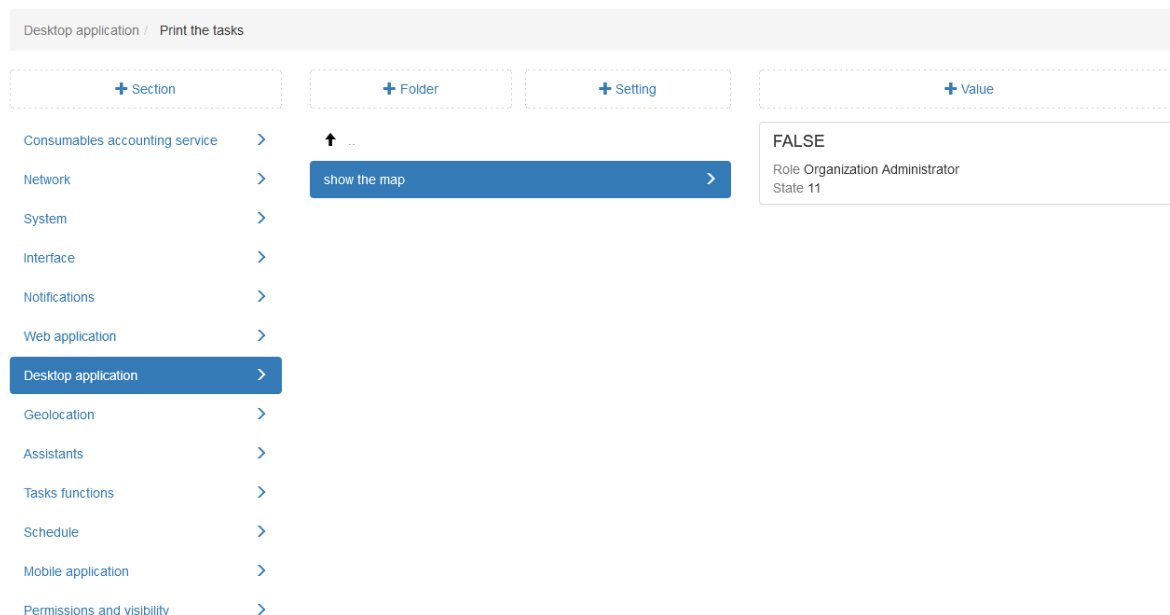


Fig. 2.205: Printing a task

Apply filters automatically

In this setting, you can enable automatic application of the filter to tasks in the ActiveMap Desktop. This setting is enabled by default (Fig. 2.206). If a value is created with the toggle switch turned off, the user should click “Apply” to apply the filter.

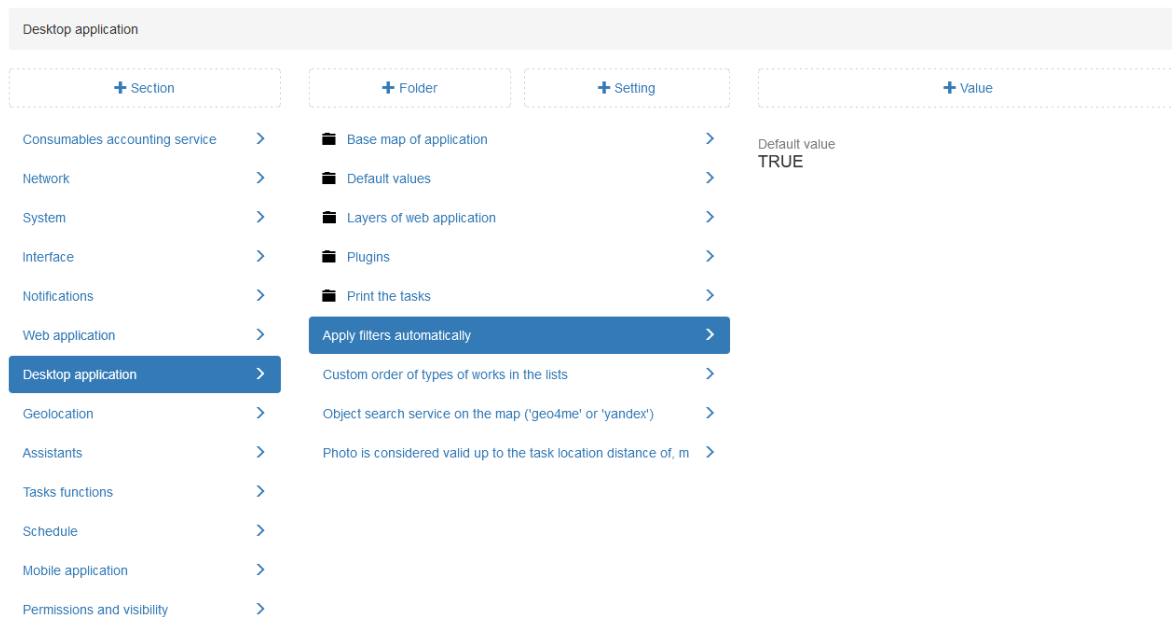


Fig. 2.206: Automatic filter application

Photo is considered valid up to the task location distance of, m

The setting allows users to specify the radius of the task point. The default radius is 150 meters (Fig. 2.207).

Desktop application			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Base map of application >		Default value 150
Network >	Default values >		
System >	Layers of web application >		
Interface >	Plugins >		
Notifications >	Print the tasks >		
Web application >	Apply filters automatically >		
Desktop application >	Custom order of types of works in the lists >		
Geolocation >	Object search service on the map ('geo4me' or 'yandex') >		
Assistants >	Photo is considered valid up to the task location distance of, m >		
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.207: Radius of the task point for taking photos

2.3.3.7.7 “Web application” section

This section allows configuring additional options for working in the ActiveMap Web (Fig. 2.208). You can set a new value for each option by selecting it and then clicking “+ Value”. Enable/disable the toggle switch or enter a new value in the opened window and fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

Web application			
+ Section	+ Folder	+ Setting	
Consumables accounting service >	Geosearch		>
Network >	Layers		>
System >	Link shortener		>
Interface >	Modules		>
Notifications >	Required fields in WEB forms		>
Web application >	Translations		>
Desktop application >	Demo user, to display data without authorization		>
Geolocation >	Maximum file size for downloads (in megabytes)		>
Assistants >	Turn on mobile mode for portal		>
Tasks functions >	Whether to show the Help button		>
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.208: “Web application” section

Geosearch

The “GeoSearch” folder contains services for geocoding.

Buffer for reverse geocoding by layers (in meters)

To search by coordinates in layers, form a small area where the search is performed. Here you can set the buffer in which the search works. The default setting is 50 meters (Fig. 2.209).

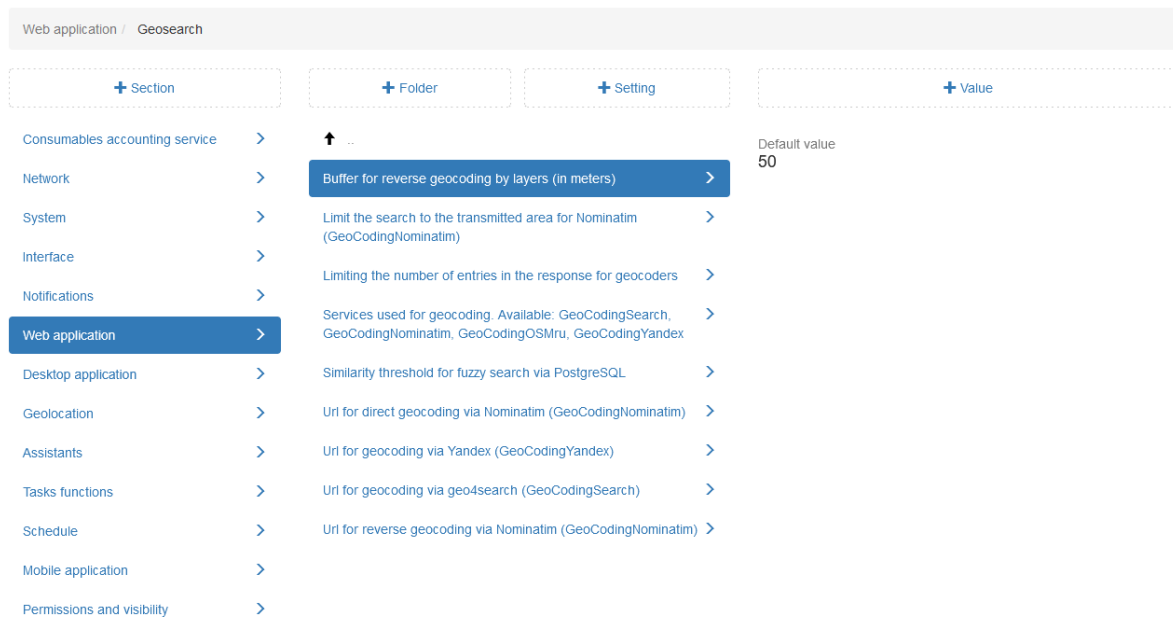


Fig. 2.209: Buffer for reverse geocoding

Limit the search to the transmitted area for Nominatim (GeoCodingNominatim)

This setting defines the limits for searching through Nominatim. If the setting is enabled, the search is carried out only in the area that is transmitted in the request. In particular, when searching in the ActiveMap Web in map mode, this is the area of the map that is currently displayed in the browser. By default, this feature is disabled (Fig. 2.210).

Web application / Geosearch			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value FALSE
Network >	Buffer for reverse geocoding by layers (in meters) >		
System >	Limit the search to the transmitted area for Nominatim (GeoCodingNominatim) >		
Interface >	Limiting the number of entries in the response for geocoders >		
Notifications >	Services used for geocoding. Available: GeoCodingSearch, GeoCodingNominatim, GeoCodingOSMr, GeoCodingYandex >		
Web application >	Similarity threshold for fuzzy search via PostgreSQL >		
Desktop application >	Url for direct geocoding via Nominatim (GeoCodingNominatim) >		
Geolocation >	Url for geocoding via Yandex (GeoCodingYandex) >		
Assistants >	Url for geocoding via geo4search (GeoCodingSearch) >		
Tasks functions >	Url for reverse geocoding via Nominatim (GeoCodingNominatim) >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.210: Limit the search to the transmitted area for Nominatim (GeoCodingNominatim)

Limiting the number of entries in the response for geocoders

A setting that limits the number of records found in the “Search results” window in “Map” mode. The larger value is set in this setting, the longer it takes to process the request. The default setting is 20 records (Fig. 2.211).

Web application / Geosearch			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value 20
Network >	Buffer for reverse geocoding by layers (in meters) >		
System >	Limit the search to the transmitted area for Nominatim (GeoCodingNominatim) >		
Interface >	Limiting the number of entries in the response for geocoders >		
Notifications >	Services used for geocoding. Available: GeoCodingSearch, GeoCodingNominatim, GeoCodingOSMr, GeoCodingYandex >		
Web application >	Similarity threshold for fuzzy search via PostgreSQL >		
Desktop application >	Url for direct geocoding via Nominatim (GeoCodingNominatim) >		
Geolocation >	Url for geocoding via Yandex (GeoCodingYandex) >		
Assistants >	Url for geocoding via geo4search (GeoCodingSearch) >		
Tasks functions >	Url for reverse geocoding via Nominatim (GeoCodingNominatim) >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.211: Limiting the number of entries in the response for geocoders

Services used for geocoding

The following services are available by default:

- GeoCodingSearch – search.geo.pro;
- GeoCodingNominatim – a service that works through nominatim;
- GeoCodingOSMrU – <https://openstreetmap.ru/api/search>;
- GeoCodingYandex – yandex service (works only with an API key).

The administrator can connect several geocoders for geosearch by sequentially adding several values. When multiple services are used, the search starts with the first one in the list. If nothing is found, the second one is used, and so on (Fig. 2.212).

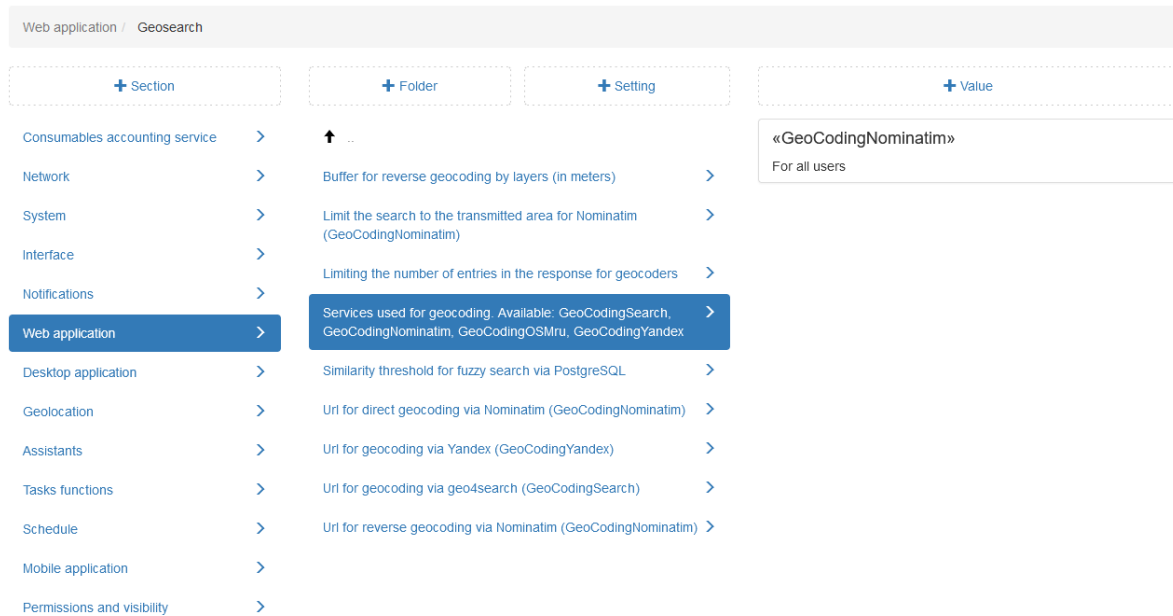


Fig. 2.212: Services used for geocoding

Layers

This folder contains additional settings for working with thematic layers (Fig. 2.213).

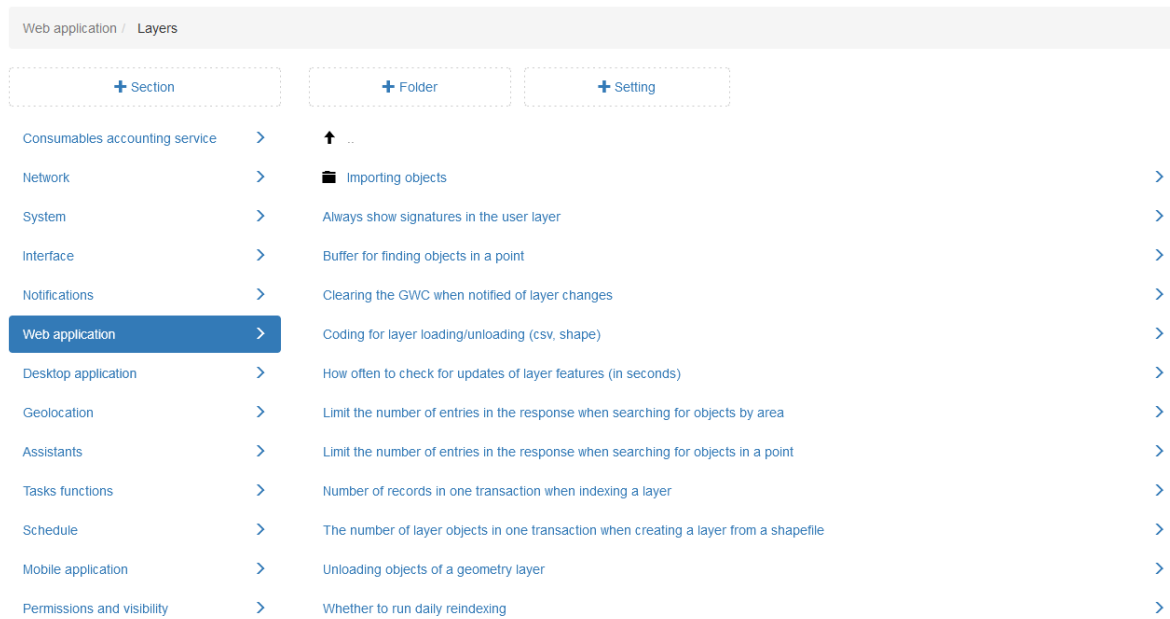


Fig. 2.213: Layers

Importing objects

In this folder, you can configure the settings for importing service objects from a text file in the ActiveMap Mobile mobile application.

Maximum number of rows to import

This setting specifies a limit on the number of rows that can be loaded at one time. The default setting is 10000 rows (Fig. 2.214).

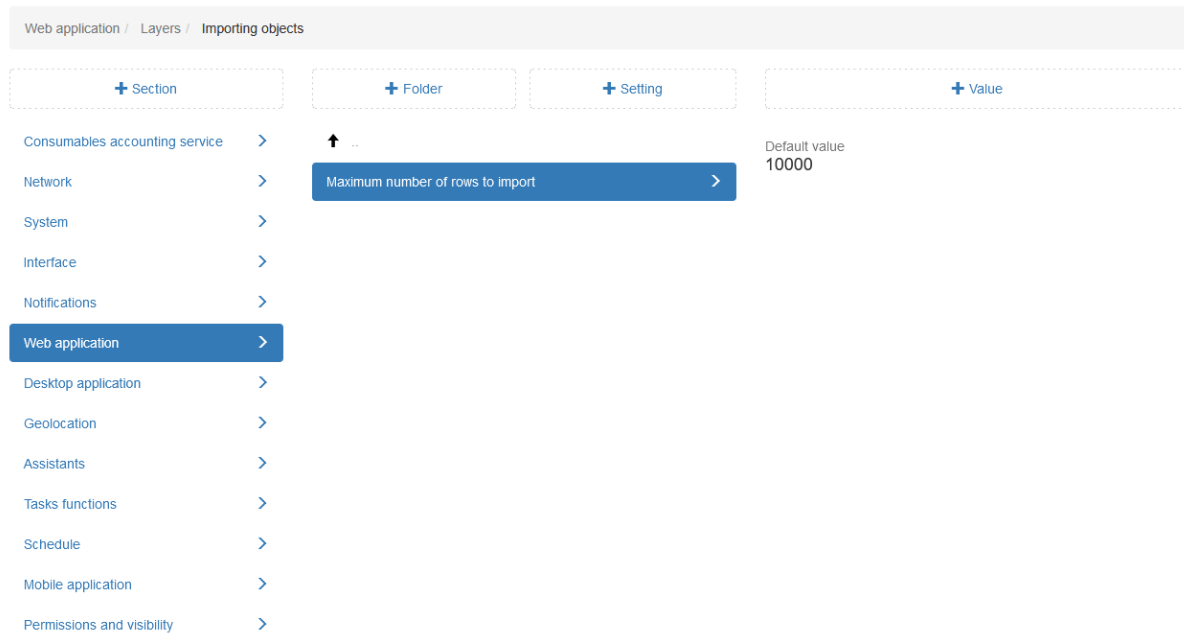


Fig. 2.214: Maximum number of rows to import

Always show signatures in the user layer

In this setting, you can enable automatic display of the user's signature when the "Users" layer is connected in the ActiveMap Web web application. The signature is formed on the basis of the "Name" field in the user card. By default, the setting is disabled (Fig. 2.215).

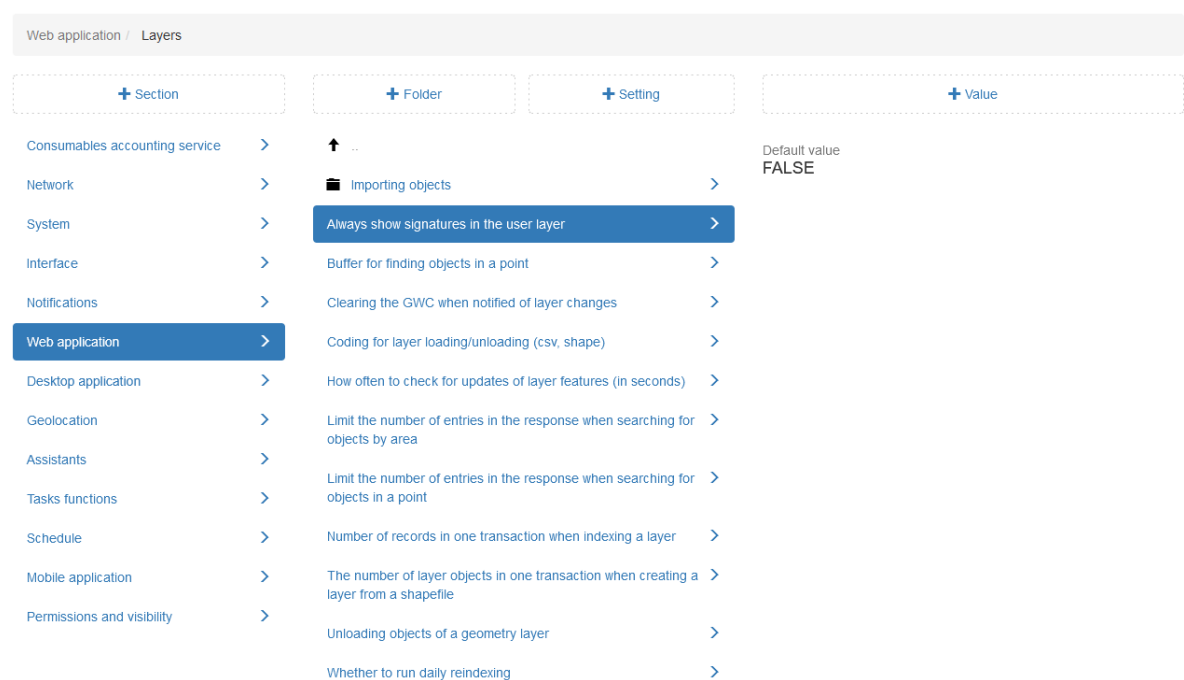


Fig. 2.215: Enabling user signatures

Buffer for finding objects in a point

The setting allows users to set the size of the buffer for getting additional information on objects in the “Map” mode. The default is 200 meters (Fig. 2.216).

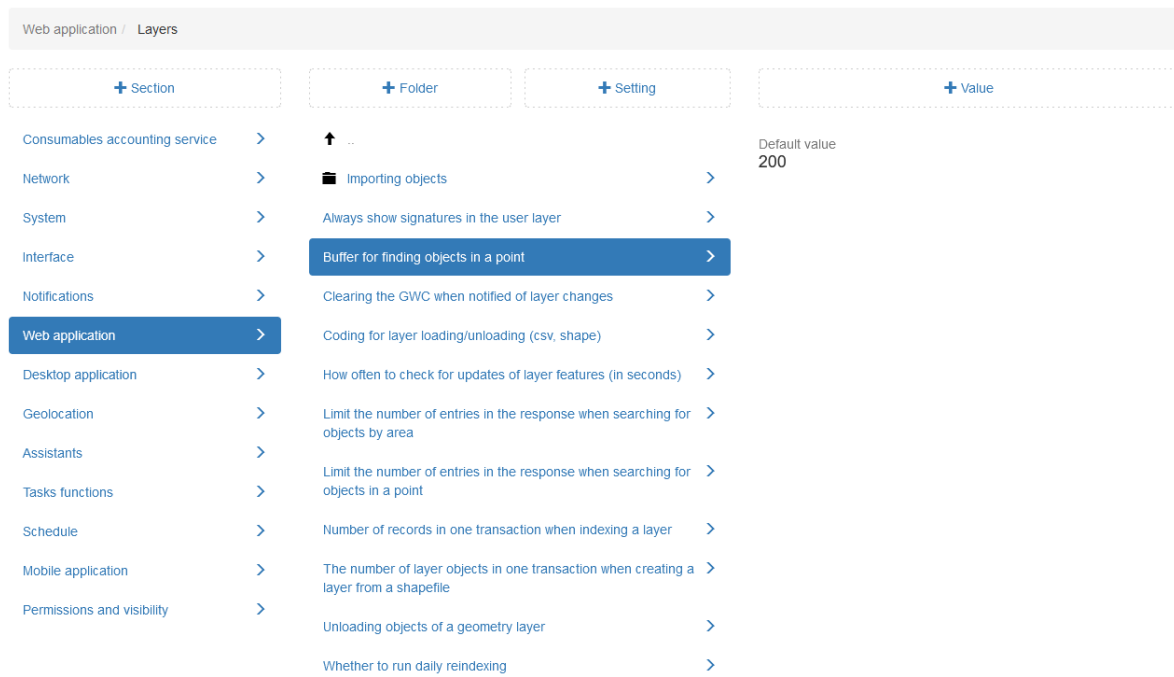


Fig. 2.216: Buffer for finding objects in a point

Clearing the GWC when notified of layer changes

This setting allows the administrator to disable GeoWebCache deletion when notified of layer changes. By default, the setting is disabled (Fig. 2.217).

Web application / Layers			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	📁 Importing objects	>	
System >	Always show signatures in the user layer	>	
Interface >	Buffer for finding objects in a point	>	
Notifications >	Clearing the GWC when notified of layer changes	>	
Web application >	Coding for layer loading/unloading (csv, shape)	>	
Desktop application >	How often to check for updates of layer features (in seconds)	>	
Geolocation >	Limit the number of entries in the response when searching for objects by area	>	
Assistants >	Limit the number of entries in the response when searching for objects in a point	>	
Tasks functions >	Number of records in one transaction when indexing a layer	>	
Schedule >	The number of layer objects in one transaction when creating a layer from a shapefile	>	
Mobile application >	Unloading objects of a geometry layer	>	
Permissions and visibility >	Whether to run daily reindexing	>	

Fig. 2.217: Clearing the GWC when notified of layer changes

Coding for layer loading/unloading (csv, shape)

The setting specifies the encoding used to export and import data in .csv and .shape formats. The default encoding is Windows-1251 (Fig. 2.218).

Web application / Layers			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value «cp1251»
Network >	📁 Importing objects	>	
System >	Always show signatures in the user layer	>	
Interface >	Buffer for finding objects in a point	>	
Notifications >	Clearing the GWC when notified of layer changes	>	
Web application >	Coding for layer loading/unloading (csv, shape)	>	«utf8» For all users
Desktop application >	How often to check for updates of layer features (in seconds)	>	
Geolocation >	Limit the number of entries in the response when searching for objects by area	>	
Assistants >	Limit the number of entries in the response when searching for objects in a point	>	
Tasks functions >	Number of records in one transaction when indexing a layer	>	
Schedule >	The number of layer objects in one transaction when creating a layer from a shapefile	>	
Mobile application >	Unloading objects of a geometry layer	>	
Permissions and visibility >	Whether to run daily reindexing	>	

Fig. 2.218: Encoding for layer loading

How often to check for updates of layer features (in seconds)

Events about changes to thematic layer objects are collected for the interval specified in this setting (e.g. creation of a new object through the ActiveMap Mobile mobile application). If such changes have accumulated, an event is sent via WebSocket that it is necessary to redraw the corresponding layers in the ActiveMap Web. After that, the new object appears automatically, i.e. there is no need to update the data or reconnect the layer. If there are no changes, no event is sent. The default setting is 15 seconds (Fig. 2.219).

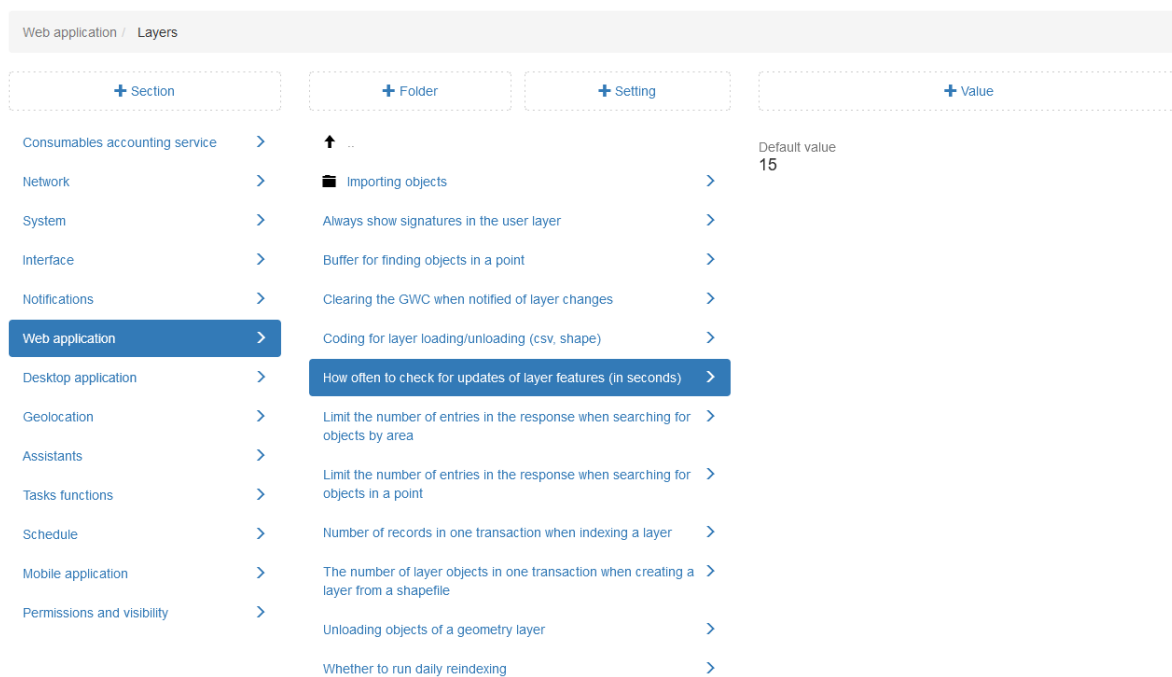


Fig. 2.219: Frequency of checking for layer object updates

Limit the number of entries in the response when searching for objects by area

This setting limits the number of records in the “Search results” window when searching for objects using the “Area object list” tool in the “Map” mode. The larger the value specified in this setting, the longer the request is processed. The default setting is 30 records (Fig. 2.220).

Web application / Layers			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value 30
Network >	📁 Importing objects	>	
System >	Always show signatures in the user layer	>	
Interface >	Buffer for finding objects in a point	>	
Notifications >	Clearing the GWC when notified of layer changes	>	
Web application >	Coding for layer loading/unloading (csv, shape)	>	
Desktop application >	How often to check for updates of layer features (in seconds)	>	
Geolocation >	Limit the number of entries in the response when searching for objects by area	>	
Assistants >	Limit the number of entries in the response when searching for objects in a point	>	
Tasks functions >	Number of records in one transaction when indexing a layer	>	
Schedule >	The number of layer objects in one transaction when creating a layer from a shapetile	>	
Mobile application >	Unloading objects of a geometry layer	>	
Permissions and visibility >	Whether to run daily reindexing	>	

Fig. 2.220: Limit the number of entries in the response when searching for objects by area

Limit the number of entries in the response when searching for objects in a point

This setting limits the number of entries in the “Search results” window when searching for objects in the “Map” mode. The larger the value set in this setting, the longer the request is processed. The default is 30 entries (Fig. 2.221).

Web application / Layers			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value 30
Network >	📁 Importing objects	>	
System >	Always show signatures in the user layer	>	
Interface >	Buffer for finding objects in a point	>	
Notifications >	Clearing the GWC when notified of layer changes	>	
Web application >	Coding for layer loading/unloading (csv, shape)	>	
Desktop application >	How often to check for updates of layer features (in seconds)	>	
Geolocation >	Limit the number of entries in the response when searching for objects by area	>	
Assistants >	Limit the number of entries in the response when searching for objects in a point	>	
Tasks functions >	Number of records in one transaction when indexing a layer	>	
Schedule >	The number of layer objects in one transaction when creating a layer from a shapetile	>	
Mobile application >	Unloading objects of a geometry layer	>	
Permissions and visibility >	Whether to run daily reindexing	>	

Fig. 2.221: Limit the number of entries in the response when searching for objects in a point

Number of records in one transaction when indexing a layer

This setting specifies the number of objects requested at the same time to index the layer. The default is 1000 objects (Fig. 2.222).

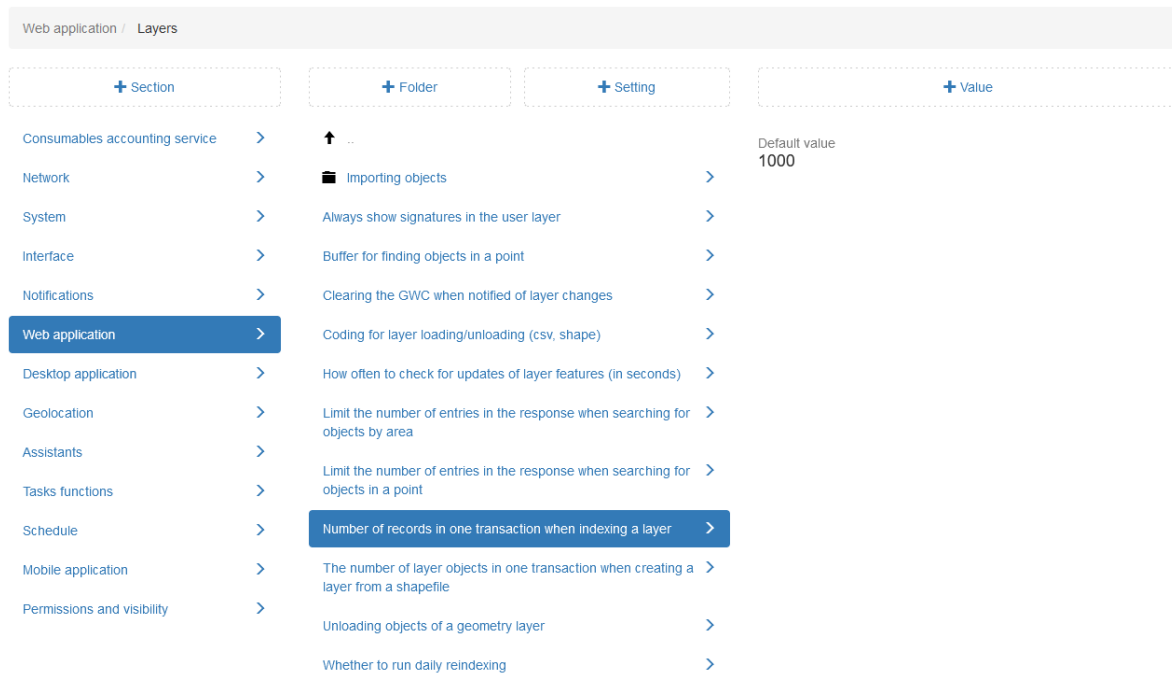


Fig. 2.222: Number of records in one transaction when indexing a layer

The number of layer objects in one transaction when creating a layer from a shapefile

This parameter specifies the number of layer objects in a transaction for loading into the database when importing a layer from a shapefile. The default is 1000 objects (Fig. 2.223).

Web application / Layers			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value 1000
Network >	■ Importing objects	>	
System >	Always show signatures in the user layer	>	
Interface >	Buffer for finding objects in a point	>	
Notifications >	Clearing the GWC when notified of layer changes	>	
Web application >	Coding for layer loading/unloading (csv, shape)	>	
Desktop application >	How often to check for updates of layer features (in seconds)	>	
Geolocation >	Limit the number of entries in the response when searching for objects by area	>	
Assistants >	Limit the number of entries in the response when searching for objects in a point	>	
Tasks functions >	Number of records in one transaction when indexing a layer	>	
Schedule >	The number of layer objects in one transaction when creating a layer from a shapefile	>	
Mobile application >	Unloading objects of a geometry layer	>	
Permissions and visibility >	Whether to run daily reindexing	>	

Fig. 2.223: The number of layer objects in one transaction when creating a layer from a shapefile

Unloading objects of a geometry layer

This setting allows including information about the object geometry in the layer export in the ActiveMap Web. By default, this setting is disabled (Fig. 2.224).

Web application / Layers			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	■ Importing objects	>	
System >	Always show signatures in the user layer	>	
Interface >	Buffer for finding objects in a point	>	
Notifications >	Clearing the GWC when notified of layer changes	>	
Web application >	Coding for layer loading/unloading (csv, shape)	>	
Desktop application >	How often to check for updates of layer features (in seconds)	>	
Geolocation >	Limit the number of entries in the response when searching for objects by area	>	
Assistants >	Limit the number of entries in the response when searching for objects in a point	>	
Tasks functions >	Number of records in one transaction when indexing a layer	>	
Schedule >	The number of layer objects in one transaction when creating a layer from a shapefile	>	
Mobile application >	Unloading objects of a geometry layer	>	
Permissions and visibility >	Whether to run daily reindexing	>	

Fig. 2.224: Exporting a layer with object geometry setting

Whether to run daily reindexing

If the layer is edited via REST (in ActiveMap Desktop, ActiveMap Web, ActiveMap Mobile), the changes automatically appear in the index. By default, daily layer reindexing is disabled (Fig. 2.225).

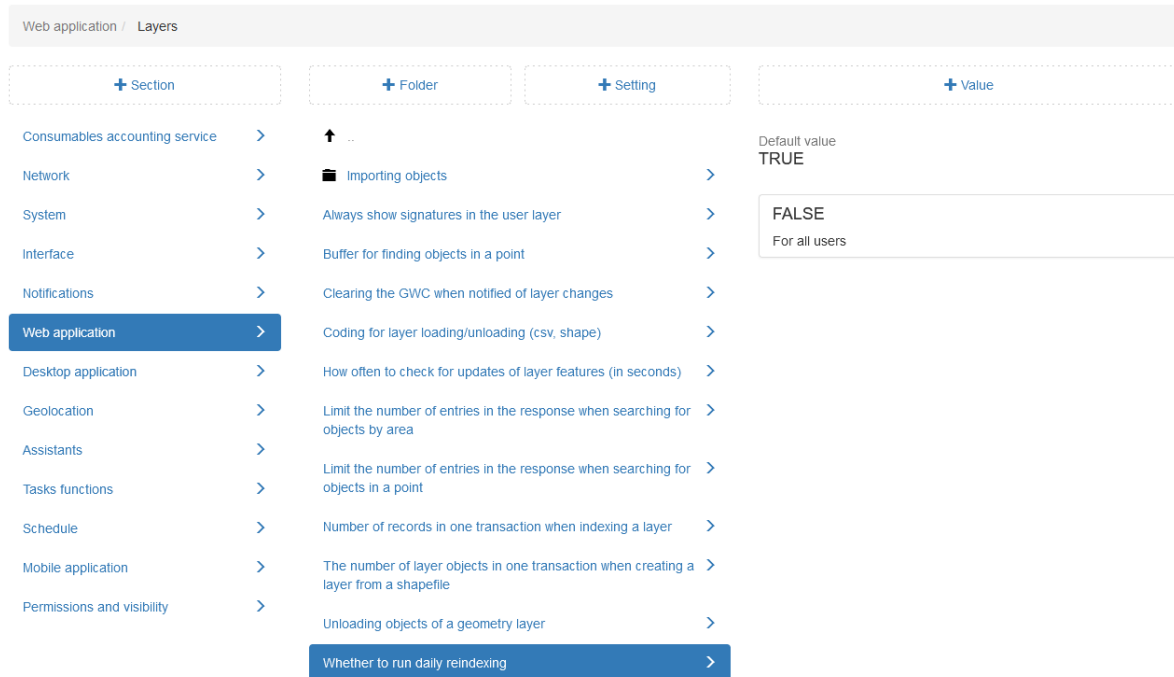


Fig. 2.225: Daily layer reindexing setting

Link shortener

A service that allows you to shorten long links in the “Fixed link” tool when setting map parameters and connecting thematic layers in the ActiveMap Web in the “Map” mode (Fig. 2.226).

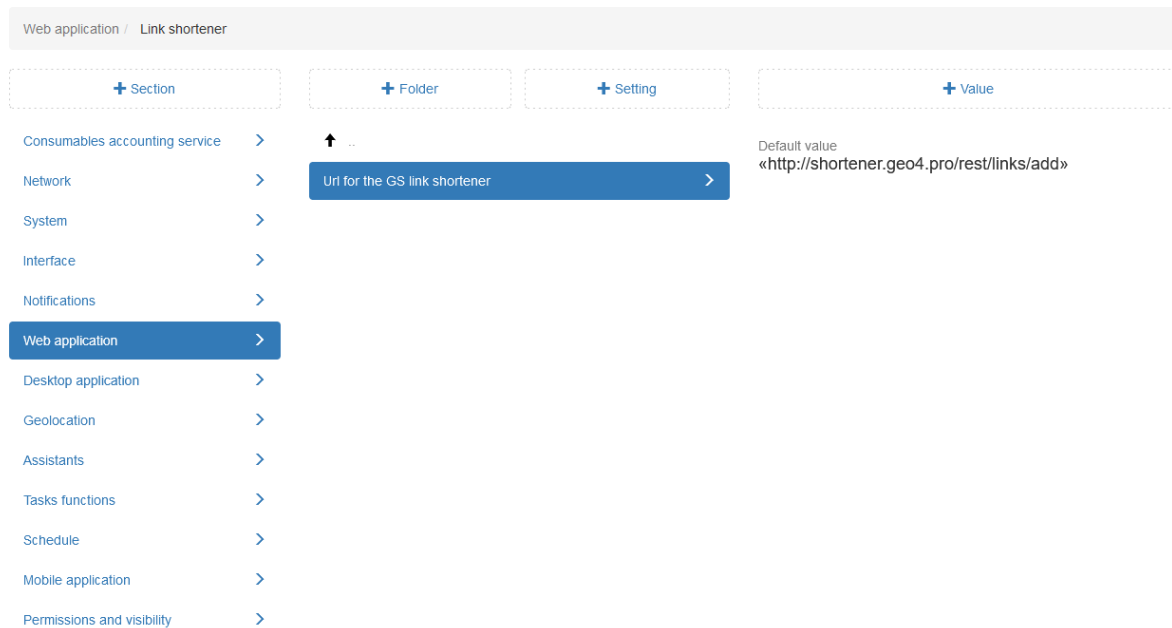


Fig. 2.226: Link shortener

Modules

Statistics module is a report that is generated (updated) after a specified period of time based on the collected data in online mode. This report is available to users in the “Map” mode (Fig. 2.227).

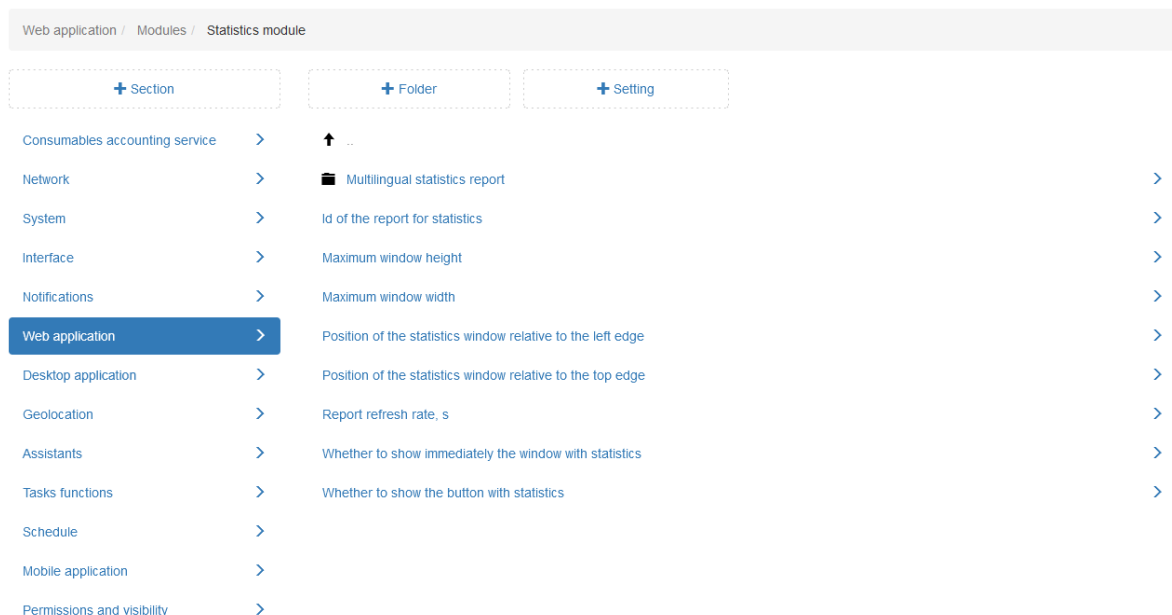


Fig. 2.227: Statistics module

Multilingual statistics report

The statistics module supports report generation for different interface languages. In this folder, you can set the required report for the specified language. To add a new language, click the “+ Setting” button and create a new folder. Specify the two-letter language code in the “Key” field and enter the language name in the “Name” field (Fig. 2.228). Next, add a value containing the ID of the required report for this language.

Web application / Modules / Statistics module / Multilingual statistics report

+ Section

Consumables accounting service >

Network >

System >

Interface >

Notifications >

Web application >

Desktop application >

Geolocation >

Assistants >

Tasks functions >

Schedule >

Mobile application >

Permissions and visibility >

Create setting

de

Deutsch

Integer

Save Cancel

↑ ..

English >

Fig. 2.228: Adding a language

If the language is not set, then the report specified in the “**Id report for statistics**” setting is used by default.

Id of the report for statistics

In this setting, you can specify the id of the report, which is used to display the statistics. You can specify different reports for different roles or organizations (Fig. 2.229).

Web application / Modules / Statistics module

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		337 Role System Administrator
Network >	📁 Multilingual statistics report >		
System >	Id of the report for statistics >		337 Role System Inspector
Interface >	Maximum window height >		
Notifications >	Maximum window width >		
Web application >	Position of the statistics window relative to the left edge >		
Desktop application >	Position of the statistics window relative to the top edge >		
Geolocation >	Report refresh rate, s >		
Assistants >	Whether to show immediately the window with statistics >		
Tasks functions >	Whether to show the button with statistics >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.229: Specifying the report for the Statistics module

Maximum window height and Maximum window width

By default, the statistics window is optimized for the report content (Fig. 2.230). If necessary, you can change the window size by specifying new values.

Web application / Modules / Statistics module

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value 550
Network >	📁 Multilingual statistics report >		
System >	Id of the report for statistics >		
Interface >	Maximum window height >		
Notifications >	Maximum window width >		
Web application >	Position of the statistics window relative to the left edge >		
Desktop application >	Position of the statistics window relative to the top edge >		
Geolocation >	Report refresh rate, s >		
Assistants >	Whether to show immediately the window with statistics >		
Tasks functions >	Whether to show the button with statistics >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.230: Maximum window height

Position of the statistics window relative to the left edge and Position of the statistics window relative to the top edge

The default location of the statistics popup in the browser is relative to the top and left edges (Fig. 2.231). The administrator can change the window size by specifying new values.

Web application / Modules / Statistics module			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value 90
Network >	📁 Multilingual statistics report >		
System >	Id of the report for statistics >		
Interface >	Maximum window height >		
Notifications >	Maximum window width >		
Web application >	Position of the statistics window relative to the left edge >		
Desktop application >	Position of the statistics window relative to the top edge >		
Geolocation >	Report refresh rate, s >		
Assistants >	Whether to show immediately the window with statistics >		
Tasks functions >	Whether to show the button with statistics >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.231: Statistics window location relative to the top

Report refresh rate

This setting allows you to set the frequency of updating data in online statistics. The default is 180 seconds (Fig. 2.232).

Web application / Modules / Statistics module			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value 180
Network >	📁 Multilingual statistics report >		
System >	Id of the report for statistics >		
Interface >	Maximum window height >		
Notifications >	Maximum window width >		
Web application >	Position of the statistics window relative to the left edge >		
Desktop application >	Position of the statistics window relative to the top edge >		
Geolocation >	Report refresh rate, s >		
Assistants >	Whether to show immediately the window with statistics >		
Tasks functions >	Whether to show the button with statistics >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.232: Report update frequency (in seconds)

Whether to show immediately the window with statistics

When this setting is enabled, a pop-up window with online statistics is automatically displayed in the “Map” mode after authorization in the ActiveMap Web. This feature is disabled by default (Fig. 2.233).

Web application / Modules / Statistics module			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	📁 Multilingual statistics report >		
System >	Id of the report for statistics >		
Interface >	Maximum window height >		
Notifications >	Maximum window width >		
Web application >	Position of the statistics window relative to the left edge >		
Desktop application >	Position of the statistics window relative to the top edge >		
Geolocation >	Report refresh rate, s >		
Assistants >	Whether to show immediately the window with statistics >		
Tasks functions >	Whether to show the button with statistics >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.233: Show statistics window immediately

Whether to show the button with statistics

This setting allows you to display a button for connecting online statistics in the ActiveMap Web toolbar in the “Map” mode. By default, this feature is disabled (Fig. 2.234).

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	📁 Multilingual statistics report	>	
System >	Id of the report for statistics	>	TRUE Role System Administrator
Interface >	Maximum window height	>	
Notifications >	Maximum window width	>	TRUE Role System Inspector
Web application >	Position of the statistics window relative to the left edge	>	
Desktop application >	Position of the statistics window relative to the top edge	>	
Geolocation >	Report refresh rate, s	>	
Assistants >	Whether to show immediately the window with statistics	>	
Tasks functions >	Whether to show the button with statistics	>	
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.234: Show statistics button

Required fields in WEB forms

In this folder, administrators can define mandatory fields in user and organization creation forms. This setting works in the web application only. The folder contains subfolders “Form of organization” and “Form of user” (Fig. 2.235).

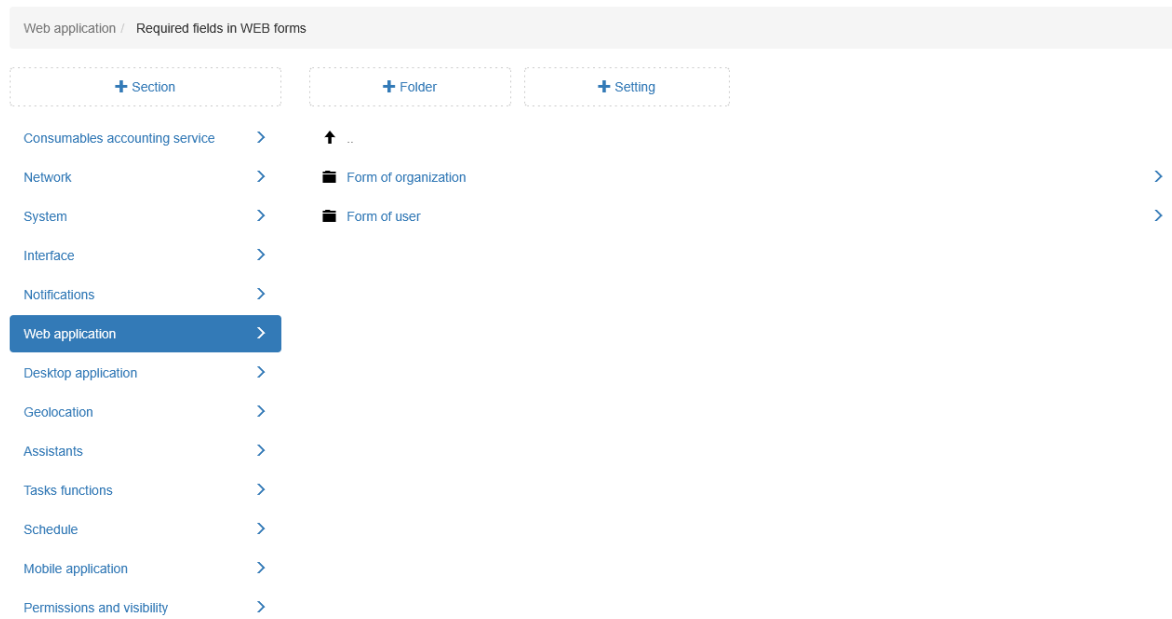


Fig. 2.235: Required fields in WEB-forms

Form of organization

The folder contains the list of fields of organization card (Fig. 2.236). By default, all fields are marked as optional. You can make any of these fields mandatory when creating an organization. To do this, select the field and set its value to “TRUE”. After that, the system marks the selected field with a red star in the organization creation form, indicating that it is mandatory.

Web application / Required fields in WEB forms / Form of organization

+ Section	+ Folder	+ Setting
Consumables accounting service >	↑ ..	
Network >	About	>
System >	Address	>
Interface >	BIC	>
Notifications >	Bank	>
Web application >	Bank account	>
Desktop application >	Cluster of organization	>
Geolocation >	Default implementing organization	>
Assistants >	E-mail	>
Tasks functions >	Fax	>
Schedule >	Integration with GIS editor by default	>
Mobile application >	Legal name	>
Permissions and visibility >	Maximum number of users	>
	Name of the accountant	>
	Name of the head	>
	Phone	>
	SWIFT	>
	Tax Nr.	>
	VAT-ID	>
	Correspondent account	>

Fig. 2.236: Configuring required Fields for organization creation

Form of user

The folder contains the list of fields of user card (Fig. 2.237). By default, all fields are marked as optional. You can make any of these fields mandatory when creating a user. To do this, select the field and set its value to “TRUE”. After that, the system marks the selected field with a red star in the user creation form, indicating that it is mandatory.

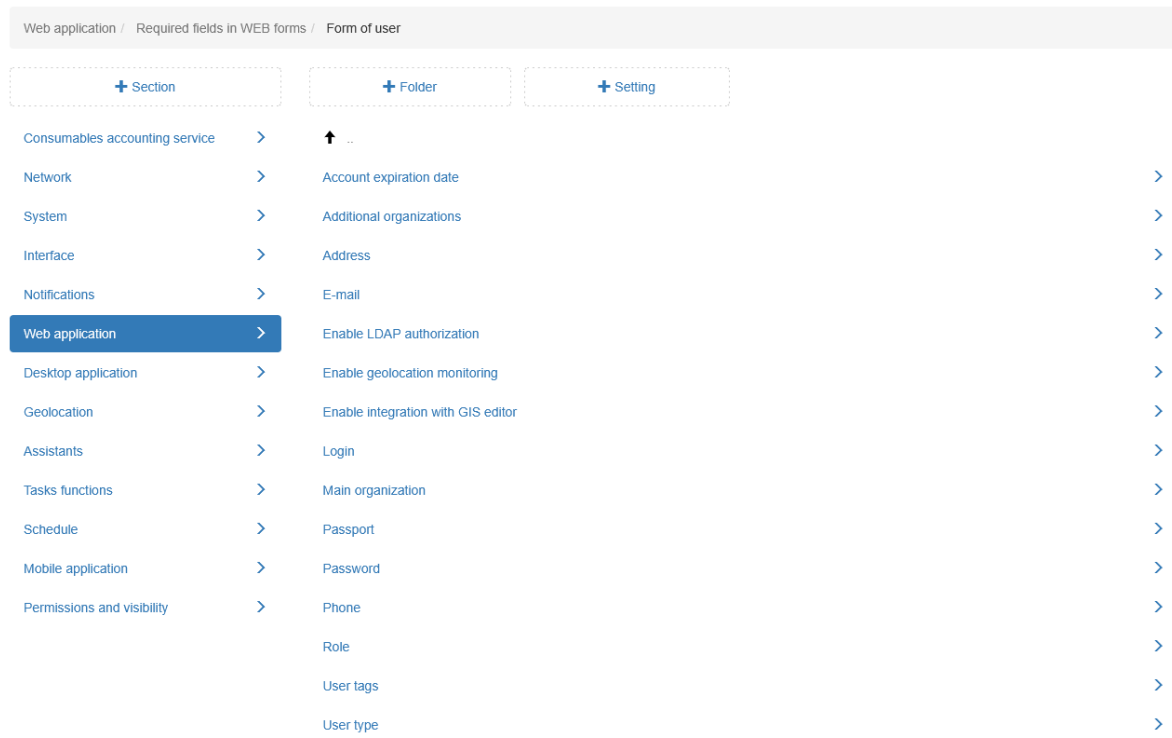


Fig. 2.237: Configuring required Fields for user creation

Translations

In this folder, you can override the standard translation of phrases in the ActiveMap Web in the desired language (Fig. 2.238).

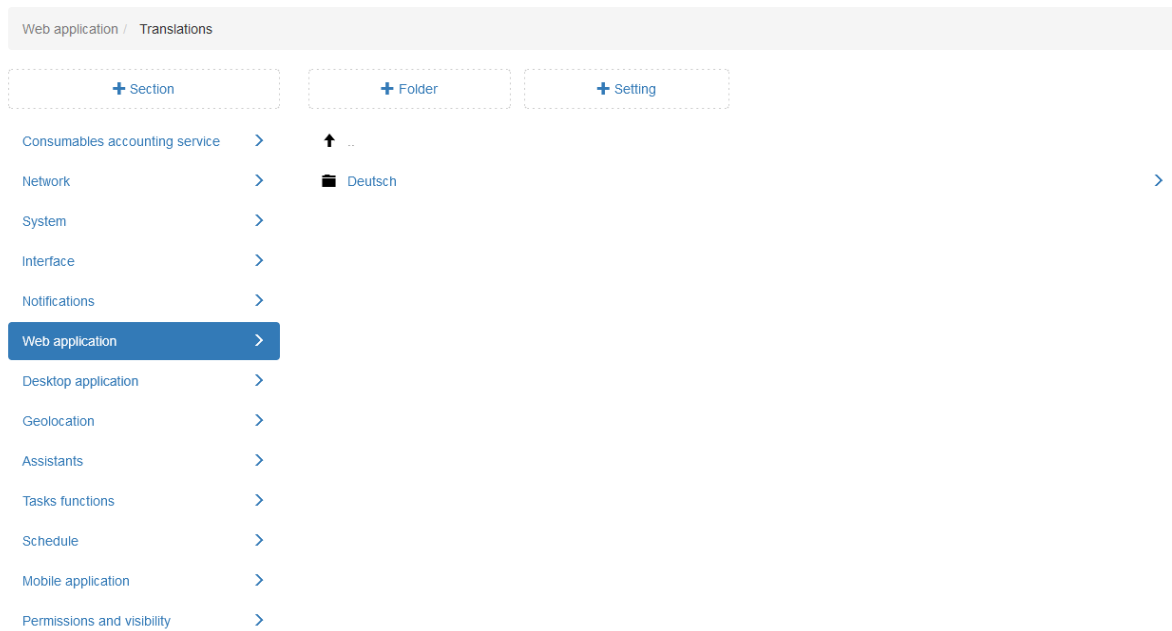


Fig. 2.238: Translations

You can also add another desired language. To do this, create a new folder by clicking “+ Folder”. Specify the two-letter language code in the “Key” field and enter the name of the language in the “Title” field (Fig. 2.239).

The 'Create folder' dialog box has a title bar 'Create folder'. It contains two text input fields. The first field contains the text 'de'. The second field contains the text 'Deutsch'. At the bottom of the dialog, there are two buttons: 'Save' with a floppy disk icon and 'Cancel' with an 'X' icon.

Fig. 2.239: Adding a new folder

Next, add the setting. Specify the key used by the system for this translation in the “Key” field. In the “Name” field, specify any name that indicates what the translation refers to. Select “String” in the “Type” field (Fig. 2.240).

Create setting

user.info.email

E-Mail-Feld im Benutzerformat|

String

Save Cancel

Fig. 2.240: Adding a new setting

After saving the setting, add a new value for using in this language for translation.

Demo user to display data without authorization

In this setting, you can set a public user. After that, layers to which the specified user has access are displayed on the portal without authorization (Fig. 2.241).

Web application

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Geosearch >		Default value
Network >	Layers >		FALSE
System >	Link shortener >		
Interface >	Modules >		
Notifications >	Translations >		
Web application >	Demo user, to display data without authorization >		
Desktop application >	Maximum file size for downloads (in megabytes) >		
Geolocation >	Turn on mobile mode for portal >		
Assistants >	Whether to show the Help button >		
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.241: Public user

Maximum file size for uploading (in megabytes)

A setting that allows specifying the maximum file size for import in the ActiveMap Web. The default is 2048 megabytes (Fig. 2.242). If the size of the uploaded file exceeds this value, an error message appears and the file is not uploaded.

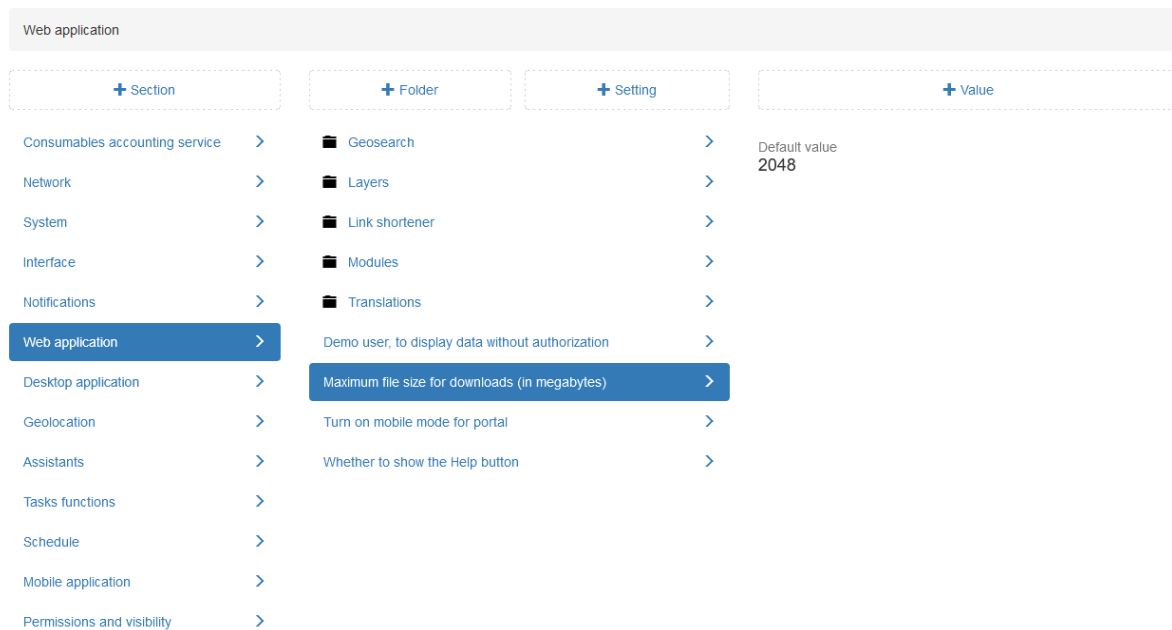


Fig. 2.242: Maximum file size for uploading

Turn on mobile mode for portal

The setting allows you to disable the display of ActiveMap Web in the mobile mode. This setting is enabled by default (Fig. 2.243).

Web application			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Geosearch >		Default value TRUE
Network >	Layers >		
System >	Link shortener >		FALSE For all users
Interface >	Modules >		
Notifications >	Translations >		
Web application >	Demo user, to display data without authorization >		
Desktop application >	Maximum file size for downloads (in megabytes) >		
Geolocation >	Turn on mobile mode for portal >		
Assistants >	Whether to show the Help button >		
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.243: Enable mobile mode for portal

Whether to show the “Help” button

This setting allows hiding the “Help” button in the administration panel. By default, the setting is enabled (Fig. 2.244).

Web application			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Geosearch >		Default value TRUE
Network >	Layers >		
System >	Link shortener >		
Interface >	Modules >		
Notifications >	Translations >		
Web application >	Demo user, to display data without authorization >		
Desktop application >	Maximum file size for downloads (in megabytes) >		
Geolocation >	Turn on mobile mode for portal >		
Assistants >	Whether to show the Help button >		
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.244: Disabling the “Help” button

2.3.3.7.8 “Geolocation” section

The section presents additional settings for geolocation monitoring in the ActiveMap Mobile (Fig. 2.245). These settings allow you to determine independently which mode is set on the server. You can set a new value by selecting the setting, then clicking “+ Value”. In the window that opens, enable/disable the toggle switch or enter the required name and then fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

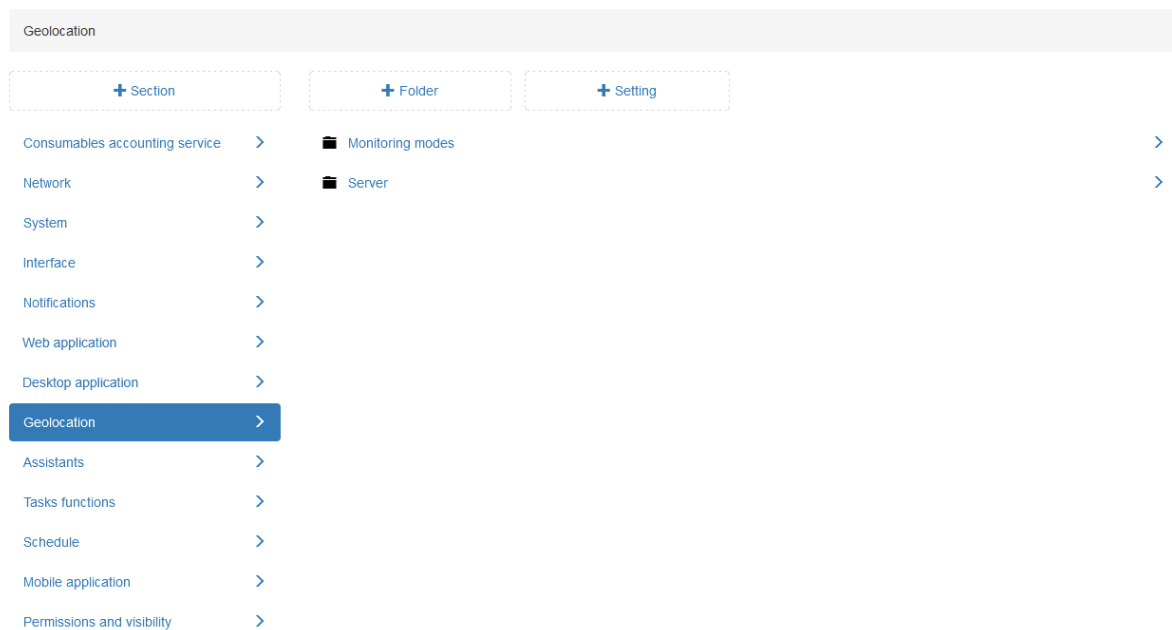


Fig. 2.245: “Geolocation” section

Monitoring modes

There are 5 monitoring modes for user devices in the mobile application, which differ in location accuracy. In the maximum accuracy mode, the frequency of transmitting location points to the server is increased. In the mode of minimum accuracy, the location of devices is transmitted less frequently. However, this mode saves the battery power of the user’s device.

The mode corresponds to the page number next to the operating system of the device, from 0 to 4 (Fig. 2.246):

- 0 – maximum location accuracy
- 4 – minimum location accuracy

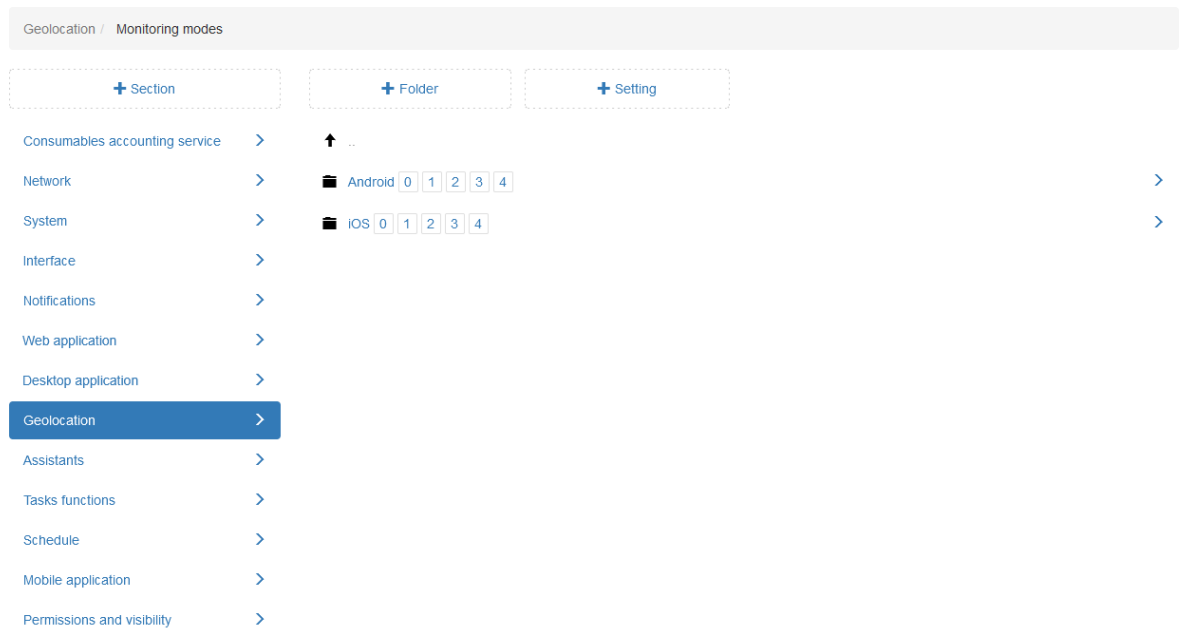


Fig. 2.246: Monitoring modes

Each mode has its own set of settings. To go to the settings of a particular mode, click the page number.

Android

This folder contains geolocation settings in the ActiveMap Mobile for the Android operating system (Fig. 2.247). After adding a new value to the presented settings, the user needs to update the data in the mobile application.

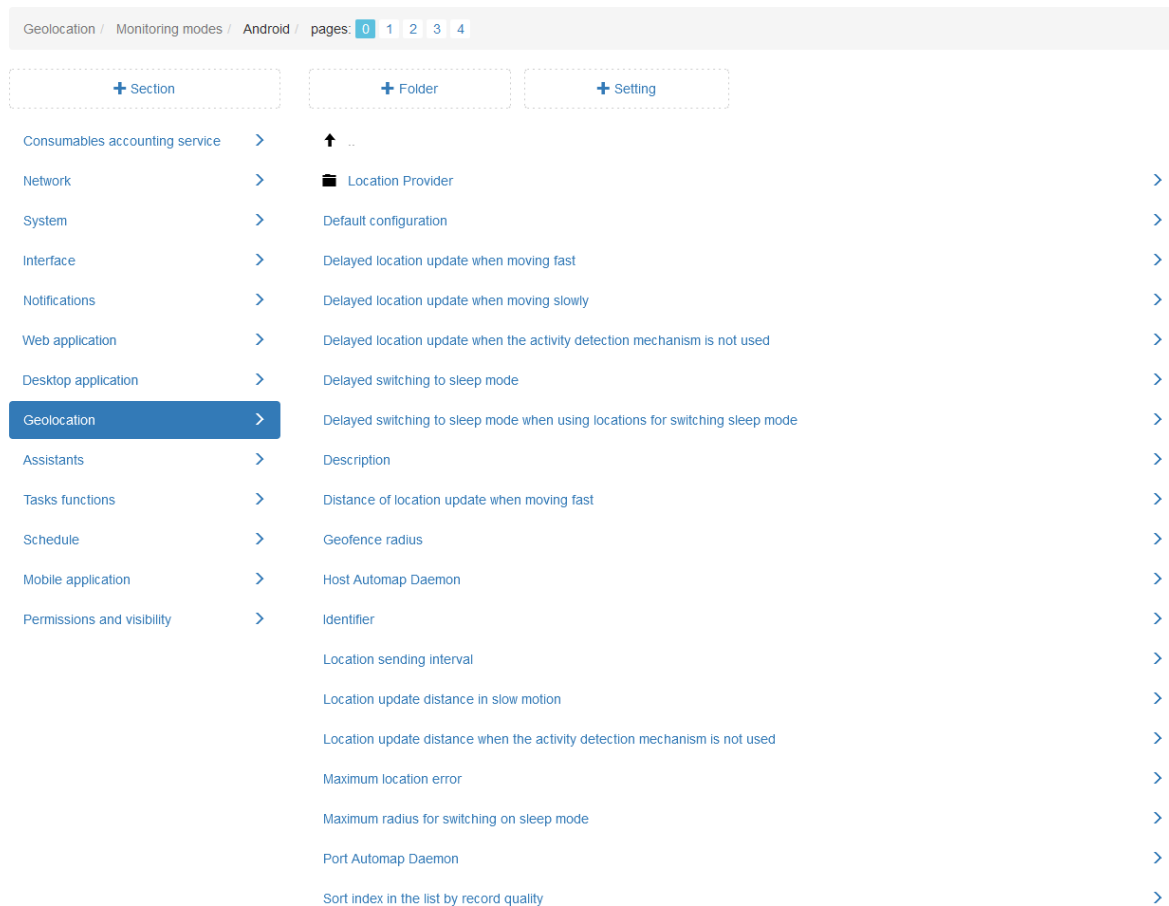


Fig. 2.247: Monitoring mode settings for the Android operating system

Location Provider

This setting allows specifying a provider for the “Mark my location” window in the ActiveMap Mobile. The following providers are available:

- Gps (default) – this provider determines the location using satellites. Depending on the conditions, it may take some time to determine the location.
- Network – determines the location based on the availability of a cell tower and Wi-Fi access points. The results are extracted using a network search.
- Passive – the least accurate provider. This provider receives location data when other applications or services request it, without actually requesting locations itself.

Default configuration

This setting specifies which of the presented geomonitoring modes is activated on the server.

Delayed switching to sleep mode

This setting specifies how many seconds it takes for location monitoring to go into sleep mode when the user is not moving.

Description

The setting contains a brief description of the selected monitoring mode.

Distance of location update when moving fast

The setting is used to filter location points during fast motion, such as in a car. You can set how many meters the device needs to request the user's location for a given type of movement.

Identifier

The setting specifies the ID of the selected mode of user location monitoring. The setting is used for the geolocation tracking service. There are 5 geolocation monitoring modes. Based on this index, they are sorted in the interface of the mobile application.

Location sending interval

This setting specifies how often (in seconds) the user's location points are sent to the server.

Location update distance in slow motion

The setting is used to filter location points when moving slowly, such as when walking. You can set how many meters the device needs to request the user's location for a given type of movement.

Maximum location error

The setting specifies the allowable coordinate error. If the coordinate exceeds this error, then it is not taken into account.

The **Port AutoMap Daemon** and **Host AutoMap Daemon** settings specify the address and port for connecting to the server.

Title

This setting displays the name of the selected user location monitoring mode.

iOS

This folder contains geolocation settings in the ActiveMap Mobile for the iOS operating system. After adding a new value to the presented settings, the user needs to restart the mobile application.

Modules

Using GPS monitoring

This setting specifies that location determination on iOS devices is also done via GPS. This setting is enabled by default (Fig. 2.248).

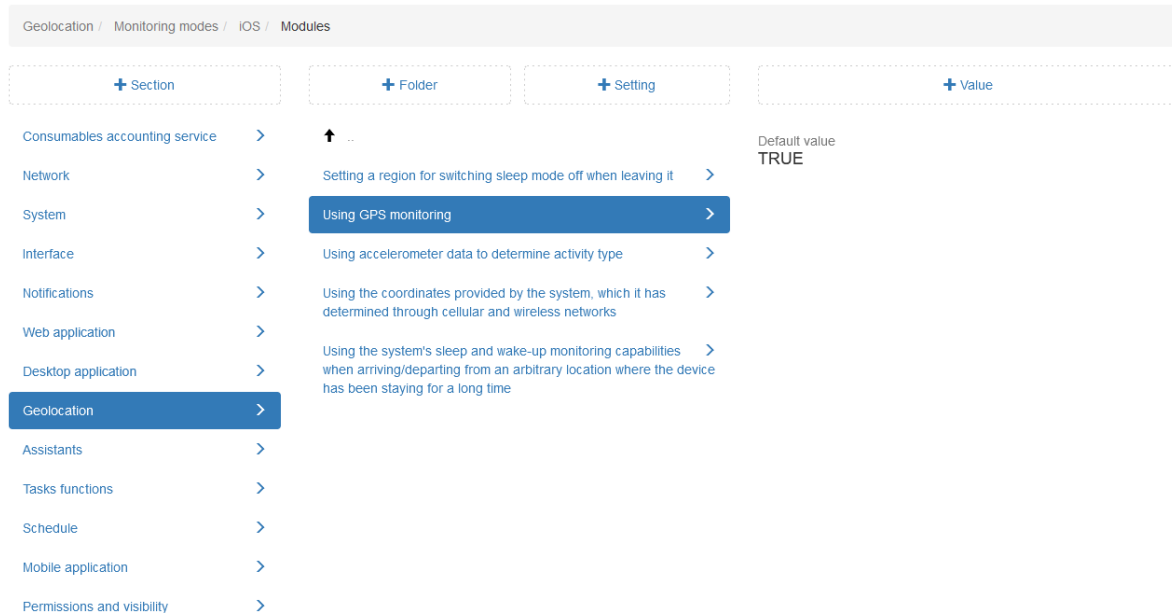


Fig. 2.248: Using GPS monitoring

Using accelerometer data to determine activity type

In this setting, you can enable using the accelerometer in the mobile device, which improves the quality of the transmitted data (Fig. 2.249). Connecting this sensor also provides information about speed and direction of movement. However, using mobile device sensors involves increased battery consumption.

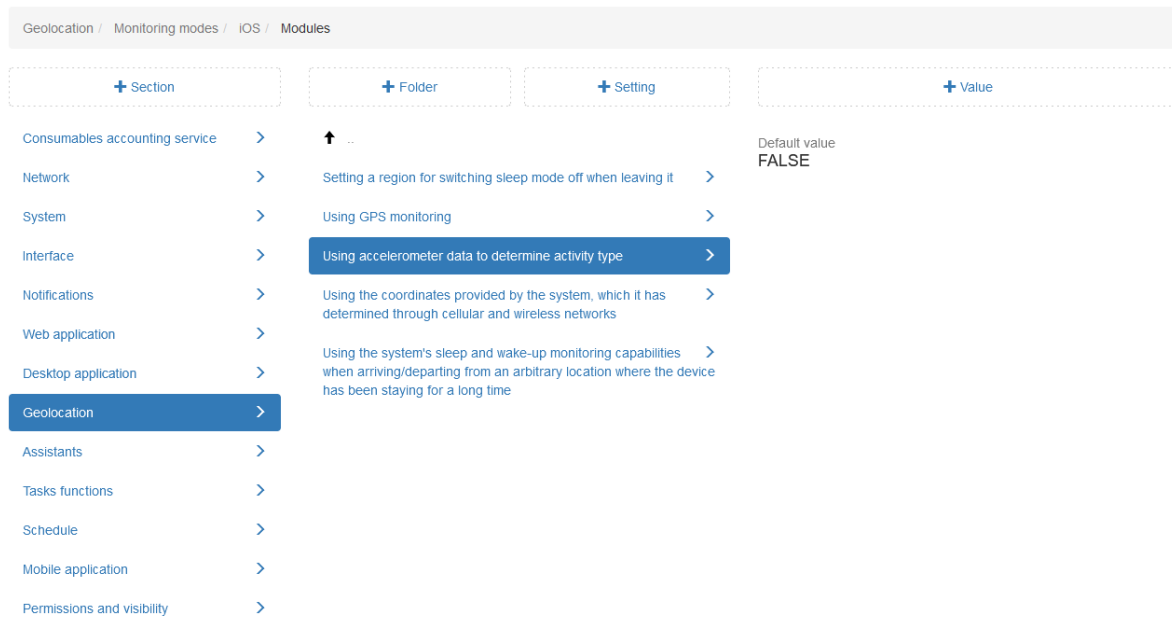


Fig. 2.249: Using accelerometer data

Use the coordinates provided by the system, which it has determined through cellular and wireless networks

By default, iOS devices use cellular and wireless networks to determine the location. You cannot select only one of these options. This setting is enabled by default (Fig. 2.250).

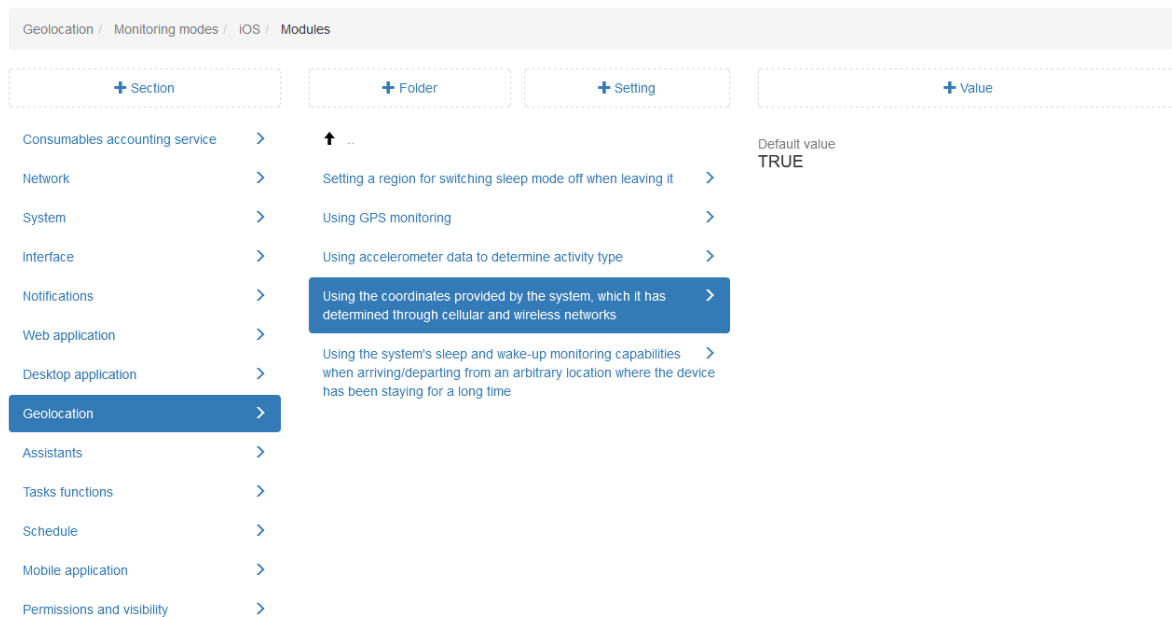


Fig. 2.250: Determining coordinates using cell and wireless networks

Use the system's sleep and wake up monitoring capabilities when

arriving/departing from an arbitrary location where the device has been staying for a long time and Setting a region for switching sleep mode off when leaving it

Applying these settings allows users to stop sending data to the system if the user stays in one place for a long time (home, office). The setting puts the application into sleep mode after the time specified in the **Sleep Delay** setting (Fig. 2.251).

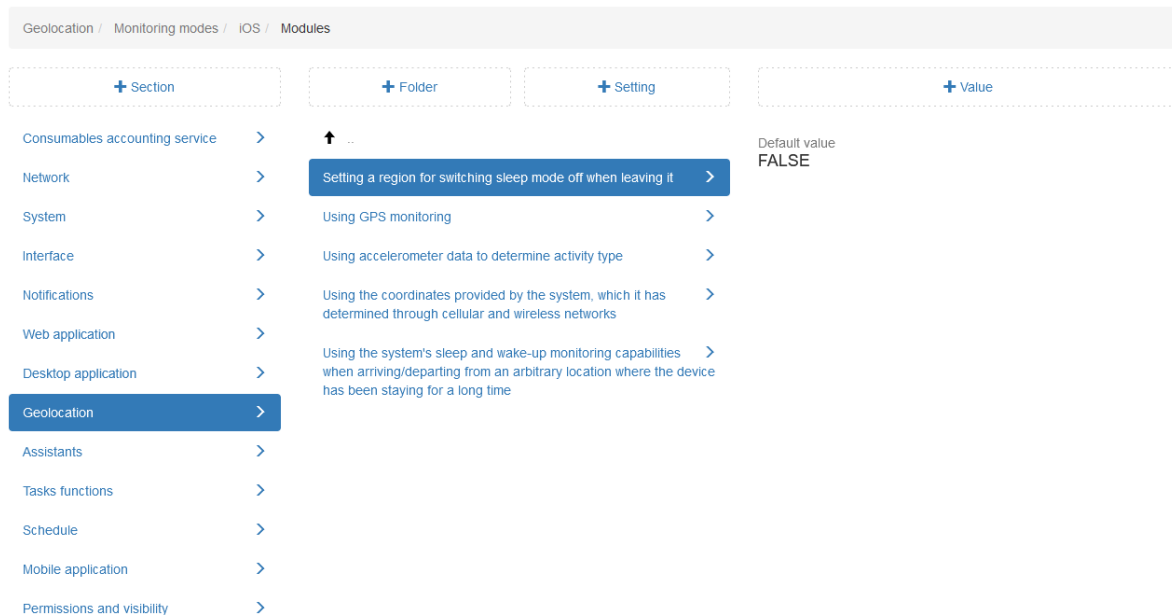


Fig. 2.251: Setting the region to wake up when coming out of it

Fast motion monitoring settings

Desired accuracy

The setting is used to filter location points during fast motion, such as in a car. If the point radius is greater than the set value, these points are not used (Fig. 2.252).

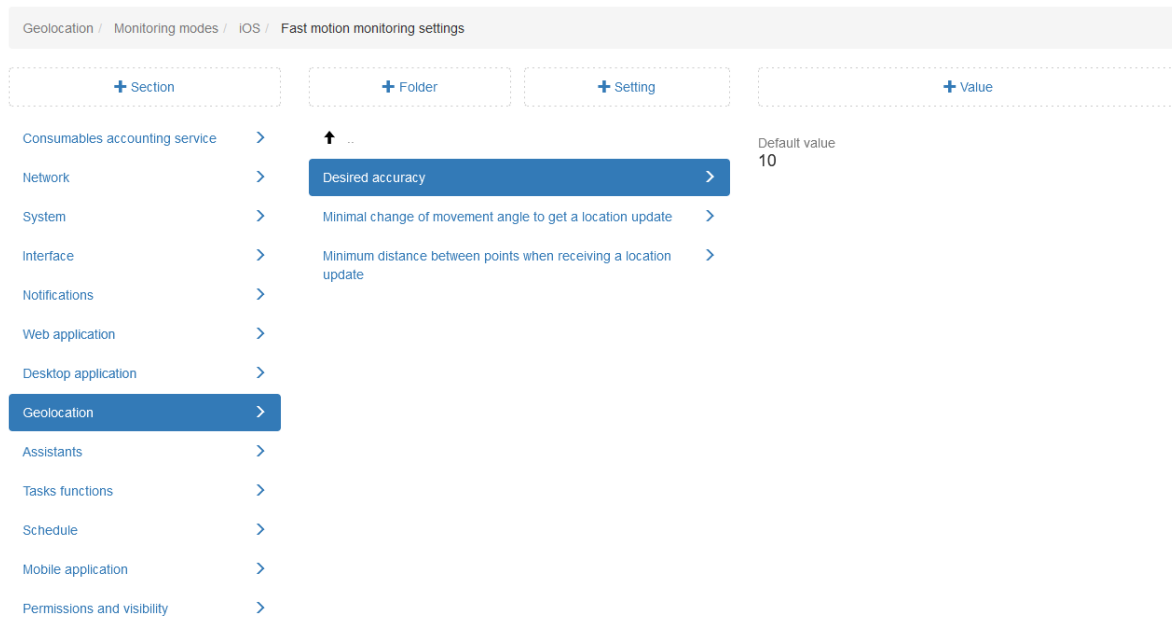


Fig. 2.252: Desired accuracy during fast motion

Minimal change of movement angle to get location update

The setting is used to filter points. You can set the minimum angle of movement in degrees. If the angle matches the minimum value, the change is considered insignificant and the motion angle is not changed (Fig. 2.253).

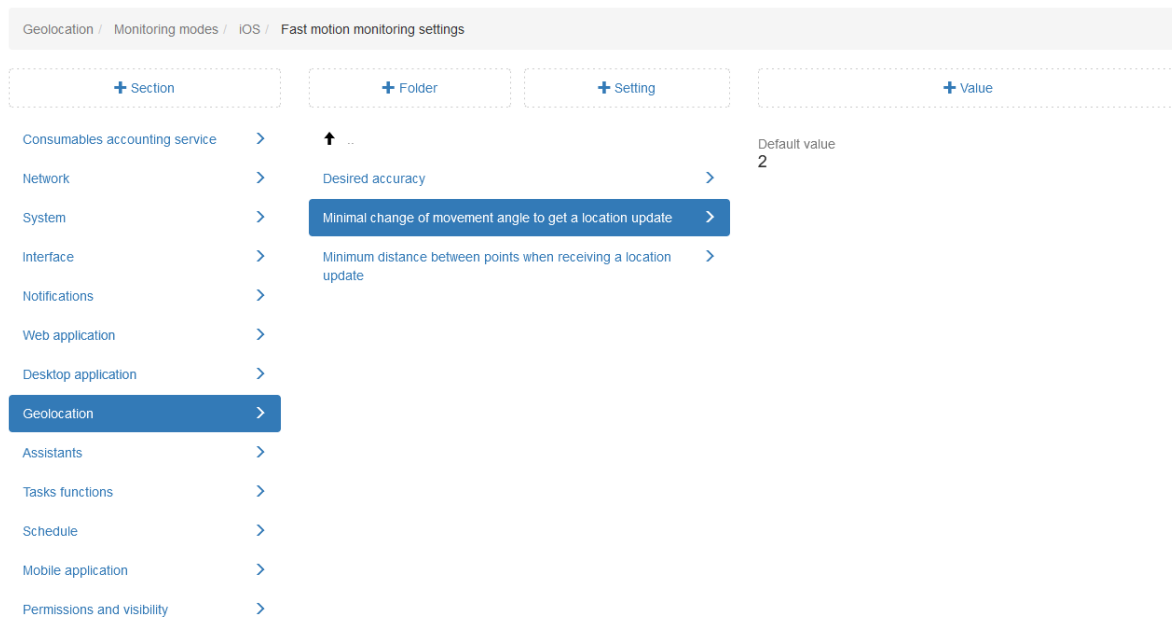


Fig. 2.253: Minimal change of movement angle

Minimum distance between points when receiving a location update

This setting is used to filter points. You can specify how many meters should pass before a new point is recorded (Fig. 2.254). Frequent location updates can lead to increased battery consumption of the device.

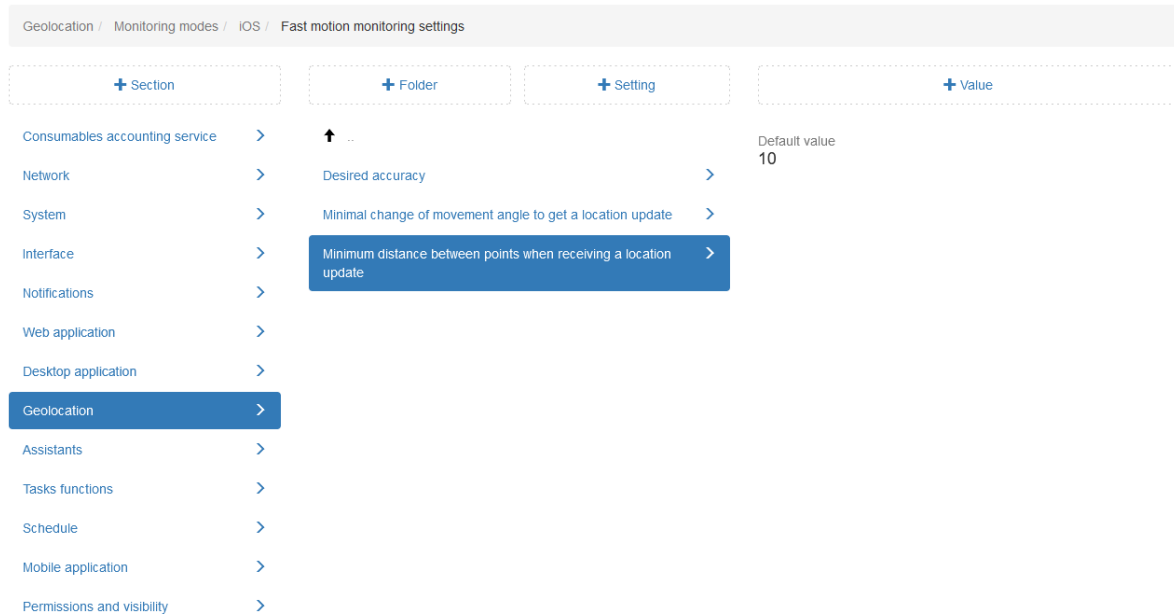


Fig. 2.254: Minimum distance between points when receiving a location update

Slow motion monitoring settings

Desired accuracy

The setting is used to filter location points when moving slowly, such as when walking. If the point radius is larger than the set value, these points are not used (Fig. 2.255).

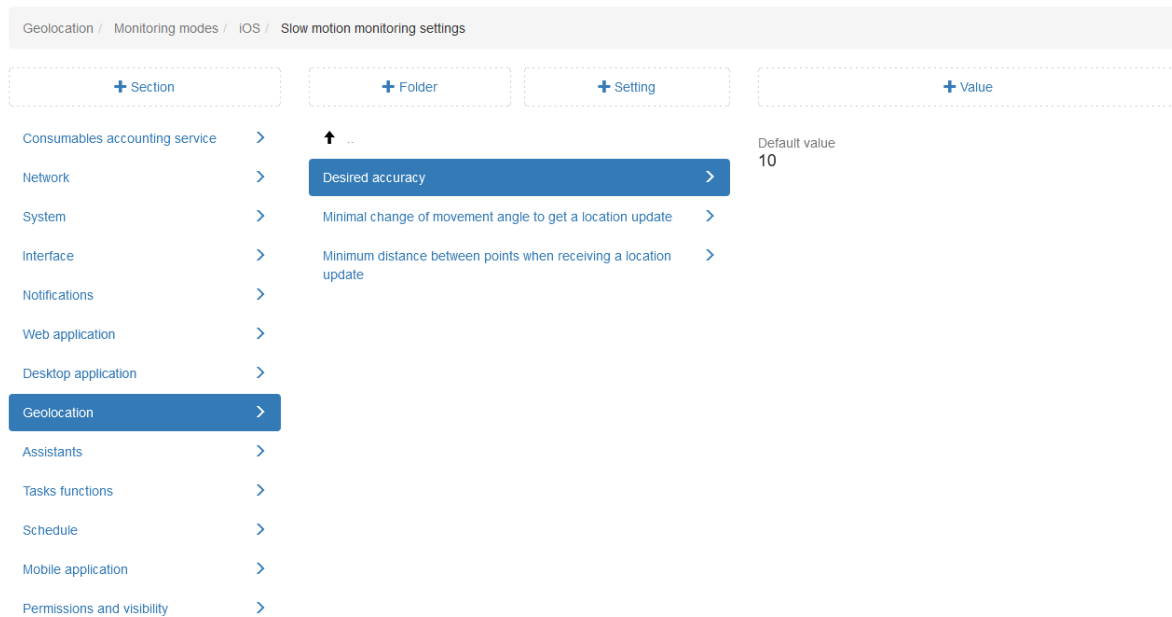


Fig. 2.255: Desired accuracy during slow movement

Minimal change of movement angle to get a location update

The setting is used to filter points. You can set the minimum movement angle in degrees. If the angle matches the minimum value, the change is considered insignificant and the motion angle does not change (Fig. 2.256).

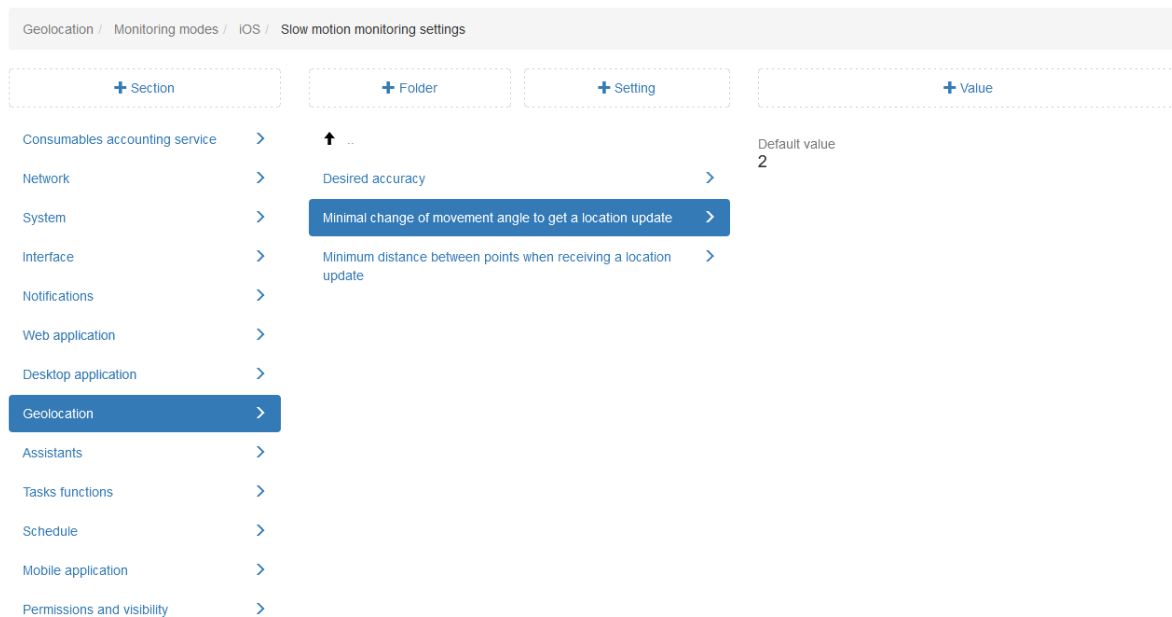


Fig. 2.256: Minimal change of movement angle

Minimum distance between points when receiving a location update

The setting is used to filter points. You can specify how many meters should pass before a new point is recorded (Fig. 2.257). However, frequent location updates can lead to increased battery consumption of the device.

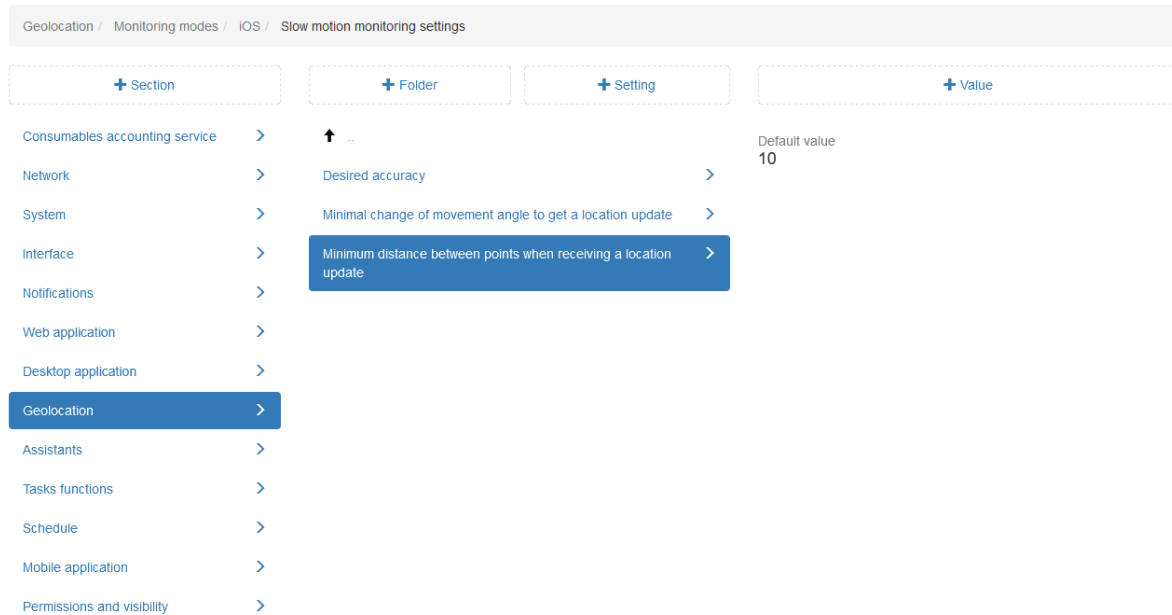


Fig. 2.257: Minimum distance between points when receiving a location update

Default configuration

The setting displays the geomonitoring mode activated on the server (Fig. 2.258).

Geolocation / Monitoring modes / IOS / pages: 0 1 2 3 4			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	Fast motion monitoring settings >		
System >	Modules >		
Interface >	Slow motion monitoring settings >		
Notifications >	Default configuration >		
Web application >	Delayed switching to sleep mode >		
Desktop application >	Description >		
Geolocation >	Host Automap Daemon >		
Assistants >	Identifier >		
Tasks functions >	Maximum location error >		
Schedule >	Port Automap Daemon >		
Mobile application >	Sending interval of recorded points >		
Permissions and visibility >	Sort index in the list by record quality >		
	Title >		

Fig. 2.258: Default configuration

Delayed switching to sleep mode

The setting specifies how many seconds to wait before switching the location monitoring to sleep mode if there is no user movement (Fig. 2.259).

Geolocation / Monitoring modes / IOS / pages: 0 1 2 3 4			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value 60
Network >	Fast motion monitoring settings >		
System >	Modules >		
Interface >	Slow motion monitoring settings >		
Notifications >	Default configuration >		
Web application >	Delayed switching to sleep mode >		
Desktop application >	Description >		
Geolocation >	Host Automap Daemon >		
Assistants >	Identifier >		
Tasks functions >	Maximum location error >		
Schedule >	Port Automap Daemon >		
Mobile application >	Sending interval of recorded points >		
Permissions and visibility >	Sort index in the list by record quality >		
	Title >		

Fig. 2.259: Sleep delay

Description

The setting contains a brief description of the selected monitoring mode (Fig. 2.260).

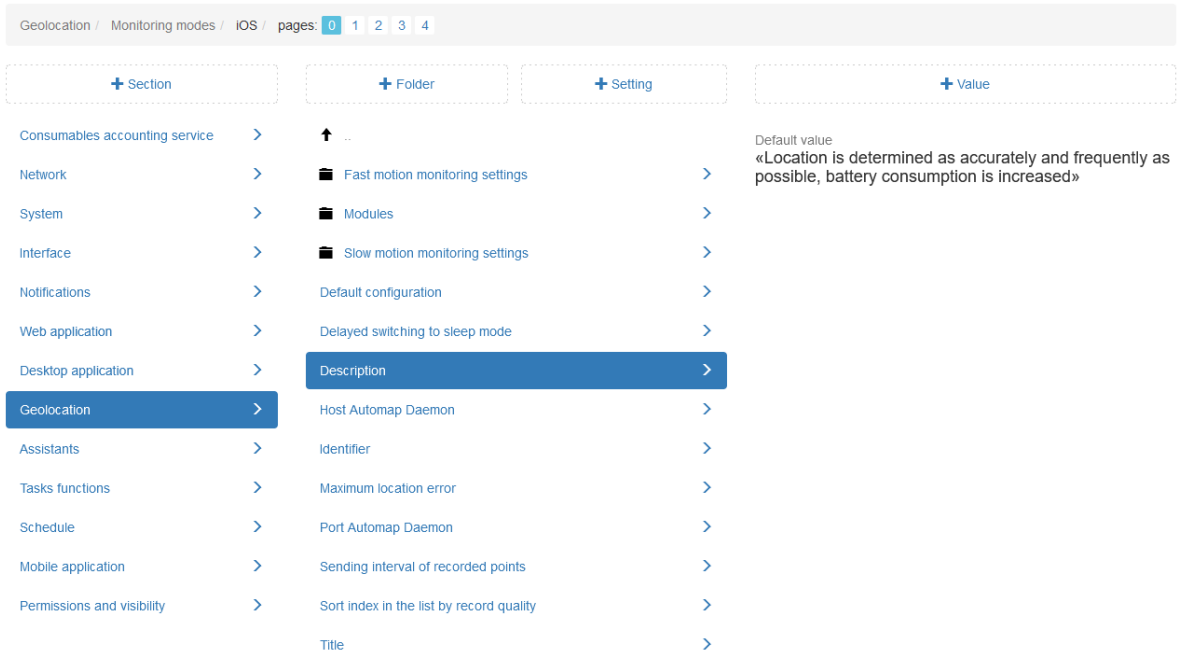


Fig. 2.260: Description of geolocation monitoring mode

Identifier

This setting specifies the ID of the selected location monitoring mode (Fig. 2.261).

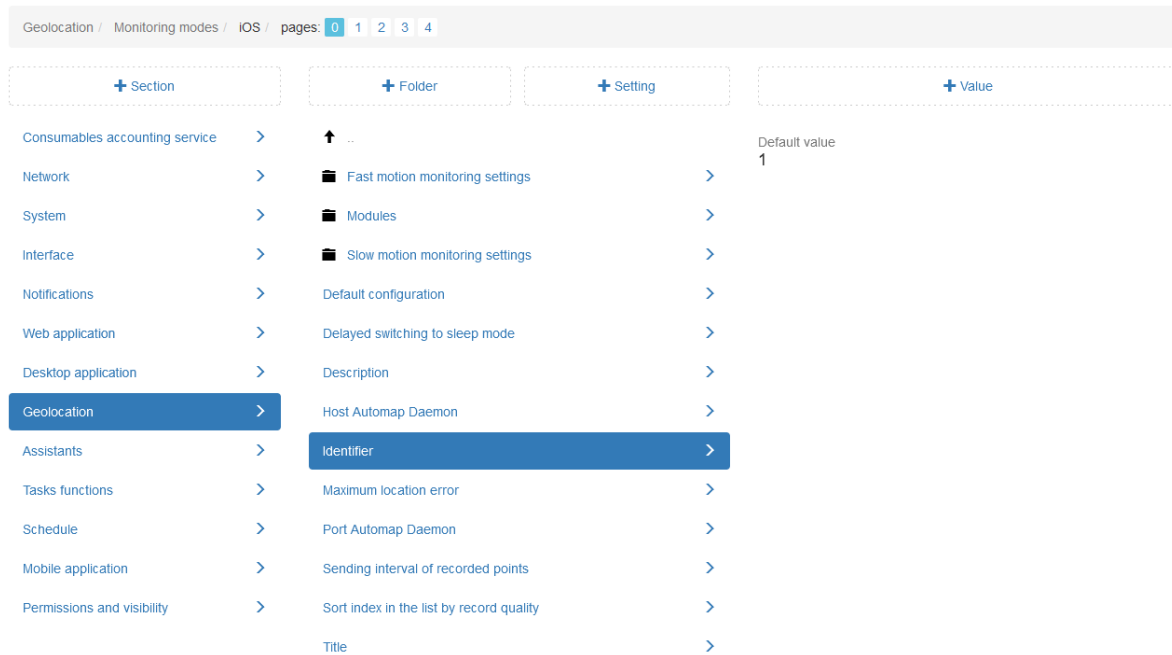


Fig. 2.261: Identifier of the monitoring mode

Maximum location error

The setting specifies the allowable coordinate error. If a coordinate exceeds this error, it is not taken into account (Fig. 2.262).

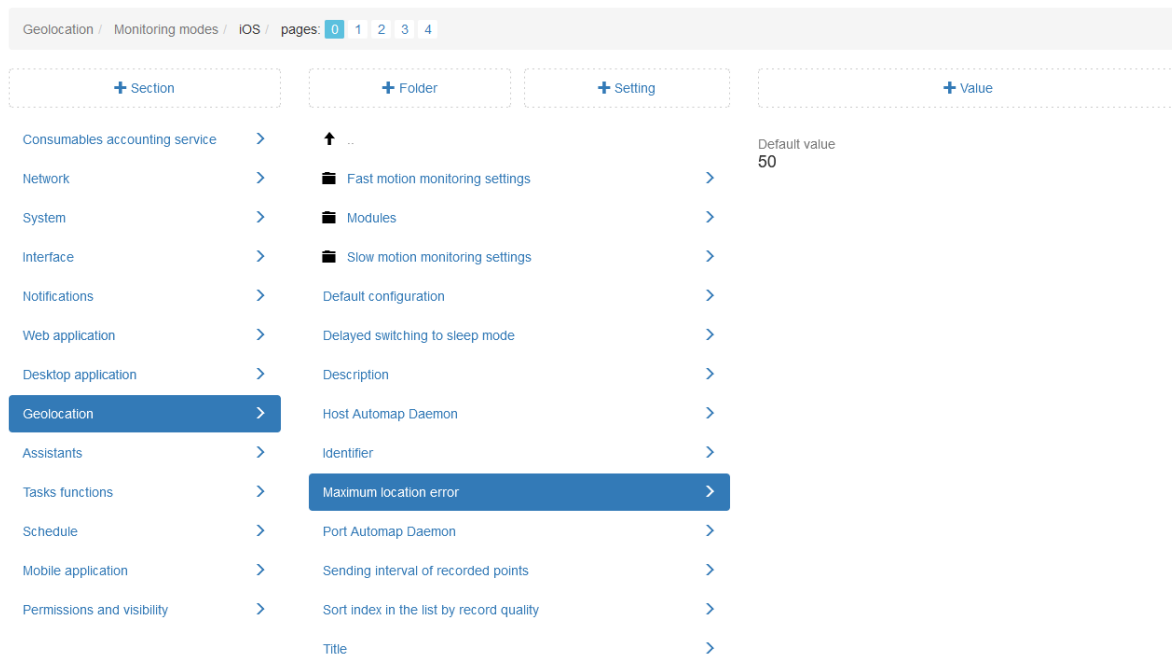


Fig. 2.262: Maximum location error

The **Port AutoMap Daemon** and **Host AutoMap Daemon** settings

specify the address and port to connect to the server (Fig. 2.263).

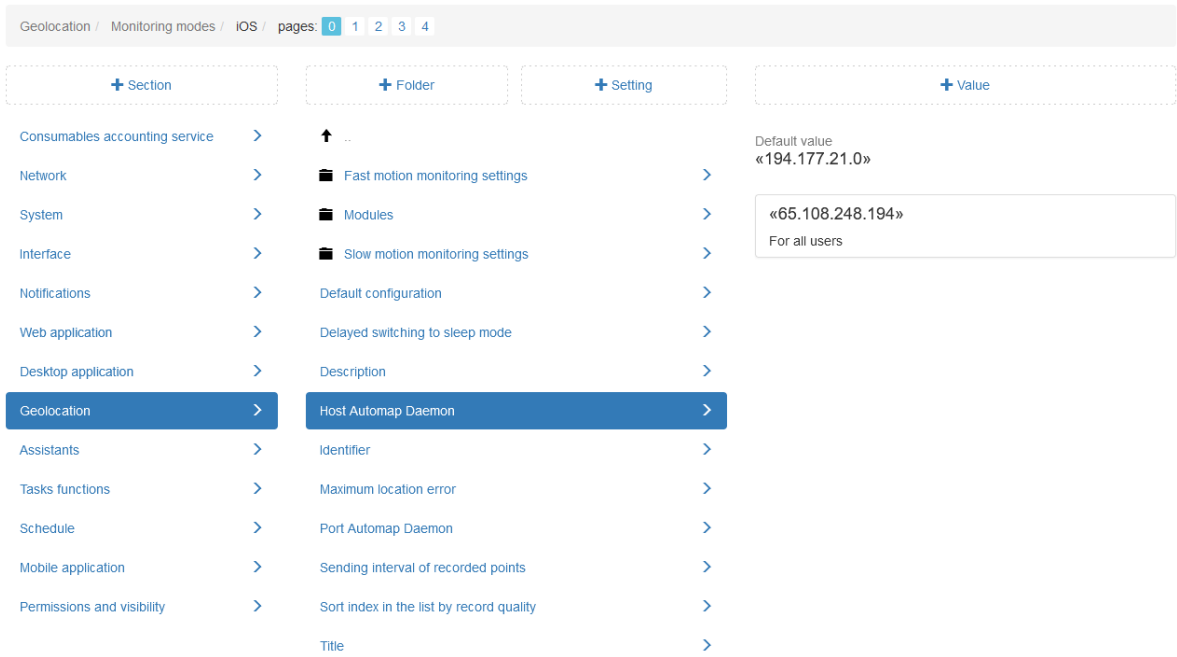


Fig. 2.263: AutoMap daemon host

Sending interval of recorded points

This setting determines the frequency (in seconds) of sending location points to the server (Fig. 2.264).

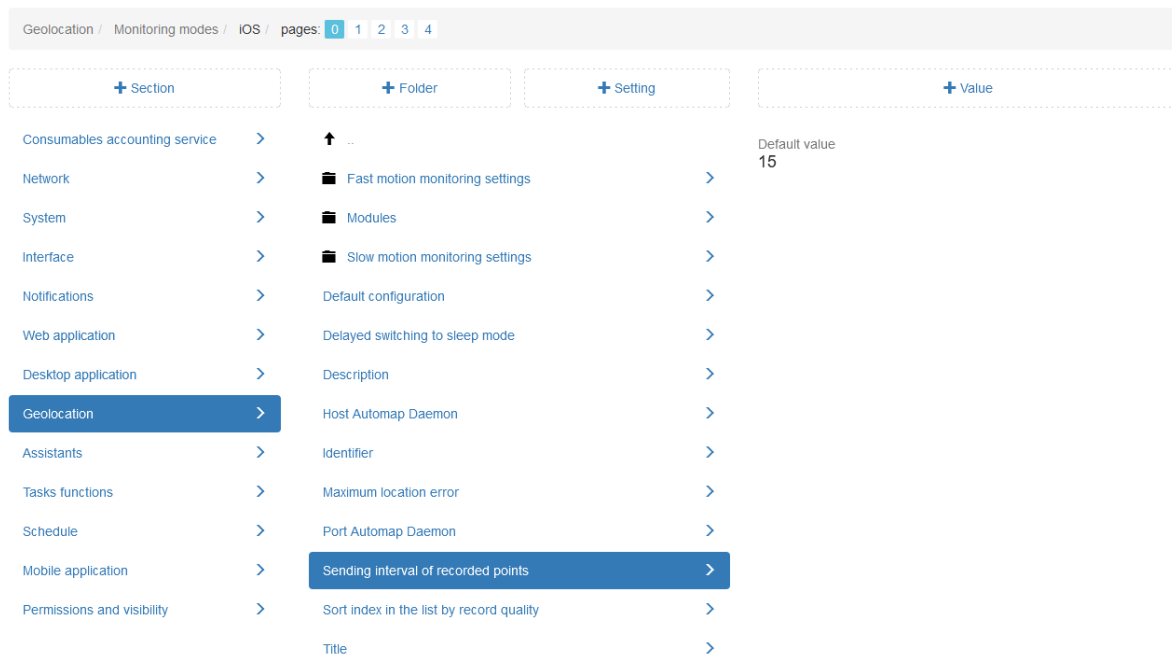


Fig. 2.264: Recorded points sending interval

Sort index in the list by record quality

The setting is used for the geolocation tracking service. There are 5 modes of geolocation monitoring. They are sorted in the interface of the mobile application based on this index (Fig. 2.265).

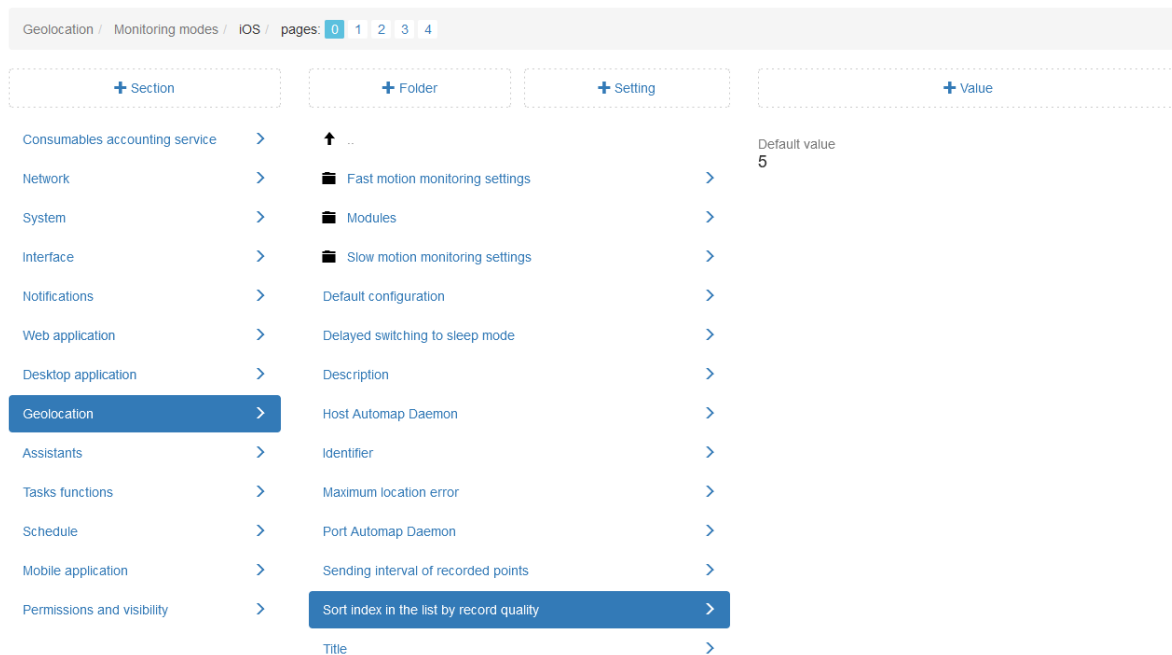


Fig. 2.265: Sort index in the list by record quality

Title

This setting displays the name of the selected user location monitoring mode (Fig. 2.266).

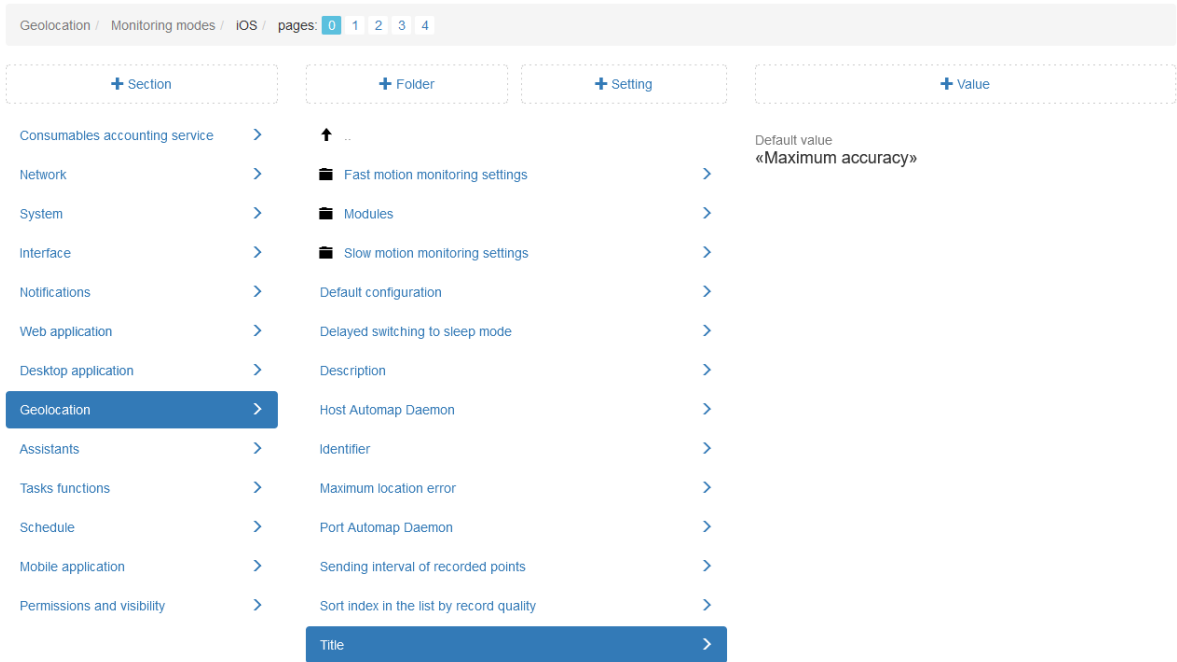


Fig. 2.266: Name of geolocation monitoring mode

Server

In this folder, you can configure server settings for monitoring user geolocation (Fig. 2.267).

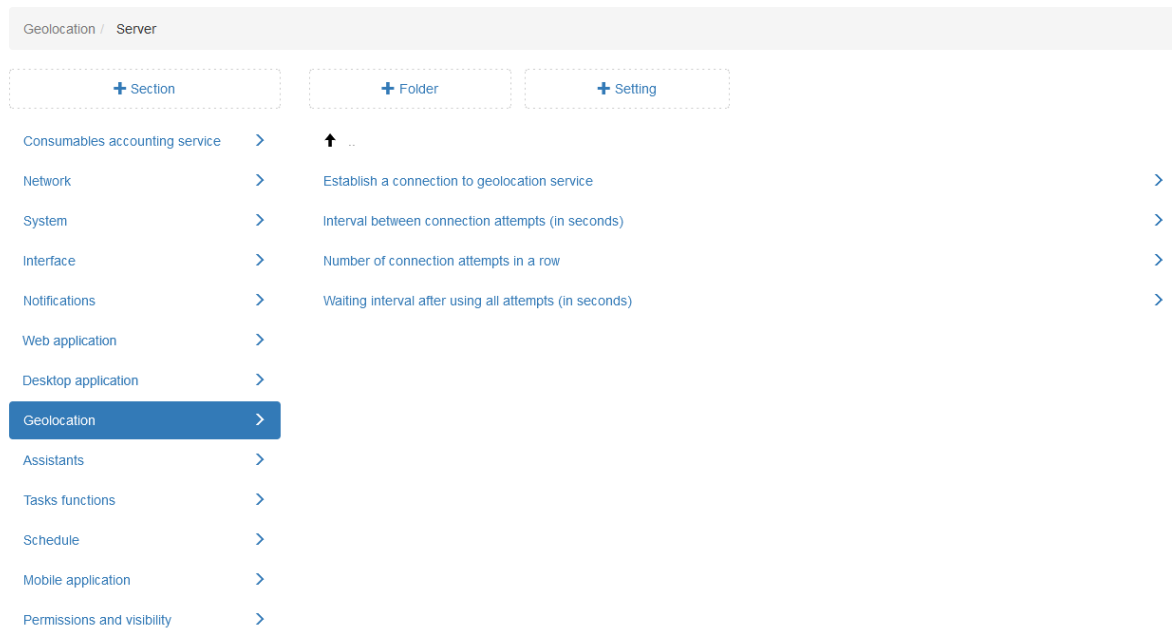


Fig. 2.267: Server settings for monitoring geolocation

Establish a connection to geolocation service

When the setting is enabled, Cerebellum gets the location of users by establishing a connection with the location tracking service. If this setting is disabled during operation, Cerebellum resets the connection. The response to the setting change is immediate, but the connection itself may take some time to establish. This setting is enabled by default (Fig. 2.268)

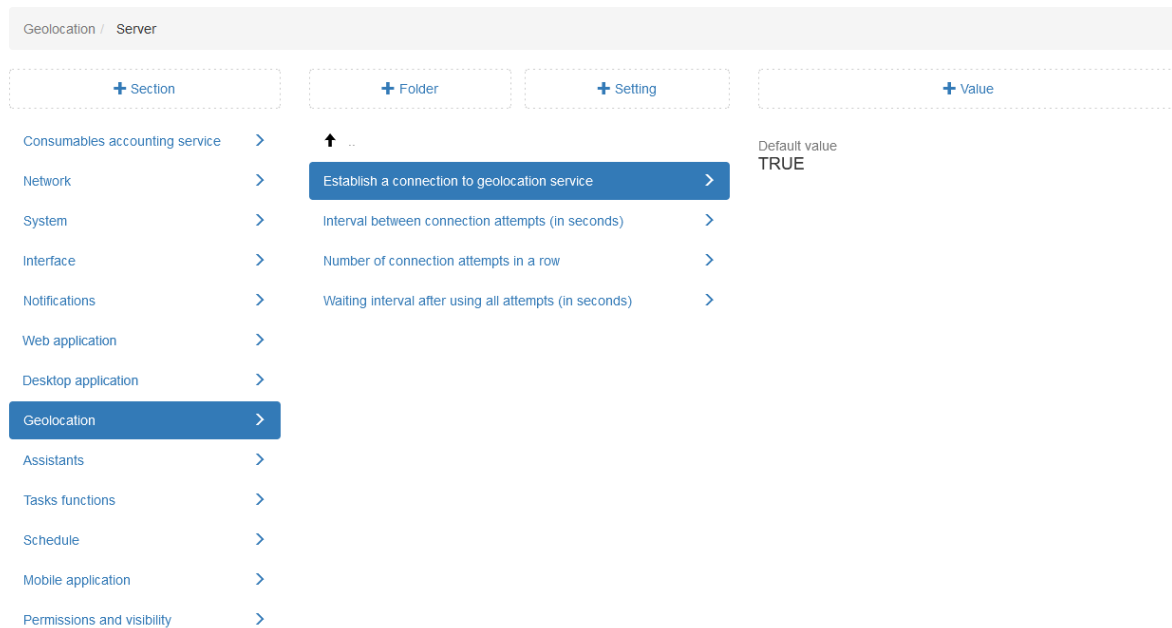


Fig. 2.268: Establishing a connection to geolocation service

Interval between connection attempts (in seconds)

If the connection to the location tracking service fails, the next attempt is made after the time specified in this setting (Fig. 2.269).

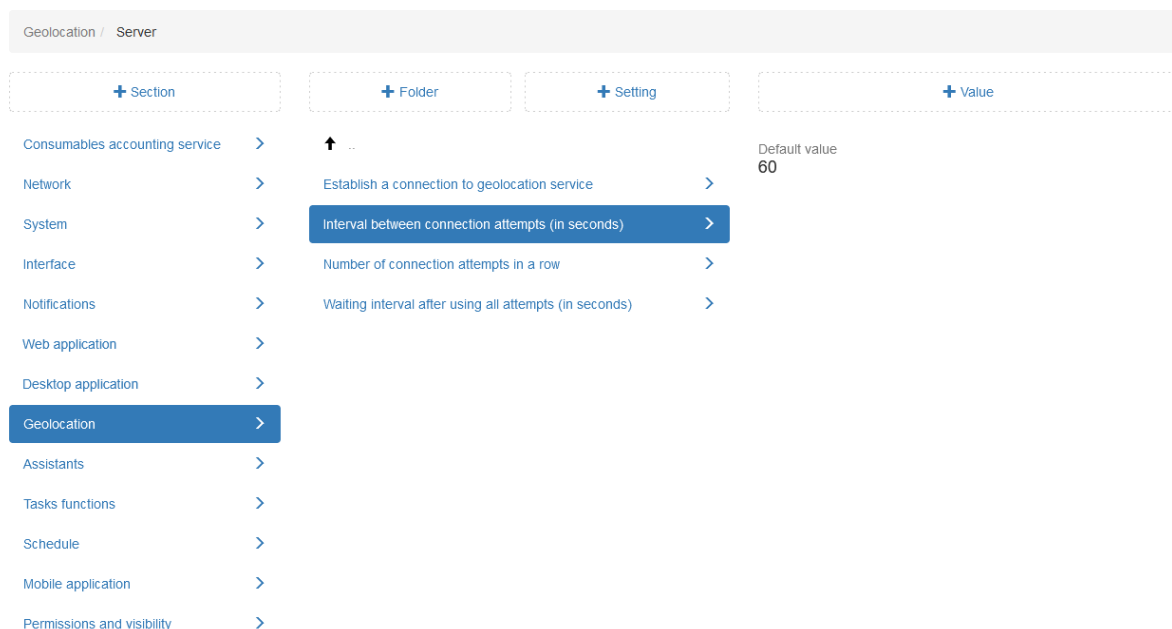


Fig. 2.269: Interval between connection attempts

Number of connection attempts in a row

Unsuccessful connection attempts are combined into groups. The maximum number of attempts in a group is specified in this setting (Fig. 2.270).

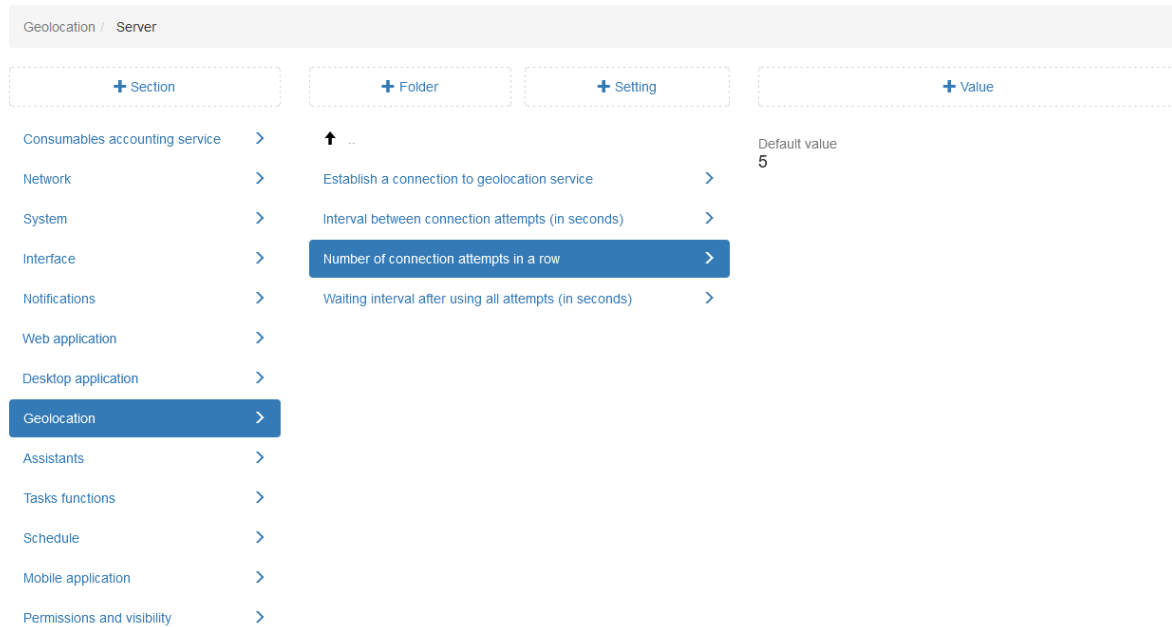


Fig. 2.270: Number of connection attempts

Waiting interval after using all attempts

After using all the attempts in a group, the next group of attempts is made after the time specified in this setting (Fig. 2.271).

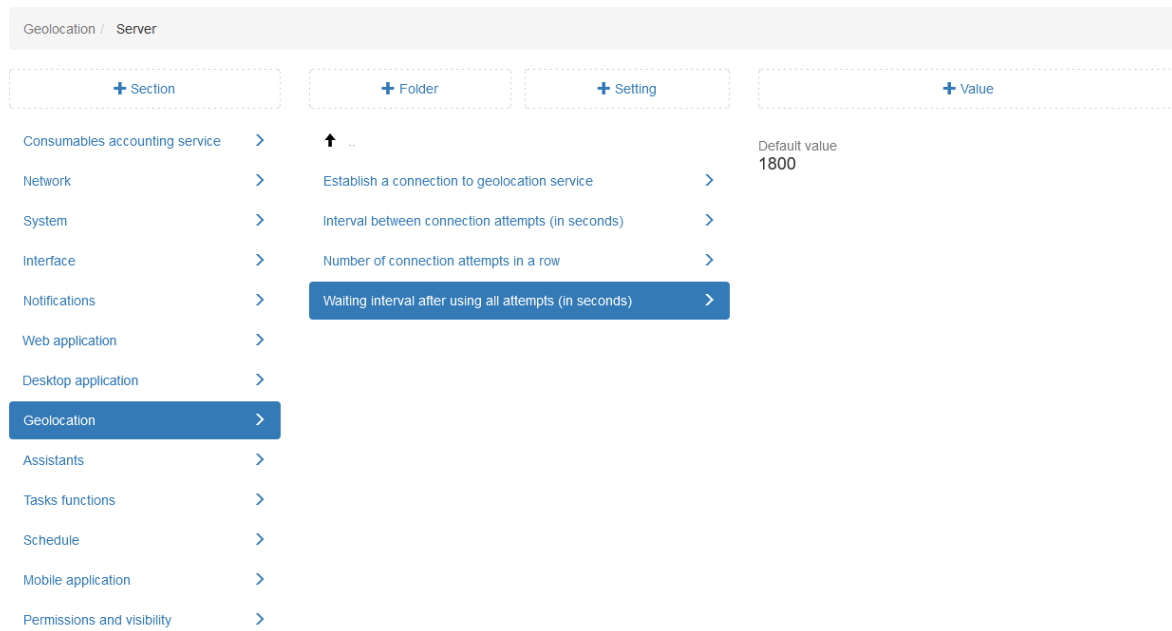


Fig. 2.271: Waiting interval after using all attempts

2.3.3.7.9 “Assistants” section

The section allows users to customize existing algorithms that perform certain actions (Fig. 2.272). You can set a new value by selecting the setting, then clicking “+ Value”. In the window that opens, enable/disable the toggle switch or enter the required name, and then fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

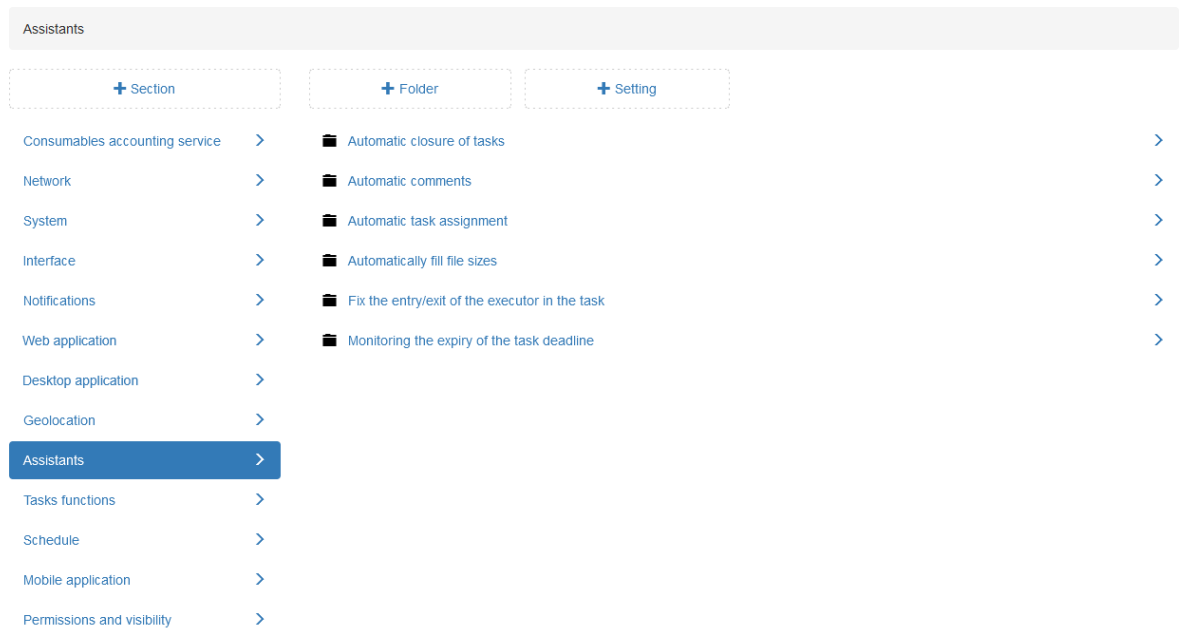


Fig. 2.272: “Assistants” section

Automatic closure of tasks

A setting that allows users to transfer the task automatically at the closing step to the “Completed” stage. This setting is disabled by default (Fig. 2.273).

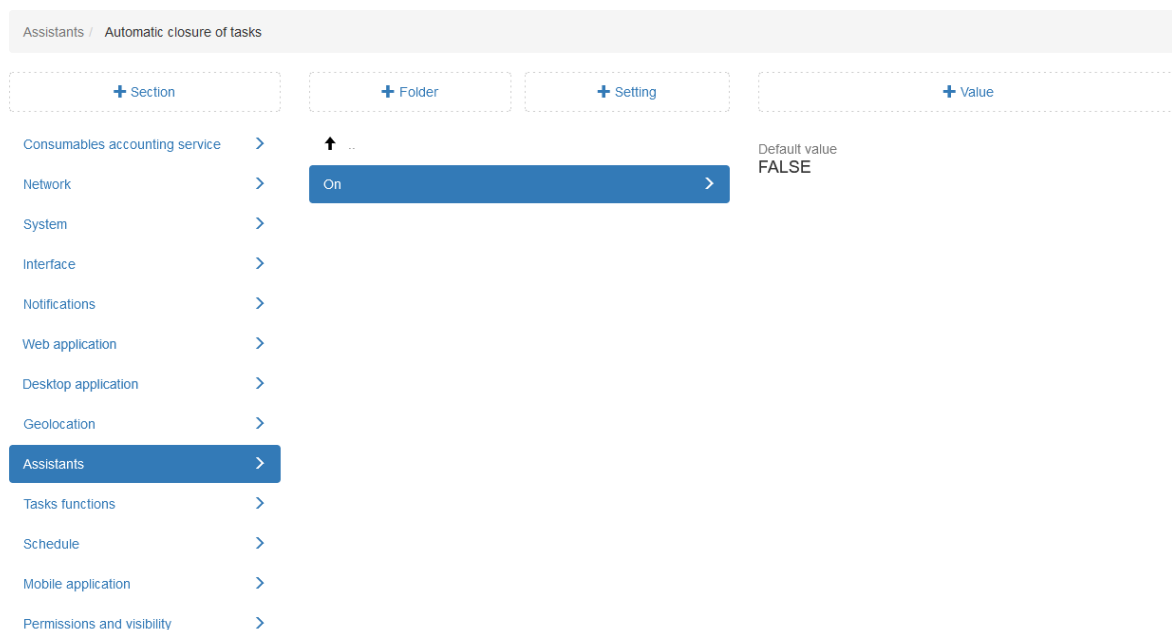


Fig. 2.273: Automatic task closing

Automatic comments

This setting allows adding comments about attaching a file to the history at the time of task creation. The setting is enabled by default (Fig. 2.274).

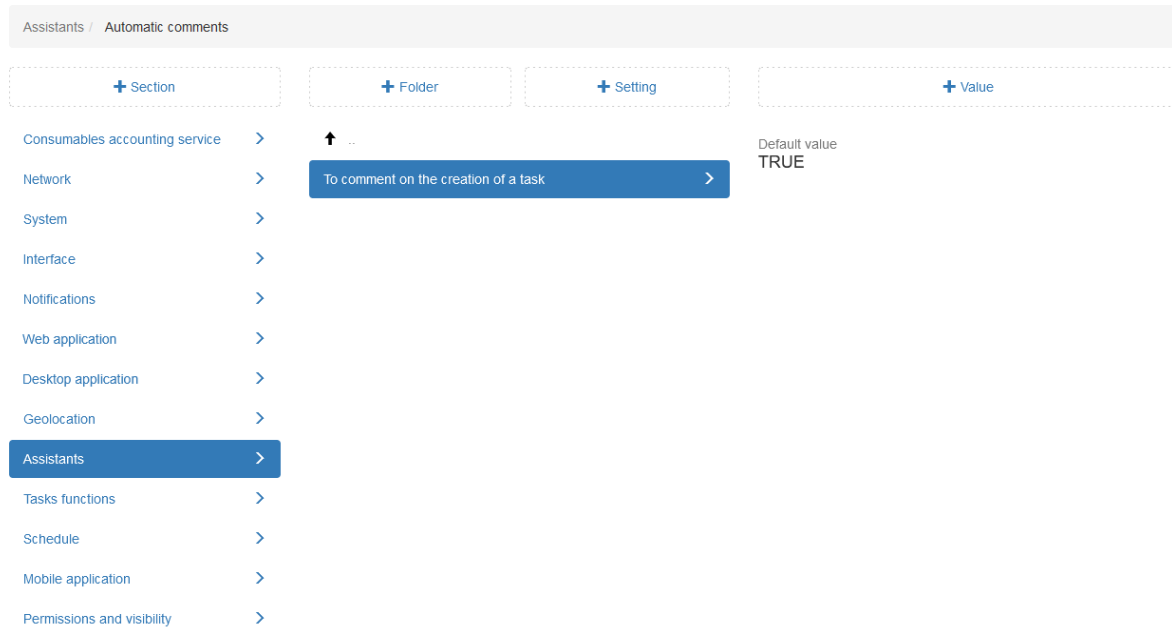


Fig. 2.274: Automatic comments

Automatic task assignment

This setting is responsible for the automatic assignment of tasks by the system to the user (Fig. 2.275).

Assistants / Automatic task assignment

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	On >		
System >			
Interface >			
Notifications >			
Web application >			
Desktop application >			
Geolocation >			
Assistants >			
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.275: Automatic task assignment

Automatically fill file sizes

This setting allows filling in the “File size” column in the database for old files. To start the process of gradual filling with data, enable this setting. It loads the specified number of files from the database in the **Number of files to process at a time** setting with the frequency specified in the **Startup period** setting. It searches for them on the disk and collects information by the size. This setting is disabled by default (Fig. 2.276).

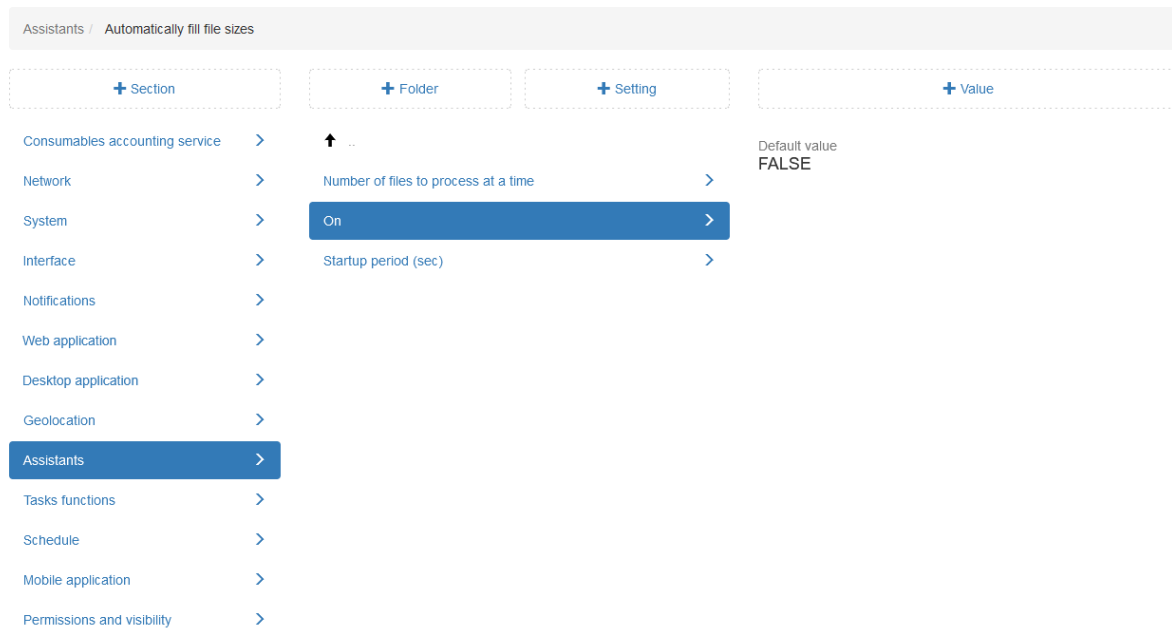


Fig. 2.276: Automatic filling of file sizes

Fix the entry/exit of the executor in the task

Cerebellum has a mechanism for controlling the entry/exit of executors into/from the task zones. Zones are defined as circles around the task points. To ensure the correct work of the mechanism, enable the connection with the location determination service.

The zone entry control works when the following conditions are met:

- The zone entry control mechanism is enabled;
- The executor's location tracking is enabled;
- The task has a point;
- The task is not a template;
- The task is in the "In progress" or in the "Completed" step, but the executor is in the task zone.

Attention: If the task is completed, but the executor is in the zone, the control mechanism waits for the executor to leave the zone and then stops monitoring the task. However, this does not refer to the tasks that are in the "Completed" step at the time of launching Cerebellum. For such tasks, it is impossible to determine correctly whether the executors are in the zone or not, so their entry/exit is not tracked.

If the conditions described above are met for the task and the executor enters/exits the task zone, the following happens:

- a record is added to the corresponding table with a fixation of:
 - The user;
 - The task point;
 - Date and time;
 - Entry/exit sign;
 - Indication of the event occurrence directly at the moment of assigning to executor;
- one of the following comments is created on behalf of the executor in the task:
 - “The executor has left the task area”;
 - “The executor has entered the task area”;
 - “The executor is out of range of the task” if the event occurred at the moment of assignment to the executor or at the moment of changing the zone radius setting;
 - “The executor is inside the zone of the task” if the event occurred at the moment of assignment to the executor or at the moment of changing the zone radius setting.

This setting is enabled by default (Fig. 2.277).

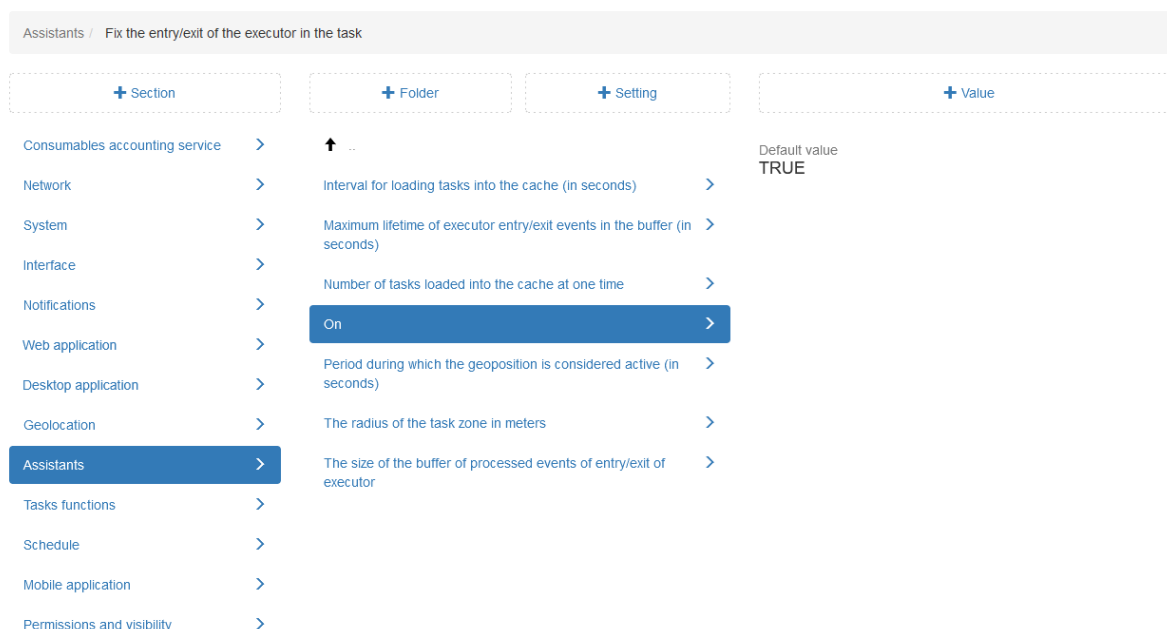


Fig. 2.277: Fixing the entry/exit of the executor in the task

Interval for loading tasks into the cache (in seconds)

The setting controls the process of filling the internal cache with tasks in the mechanism of tracking the user entry/exit from the task zone.

Namely, it specifies how often the next set of tasks should be loaded from the database into the cache (Fig. 2.278).

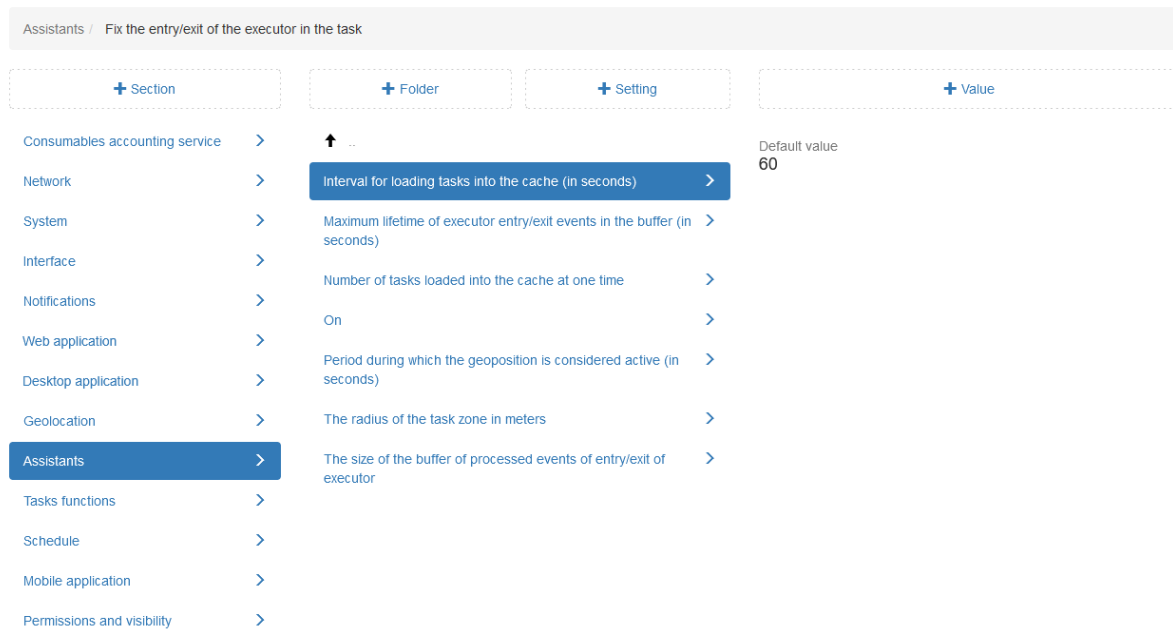


Fig. 2.278: Interval for loading tasks into the cache

Maximum lifetime of executor entry/exit events in the buffer (in seconds)

The engineering setting. This value is for developer use only during debugging. It specifies the frequency of sending events from the buffer for processing regardless of buffer fullness. The timeout is set for the timely processing of events in case the entry/exit event from the task zone occurs very rarely (Fig. 2.279). The default is 1 second.

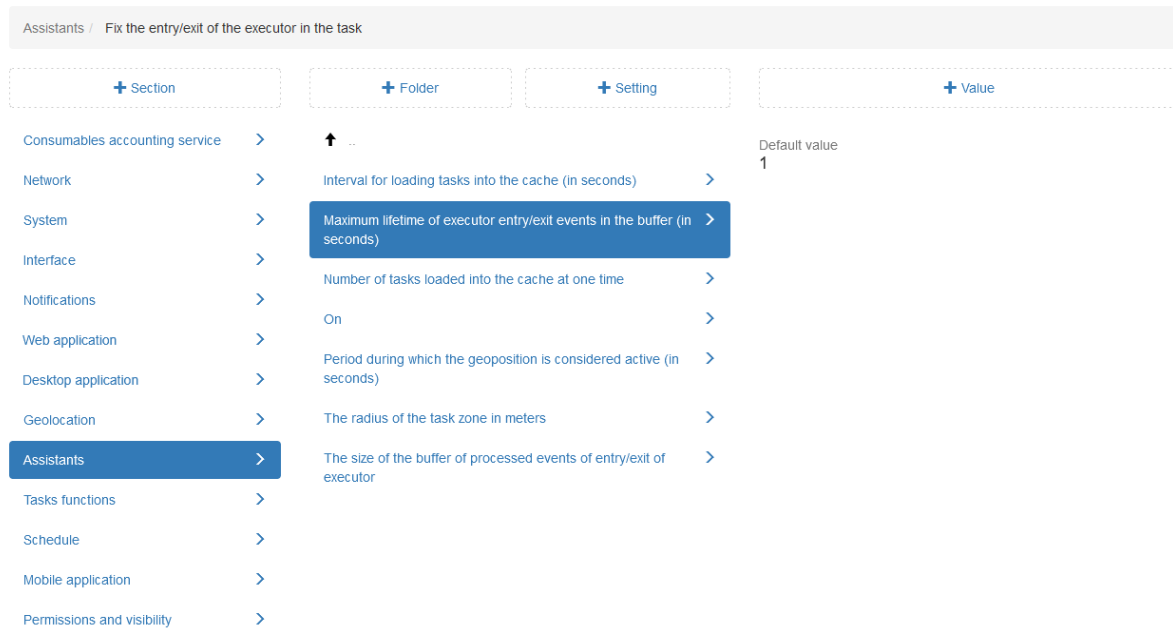


Fig. 2.279: Maximum lifetime of executor entry/exit events in the buffer (in seconds)

Number of tasks loaded into the cache at one time

To track the entry/exit of executors from the task zone, Cerebellum uses a task cache. It stores the part of the information necessary to calculate the entry and exit events. When Cerebellum is started, the cache is filled with information. However, this happens gradually to avoid excessive load on the server. With a certain periodicity, Cerebellum saves the next tasks in the cache, in descending order of their IDs. This setting specifies how many tasks are loaded from the database into the cache at once (Fig. 2.280).

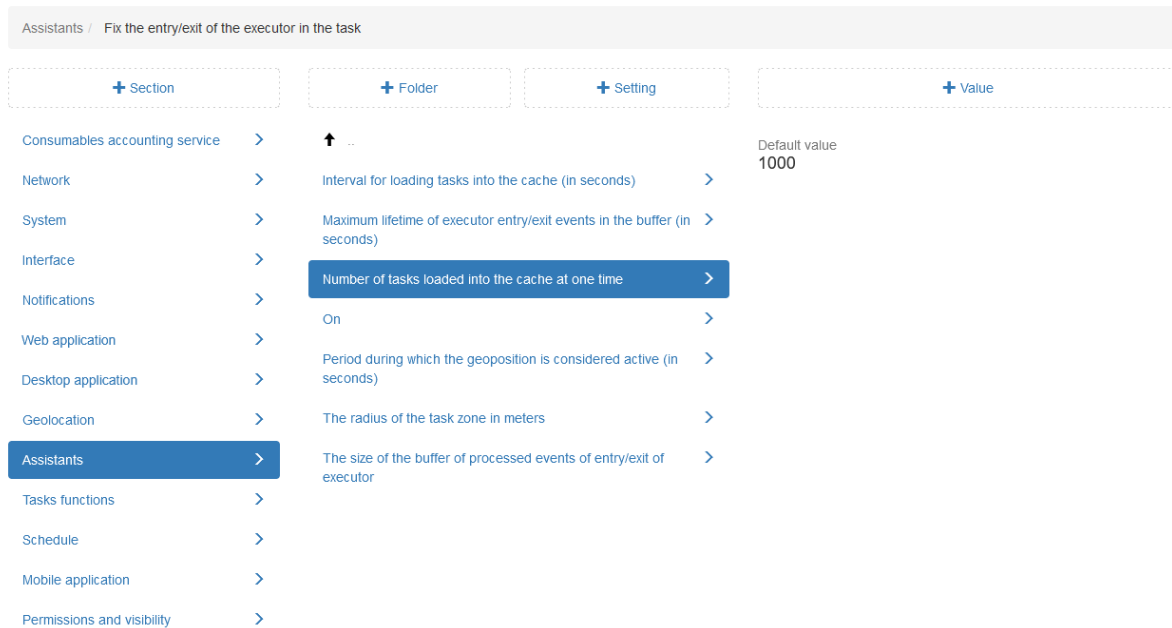


Fig. 2.280: Number of tasks loaded into the cache at once

Period during which the geoposition is considered active

The setting sets the duration for which the user's geoposition is considered active. The default is 3 hours (Fig. 2.281).

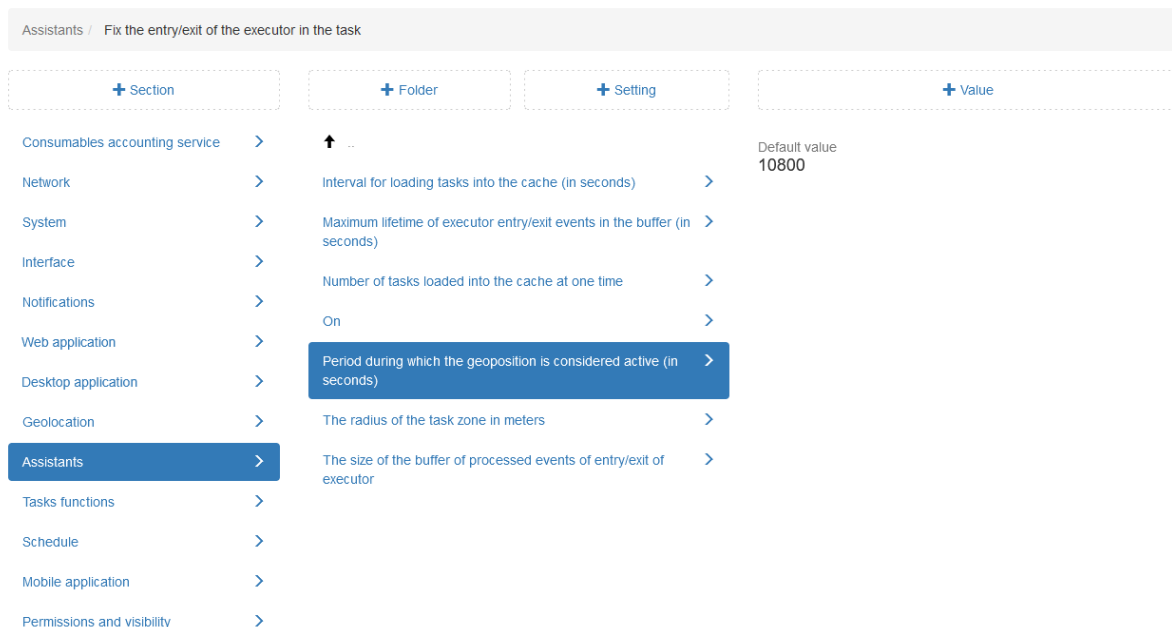


Fig. 2.281: Period during which the geoposition is considered active

The radius of the task zone in meters

You can set the distance from the task point at which the executor is considered to have entered or left the task zone. The default is 75 meters (Fig. 2.282).

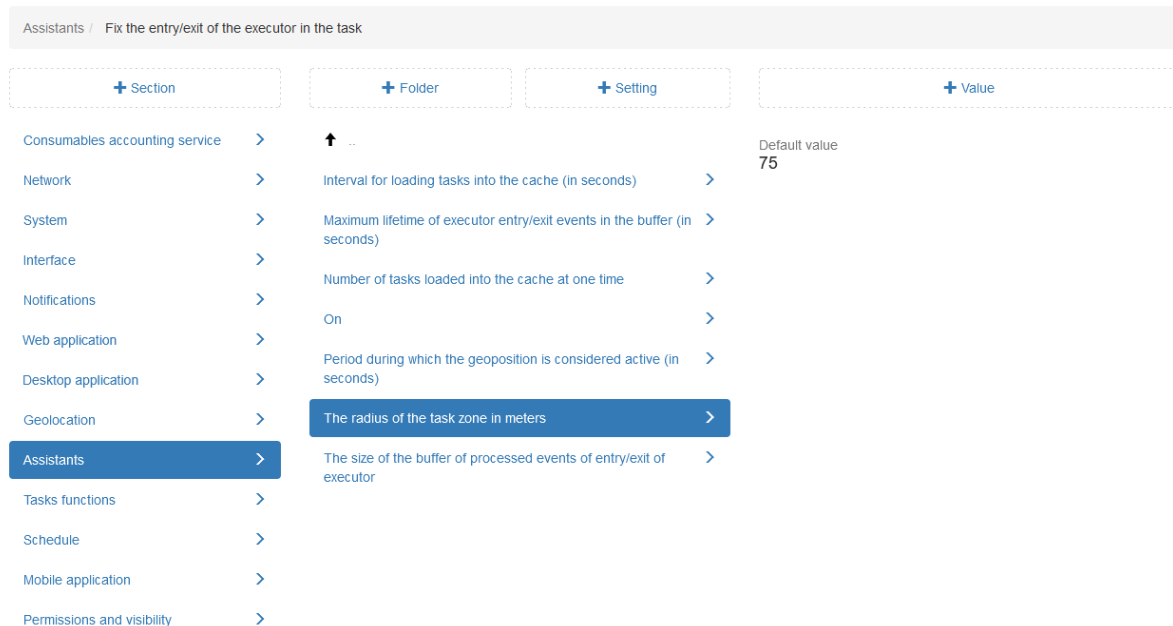


Fig. 2.282: Task zone radius

Attention: If you change this setting while Cerebellum is running, a large number of executors may get in/out of the task radius. This can severely overload the system by causing a mass addition of comments.

The size of the buffer of processed events of entry/exit of the executor

Engineering setting. This value is for developer use only during debugging. There can be a large number of tasks in the system, where the event of entering/leaving the zone of the task occurs. For all these tasks, the system has to add the appropriate comment. First of all, the system takes the task from the database, since only its id is stored in the cache. Performing this operation one by one for all tasks can cause a large load on the database. Therefore, the buffer of processed events is used. This setting specifies the size of the buffer (Fig. 2.283). The default is 20 events.

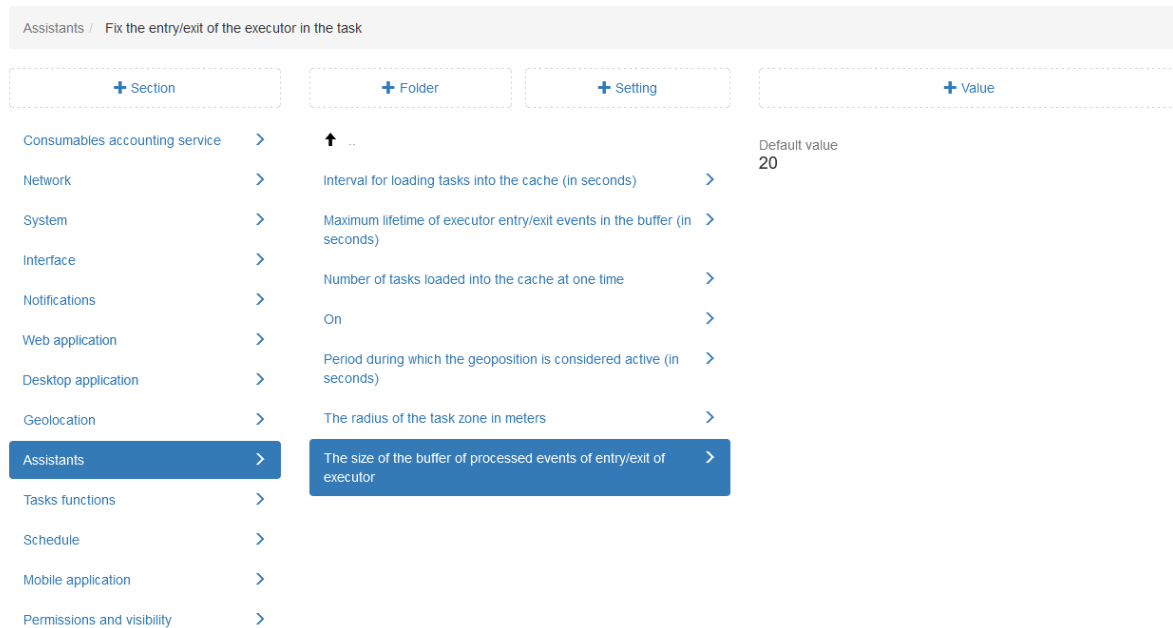


Fig. 2.283: The size of the buffer of processed events of entry/exit of the executor

Monitoring the expiry of the task deadline

These settings allow recording the expiration of the task in the task history. This setting is enabled by default (Fig. 2.284).

Expiration control functions under the following conditions:

- The “Control of the expiration of tasks” setting is enabled.
- The task is not a template.
- The task execution deadline is in the future.
- The task is at the “In progress” step.

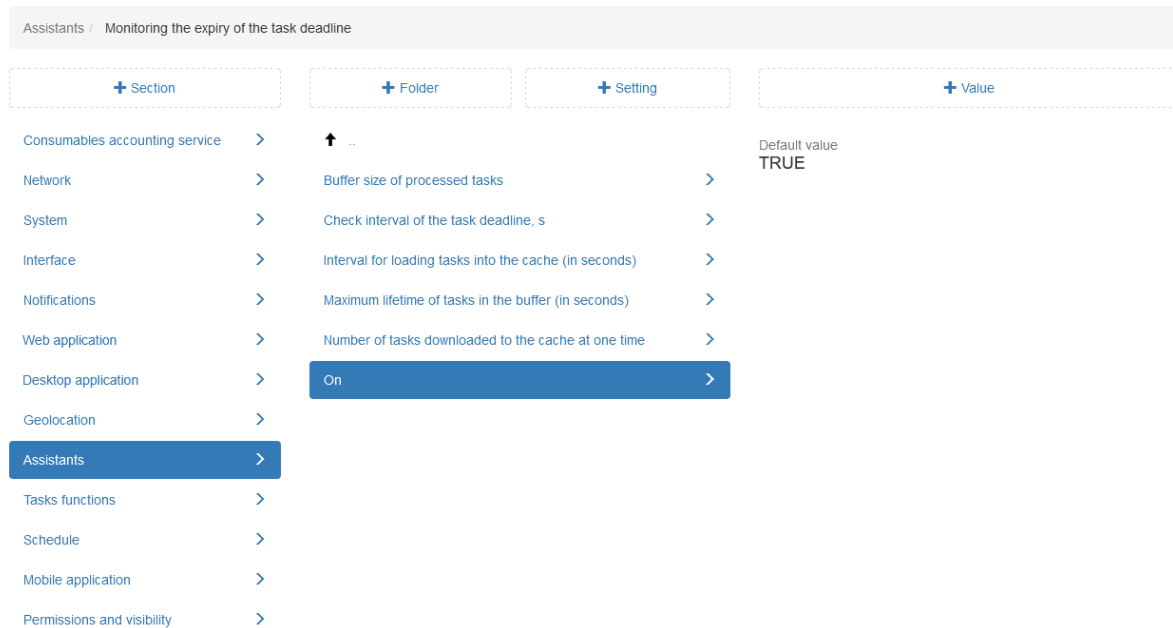


Fig. 2.284: Deadline control for tasks

Attention: The deadline is monitored regardless of the value of the setting. The value only affects whether events of deadlines expiration are recorded in the database or in comments in the task.

Buffer size of processed tasks

Engineering setting. This value is for developer use only during debugging. There may be a large number of tasks in the system with the same execution deadline, such as scheduled tasks. Upon expiration, the system has to change the corresponding column and add a comment in each of these tasks. First of all, the system takes the task from the database, since only its ID is stored in the cache. Performing this operation one by one for all expired tasks can cause a large load on the database. Therefore, there is a buffer of expired tasks that fills up as the due date arrives. Expired tasks from the buffer are sent for processing only after the buffer is fully filled, as well as on timeout. This setting specifies the size of the buffer (Fig. 2.285). The default is 50 tasks.

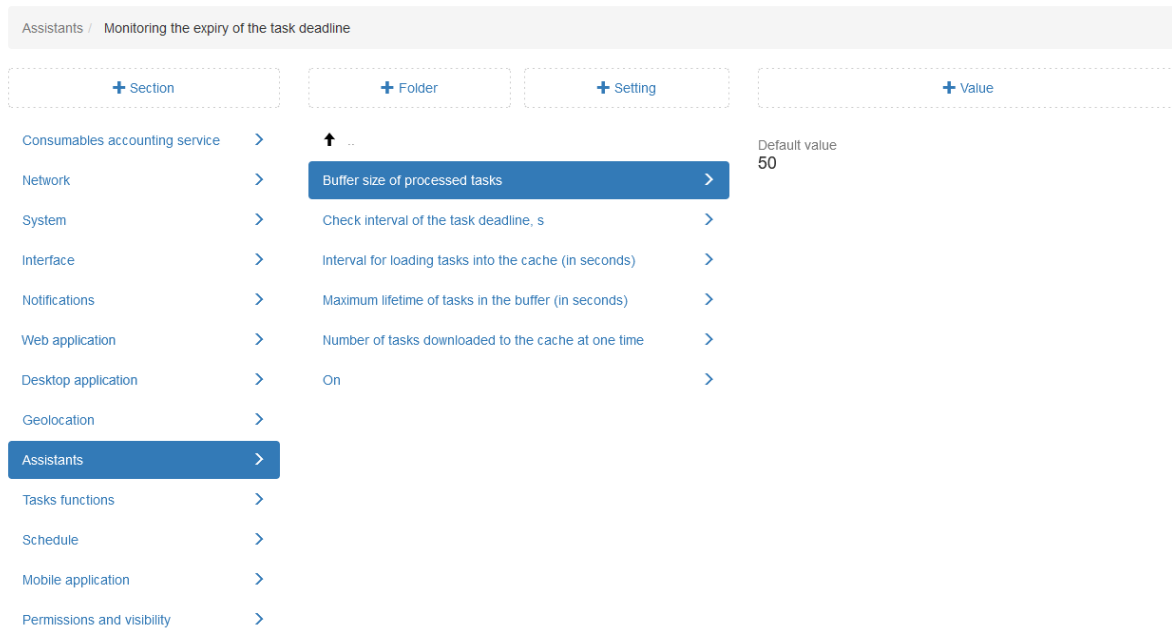


Fig. 2.285: Buffer size of processed tasks

Check interval of the task deadline

This setting specifies how often Cerebellum checks for expired tasks (Fig. 2.286). The default is 30 seconds.

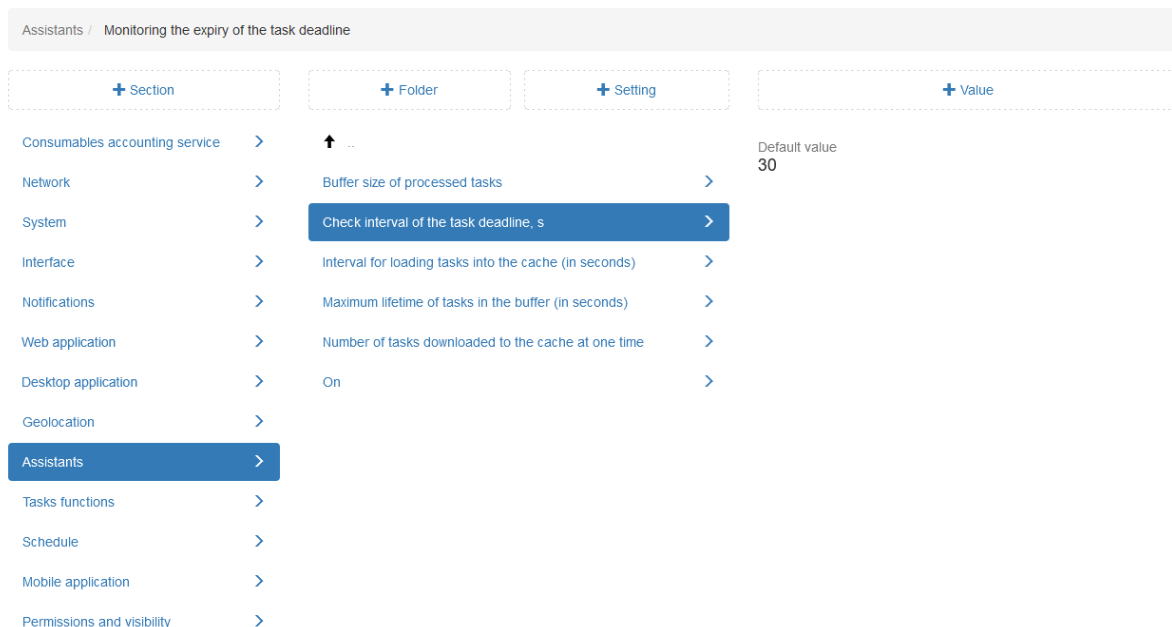


Fig. 2.286: Expiration check interval

Interval for loading tasks into the cache (in seconds)

This setting controls the process of filling the internal cache of the deadline control mechanism with tasks. It specifies how often the next sets of tasks should be loaded from the database into the cache (Fig. 2.287).

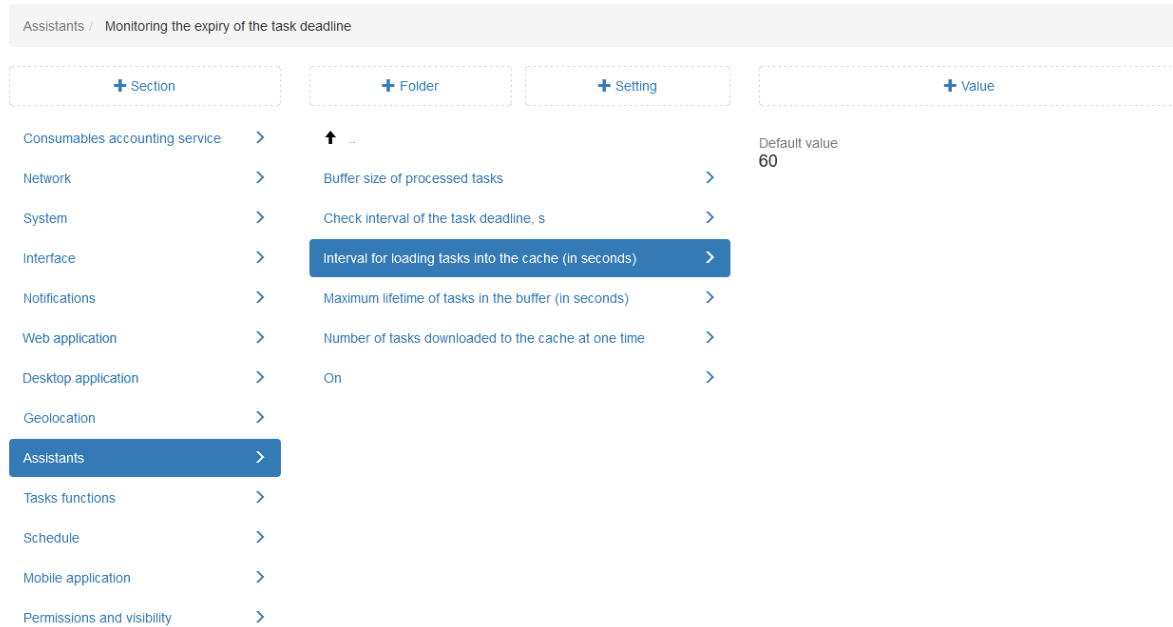


Fig. 2.287: Interval for loading tasks into the cache

Maximum lifetime of tasks in the buffer (in seconds)

Engineering setting. This value is for developer use only during debugging. It specifies the frequency of sending expired tasks for processing from the buffer regardless of the buffer size. The timeout is used for timely processing of expired tasks if the expiration event occurs very rarely (Fig. 2.288). The default is 1 second.

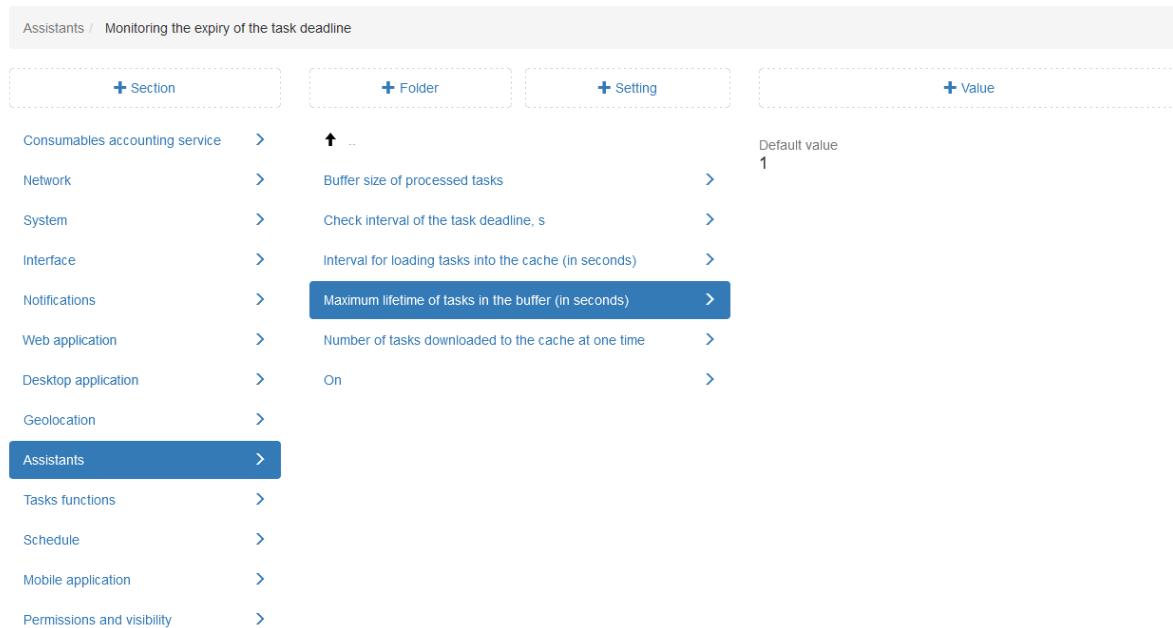


Fig. 2.288: Maximum lifetime of tasks in the buffer

Number of tasks downloaded to the cache at one time

To track the deadline for execution, Cerebellum uses a cache that stores the mapping between tasks and their execution deadlines in ascending order. The cache is populated and updated when tasks are created, modified, and deleted, as well as when Cerebellum starts to load information about existing tasks. Such a load happens gradually to avoid excessive server load. With a certain periodicity, Cerebellum saves the next set of tasks in the cache in ascending order of their execution deadlines. This setting specifies how many tasks are loaded from the database into the cache at once (Fig. 2.289).

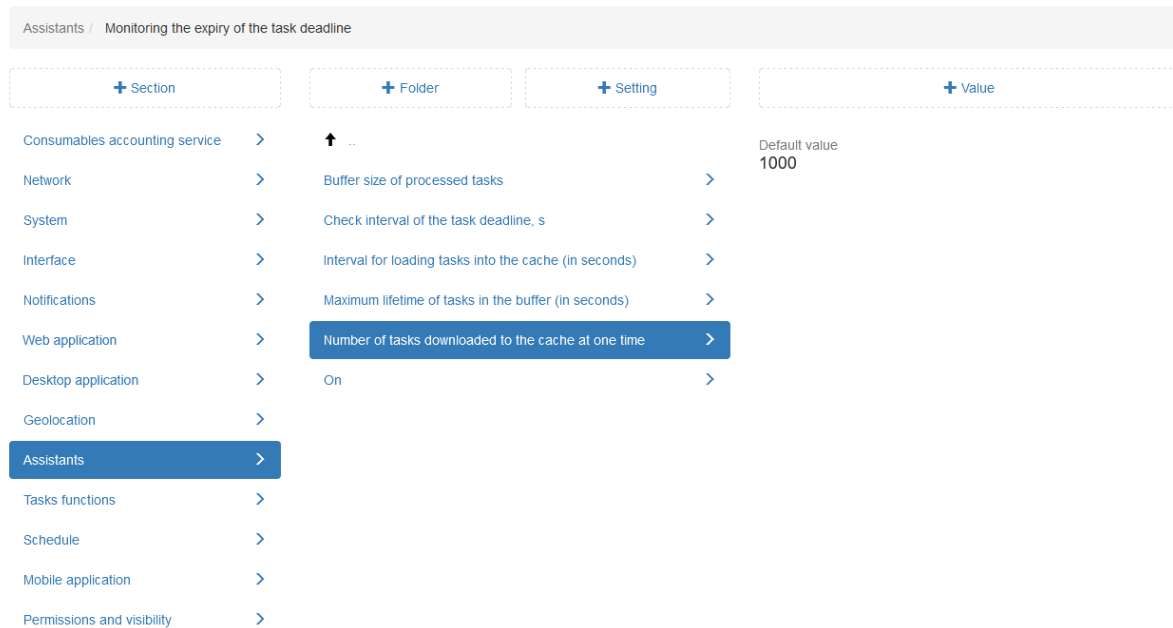


Fig. 2.289: Number of tasks downloaded to the cache at once

2.3.3.7.10 “Task functions” section

This section contains settings for server operation with tasks and beacons (Fig. 2.290). You can set a new value for the setting by selecting it, then clicking “+ Value”. Turn on/off the toggle switch or enter a new value in the opened window and fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

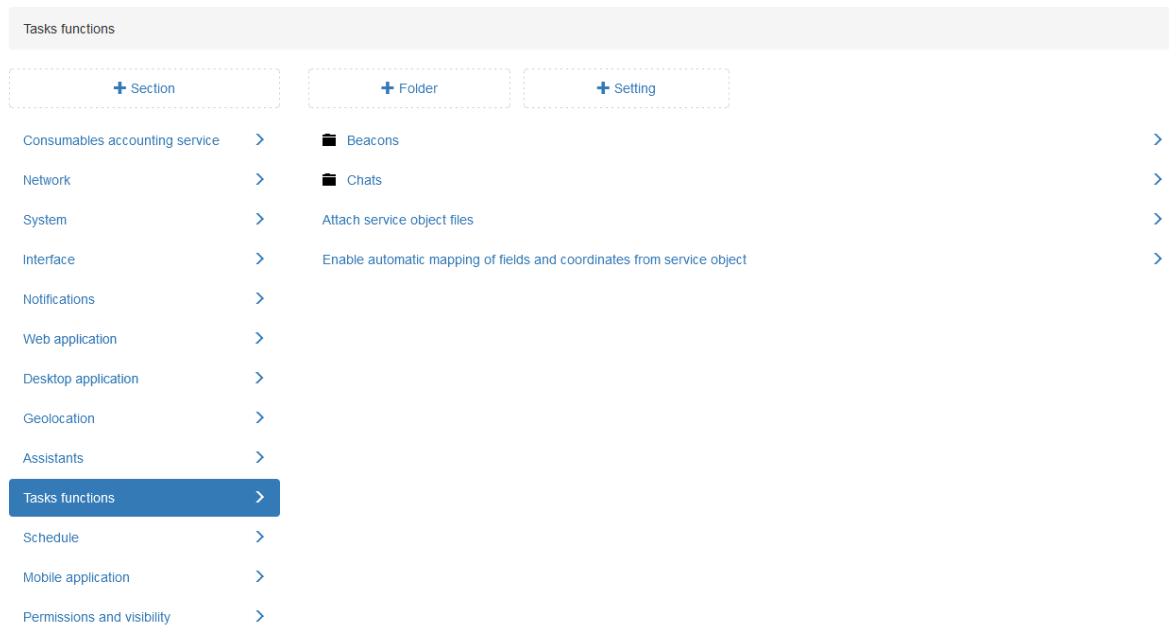


Fig. 2.290: “Task functions” section

Beacons

The folder contains settings for working with BLE tags (beacons).

Bluetooth Low Energy (BLE) tags, also known as beacons, is a class of Bluetooth Low Energy (LE) devices that broadcast their identifiers to nearby portable electronic devices. The identifier and several bytes sent with it can be used to determine the device’s physical location, track customers, or trigger a location-based action on the device.

Beacons collecting enabled

The setting allows you to activate the collection of BLE tags (beacons) in the system. The setting is enabled by default (Fig. 2.291).

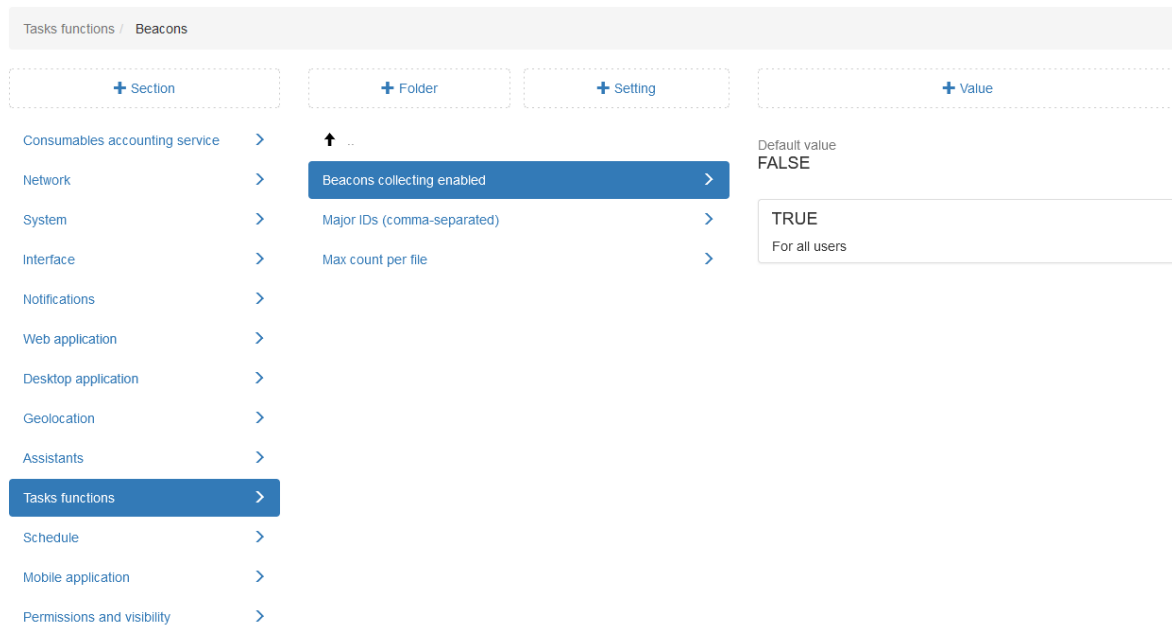


Fig. 2.291: Beacons collecting

Major IDs (comma-separated)

The setting specifies identifiers for filtering BLE tags (beacons). If no values are set, then all BLE tags will be detected (Fig. 2.292). After specifying new identifiers, you have to update the data in the ActiveMap Mobile application.

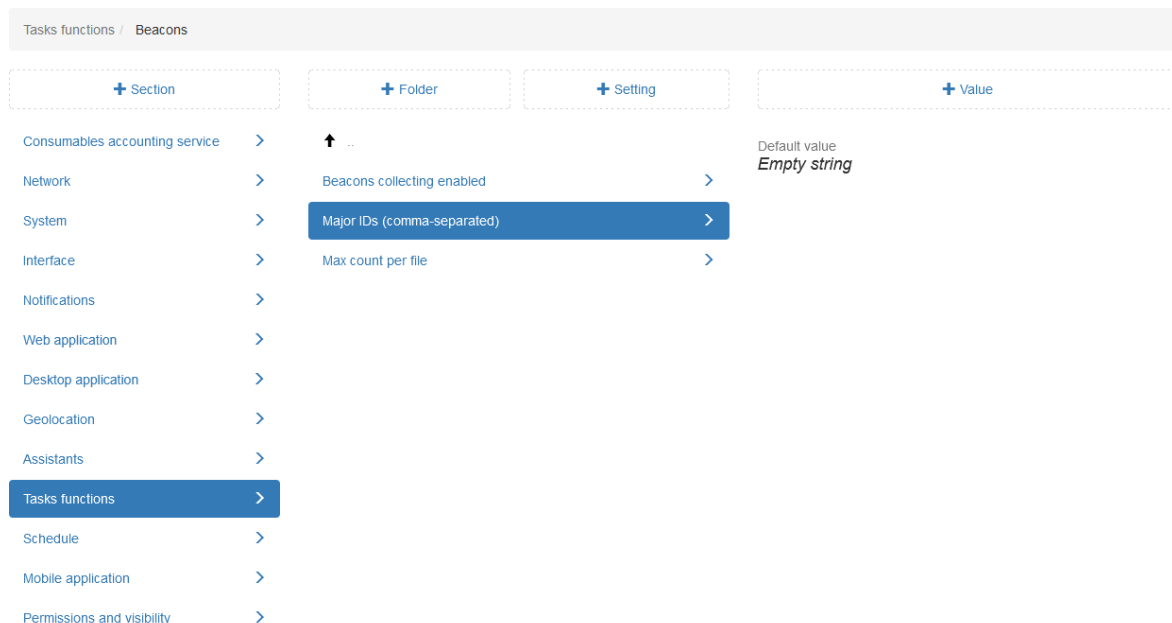


Fig. 2.292: Major beacon IDs

Max count per file

There can be a large number of active BLE tags (beacons) inside a building. The setting allows you to set the maximum number of beacons which information will be stored in the photo. The default setting is 5 beacons (Fig. 2.293).

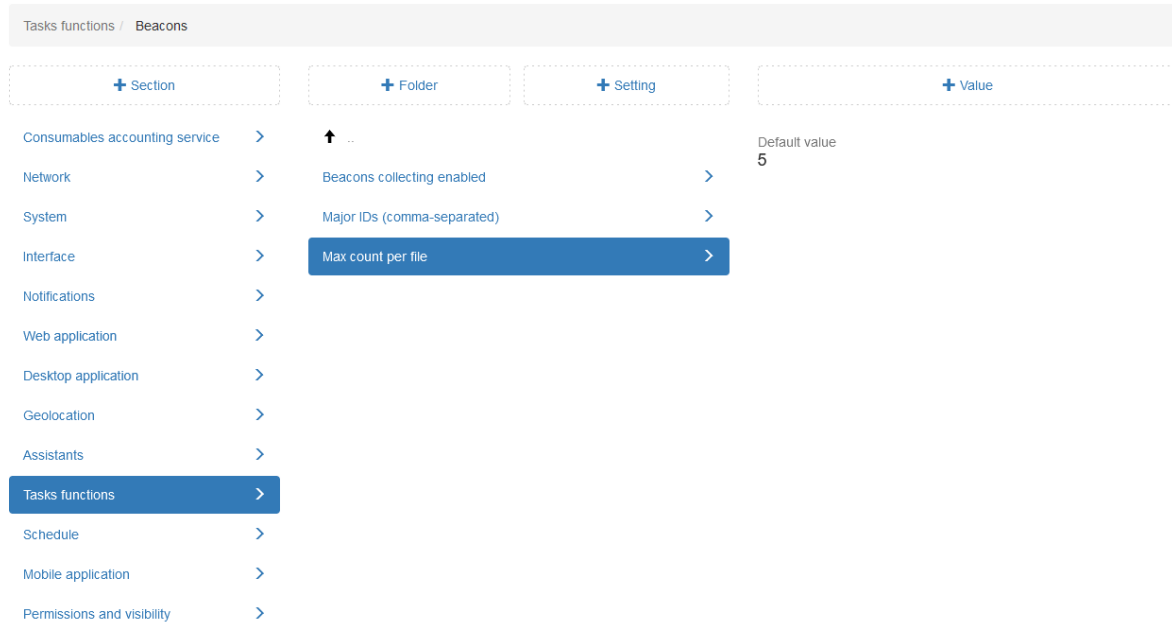


Fig. 2.293: Maximum number of tags per file

Chats

Number of chats loaded at a time when the application starts

Engineering setting. Only developers change it during debugging. It specifies how many comments are loaded at once when starting (Fig. 2.294).

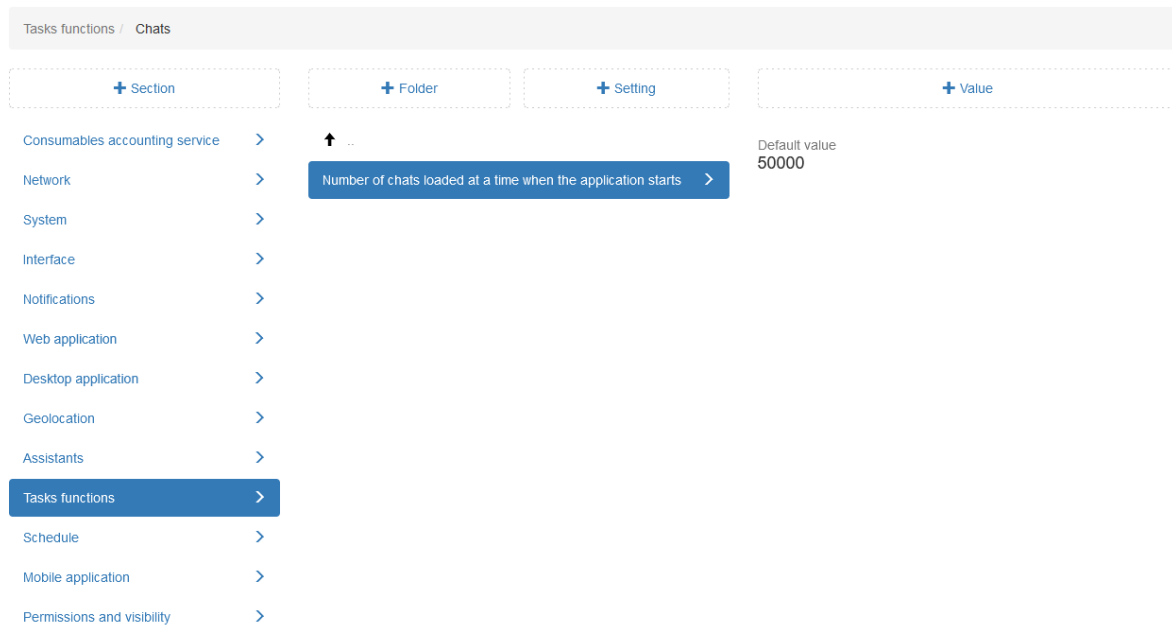


Fig. 2.294: Number of chats loaded at a time when the application starts

Attach service object files when creating a task

Setting that allows users to copy files of the related service object when creating a task. By default, this setting is disabled (Fig. 2.295).

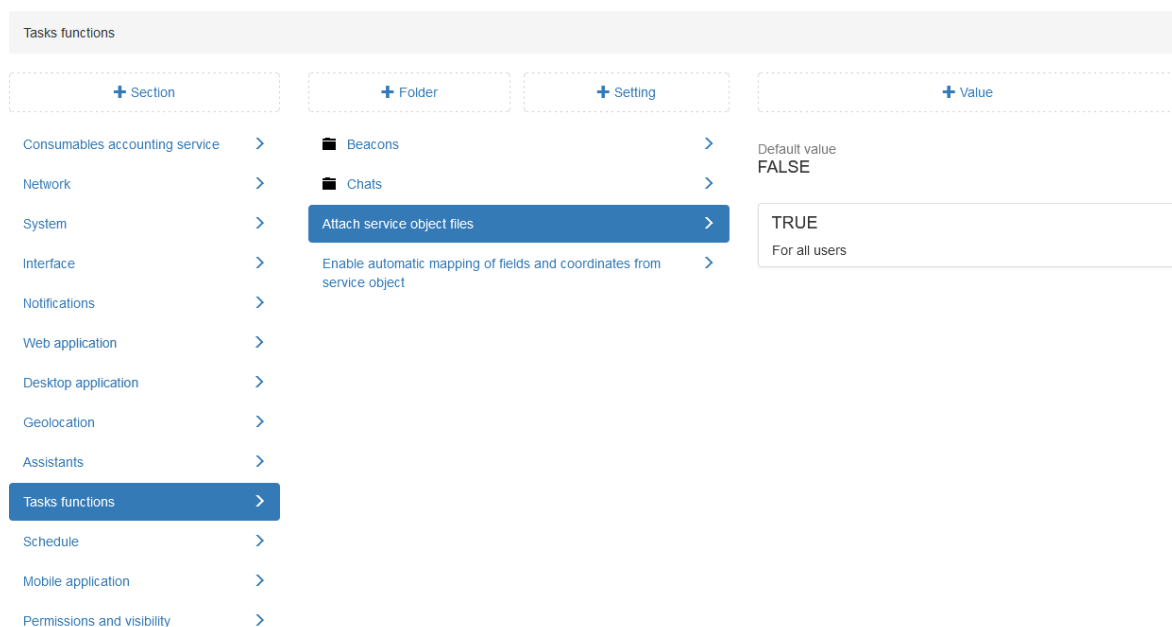


Fig. 2.295: Attachment of service object files

Enable automatic mapping of fields and coordinates from the service object

Server setting that allows users to enable copying of fields and coordinates from the service object to custom fields when creating a task. By default, the setting is enabled (Fig. 2.296).

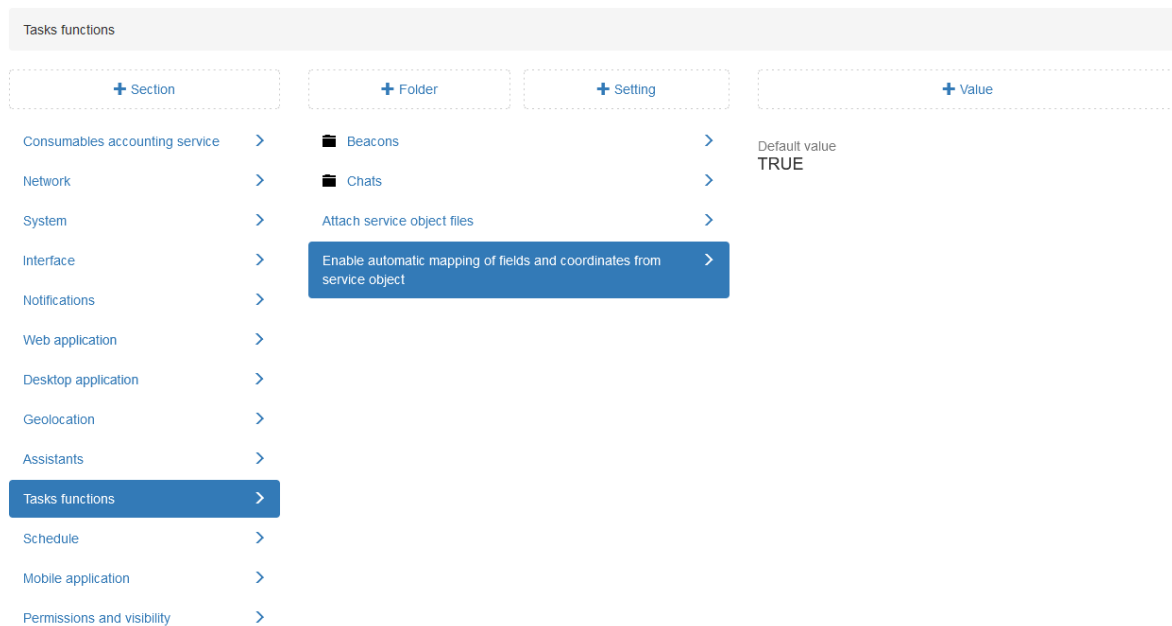


Fig. 2.296: Automatic mapping of fields and coordinates from the service object

2.3.3.7.11 “Schedule” section

This section contains settings that allow you to optimize system performance when creating schedules (Fig. 2.297). You can set a new value for the setting by selecting it, then clicking “+ Value”. Turn on/off the toggle switch or enter a new value in the opened window and fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

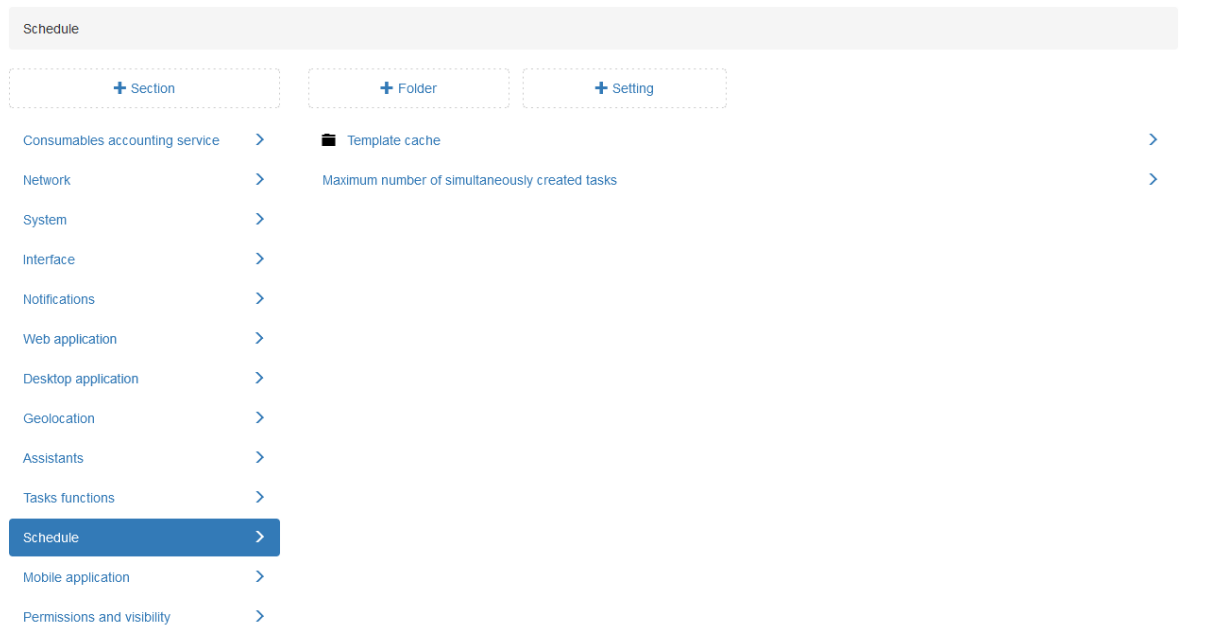


Fig. 2.297: “Schedule” section

Template cache

The folder contains settings for the cache of task templates created by schedule.

Cache cleanup interval (seconds)

The setting allows you to specify how often the template cache will be cleared (Fig. 2.298). The default is 3600 seconds (1 hour).

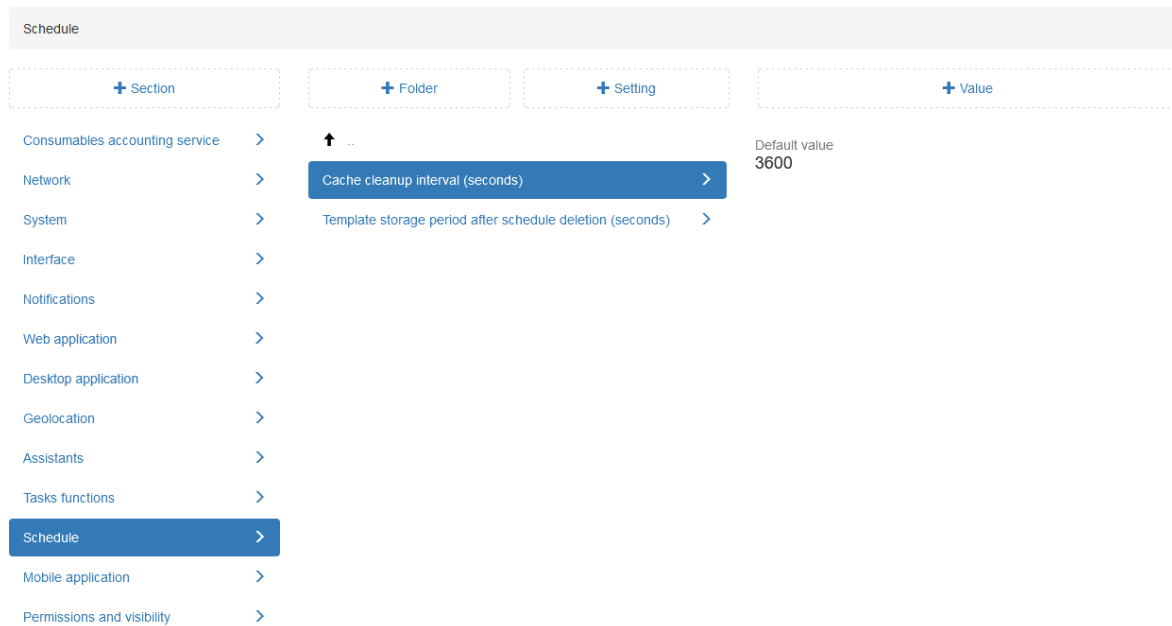


Fig. 2.298: Cache cleanup interval (in seconds)

Template storage period after schedule deletion (seconds)

The setting allows you to specify the template storage period in the cache after deleting or changing the schedule (Fig. 2.299). The default is 3600 seconds (1 hour).

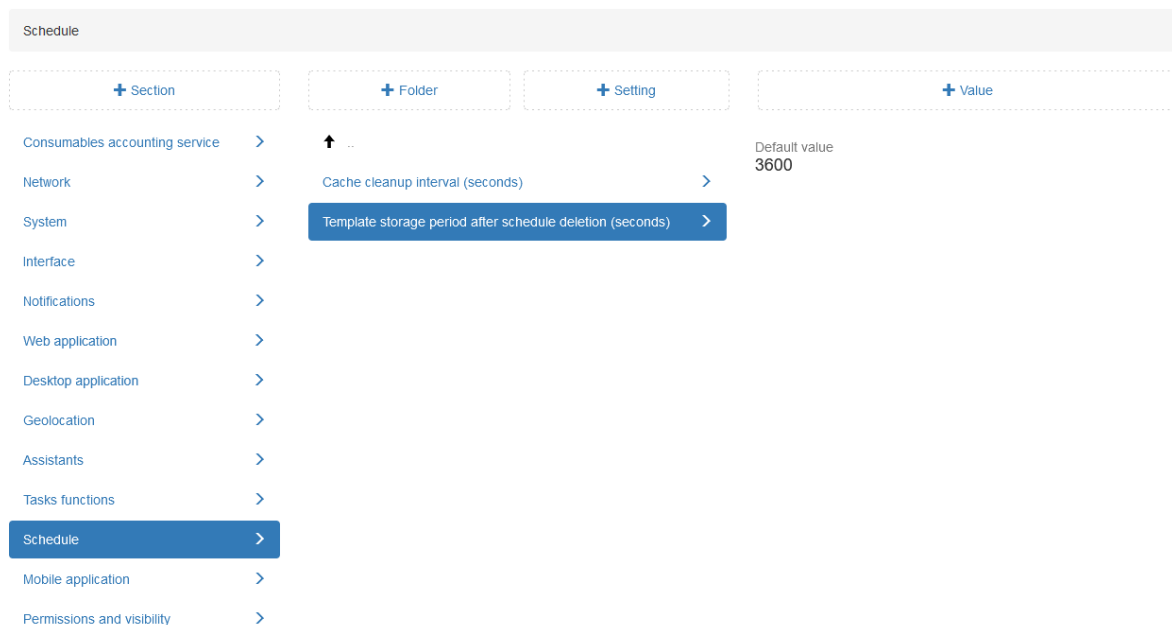


Fig. 2.299: Template storage period after schedule deletion (in seconds)

Maximum number of simultaneously created tasks

This section specifies the maximum number of simultaneously created scheduled tasks. The default setting is 2 tasks. This means that no more than 2 schedule tasks are created at once (Fig. 2.300).

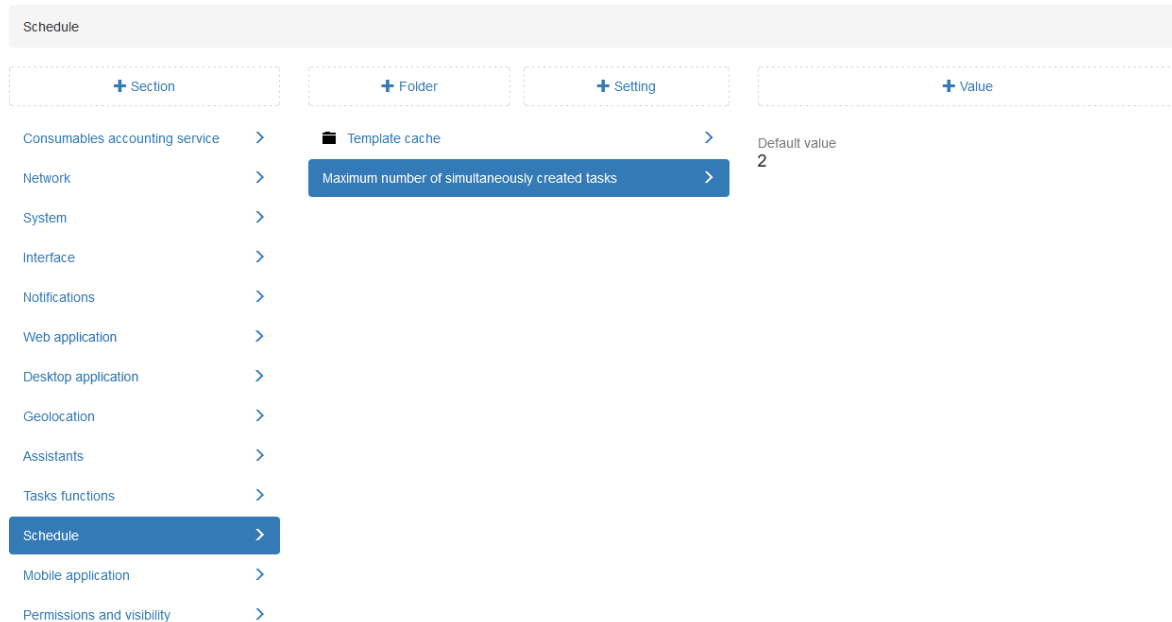


Fig. 2.300: Maximum number of simultaneously created tasks

2.3.3.7.12 “Mobile application” section

The “Mobile application” section allows configuring additional options for working in the ActiveMap Mobile application as well as in the simplified version of the mobile app (Fig. 2.301). You can set a new value by selecting the setting, then clicking “+Value”. Enable/disable the toggle switch or enter the required name in the opened window and fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

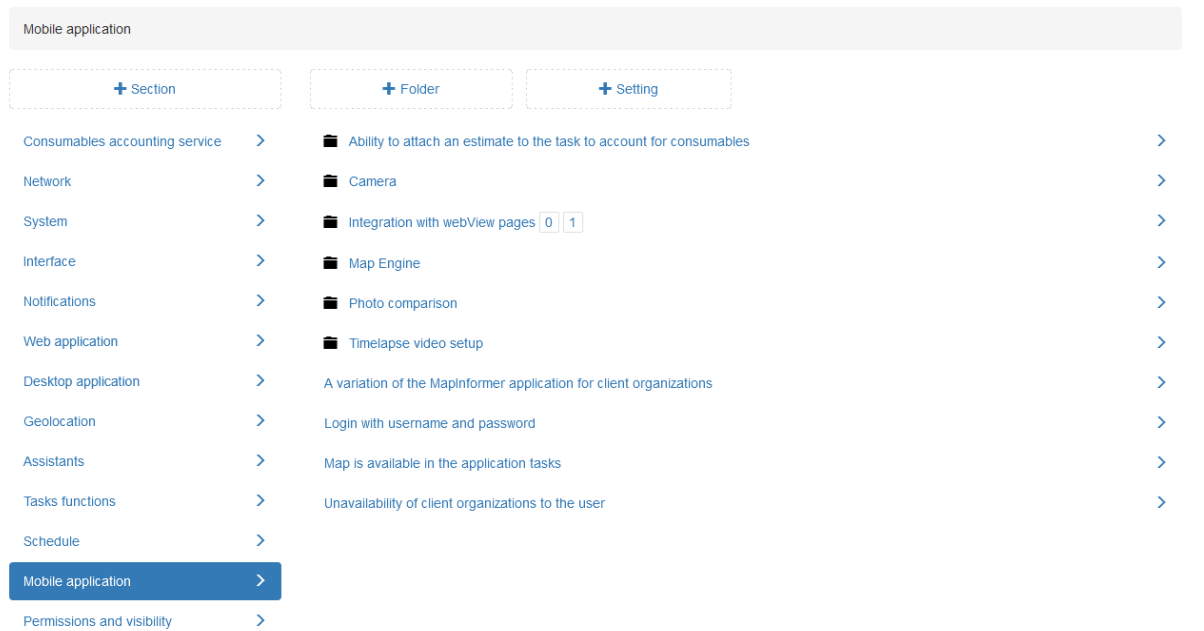


Fig. 2.301: “Mobile application” section

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

In this folder, you can add the invoice module (the “Invoice” button in the task card).

Paragraph text

This setting allows you to set the name of the module in the application (Fig. 2.302).

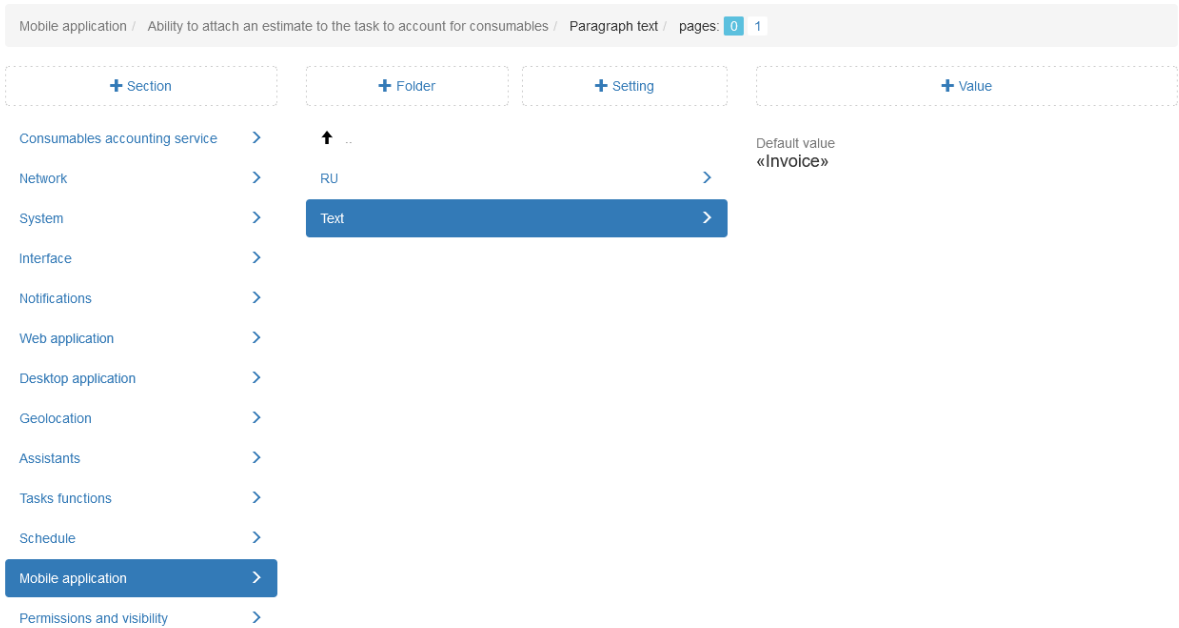


Fig. 2.302: Specifying the name of the module

Activate

This setting allows you to activate the invoice module. By default, this setting is disabled (Fig. 2.303).

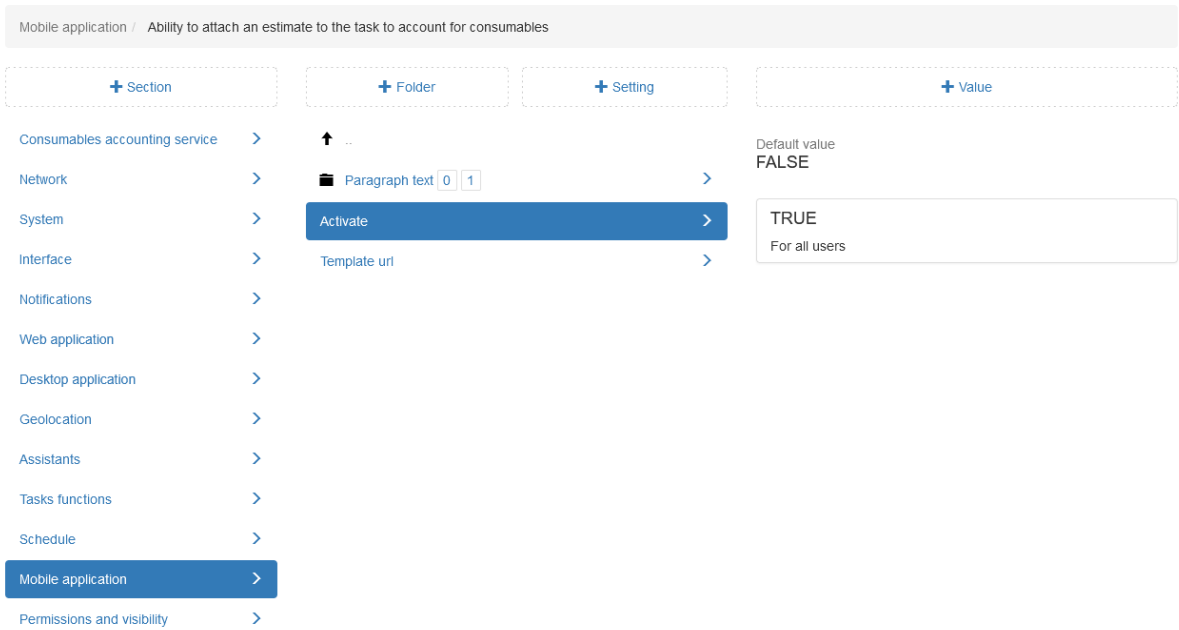


Fig. 2.303: Activating the invoice module

URL template

This setting shows the web address of the page that opens when you

click the “Invoice” button.

Camera

In this folder, you can add settings for the custom camera in the mobile application.

Consider the distance from the task point

If both this setting and “**Prohibit photographing**” are enabled and the user is far from the task point, a message appears when trying to add a photo. It indicates that a photo cannot be taken due to a large location error. If “**Prohibit photographing**” is disabled and this setting is active, you still can take a photo, but the geolocation icon turns red. By default, this setting is disabled (Fig. 2.304).

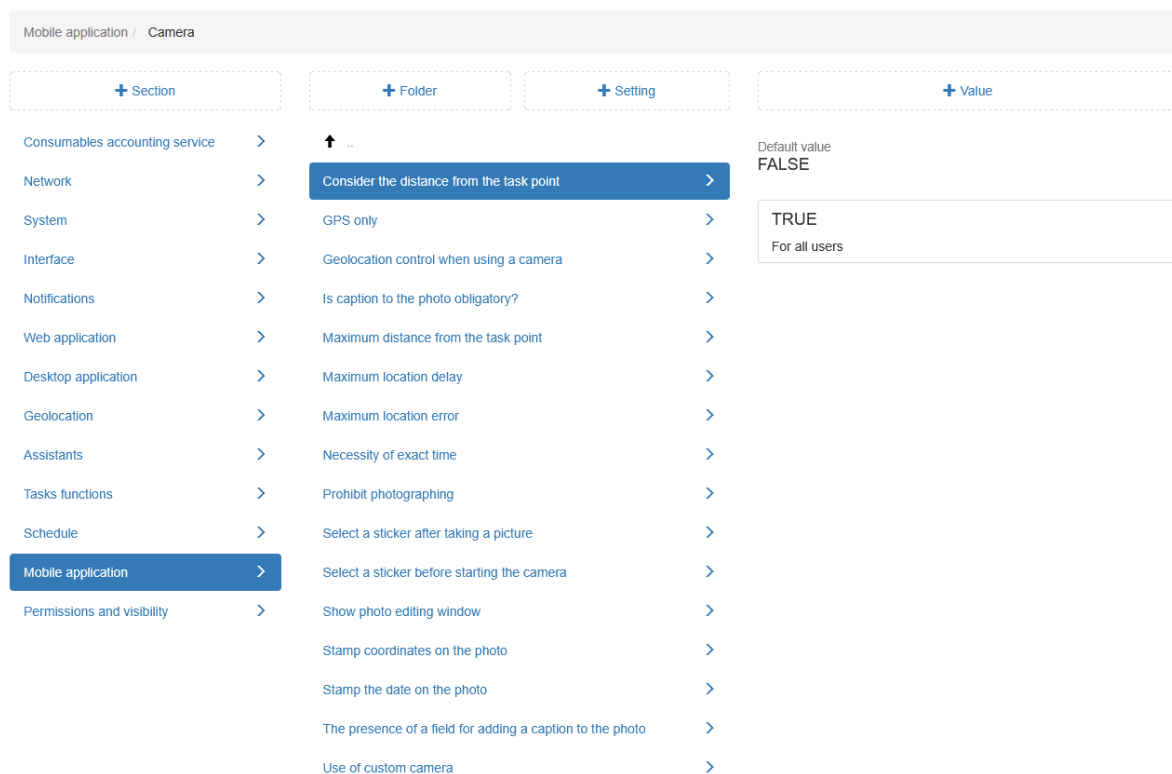


Fig. 2.304: Distance from the task point

GPS Only

The setting allows users to set the location source. If the setting is enabled, only information from the GPS source is used to determine the location. When the setting is off, coordinates can also be determined by cellular networks. By default, this setting is disabled (Fig. 2.305).

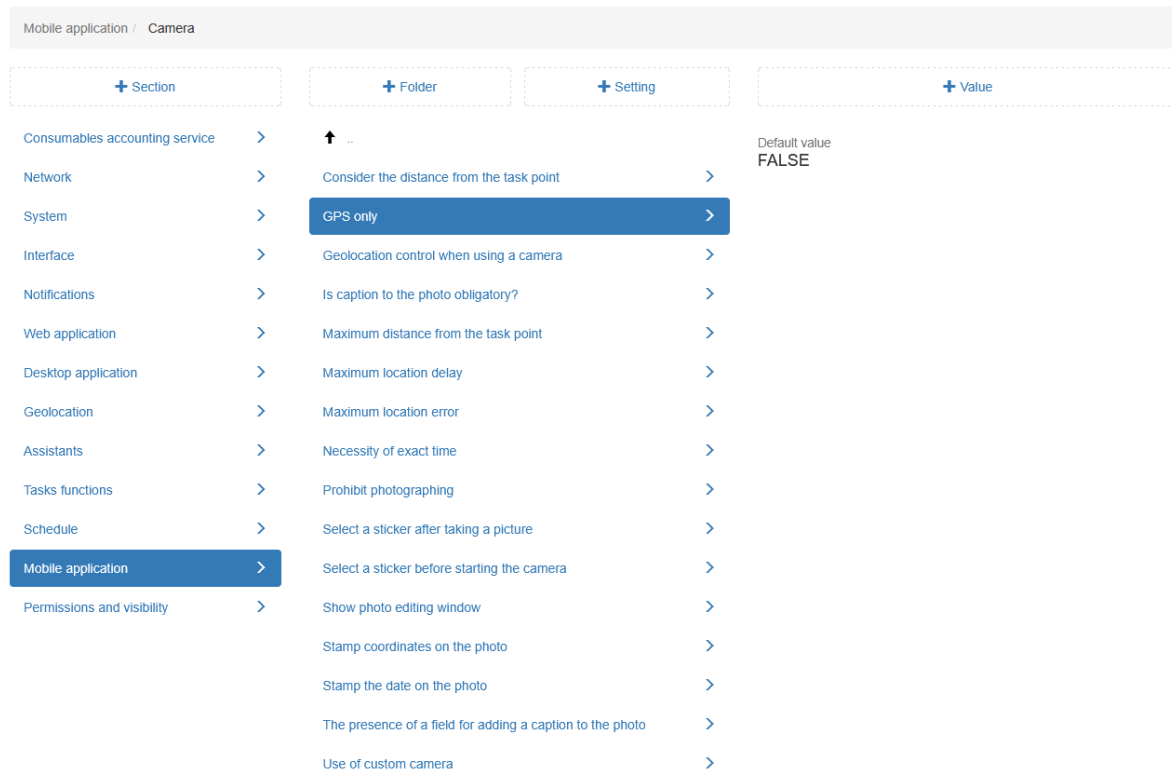


Fig. 2.305: Coordinate source

Geolocation control when using a camera

When the camera is launched, the application begins to search for the user's current location. If the location cannot be found, the photo has no coordinates. This setting prevents taking photos until the user's location is determined. This setting is enabled by default. If a value is added that prohibits controlling the location when using the camera, the application does not prevent taking photos, even if the coordinates have not yet been determined (Fig. 2.306).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value TRUE
Network >	Consider the distance from the task point	>	
System >	GPS only	>	
Interface >	Geolocation control when using a camera	>	
Notifications >	Is caption to the photo obligatory?	>	
Web application >	Maximum distance from the task point	>	
Desktop application >	Maximum location delay	>	
Geolocation >	Maximum location error	>	
Assistants >	Necessity of exact time	>	
Tasks functions >	Prohibit photographing	>	
Schedule >	Select a sticker after taking a picture	>	
Mobile application >	Select a sticker before starting the camera	>	
Permissions and visibility >	Show photo editing window	>	
	Stamp coordinates on the photo	>	
	Stamp the date on the photo	>	
	The presence of a field for adding a caption to the photo	>	
	Use of custom camera	>	

Fig. 2.306: Geolocation control when using a camera

Is caption to the photo obligatory?

This setting makes it mandatory to add a caption to the attached photo. Thus, the user cannot attach a photo to a task without adding a caption first. By default, this setting is disabled (Fig. 2.307).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	Consider the distance from the task point	>	
System >	GPS only	>	
Interface >	Geolocation control when using a camera	>	
Notifications >	Is caption to the photo obligatory?	>	
Web application >	Maximum distance from the task point	>	
Desktop application >	Maximum location delay	>	
Geolocation >	Maximum location error	>	
Assistants >	Necessity of exact time	>	
Tasks functions >	Prohibit photographing	>	
Schedule >	Select a sticker after taking a picture	>	
Mobile application >	Select a sticker before starting the camera	>	
Permissions and visibility >	Show photo editing window	>	
	Stamp coordinates on the photo	>	
	Stamp the date on the photo	>	
	The presence of a field for adding a caption to the photo	>	
	Use of custom camera	>	

Fig. 2.307: Add a caption to the photo

Maximum distance from the task point

This setting sets the maximum distance (in meters) from the task point at which a photo can be taken (Fig. 2.308).

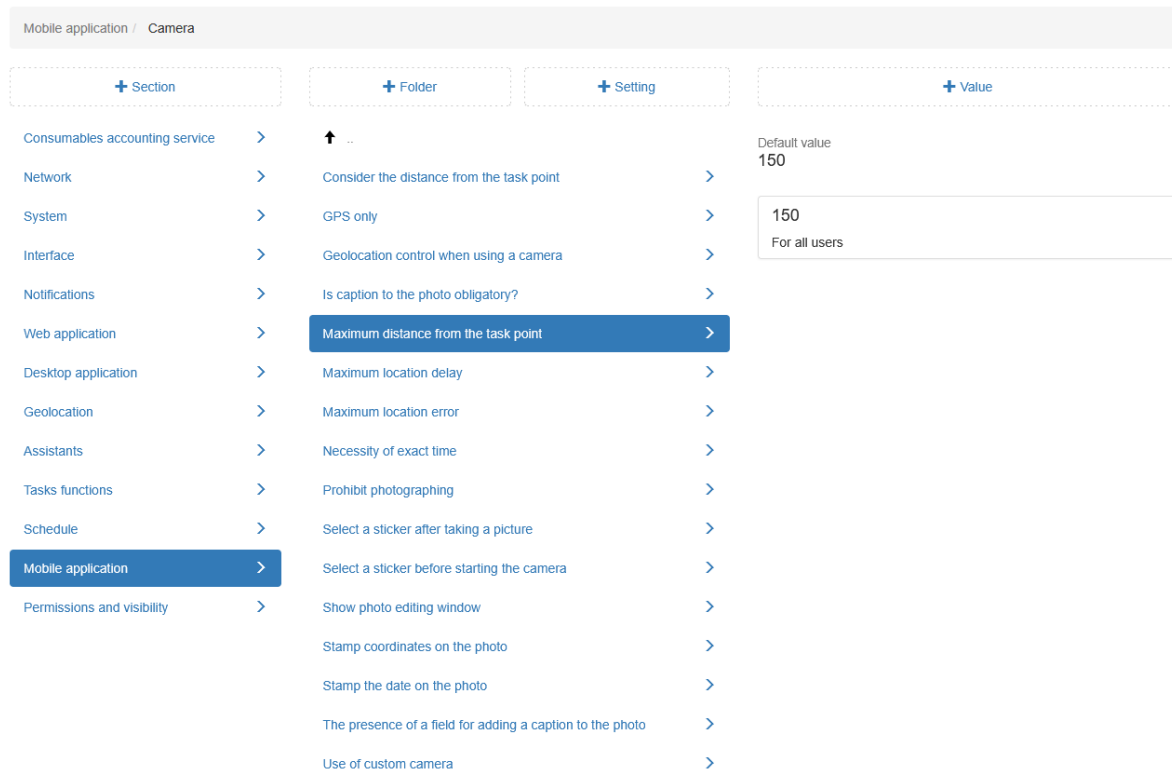


Fig. 2.308: Maximum distance from the task point

Maximum location delay

This setting specifies the time (in milliseconds) of the relevance of the device's geolocation after losing the GPS signal when using the built-in camera. If the location was obtained more than the specified value of milliseconds ago and the "Prohibit photographing" setting is enabled, the application does not allow taking a photo until it receives a point that meets the requirements (Fig. 2.309).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value 10000
Network >	Consider the distance from the task point	>	
System >	GPS only	>	
Interface >	Geolocation control when using a camera	>	
Notifications >	Is caption to the photo obligatory?	>	
Web application >	Maximum distance from the task point	>	
Desktop application >	Maximum location delay	>	
Geolocation >	Maximum location error	>	
Assistants >	Necessity of exact time	>	
Tasks functions >	Prohibit photographing	>	
Schedule >	Select a sticker after taking a picture	>	
Mobile application >	Select a sticker before starting the camera	>	
Permissions and visibility >	Show photo editing window	>	
	Stamp coordinates on the photo	>	
	Stamp the date on the photo	>	
	The presence of a field for adding a caption to the photo	>	
	Use of custom camera	>	

Fig. 2.309: Maximum location delay

Maximum location error

The setting allows specifying the permissible error (in meters) of determining the device's geolocation when using the built-in camera. If the received location has a larger error than the set value and the "Prohibit photographing" setting is enabled, then the application does not allow taking a photo until it receives a point that meets the requirements (Fig. 2.310).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service	↑ ..		Default value 50
Network	Consider the distance from the task point		
System	GPS only		
Interface	Geolocation control when using a camera		
Notifications	Is caption to the photo obligatory?		
Web application	Maximum distance from the task point		
Desktop application	Maximum location delay		
Geolocation	Maximum location error		
Assistants	Necessity of exact time		
Tasks functions	Prohibit photographing		
Schedule	Select a sticker after taking a picture		
Mobile application	Select a sticker before starting the camera		
Permissions and visibility	Show photo editing window		
	Stamp coordinates on the photo		
	Stamp the date on the photo		
	The presence of a field for adding a caption to the photo		
	Use of custom camera		

Fig. 2.310: Maximum location error

Necessity of exact time

When this setting is enabled, the application does not allow taking a photo until the time is synchronized with accurate time (from the Internet or GPS). Synchronization is required once and is saved until the device is turned off. If this setting is disabled, synchronization is still performed, but it does not prevent taking photos, creating a situation where the device time is attached to the photo. By default, this setting is disabled (Fig. 2.311).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value FALSE
Network >	Consider the distance from the task point	>	
System >	GPS only	>	
Interface >	Geolocation control when using a camera	>	
Notifications >	Is caption to the photo obligatory?	>	
Web application >	Maximum distance from the task point	>	
Desktop application >	Maximum location delay	>	
Geolocation >	Maximum location error	>	
Assistants >	Necessity of exact time	>	
Tasks functions >	Prohibit photographing	>	
Schedule >	Select a sticker after taking a picture	>	
Mobile application >	Select a sticker before starting the camera	>	
Permissions and visibility >	Show photo editing window	>	
	Stamp coordinates on the photo	>	
	Stamp the date on the photo	>	
	The presence of a field for adding a caption to the photo	>	
	Use of custom camera	>	

Fig. 2.311: Necessity of exact time

Prohibit photographing

The setting prohibits taking a photo if the user is outside the task zone geolocation, or if the geolocation function on the device is turned off, or if the geolocation services cannot determine (with a given accuracy) the location of the device. By default, this setting is disabled (Fig. 2.312).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service	↑ ..		Default value FALSE
Network	Consider the distance from the task point		
System	GPS only		
Interface	Geolocation control when using a camera		
Notifications	Is caption to the photo obligatory?		
Web application	Maximum distance from the task point		
Desktop application	Maximum location delay		
Geolocation	Maximum location error		
Assistants	Necessity of exact time		
Tasks functions	Prohibit photographing		
Schedule	Select a sticker after taking a picture		
Mobile application	Select a sticker before starting the camera		
Permissions and visibility	Show photo editing window		
	Stamp coordinates on the photo		
	Stamp the date on the photo		
	The presence of a field for adding a caption to the photo		
	Use of custom camera		

Fig. 2.312: Prohibition of photography

Select a sticker after taking a picture

The setting makes it mandatory to select a sticker after taking a photo. The application does not allow attaching a photo to the task without specifying a sticker first. The sticker selected from the list is added to the taken photo. This setting is disabled by default (Fig. 2.313).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service	↑ ..		Default value FALSE
Network	Consider the distance from the task point		
System	GPS only		
Interface	Geolocation control when using a camera		
Notifications	Is caption to the photo obligatory?		
Web application	Maximum distance from the task point		
Desktop application	Maximum location delay		
Geolocation	Maximum location error		
Assistants	Necessity of exact time		
Tasks functions	Prohibit photographing		
Schedule	Select a sticker after taking a picture		
Mobile application	Select a sticker before starting the camera		
Permissions and visibility	Show photo editing window		
	Stamp coordinates on the photo		
	Stamp the date on the photo		
	The presence of a field for adding a caption to the photo		
	Use of custom camera		

Fig. 2.313: Selecting a sticker after taking a picture

Select a sticker before starting the camera

This setting activates the window for selecting a sticker when clicking the “Add photo” button on the task card. You should specify the sticker first and then take the photo. Otherwise, you cannot add the photo. The sticker selected from the list is added to the photo taken. By default, this setting is disabled (Fig. 2.314).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service	↑ ..		Default value FALSE
Network	Consider the distance from the task point		
System	GPS only		
Interface	Geolocation control when using a camera		
Notifications	Is caption to the photo obligatory?		
Web application	Maximum distance from the task point		
Desktop application	Maximum location delay		
Geolocation	Maximum location error		
Assistants	Necessity of exact time		
Tasks functions	Prohibit photographing		
Schedule	Select a sticker after taking a picture		
Mobile application	Select a sticker before starting the camera		
Permissions and visibility	Show photo editing window		
	Stamp coordinates on the photo		
	Stamp the date on the photo		
	The presence of a field for adding a caption to the photo		
	Use of custom camera		

Fig. 2.314: Selecting a sticker before starting the camera

Show photo editing window

A setting that controls whether the photo preview and editing window appears when you use the camera. This setting is enabled by default (Fig. 2.315).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value TRUE
Network >	Consider the distance from the task point	>	
System >	GPS only	>	
Interface >	Geolocation control when using a camera	>	
Notifications >	Is caption to the photo obligatory?	>	
Web application >	Maximum distance from the task point	>	
Desktop application >	Maximum location delay	>	
Geolocation >	Maximum location error	>	
Assistants >	Necessity of exact time	>	
Tasks functions >	Prohibit photographing	>	
Schedule >	Select a sticker after taking a picture	>	
Mobile application >	Select a sticker before starting the camera	>	
Permissions and visibility >	Show photo editing window	>	
	Stamp coordinates on the photo	>	
	Stamp the date on the photo	>	
	The presence of a field for adding a caption to the photo	>	
	Use of custom camera	>	

Fig. 2.315: Show photo editing window

Stamp coordinates on the photo

The setting allows adding a location stamp (longitude and latitude coordinates) to photos taken via a custom camera in the ActiveMap Mobile Android (Fig. 2.316).

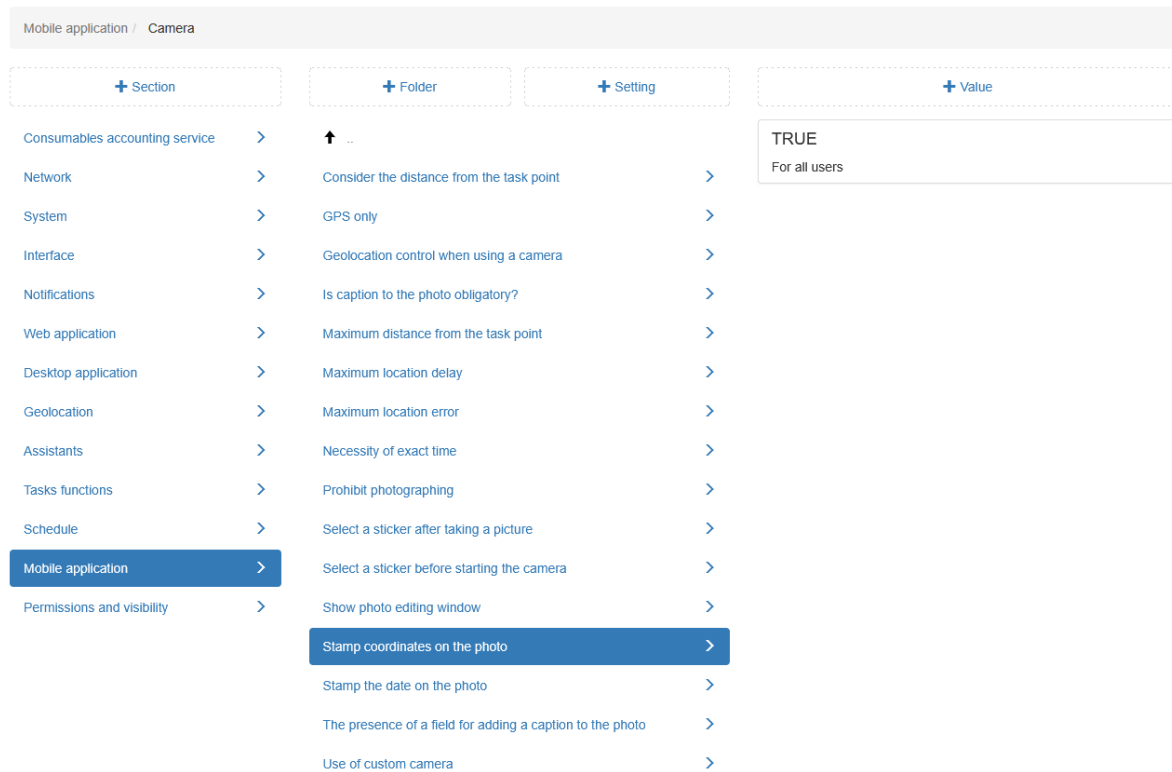


Fig. 2.316: Stamp coordinates on the photo

Stamp the date on the photo

This setting allows adding a date and time stamp to photos taken via a custom camera in the ActiveMap Mobile Android. This setting is enabled by default (Fig. 2.317).

Mobile application / Camera			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value TRUE
Network >	Consider the distance from the task point	>	
System >	GPS only	>	
Interface >	Geolocation control when using a camera	>	
Notifications >	Is caption to the photo obligatory?	>	
Web application >	Maximum distance from the task point	>	
Desktop application >	Maximum location delay	>	
Geolocation >	Maximum location error	>	
Assistants >	Necessity of exact time	>	
Tasks functions >	Prohibit photographing	>	
Schedule >	Select a sticker after taking a picture	>	
Mobile application >	Select a sticker before starting the camera	>	
Permissions and visibility >	Show photo editing window	>	
	Stamp coordinates on the photo	>	
	Stamp the date on the photo	>	
	The presence of a field for adding a caption to the photo	>	
	Use of custom camera	>	

Fig. 2.317: Stamp the date on the photo

The presence of a field for adding a caption to the photo

The setting allows adding photo descriptions in the photo editor in the mobile application. This setting is enabled by default (Fig. 2.318).

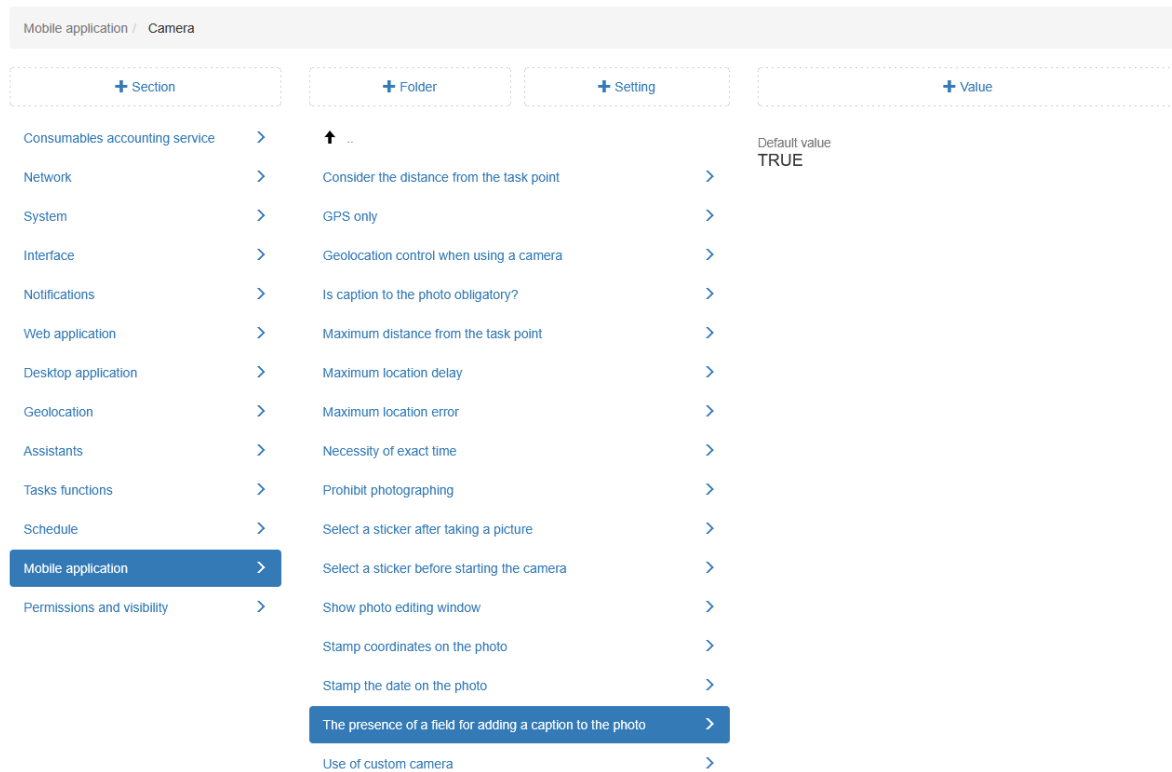


Fig. 2.318: Adding a caption to a photo

Use of custom camera

This setting allows you to prohibit using the standard device camera when working in a mobile application. This setting is enabled by default. If a value has been added that prohibits the use of a custom camera on the device, then the settings in this folder are ignored (Fig. 2.319).

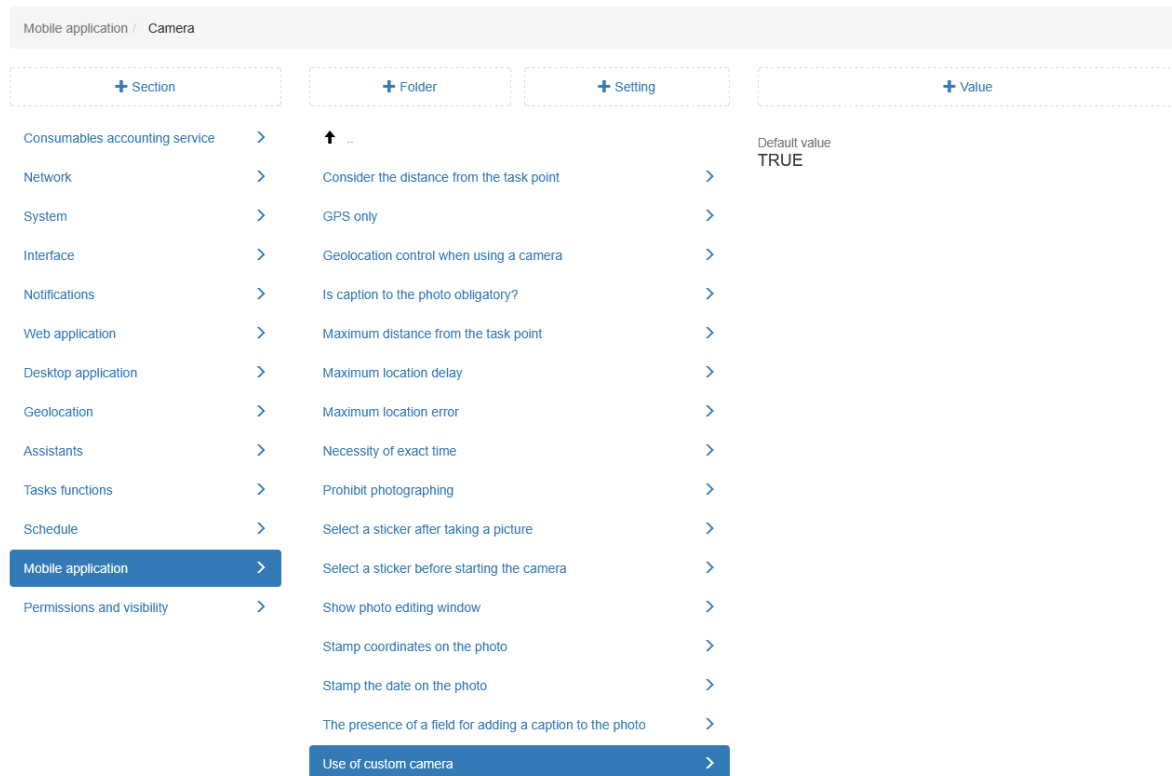


Fig. 2.319: Use of custom camera

Integration with webView pages

In this folder, you can add sections of third-party web applications and services to the navigation menu of the mobile application.

Text

To specify the name of a new section, go to the “**Menu name**” folder, select the “**Text**” setting, and enter the necessary value (Fig. 2.320).

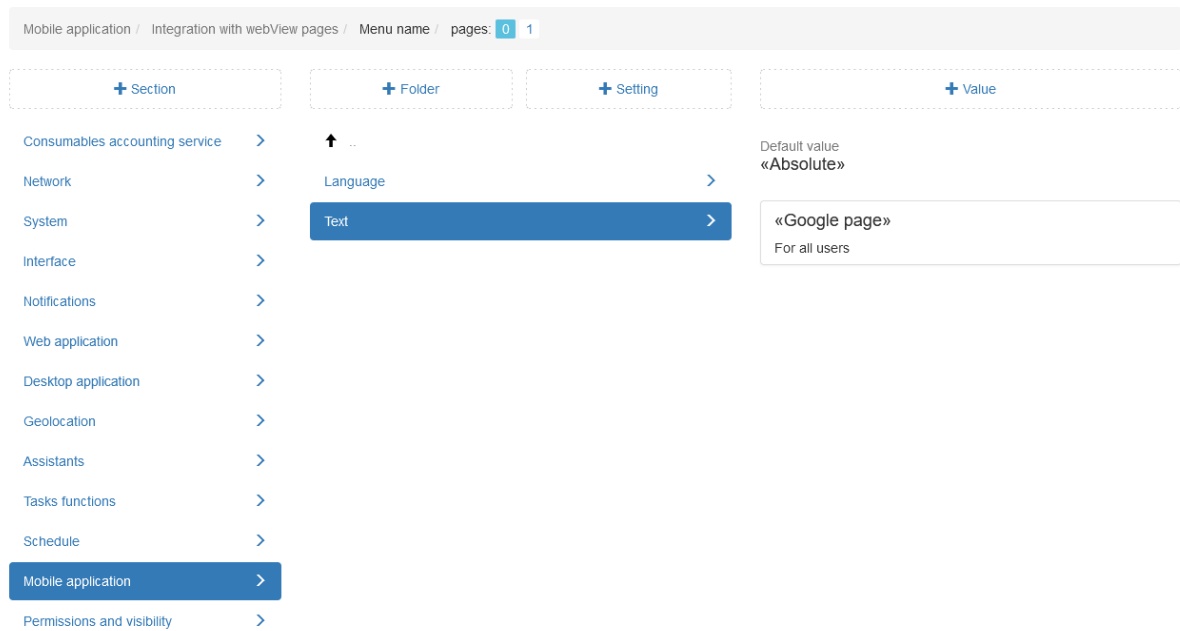


Fig. 2.320: Name of the connected web service

On

The setting allows enabling the connection of a third-party service. By default, this setting is disabled (Fig. 2.321).

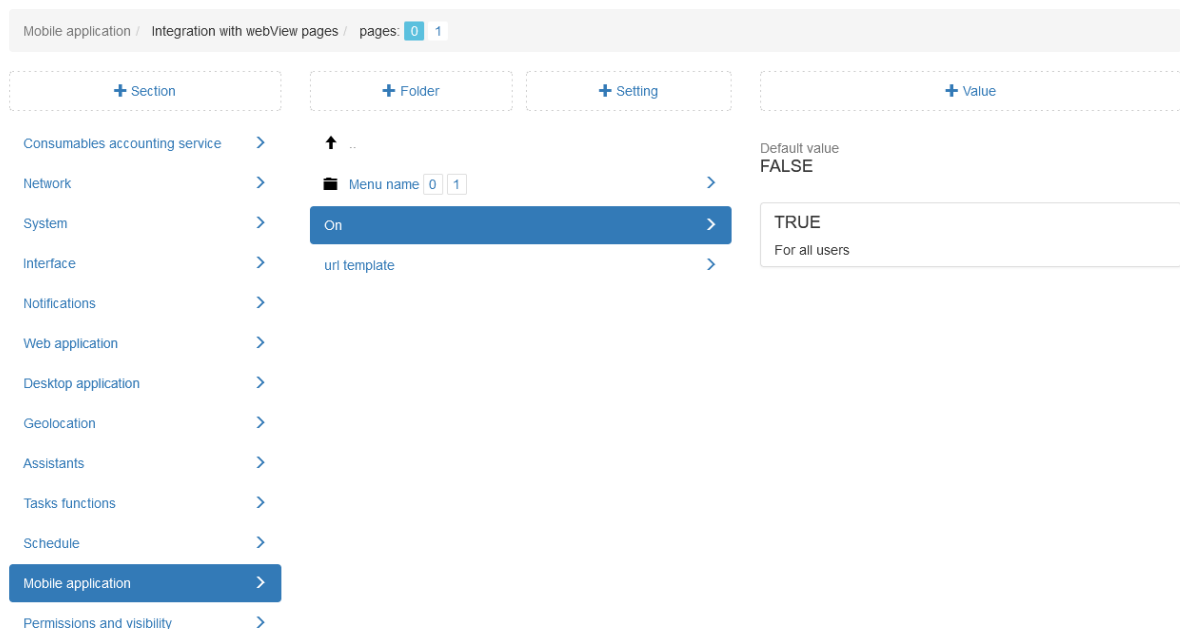


Fig. 2.321: Connecting web applications

URL template

In this setting you can specify the address of a third-party web applica-

tion or service (Fig. 2.322).

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ..		Default value «https://ya.ru?token={token}»
Network >	Menu name 0 1	>	
System >	On	>	«https://www.google.com/» For all users
Interface >	uri template	>	
Notifications >			
Web application >			
Desktop application >			
Geolocation >			
Assistants >			
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.322: Name of the connected web application

Map Engine

Do not use Google Maps Engine

This setting allows you to exclude the use of Google Maps in ActiveMap Mobile Android. By default, the setting is disabled (Fig. 2.323). After activation, Google Maps becomes unavailable in the mobile application. At the same time, user management in the “Map” section is also disabled.

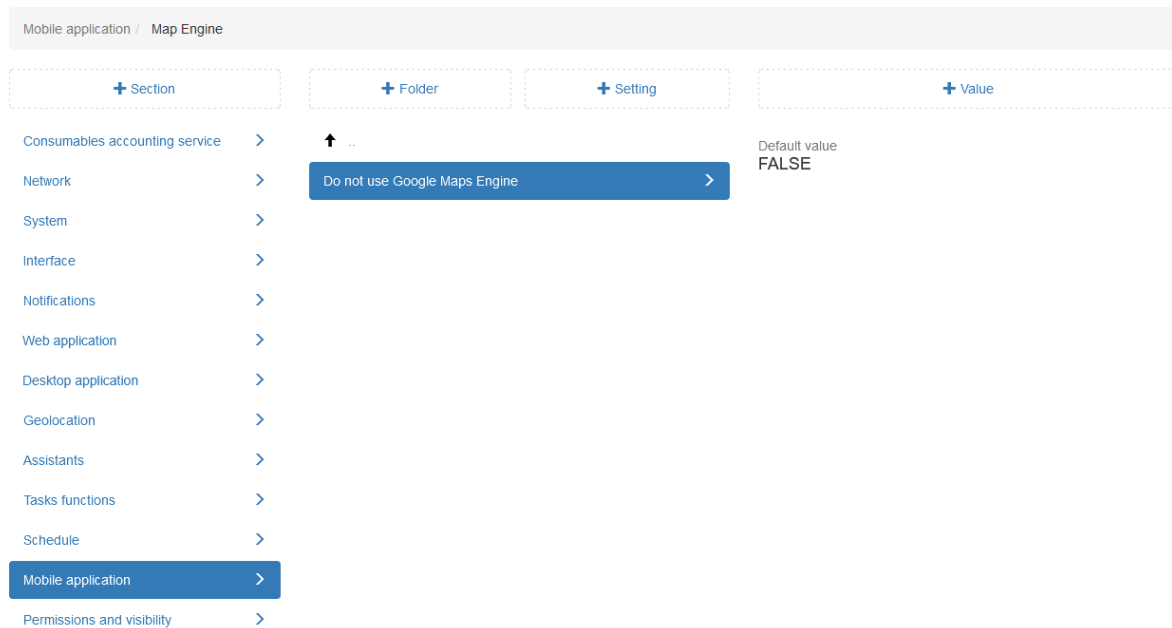


Fig. 2.323: Disabling Google Maps in the mobile application

Photo comparison

In this folder, you can add URLs for online and offline neural network models. The selected model compares the sample photo and the result, then displays the percentage of matching in the photo editing window of the mobile application.

Allowable percentage comparison of two photos

In this setting, you can specify a number that determines the percentage threshold after which the photo can be considered similar to the sample. If the percentage is higher than the specified value, then the background with the percentage information is colored in green, if lower – in red. If this setting is not filled, the background is not colored (Fig. 2.324).

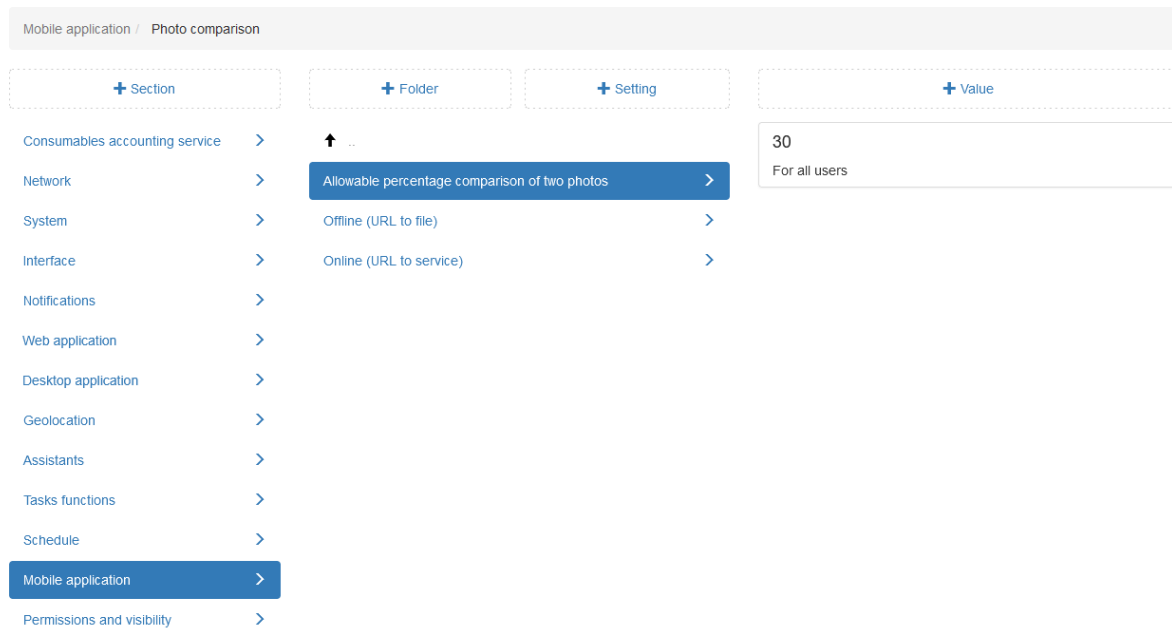


Fig. 2.324: Positive comparison percentage of two photos

Offline (URL to file)

The setting allows specifying 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 (Fig. 2.325).

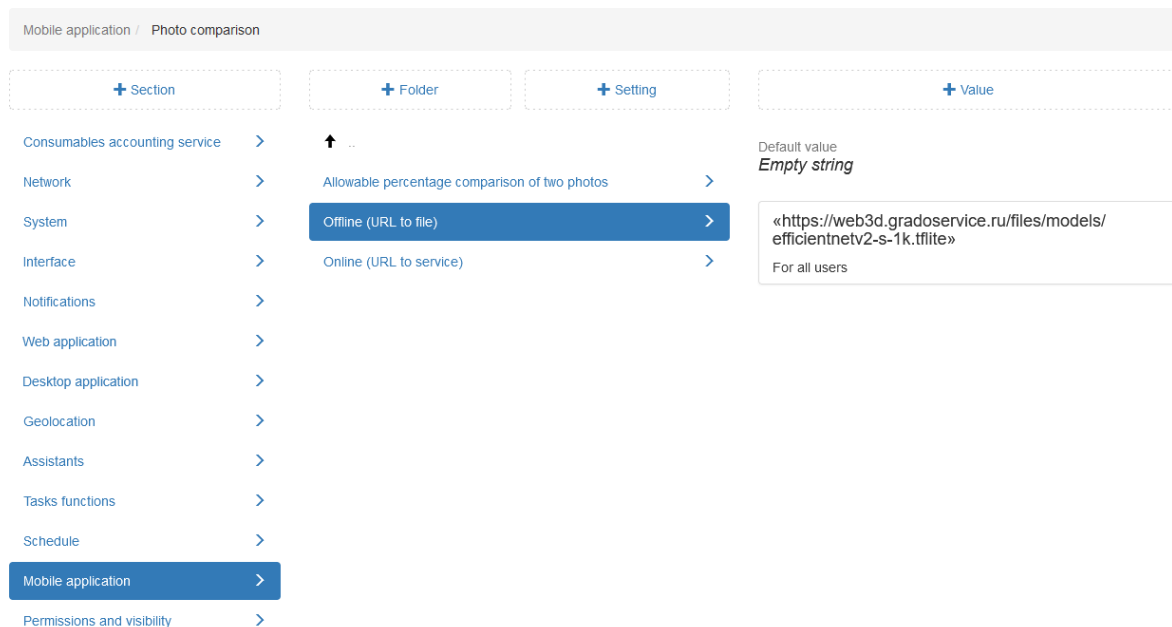


Fig. 2.325: Offline (URL to file)

Online (URL to service)

The setting allows specifying the URL of the service that compares the sample photo and the result. If no value is added, then the comparison button is not available in the result photo editing window (Fig. 2.326).

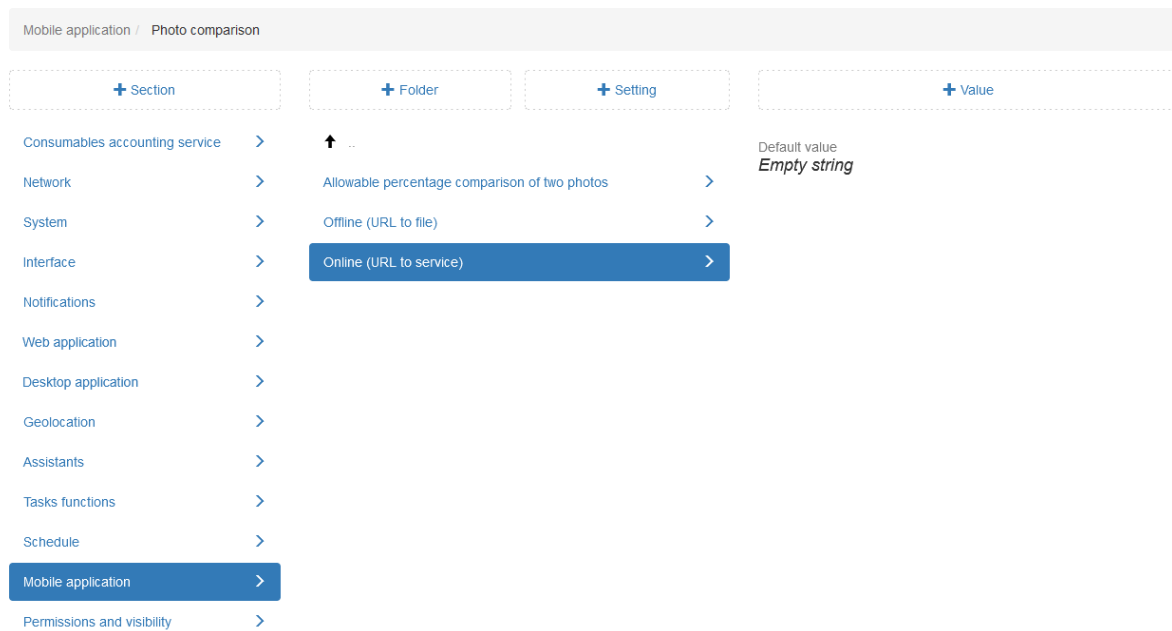


Fig. 2.326: Online (URL to service)

Timelapse video setup

There is an option to record timelapse videos in the ActiveMap Mobile application for Android. In this mode, the geographic coordinates of the camera are recorded along with the video itself. This allows creating tasks from frames of this video with the attachment of the current frame (as a task photo) and geoposition in ActiveMap Desktop. In this section, you can add settings for recording timelapse videos in the mobile application.

Allow location recording

This setting enables the recording of the device's movement and location while recording the current frame. You can play the recording in the ActiveMap Desktop. By default, this setting is disabled (Fig. 2.327).

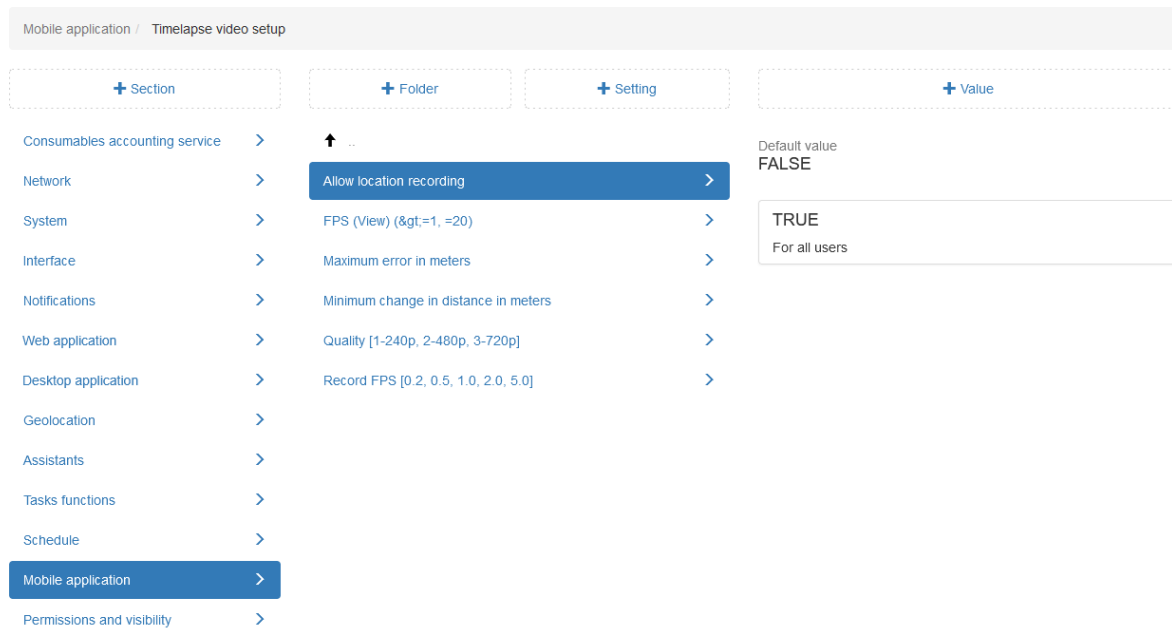


Fig. 2.327: Allow location recording

FPS (View)

This setting indicates the frequency of video frame playback per second. The default setting is 5 video frames (Fig. 2.328).

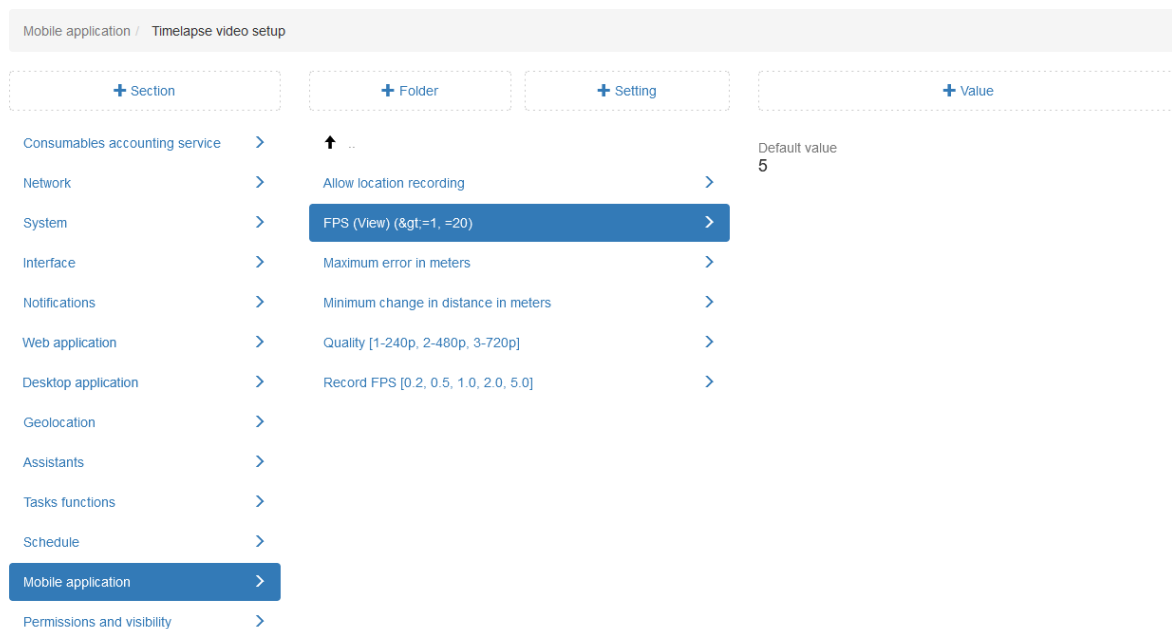


Fig. 2.328: FPS (View)

Maximum error in meters

This setting specifies the acceptable coordinate error when recording timelapse videos. If the coordinate exceeds this error, it is not taken

into account when recording. By default, the permissible error is 100 meters (Fig. 2.329).

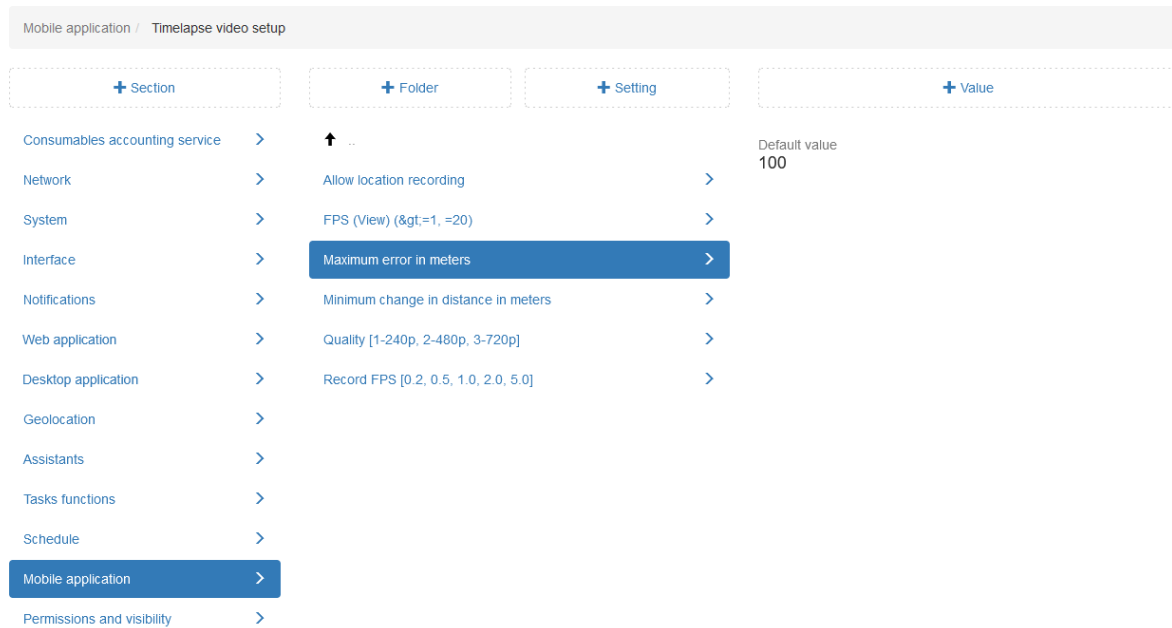


Fig. 2.329: Maximum error in meters

Minimum change in distance in meters

This setting specifies the minimum distance between location updates when recording a video. The default setting is 5 meters (Fig. 2.330).

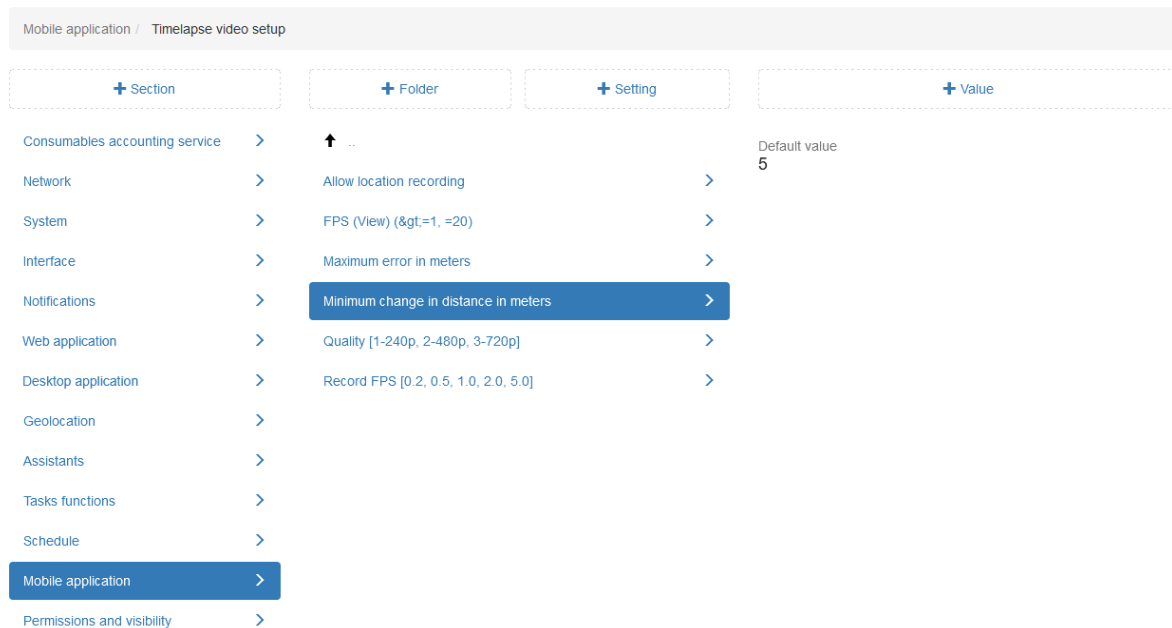


Fig. 2.330: Minimum change in distance in meters

Quality

This setting allows you to select the quality of recorded video files. The default is 480 pixels (Fig. 2.331).

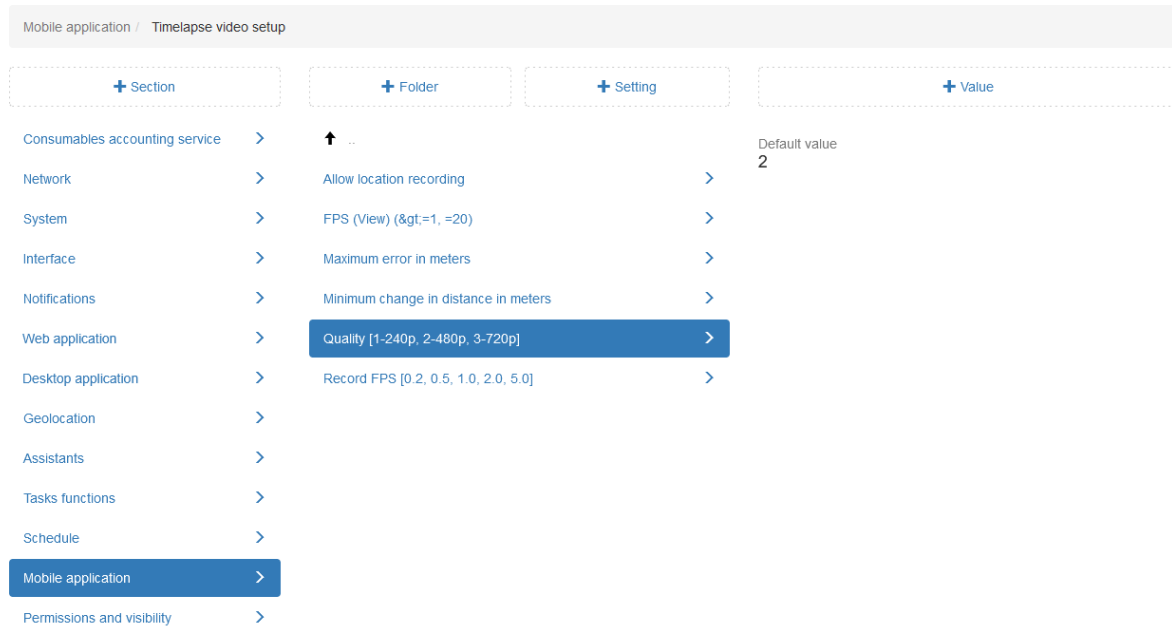


Fig. 2.331: Video quality

Record FPS

The setting specifies how many seconds it takes to record one frame. The default is 2 seconds (Fig. 2.332).

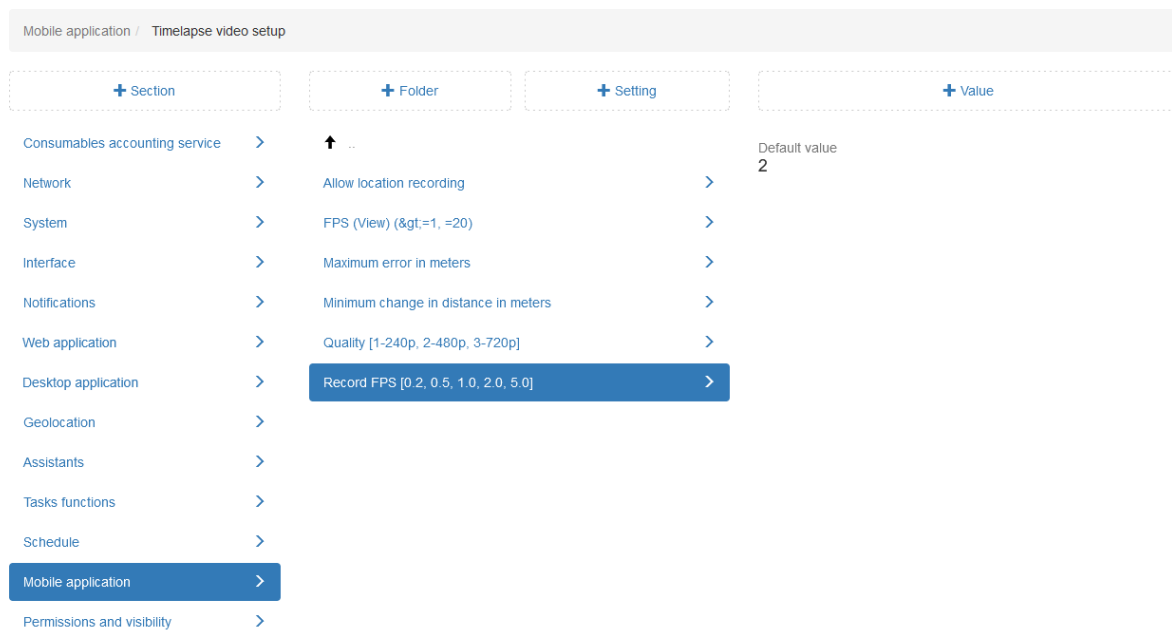


Fig. 2.332: FPS (Record)

Login with username and password

The setting activates user authorization in a simplified version of the mobile application using a login and password instead of a phone number. This setting is disabled by default (Fig. 2.333).

Mobile application			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Ability to attach an estimate to the task to account for consumables >		Default value FALSE
Network >	Camera >		
System >	Integration with webView pages 0 1 >		
Interface >	Map Engine >		
Notifications >	Photo comparison >		
Web application >	Timelapse video setup >		
Desktop application >	A variation of the MapInformer application for client organizations >		
Geolocation >	Login with username and password >		
Assistants >	Map is available in the application tasks >		
Tasks functions >	Unavailability of client organizations to the user >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.333: Login with username and password

Map is available in the application tasks

This setting allows you to enable or hide the map window in tasks in mobile applications. This setting is enabled by default (Fig. 2.334).

Mobile application			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Ability to attach an estimate to the task to account for consumables >		Default value TRUE
Network >	Camera >		
System >	Integration with webView pages 0 1 >		
Interface >	Map Engine >		
Notifications >	Photo comparison >		
Web application >	Timelapse video setup >		
Desktop application >	A variation of the Mapinformer application for client organizations >		
Geolocation >	Login with username and password >		
Assistants >	Map is available in the application tasks >		
Tasks functions >	Unavailability of client organizations to the user >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.334: Map availability in the application

Unavailability of client organizations to the user

The setting is intended for selecting an organization when registering a user in a simplified version of the mobile application. If this setting is enabled, the user cannot select an organization. This setting is disabled by default (Fig. 2.335).

Mobile application			
+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	Ability to attach an estimate to the task to account for consumables >		Default value FALSE
Network >	Camera >		
System >	Integration with webView pages 0 1 >		
Interface >	Map Engine >		
Notifications >	Photo comparison >		
Web application >	Timelapse video setup >		
Desktop application >	A variation of the Mapinformer application for client organizations >		
Geolocation >	Login with username and password >		
Assistants >	Map is available in the application tasks >		
Tasks functions >	Unavailability of client organizations to the user >		
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.335: Unavailability of client organizations to the user

2.3.3.7.13 “Permissions and visibility” section

The section allows you to add settings to block user actions that can lead to incorrect operation of the system (Fig. 2.336). You can set a new value for each setting in this folder by selecting it, then clicking “+ Value”. Enable/disable the toggle switch or enter a new value in the opened window and fill in the remaining fields. For more information about the process of adding a new value, see “*Settings*” block (page 141).

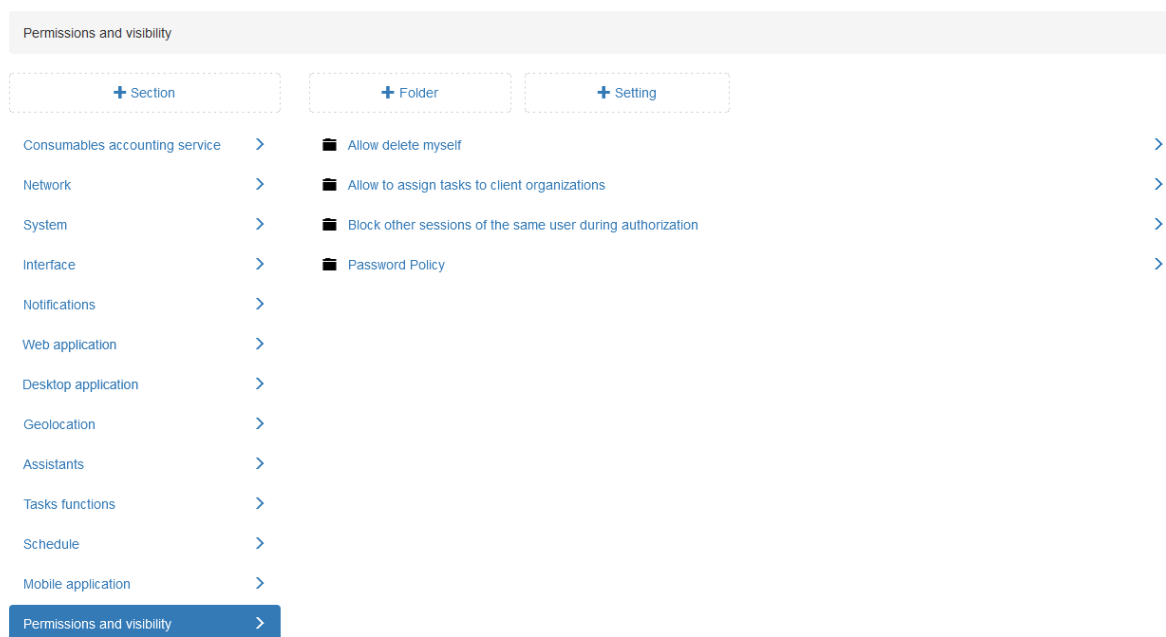


Fig. 2.336: “Permissions and visibility” section

Allow delete myself

In this setting, you can specify the role, organization, or users who can delete their user accounts in the ActiveMap Mobile iOS application (Fig. 2.337).

Permissions and visibility / Allow delete myself

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value FALSE
Network >	Enabled >		
System >			TRUE Role Customer
Interface >			
Notifications >			
Web application >			
Desktop application >			
Geolocation >			
Assistants >			
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.337: Deleting your account

Allow to assign tasks to client organizations

In this setting, you can prohibit assigning tasks to a client organization. If you try to assign a task, you see the blocked action information, but the task is created and the “Performing Organization” field remains blank. This setting is disabled by default (Fig. 2.338).

Permissions and visibility / Allow to assign tasks to client organizations

+ Section	+ Folder	+ Setting	+ Value
Consumables accounting service >	↑ ...		Default value FALSE
Network >	On >		
System >			
Interface >			
Notifications >			
Web application >			
Desktop application >			
Geolocation >			
Assistants >			
Tasks functions >			
Schedule >			
Mobile application >			
Permissions and visibility >			

Fig. 2.338: Prohibit assigning tasks to client organizations

Block other sessions of the same user during authorization

This setting allows you to block a user's session in the application when re-authorizing with the same account in the same application on another device. For example, if a user was authorized in the ActiveMap Desktop, access to another user under this account in the desktop application is blocked. By default, this setting is disabled (Fig. 2.339).

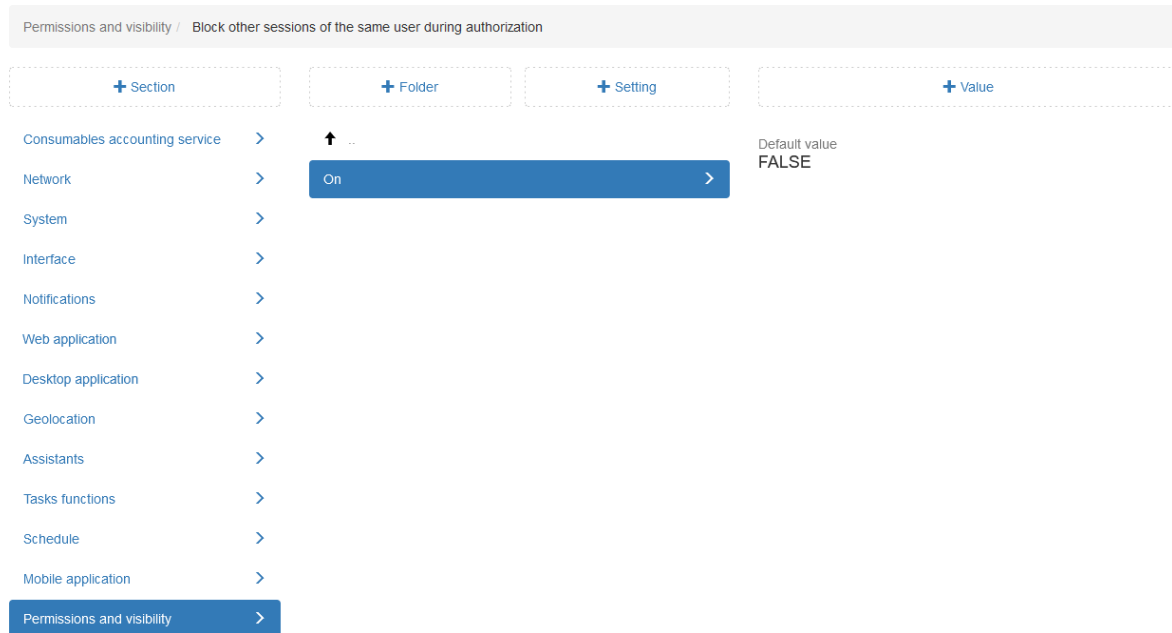


Fig. 2.339: Blocking other sessions of the same user during authorization

Password Policy

The folder contains settings for creating user passwords.

Allowed characters

The default setting lists the allowed characters for forming a password. You can also add your own values (Fig. 2.340).

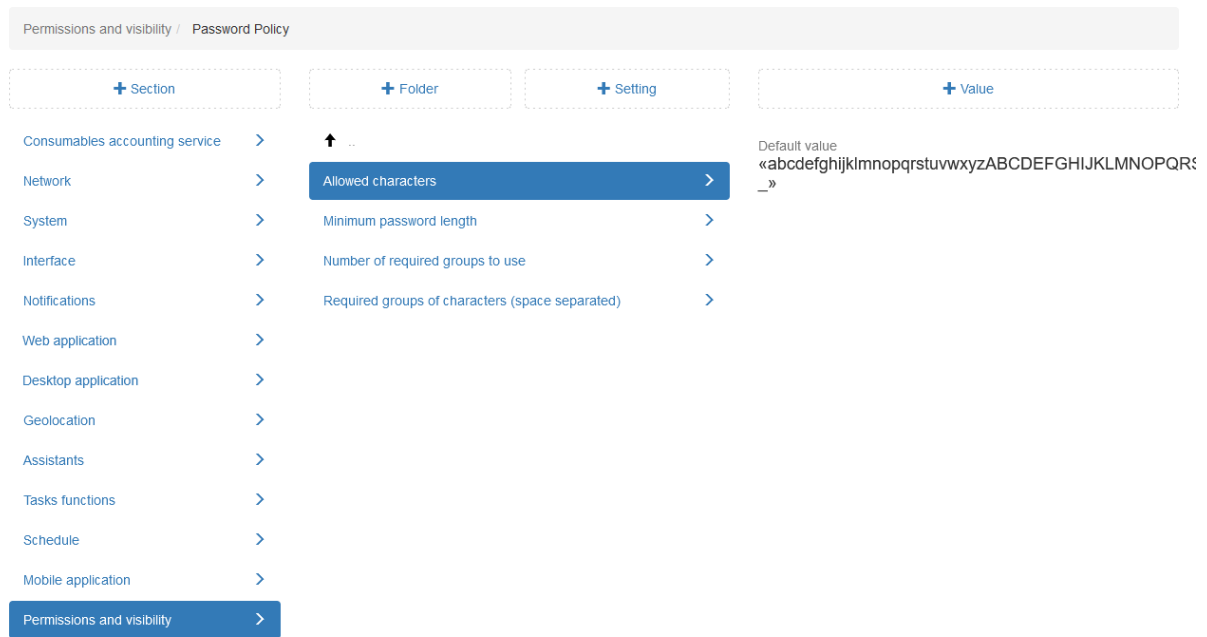


Fig. 2.340: Allowed characters for the password

If other characters not specified in this setting are used in the password, a corresponding message appears when saving (Fig. 2.341).

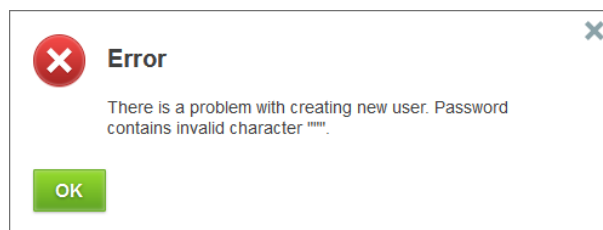


Fig. 2.341: Error message when creating a user (using unallowed characters in the password)

Minimum password length

You can specify the minimum number of characters required to create a user password. The default is 8 characters. For each role, you can set its own value (Fig. 2.342).

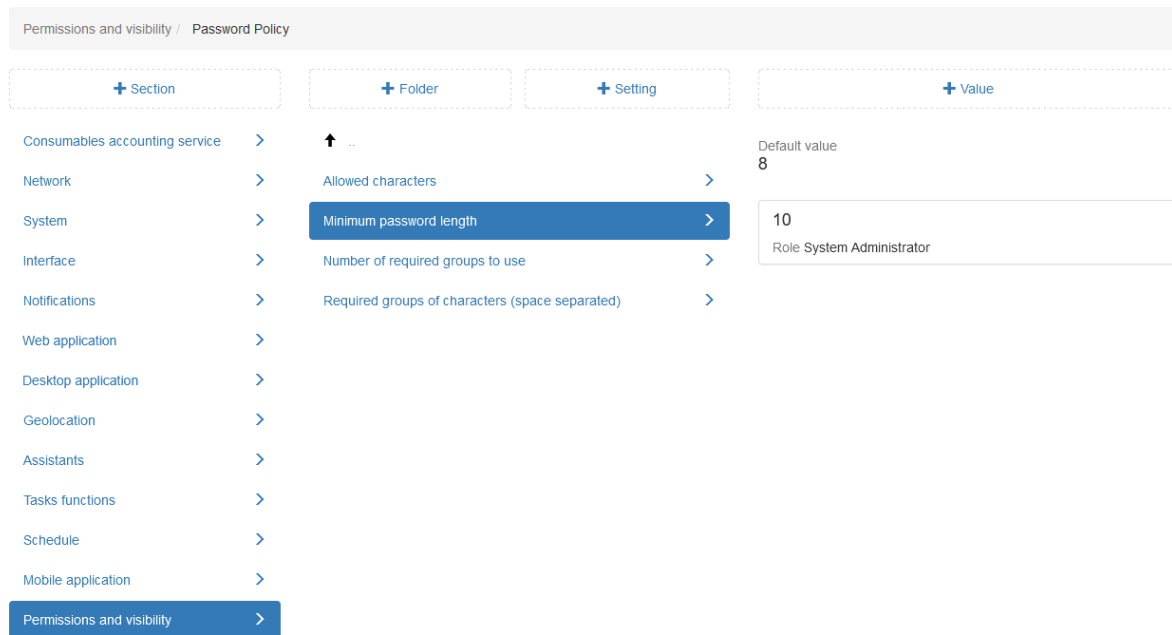


Fig. 2.342: Setting the minimum password length for different roles

If a password is created with fewer characters than set in this setting, a corresponding message appears (Fig. 2.343).

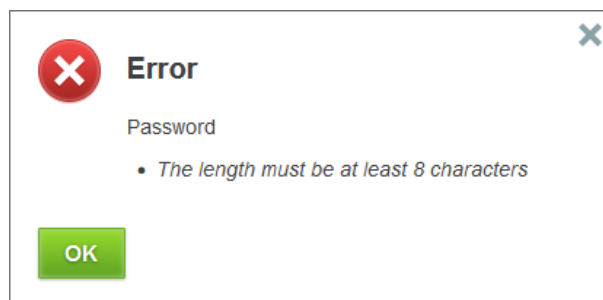


Fig. 2.343: Error message when creating a user (minimum password length not met)

Required groups of characters (space separated)

In this settings, you can specify groups of characters that should be used when creating a password (Fig. 2.344). A group of characters must be separated by a space. If no values are specified, the previous password policy is used.

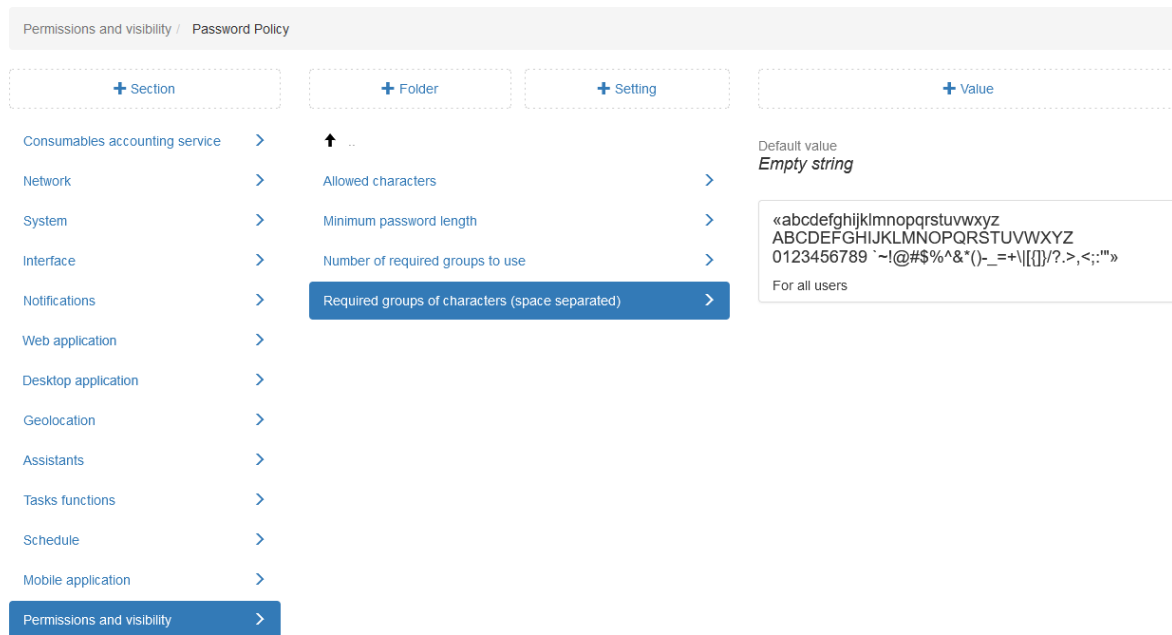


Fig. 2.344: Required character groups for a password

Number of required groups to use

In the setting, you can specify how many groups of required characters should be used when creating a password (Fig. 2.345).

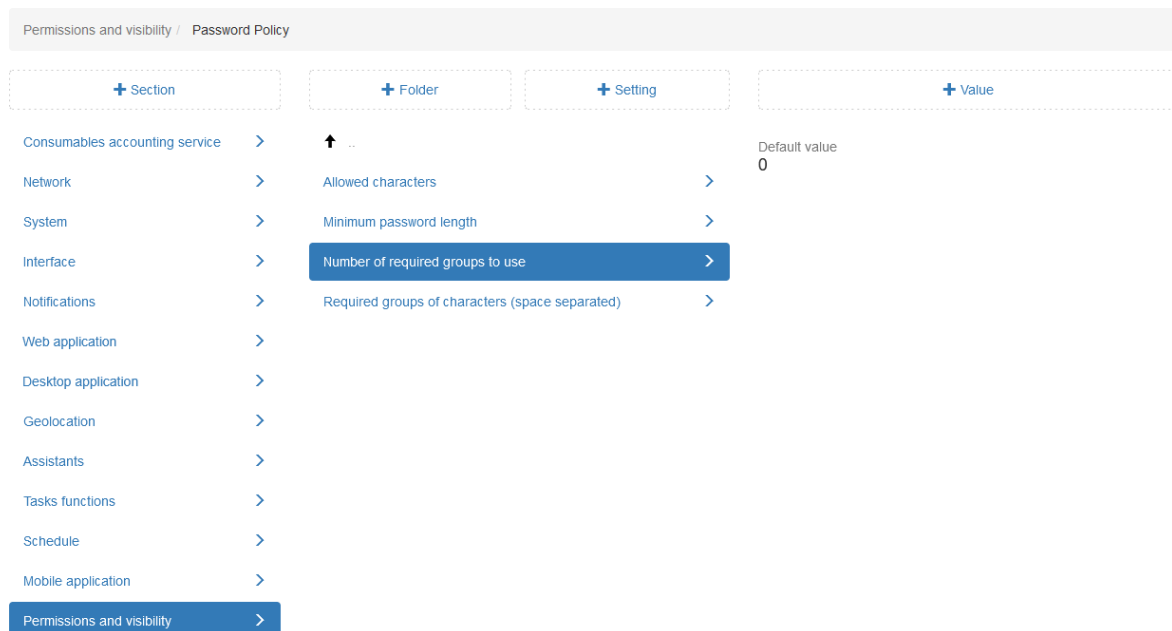


Fig. 2.345: Number of required password groups

If the value is set, but not all groups are used when creating the password, a corresponding message appears when saving (Fig. 2.346).



Fig. 2.346: Error message when creating a user (not all required character groups are used in the password)

2.3.3.8 “System” block

This block contains custom settings that you can apply to the system.

2.3.3.8.1 “Global” tab

In this tab you can change the title of the system, add your logo and website icon, enable automatic assignment of an organization upon creation and save a password when logging into the system.

When you activate the “Assign an organization to yourself when creating” setting, the “Assigned organization” field is automatically filled with the name of the created organization after saving new organizations. In the organization card, you can specify another assigned organization by selecting it from the drop-down list and then save the changes.

Important: The assigned organization should belong to the creator’s organization cluster.

“Show the “Save password” checkbox” setting allows you to show/hide the “Save password” checkbox when logging in ActiveMap Web and ActiveMap Desktop.

In this tab you can also change the visible area (the part of the map that is loaded when the web application is launched) by selecting the desired boundaries and clicking “Apply” (Fig. 2.347).

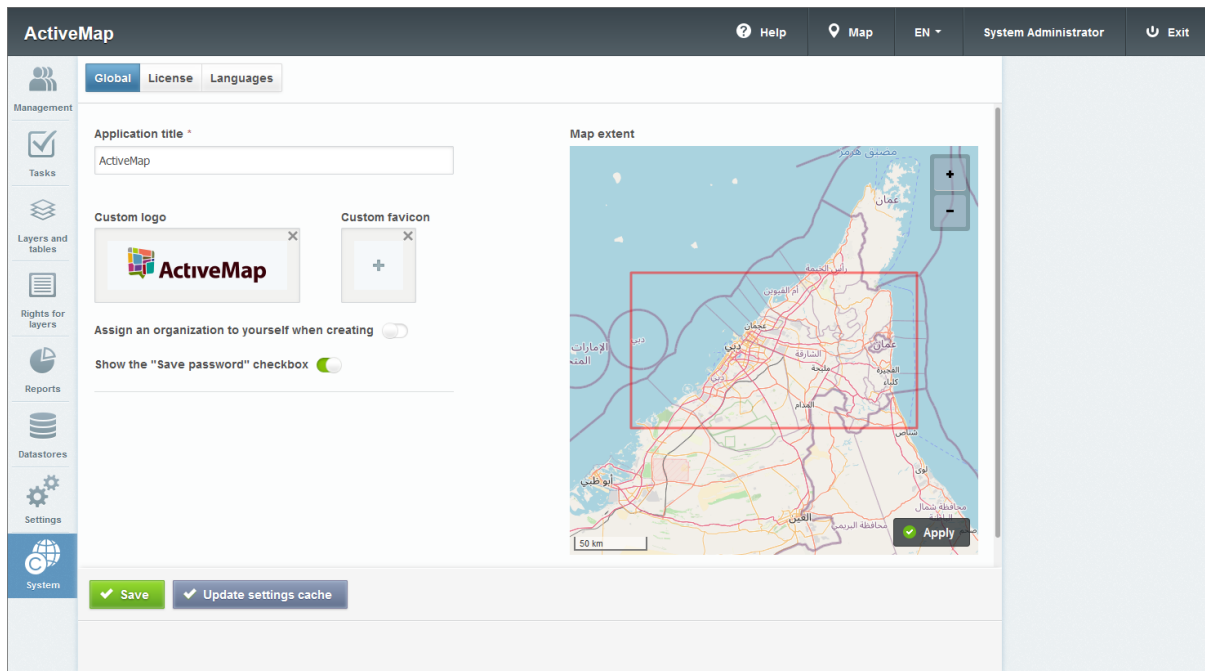




Fig. 2.347: Global system settings

Click  to save your changes. Clicking  starts the process of updating the internal cache of the web application to download the settings from Cerebellum.


2.3.3.8.2 “License” tab

Once the first user with the “System Administrator” role gains access to the system, he/she should perform the license activation procedure. Information about the license activation requirement is displayed in a pop-up window on the administration panel (Fig. 2.348).



Fig. 2.348: “License is not active” pop-up window

If the license is not activated, you cannot create users, and an appropriate message is displayed if you try to save data.

To activate the license, go to the “System” block and select the “License” tab or follow the link in the “License is not active” pop-up window. Enter the license key you received from your service provider and click  (Fig. 2.349).

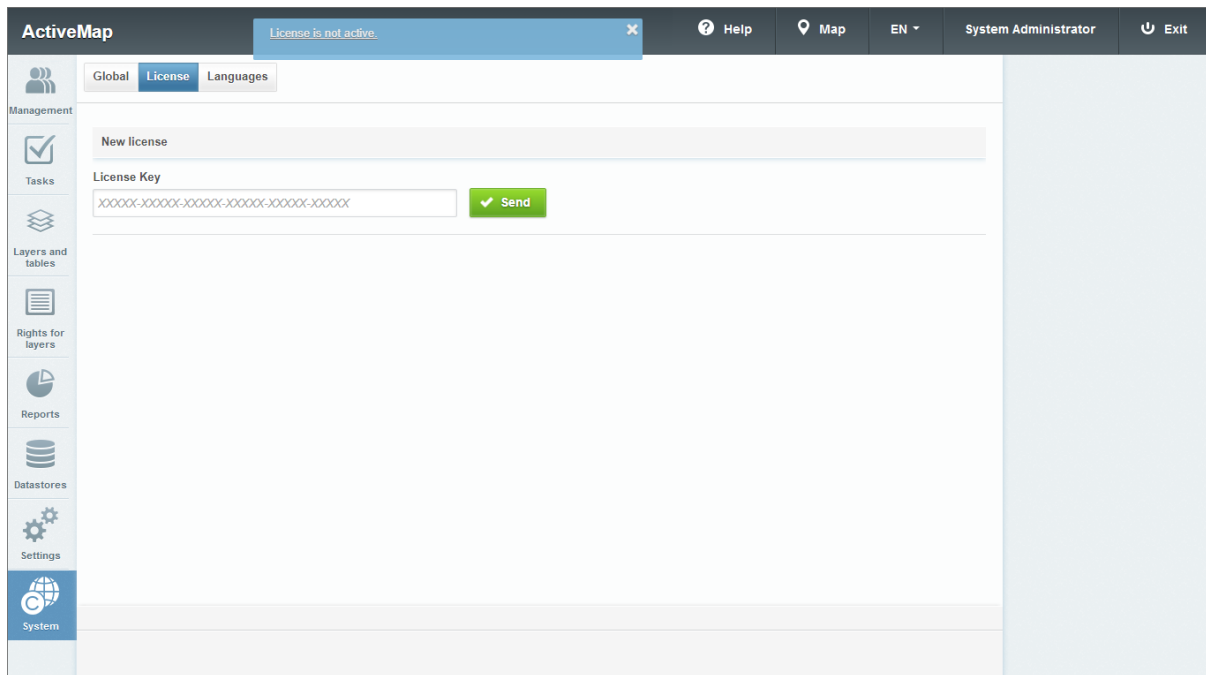


Fig. 2.349: License key entry field

The window displays information about the current license. If the license key is correct, when you click **✓ Activate Users**, the system asks you to enter the number of users required for activation (Fig. 2.350).

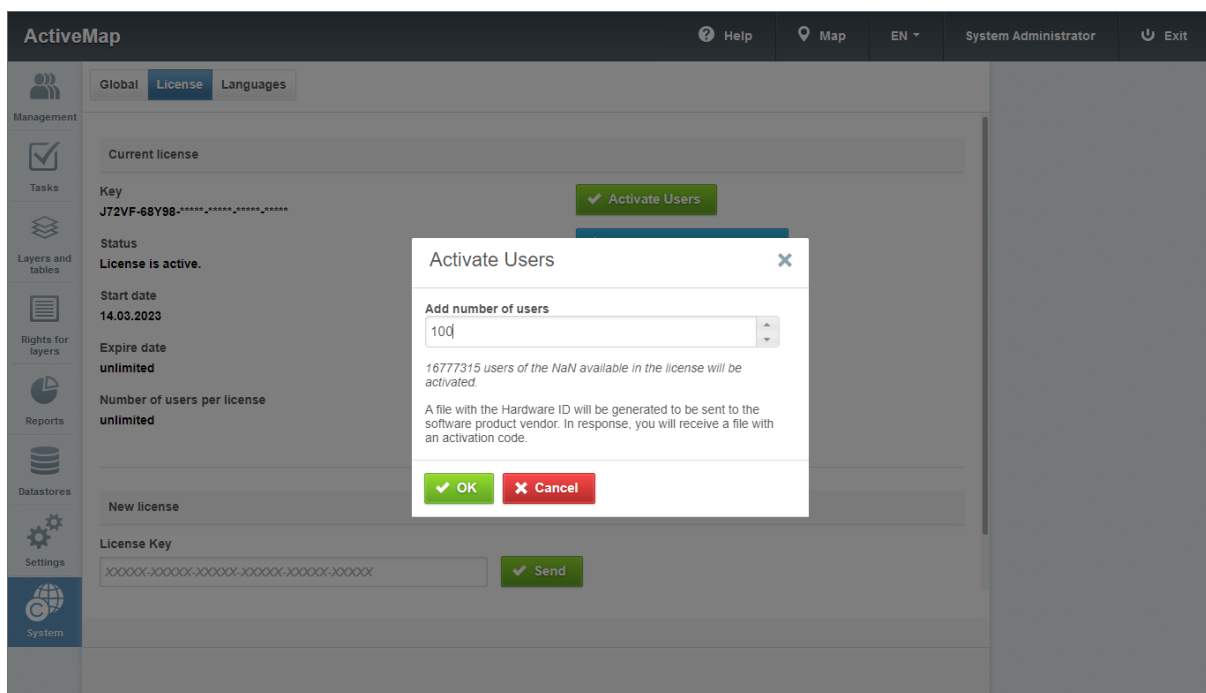


Fig. 2.350: “Activate users” window

Save the “Hardware Code” file, which contains encrypted information

about the server characteristics and the license key (Fig. 2.351).

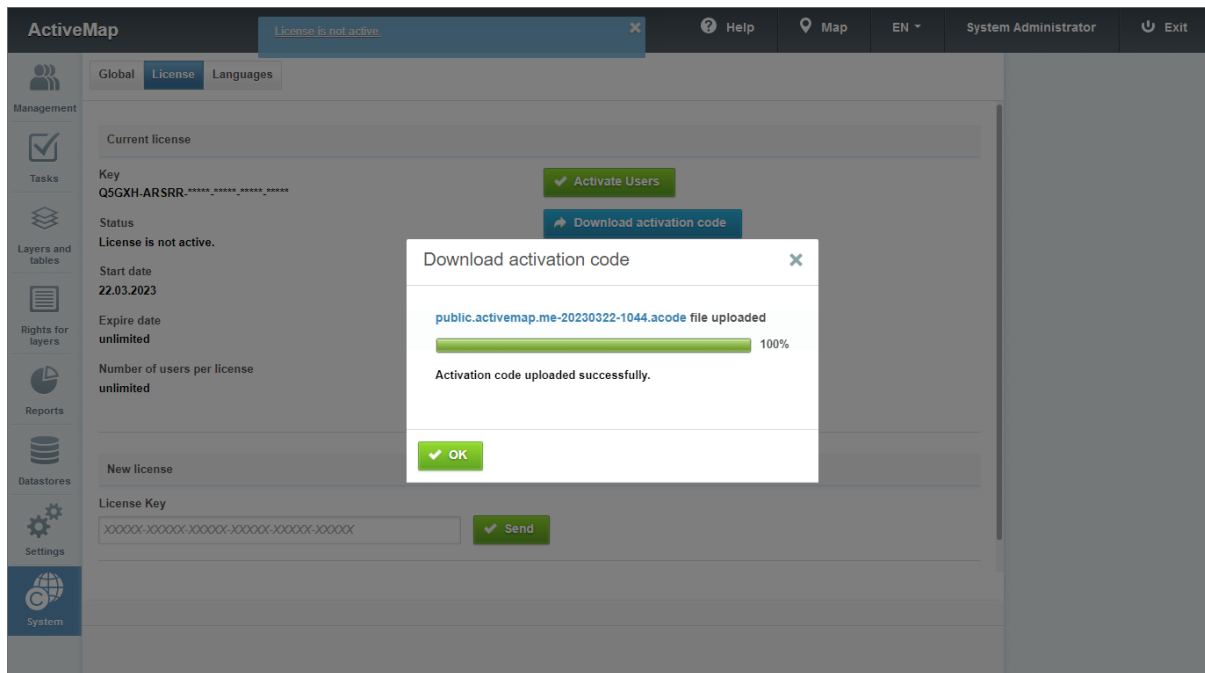


Fig. 2.351: Saving the hardware code

Transfer this file to the service provider for activation by sending a corresponding request to the e-mail. The email should include organization name, number of user licenses required, server domain name where the license key is activated. Service provider verifies the received information and checks that the requested number of users does not exceed the value specified in the license. If the data is correct, the service provider sends a file with an activation code, valid for the server specified in the email. Upload the received file to the “License” tab by clicking [Download activation code](#). After successful license activation the system displays the following data: status, validity period, maximum allowed number of users, and number of activated users in the system (Fig. 2.352).

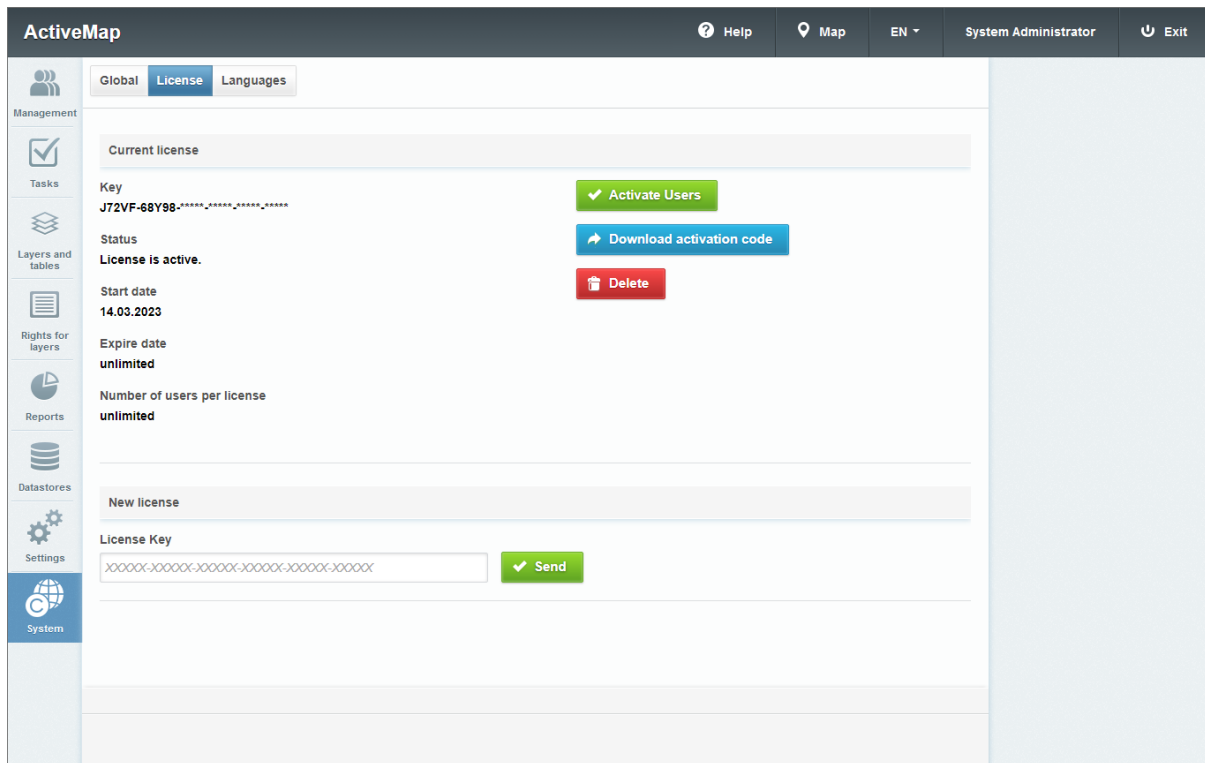



Fig. 2.352: Information about the current license

If necessary, you can request additional licenses for users by following the same steps. You can repeat this process until the total number of users exceeds the allowed number of licenses for this server. Activating this license on another server is not possible, since the activation server stores information that this license key has already been used.

To switch to another license (perpetual or unlimited in number of users), purchase a new license key and enter it into the system. Then load the activation code using both the old and the new hardware code. The system checks the activation code against both hardware codes. If the activation code matches the new hardware code, the old files are deleted and the new activation code is applied.

To terminate the license on a given server, click . A deletion confirmation message appears (Fig. 2.353).

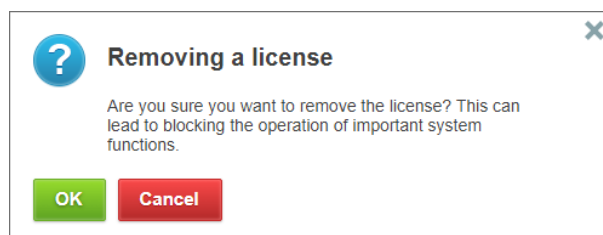



Fig. 2.353: Deletion confirmation message

2.3.3.8.3 “Languages” tab

This tab contains a list of available interface languages (Fig. 2.354). You can activate the language by turning on the toggle switch in the line. The activated language is displayed in the drop-down list on the user panel. You can also change the order in which languages appear in the list. To

do this, drag the line above or below and click .

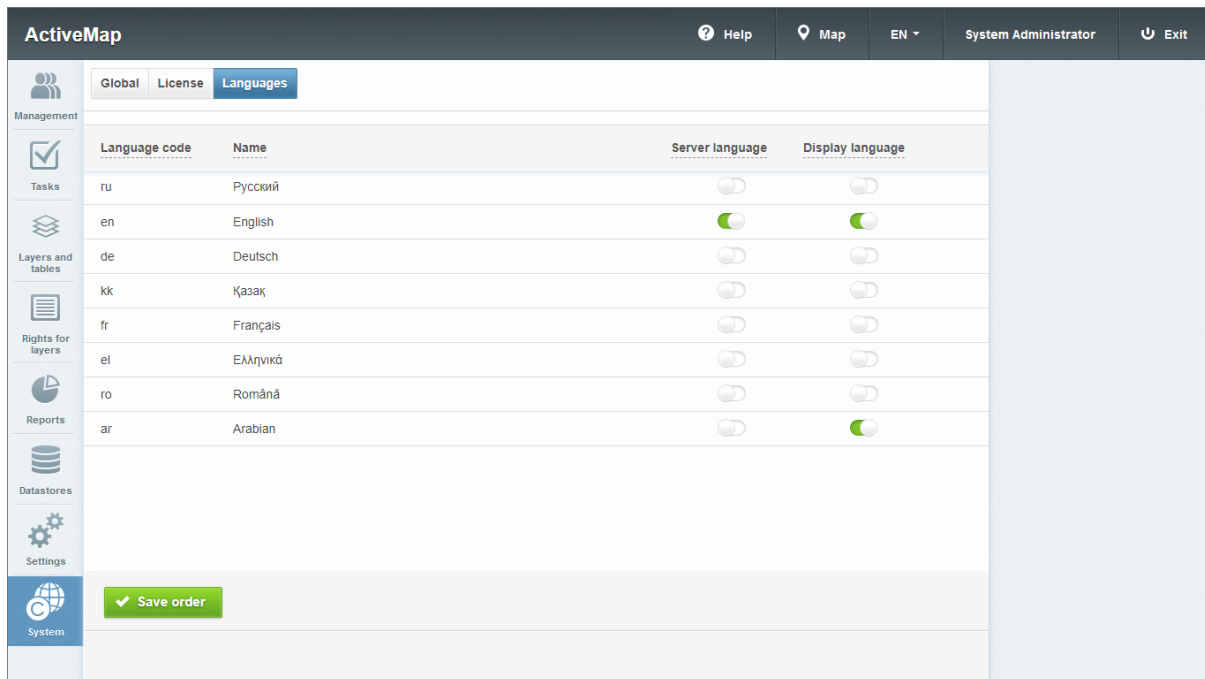


Fig. 2.354: List of available interface languages

2.4 Exit the program

To exit the program, click “Exit” in the upper right corner of the window and close the browser tab.

FREQUENTLY ASKED QUESTIONS

3.1 Starting the Program

If you have problems with starting the Program, try to open the program page in another browser or contact technical support via the hotline phone number indicated on the <https://activemap.me/> website, or write an email to support@activemap.me.

3.2 Log in to the Program

If you are experiencing authorization problems, please contact technical support by calling the hotline number listed on the <https://activemap.me/> website or by sending an email to support@activemap.me.

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.

Bluetooth Low Energy (BLE) tags, also known as beacons, is a class of Bluetooth Low Energy (LE) devices that broadcast their identifier to nearby portable electronic devices. The identifier and several bytes sent with it can be used to determine the device’s physical location, track customers, or trigger a location-based action on the device.

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 administration of one or more specified clusters, namely: managing organizations and users, granting access rights to layers and reports, and managing tasks.

Cluster Inspector is a user role in the System, responsible for managing tasks of one or more specified clusters.

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

Composite field is a custom field format that contains one or more nested fields and supports the creation of multiple field instances in a task card. It is used to add several similar field sets to the task, with the number of sets being unknown in advance.

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 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.

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.

Metadata is the information that describes the characteristics and properties of a particular layer.

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.

Object import is a data loading from external files into the Program database.

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.

Photo sample is a reference photo used as the basis for assessing similarity with a photo uploaded by the user to confirm the completion of work on the service object.

Photo response is a photo uploaded by the executor to the task as a response to the attached photo sample to confirm the completed work on the service object.

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. Service objects are used to set up tasks. They contain the necessary information for the task execution.

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 system entity containing information about the type of work, creation date, deadline, priority, execution step, contract, service object, as well as instructions for execution. It is possible to attach photo samples, photo responses, and other auxiliary files (documents, photos, and videos) 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, dispatcher, or automatically by the system according to the set algorithm.

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

Tile (map tile) is one of many images that a map is divided into. Most map services use square tiles of 256x256 pixels.

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.

ATTACHMENTS

5.1 Attachment 1. Python plugins

5.1.1 General information

Plugins are Python scripts that run before and after changing (creating, editing, or deleting) of system server core entities.

The system supports the following types:

Validation is a plugin that runs before modifying a system server core entity, which allows you to check the correctness of the entered data.

Reaction is a plugin that runs after modifying a system server core entity, which allows you to trigger another action in response to data changes.

Version 0.38 of the system's server core supports plugins invoked in response to actions with tasks and comments (creating, editing, or deleting). However, in this version, it is not possible to edit or delete comments from plugins.

Version 0.41 of the system's server core adds support for plugins invoked in response to user actions (creating, editing, or deleting).

The plugin receives entity states before and after changes, as well as system utilities. Plugin execution can trigger a response action in the server core of the system. To do this, the plug-in code must return the result of its execution to the system's server core.

All plugins are executed on behalf of the "Plugin system" system user with the System Administrator role.

When creating and deleting tasks, users, or task comments, the following variables are available in Python code:

- model (also known as after) – the task, user, or comment being created;
- subject – the creator of the task, user, or comment.

When editing tasks and users the following are available:

- model (also known as after) – the task or user after modification;
- before – the task or user before modification;
- subject – the user making the request.

For security reasons, the variables store wrappers over the models (Java objects) which are read-only.

5.1.2 Wrapper methods

All wrappers, except those explicitly listed below, have only one method, `getId()`.

model/before/Mockups.Task

<i>Return type</i>	<i>Method name (parameter list)</i>	<i>Description</i>
	<code>getId()</code>	task id
Mockups.User	<code>getUser()</code>	task creator
	<code>getDate()</code>	task date
	<code>getOrganization()</code>	creator organization
	<code>getWorkgroup()</code>	task project
	<code>getType()</code>	type of work
	<code>getPriority()</code>	priority
	<code>getStage()</code>	task step
	<code>getStatus()</code>	task status
	<code>getText()</code>	description
	<code>getTitle()</code>	title
	<code>getAs signedOrganization()</code>	assigned organization
Mockups.User	<code>getAssignedUser()</code>	assigned user
Mockups.Contract	<code>getContract()</code>	contract
	<code>getServiceObjectId()</code>	service object id
	<code>getServiceObjectLayerId()</code>	service object layer id
	<code>getServiceObjectTitle()</code>	service object title
	<code>getScheduleId()</code>	shedule id
	<code>getTemplateId()</code>	template id
	<code>getParentId()</code>	parent task id
	<code>getLocation()</code>	point coordinates [lon, lat]
Attachment	<code>getMainPhoto()</code>	main photo
[Mockups.Attachment]	<code>getFiles()</code>	files
[Mockups.Attachment]	<code>getPhotos()</code>	photos
[Mockups.Attachment]	<code>getVideos()</code>	video files
[Mockups.Attachment]	<code>getSounds()</code>	audio files
	<code>get(String translit)</code>	value of a custom field whose 'translit' is requested
	<code>getDeadline()</code>	deadline
	<code>getExpiredDate()</code>	expire date
	<code>getSampleMatching()</code>	minimum photo matching percentage with the sample
	<code>getAddedPhotoCount()</code>	number of added photos

subject/Mockups.User

<i>Return type</i>	<i>Method name (parameter list)</i>	<i>Description</i>
	getId()	user id
Mockups.Role	getRole()	user role
Mockups.Cluster	getCluster()	user cluster
Mockups.Organization	getOrganization()	main organization
Mockups.Organization	getOrganizations()	list of available organizations
	getFio()	full name
	getLogin()	user login
	getPassword()	user password
Mockups.UserInfo	getInfo()	detailed user information
	getEmail()	user email
	getAddress()	user address
	getPhone()	user phone
	getPassport()	user passport
	getSystem()	system user or not
Mockups.UserType	getType()	user type
Mockups.Tag	getTags()	user tags
	getBlocked()	user blocked or not
	getTracking()	tracking enabled or not
	getGlonassId()	GLONASS-id for tracking
	getAvatarFileName()	avatar file name after upload to the server
	getAvatarUpdateDate()	avatar update date
	getLdapAuthentication()	user authentication through LDAP
	getLastAuthentication()	user's last authorization date
	getGisEditorAccess()	user integration with GIS-editor

model/Mockups.Comment

<i>Return type</i>	<i>Method name (parameter list)</i>	<i>Description</i>
	getId()	comment id
	getUuid()	comment UUID4
	getReferenceId()	id of the comment to which this comment is a reply
	getLevel()	comment level
Mockups.User	getUser()	comment creator
	getUpdateText()	update text (for task update comments)
	getComment()	comment text
	getType()	comment type (regular or system)
Mockups.Diff	getDiff()	information about the changes made to the task (for system comments)
Mockups.Chat	getChat()	channel information
	getChatMessageNumber()	message number in the chat channel
	getSystemMessageCode()	system message code
Mockups.Task	getTask()	information about the task to which the comment relates

Mockups.Attachment

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getSticker()	sticker
getAttachmentLocation()	attachment file location coordinates in [lon, lat] format
getOriginLocation()	coordinates of the file creation location in [lon, lat] format
getName()	filename on the server
getType()	file type; possible values: photos, sounds, video, dif_files
getDescription()	file description
getNum()	file serial number
getIsRemote()	remote file or not
getFile()	physical file
getParentPhotoId()	parent photo id (available only for photos)
getSampleMatching()	photo match percentage with the sample

Mockups.File

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getAuthor()	author
getDate()	creation date

Mockups.Sticker

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getName()	name

Mockups.Type

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getName()	name

Mockups.Organization

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getName()	name

Mockups.UserInfo

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getEmail()	email
getAddress()	address
getPhone()	phone
getPassport()	passport

Mockups.UserType

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	user type id
getTitle()	user type name
getIconFileName()	icon file name after uploading to the server
getIconUpdateDate()	date of the last icon change
getIsDefault()	is this user type the default
getUseInitials()	whether to use user's initials in the marker on the map (instead of an icon)
getUseAvatar()	whether to use user's avatar in the marker on the map (instead of icons and initials)

Mockups.Tag

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getTitle()	name

Mockups.Contract

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id
getTitle()	title
getStartDate()	contract start date
getFinishDate()	contract end date
getGrantTaskCreation()	contractor's rights to create contract tasks
getCluster()	cluster
getCustomer()	customer organization
getAssignedOrganization()	executing organization

Mockups.Diff

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id of the entry with information on changes made to the task (for system comments)

Mockups.Chat

<i>Method name (parameter list)</i>	<i>Description</i>
getId()	id of the entry with information on the message channel

5.1.3 Validations

Validator plugins allow you to check the correctness of an entity when performing actions on it. Validators are executed before the entity is saved in the database.

The plugin should return one of three possible values:

- valid() – everything is correct, the entity can be saved.
- invalid() – error, the entity cannot be saved.
- invalid(String error) – error, the entity cannot be saved, show error message.

```

if(len(model.getPhotos()) == 0):
    return invalid()

for photo in model.getPhotos():
    if(photo.getAttachmentLocation() is None or photo.getOriginLocation() is_
↪None):
        return invalid()

    dist = utils.dist(photo.getAttachmentLocation(), photo.
↪getOriginLocation())

    if(dist > 1000):
        return invalid('too much distance between points')

return valid()

```

5.1.4 Reactions

A reaction is the ability to launch a request for one or more operations on the same task or user in response to a successful operation on a task or user. For example, in response to attaching new files to a task, run a request to change a custom field storing the number of files. The server core of the system processes requests asynchronously, therefore, although the reaction launches the request, it is processed in a thread separate from the reaction and almost certainly ends after its execution.

A reaction can launch a single response request:

```
return upd().setTitle(after.getTitle() + '!')
```

Or launch several response requests:

```
return [
    upd().setText('JEP-modified'),
    upd().setTitle('Modified by JEP')
]
```

Also, the reaction may return a message to the system's server core that no action is required:

```
return noop()
```

In reactions, you can specify the user on whose behalf the request to create or modify a task is made.

```
return ins().by(101).set...
return fullclone().by(101).set...
return briefcopy().by(101).set...
return upd().by(101).set...
```

In version 0.38 of the system's server core, the `ins()`, `upd()`, `briefcopy()`, `fullclone()` methods are available only when writing a reaction to a task operation. Starting with version 0.41 of the system's server core, the `ins()` and `upd()` methods become available when writing a reaction to a user operation.

5.1.5 Creating new tasks and users

```
# create a new task/user
return ins()

# create a full copy of the current task (including files)
return fullclone()

# create a partial copy of the current task (excluding files):
return briefcopy()
```

Calls to the `ins()`, `briefcopy()`, `fullclone()` methods for a task create a ready-made request, which you can modify. For example, change the fields for the created task: title, text, date, add files, etc. For the `ins()` method, these modifications are mandatory, because `ins()` for a task creates an empty task without the following mandatory fields: type of work, priority, and organization.

Calling the `ins()` method for a user creates an empty user without login, password, full name, and organization (these are mandatory fields that must be filled in).

```
# fill in the mandatory fields when creating a task
return ins().setTitle('Hello').setType(1).setPriority(1).setOrganization(4)

# create a full copy of the current task and change the title at the same time
return fullclone().setTitle(after.getTitle() + ' - Modified')

# create a new user
return ins().setLogin('test_123').setPassword('123').setFio('test_123').
    ↪setOrganization(3).setRole(7).setAddress('Moscow').setEmail('test@ya.ru')
```

By default, the `briefcopy()` and `fullclone()` methods use `after` as the data source for copying (before in the case of reaction to task deletion). However, you can explicitly specify which of the two task states to use:

```
# If this is a reaction to a change:
# Create a copy of the task state BEFORE the change
# for each transaction
return fullclone(before)
```

5.1.6 Methods for setting task fields

<i>Method name (parameter list)</i>	<i>Description</i>
set(String translit, Object value)	value of a custom field by transliteration
add(List<Attachment> attachments)	add a list of files
add(Attachment attachment)	add a file
setMainPhoto(Attachment photo)	set new main task photo
setLocation(Double lon, Double lat)	set coordinates
setLocation(List<Double> coordinates)	set coordinates
setTitle(String title)	set title
setText(String text)	set description
setOrganization(Long id)	set creator's organization id (only when creating a task)
setWorkgroup(Long id)	set project id (only when creating a task)
setDate(Date date)	set task date in java.util.Date format (only when creating a task)
setDate(Double date)	set task date in python timestamp format (only when creating a task)
setType(Long id)	set work id
setContract(Long id)	set contract id
setPriority(Long id)	set priority id
setAssignedOrganization(Long id)	set assigned organization id
setAssignedUser(Long id)	set assigned user id
setStage(Long stage)	set task step
setStatus(Long id)	set status id
setParent(Long id)	set parent task id
setServiceObject(Long id)	set service object id
setServiceObjectLayer(Long id)	set service object layer id
setArchive(Boolean archive)	set task as archived
setDeadline(Date date)	set deadline in java.util.Date format
setDeadline(Double date)	set deadline in python timestamp format
setExpiredDate(Date date)	moment when the task was overdue in the java.util.Date format
setExpiredDate(Double date)	moment when the task was overdue in the java.util.Date format

5.1.7 Methods for setting user fields

<i>Method name (parameter list)</i>	<i>Description</i>
setFio(String text)	set user name
setLogin(String login)	set user login
setPassword(String password)	set user password
setEmail(String email)	set user email
setAddress(String address)	set user address
setPhone(String phone)	set user phone
setPassport(String passport)	set user passport
setRole(Long id)	set user role id
setOrganization(Long id)	set id of the main organization
addOrganizations(List<Long> ids)	add user access to organizations, list of organization ids
removeOrganizations(List<Long> ids)	remove user access to organizations, list of organization ids
setType(Long id)	user type id
addTags(List<Long> ids)	add tags to the user, list of id tags
removeTags(List<Long> ids)	remove user tags, list of id tags
setBlocked(Boolean blocked)	enable or disable blocking of user
setTracking(Boolean tracking)	enable or disable tracking of user
setAvatarFileName(String avatarFileName)	add user's avatar (avatar file name after uploading to server)
setLdapAuthentication(Boolean ldapAuthentication)	enable or disable user authentication via LDAP
setGisEditorAccess(Boolean gisEditorAccess)	enable or disable integration with GIS editor (available only to the System Administrator)

5.1.8 Working with dates

The `setDate()`, `setDeadline()`, and `setExpiredDate()` methods have two versions that accept `Date` and `Double` respectively. You can call the version with `Date` using special utilities for generating `Date` objects:

```
if model.getDeadline() is not None:
    return noop();

return upd().setDeadline(dates.get(2021, 12, 31, 12, 30, 0))
# or
return upd().setDeadline(dates.get("2022-02-12 13:05:30"))
# or
return upd().setDeadline(dates.get(1637668042))
# or
return upd().setDeadline(dates.now())
```

The version with `Double` is intended for working with the `datetime` package:

```
import datetime

if model.getDeadline() is not None:
```

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```

return noop();

tomorrow = datetime.datetime.now() + datetime.timedelta(days=1)

return upd().setDeadline(tomorrow.timestamp())

```

5.1.9 Adding files to a task

In reactions, you can initiate the attachment of files to a task.

To do this, you need to:

1. Pass the name of the file on the disk relative to the server core's file directory to one of the functions: photo, sound, video, or anyfile. The file should already be in this directory.
2. Call (if necessary) methods to specify additional file fields (setSticker, setDescription).
3. Add the result of the function call to the task using the add methods (you can transfer either a single file or several ones).

```

file1 = photo('photo-2/2021/06/22/16-06/d392a0c4-eb12-1004-8555-4a467d53f32e.
↳jpg')
file2 = photo('nas-2/2021/06/22/16-06/d3bf55b0-eb12-1004-8555-4a467d53f32e.jpg
↳').setSticker(1163)
file3 = photo('photo-2/2021/06/22/16-06/d392a0c4-eb12-1004-8555-4a467d53f32e.
↳jpg').setDescription('test')
file4 = photo('photo-2/2021/06/22/16-07/d3d27ba4-eb12-1004-8555-4a467d53f32e.
↳jpg').setDescription('test').setSticker(1163)
return upd().add([file1, file2]).add(file3).add(file4)

```

You can attach an existing photo from after or before:

```

return [
    # "short" copy with additional
    # attachment of the first photo from the original task
    briefcopy().add(before.getPhotos()[0]),
    # similar to to fullclone()
    briefcopy().add(after.getPhotos())
]

```

You can also attach an existing photo, but at the same time set a new (different) sticker or description for it:

```

return ins().add(photo(after.getPhotos[0]).setSticker(4))

```

In reactions, you can attach stickers to existing files:

```

u = upd()
u.getPhoto(0).setSticker(3)
return u

```

5.1.10 Editing tasks and users

Returning the result of the `upd()` function from reaction initiates a modification of the current task or user. Just like with `ins()`, you can call methods that set the required fields of the task or user:

```
# modifying task
u = upd().setTitle(after.getTitle() + ' - Modified')
u.add(photo('photos/somfilehere.jpg'))
return u
```

```
# modifying user
u = upd().setFio(after.getFio() + ' - Modified')
u.setOrganization(11).addOrganizations([4,5]).removeOrganizations([1,3])
return u
```

5.1.11 Modifying task files

You can use the `ins()` and `upd()` functions to call methods that add files to a task:

```
u = upd().add(photo('photos/somfilehere.jpg'))
return u
```

You can also modify existing task files. To do this, you need to:

1. Get a link to a file by calling one of the methods: `getPhoto()`, `getFile()`, `getSound()`, `getVideo()`.
2. Call one of the required methods: `setSticker()` or `setDescription()`.

```
u = upd()
# The getPhoto(int) method fetches the file link
# by the sequential method in the getPhotos() array.
# Numeration starts from 0.
# The serial number is not num! (not a file number)
u.getPhoto(0).setDescription('The first photo')
u.getFile(0).setSticker(3)
return u
```

The result of the `getPhoto(i)` method call differs from the result of the `getPhotos()[i]` call. The first call returns a link to a file to which you can make changes. The second returns a wrapper object that only allows you to read some file properties:

```
u = upd()
# this does not work! you need to use getPhoto(i)
u.getPhotos()[0].setSticker(3)
return u
```

Also in version 0.38 of the system's server core, writing the entire action into one line without an intermediate variable does not work. Reactions expect that the response returns the result of the `upd()` call, not `getPhoto()`:

```
# this does not work!
return upd().getPhoto(0).setSticker(3)
```

5.1.12 Setting the main photo of the task

You can set the main photo both when creating a task and when changing it. The installed main photo can be from the “old” files and from the “new” ones.

```
# making a copy of the task, setting the first photo as main
return fullclone().setMainPhoto(after.getPhotos()[0])
```

```
# making a copy of the task, adding a new photo,
# making it the main one
f = fullclone()
p = photo('photos/somephoto.jpg')
return f.add(p).setMainPhoto(p)
```

```
# making the first photo the main one
return upd().setMainPhoto(after.getPhotos()[0])
```

```
# adding a copy of the first photo,
# making the copy of the main one
u = upd()
p = photo(after.getPhotos()[0])
return u.add(p).setMainPhoto(p)
```

And an example of incorrect use:

```
# photo(...) creates an auxiliary photo object,
# which is used when adding;
# but in this case the photo is not added,
# so it's useless to try to make it the main one
return upd().setMainPhoto(photo(after.getPhotos()[0]))
```

5.1.13 Webhooks

Among the reactions, **webhooks** is particularly noteworthy. This is an automated launch of http requests in response to operations on entities. Unlike regular reactions, webhooks can be written **for tasks or users, as well as for comments**. Python code can construct the url and body of the request, or specify that no request needs to be made. To run a query, the reaction must return the result of one of the special functions:

```
return post(url)
return patch(url) # or
return put(url)   # or
return delete(url) # or
return get(url)   # or
```


The passed URL can be either absolute or relative. A relative URL is completed to the address of the system's local server core (usually <http://localhost:9099>). The URL may contain a placeholder/:id, which is replaced with the ID of the current entity. If the request is sent to <http://localhost> / <http://127.0.0.1>, then the “Plugin System” system user token with the “System Administrator” role is automatically added to it.

For example, you can write a reaction that adds a comment to any task change:

```
# Sends { "comment": "Hello" } to http://localhost:9099/rest/tasks/:id/
↪comment?token=...
# The initial / can be omitted.
# The prop() method allows you to add properties to the JSON request body;
# more on it below.
return post('/rest/tasks/:id/comment').prop('comment', 'Hello')
```

The reaction can trigger any number of webhooks:

```
return [
    post('/rest/tasks/:id/comment').prop('comment', '#1'),
    post('/rest/tasks/:id/comment').prop('comment', '#2'),
    post('/rest/tasks/:id/comment').prop('comment', '#3')
]
```

Finally, in the reaction, you can freely mix requests to create or change the task and webhooks:

```
return [
    post('/rest/tasks/:id/comment').prop('comment', 'Comment'),
    upd().setTitle(after.getTitle() + '!')
]
```

Webhooks solve the same tasks that can be solved by the `requests` module.

The first difference from the `requests` is the automatic completion of the URL and the addition of a token.

But the second difference is much more important. Requests made via `requests` are executed immediately. They are blocking, i.e. the plugin is stopped until a response to the request (successful or unsuccessful) is received. If a request is executed for a long time (for example, a minute), and there are several such requests, then they can block the entire work of the server core. In contrast, the `return post()` call does not start the request. It only builds and schedules it for sending. After the request is formed, the work of plugins continues as usual. Incoming requests are processed in a separate thread. The server for sending the request is determined for each of them. For all such servers, the server core keeps a record of the number of sent requests for which a response has not been received yet. If this value is less than the threshold value N (controlled by the *Webhooks* (page 175) setting), then the request is sent immediately. Otherwise, the request is sent after receiving a response to any of the requests in processing. For example, if N = 10, then the first 10 requests to the <https://some.server> server are sent immediately, and the 11th is sent only after at least one of the first 10 has completed.

Finally, the third difference from the `requests` module is that you can create and attach destination servers for webhooks in the system (actually, an http address that that you can name, enable/disable, and delete) (Fig. 5.1).

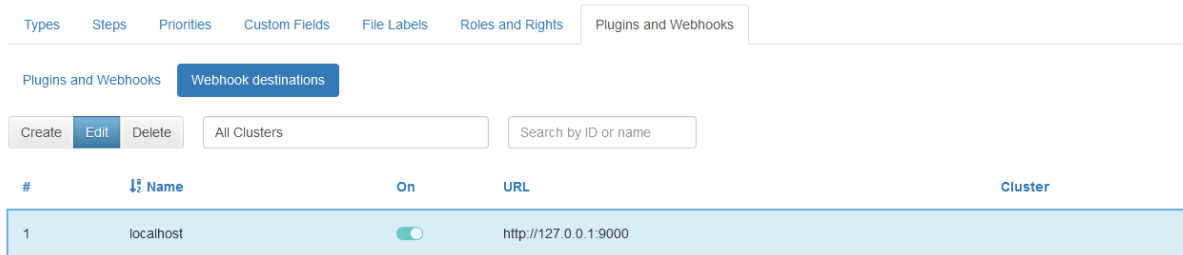


Fig. 5.1: Webhook destination servers

If a reaction has an attached server and generates a *relative* request (tasks/:id/comment instead of <https://some.server/tasks/:id/comment>), the request is sent exactly to the attached server.

For example:

```
# Assuming the https://am37.activemap.ru server is attached to the reaction.
↪ script
# Then the script below tries to send { "comment": "Hello" }
# to https://am37.activemap.ru/rest/tasks/:id/comment
# (unsuccessfully, because at least a token is not added).
return post('/rest/tasks/:id/comment').prop('comment', 'Hello')
```

The request is ignored if the server is turned off or deleted.

Destination servers are required to group webhooks and quickly change the destination server. If there are 5-10 webhooks and their API entry point has changed, it is enough to change only the address of the destination server.

Finally, special methods have been added to build requests that allow you to specify the request body in JSON format.

```
req = post('/herewego')
# props sets several properties in the body
req.props({
  'x': 2,
  'y': 3
})
# prop adds one property to the body
req.prop('op', '+')
# props adds properties rather than replacing them
req.props({
```

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```
'ans': 5
})

return req
```

Each `prop` argument can be a string, number, boolean type, date, list of values, or dictionary of values. In addition, you can pass `after/before` (for tasks and comments) to `prop`. The data about them is automatically converted to JSON when you submit a request (see its format in / `rest/docs`):

```
return post('/someurl')
    .prop('before', before)
    .prop('after', after)
```

Finally, there are methods that allow you to set the entire body as a map. The difference from `props` is that `props` does not clear the previously passed body:

```
body = {
    'before': before,
    'after': after
}
```

In body you can pass not only map, but also `before/after`:

```
# subsequent calls to prop/props
# add new properties to the body
return post('/someurl').body(after).prop('operation': 'update')
```

In conclusion, one more example:

```
return post("/users")
    .prop("login", "user")
    .prop("passwd", "password")
    .prop("fio", "Test user")
    .prop("organization_id", 3)
    .prop("workgroup_ids", [1, 3, 4])
    .prop("role_id", 7)
    .prop("type", {"id": 2})
    .prop("tracking", False)
```

5.1.14 Utilities

Reference tables are available in the plugin code:

```
refbooks().types().byName(...)
refbooks().stickers().byName(...)
refbooks().users().byName(...)
refbooks().statuses().byName(...)
refbooks().fields().byName(...)
```

The `byName()` method for each reference table searches for a model with the required “name/title/fio”. This depends on which field of this model is more suitable in meaning to `byName()`. Returns the desired Mockups.* model.

Utility functions are also available:

```
// Returns the approximate distance
// between two points on the surface of the Earth (in kilometers).
// It is assumed that the Earth is a perfect sphere.
dist(List<Double> point1, List<Double> point2)

// The function gets two collections of photos, and returns those,
// which are in "after", but which are not in "before".
diffPhotos(List<Attachment> before, List<Attachment> after)
```

5.1.15 Imports in Python

You can install additional packages if needed. One of the easiest ways to install a package is to use the pip utility: `pip install <packagename>`. In the script, the package is connected using the `import` operator.

```
import requests
import warnings

warnings.filterwarnings("ignore")
url = 'https://integration.dev.geo4.pro/rest/'

def getToken():
    response = requests.post(url + 'auth/by-login?apiVersion=2.0', json = {
        ↪ 'login': 'depadmin', 'password': '123456789'}, verify = False)
    return None if response.status_code != 200 else response.json()['token']

def postComment(id):
    return requests.post(url + 'tasks/%d/comments?token=%s&apiVersion=2.0' % ↪
        ↪ (id, getToken()), json = {'comment': 'jep\'s comment'}, verify = False)

postComment(model.getId())
return noop()
```

5.1.16 Potential vulnerability: recursive triggering of the change reaction

It is important to note that the creation or modification of a task in the reaction is the same as all other requests. Validations and reactions are also launched for it. Therefore, it is easy to write a script that triggers an endless series of reactions. For example, if you need to change the deadline (set it a day ahead) with each update of the task, the following script triggers an infinite chain of reactions:

```
import datetime

now = datetime.datetime.now()
```

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```
tomorrow = now + datetime.timedelta(days=1)

return upd().setDeadline(tomorrow.timestamp())
```

5.1.17 Plugin script examples

Upload files to a layer object

```
if after.getServiceObjectLayerId() is not None and after.getServiceObjectId() is not None:
    attach_list = []
    if len(after.getPhotos()) > 0:
        body_photo = list(map(lambda attach_name: {
            'path': f"/department_files/photos/{attach_name.getName().replace(
            ' ', '/')}",
            'fileName': attach_name.getName().replace('/', '_'),
            'isUrl': True
        }, after.getPhotos()))
        for photo in after.getPhotos():
            photo_location = photo.getOriginLocation() if photo.
            getOriginLocation() is not None else photo.getAttachmentLocation()
            if photo_location is not None and model.getLocation() is None:
                geom = {'coordinates': [(photo_location[0], photo_
                location[1])], 'type': 'MultiPoint'}

                if model.getLocation() is not None:
                    geom = {'coordinates': [(model.getLocation()[0], model.
                    getLocation()[1])], 'type': 'MultiPoint'}

            if len(after.getVideos()) > 0:
                for item in after.getVideos():
                    attach_list.append(item.getName())
                    attach_path = 'video'

            if len(after.getSounds()) > 0:
                for item in after.getSounds():
                    attach_list.append(item.getName())
                    attach_path = 'sounds'

            if len(after.GetFiles()) > 0:
                for item in after.GetFiles():
                    attach_list.append(item.getName())
                    attach_path = 'dif_files'

        body_files = list(map(lambda attach_name: {
            'path': f"/department_files/{attach_path}/{attach_name.replace(' ', '
            ')}",
```

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```

        'fileName': attach_name,
        'isUrl': True
    }
    , attach_list))

    req = patch(f"/layers/{after.getServiceObjectLayerId()}/features/{after.
↪getServiceObjectId()}/files")
    req.props({'photos': body_photo, 'files': body_files})

    return [
        req,
        patch(f"/layers/{after.getServiceObjectLayerId()}/features/{after.
↪getServiceObjectId()}/").prop('geometry', geom)
    ]

```

Checking the number of photos

```

if after.get('photo_count') is not None and after.get('photo_count') !=
↪before.get('photo_count') and subject.getId() != after.getUser().getId():
    return invalid("\nOnly the task creator can change the 'Number of Angles'
↪field.\n"
                    "\nPlease return the previous value.")

if len(after.getPhotos()) is not None and after.get('photo_count') is not
↪None and after.getStatus().getId() != before.getStatus().getId():
    if len(after.getPhotos()) < int(after.get('photo_count')) and after.
↪getStatus().getId() == 4:
        send_photo_count = int(after.get('photo_count')) - len(after.
↪getPhotos())
        return invalid(f"Not enough photos to change the step. You need to
↪add more {send_photo_count}")

```

5.2 Attachment 2. Examples of advanced layer styles

For more information about creating geocss styles, see <https://docs.geoserver.org/stable/en/user/styling/workshop/css/css.html>.

**** Example of a point layer style using standard icons (circles) for categories****

```

/* @title Offices */
[class = 'bank'] {
    mark: symbol('circle');
}
[class = 'bank']
:mark{
    fill:#68904D;
    stroke:black;
    stroke-width:1;

```

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```

    size:18;
}

/* @title ATMs */
[fclass = 'atm'] {
  mark: symbol('circle');
}
[fclass = 'atm']
:mark{
  fill:#EE9B01;
  stroke:#000000;
  stroke-width:1;
  size:9;
}

```

Where:

```

/* @title Offices */ - category name to be displayed in the legend.
[amenity = 'bank'] - the field to filter by and the value of the field.
mark: symbol('circle') - icon shape (circle).
fill:#68904D - icon fill color. You can use the name or the hex color code.
stroke: black/#000000 - color of the icon stroke. You can use the name or hex
↪color code (black = #000000).
stroke-width:1 - icon stroke width in pixels.
size:18 - icon size in pixels.

```

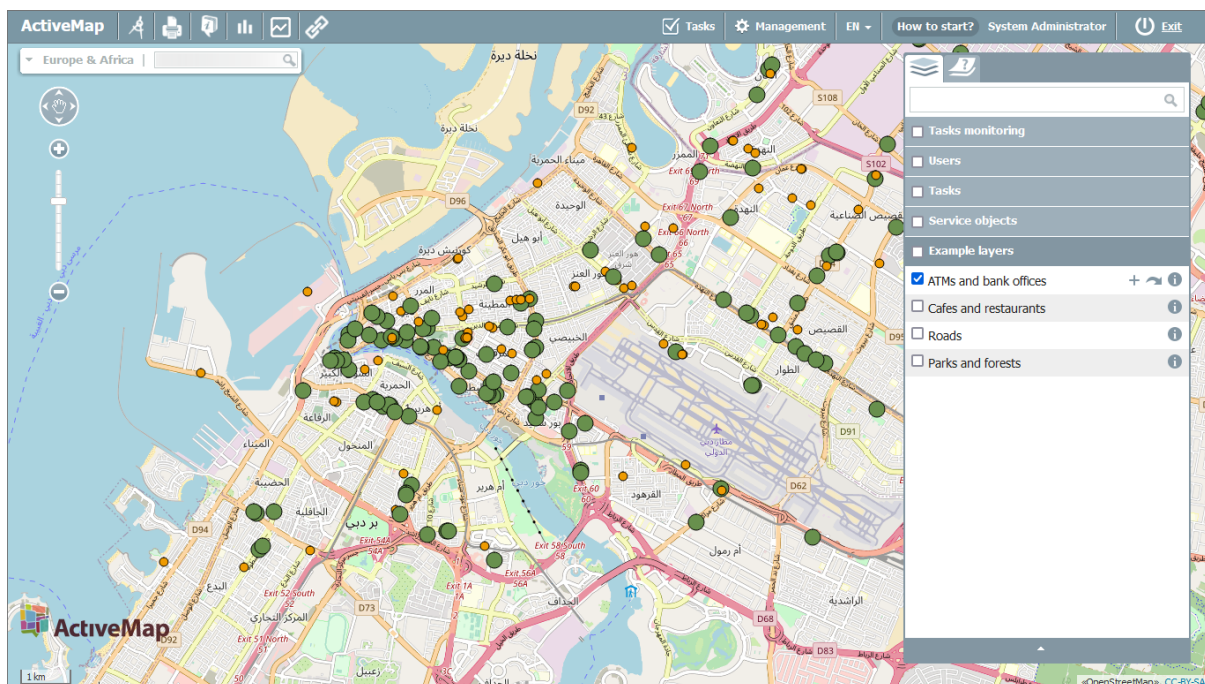


Fig. 5.2: Example of a point layer style for bank offices and ATMs using standard icons (circles) for categories

Example of a point layer style using icons for categories

```

/* @title Fast food */
[ fclass = 'fast_food' ] {
    mark-opacity: 1;
    mark-rotation: 0;
    mark-size: 28;
    mark: url(https://public.activemap.me/dictionary/icons/79/view);
}
/* @title Cafes */
[ fclass = 'cafe' ] {
    mark-opacity: 1;
    mark-rotation: 0;
    mark-size: 28;
    mark: url(https://public.activemap.me/dictionary/icons/78/view);
}
/* @title Restaurants */
[ fclass = 'restaurant' ] {
    mark-opacity: 1;
    mark-rotation: 0;
    mark-size: 28;
    mark: url(https://public.activemap.me/dictionary/icons/80/view);
}

```

Where:

```

/* @title Cafes */ - category name to be displayed in the legend.
[fclass = 'cafe'] - the field to filter by and the value of the field.
mark-opacity: 1 - icon transparency (can be changed from 0 - full
↳transparency to 1 - full opacity).
mark-rotation: 0 - angle of icon rotation in degrees.
mark-size: 28 - icon size in pixels.
url(https://public.activemap.ru/dictionary/icons/78/view) - link to the icon.
↳You can get it by going to the "Layers" block, the "Icons" tab, right-
↳clicking on the icon and selecting "Copy image URL" (:ref:`icon_url`).

```

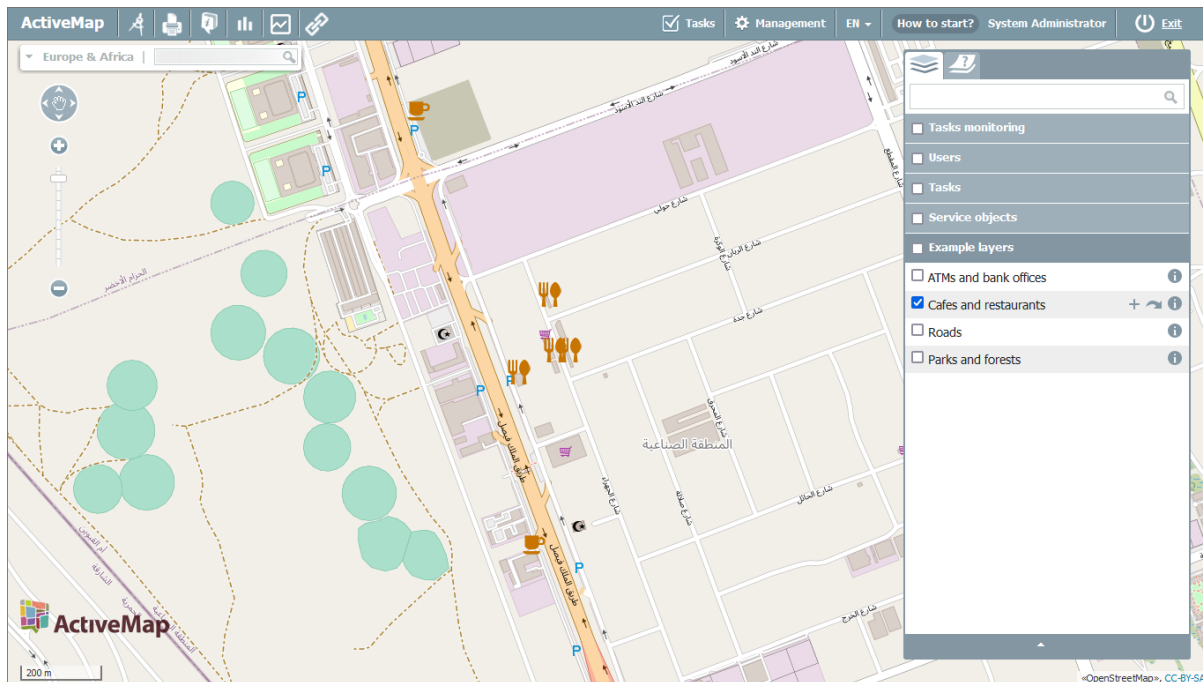



Fig. 5.3: Example of a point layer style for cafes and restaurants using icons for categories

Example of a linear layer style with labels and line color information from the data

```
* {
  stroke: [stroke_color];
  stroke-dashoffset: 0;
  stroke-linecap: butt;
  stroke-width: 4;
  label: [naimen];
  font-family: Arial;
  font-weight: bold;
  font-fill: black;
  font-size: 12;
  halo-color: white;
  halo-radius: 2;
  -gt-label-follow-line: true;
  -gt-label-max-angle-delta: 60;
  -gt-label-max-displacement: 400;
  -gt-label-repeat: 300;
}
```

Where:

stroke: [stroke_color] - color of the line stroke. In this case it is taken from the value of the specified field (stroke_color) and is not displayed in the legend.

stroke-dashoffset: 0 - offset of the stroke from its initial position in pixels.

stroke-linecap: round - parameter defining the shape of line ends (round - rounded corners, butt - cut at a right angle immediately after the end of

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```

↳the line, square - cut at a right angle after a distance equal to half the
↳stroke-width).
stroke-width: 4 - line width in pixels.
label: [naimen] - name of the field which values are used to label objects.
font-family: Arial - font family for labeling objects.
font-weight: bold - font weight (thickness of label characters).
font-fill: black - font color. You can use name or hex color code (black =
↳#000000).
font-size: 10 - font size in pixels.
halo-color: white - color of the caption stroke. You can use name or hex
↳color code (black = #000000).
halo-radius: 1 - radius of the label stroke in pixels.
-gt-label-follow-line: - following the contours of linear object labels.
-gt-label-max-angle-delta: 90 - maximum bending angle of the caption in
↳degrees.
-gt-label-max-displacement: 400 - maximum displacement of the label in pixels.
-gt-label-repeat: 150 - repetition of object's caption through the specified
↳number of pixels.

```

Example of a linear layer style with captions and different line types for categories

```

* {
  label: [name];
  font-family: Arial;
  font-weight: bold;
  font-fill: black;
  font-size: 10;
  halo-color: white;
  halo-radius: 1;
  -gt-label-follow-line: true;
  -gt-label-max-angle-delta: 90;
  -gt-label-max-displacement: 400;
  -gt-label-repeat: 150;
}

/* @title Motorways */
[stylegroup = 'motorway'] {
  stroke: #d1386f, #db798f;
  stroke-width: 8px, 6px;
  stroke-linecap: round;
  z-index: 8, 9;
}

/* @title Main Roads */
[stylegroup = 'mainroad'] {
  stroke: #be9239, #f8ce8c;
  stroke-width: 6px, 4px;
  stroke-linecap: round;
  z-index: 6, 7;
}

```

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```

/* @title Streets */
[stylegroup = 'minorroad'] {
stroke: #d9d6d0, #fefefe;
stroke-width: 4px, 3px;
stroke-linecap: round;
z-index: 4, 5;
}
/* @title Alleys */
[stylegroup = 'service'] {
stroke: #d9d6d0, #fefefe;
stroke-width: 3px, 2px;
stroke-linecap: round;
z-index: 2, 3;
}
/* @title Pedestrian zones */
[stylegroup = 'noauto'] {
stroke: #f99589;
stroke-width: 3px;
stroke-dasharray: 5 2;
z-index: 1;
}
/* @title Others */
[stylegroup = 'other'] {
stroke: #d9d6d0;
stroke-width: 2px;
z-index: 0;
}

```

Where:

1. General parameters determined for the entire layer:

label: [name] - name of the field which values are used to label objects.
font-family: Arial - font family for labeling objects.
font-weight: bold - weight of the font (the thickness of the caption ↪ characters).
font-fill: black - font color. You can use name or hex color code (black = ↪ #000000).
font-size: 10 - font size in pixels.
halo-color: white - stroke color of the caption. You can use name or hex ↪ color code (black = #000000).
halo-radius: 1 - radius of the signature stroke in pixels.
-gt-label-follow-line: - follow line feature labels.
-gt-label-max-angle-delta: 90 - maximum label bend angle in degrees.
-gt-label-max-displacement: 400 - maximum label offset in pixels.
-gt-label-repeat: 150 - repeats the label of the object after a given number ↪ of pixels.

2. Parameters for individual categories:

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Simple line:

```
/* @title Others */ - category name to be displayed in the legend.
[stylegroup = 'other']- field that is filtered and field value.
stroke: #d9d6d0 - color of lines. You can use name or hex color code (black =
↳#000000).
stroke-width: 2px - line width in pixels.
z-index: 0 - the order in which the category is shown relative to other layer
↳categories (starts with 0, objects with z-index: 0 is displayed below all
↳other objects with larger index values).
```

Dotted line:

```
/* @title Pedestrian zones */ - category name to be displayed in the legend.
[stylegroup = 'noauto'] - the field that is filtered and the value of the
↳field.
stroke: #f99589 - color of the lines. You can use name or hex color code
↳(black = #000000).
stroke-width: 3px - line width.
stroke-dasharray: 5 2 - length of strokes (5) and spaces (2) in pixels.
z-index: 1 - the order in which the category is shown relative to other layer
↳categories.
```

Stroke line:

```
/* @title Motorway */ - category name to be displayed in the legend.
[stylegroup = 'motorway'] - the field that is filtered and the value of the
↳field.
stroke: #d1386f, #db798f - colors of strokes for lines. You can use name or
↳hex color code (black = #000000).
stroke-width: 8px, 6px - line width in pixels.
stroke-linecap: round - parameter defining the shape of the line ends (round
↳- rounded corners, butt - right angle break right after the line ends,
↳square - right angle break after half of the stroke-width).
z-index: 8, 9 - order of category showing relative to other layer categories
↳and lines within one category when imitating style with stroke-width.
```

For lines in CSS there is no concept of “fill”, only “stroke”. Thus, unlike points and polygons, it is not possible to style the “edge” of a line. However, this effect can be achieved by drawing each line twice: once with a certain width and again with a slightly smaller width. This creates the illusion of fill and stroke. The style uses CSS support for “multi-valued properties” with two colors and widths. In this case, the highways are colored first with a dark red line (#d1386f) of 8 pixels wide and then a thinner pink line (#db798f) of 5 pixels wide. Since each line is drawn twice, the render order determined by the z-index parameter is important. The wider line must have a smaller index value so as not to overlap the thinner line.

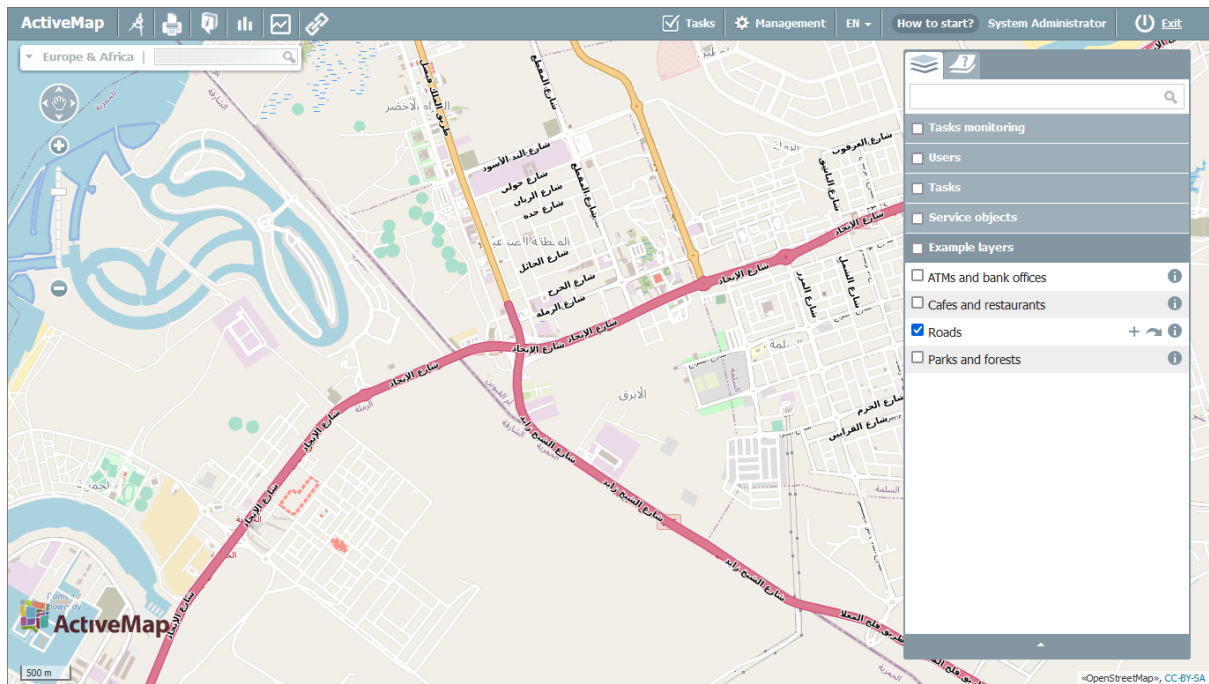


Fig. 5.4: Example of the road network linear layer style with captions and different line types for categories

Example of a polygon layer style with fill by range

```
*{
  fill-opacity:0.7;
  stroke:#254911;
  stroke-width:1;
  font-family: "Times New Roman";
  font-style: "normal";
  font-weight: "bold";
  font-size:10;
  font-fill:#000000;
  label-anchor: 0.5 0;
  label: [name];
  label-geometry: [centroid(the_geom)];
  -gt-label-max-displacement: 40;
  -gt-label-auto-wrap: 70;
}

/* @title Population < 20000 people */
[population_num < 20000] {
  fill: #BDD880;
}

/* @title Population between 20000 and 50000 */
[population_num > 20000 and population_num < 50000]{
  fill: #FFEB84;
}

/* @title Population between 50000 and 100000 */
```

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```
[population_num > 50000 and population_num < 100000]{
  fill: #FDBA7B;}

/* @title Population > 100000 */
[population_num > 100000]{
  fill: #F8696B;}
```

Where:

1. General parameters determined for the entire layer:

fill-opacity:0.7 - transparency of the polygon fill (ranges from 0 to 1).
 stroke:#254911 - polygon stroke color. You can use the color name or
 ↳ hexadecimal code.
 stroke-width:1 - polygon stroke width in pixels.
 font-family: "Times New Roman" - font family for labeling objects.
 font-style: "normal" - font style (normal, italic).
 font-weight: "bold" - weight of the font (weight of the caption characters).
 font-size:10 - font size.
 font-fill:#000000 - color of the signature symbols. You can use name or hex
 ↳ color code (black = #000000).
 label-anchor: 0.5 0 - anchor point that determines the placement of the label
 ↳ relative to the centroid of the polygon. In this case, the label is offset
 ↳ 50% horizontally from the polygon's centroid and centered vertically.
 label: [name] - name of the field which values are used to label objects.
 label-geometry: [centroid(the_geom)] - relative location of the label
 ↳ (location relative to the centroid).
 -gt-label-max-displacement: 40 - maximum offset of the label in pixels
 ↳ relative to the centroid of the polygon.
 -gt-label-auto-wrap: 70 - breaks the label into lines if its length exceeds
 ↳ the specified value in pixels.

2. Parameters for individual ranges:

```
/* @title Population < 20000 */ - range name to be displayed in the legend.
[population_num < 20000] - field to filter by and the value of the field.
fill: #BDD880 - the color of the polygon fill for the specified range. You
↳ can use the color name or hexadecimal code.
```

Example of a polygon layer style with hatching by category

```
/* @title Parks */
[fclass = 'park'] *{
  fill: symbol('shape://times');
  fill-size: 22px;
  stroke: darkgreen;
}
:fill {
  stroke: green;
  size: 8;
```

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```

}

/* @title Forests */
[class = 'forest'] *{
fill: symbol('shape://plus');
fill-size: 12px;
stroke: darkbrown;
}
:fill {
stroke: brown;
size: 8;
}
}

```

Where:

```

/* @title Parks */ - name of the category to be displayed in the legend.
[natural = 'park'] - field to filter by and the value of the field.
fill: symbol('shape://times') - fill polygon with symbols for creating a
↔shifting effect.
fill-size: 22px - size of symbols to fill in pixels.
stroke: darkgreen - color of polygons stroke.
:fill {
stroke: green; - color of the characters stroke.
size: 8; - symbols stroke thickness.
}

```

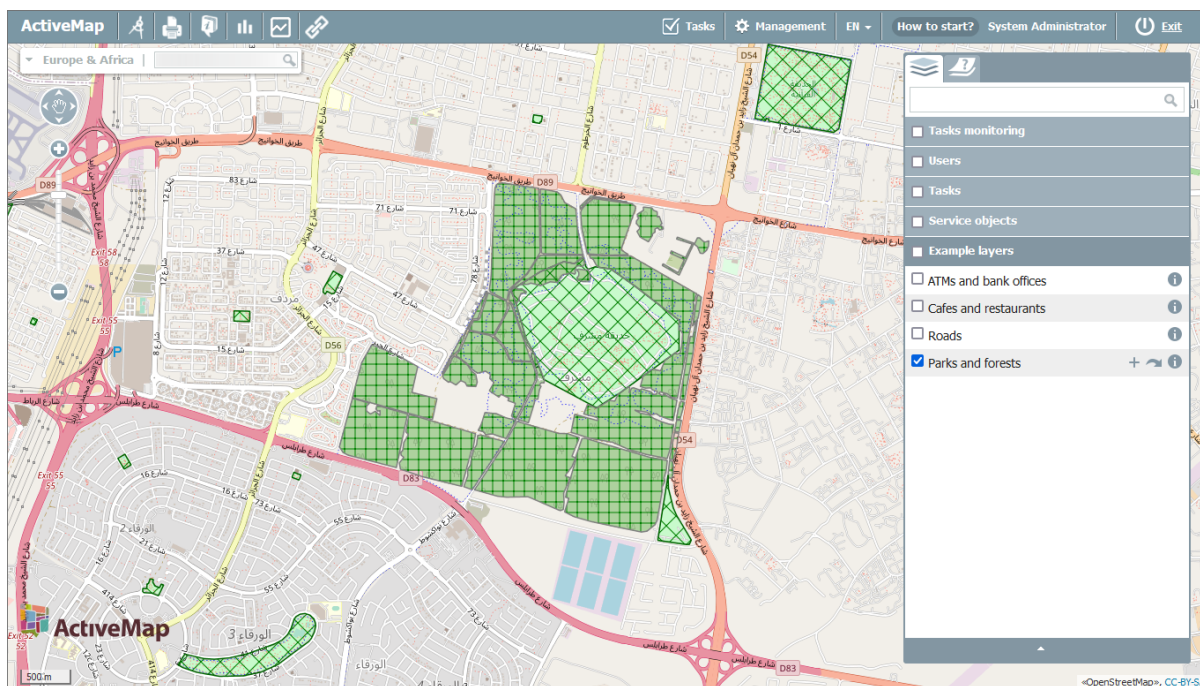


Fig. 5.5: Example of a polygon layer style for vegetation with hatching by category

5.3 Attachment 3. User rights grid

Table 5.2: us

Rights/ Role	System Administrator	System Inspector
Change titles	+	-
Edit description	+	-
Change custom fields	+	+ ²
Change priority	+	-
Change step	+ ¹	+ ¹
Change deadline	+	-
Change status	+	+
Change the set point	+	-
Add a service object to a created task, if it has not been added before	+	+
Assign an executor	+ ²	+ ²
Assign an organization	+ ²	+ ²
View the creator	+	+
Attach photos/ videos (gallery)	+	+/-
Attach photos/ videos (camera)	+	+/-
Work with the invoice module	+	+/-
Delete	+	-
View	+	+
Create	+	-
Edit	+	-
View	+	+
Create	+	-
Edit	+	-
Delete	+	-
View	+	+
Create	+	-
Edit	+	-
Assign to other users	+	-
Edit the name	+	+
Change login	+	+
Change password	+	+
Add a tag	+	+
Edit contact information	+	+
Change role	+	-
Change user type	+	+
Change main organization	-	-
Change additional organization	-	-
Add an avatar	+	+
View	+	+

Table 5.2 – continue

Rights/ Role	System Administrator	System Inspector
Create	+	-
Edit	+	-

- 1**
task at the “in progress” step.
- 2**
task at the “in progress” step or draft.
- 3**
task at the “completed” or “new” step.
- 4**
task at the “in progress” step, step is not closed or draft.

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