ActiveMap Desktop user manual 3.36.0 (5.42)

Activemap Computer Systems Design

Oct 20, 2023

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CHAPTER

ONE

GENERAL INFORMATION

1.1 About the Program

ActiveMap Desktop is a 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/.

The ActiveMap Desktop software (hereinafter referred to as the Program) is a desktop application that implements the client part of the task management module of the ActiveMap software suite. Use the Program to solve the following tasks:

- setting tasks for employees of responsible organizations (with the ability to add media files and perform georeferencing),
- task management and control over their execution,
- generating analytical and statistical reports on tasks.

1.2 Software and hardware requirements

To ensure stable operation of the Program, the personal computer must have the following minimum specifications:

- Processor – Intel Core 2 Duo (or AMD Athlon 64) or higher,
- RAM – 2GB,
- Operating System – Microsoft Windows 7 and above,
- Microsoft .NET Framework 4.6.1.

1.3 Installing the Program

To install the program on a user's computer, follow these steps:

1. Click the "How to start?" button on the top panel of the geoportal page in "Map" mode.
2. Select ActiveMap Desktop from the list of suggested modules.
3. Click "Download". The *setupActiveMapDesktop.exe* file is downloaded.
4. Run the *setupActiveMapDesktop.exe* file, which calls the ActiveMap Desktop installation wizard (Fig. 1.1).
5. Click "Next" to go to the window with the license agreement text. After reading the text of the agreement, click "Accept" to continue the installation or "Cancel" to terminate the installation of the Program.

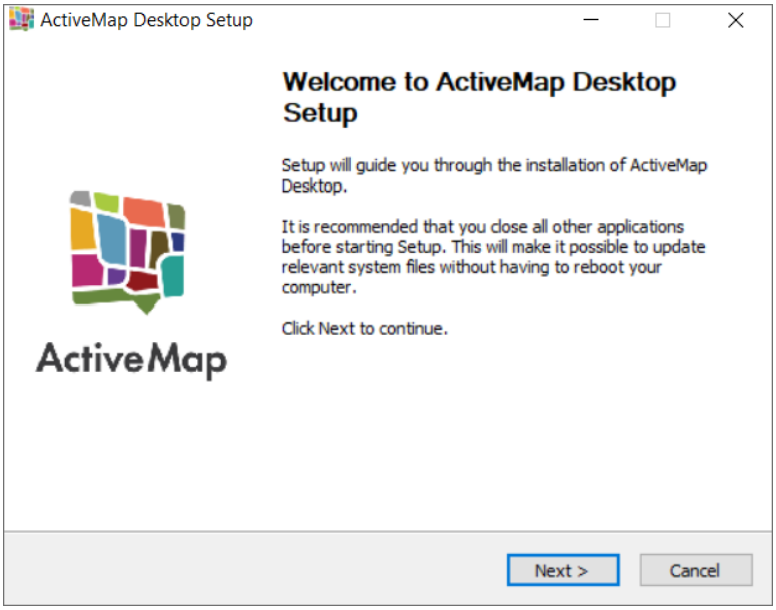


Fig. 1.1: Launching the ActiveMap Desktop installation wizard

6. After clicking the "Accept" button you are taken to the ActiveMap Desktop installation folder selection window (Fig. 1.2). By default, the installation wizard suggests placing the program file in the C:/Users/User_name/Documents/Activemap Computer Systems Design/ActiveMap Desktop folder. You can choose another folder by clicking "Browse…".

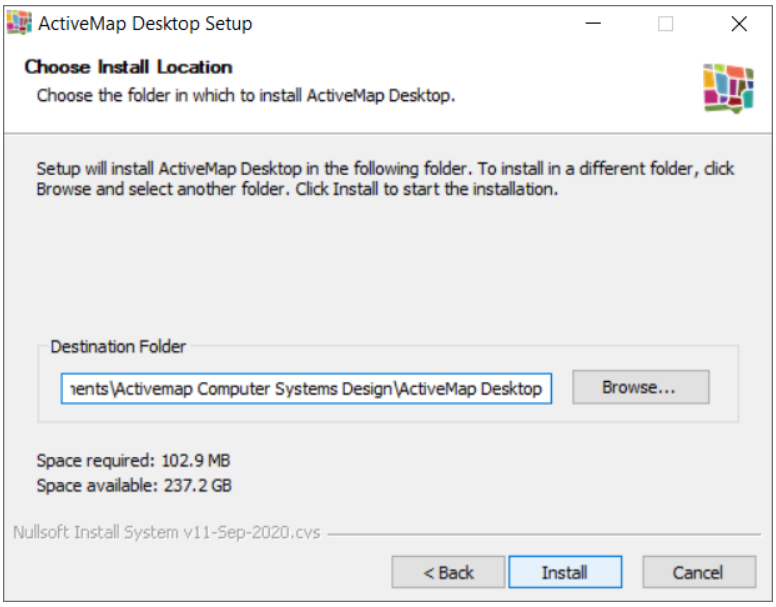


Fig. 1.2: Window for selecting the folder for installing the Program

7. After selecting the folder, click "Install".

CHAPTER

TWO

WORKING IN THE PROGRAM

2.1 Starting the Program

After completing the installation, a window appears asking you to run the Program (Fig. 2.1). Click “Yes” to start the Program.

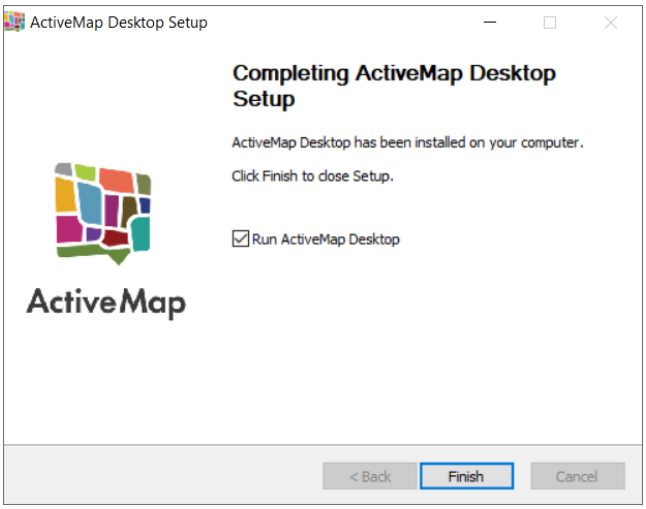


Fig. 2.1: Starting the programme immediately after installation

If you click “No” when prompted to start the Program, you can click the ActiveMap Desktop shortcut, automatically created on the desktop after installation (Fig. 2.2).

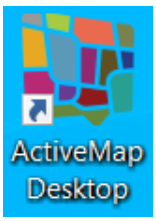


Fig. 2.2: Program shortcut on the desktop

When launching the program, the system checks the versions of ActiveMap Desktop, ActiveMap Web, and “Cerebellum” to ensure compatibility. If the versions do not match, a corresponding message appears.

After successful launch, the Program authorization window opens (Fig. 2.3). The client server is listed in the login options line. Enter your username and password. There is also an option to save the specified username and password by checking the "Save password" box. Passwords are stored in an encrypted form.

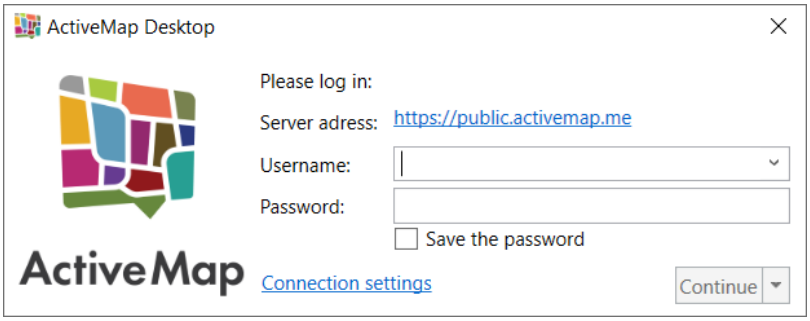


Fig. 2.3: Authorization window

When launching the Program for the first time or if updates are available on subsequent launches, a window appears after clicking "Continue", asking you to install the update files (Fig. 2.4).

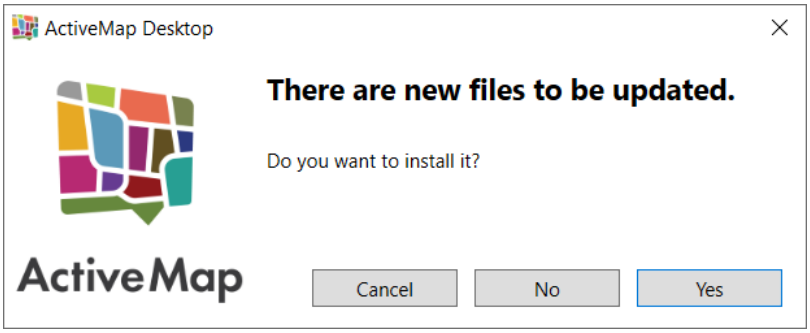


Fig. 2.4: Update installation window

After the updates are downloaded, the Program user interface opens with a set of features corresponding to the user's access rights.

Data access settings are set by the administrator individually for each user depending on the role. Roles differ from each other by the set of actions they can perform in the system. Roles are assigned by administrators when creating user accounts. There are the following role types:

- The **"System Administrator"** is responsible for the system configuration, including the management of clusters, organizations, users of all roles, contracts, directories, and for the distribution of access rights to the different layers and reports.
- The **"System Inspector"** manages the tasks of all clusters.
- The **"Cluster Administrator"** is responsible for cluster administration, namely: managing organizations and users of his or her cluster, assigning access rights to layers and reports within the cluster, and for managing cluster tasks.
- The **"Cluster Inspector"** manages the tasks of the cluster.

- The **"Organization Administrator"** is responsible for administering the organization, namely: creating users, granting access rights to layers and reports within the organization, and managing tasks of the organization.
- The **"Organization Inspector"** manages the tasks of the organization.
- The **"Executor"** creates new tasks and executes the assigned tasks in the System.

2.2 Connection settings

If internet access is provided through a proxy server, click "Connection settings" in the login window (Fig. 2.3) to bring up the "Connection settings" window with proxy server settings (Fig. 2.5).

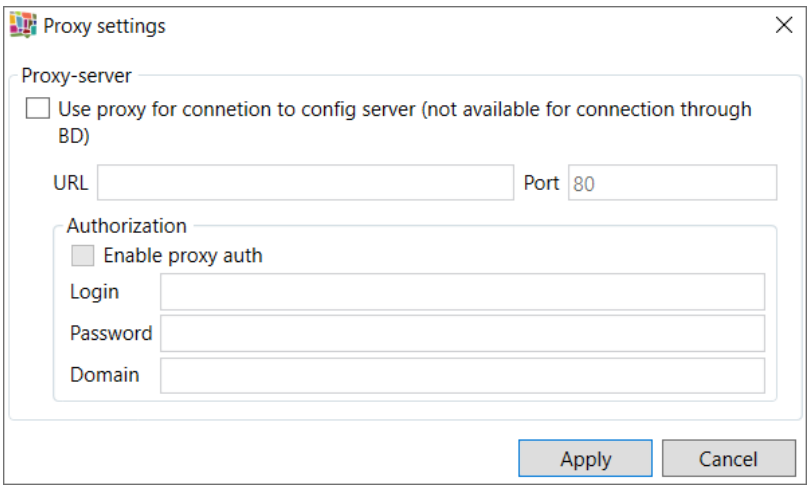


Fig. 2.5: Proxy server settings

In this window you can specify the proxy settings to be used in the network and click "Ok" to save the settings.

2.3 User interface of the Program

The Program interface includes the following elements (Fig. 2.6):

1. **Toolbar** – provides access to all features of the Program in the form of a standard hierarchical menu.
2. **User profile** – allows you to enter and change information about the current user.
3. **Notification tape** – displays notifications about different events: executor's leaving the task area, overdue tasks and others.
4. **Task search and filter area** – provides the ability to filter the list of tasks for individual needs.
5. **Task list area** – contains a list of all tasks loaded into the system, taking into account the filter applied.

6. **Task information panel** – responsible for viewing detailed information on the task and editing it.

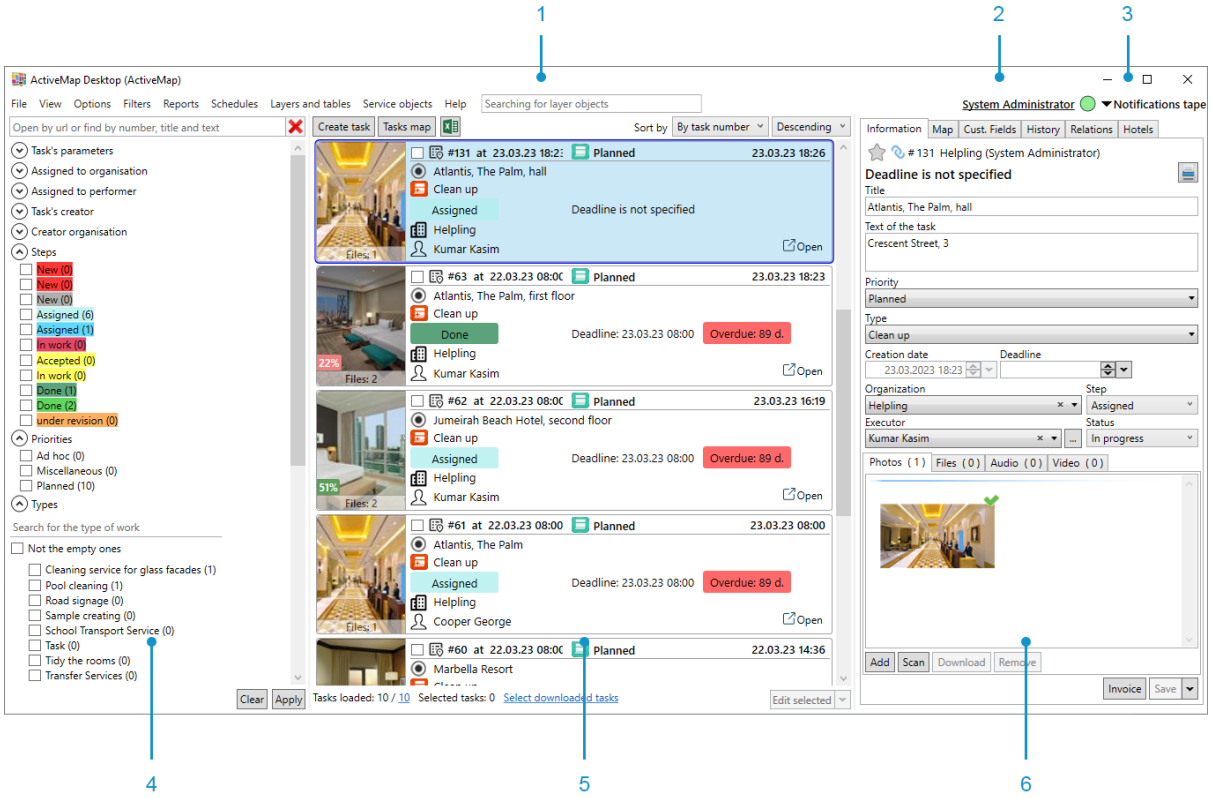


Fig. 2.6: Elements of the main window of the Program

2.3.1 Toolbar

At the top of the Program window, there is a toolbar that contains the following sections (Fig. 2.7):

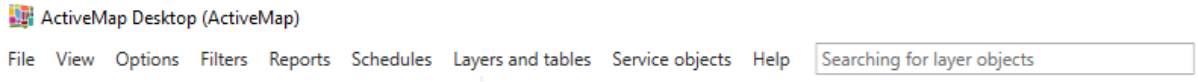


Fig. 2.7: Toolbar

- “File”,
- “View”,
- “Options”,
- “Filters”,
- “Reports”,
- “Schedules”,
- “Layers and tables”,

- “Service objects”,
- “Help”.

In addition to standard sections, the toolbar may contain a “Plugins” section.

The “**File**” menu section contains the following tabs (Fig. 2.8):

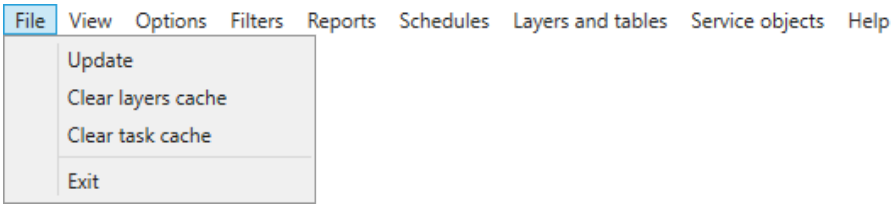


Fig. 2.8: “File” menu section

- “**Update**” – instant update of service data used in tasks (types of work, steps, priorities, lists of layers and rights to them) by synchronizing with the server;
- “**Clear layers cache**” – deletes layer data or layer files saved on the user’s PC, including the basemap cache. When other users edit a layer, the cache is automatically cleared when the layer is reconnected, when moving on the map, or changing the scale.
- “**Clear task cache**” – deletes data and task files stored on the user’s PC.
- “**Exit**” – terminates the work in the Programme.

The “**View**” menu section contains the following tabs (Fig. 2.9):

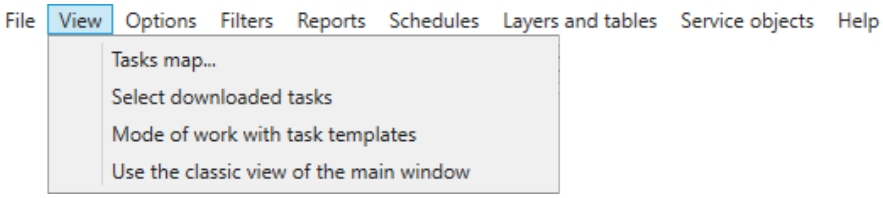


Fig. 2.9: “View” menu section

- “**Tasks map**” – view tasks on the map in a separate window according to the geographic location specified in the task (Fig. 2.10).

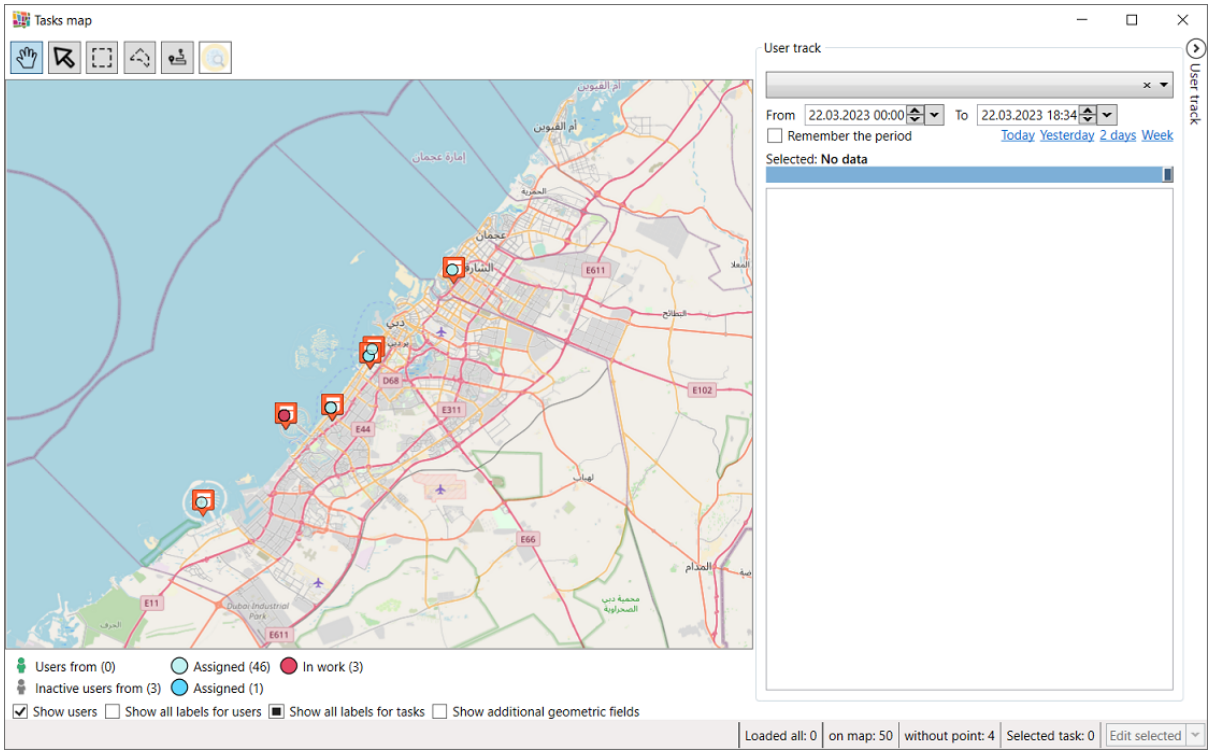


Fig. 2.10: "Tasks map" window

Working in the "Tasks map" window is described in detail in the *Task map* (page 96) section.

- "**Select downloaded tasks**" – select all tasks displayed in the task list area;
- "**Mode of work with task templates**" – view and edit task templates created according to the schedule;
- "**Use the classic view of the main window**" – switch between the new task list interface and the old one (for more information, see *Task list area* (page 26)).

The "**Options**" menu section contains the following tabs (Fig. 2.11):

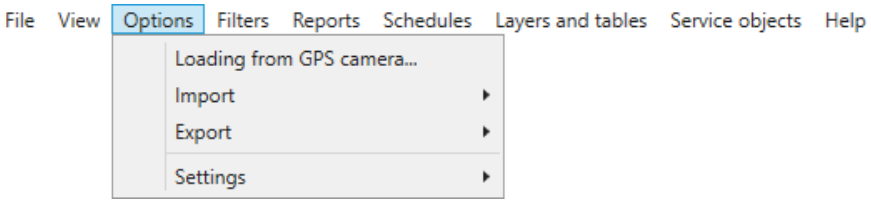


Fig. 2.11: "Options" menu section

- "**Loading from a GPS camera…**" – loads tasks and photos with geographic tags (Fig. 2.12). The process of adding tasks in this way is described in details in the *Create tasks by uploading geotagged photos* (page 113) section.

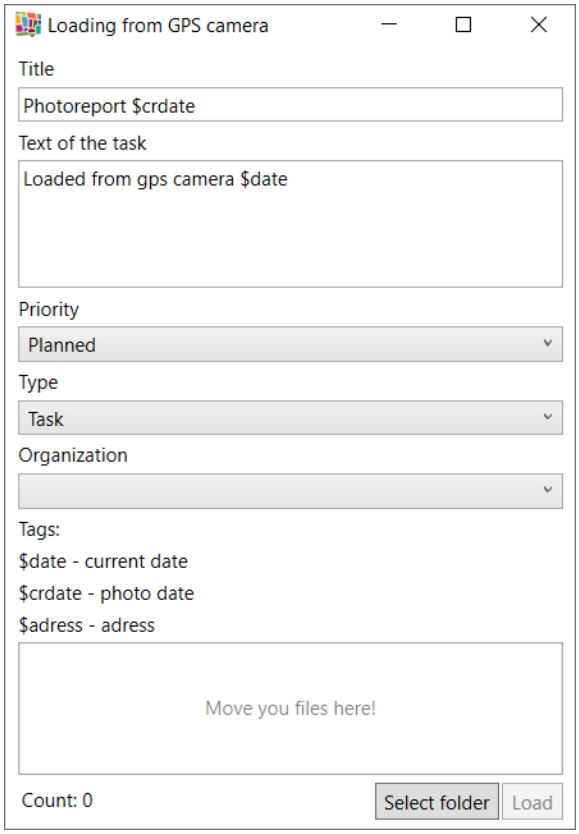


Fig. 2.12: Loading from GPS camera

- "**Import**" – mass loading of tasks into the system from MS Excel. The section contains second level tabs: "Import from MS Excel", "Import template tasks from MS Excel", "Update tasks from MS Excel", and "Save template" (Fig. 2.13).

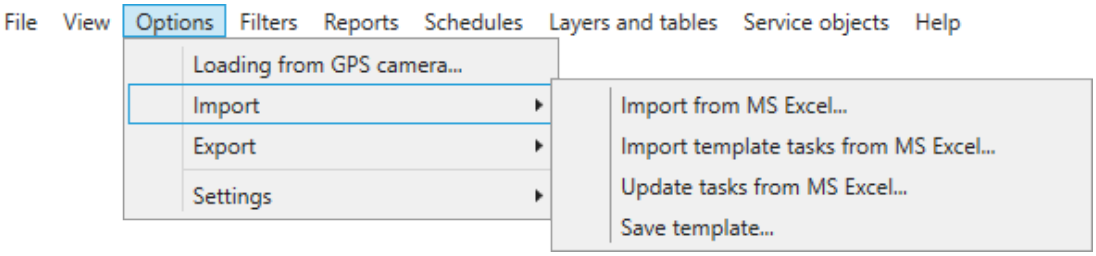


Fig. 2.13: Data import

For importing tasks or task templates from MS Excel, download a template with examples, prepare a file for import using the template, and upload the completed file into the program. To update tasks from MS Excel, export the required tasks, make changes, and upload the completed file using the "Update tasks from MS Excel" tool. For more information about the task import process, see *Mass task creation and updating using an Excel spreadsheet* (page 115).

Note: If the user applies a filter to the table, the system offers to load tasks using this filter.

In all standard windows for selecting or saving a file, the path is remembered in order to open the same folder when you access it again.

- "**Export**" – export data to MS Excel file (Fig. 2.14).

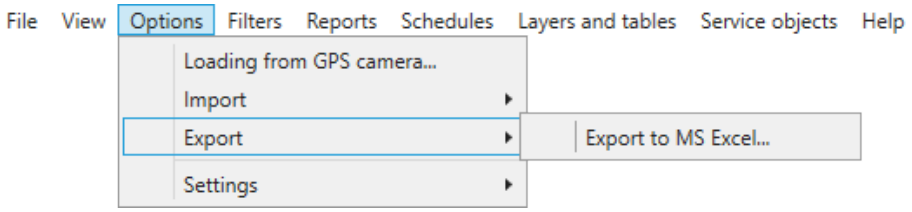


Fig. 2.14: Data export

The data is exported taking into account the filter applied to the tasks. For more details, see *Task list area* (page 26).

- "**Settings**" – management of the ActiveMap Desktop settings. The section contains second level tabs (Fig. 2.15):

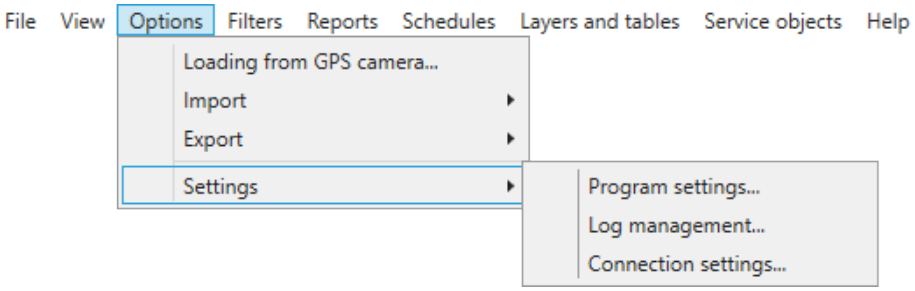


Fig. 2.15: "Settings" tab

- "Program settings ..." – opens the main program settings window, including task settings, geodata, image compression parameters, task cache, notifications, and language settings (for more details, see the *Internal settings* (page 51) section). The parameters changed in the program settings window are used by default the next time the program is opened (Fig. 2.16).

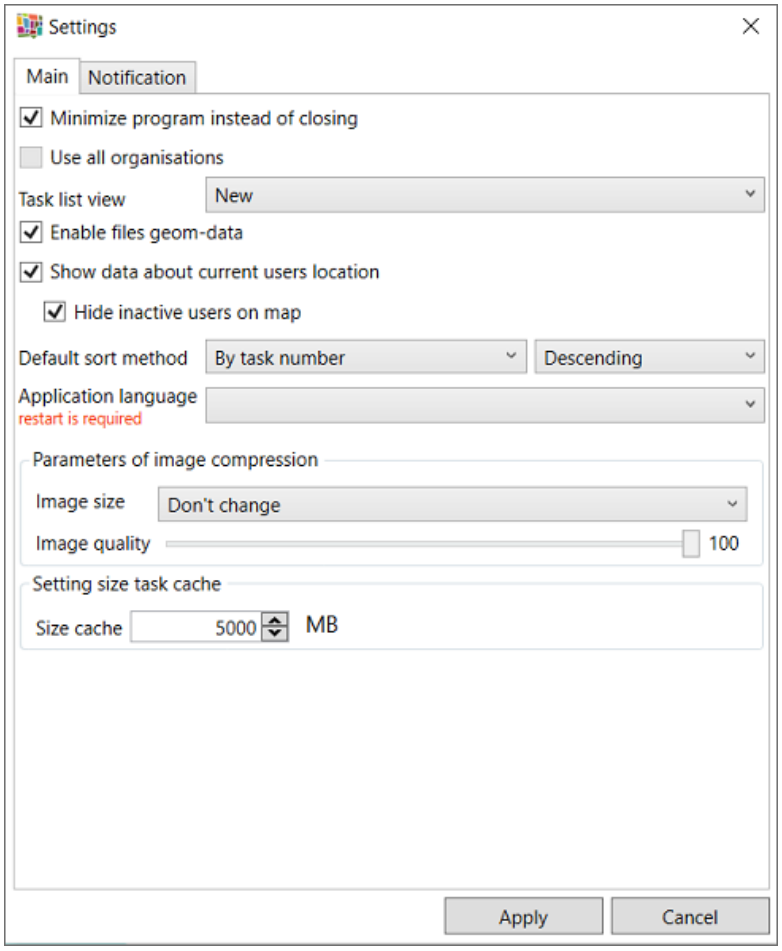


Fig. 2.16: Settings window

- "Log management…" – opens the window for viewing and managing logs (Fig. 2.17). You can set the logging level and view the contents of the log files.

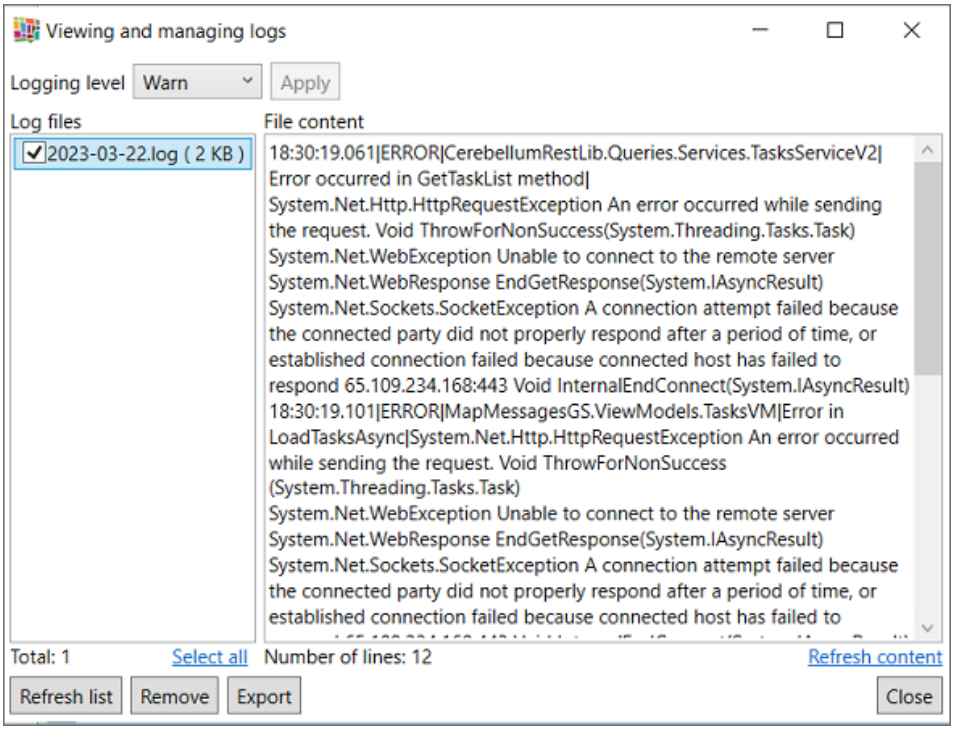


Fig. 2.17: Viewing and managing logs

- "Connection settings…" – opens a window with connection settings, including login parameters (server address, username and password) and proxy settings (Fig. 2.18).

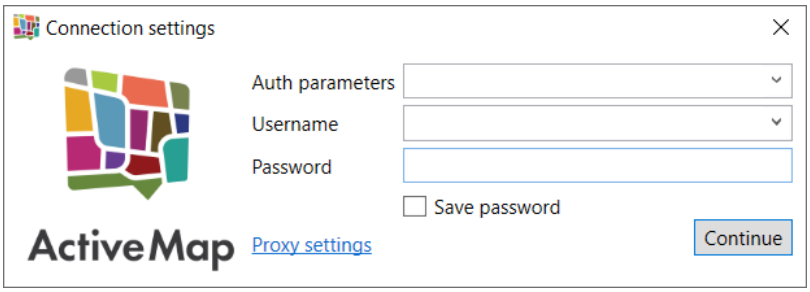


Fig. 2.18: Connection settings window

Passwords in the configuration file are stored in encrypted form. The proxy settings window is described in the *Connection settings* (page 6) section.

The "**Filters**" menu section contains the following tabs (Fig. 2.19):

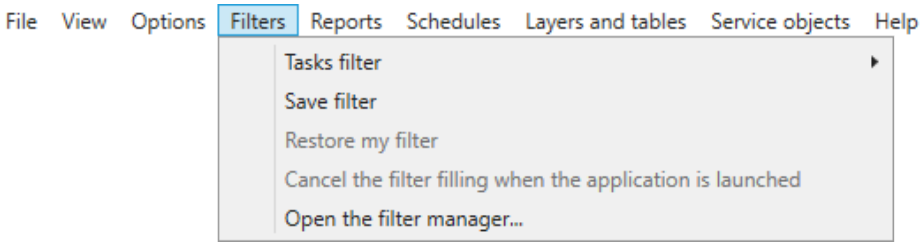


Fig. 2.19: "Filters" menu section

- "**Task filter**" – a list of saved filters. To apply one of the filters, select it from the list.

- "**Save filter**" – saves the current configuration of the task filter area. Working with the task filter area is described in detail in the *Task search and filter area* (page 23) section. To save the filter, enter its name and click "Save" (Fig. 2.20).

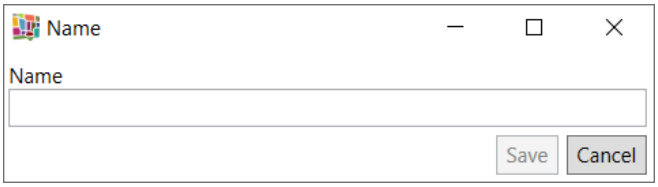


Fig. 2.20: Filter saving window

- "**Restore my filter**" – returns to default filter values. This tab is active if a default filter is set. The default filter is assigned in the filter manager window.
- "**Cancel the filter filling when the application is launched**" – disables the default filter on application startup. This tab is active if a default filter is installed. The default filter is assigned in the filter manager window.
- "**Open the filter manager**" – opens the "Filter manager" window (Fig. 2.21). Here you can set a default filter, rename, edit, and delete existing filters. If a default filter is set, it is highlighted in bold in the list.

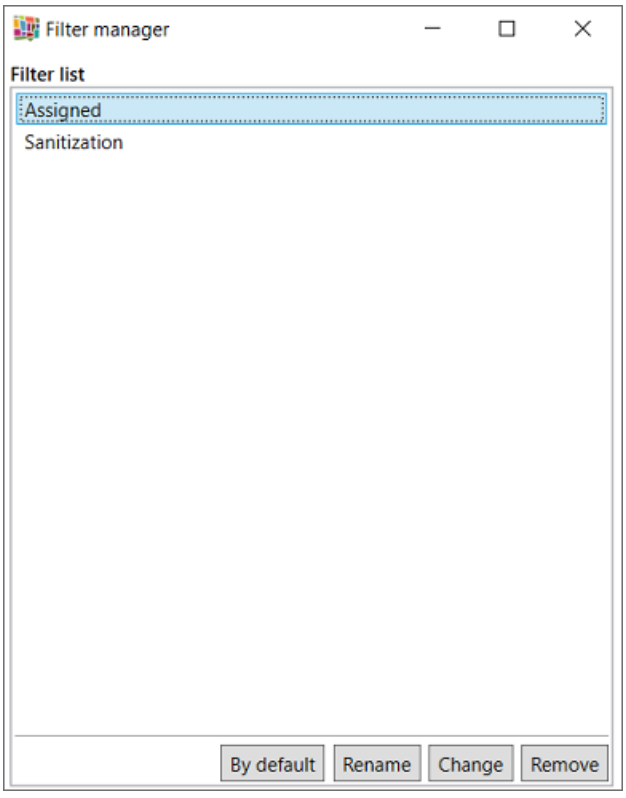


Fig. 2.21: "Filter manager" window

The "**Reports**" menu section (Fig. 2.22) opens a window with a list of reports of "General" type that are not linked to a specific data table. Reports with "By layers" type are opened directly from the layer window (for more information, see *Layer window menu* (page 65) section). In the report window, you can select a time interval for the report generation and

the format of the exported file (*.pdf, *.doc, *.xls, *.rtf). Some reports require additional parameters.

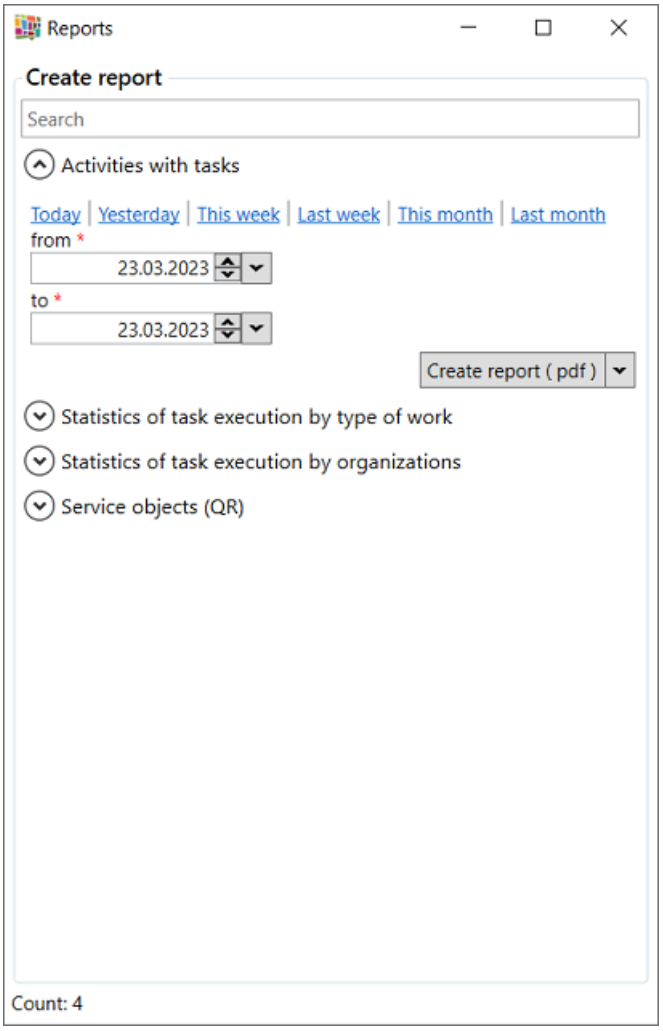


Fig. 2.22: “Reports” window

To start generating a report after selecting the time interval and format of the uploaded file, click “Create report (PDF/EXCEL/WORD(2007)/rtf)”. The “Generated reports” block displays the report generation process. When the report is ready, the file becomes available for viewing. Depending on the selected format, you can open the report file in its default application (for example, *.doc in Microsoft Word) and save it on your PC.

The “**Schedules**” menu section contains the following tabs (Fig. 2.23):

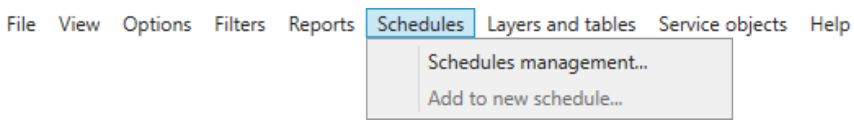


Fig. 2.23: “Schedules” menu section

- “**Schedules management**" – opens the “Schedule list” window for creating, searching, editing, and deleting schedules that allows you to create tasks based on templates at a certain point in time with the required frequency (Fig. 2.24).

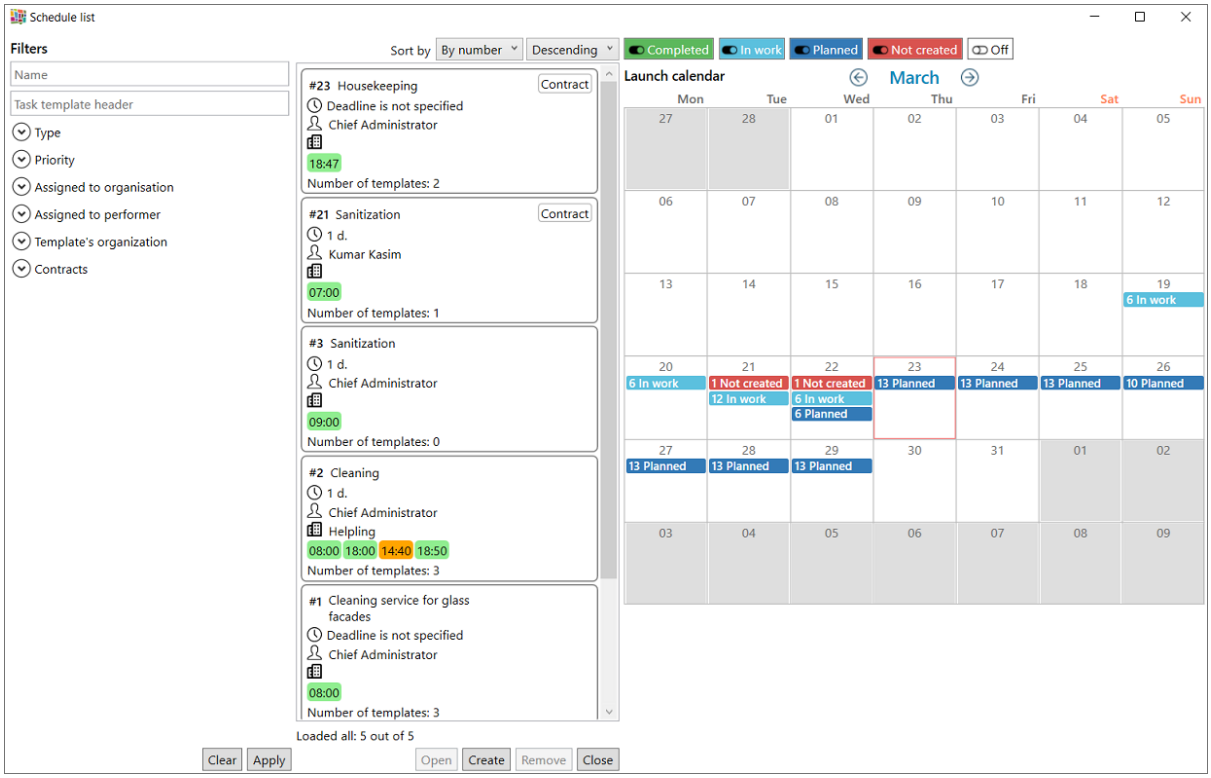


Fig. 2.24: “Schedule list” window

Schedule management is described in detail in the *Working with existing schedules* (page 124) section.

- “**Add to new schedule**" – opens the “Schedule creation” window to add tasks selected in the list to a new schedule (Fig. 2.25).

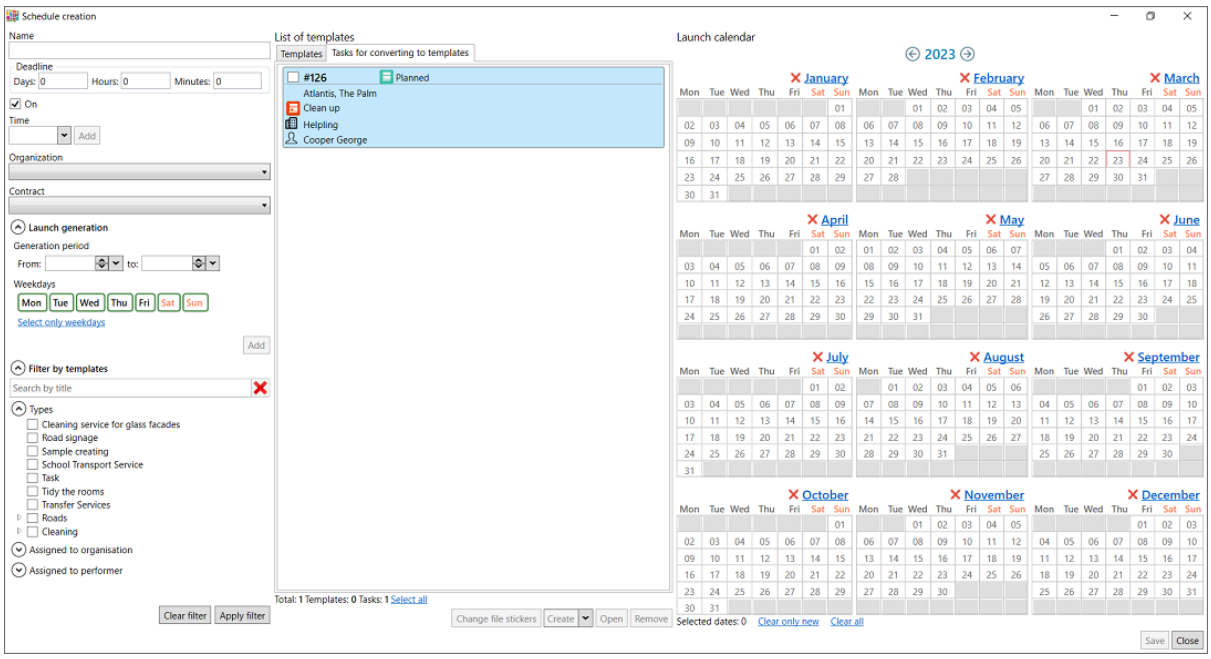


Fig. 2.25: “Schedule creation” window

The process of adding tasks to a schedule is described in the *Adding tasks to a new schedule* (page 122) section.

The "**Layers and tables**" menu section opens a window with the "Layers", "Datatables", and "Dictionaries" tabs. In each tab, you can open a tabular view of a layer, data table or reference table (dictionary) for further editing by clicking the highlighted line or by clicking the Open table button. In addition, in the "Layers" tab you can enable the display of layer groups on the map and select a base map (Fig. 2.26). Working with layers and tables is described in *Working with tabular data* (page 61) section.

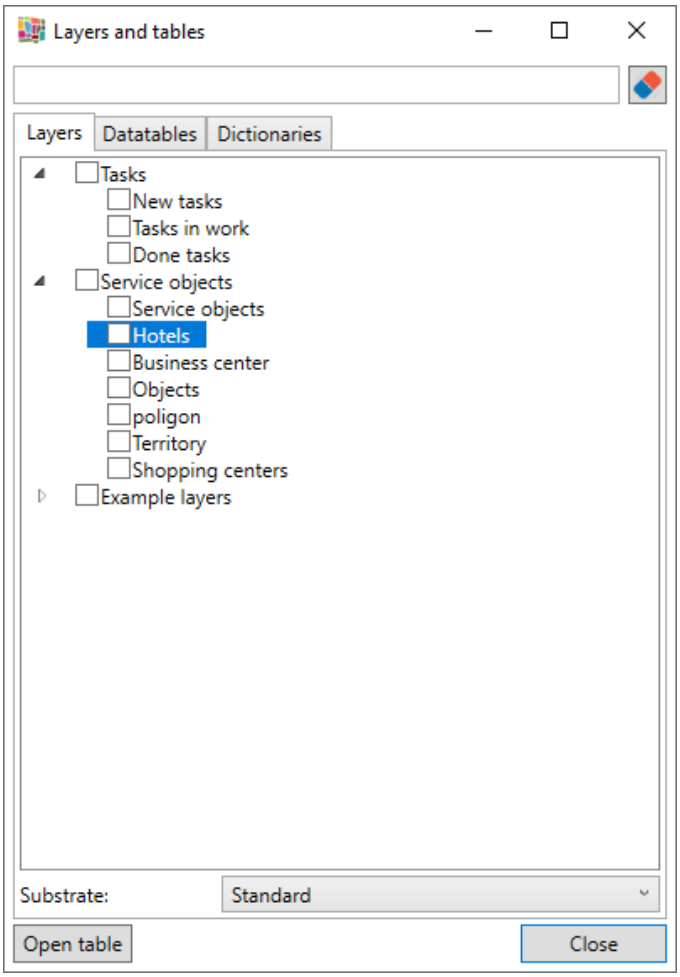


Fig. 2.26: "Layers and tables" window, "Layers" tab

The "**Service objects**" menu section contains tabs with the names of service object layers and a tab for importing a new table with service objects from MS Excel (Fig. 2.27).

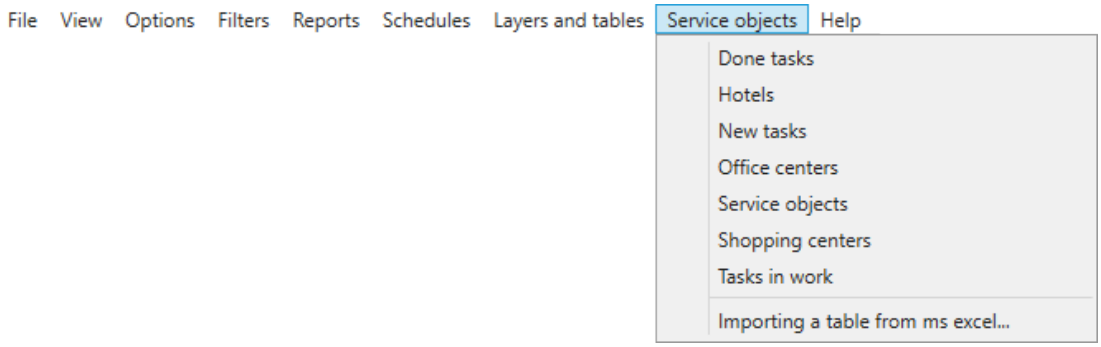


Fig. 2.27: “Service objects” menu section

Clicking any of the tabs with the name of the service object layer opens a window with a list of objects in the selected layer and a map with their location marks (Fig. 2.28).

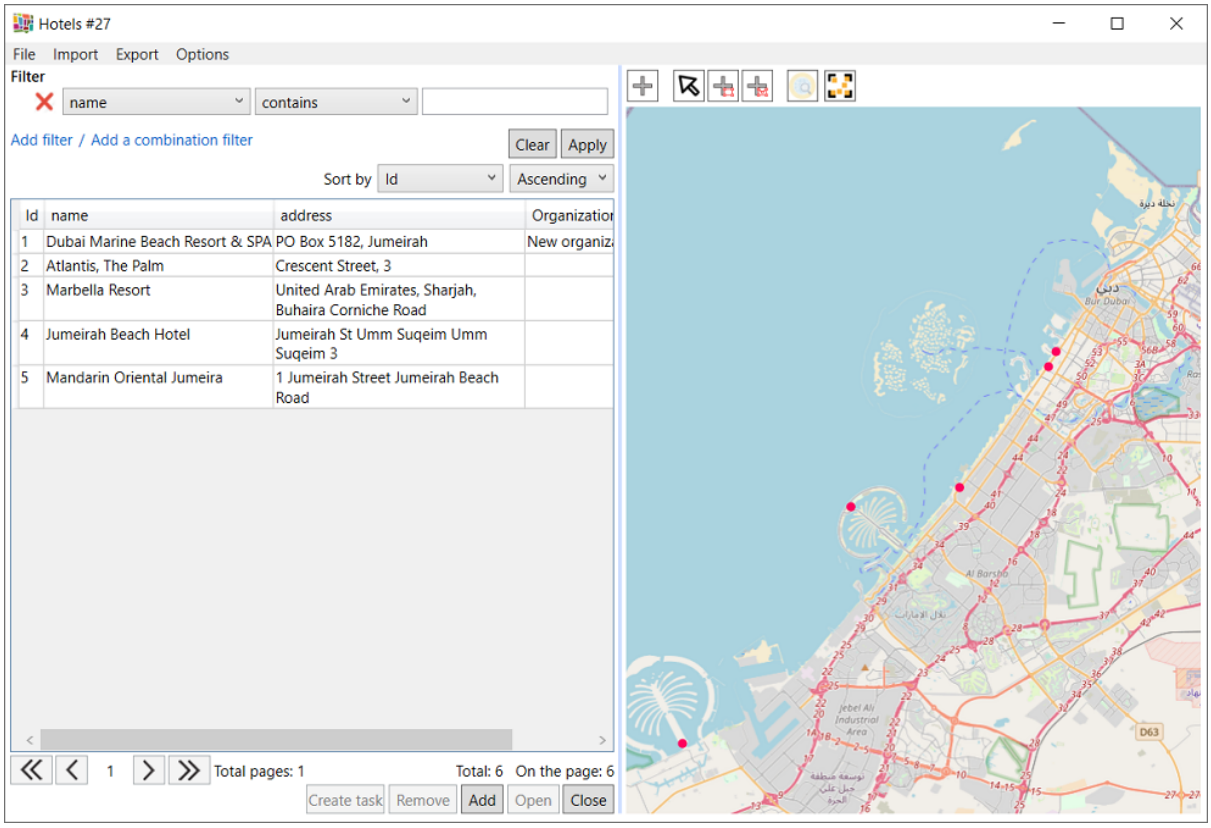


Fig. 2.28: “Service Objects” window

When you switch to the tab for importing a table from MS Excel, a file opening window appears. The process of searching, adding, editing and deleting service objects is described in detail in the *Layers* (page 62) section, creating tasks linked to service objects – in the *Creating tasks in the service object window* (page 119) section.

The “**Help**” menu section contains one tab (Fig. 2.29) – “**About the program…**” for viewing information about the current and previous versions of ActiveMap Desktop (Fig. 2.30).

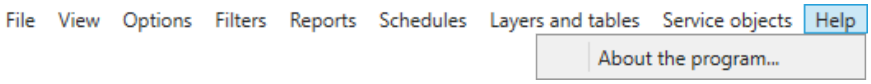


Fig. 2.29: “Help” menu section

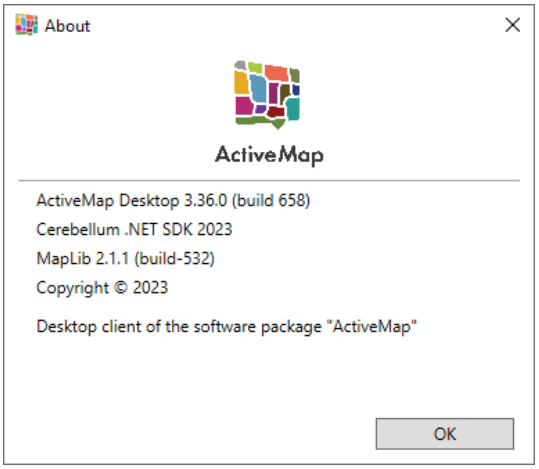


Fig. 2.30: “About” window

To the right of the menu sections there is a search bar for objects in layers (Fig. 2.7). When placing the cursor in the search field, you can see the list of layers used for the search (Fig. 2.31). By default, these are service object layers.

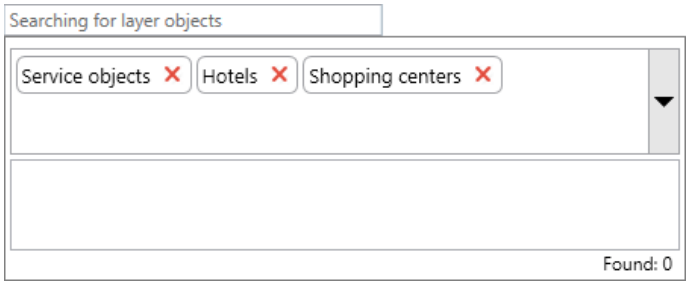


Fig. 2.31: Extended search field for objects in layers

To exclude a layer from the search, click ✕ next to the layer name. To include additional layers in the search, click the arrow to the right of the selected layer names – a drop-down list of available layers appears (Fig. 2.32).

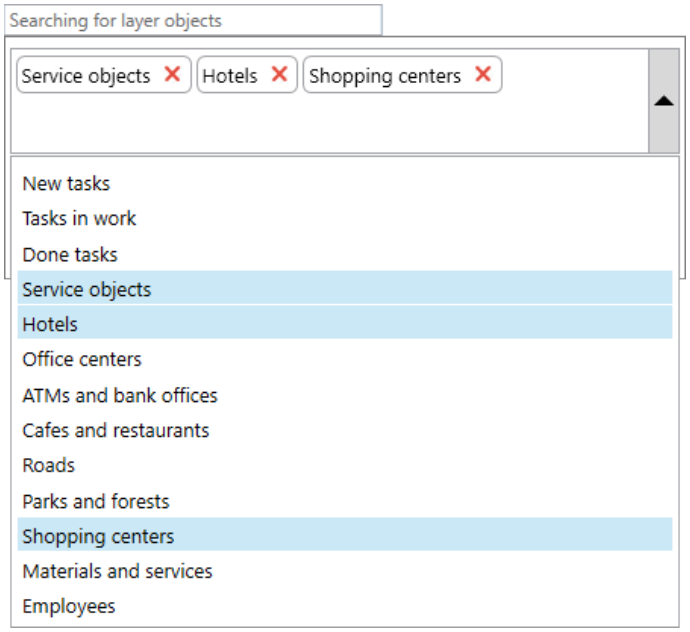


Fig. 2.32: Full list of layers available for object search

The search results display the title and subtitle of the object (Fig. 2.33).

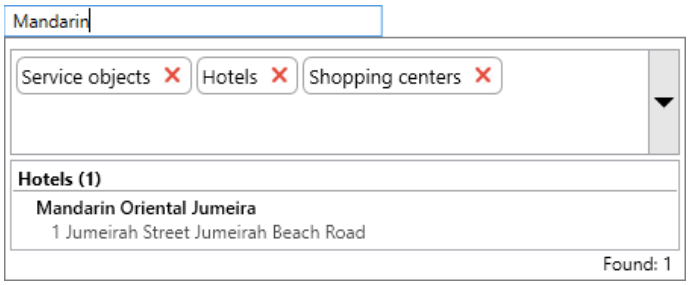


Fig. 2.33: Object search results

2.3.2 User profile

If you click on the user name displayed in the top right corner of the Program window, a window with information about the current user appears (Fig. 2.34).

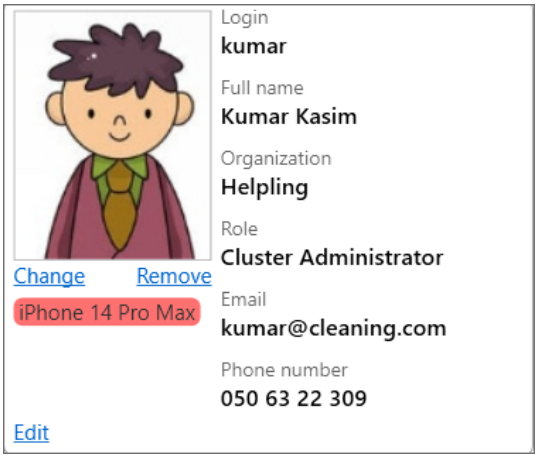


Fig. 2.34: User profile

You can see the following information in the window:

- User login,
- Full name,
- Organization,
- Role,
- Email,
- Phone number.

On the left side of the profile window, there is an avatar and a label with additional information (such as the user's smartphone model). To replace the avatar, click "Change" and upload a new image from the computer. To delete the current image without replacing it with another, click "Delete".

Clicking on the "Edit" line opens the "Profile edited" window (Fig. 2.35).

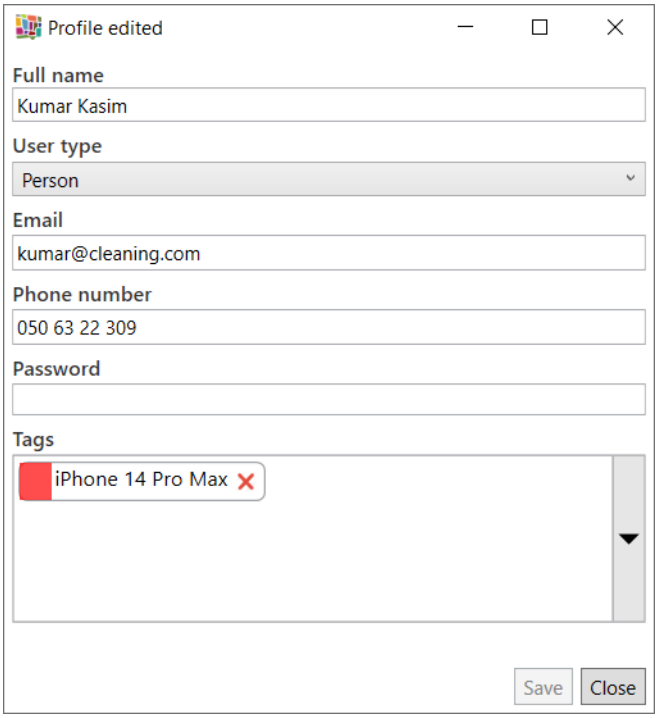


Fig. 2.35: "Profile edited" window

Here you can change the user's name, user type, password and, if authorized, email, phone number, and user tags.

2.3.3 Notifications tape

Clicking on the "Notifications tape" line in the upper right corner opens a window that displays a list of notifications about various events: executor leaving the task area, overdue tasks, etc. (Fig. 2.36). You can see the number of new notifications to the right of the "Notification tape" line. Unread notifications are marked with one grey tick, and read ones – with two green ticks.

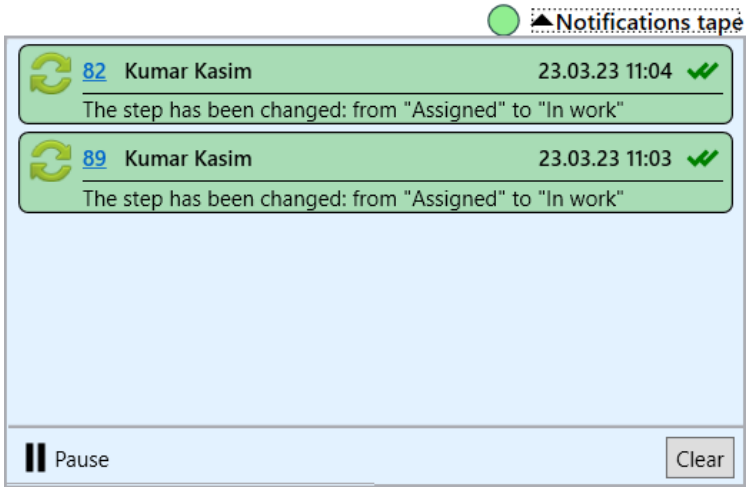


Fig. 2.36: Notifications tape

If there are no events, the window remains empty. To stop receiving notifications, click the pause sign, to resume – the play sign. To delete received notifications, click “Clear” in the lower right corner of the window.

2.3.4 Task search and filter area

The task search and filter area is designed to search for tasks in the general list using various search parameters (Fig. 2.37).

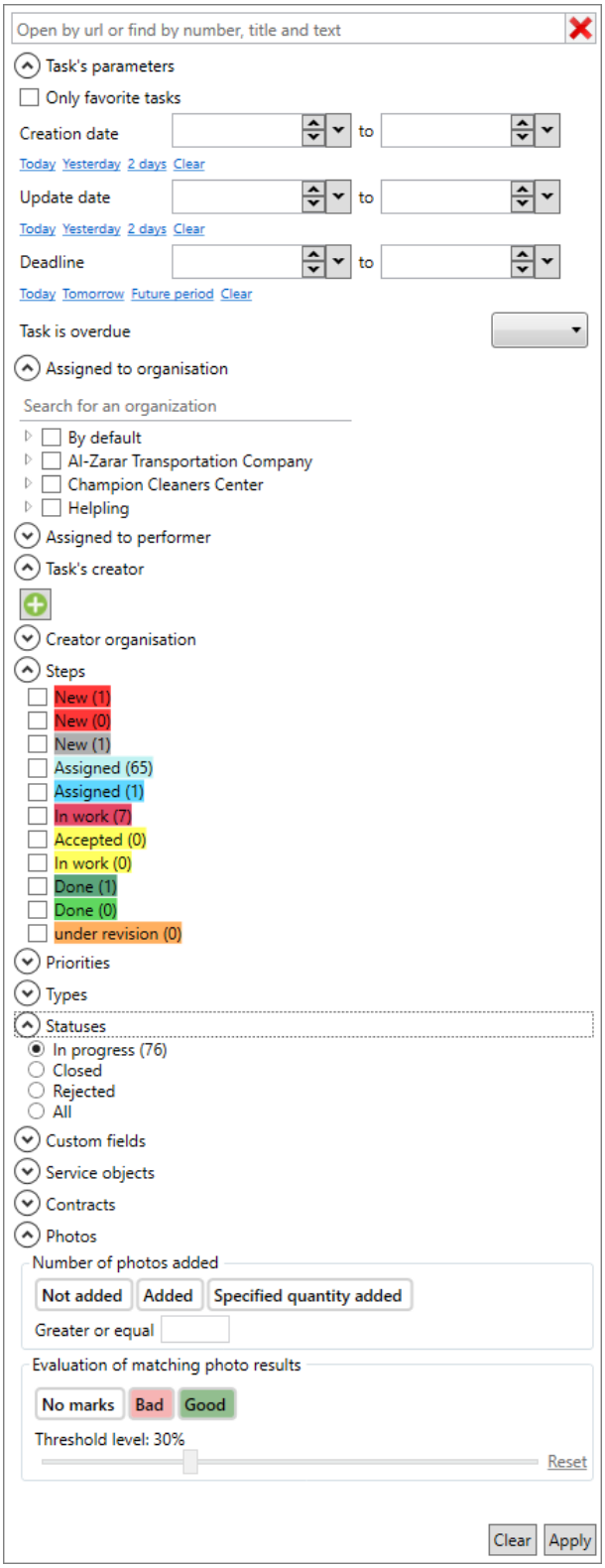


Fig. 2.37: Task search panel

In the upper part there is a field for contextual search of tasks by the task number, title, description, and URL generated in the task properties. To search for a task, enter the number/description of the task or part of it in the search field. The list of tasks that match the search query is displayed (Fig. 2.38). To remove the task filters, use the or Clear button.

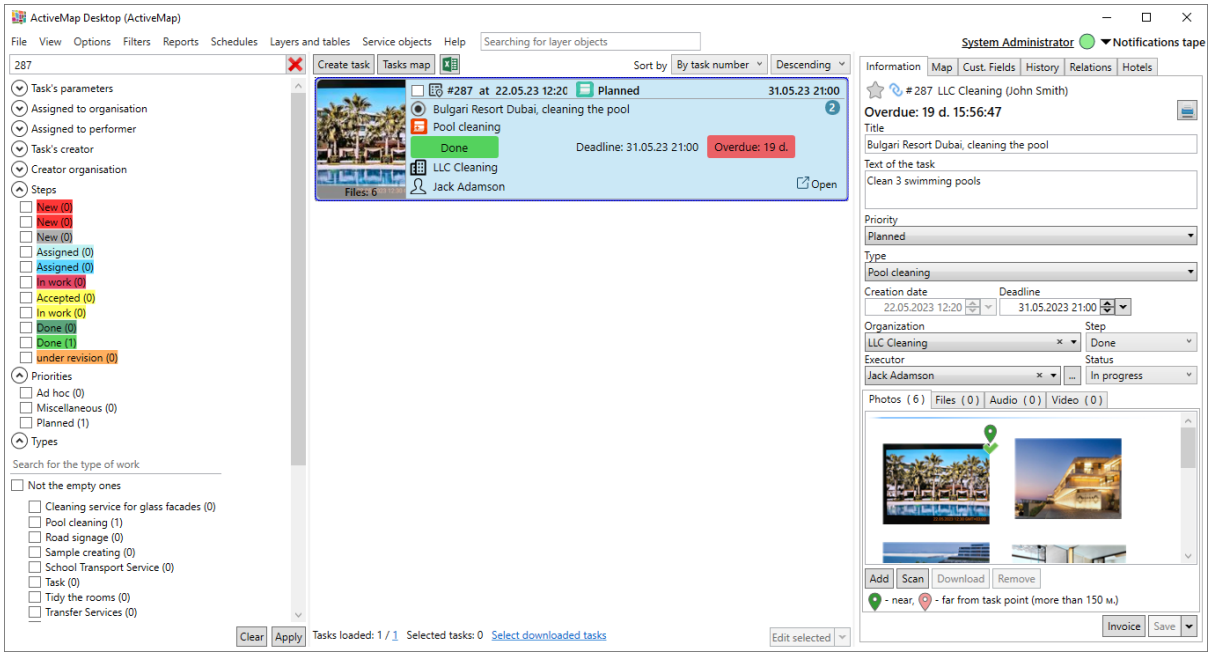


Fig. 2.38: Displaying tasks that meet the conditions in the list

Use the following sections of the filter panel for advanced filtering:

- "**Task's parameters**" – show favorite tasks, search by the date of creation and update, due date, and by task overdue.
- "**Assigned to organization**" – search for the organization to which tasks are assigned (quick search bar and selection of several organizations is available). Organizations are grouped into clusters. In addition to selecting organizations from the list, you can use the context menu with a list of commands used inside the "Assigned to Organization" section:
  - Select only this line;
  - Select everything except this line;
  - Select all;
  - Reset all selected.

To open the context menu, place the cursor on the line with the organization name and right-click (Fig. 2.39).

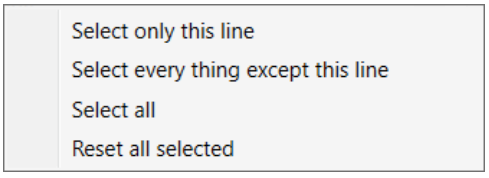


Fig. 2.39: Context menu in the task filter panel section

- "**Assigned to performer**" – search by the user to whom tasks are assigned (quick search bar and multiple user selection is available). You can also use the context menu, similar to the one described above.

- "**Task's creator**" – search by the user who created the tasks (multiple selections are available).
- "**Creator organization**" – search for the organization on behalf of which the tasks are created (multiple organizations can be selected).
- "**Steps**" – search for the selected step (multiple steps are available), you can use the context menu to select.
- "**Priorities**" – search by the selected priority (selection of several priorities is available), you can use the context menu to select.
- "**Types**" – search by the type of work (a quick search bar by type and selection of several types of work is available), you can use the context menu to select and include only non-empty types of work (types of work for which tasks were created).
- "**Statuses**" – search by the status (selection of one or all available stages is available).
- "**Custom fields**" – search by the value in the selected custom field (multiple search fields are available).
- "**Service objects**" – search for the specified object from the layer of service objects created in the system.
- "**Contracts**" – search for the contracts created in the system.
- "**Photos**" – search by the number of photos added to the task and comparison with the sample photo. When searching by the number of photos, only the photos added after the task was created are taken into account, not the total number of photos in the task. You can use quick filters to speed up the search: "Not added" (no added photos), "Added" (there are added photos), "Specified quantity added" (greater than or equal to the entered value). You can also apply quick filters for searching by the percentage of photo similarity: "No marks", "Bad", and "Good". You can set up the threshold level in ActiveMap Web (the "Mobile application" -> "Comparing photos" -> "Positive percentage of photo comparison" section) and adjust it during the work session with the slider. The filter is set to the minimum value specified on the task cover.

Note: The parameters are customized to suit the individual company's business area.

2.3.5 Task list area

The central part of the Program screen displays all tasks available to the user (Fig. 2.40). The ability to view and edit tasks depends on the user's role in the system. When you apply a filter, the list displays tasks that meet the specified parameters.

The new default view of the main window (Fig. 2.40) displays the following information for each task in the list:

- main photo with or without the rating of photo similarity (if there are attached photos in the task);
- number of attached files;
- number of unread messages in the task (in the blue circle on the right side of the list);

- color indication of lines with steps of execution.

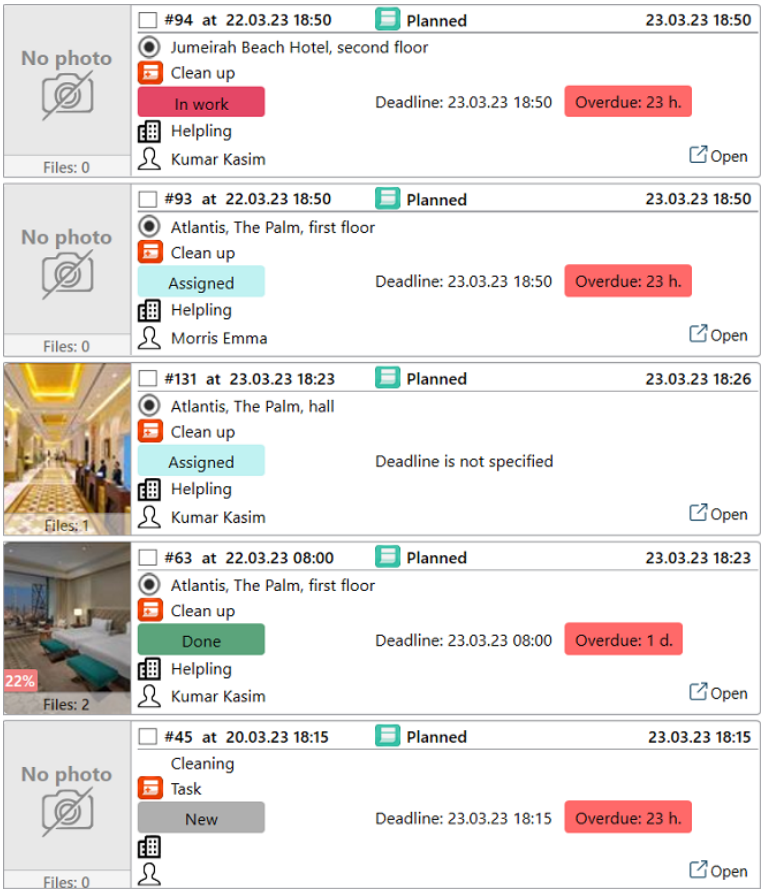


Fig. 2.40: Task list, new view (used by default)

In the classic view of the main window, task cards in the list are colored depending on the steps of execution without displaying photos and the number of unread messages (Fig. 2.41). To switch to the classic view, go to the “View” menu section and click “Use the classic view of the main window” or set the classic view of tasks in the program settings window (more details in the *Program settings* (page 51) section).

Fig. 2.41: Task list, classic view

At the top of the task list area, you can see the following buttons:

- "**Create task**" Create task – adding new tasks (detailed in the *Adding new tasks* (page 102) section);
- "**Tasks map**" Tasks map – opening the "Task Map" window (detailed in the *Task map* (page 96) section).
- "**Export to Excel**" – exporting the current task list with the ability to choose the exported fields (Fig. 2.42) to a Microsoft Excel document – when exporting, the filter and sorting parameters of tasks are taken into account (Fig. 2.43).

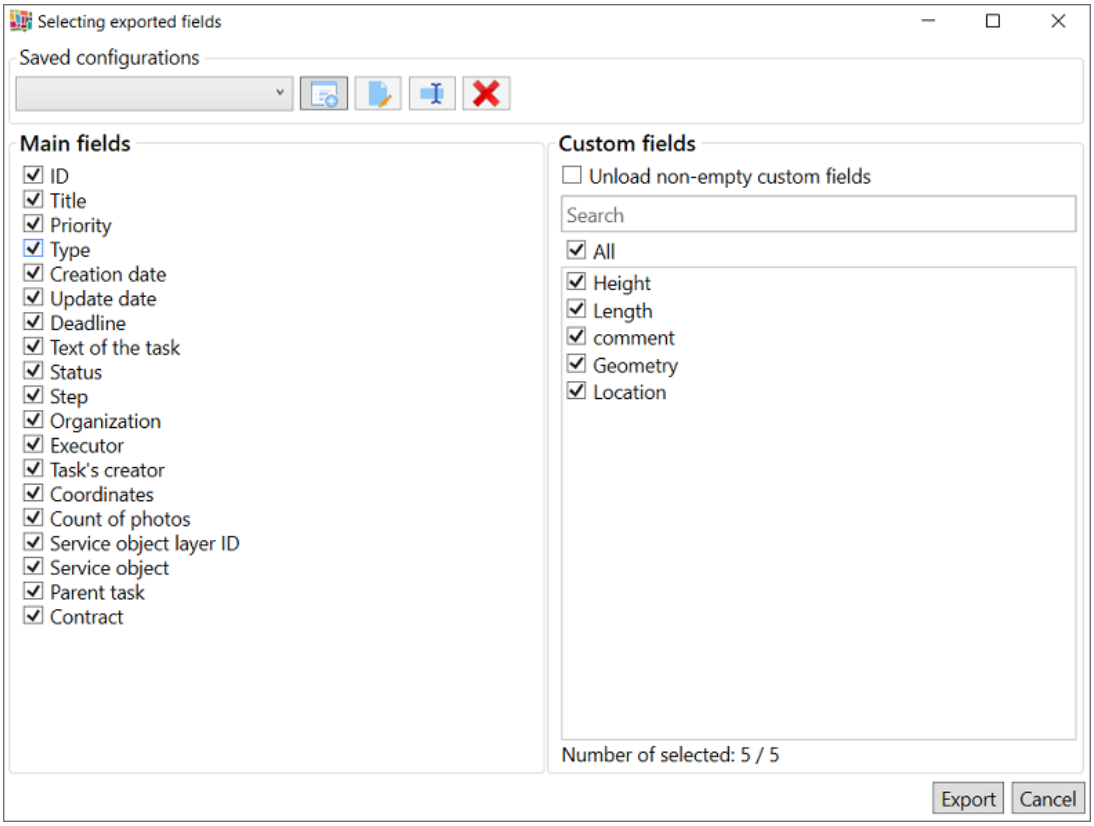
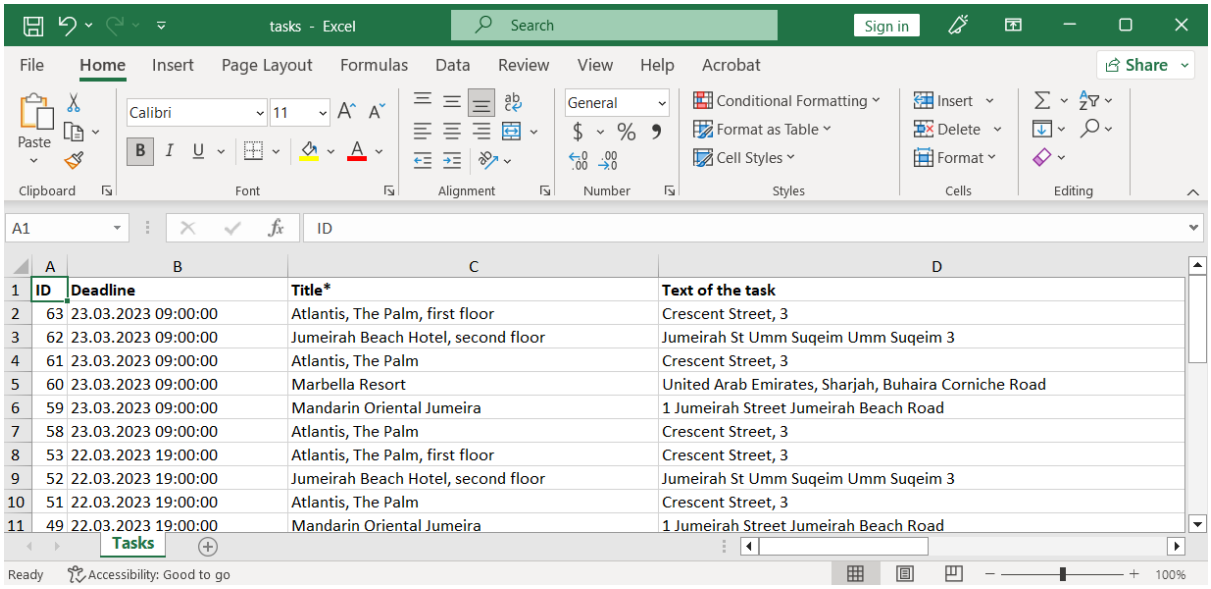


Fig. 2.42: Selecting the fields for export



	A	B	C	D
1	ID	Deadline	Title*	Text of the task
2	63	23.03.2023 09:00:00	Atlantis, The Palm, first floor	Crescent Street, 3
3	62	23.03.2023 09:00:00	Jumeirah Beach Hotel, second floor	Jumeirah St Umm Suqeim Umm Suqeim 3
4	61	23.03.2023 09:00:00	Atlantis, The Palm	Crescent Street, 3
5	60	23.03.2023 09:00:00	Marbella Resort	United Arab Emirates, Sharjah, Buhaira Corniche Road
6	59	23.03.2023 09:00:00	Mandarin Oriental Jumeira	1 Jumeirah Street Jumeirah Beach Road
7	58	23.03.2023 09:00:00	Atlantis, The Palm	Crescent Street, 3
8	53	22.03.2023 19:00:00	Atlantis, The Palm, first floor	Crescent Street, 3
9	52	22.03.2023 19:00:00	Jumeirah Beach Hotel, second floor	Jumeirah St Umm Suqeim Umm Suqeim 3
10	51	22.03.2023 19:00:00	Atlantis, The Palm	Crescent Street, 3
11	49	22.03.2023 19:00:00	Mandarin Oriental Jumeira	1 Jumeirah Street Jumeirah Beach Road

Fig. 2.43: Data export to Microsoft Excel

To speed up frequently performed actions on exporting, you can save the set of task fields selected for export. To do this, mark the main and custom fields for export, click “Add” , enter the name of the set, and click “Apply”. A message about adding an export setting appears (Fig. 2.44). The name of the settings set is displayed in the drop-down list of saved configurations.

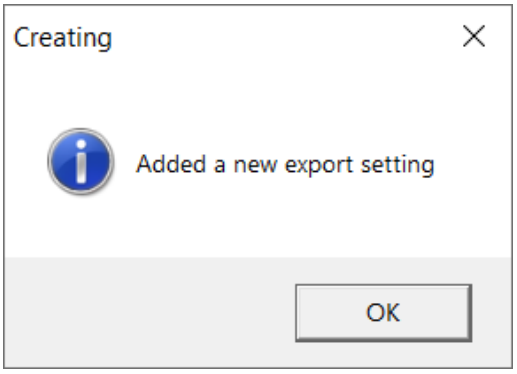


Fig. 2.44: Message about the successful addition of a new export setting

You can change , rename , or delete the saved set if necessary.

- "**Sorting**" – ordering the general list of tasks by the date of update (this sorting is used by default), by task number, by title, by creation date, by update date, and by the deadline (Fig. 2.45) in ascending (by default) and descending order (Fig. 2.46).

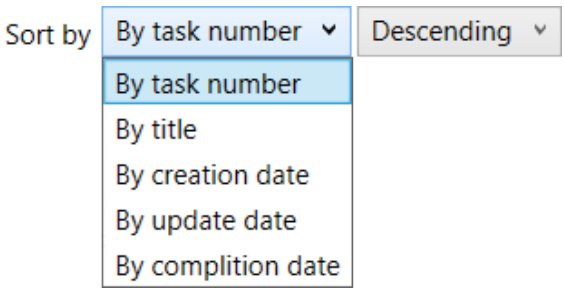


Fig. 2.45: Selecting the type of task sorting

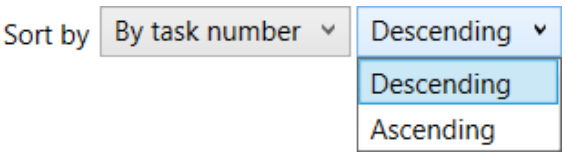


Fig. 2.46: Selecting the order in which tasks are sorted

You can select one or more tasks from the task list by selecting the checkboxes next to the task number. You can also select all loaded tasks by clicking the corresponding line at the bottom of the list area. You can see information about the number of loaded and selected tasks next to it (Fig. 2.47). By default, 100 tasks are loaded. To select more, scroll down the list.

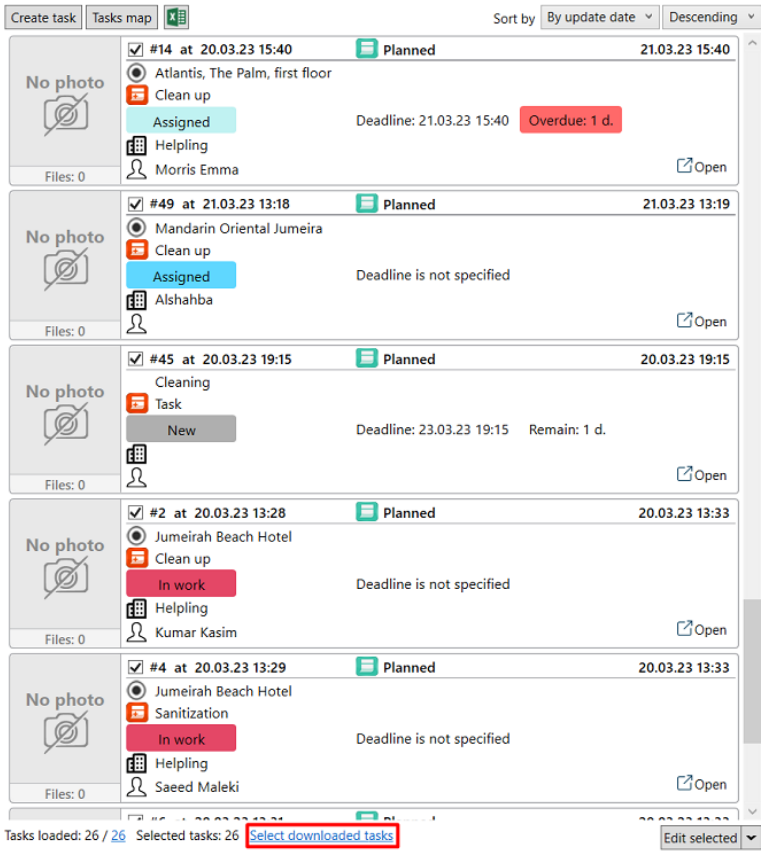


Fig. 2.47: Selection of loaded tasks

2.3.6 Task information panel

The “Task information” panel includes the following tabs (Fig. 2.122):

- “Information”,
- “Map”,
- “Custom Fields”,
- “History”,
- “Relations”,
- “Service Objects” (optional).

2.3.6.1 “Information” tab

The “Information” tab contains the following detailed information about the task (Fig. 2.48):

- Task number;
- Contract number and name (if applicable);
- Task author;
- Time remaining until task deadline;

- Task title;
- Task description;
- Priority;
- Type of work;
- Task creation date;
- Organization and executor of the task;
- Task execution step;
- Creation date;
- Deadline for completion;
- Attached files (photos, audio files, video files, documents).

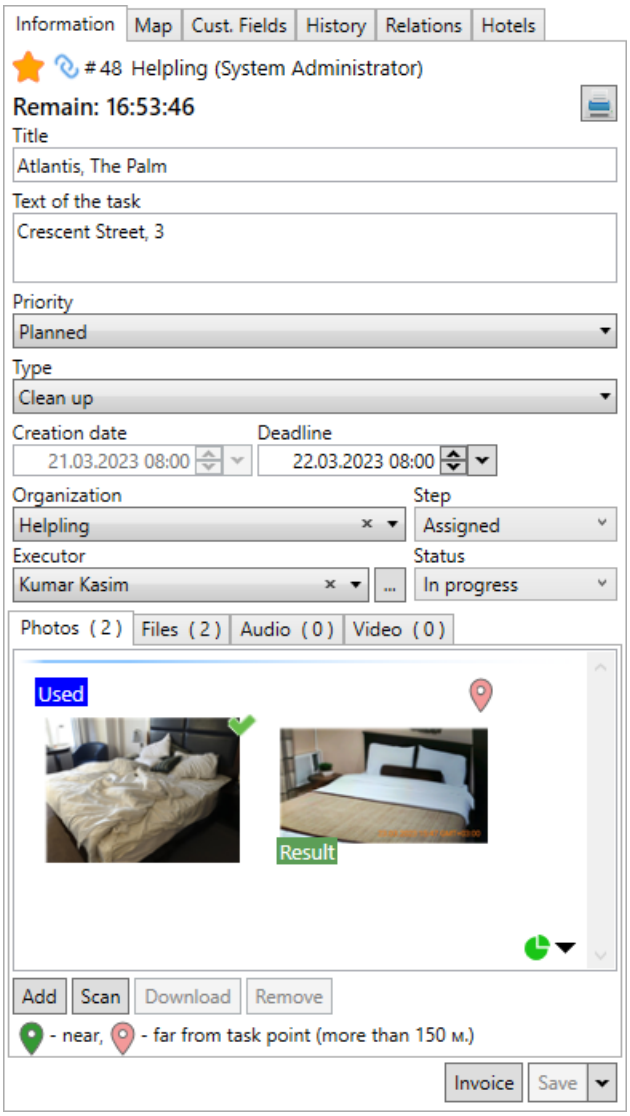


Fig. 2.48: “Task information” panel, “Information” tab.

The “Information” tab contains the task management panel, which includes the following options:

- Include the task in the list of favorites for the current user;
- Assign/change task priority;
- Add a service object if it has not been assigned yet (only adding a new object is supported, editing or deleting the assigned service object is not possible);
- Assign/change type of work;
- Assign/change the organization responsible for executing the task;
- Assign/change the executor;
- Change the work step;
- Change the task status (refused, in progress, completed);
- Delete the task (only users with administrative access rights have this capability).

A user with full permissions to edit tasks can change all the parameters of the task listed above, except its creation date, as it is automatically generated and does not require editing.

To mark a task as a favorite for the current user, click on the star in the task card. Data is sent to the server automatically. To save other changed parameters, click “Save” in the lower right corner of the window.

In the upper left corner of the “Information” tab, to the left of the title with the task number, there is a button that allows you to copy the link to the task to the clipboard. The link contains the server address and task number.

In the upper right corner of the “Information” tab, there is a “Print task” button . It generates a report with detailed information about the task, including the values of the main and custom fields, photos, map, and history of changes. You can set the display of the map with geolocation of the task point and photos in ActiveMap Web: “MapMessages” -> “Task Printing” -> “Show Map”. You can send a report to a printer or save it in any convenient format on the PC.

Media files

At the bottom of the “Information” tab (Fig. 2.48), there is a field with attached files. It contains the following tabs:

- “Photos”,
- “Files”,
- “Audio”,
- “Video”.

The tabs contain a list of files attached to the task. The files are arranged in tabs according to format. A right-click on the tab area outside of a file brings up a context menu that allows you to sort (Fig. 2.49) and group files (Fig. 2.50) attached to the task, as well as copy and paste new files into the task. The file grouping and sorting settings of the selected task are retained even when you switch to this tab in the future.

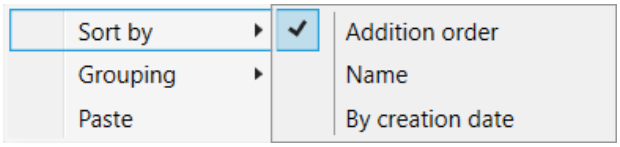


Fig. 2.49: File sorting context menu

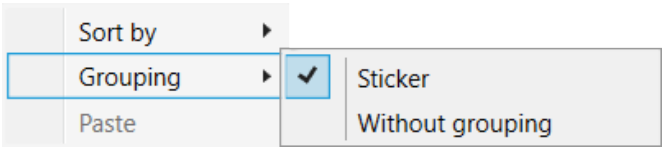


Fig. 2.50: File grouping context menu

To open a file, click on it.

At the bottom of the tab, there are “Add”, “Scan”, “Download”, and “Remove” buttons. When you click the “Add” button, a window for selecting a file located on your personal computer appears. After selecting the desired file and clicking the “Open” button, the Program uploads the file and attaches it to the task.

When you click the “Scan” button (available only in the “Photos” tab), a window for selecting a scanning device opens. After selecting and configuring the scanning parameters, the Program uploads the image and attaches it to the edited task.

The “Download” button allows you to save the file to a personal computer. The button becomes active only after selecting a file. After clicking on it, a window for selecting the directory for image saving appears.

The “Remove” button allows you to delete selected files from the Program.

Right-clicking on a file brings up a context menu offering save, copy, delete, get information about the file, or move the file to a group. If there are several images in the “Photos” tab, an additional action appears in the context menu, allowing you to set the main photo of the task (Fig. 2.51).

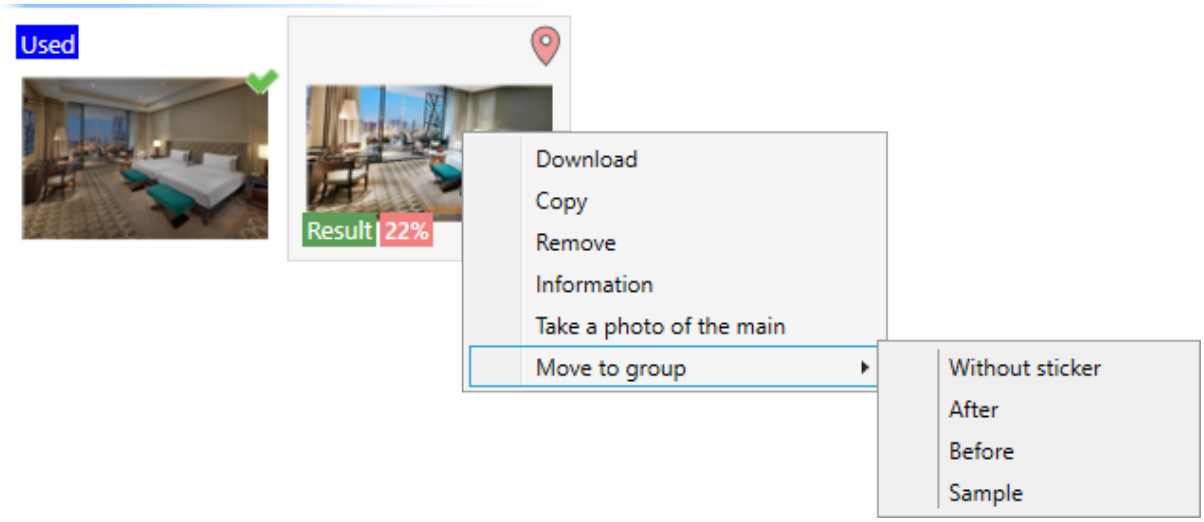


Fig. 2.51: File context menu

If the photo is already the main one, this line is missing (Fig. 2.52). The main photo in the task list area is marked with a green checkmark. You can see the main photo in the task card in the task list area. By default, the first photo added to the task becomes the main one, but you can change it.

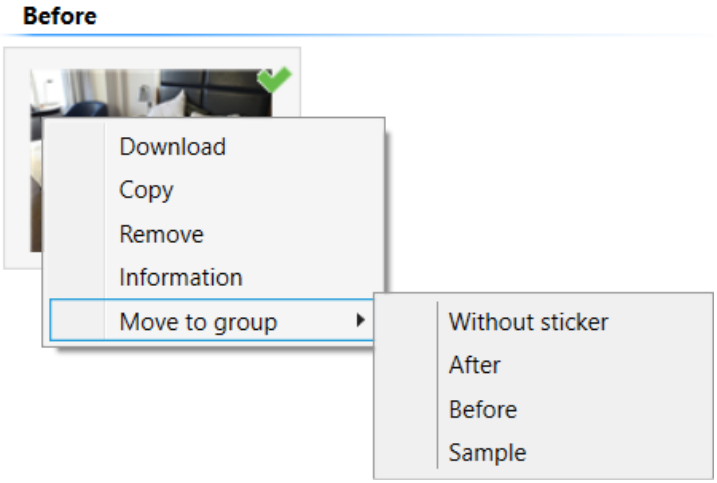


Fig. 2.52: Context menu of the main photo of the task

When using the built-in camera of the mobile application, the System records the date and time of the photo, the time zone of the mobile device at the time of shooting, which are overlaid on the photo (Fig. 2.53).

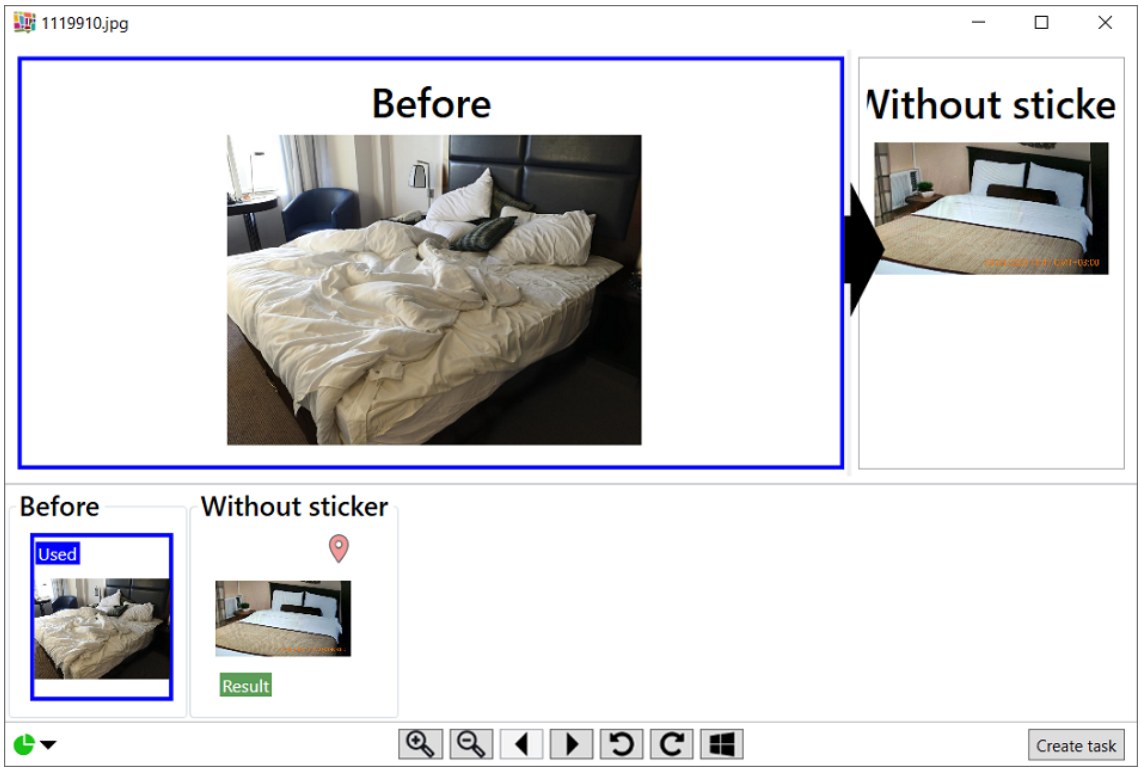


Fig. 2.53: A photo with a date and time stamp

Clicking on a photo opens a window for viewing images attached to the task (Fig. 2.53). At

the bottom of the window there are buttons that allow you to:

- zoom in;

- zoom out;

- go to the next image;

- go back to the previous image;

- rotate counterclockwise;

- rotate clockwise;

- open in the default Windows program for this file type.

In addition to these buttons, you can use the mouse wheel to zoom in and out in the viewing window.

The image viewing window can contain the following information:

- **Image sticker** is a text note on a photo. It is used to mark "before" and "after" statuses in tasks, to highlight a sample for creating photos, and to group images in the view window. The sticker name is displayed above the selected photo. If there are more than 20 stickers, a search option for stickers appears in the file context menu.
- The **"Used" and "Result" indicators** allow you to see the links between the photo and the sample it was taken on (Fig. 2.54).

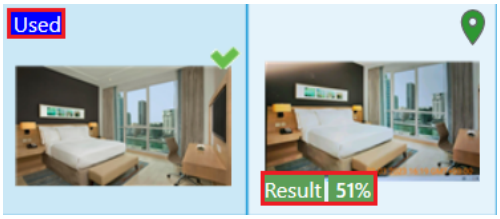


Fig. 2.54: Information about photolinks

- **Statistics on the use of photo samples by sticker** (Fig. 2.55). The calculation of statistics starts when the photo link is created in the mobile app (if there is no link, the icon is not displayed). The percentage of photos used as a photo sample is calculated from the total number of photos with the given sticker in the task.

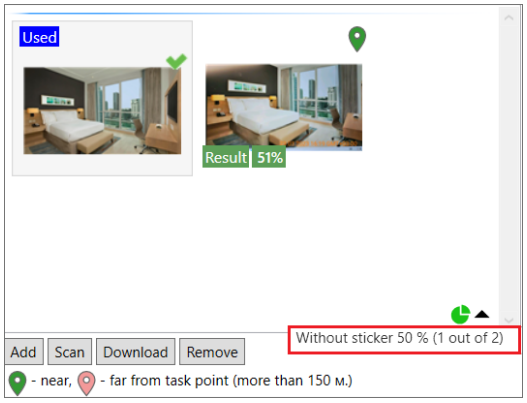


Fig. 2.55: Statistics on the use of photo angles

- **Geolocation sign** indicates that the task has coordinates. Hover over it to see the distance to the task point (Fig. 2.56). The color of the geolocation sign corresponds to the distance of the photo from the geozones of the task point. Green means that image coordinates are within the allowable radius, red – outside of it. By default, the radius of the geozone is 150 m. You can change this value in the settings of ActiveMap Desktop in ActiveMap Web – see more in the *External settings* (page 54) section.

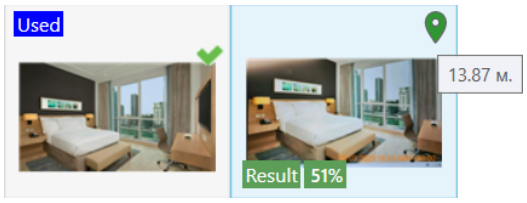


Fig. 2.56: A photo with a geolocation tag

- **Rating of photo-result matching** is carried out by a neural network. The green background color indicates the positive comparison percentage between two photos. You can set the threshold values in the mobile application settings section on ActiveMap Web. If values are not set or there is no access to the settings, the background color is grey.

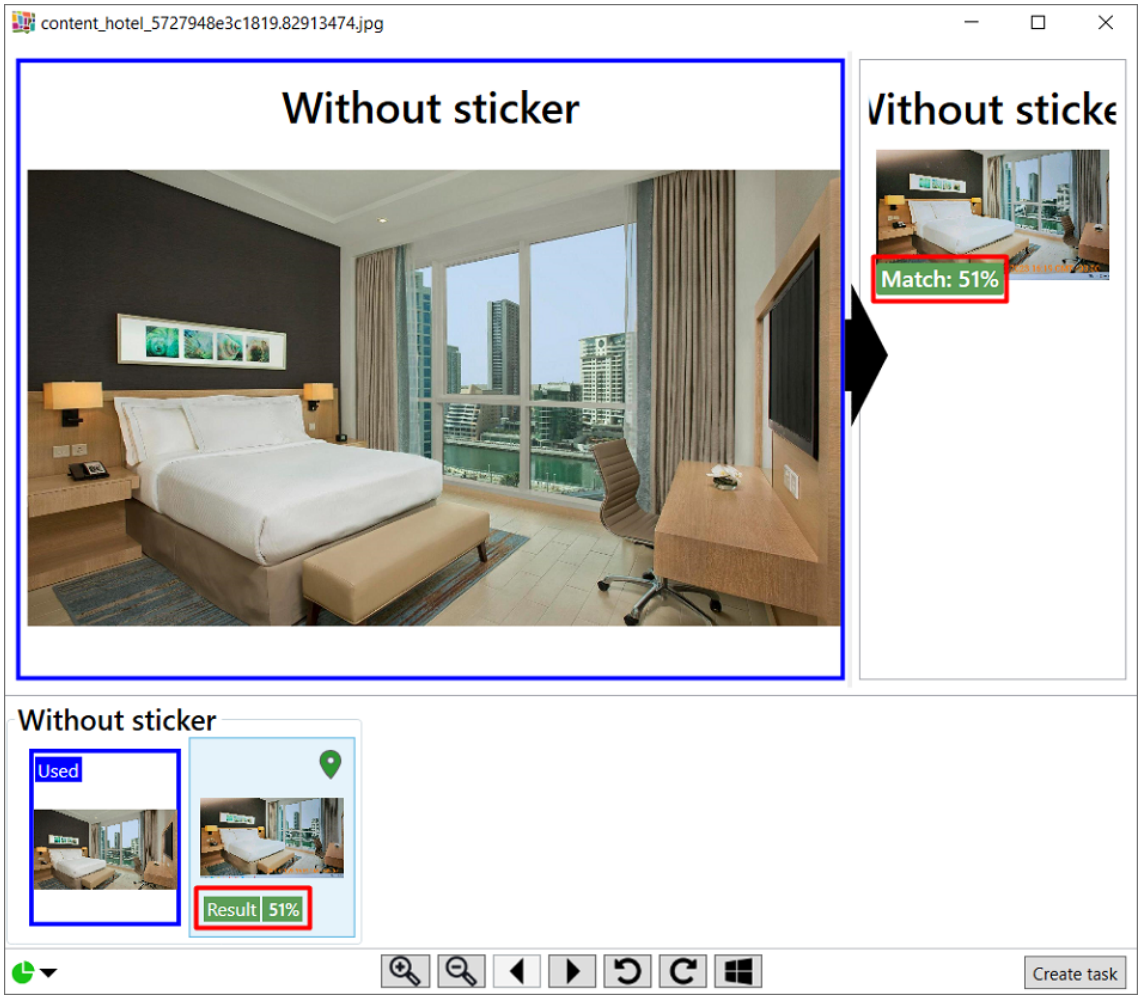


Fig. 2.57: A photo with a rating of photo-result matching

Video files attached to the task can be of two types: normal video and timelapse video (timelapse) taken with the phone camera from the ActiveMap Mobile application. A timelapse is a video created from the series of photos taken by a camera over a long period of time.

When capturing timelapses in ActiveMap Mobile, the geographical coordinates of the device's movement are simultaneously recorded. So you can create tasks in the desktop app with the image obtained from frames of this video and its geoposition attached. Timelapse capture in the ActiveMap Mobile app becomes possible after enabling the appropriate settings in ActiveMap Web ("Management" section -> "Settings" -> "Mobile App" -> "Timelapse Video Settings").

You can view normal videos attached to the task only after downloading them. Use the default Windows video player for such file types. For timelapse videos, you can view the saved video in the built-in player. At the same time, you can see the motion track of the device and its location at the time the current frame was recorded (Fig. 2.58).

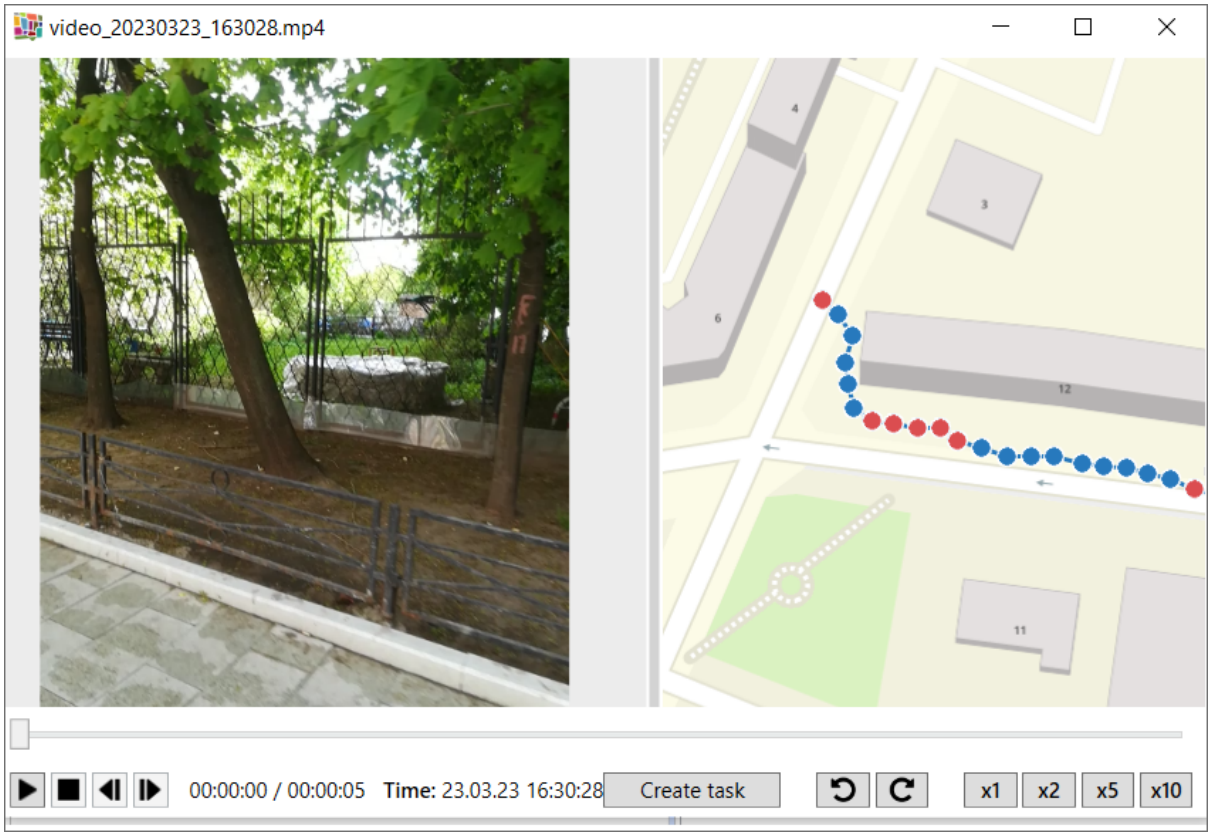


Fig. 2.58: View a timelapse at the same time as the track

The window displays information about the actual duration, date, and time of the video recording, as well as the ability to control the playback speed and create a task with frame attachment.

If the recording was paused during shooting, this section is marked with red dots in the track. In this case, the length of the video recording and its distance have two values: working (including a pause) and total (without pause taken into account).

When viewing the video, you can create a task based on the current frame and its coordinates on the video. To do this, click the "Create task" button on the menu panel. The task creation form opens. The video frame is added as a photo, and the coordinates of this frame become the task location. See *Creating tasks using a timelapse recorded in the ActiveMap Mobile application* (page 114) for more information on creating tasks based on a timelapse.

Invoice

The "Invoice" button is located next to the "Save" button in the lower right corner of the "Info" tab. It allows you to generate an invoice during the task execution at the customer's site by creating a list of required materials and services with their quantities. The rights to work with an invoice are configured in ActiveMap Web in the "Management" module, "Settings" block, in the "Consumables accounting service" section. You can edit the values of the reference table (dictionary) of materials and services in MapEditor or in ActiveMap Desktop, in the "Layers and tables" menu section.

Clicking the button opens a web page where you can select the necessary materials and services from the reference table (dictionary) and see their total cost (Fig. 2.59).

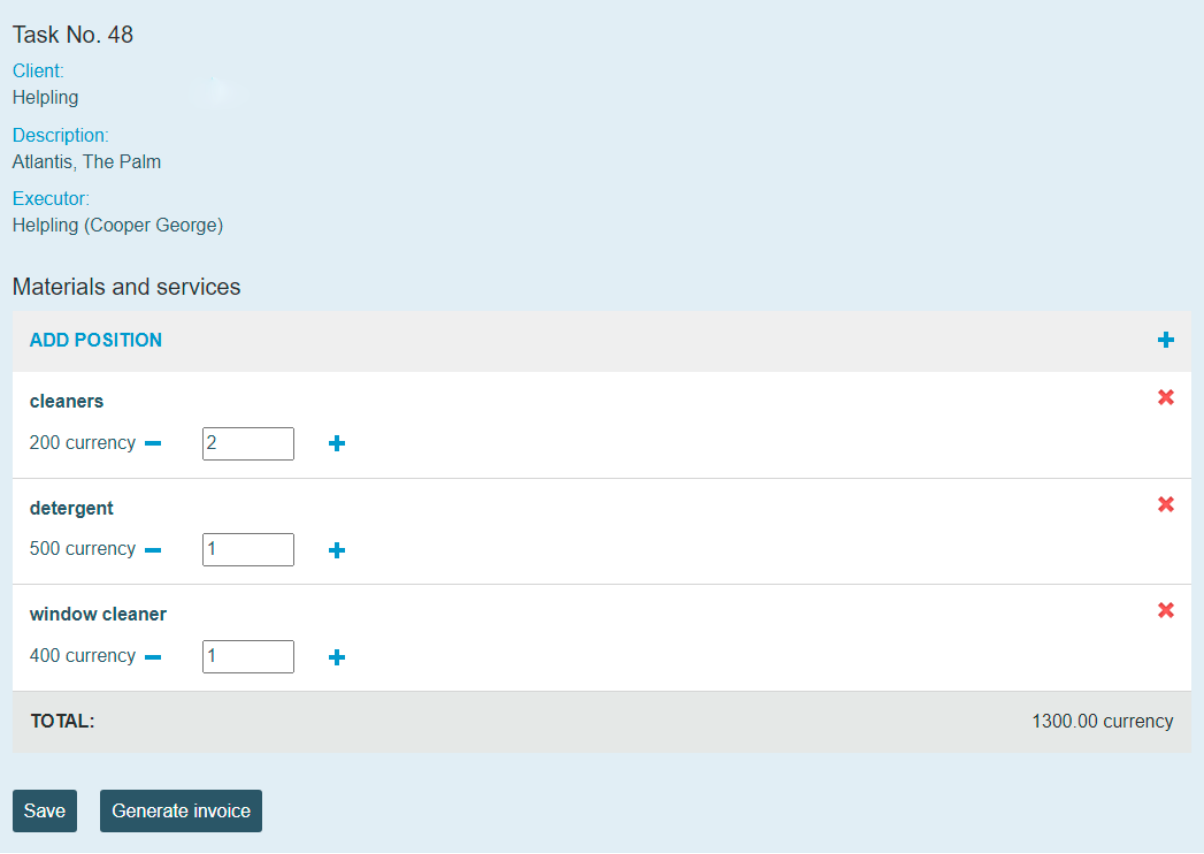


Fig. 2.59: Generating an invoice

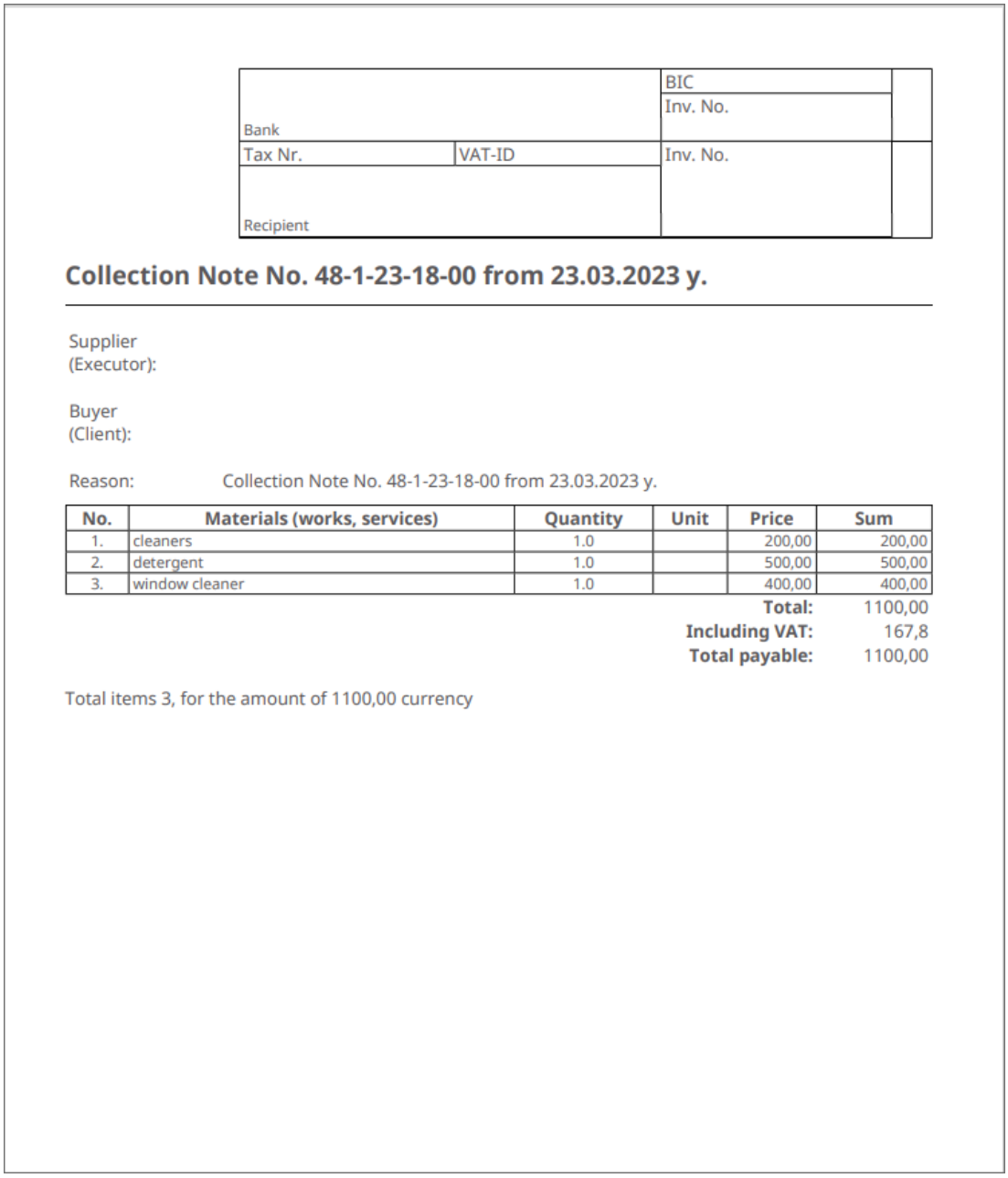
To include materials and services in the estimate, click 'Add item' and select the required item from the list. Here you can use the search bar and filter by group (Fig. 2.60). Click to filter. A field for selecting the group of materials and services appears on the left. Select one of the values from the drop-down list, click the plus sign to the right of the group name, and then click "Apply". The filtered list appears for selecting materials and services.

Fig. 2.60: Filtering materials and services

After selecting, specify the quantity of each item. You can add new items to the reference

tables (dictionaries) of materials and services in MapEditor or in ActiveMap Desktop, in the “Layers and tables” menu section.

The “Save” button allows you to save the list and quantity of selected materials and services to the database without generating an invoice file. The “Generate invoice” button generates and attaches an invoice in PDF format to the task (Fig. 2.61).



Bank		BIC Inv. No.
Tax Nr.	VAT-ID	Inv. No.
Recipient		

Collection Note No. 48-1-23-18-00 from 23.03.2023 y.

Supplier
(Executor):

Buyer
(Client):

Reason: Collection Note No. 48-1-23-18-00 from 23.03.2023 y.

No.	Materials (works, services)	Quantity	Unit	Price	Sum
1.	cleaners	1.0		200,00	200,00
2.	detergent	1.0		500,00	500,00
3.	window cleaner	1.0		400,00	400,00
				Total:	1100,00
				Including VAT:	167,8
				Total payable:	1100,00

Total items 3, for the amount of 1100,00 currency

Fig. 2.61: Invoice for printing

The generated invoice appears in the “Information” tab, “Files” section (Fig. 2.62).

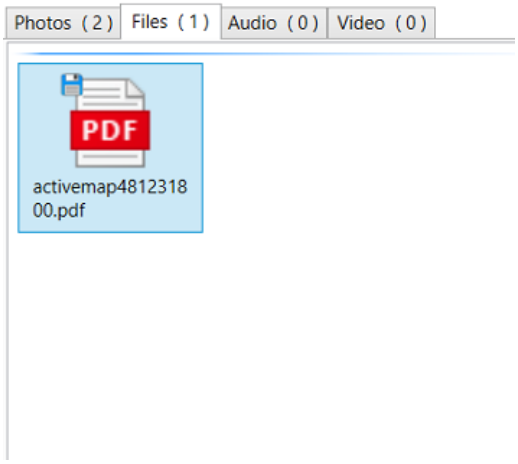


Fig. 2.62: Invoice attached to the task

2.3.6.2 “Map” tab

The “Map” tab allows you to view the address of the task, the places where the photo attached to the task was taken, movement tracking of the task executor and the layers available to the user (Fig. 2.63). If the users have the appropriate rights, they can add/modify the address of a task location. To add/modify an address, mark the place on the map by double-click or enter the address in the search field and click “Save”.

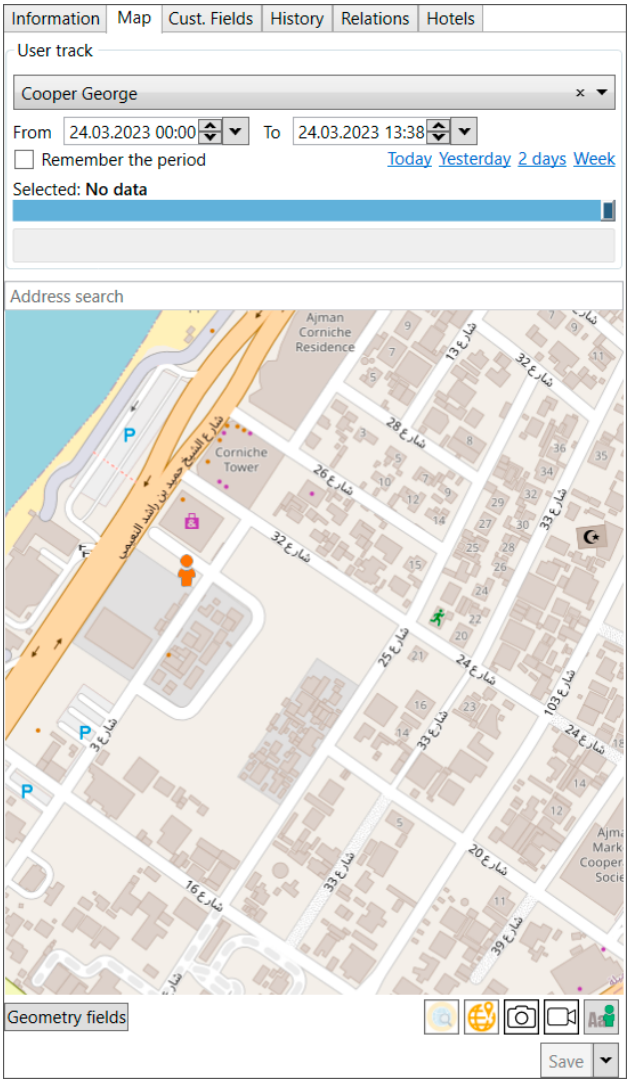


Fig. 2.63: “Map” tab

In addition to the geo-referenced task and the attached photos, the map also shows the position of the executor of this task with a time and date stamp. Above the map, you can see the address and time of the executor’s location at that address.

At the top of the “Map” tab, there is a control panel for the executor’s track. By default, the executor’s task data is displayed with a set period. The period corresponds to the date of task creation and update. You can also manually configure and remember the period to automatically display it when viewing the “Map” tab for all tasks. To do this, check the corresponding box.

There are several buttons at the bottom of the map:

- Geometry fields – enabling the display of geometric fields (Fig. 2.64) with the possibility of editing them (adding geometry). This works if tasks have custom fields of the “Geometry” type.

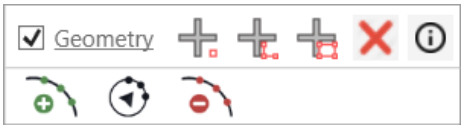


Fig. 2.64: Displaying geometric fields

To enable the display of a particular field, select the checkbox next to its name. buttons to the right of the name allow you to add point, line, and area objects on the map. You can store only one geometry object in a field. When adding a second object, a message appears confirming the replacement of the geometry (Fig. 2.65)

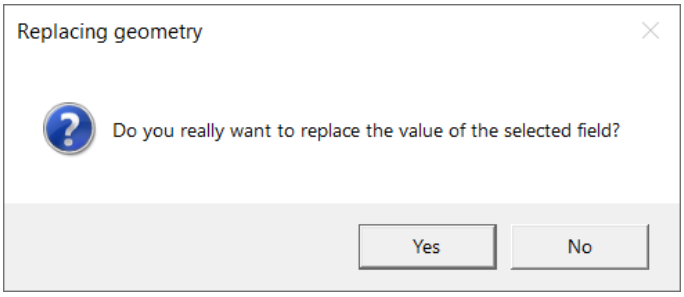


Fig. 2.65: Message about geometry replacement

The button allows you to clear the geometric field. The button displays information about the geometric object: vertex coordinates, length/area for linear/planar objects, number of vertices, name (by default – date of object creation), and description (Fig. 2.66).

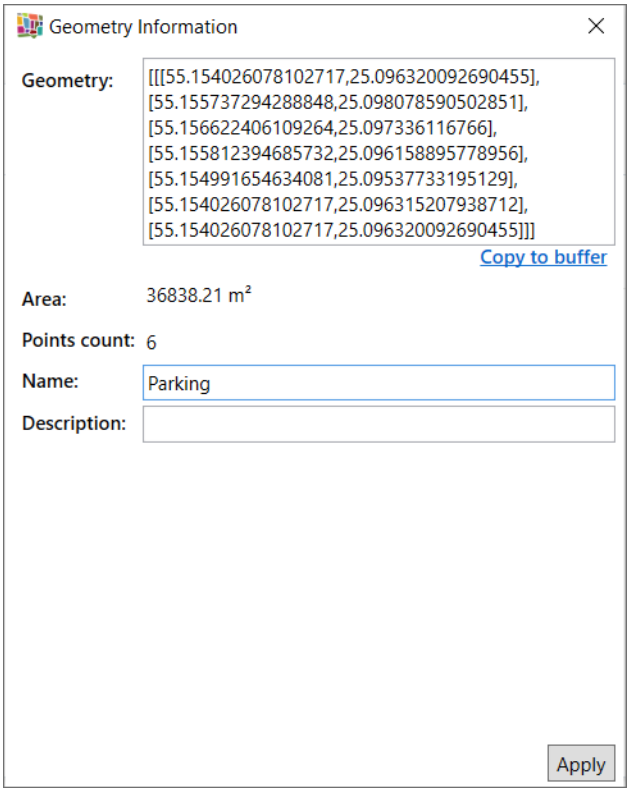


Fig. 2.66: Information about a geometric object

The buttons under the field names allow you to edit the object geometry:

– add node, – move node, – delete node.

- – switching on the mode of displaying information on the selected object, for enabled layers (Layers -> Select the required layer).

Clicking on an object in the information display mode opens a window with a list of objects found under the cursor (Fig. 2.67).

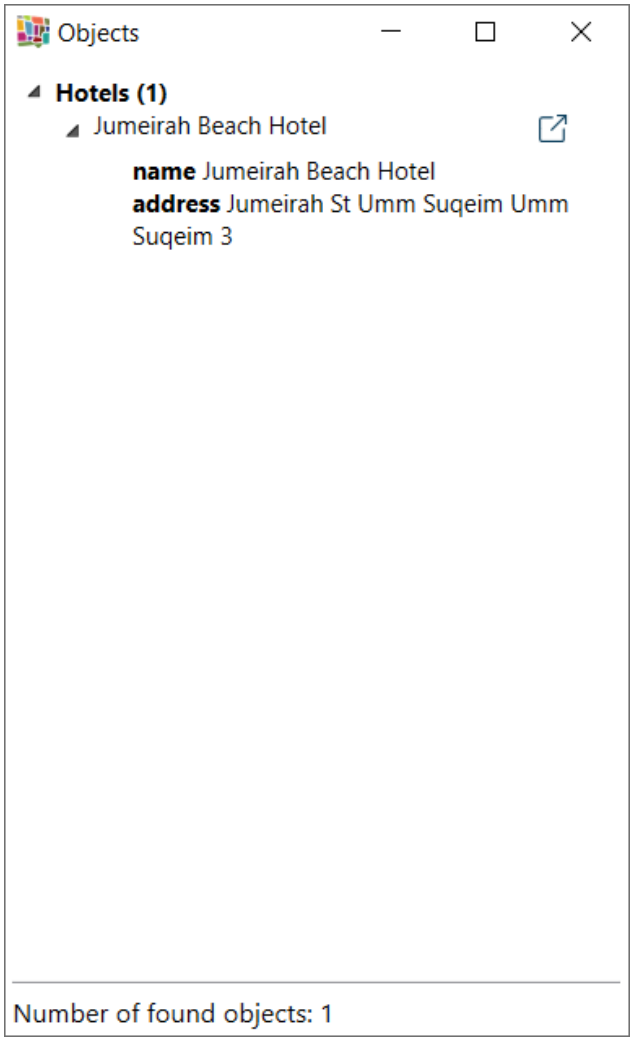


Fig. 2.67: Displaying layer object information

When you click to the right of the object name, the edit window opens. Here you can edit the attributes and geometry, attach media files to the object (Fig. 2.68).

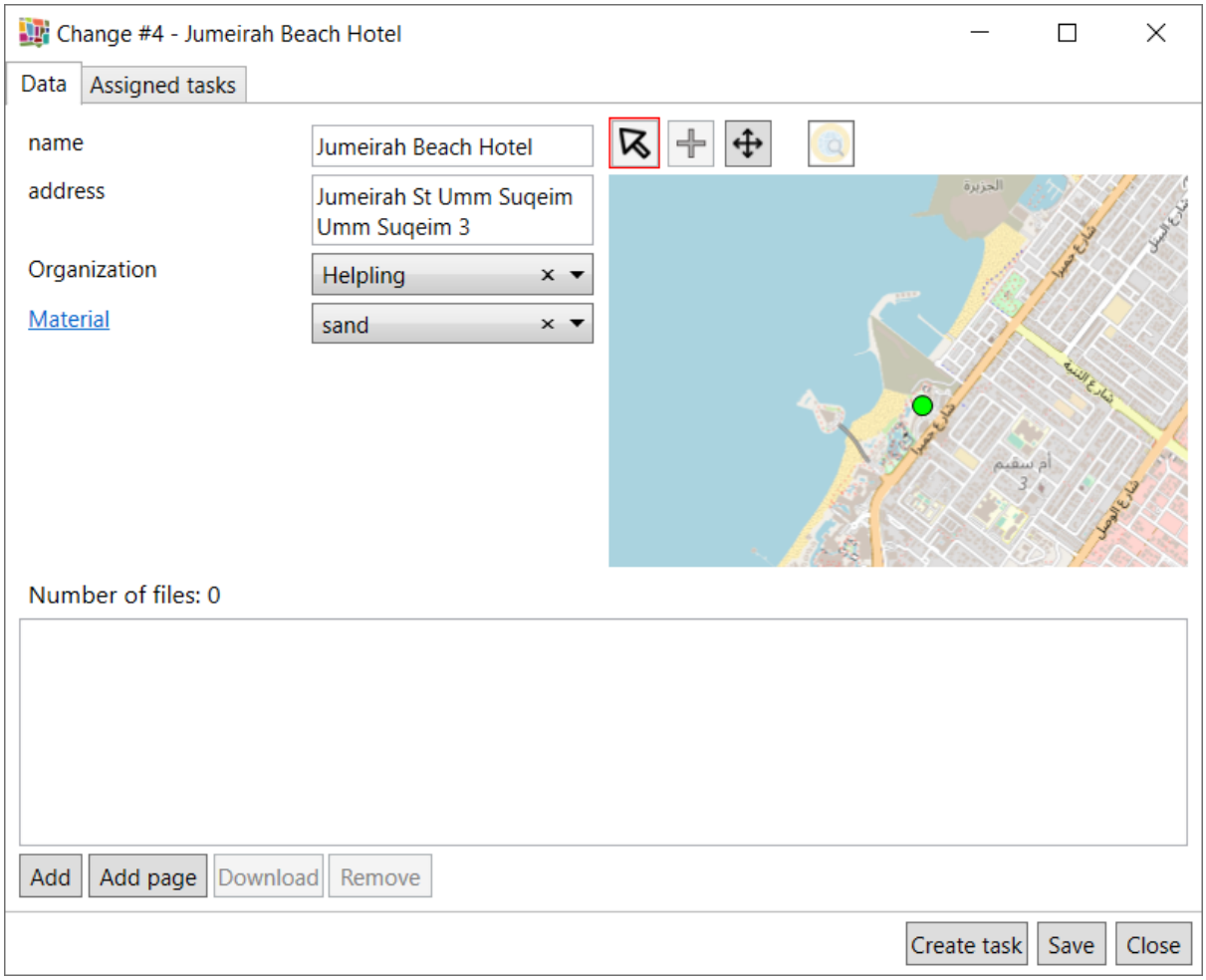


Fig. 2.68: Layer object edit window

- – opening a window for manual input/copying of coordinates.
- – hiding/showing the label of the places where the photos for the task were taken.
- – hiding/showing a video track made using timelapse recording.
- – showing user names on the map.

2.3.6.3 "Custom fields" tab

The "Custom fields" tab allows you to work with attribute fields that can be customized in the system to suit the needs of the project and linked to the activities. Custom fields can contain data of the following formats:

- integer,
- boolean,
- float,
- date,

- list,
- string,
- phone number,
- text,
- data objects (layer, data table, or reference table (dictionary) objects),
- geometry (fields of this type are displayed in the “Map” tab).

You can specify a default value for all custom fields (except for the “geometry” field). Each custom field with the “Data Objects” type corresponds to one layer, data table, or reference table (dictionary). A task can have several fields of this format. Each field is associated with its own layer, data table, or reference table. Display settings for a geometric custom field specified when viewing one of the tasks, are saved when switching to another task.

You can customize the order of displaying custom fields in a task in ActiveMap Web. If the task has global and local fields, the group of global fields is displayed first, followed by the local ones in the order defined in the system.

2.3.6.4 “History” tab

The “History” tab allows you to view information about the changes made and comments added to the task in the form of messages. Messages can come from users or can be generated by the system. To send a comment, enter the text and click “Add” or press the “Enter” key (Fig. 2.69). To move the cursor to the next line, use the keyboard shortcut “Ctrl” + “Enter”.

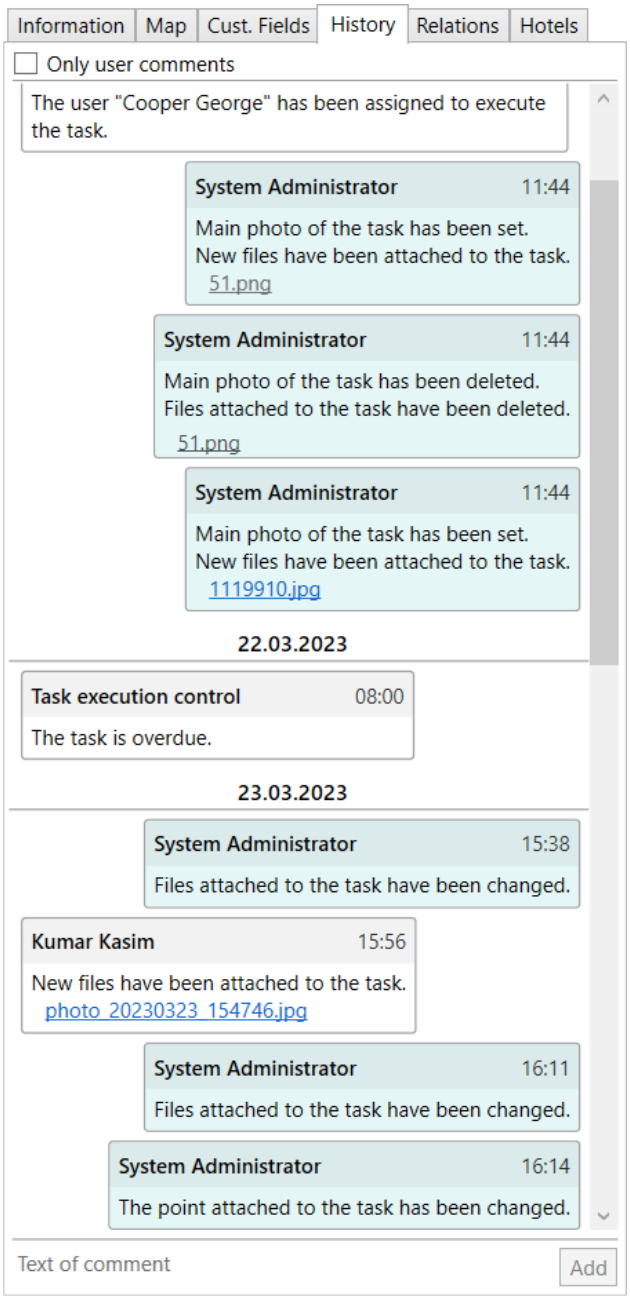


Fig. 2.69: "History" tab

When you hover the cursor over a message, the "Reply" button appears (Fig. 2.70).

Fig. 2.70: "Reply" button when hovering over a message

A right-click on a message brings up a contextual menu that also allows you to reply to the message as well as copy its text (Fig. 2.71).

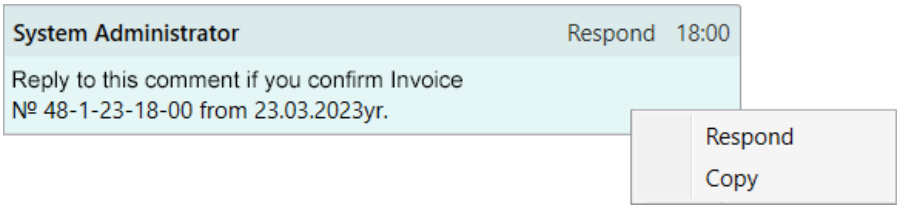


Fig. 2.71: Message context menu

2.3.6.5 “Relations” tab

The “Relations” tab allows you to display and manage the link between the parent and child tasks. At the bottom of the window, there are the following buttons (Fig. 2.72):

- “Create task” – creating a child task in relation to the current task;
- “Open” – opening the selected task in a new window;
- “Update” – updating information in this tab;
- “Remove” – deleting the task from the system;
- “Detach” – removing the link between the parent and child tasks.

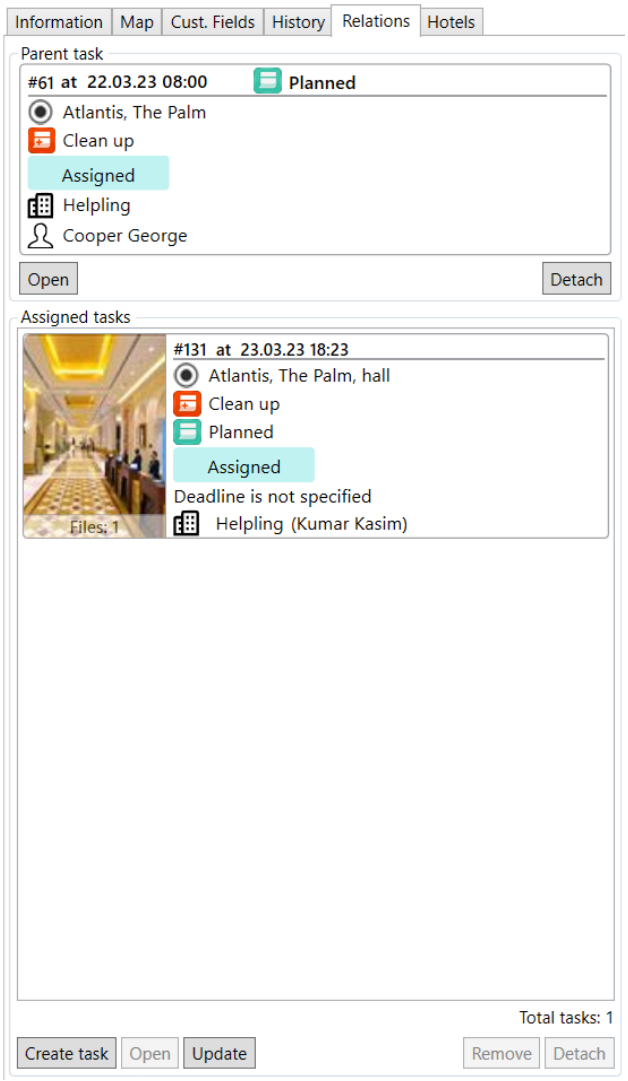


Fig. 2.72: “Relations” tab

After clicking the “Create task” button, a window appears where you can specify which data to copy from the parent to the child.

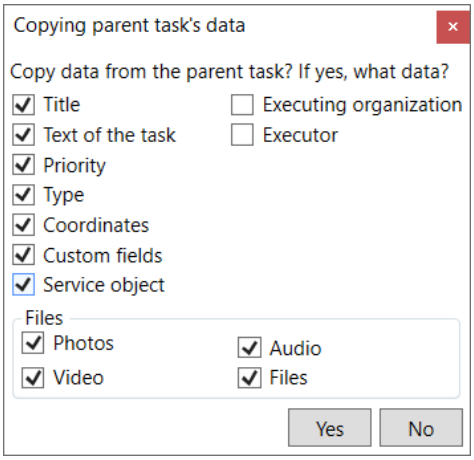


Fig. 2.73: Copying data from the parent task

2.3.6.6 “Service objects” tab

If a task has a link to a service object, a tab with the name of the layer associated with the service object appears in the task card with information about the object (Fig. 2.74). In this tab, you can enable or disable the display of empty fields.

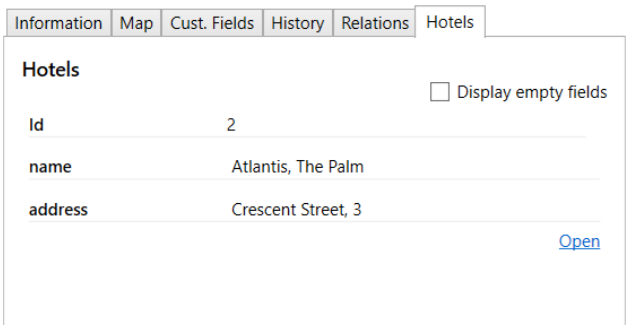


Fig. 2.74: Service object tab

2.4 Program settings

Program settings are divided into internal and external. Internal settings are executed directly in ActiveMap Desktop, external ones – in other software products of the ActiveMap (in ActiveMap Web).

2.4.1 Internal settings

To configure user settings within the Program, go to the “Options” menu section, select “Settings”, the “Program Settings” tab. This opens the Program settings window, which contains 2 tabs: “Main” and “Notification” (Fig. 2.75).

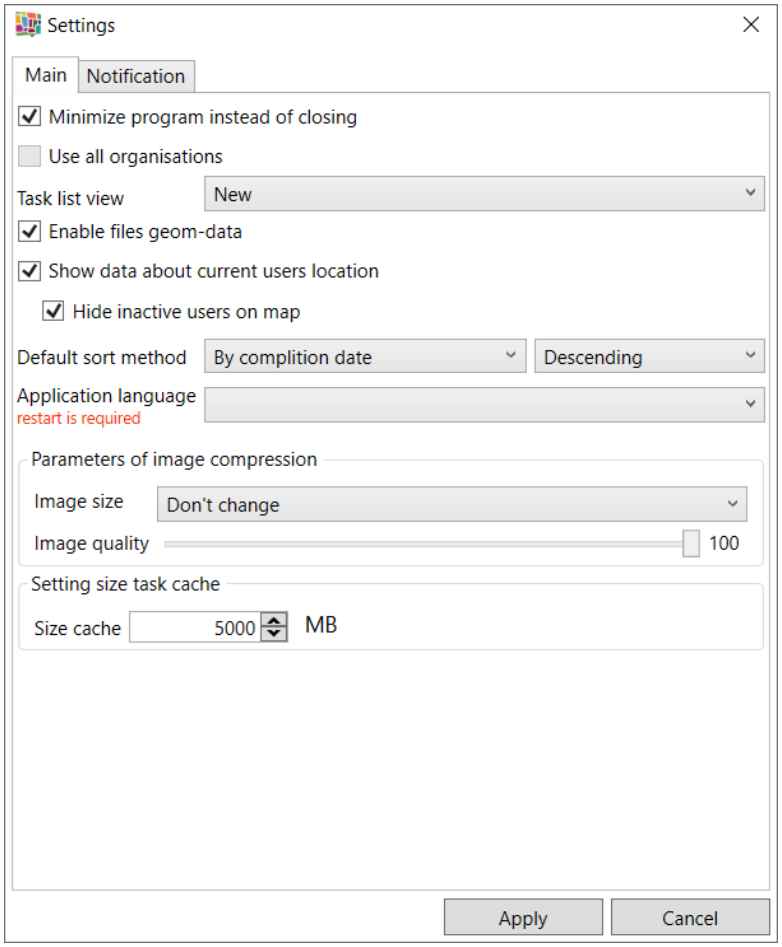


Fig. 2.75: “Settings” window, “Main” tab

You can enable the following flags (Fig. 2.75) in the “Main” tab:

- Minimize the program instead of closing;
- Use all organizations;
- Show geodata files;
- Show data about current users location;
- Hide inactive users on the map.

You can switch between the new and classic task list view (for more information, see *Task list area* (page 26)), configure tasks sorting in the list area (by task number, by title, by creation date, by completion date, by update date: in descending order or in ascending order).

To change the language of the Program, select one of the supported languages from the drop-down list, click “Apply”, and restart the application. To add new languages to the Program, upload a “.lang” file with the corresponding language to the “Localization” folder in the installed program directory. To generate a “.lang” file, use one of the existing files in the “Localization” folder as a template. You can edit the file with any text editor (such as “Notepad++”). The file contains all the words and phrases used in the Program. Replace them with the words and phrases in the desired language. When saving a new file, its name should have a similar format – “en-EN”. You can find a full list of language codes for this format here: https://msdn.microsoft.com/en-us/library/ee825488(v=cs.20).aspx. After

a new file appears in the “Localization” folder, restart the Program.

In this window you can also set compression parameters for images attached to tasks (size and quality) and configure the task cache size. To apply the changes, click “Apply” at the bottom of the window. To change the language settings you also need to restart the Program. To discard changes, click the “Cancel” button.

In the “Notification” tab, you can manage sound notifications in the Program (Fig. 2.76).

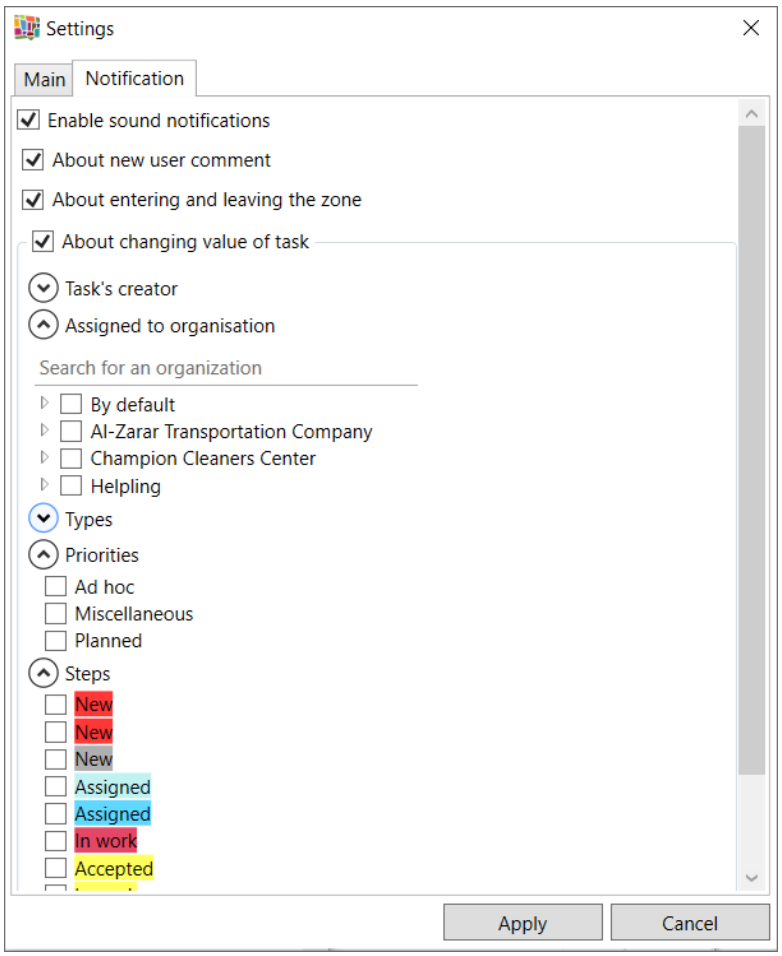


Fig. 2.76: “Settings” window, “Notification” tab

The “Enable sound notifications” field allows you to activate notifications for all events in the Program for which they are provided. In addition, you can configure individual categories of sound notifications:

- **About new user comment** – when adding a comment from a user to a task (not a system comment);
- **About entering and leaving the zone** – when a system comment about entering or leaving the zone (task area) is added to the task (when the user to whom the tasks are assigned arrived at the work site or left it);
- **About changes in the task** – when changes are made to tasks that meet the specified criteria. The user can filter tasks by ticking the required fields, for example, marking the organization, type of work and step. In this case, all other changes to the tasks are not accompanied by a sound notification.

To apply the changes, click “Apply” at the bottom of the window. To discard changes, click “Cancel”.

2.4.2 External settings

Some of the ActiveMap Desktop settings are configured in the associated software product of the ActiveMap complex – ActiveMap Web. To do this, log in to ActiveMap Web and go to the “Management” section, “Settings” block, and select the ActiveMap Desktop (Fig. 2.77).

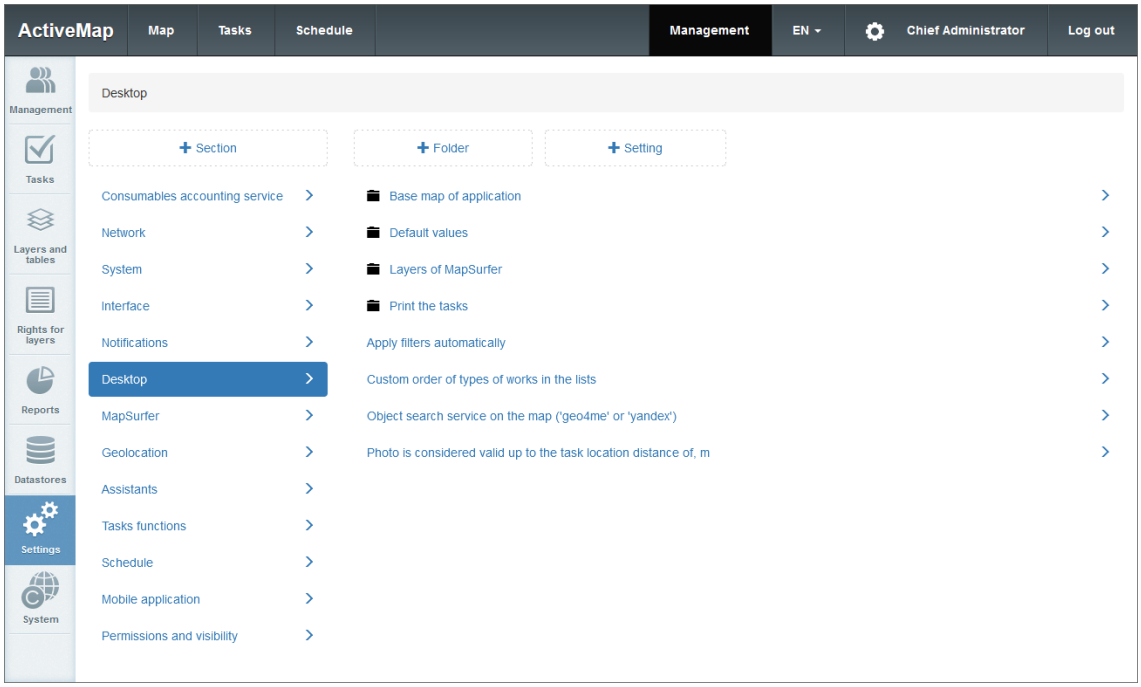


Fig. 2.77: ActiveMap Desktop settings in ActiveMap Web

The section contains folders and subfolders with the settings and their values.

To add a new setting for an element inside a section, click “+ Folder”, then “+ Setting”. Or go to the folder of interest and click “+ Setting”. A form opens with fields to fill in (Fig. 2.78):

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

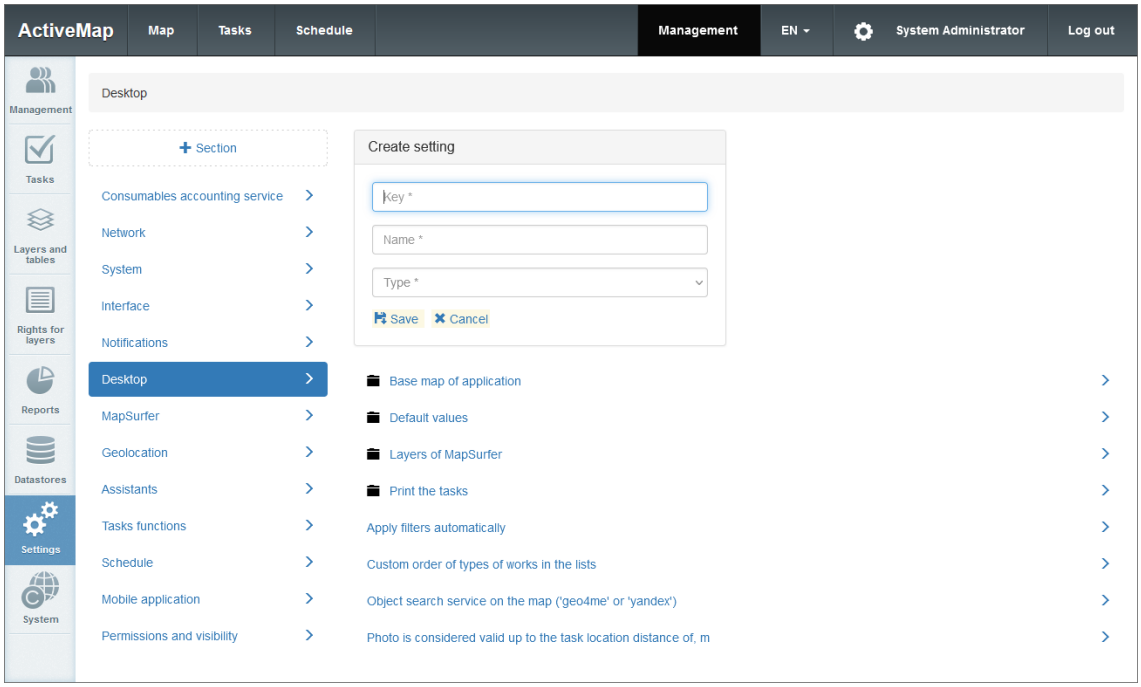


Fig. 2.78: Creating a setting

To set a value for a setting, select the setting and click "+ Value". This opens a window with fields to fill in:

- "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.

You cannot delete the basic settings. However, you can edit some of them. The availability of editing is set in the database.

ActiveMap Desktop parameters configured in ActiveMap Web:

- Default values for:
  - type of work;
  - task title;
  - organization-creator;
  - priority;
  - task text;
- Basemap of application:
  - Name of the folder for the cache;
  - Projection of the basemap (in PROJ.4 format);
  - URL of TMS-service;

- ActiveMap Web layers displayed in ActiveMap Desktop (layer id);
- Task printing (map imagery in print form);
- Automatic filter application (TRUE/FALSE);
- Custom order of work types in lists (TRUE/FALSE);
- Photo capture radius for task area (in meters).

2.4.2.1 Default values

To specify the values to be filled in automatically during task creation, open the "Default values" folder. The system allows configuring the following fields (Fig. 2.79) to be filled in automatically:

- Type of work;
- Title;
- Creator organization;
- Priority;
- Text (task text).

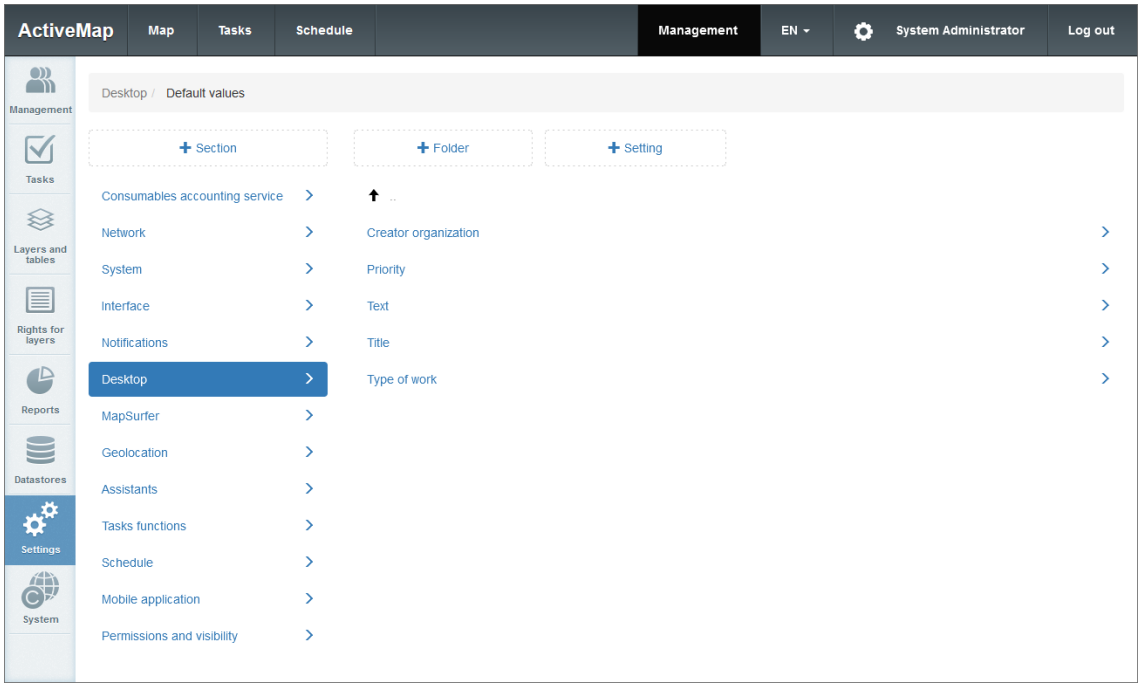


Fig. 2.79: Setting default values

Let us consider the process of setting new values for the "Work type" field as an example (Fig. 2.80). To set a value for a setting, select it and click "+ Value". Enter the work type ID in the "Value" field and select the organization, user, role, and task status for which the default value is used, from the drop-down lists. After filling in the values, click "Save". This way, when creating a task in ActiveMap Desktop, the "Work type" field is automatically filled in with the specified default value for users with an administrator role in the "Executor Organization".

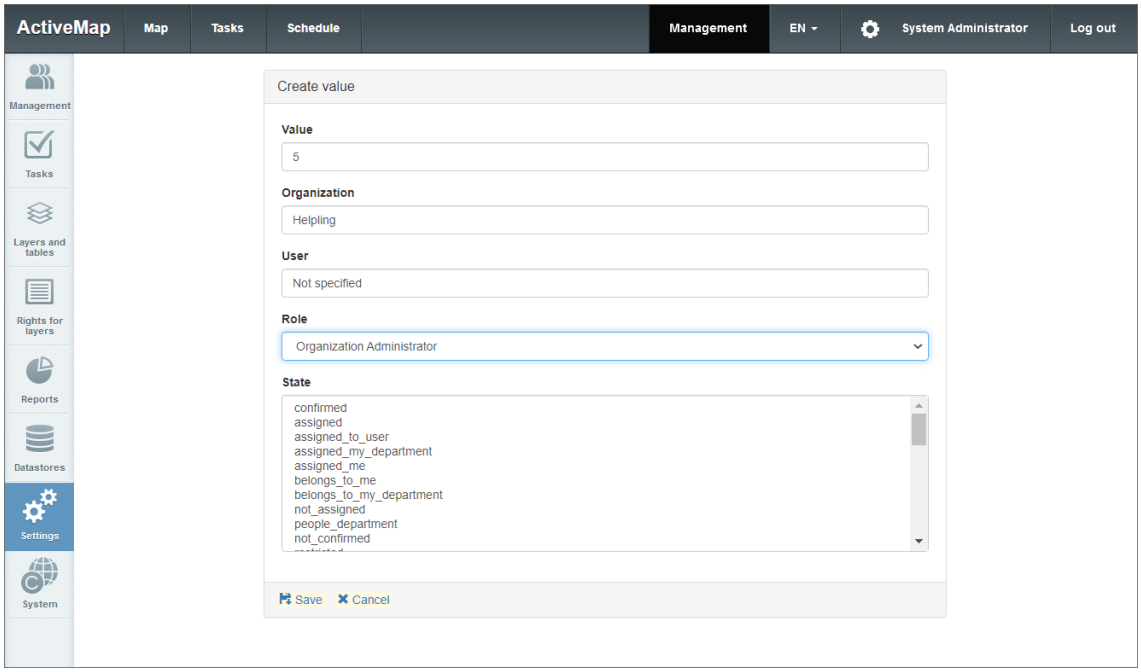


Fig. 2.80: Setting a default value for the work type

To set the default values for other fields in this folder, follow the same steps.

2.4.2.2 Basemap of application

This folder contains the following fields (Fig. 2.81):

- Name of the folder for the cache – map cache folder for ActiveMap Desktop;
- Projection of basemap – basemap projection in PROJ.4 format;
- URL of TMS-service – link to the basemap layer.

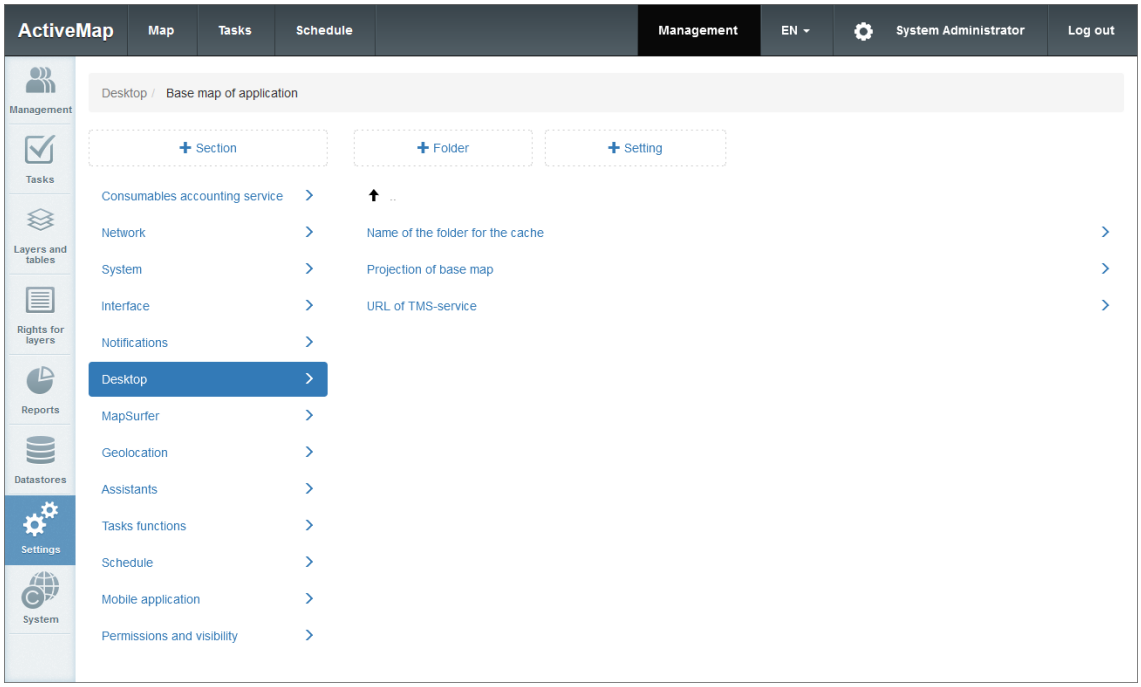


Fig. 2.81: Basemap settings

The system has basic settings for these fields. If necessary, you can enter your own values for these parameters (similar to the process of setting new values, described in *Default values* (page 56)).

2.4.2.3 Layers of ActiveMap Web

This setting allows you to select layers to be displayed on the map by default in the task window (Fig. 2.82).

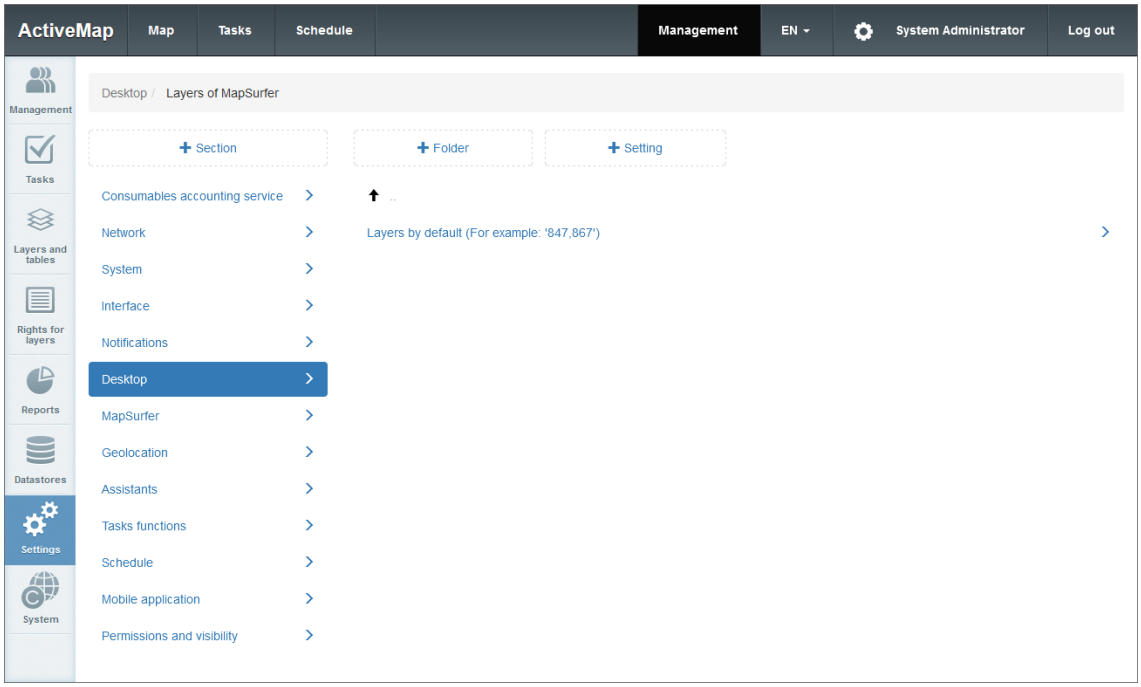


Fig. 2.82: Configuring the display of ActiveMap Web layers in ActiveMap Desktop

To do this, select the setting and click “+ Value”. Enter the IDs of the required layers separated by commas in the “Value” field (layers are displayed on the map in this order). Fill in the remaining fields and click “Save”.

2.4.2.4 Printing tasks

In this folder, you can set task printing options – whether to include a map in the printed task form. By default, the map display is disabled (Fig. 2.83).

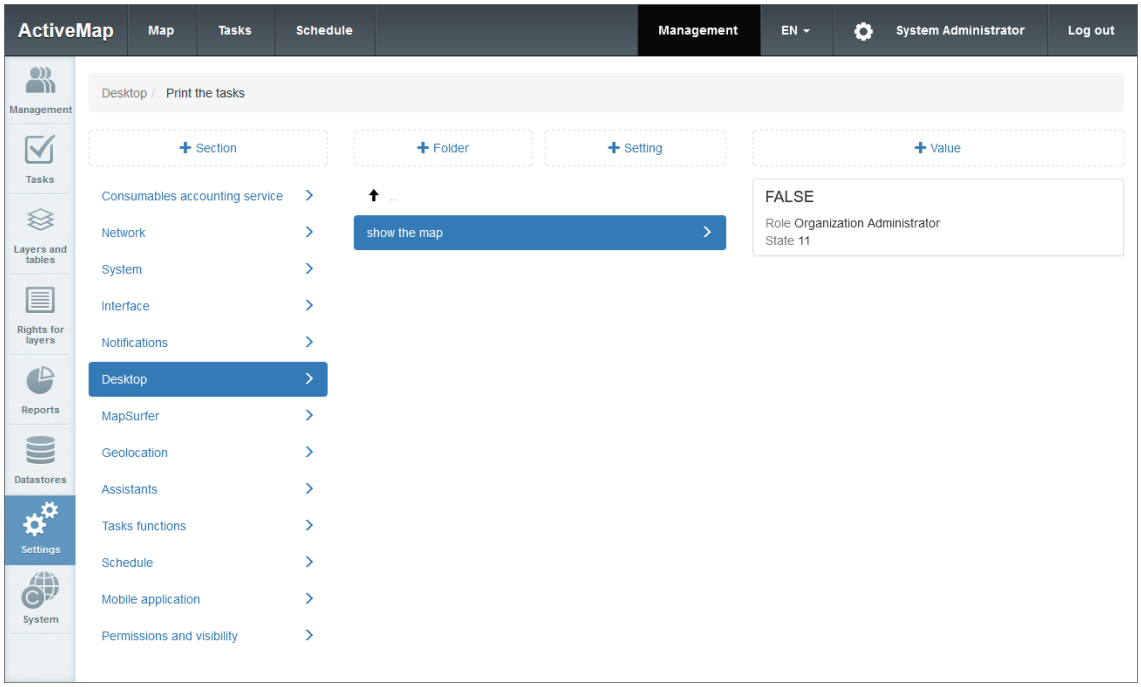


Fig. 2.83: Setting the map display when printing a task

2.4.2.5 Apply filters automatically

It is possible to set the system to automatically apply a filter to tasks. By default, this setting is enabled (Fig. 2.84).

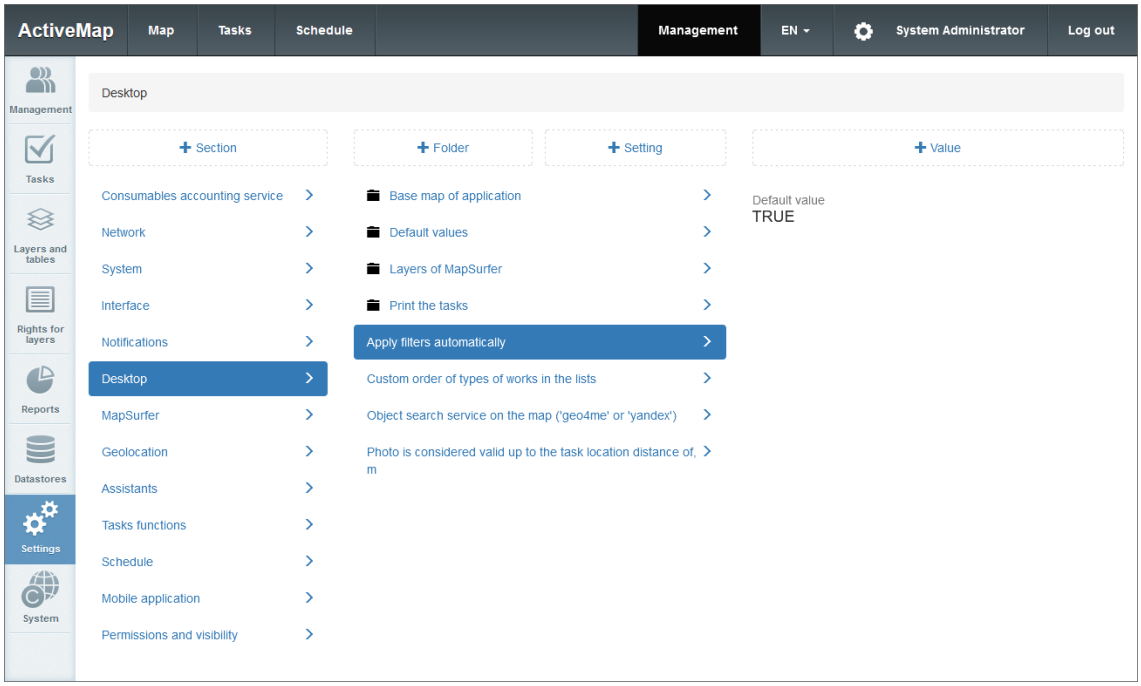


Fig. 2.84: Setting automatic filter

To set a new value for the setting, select it and click “+ Value”. Turn on/off the toggle switch

in the opened window, fill in the remaining fields, and click “Save”. If you leave the switch off and fill in the remaining fields, a value is created that limits the use of the automatic filter. In this case, the user has to click “Apply” in ActiveMap Desktop to enable the filter.

2.4.2.6 Photo capture radius for task area

The system allows you to adjust the radius of the task area. The default radius is 150 meters (Fig. 2.85). You can optionally set a new value (similar to the process of setting new values described in *Default values* (page 56)).

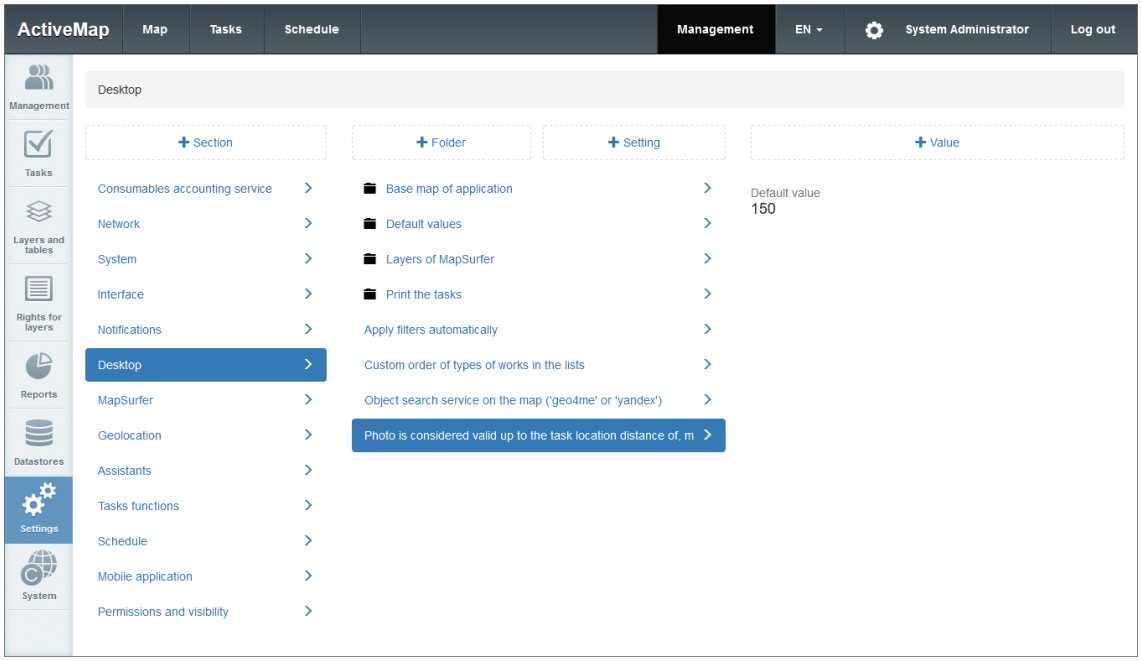


Fig. 2.85: Setting the radius for the task area

2.5 Working with tabular data

Table is a set of related data stored in a structured form in a database. It consists of columns and rows.

The system supports the following types of tabular data:

- layers,
- data tables,
- reference tables (dictionaries).

Layers differ from data tables and reference tables (dictionaries) by the presence of spatial information about objects location (geometry, object coordinates). This allows you to display them on the map. Data tables and dictionaries do not contain geometry. Reference tables (dictionaries have a limit on the number of records. Loaded as drop-down lists, they are used to make working with attribute information on objects easier. In addition to reference tables (dictionaries) presented as editable tables, there are system reference tables. They are generated automatically based on the data entered into the system (for example, tables of users, types of work, and priorities). You can create and configure a link to a layer in

ActiveMap Web. Use ActiveMap Desktop and MapEditor to edit reference or data table values and fill in layer attributes.

To work with tabular data, go to the "**Layers and tables**" menu section. A window opens with the following tabs: "Layers", "Datatables", and "Dictionaries" (Fig. 2.86). You can find the required table using the search bar.

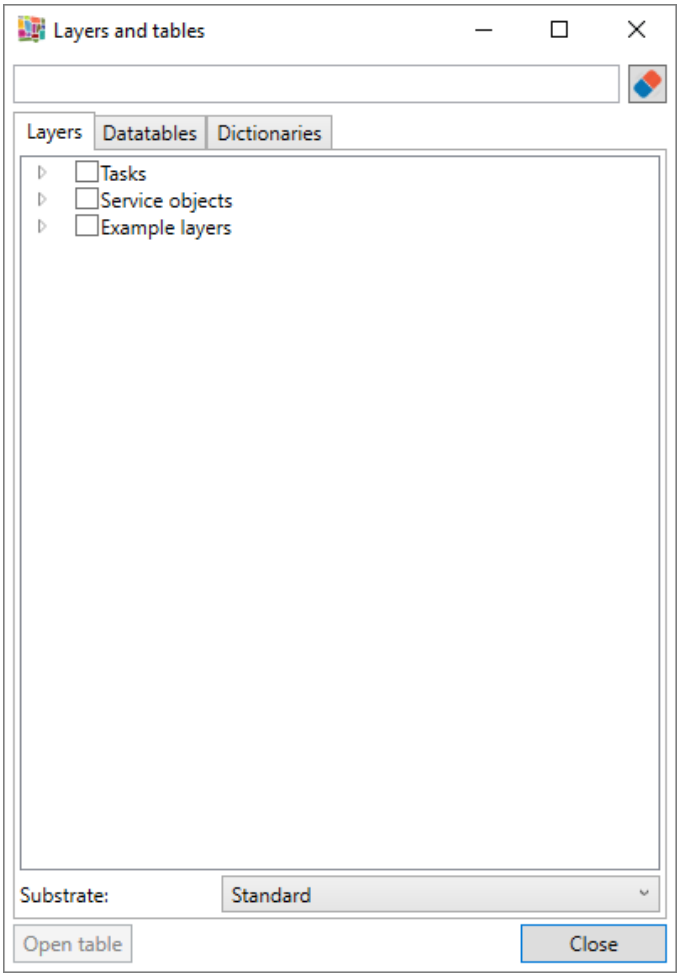


Fig. 2.86: "Layers and tables" window

2.5.1 Layers

In the "Layers" tab, you can enable the display of individual layers and their groups, select a substrate (base map) (Fig. 2.87). After marking the checkboxes in the "Layers" tab, the objects of the selected layer appears in the "Task map" window, in the "Map" tab of the task information panel, as well as in the windows of other layers.

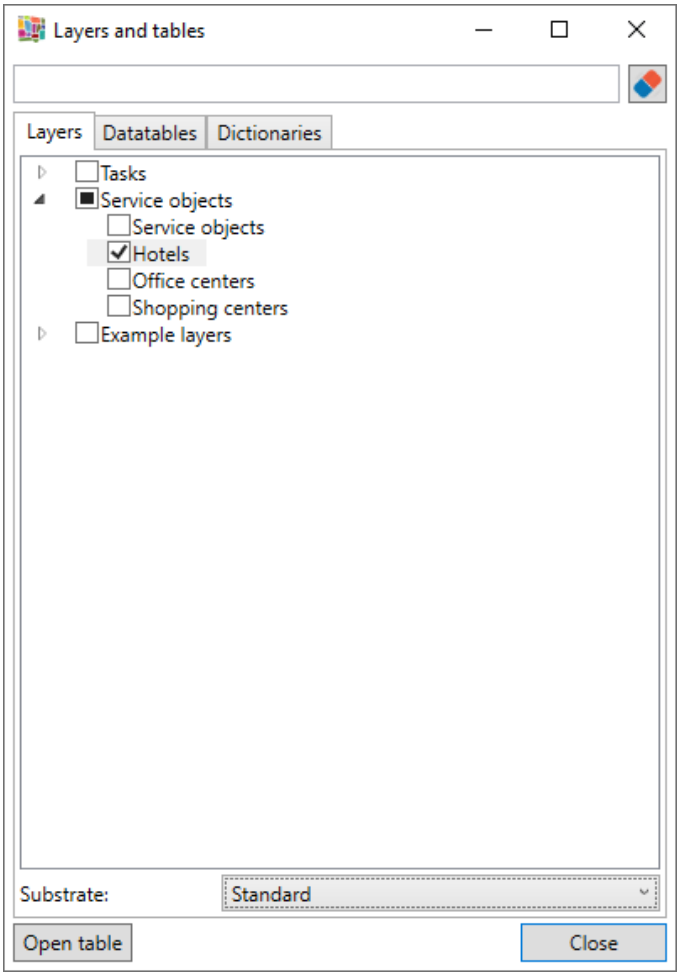


Fig. 2.87: “Layers and tables” window, “Layers” tab

To open the table view of a layer, double-click the highlighted line with the name of the layer or click the Open table button (Fig. 2.88).

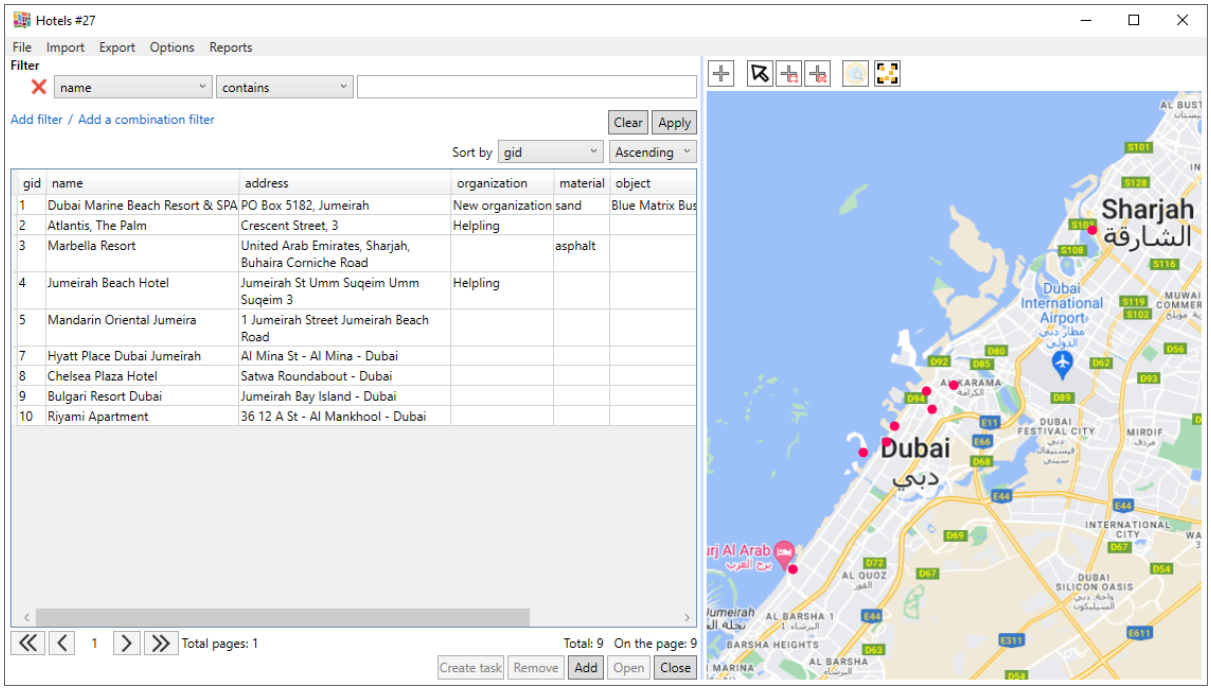


Fig. 2.88: Layer window

Among the layers, a group of service objects stands out. The principles of working with layers are considered below using service objects as an example.

Service objects are layers that contain objects of interest of the user's organization, associated with its activities. In ActiveMap Desktop, you can view all tasks attached to a specific service object within a layer. When you attach tasks to such objects, the task fields are automatically filled in according to the configured mapping (matching the layer attribute to the task field). More information about creating tasks can be found in the *Creating tasks in the service object window* (page 119) section.

You can work with service objects in the following menu sections:

1. "**Layers and tables**","Layers" tab. To open the table view of the layer (Fig. 2.89), double-click the highlighted line with the layer name or click Open table.
2. "**Service objects**". The section contains tabs with names of the service object layers and a tab for importing a new table with objects from MS Excel. Switching to any of the tabs with layer name opens a window with a list of objects of the selected layer and a map with their location marks (Fig. 2.89).

This window allows you to edit, add, and delete objects, as well as to create tasks linked to service objects. The window contains the following elements:

1. Menu.
2. Filter area.
3. Table with a list of objects.
4. Toolbar.
5. Map with object location marks and layers switched in the "Layers" menu section.

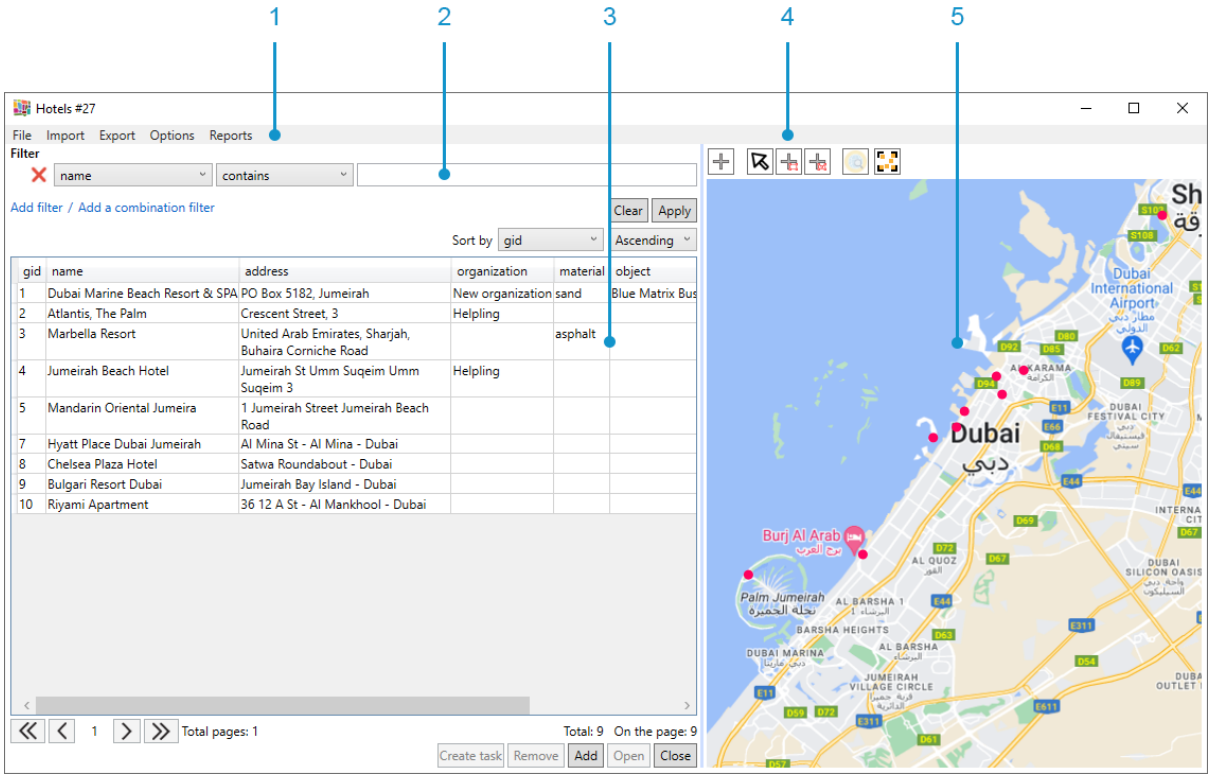


Fig. 2.89: Service objects layer window

When you open the window for the first time, all layer objects are located in the visible area of the map. You can move around the map using the buttons and the mouse wheel and keyboard keys (arrows, "+" and "-" signs). When you close the layer window, the map position is saved within the current session. This ensures that when you open the window again, the map position remains the same.

2.5.1.1 Layer window menu

The layer window menu contains the following sections:

- "File",
- "Import",
- "Export",
- "Options".

If there are associated reports, an additional "Reports" section is displayed.

The "**File**" menu section includes the "Close" tab for closing the current window (Fig. 2.90).

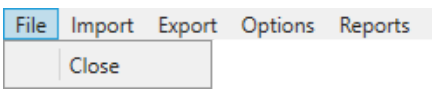


Fig. 2.90: The "File" section of the layer window menu

The "**Import**" menu section contains the following tabs (Fig. 2.91):

- "**Import objects**" — load new objects into the current layer (for more details, see *Mass creation of new service objects* (page 74)).
- "**Update objects from MS Excel**" — edit attributive information of layer objects in bulk. To update the objects, first export them using the "**Export data to MS Excel file**" option, then edit, save, and close the obtained file. After that you can start updating objects (for more details, see *Editing service objects* (page 79)).
- "**Save template with examples**" — download a template with examples of layer objects. The coordinates in the examples are in the Longitude/Latitude coordinate system on the WGS 84 ellipsoid – EPSG: 4326. They correspond to the centroid of the user's organization bounding box (for more details, see *Mass creation of new service objects* (page 74)).

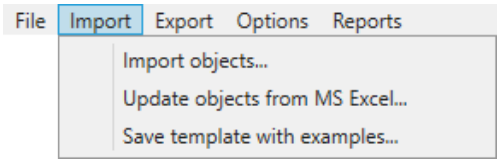


Fig. 2.91: The "Import" section of the layer window menu

The "**Export**" menu section includes an "**Export data to MS Excel file**" tab and allows you to export table data into a MS Excel file for further use or editing in external programs (Fig. 2.92).

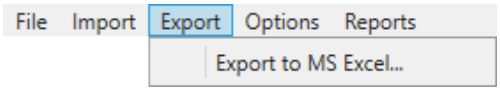


Fig. 2.92: The "Export" section of the layer window menu

The "**Options**" menu section contains the following tabs (Fig. 2.93):

- "**Create tasks by all rows**" — open a window for mass creation of tasks for each of the objects in the table (for more details, see *Creating tasks in the service object window* (page 119)).
- "**Delete objects by all in list**" — delete all objects in the table (for more details, see *Copying existing service objects* (page 78)).
- "**Copy**" — create copies of selected objects in the table (for more details, see *Deleting service objects* (page 82)).

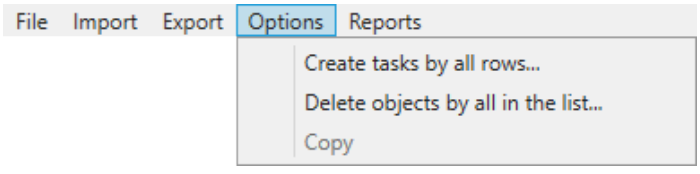


Fig. 2.93: The "Options" section of the layer window menu

The "**Reports**" menu section opens the list of reports with the "By layers" type, linked to this layer (for more details, see *Reports in the layer window* (page 69)).

2.5.1.2 Map tools

In the upper left corner of the map there is a toolbar:

- — add a new object to the map.
- — select objects on the map using the cursor.
- — select objects on the map by rectangle.
- — select objects on the map by polygon.
- — enable the mode of displaying information on the selected object (the layer should be turned on: “Layers -> Select a required layer”). For more information, see *“Map” tab* (page 42).
- — fit objects into the map.

2.5.1.3 Filters in the layer window

You can use filters, sort table rows, and select objects on the map to make it easier to find objects. You can specify several filtering conditions by adding ordinary and combined filters. Combined filters establish priorities for conditions (similar to parentheses). To move to the filtered results on the map, click on the toolbar.

Figure Fig. 2.94 shows an example of using ordinary filters.

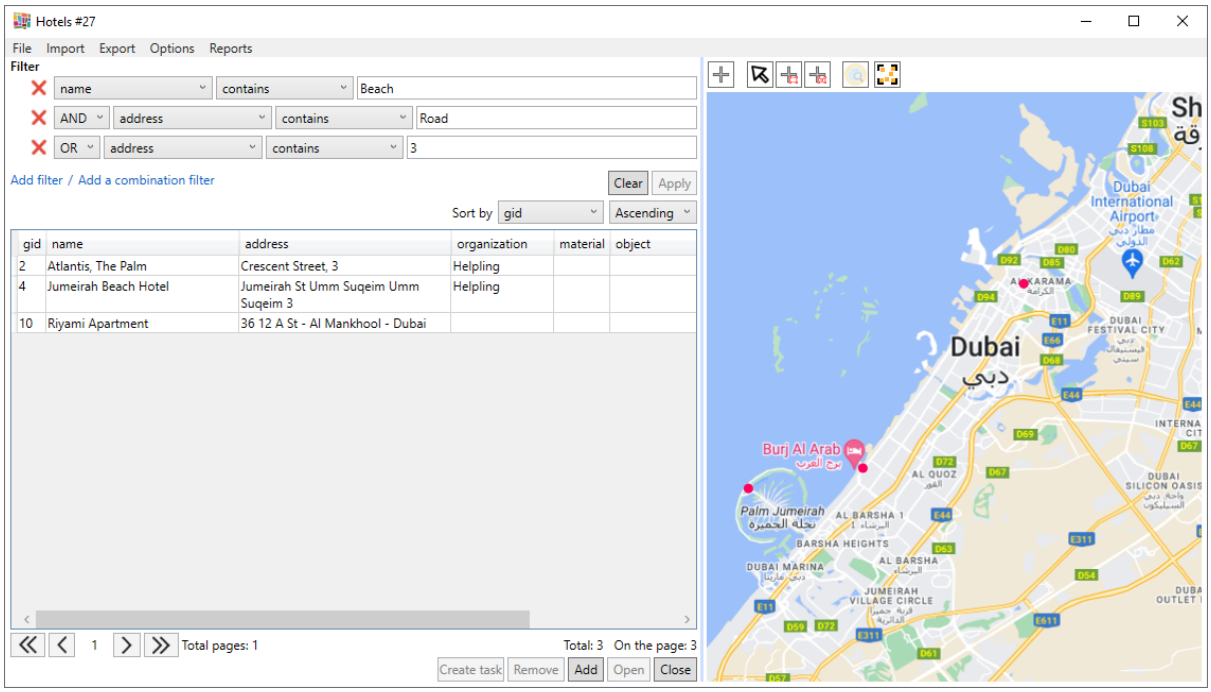


Fig. 2.94: Result of using ordinary filters

Figure Fig. 2.95 shows an example of using a combined filter.

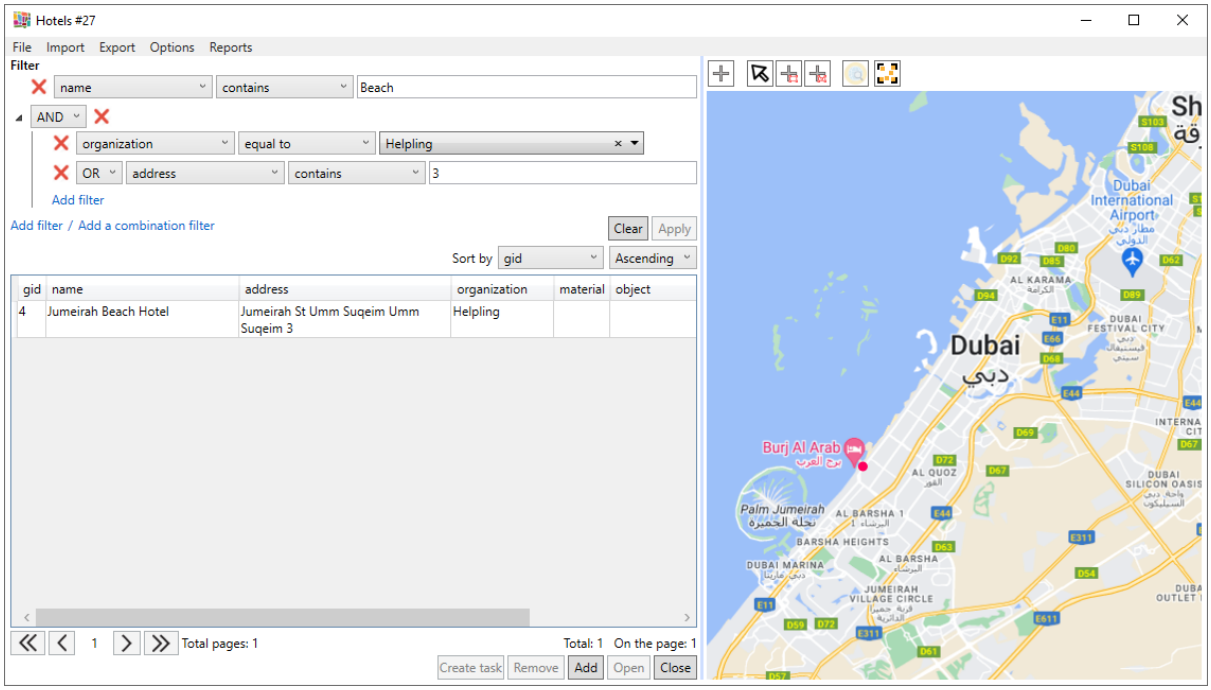


Fig. 2.95: The result of using a combined filter

To remove values entered in the filter field, click “Clear”. To completely reset the filter conditions, click “Close” to the left of the filter. Then click “Apply” to display rows with all objects in the table.

Use “Select on the map” , “Select on the map using rectangle” , and “Select on the map using polygon” buttons to select objects on the map. They work as filters for the list of objects. After selecting on the map, the table shows only rows with selected objects (Fig. 2.96). To clear the results of the “Select on the map” filter, click “Close” next to the red inscription “Selected on the map:”. In this case, only the data of the “Select on the map” filter is cleared, the results of the main filter are saved.

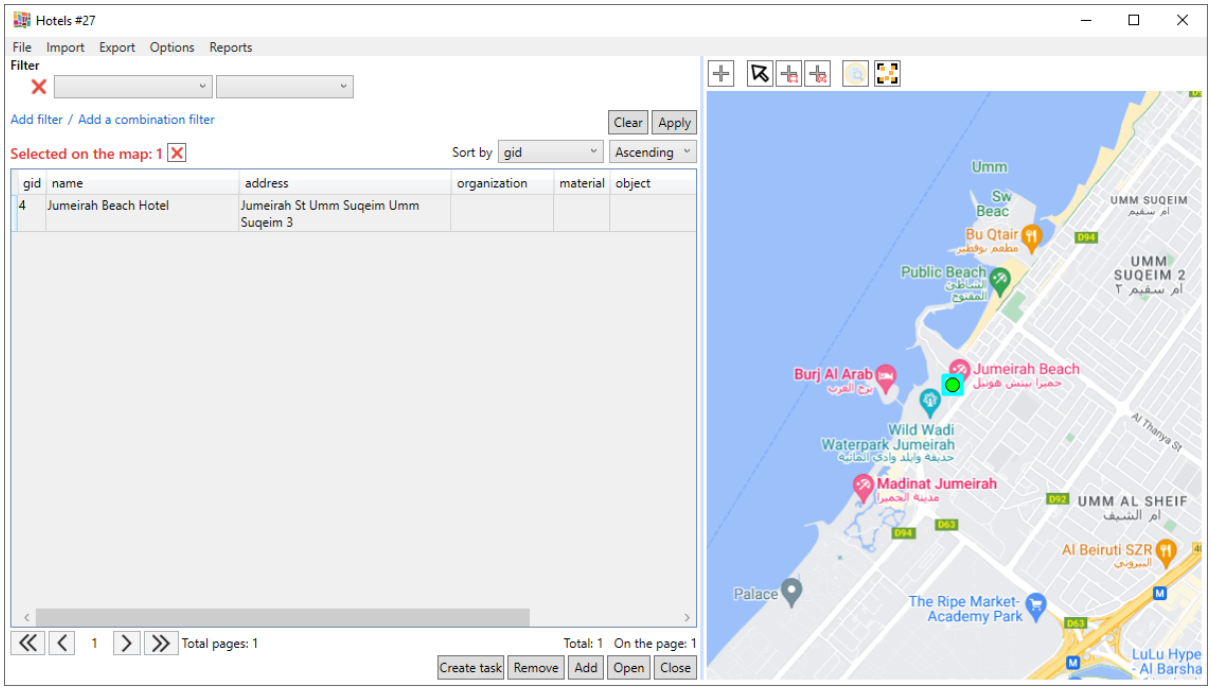


Fig. 2.96: Selecting objects on the map

2.5.1.4 Reports in the layer window

If there are reports linked to the layer, an additional "Reports" section is included in the layer window menu row. The authorized user should have rights to this report. To form a report in the layer table, pre-select the objects of interest and click "**Reports**" (Fig. 2.97).

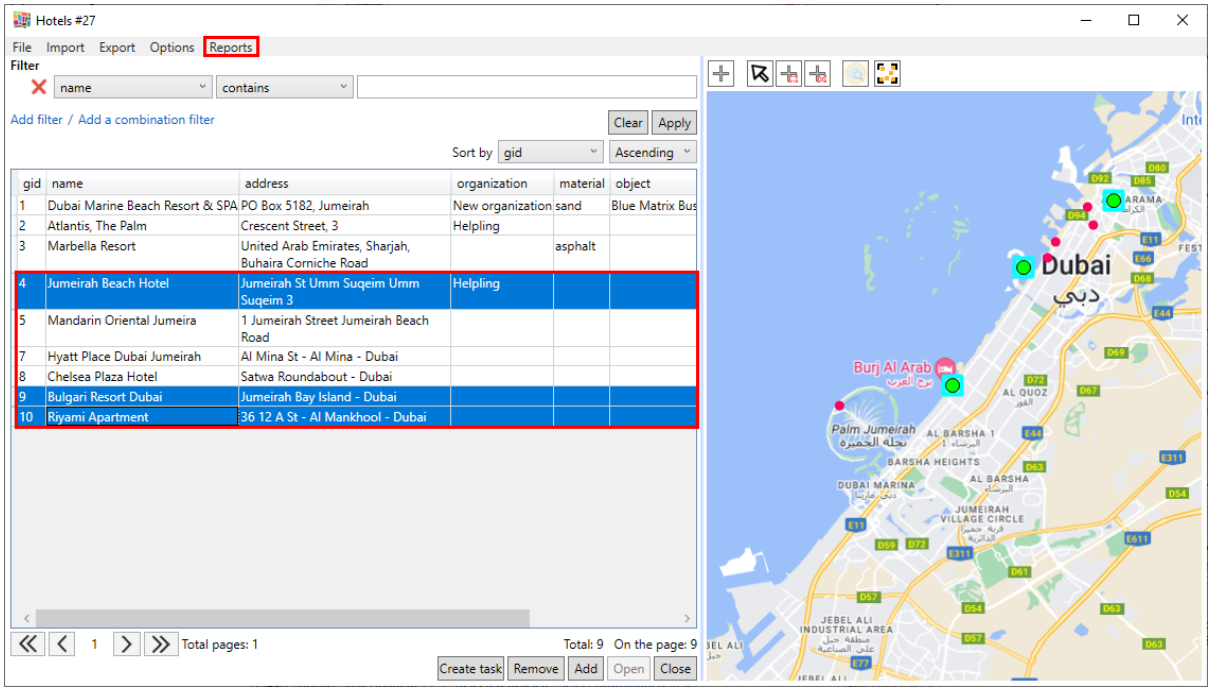


Fig. 2.97: Selecting objects to create a report

A window opens with a list of available reports (Fig. 2.98). The IDs of the selected objects appears in the input field of the opened window. If you want to generate a report for the entire layer, you should select all rows in the table. You can also manually enter the IDs, separated by a comma, in the "layer object id" field.

Fig. 2.98: Report window, field for entering object IDs

Next, click the "Create report" button. The "Generated reports" block will display the report generation process. When the report is ready, the file becomes available for viewing (Fig. 2.99, Fig. 2.100).

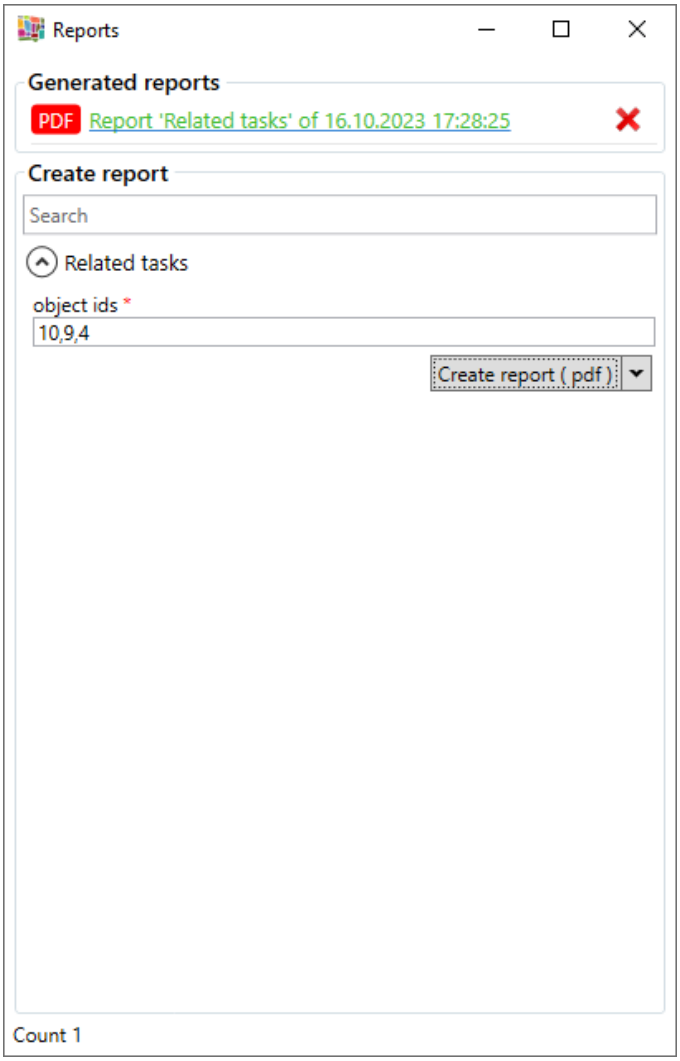


Fig. 2.99: Report, available for viewing

Hotels (id 27)

ID	Name	The number of related tasks
4	Jumeirah Beach Hotel	43
9	Bulgari Resort Dubai	6
10	Riyami Apartment	2

Fig. 2.100: Report on the number of tasks related to service objects

If there are fields for the object id in the report parameters, you can form a report for the selected object in its card (Fig. 2.101).

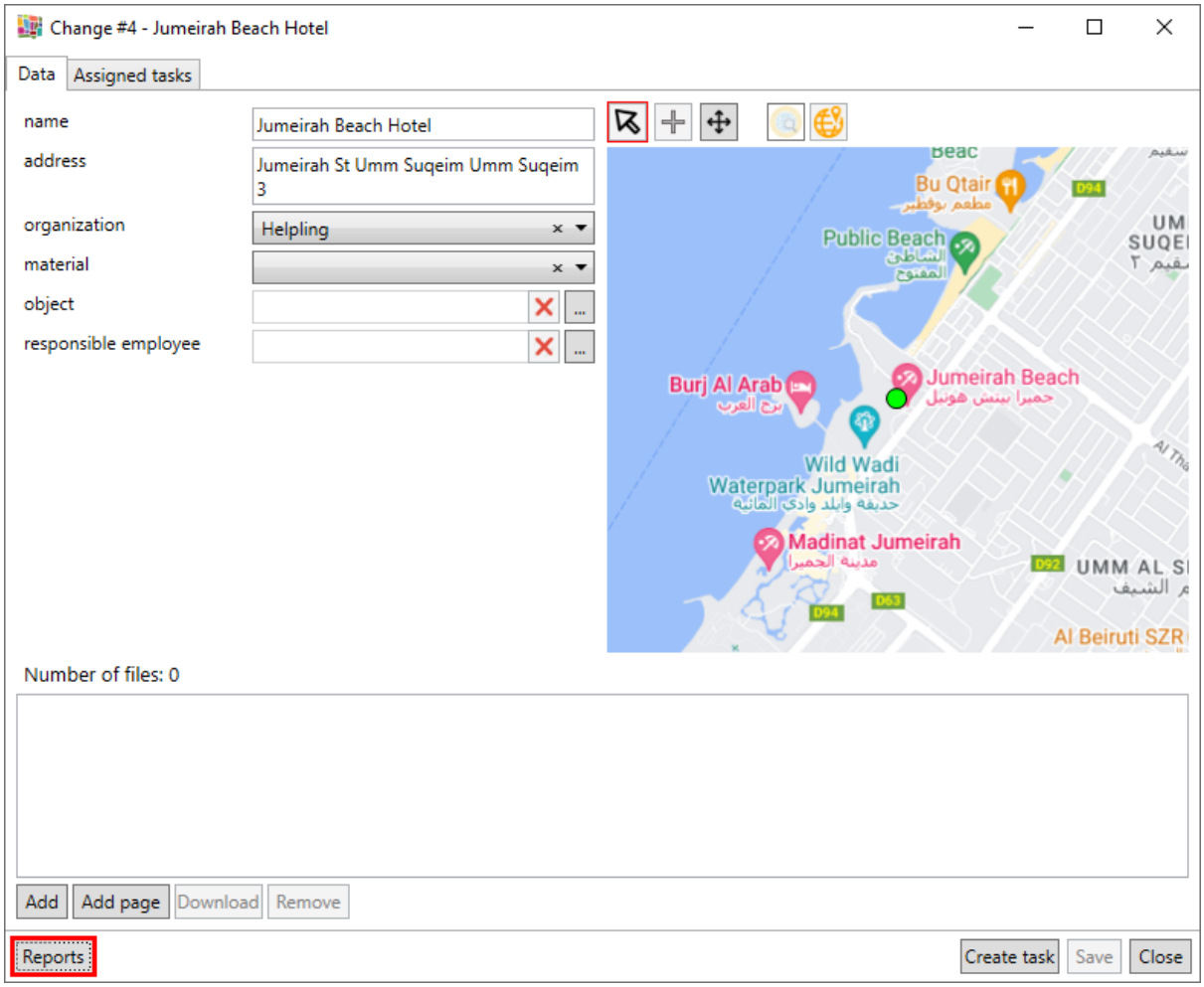


Fig. 2.101: The “Reports” section in the object card

2.5.1.5 Creating service objects

Both single creation and mass loading of new service objects is supported.

Single creation of new service objects

To create a new service object, click “Add” at the bottom of the service object layer window or mark the object’s position on the map using the tool. After performing any of these actions, a window for creating a service object (Fig. 2.102) opens. The only difference is in the absence or presence of the object mark on the map when you open the creation window.

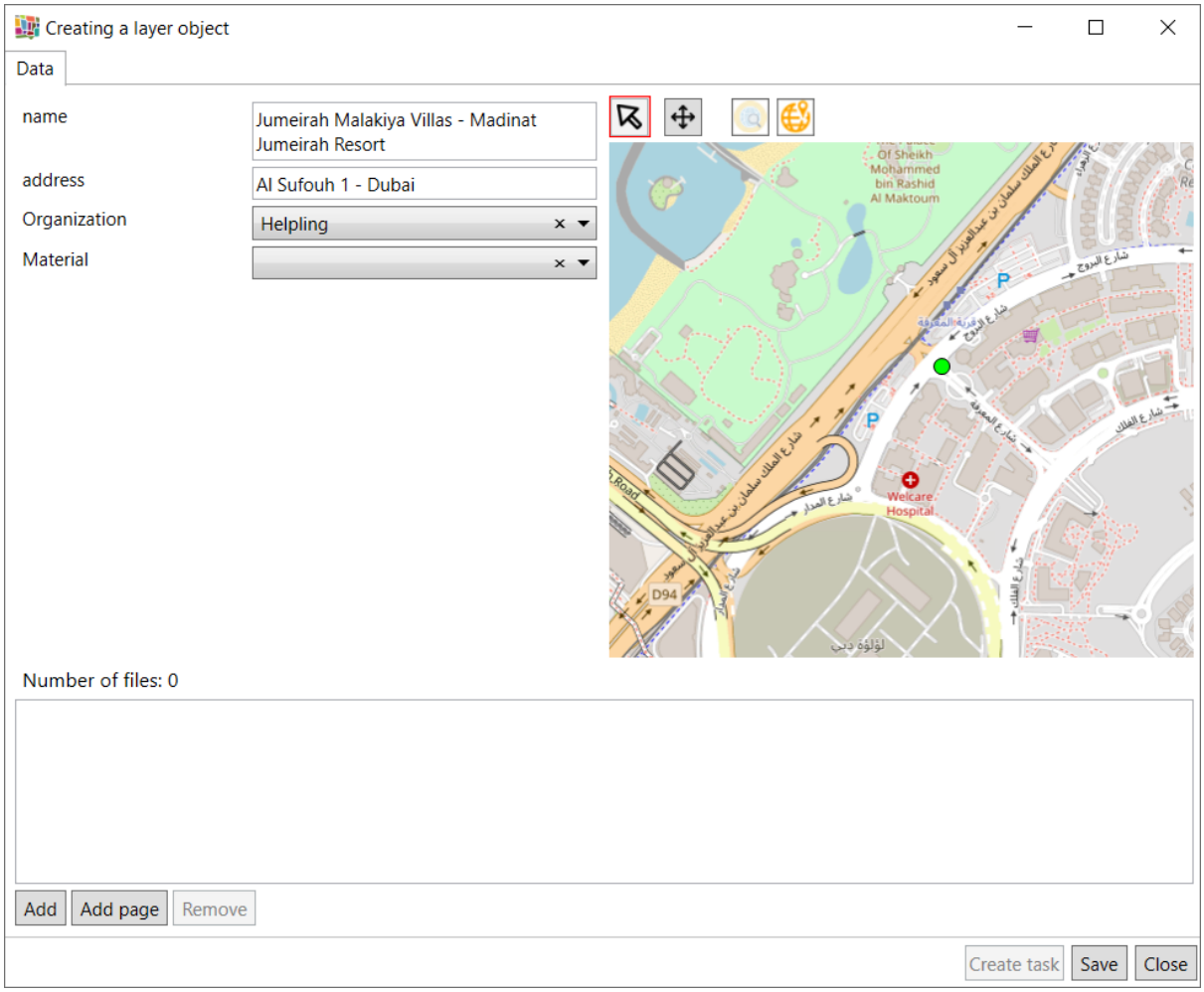


Fig. 2.102: Service object creation window

In the creation window, you have to:

1. Fill in the available fields (including the object name). Enter or select from the table or dropdown list, if data tables or ordinary/system reference tables are attached to the layer (for more information, see *Data tables and reference tables (dictionaries)* (page 82) section).
2. Mark/edit the object position on the map, or enter the coordinates of the object manually by clicking the button.
3. If necessary, you can attach files to the object, add links to pages (Fig. 2.103). You can add files by dragging them from an open folder.

Fig. 2.103: Adding a page

To complete the creation, click “Save”. The created object appears in the table and on the map in the service objects layer window.

Mass creation of new service objects

Mass loading of objects can be done either by creating a new table or into an existing service object layer. You can import both previously saved layer templates and original object data files. To save the layer template, go to the “Import” section of the service object layer window, to the “Save template with examples” tab. A window for saving the template opens. Fill in and save the received template. All standard file selection or save windows remember the path so that you can reopen the same folder.

To bulk upload objects to a new table, go to the “Service objects” tab in the main program window. Select the “Import from MS Excel” tab and choose the desired *.xlsx file. A window with table creation settings opens (Fig. 2.104). By default, the Program defines a worksheet from which data is imported, as well as the range to be loaded. You can specify another range (the first row must be the header) and click “Recalculate”.

Next, in the preview window, match the file columns with the data type in the column and, if available, select the field with the address or geometry (with geographic coordinates):

- get coordinates by address (for point objects) — select a field in address format for further automatic geocoding;
- select a column in GeoJson format (for point, line, and polygon objects);
- select the combined field of latitude and longitude (for point objects) – coordinates should be separated by comma, with the integer part of the coordinates separated by a dot.

You can use the same field both for specifying coordinates and for filling any layer field in the import window via MS Excel file. If you clear the type of data for a column by clicking the cross to the right of the data type name, the column will not be imported into the system.

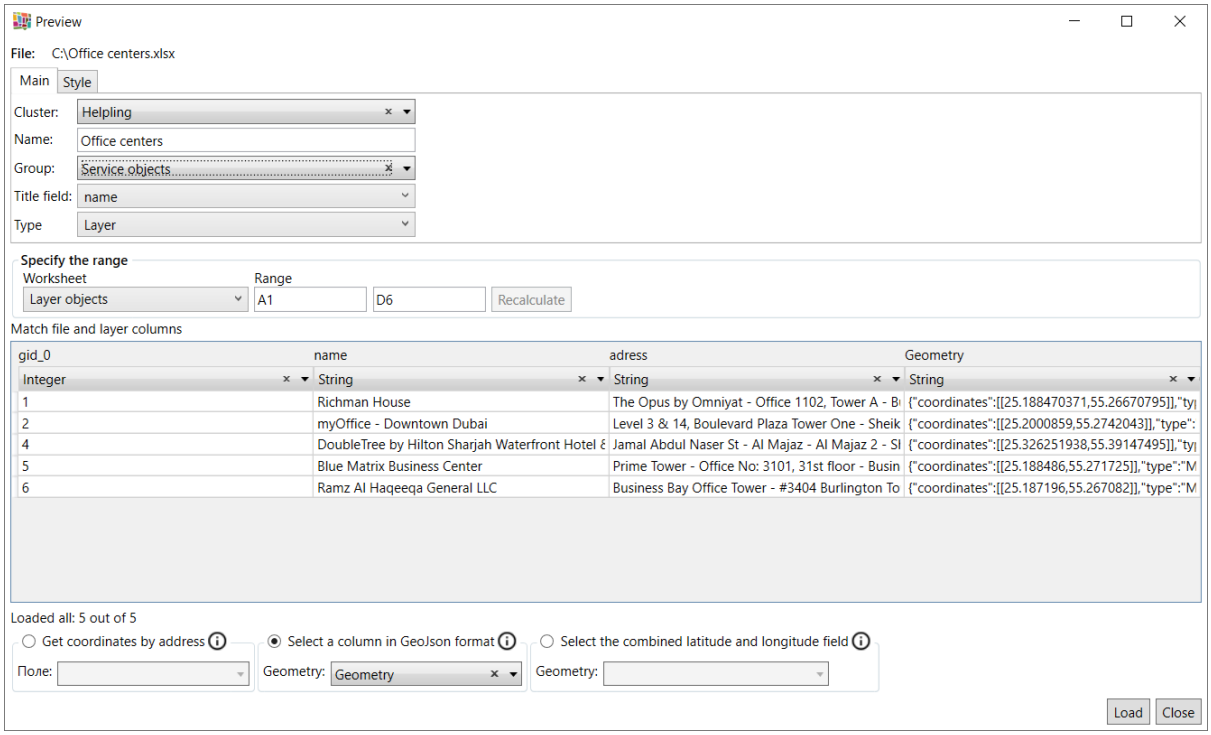


Fig. 2.104: Window with settings for importing a file into a new table, “Main” tab

The window contains 2 tabs: “Main” and “Style”. In the “Main” tab, specify the name of the table being created and the header field, as well as determine the cluster and group to which it belongs. By default, the table name is taken from the MS Excel file name, and the first field with the “String” type is used as the header. You can change the default values.

In the “Style” tab (Fig. 2.105) you can select geometry type (point, line, polygon) and style of displaying objects on the map (for point objects: geometric symbols shape, size, transparency, main symbol, and stroke color; for linear: transparency, thickness, main line, and stroke color; for polygonal: transparency, main figure, and stroke color).

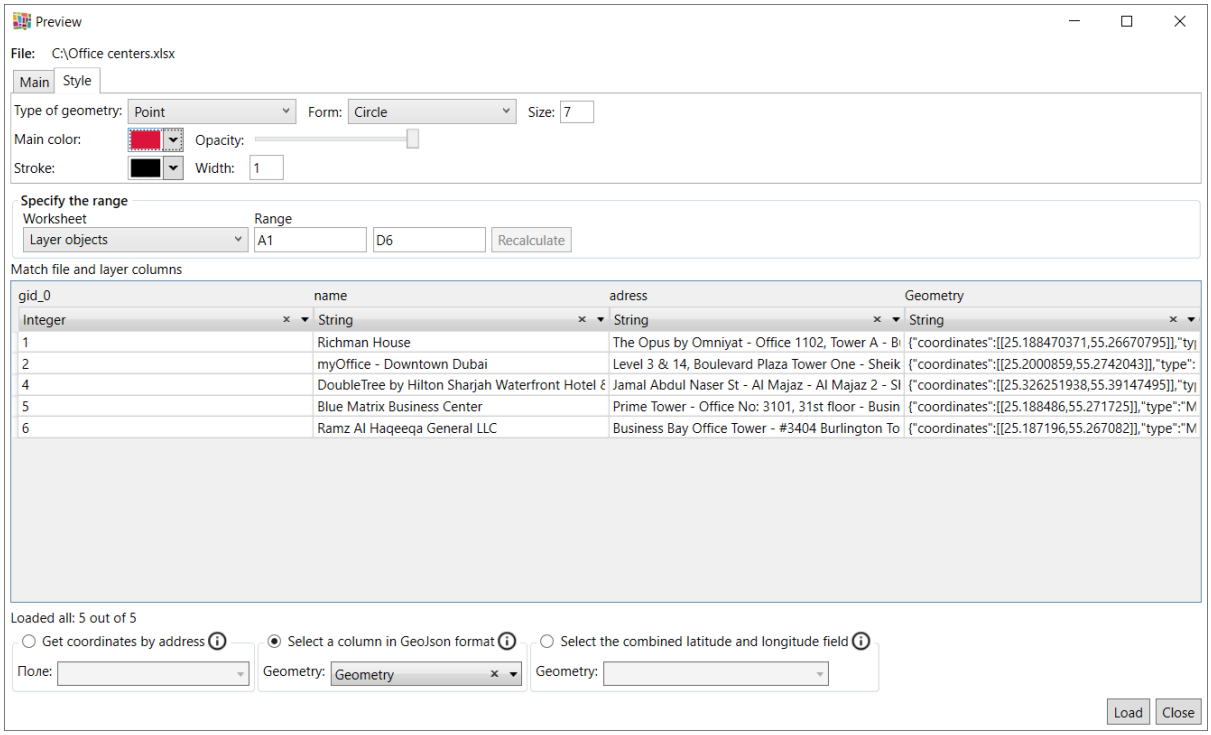


Fig. 2.105: Window with settings for importing a file into a new table, “Style” tab

After all the values are selected, click “Load” to start the import or “Close” to cancel. If the “Load” button is not active, a message appears at the bottom of the window indicating the reasons for the blocked state of the button. This message appears in the “Import/Update Tasks”, “Import Excel Table”, and “Import/Update Objects” windows. Import is not possible if the layer group is not specified (Fig. 2.106), or if there are multiple fields with the same names in the imported table.

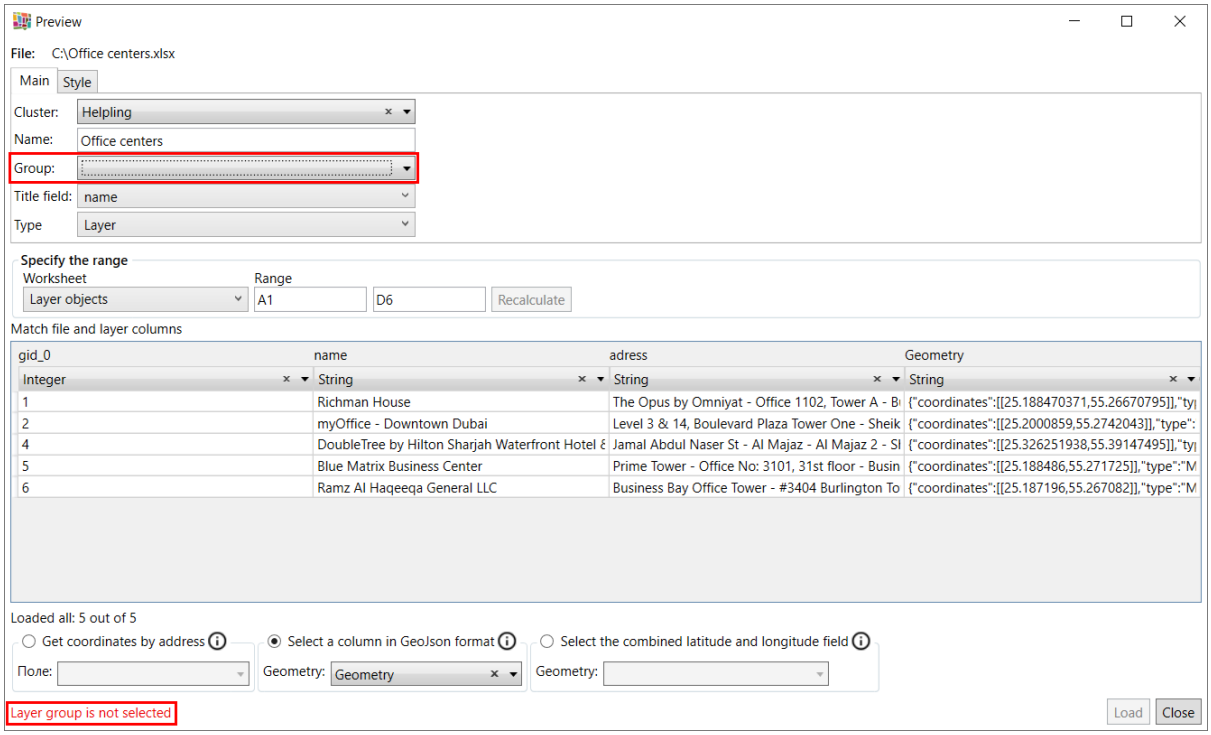


Fig. 2.106: Import error – layer group not selected

After a successful import, the name of the new layer appears in the “Service Objects” tab. Field mappings between the object and the task are automatically set up for this layer. The task header is taken from the layer header. The object coordinates are copied into the task. Other field mappings are configured separately. The current user uploaded the table has full rights to view, edit, and manage the table. Default viewing rights for all user roles are also provided.

To mass load objects into an existing service object layer, open the layer window, go to “Import” section, “Import objects from MS Excel” tab and select the *.xlsx file of interest. A preview window opens with file import settings (Fig. 2.107). Here you can specify sheets and cell range to be imported, match file and layer columns, and select a field with an address for automatic geocoding or geometry in one of the following formats: GeoJson (for point, line, and polygonal objects), merged field or separate latitude and longitude fields (for point objects).

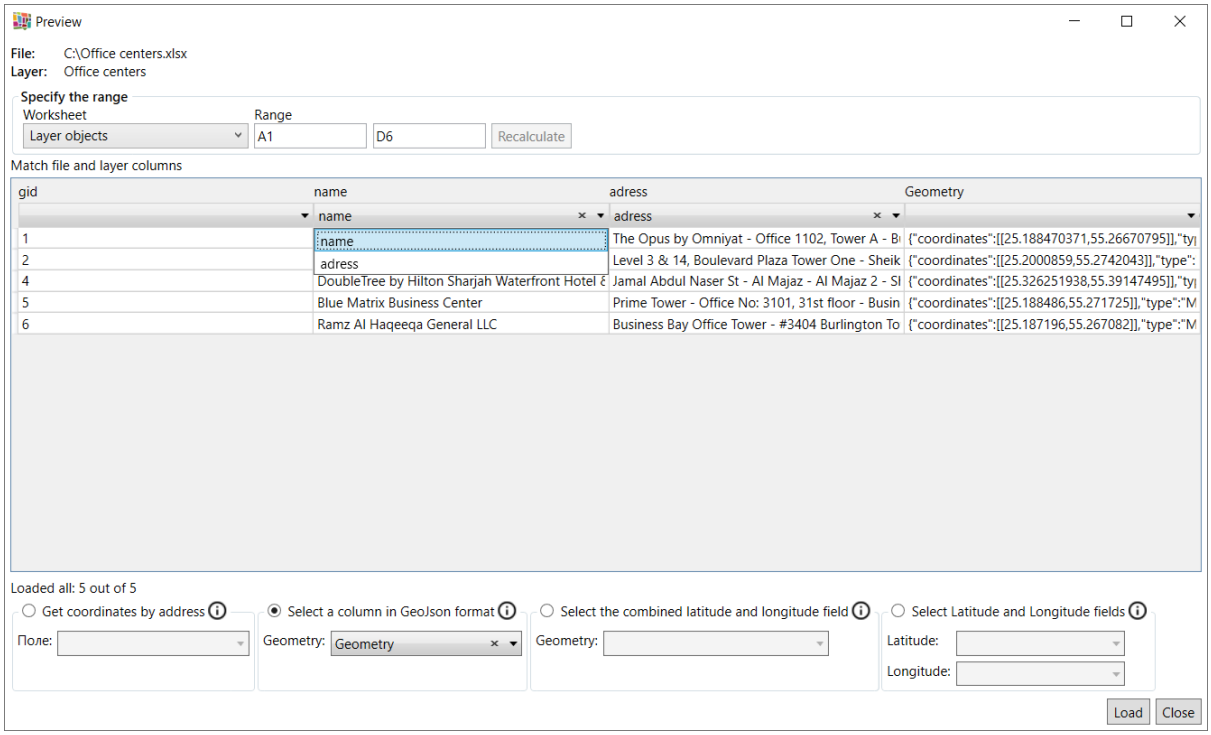


Fig. 2.107: Window with settings for importing a file into an existing layer

If the column names in the file and layer match, the program automatically maps them. You can edit it manually. After specifying all the settings, click “Load” to start importing the file. The uploaded objects appear in the service object window. To cancel the import, click ‘Close’.

Important: Column headers are read from the first row of the imported *.xlsx file. The presence of headers is necessary for import.

> **Warning:** Before starting to load data into ActiveMap Desktop you should close the imported file if it is open in external programs.

Copying existing service objects

To create a copy of an existing service object, select it in the object list or on the map. Then go to the “Options” section and select “Copy” in the current layer window (Fig. 2.108).

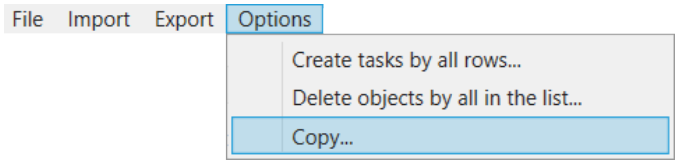


Fig. 2.108: Copying of service objects

A message appears confirming the copy of the object data (Fig. 2.109). You can also enable copying of files attached to the object here.

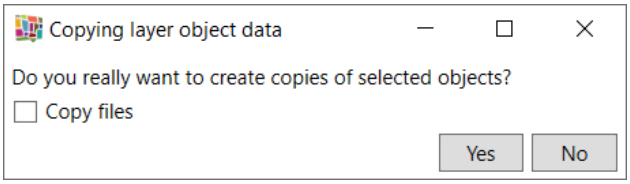


Fig. 2.109: Copying layer object data

After confirming the copy, a window for creating an object appears, where you can edit the attribute information, location, add new or delete previously attached files. To complete the copy, click “Save”. Click “Close” to cancel.

2.5.1.6 Editing service objects

To edit a service object, double-click on the object name in the list. The object editing window opens (Fig. 2.110).

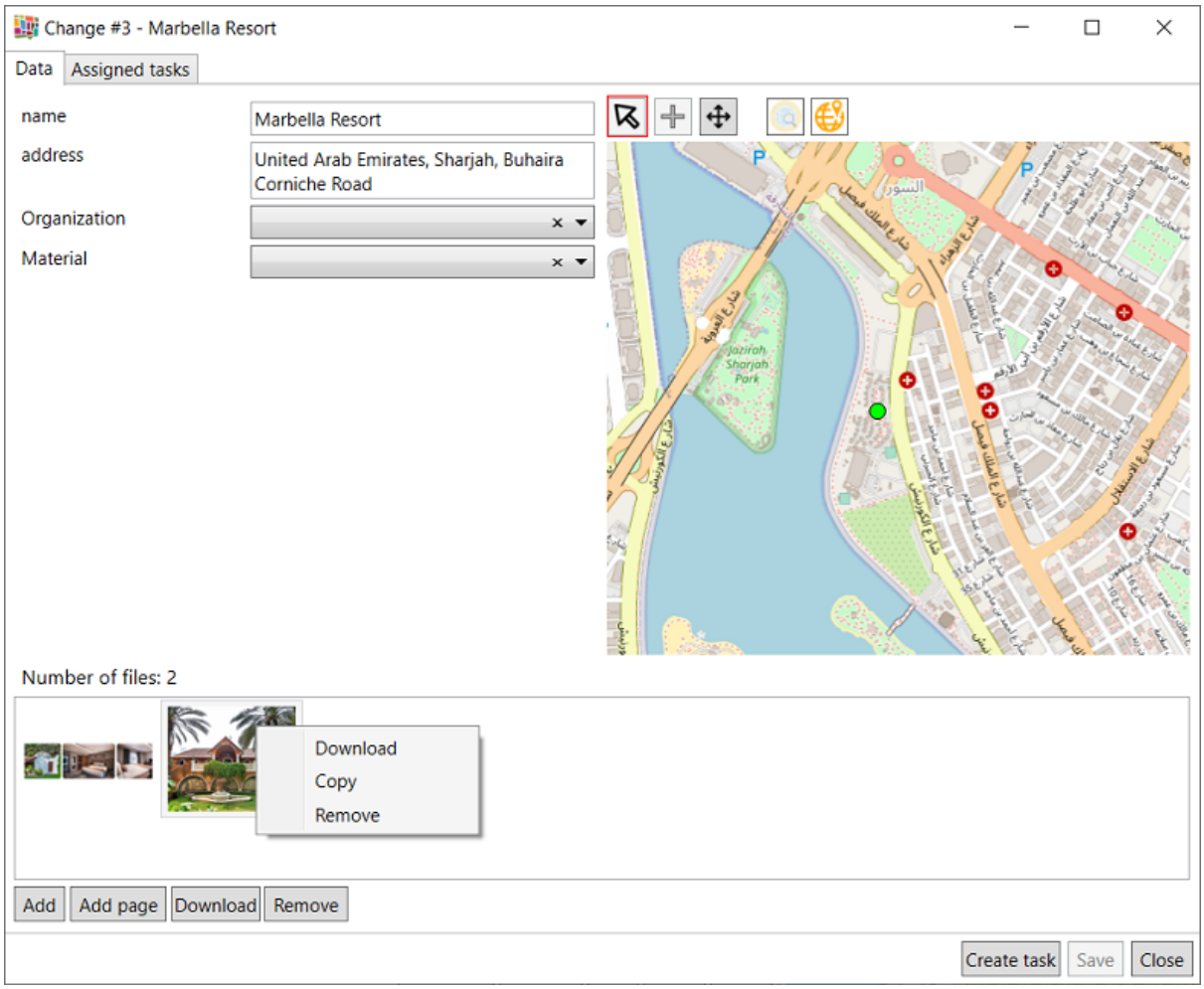


Fig. 2.110: Service object editing window, “Data” tab

The “Change” window contains the “Data” and “Assigned tasks” tabs. In addition to these, there may be tabs with the name of related layers.

In the “Data” tab, you can edit the attribute data, geoposition of the object (by marking on the map or entering new coordinates in the specified field if they are not entered earlier), add a page, add, download or delete attached files using the context menu or buttons at the bottom of the window. You can add files by dragging and dropping from an open folder. The “Download” and “Delete” buttons become active after selecting one or more files.

In the “Assigned tasks” tab, you can view and edit all tasks associated with a given service object (Fig. 2.111). To make the search easier, you can use the filters on the left side of the window.

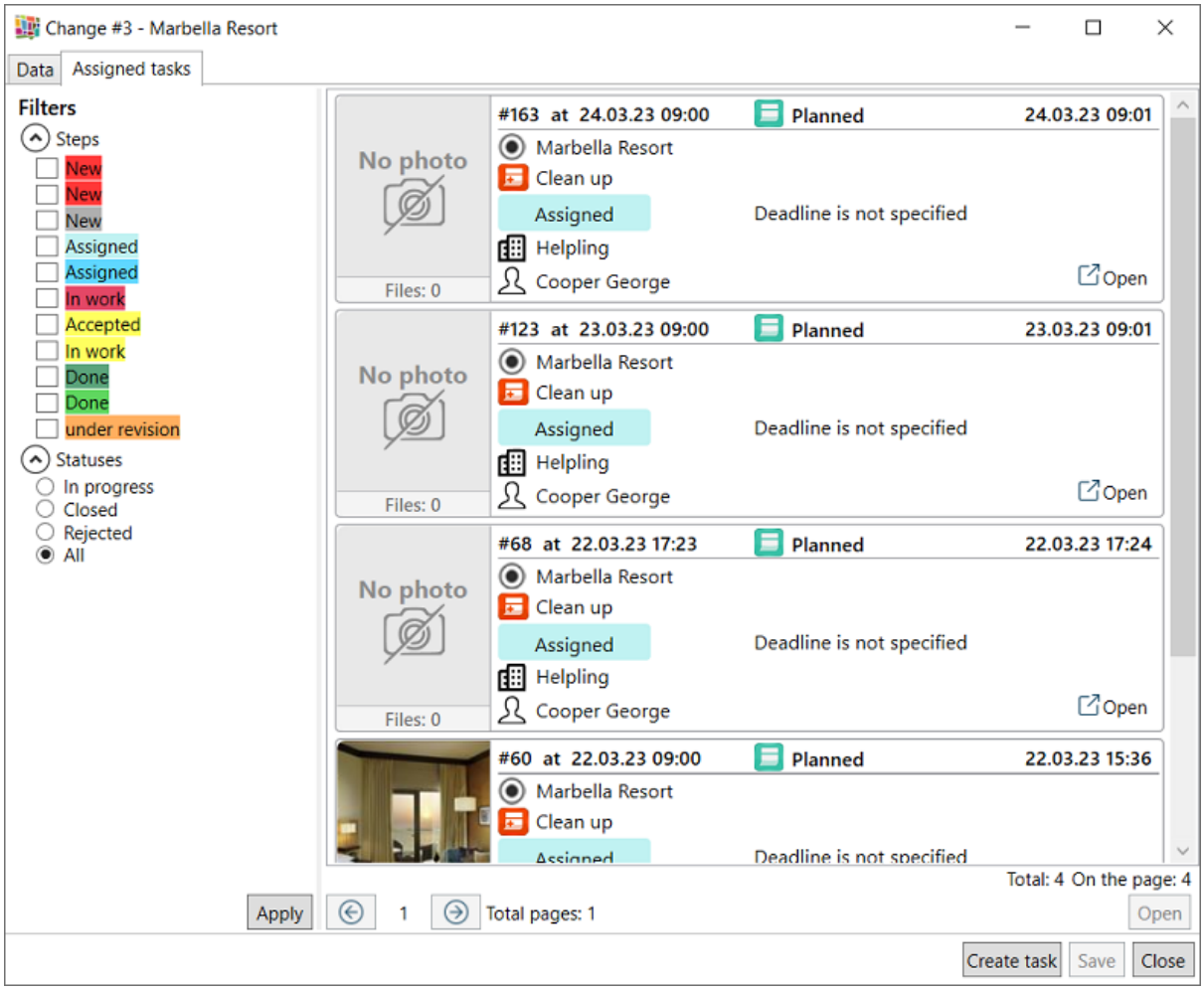


Fig. 2.111: Change service object window, “Assigned tasks” tab

If objects of the current (parent) layer are linked to the objects of another (child) layer, an additional tab with the name of the linked layer appears in the “Change” window. There can be several such layers (and tabs). An example of such linkage is the link between the pillar layer and the equipment layer located on those pillars, between the park layer and the bins placed in the park. The link between the layers is made by a field with data type “Layer” which is set up in ActiveMap Web and which is filled in when the object is created in the child layer. The tab with the name of the linked layer displays information about the linked object (Fig. 2.112).

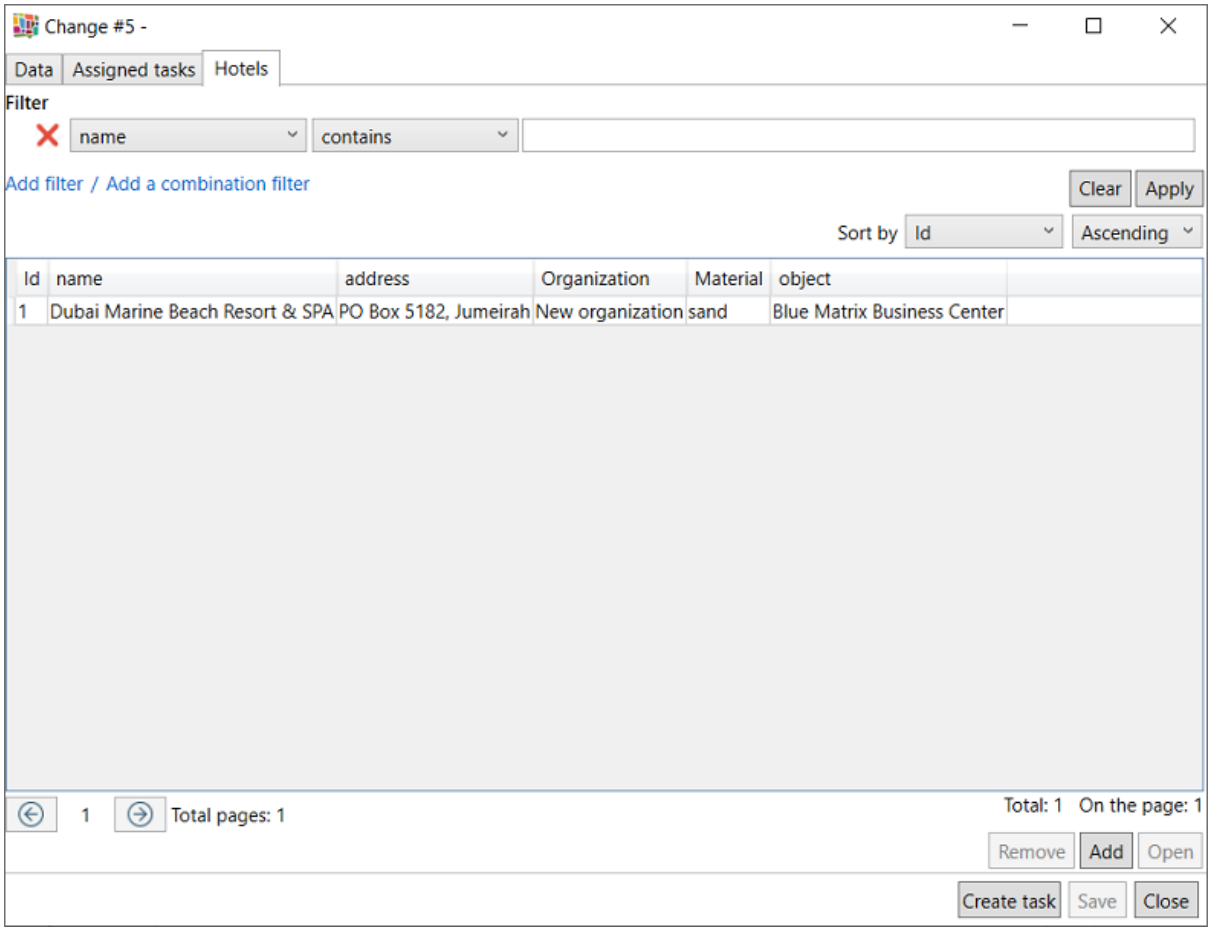


Fig. 2.112: Change service object window, tab with linked layer name

There can be several related objects. To facilitate the search among a large number of objects, you can use the filter.

The buttons common to all tabs of the window are:

- "Create task" – creating tasks with reference to the current service object (for more details, see *Creating tasks in the service object window* (page 119)).
- "Save" – saving the changes made to the service object.
- "Close" – closing the change window.

For mass editing of service objects, you need to:

1. Go to the "Export" menu section of the service objects window and select the "Export to MS Excel" item. A window opens to save the file.
2. Open and edit the file.
3. Go to the "Import" menu section of the service objects window, select the "Update objects from MS Excel" item and specify the edited file.

2.5.1.7 Deleting service objects

To delete a service object, select it in the list by clicking it or on the map by clicking the "Select on map" button , "Select with a rectangle on the map" button or "Select with a polygon on the map" button , and click "Delete" at the bottom of the window. You can select multiple objects in the list by using the "Ctrl" and "Shift" keys or the combination "Ctrl+A" to select all the objects in the list. After clicking "Delete," a warning message appears: "Do you really want to delete the selected record/selected objects"? Click "Yes" to delete, "No" to cancel.

2.5.2 Data tables and reference tables (dictionaries)

Working with a table view of a reference table or a data table is similar to working with a layer. To open it, find the table of interest in the "Layers and tables" window in the "Datatables" / "Dictionaries" tab (manually or using the search bar). Then double-click the highlighted line with the table name or click Open table (Fig. 2.113).

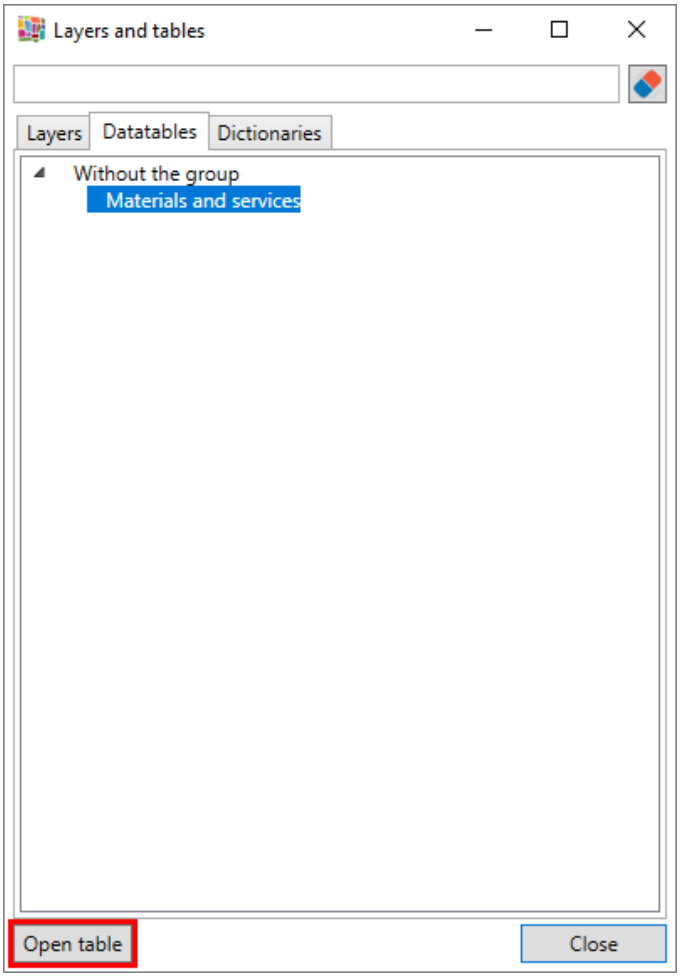


Fig. 2.113: "Layers and tables" window, "Datatables" tab

This opens a window (Fig. 2.114) that supports single record creation and editing, as well as data import and export. You can use the filter at the top of the window to select objects

by parameters.

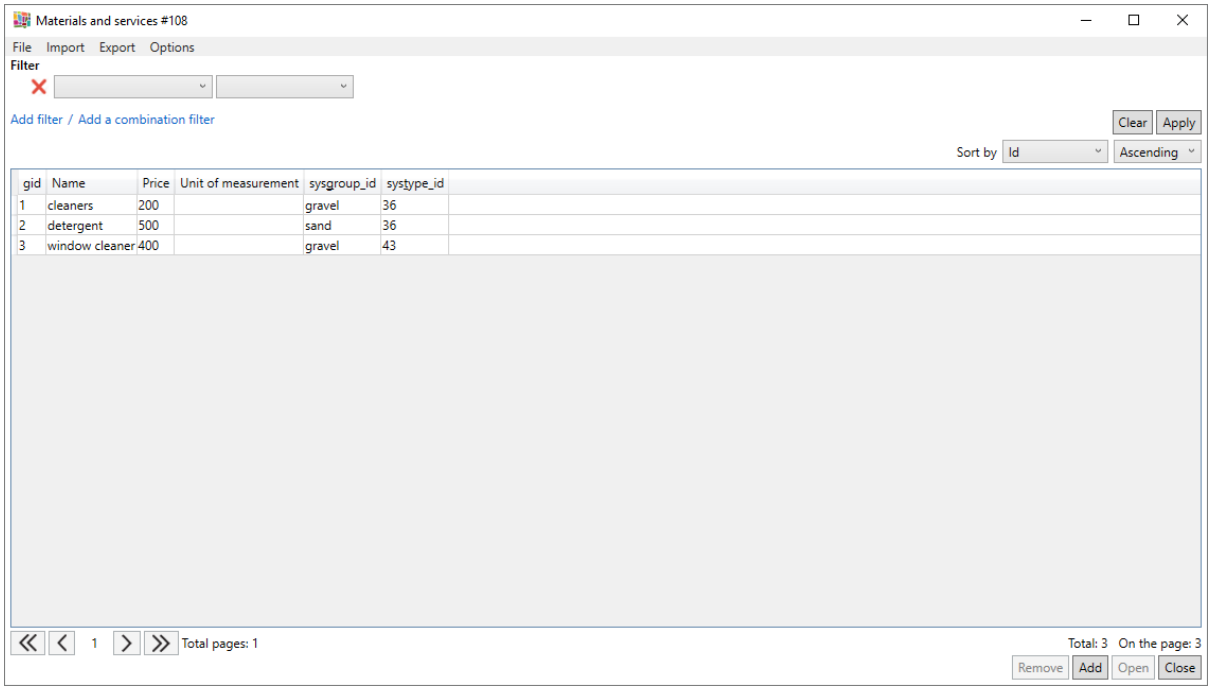


Fig. 2.114: Data table window

As a rule, data tables and dictionaries are associated with layers and are used to facilitate the filling of attribute information when creating/editing a layer object. You can create a table and set up a link to a layer in ActiveMap Web. Use ActiveMap Desktop and MapEditor to edit the values of a table and fill in the layer attributes.

To fill in layer attributes with a configured link to a data table, click (Fig. 2.115). Select the required value in the opened table, click (Fig. 2.116), and save the changes in the object window.

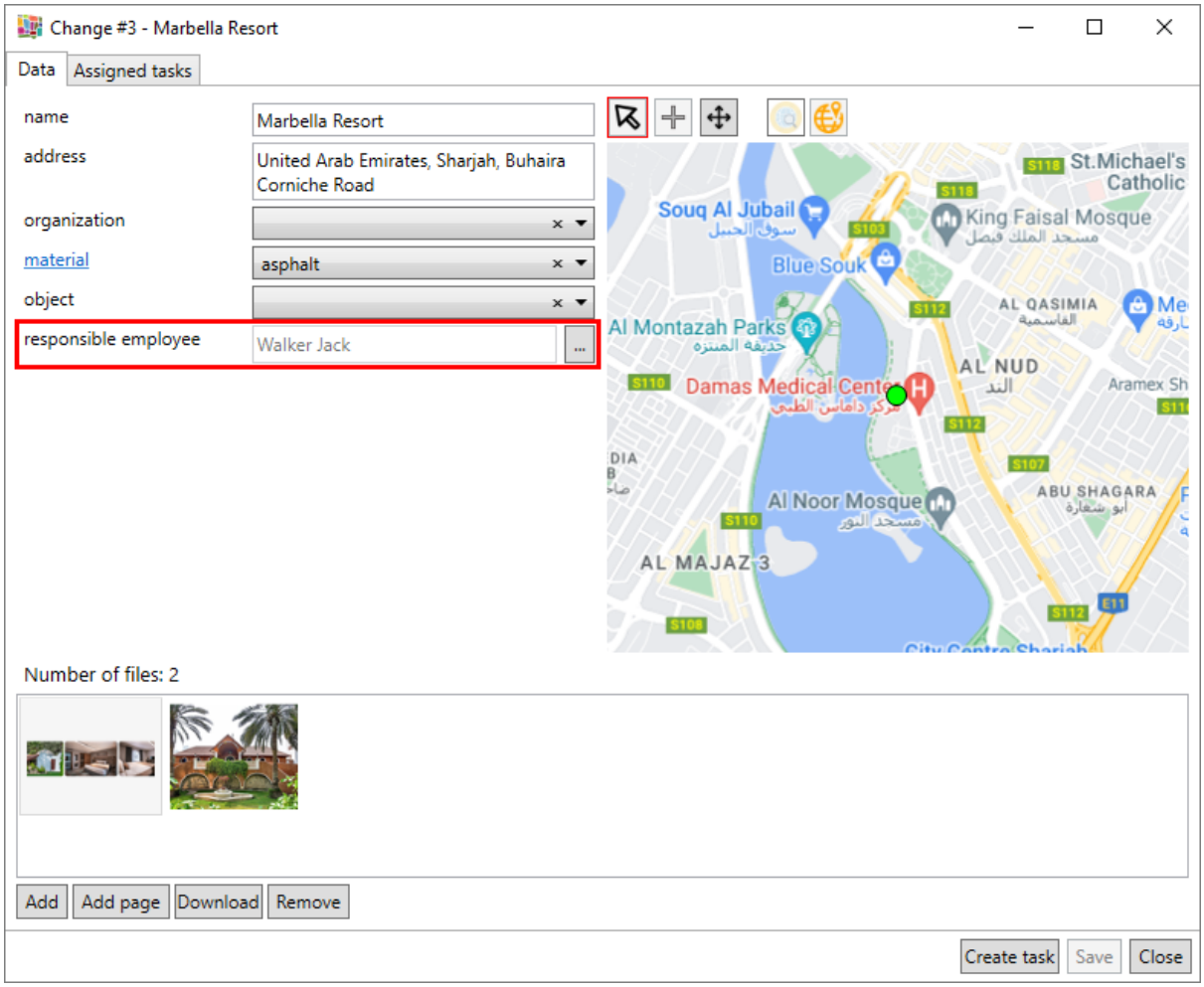


Fig. 2.115: Filling the attribute value associated with the data table

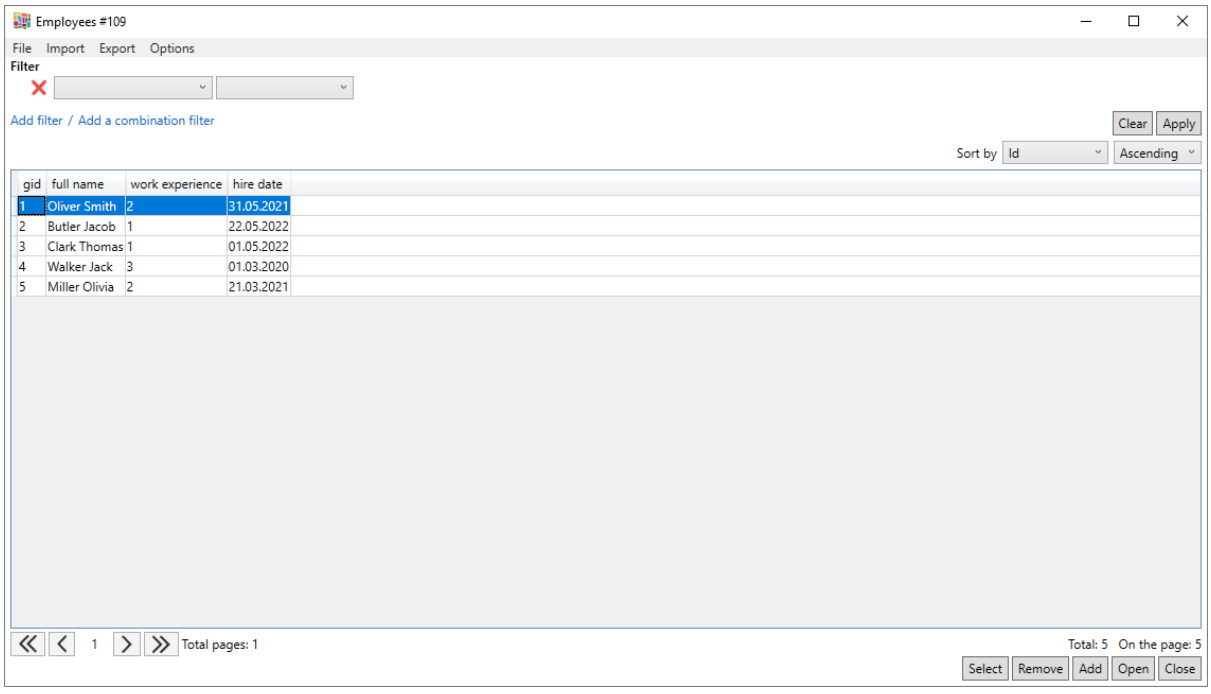


Fig. 2.116: Selecting a value from a linked data table

To view information about the selected object of the linked data table, click Open. In the opened window, a tab with the name of the associated layer(s) is available. Clicking on it displays a list of objects that use the selected value (Fig. 2.117).

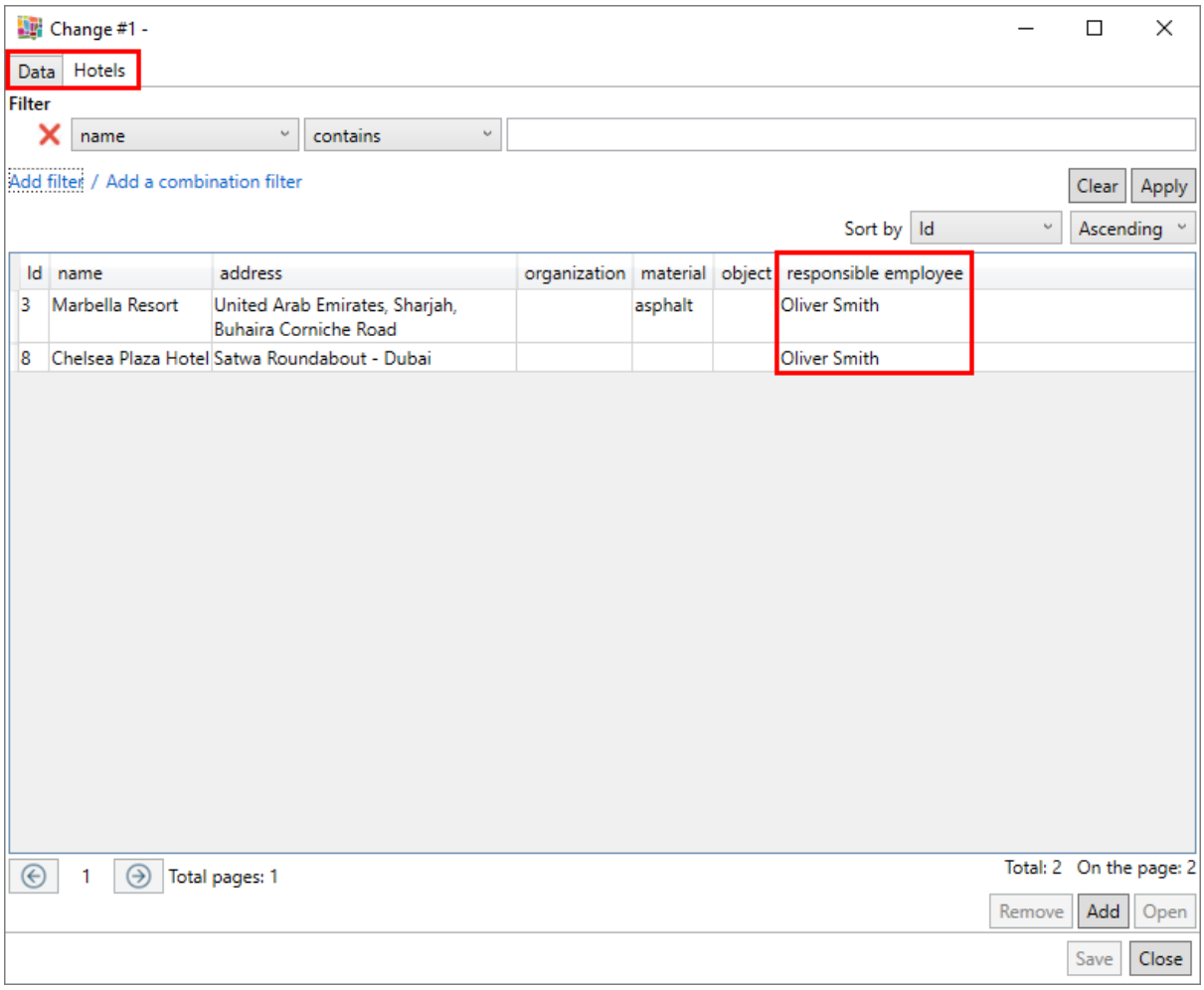


Fig. 2.117: Linked data table object window

When an attribute is linked to a reference table (ordinary or system), select a value from the drop-down list and then save the changes in the object window (Fig. 2.118).

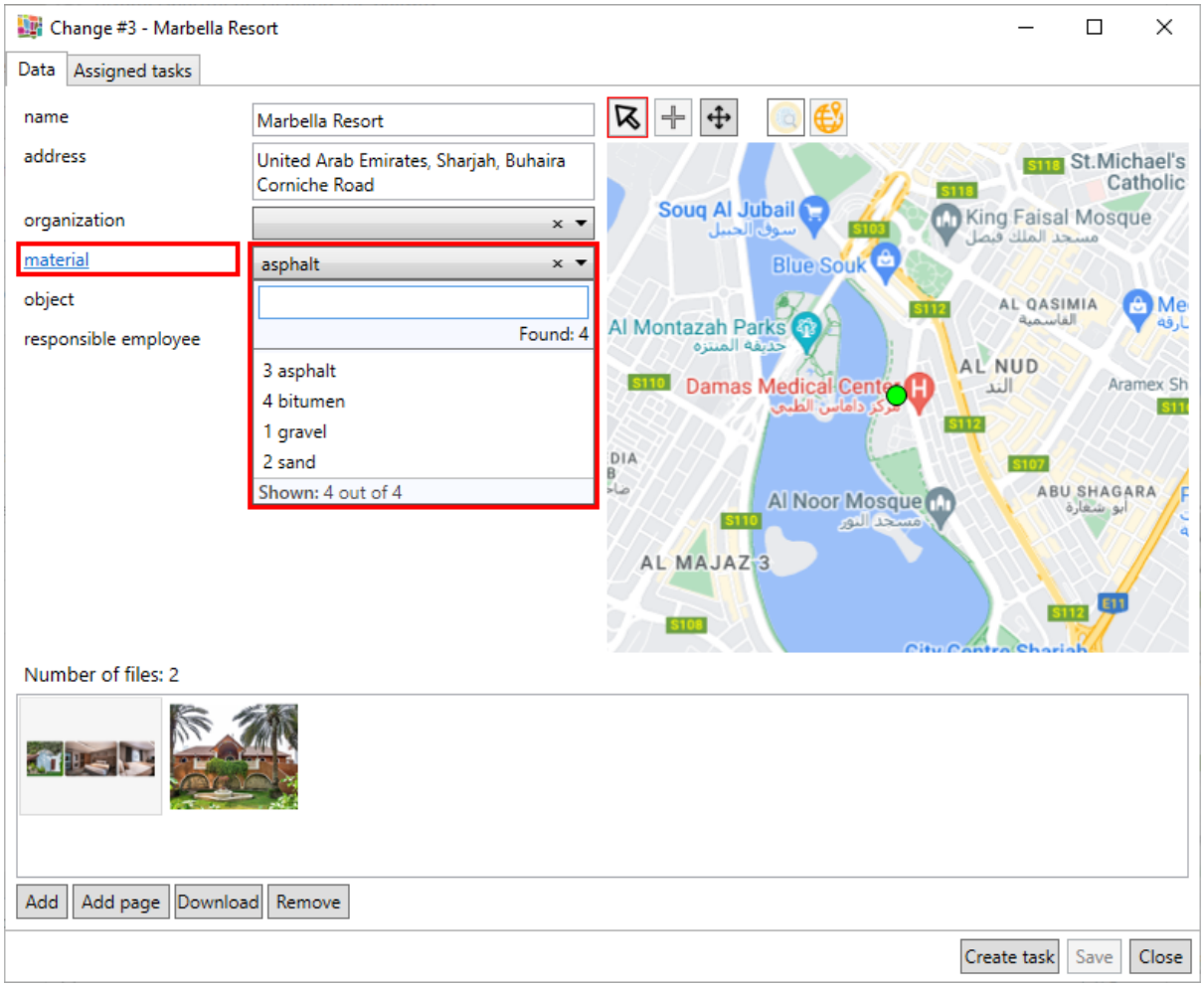


Fig. 2.118: Selecting a value from a reference table (dictionary)

If an ordinary reference table is used, you can follow the link of this attribute (this option is not available for a system reference table). The window of the value selected in the reference table is displayed, as well as a tab with the name of the linked layer (or layers). The tab contains a list of objects of this layer that use the selected value (Fig. 2.119).

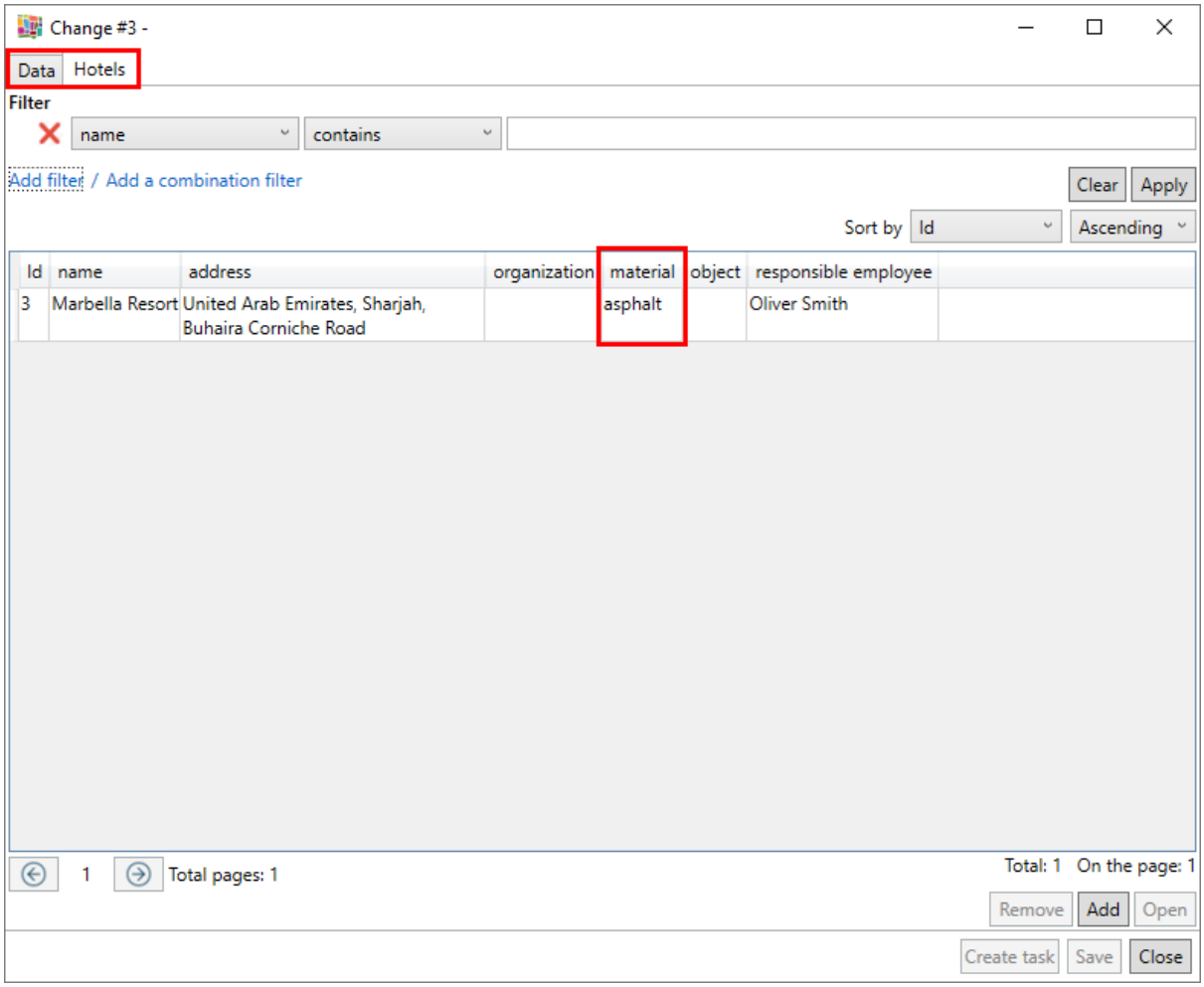


Fig. 2.119: Reference table object window

2.6 Viewing and editing task information

The ability to edit tasks created on the server depends on the user's role in the Program. Most users have limited editing capabilities and can only edit certain task parameters (for example, change the execution step, add media files and comments).

You can view information on an individual task and edit it in the following ways:

1. Enter the task number in the search bar and double-click the task preview (Fig. 2.120). A separate task window opens (Fig. 2.121).

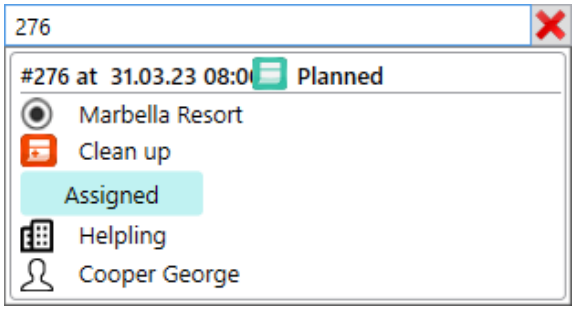


Fig. 2.120: Task search and preview

2. Click Open in the task list area to open a separate window for viewing and editing the task (Fig. 2.121).

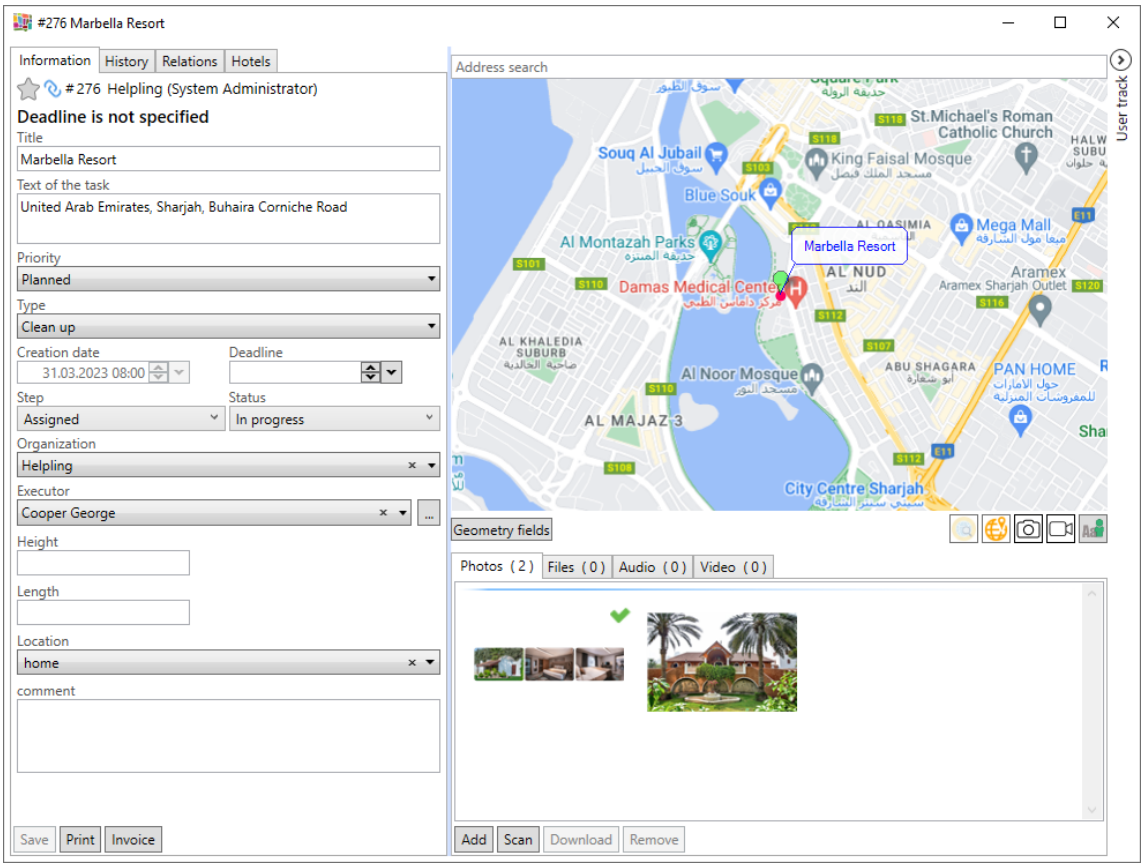


Fig. 2.121: View detailed task information in a separate window

3. Double-click the task icon on the map to open a separate window for viewing and editing the task, similar to Fig. 2.121. Details on working with the task map are described in the *Task map* (page 96) section.

4. Select a task in the task list area by clicking. You can see the task information on the right side of the Program screen in the "Task Information" panel (Fig. 2.122).

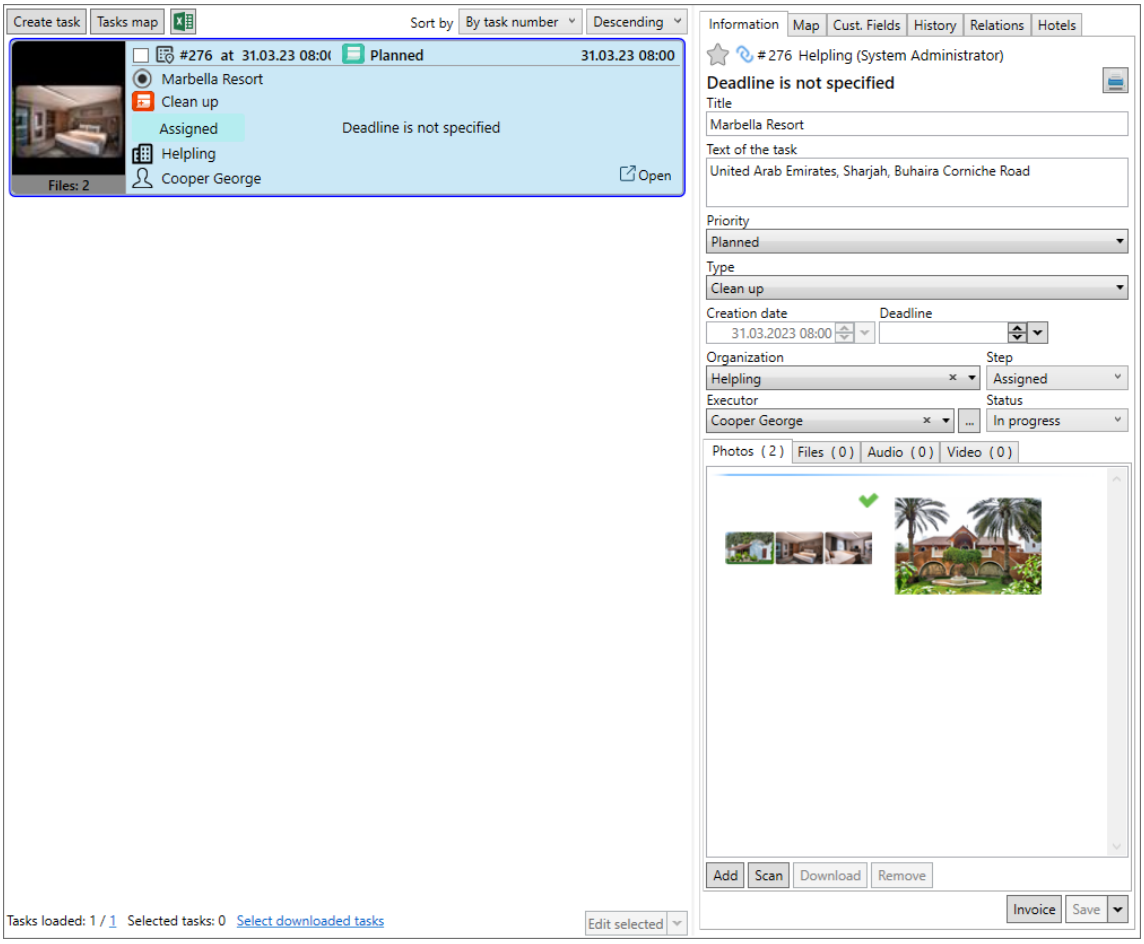


Fig. 2.122: Viewing detailed information about a task on the "Task Information" panel

See more about "Task Information" panel in the *Task information panel* (page 31) section.

Only this method (unlike the previous ones) allows you to get a link to the task and delete it.

2.7 Operations on selected tasks

2.7.1 Task list

When one or more tasks are selected in the task list area (marked in a checkbox), buttons for performing various operations on the selection become active in the lower right corner of the list area. Clicking the "**Edit selected**" button opens a window where you can modify the main and the custom fields of the task (Fig. 2.123). Checkboxes next to the editable parameters activate drop-down lists with possible parameter values. After updating fields, you can see the corresponding record in the task history, even if this field is not available for a particular task, but it has been included in the update list during filtering.

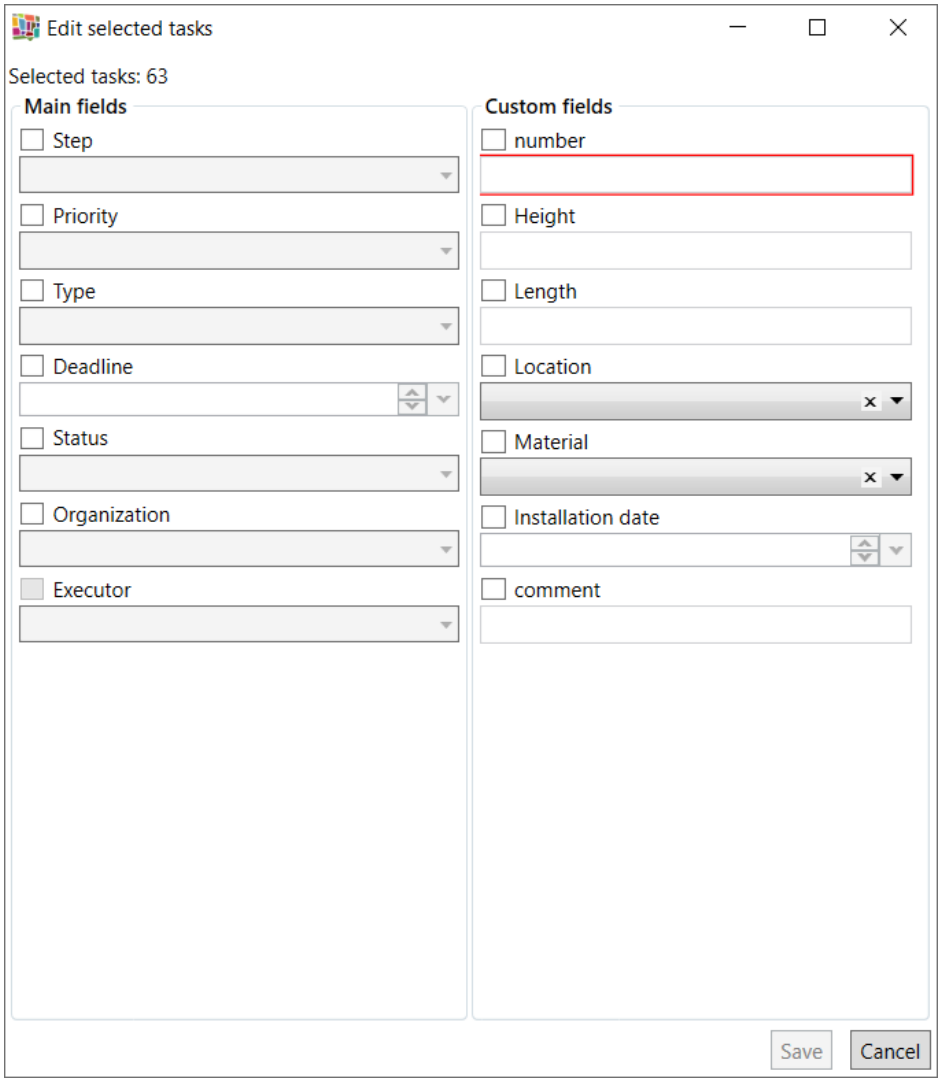


Fig. 2.123: "Edit selected tasks" window

Clicking the arrow to the right of the "Edit Selected" button displays a drop-down list with other operations (Fig. 2.124).

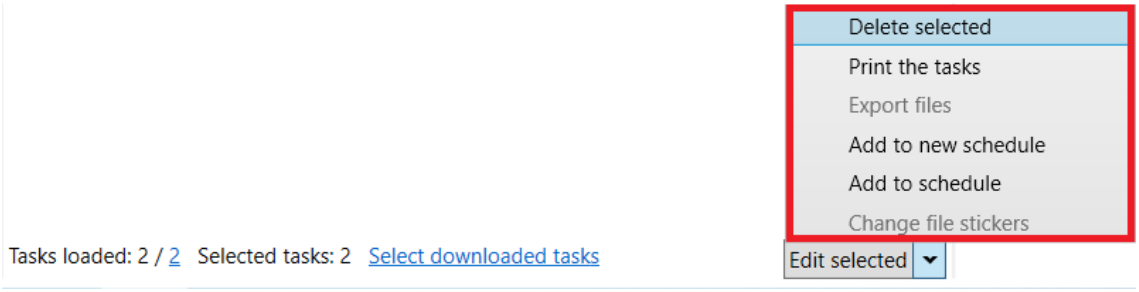


Fig. 2.124: Operations on selected tasks

- "**Delete selected**" – delete selected tasks.
- "**Print the tasks**" – generate a report file containing detailed information for each of the selected tasks. You can print the report or save it in any convenient format to a PC.

- "**Export files**" – upload files attached to the tasks. When you click the button, a window for browsing folders to save appears (Fig. 2.125).

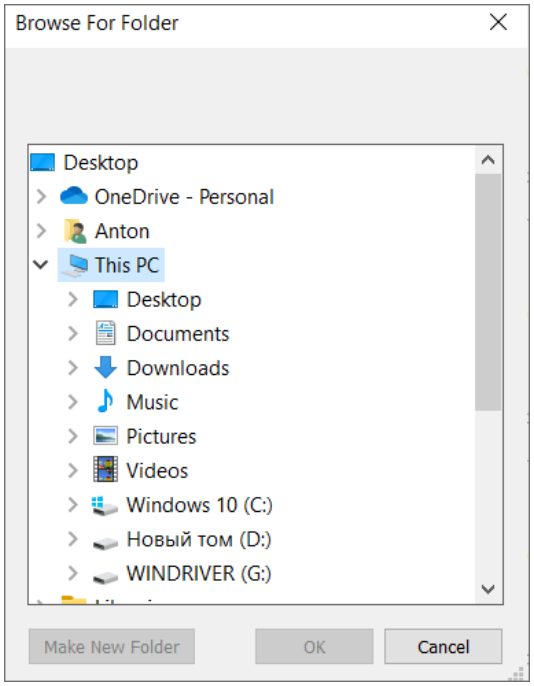


Fig. 2.125: Folder browsing window

After selecting a folder, the task file grouping window opens. By default, files are grouped and saved in folders with the number and name of the task (Fig. 2.126). In the preview window, you can see the full paths of the files.

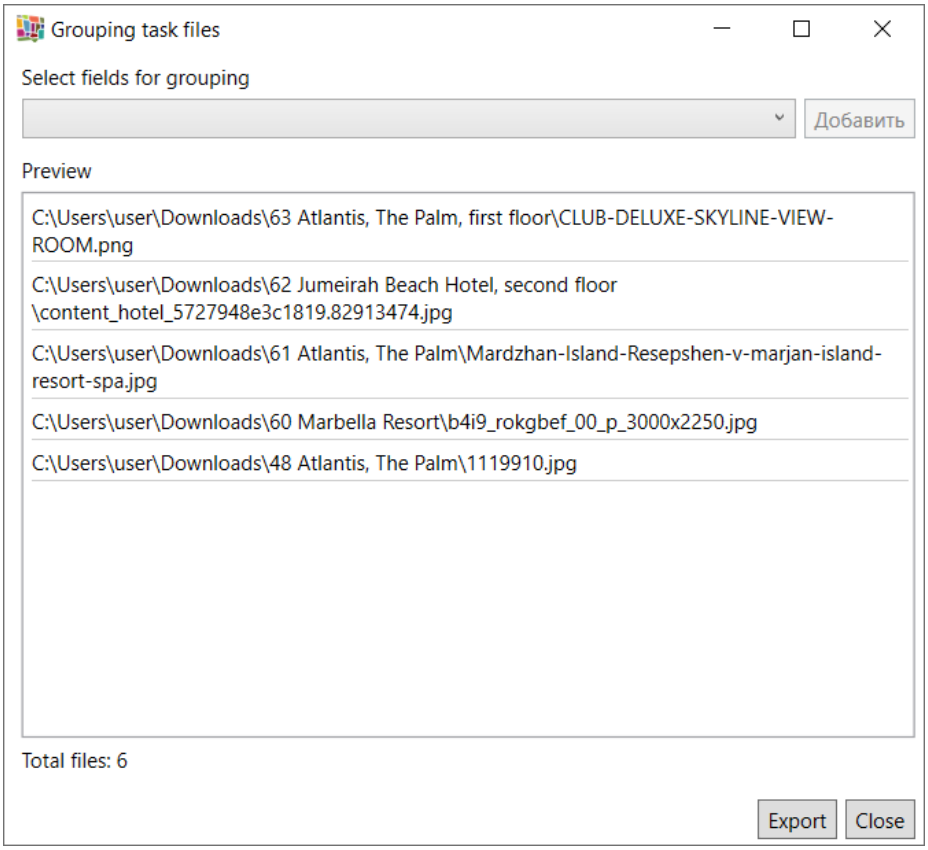


Fig. 2.126: Task file grouping window

You can specify additional grouping by one or more task fields from the drop-down list and by stickers. This allows you to create a more complex folder structure: folders with the name and number of tasks are stored inside the folders with names of field values for grouping (Fig. 2.127).

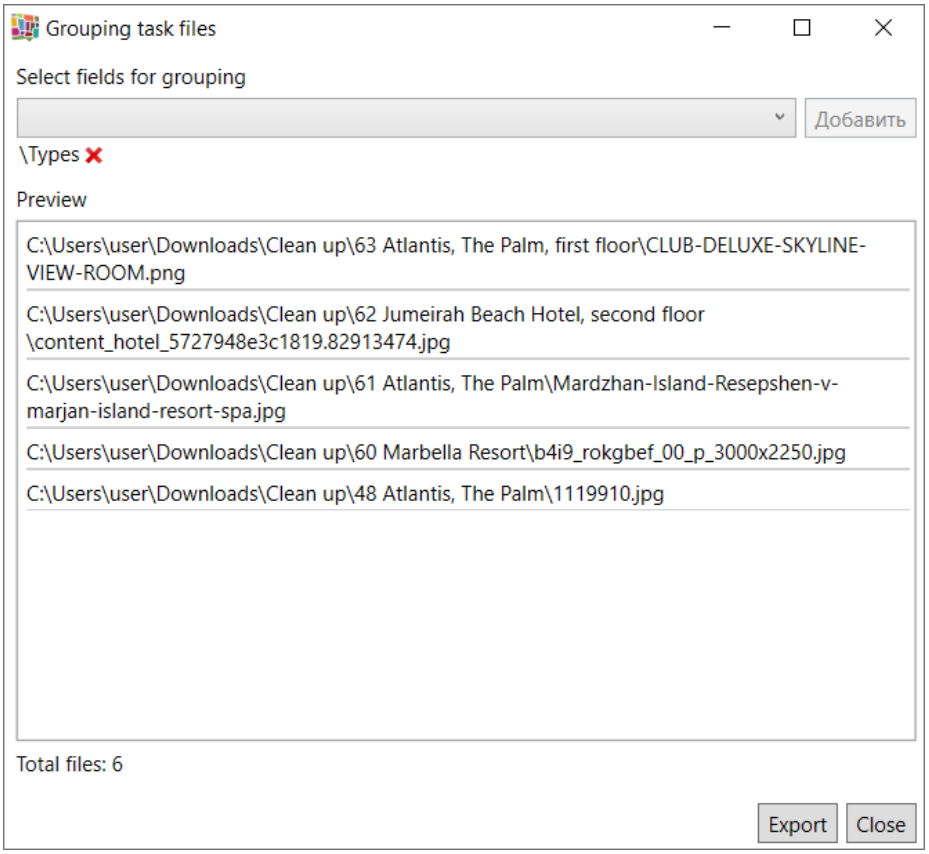


Fig. 2.127: Example of grouping task files by the “Types of work” field

- “**Add to new schedule**” – create a new schedule including the selected tasks as templates. Clicking the appropriate list item opens the “Schedule creation” window (Fig. 2.128). The creation of schedules is described in the *Adding tasks to a new schedule* (page 122) section.

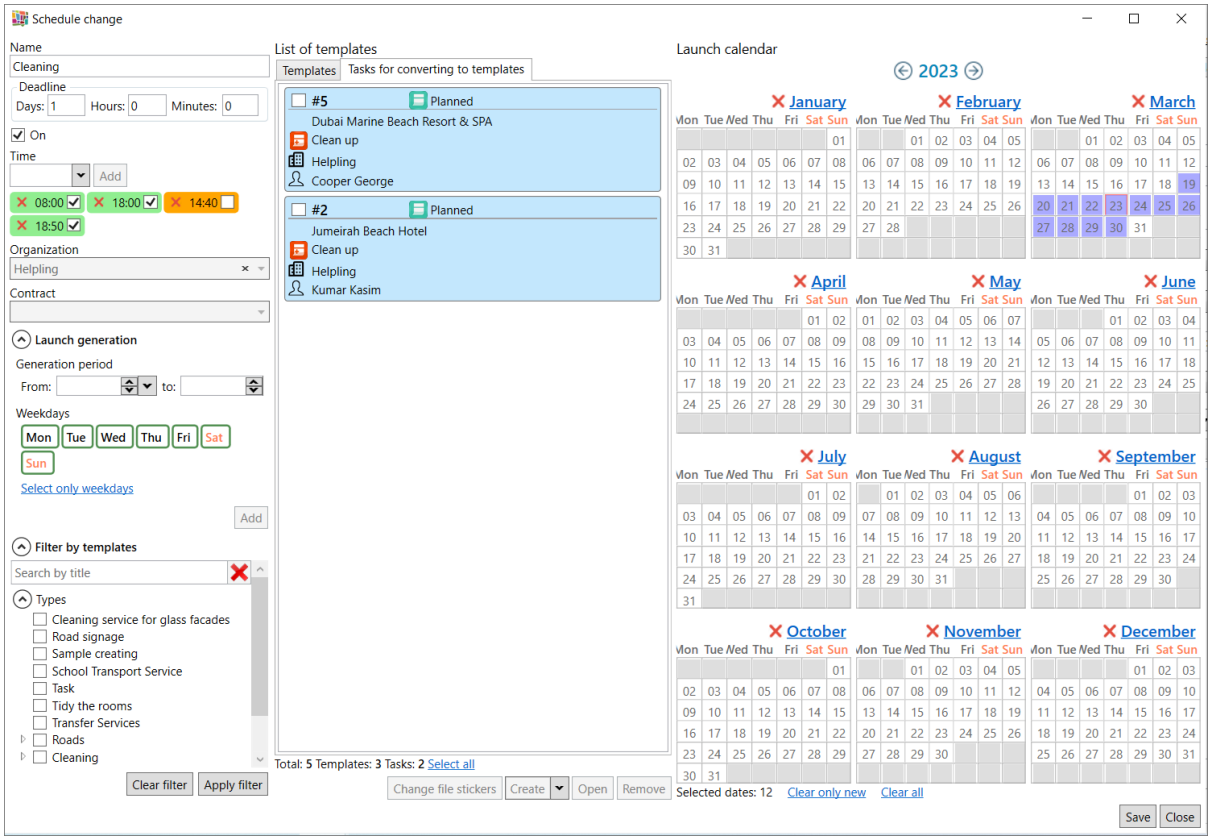


Fig. 2.128: “Schedule creation” window

- “**Add to schedule**” – add the selected tasks to the existing schedule. Clicking the button opens a window where you can select the schedule where the selected tasks are included (Fig. 2.129), for more information, see *Working with existing schedules* (page 124).

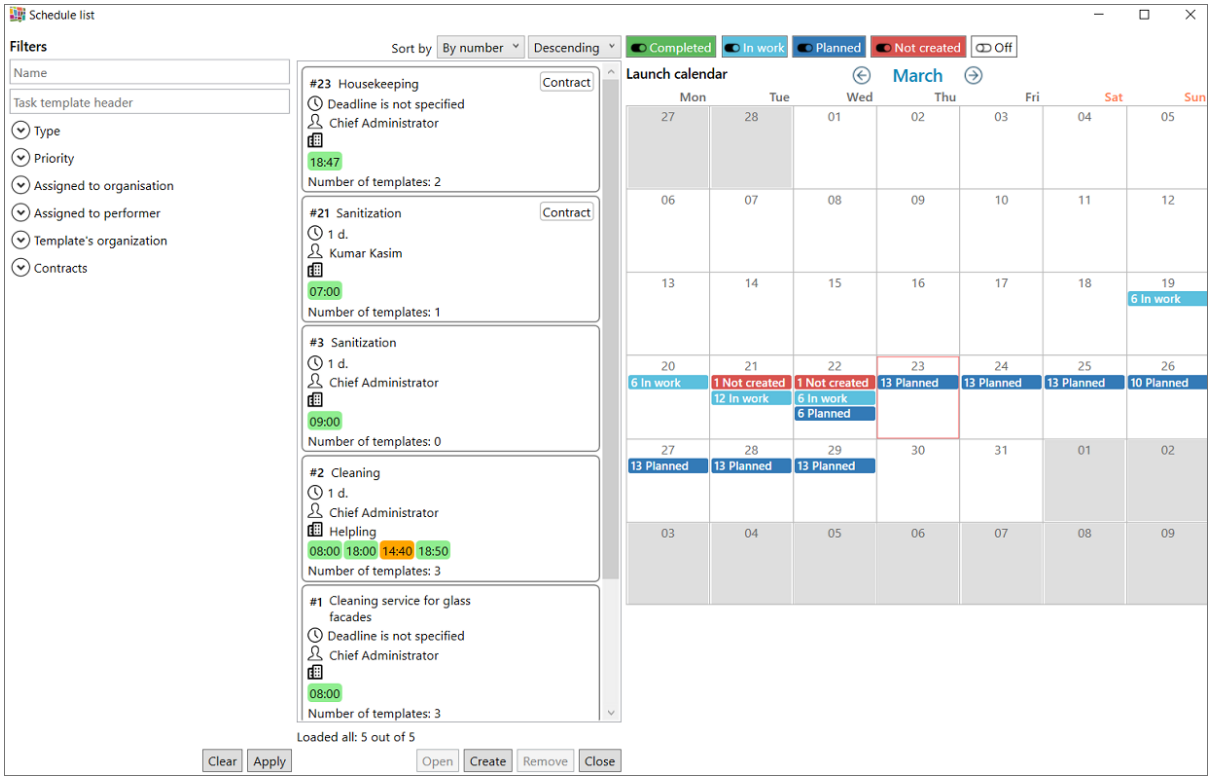


Fig. 2.129: Schedule list window

- "**Change file stickers**" – open a window for reassigning stickers, where you can select files with a sticker, assign a sticker to the marked file types (Fig. 2.130).

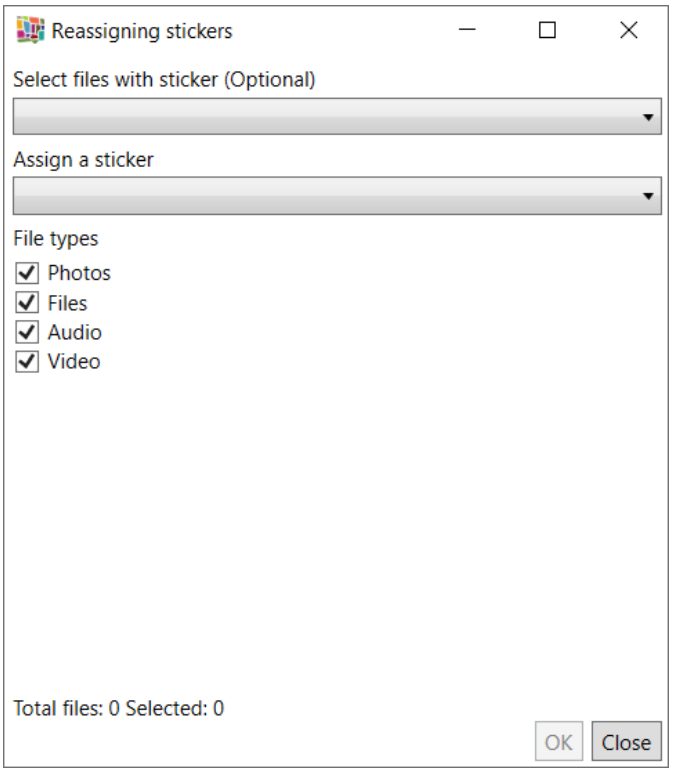


Fig. 2.130: "Reassigning stickers" window

2.7.2 Task map

To work with tasks on the map, use the “Tasks map” button located on the task list panel in the center of the Program screen. Clicking it opens the “Tasks map” window, displaying tasks, enabled layers and System users on the map as different colored symbols corresponding to the current status (Fig. 2.131).

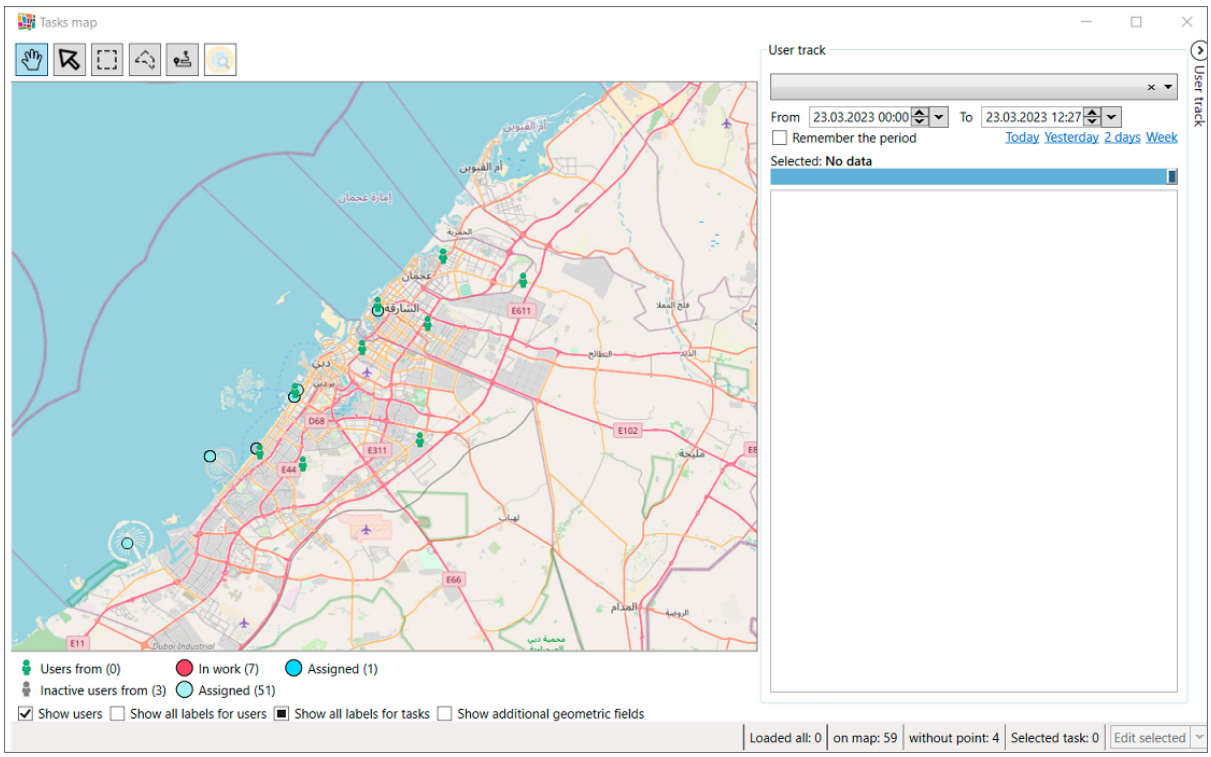


Fig. 2.131: “Tasks map” window

To display the user on the map, configure the movement monitoring in ActiveMap Web. In the right part of the window there is a user track panel, which allows you to monitor the movement of executors for a certain period. You can configure and remember this period to display it in the map window for all tasks.

In the upper left corner of the task window screen, there is a toolbar with the following buttons:

- – moving around the map;
- – point selection of tasks on the map;
- – selection of tasks on the map with a rectangle;
- – selection of tasks on the map by a polygon;
- – task execution order;
- – activating the mode of displaying information on the selected object, provided that the layer is enabled (Layers -> Select the required layer). The mode is described in detail in *“Map” tab* (page 42).

If you click the task selection button and double-click one of the tasks on the map, a window with the task information appears. When multiple tasks are selected on the map, buttons for operations on selections become active in the lower right corner of the window: “Edit selected”, “Delete selected”, “Print tasks”, “Export files”. They work similarly to the buttons described in the *Task list area* (page 26) section.

At the bottom of the window, you can enable/disable the display on the map of:

- users,
- user captions,
- task captions,
- custom geometric fields.

The following display options for captions are available:

- ☐ – task caption is not displayed;
- ■ – task caption is displayed at a scale of 20000;
- ☑ – task caption is displayed at any scale.

The order of execution is implemented by changing the deadline for completing tasks. To distribute the deadline for completing tasks, you have to:

1. Open the “Set deadlines” window (Fig. 2.132) by clicking the button.

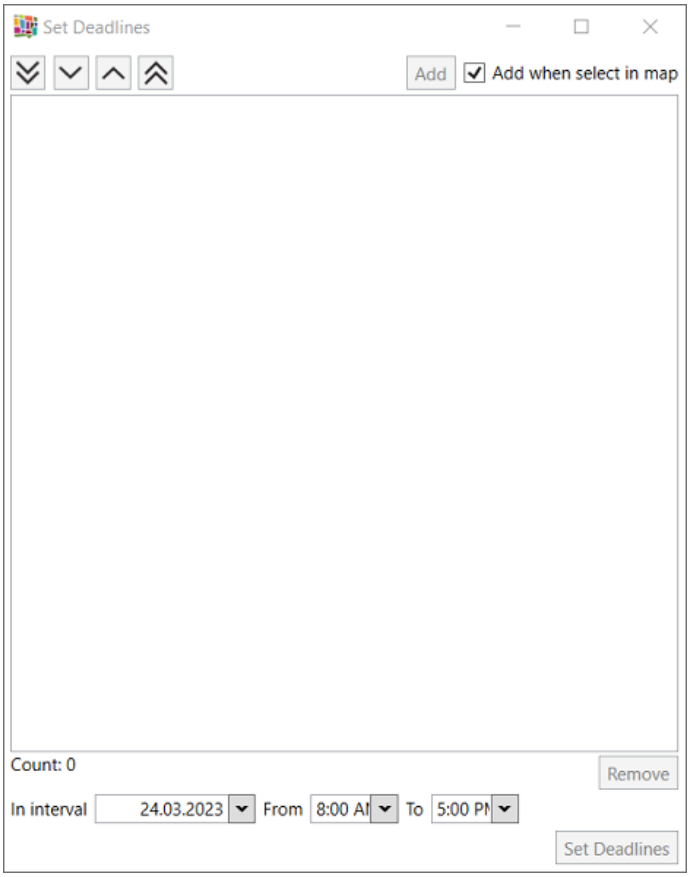


Fig. 2.132: “Set deadlines” window

2. Add tasks in one of the two ways described below:

2.1. Select multiple tasks on the map (Fig. 2.133).

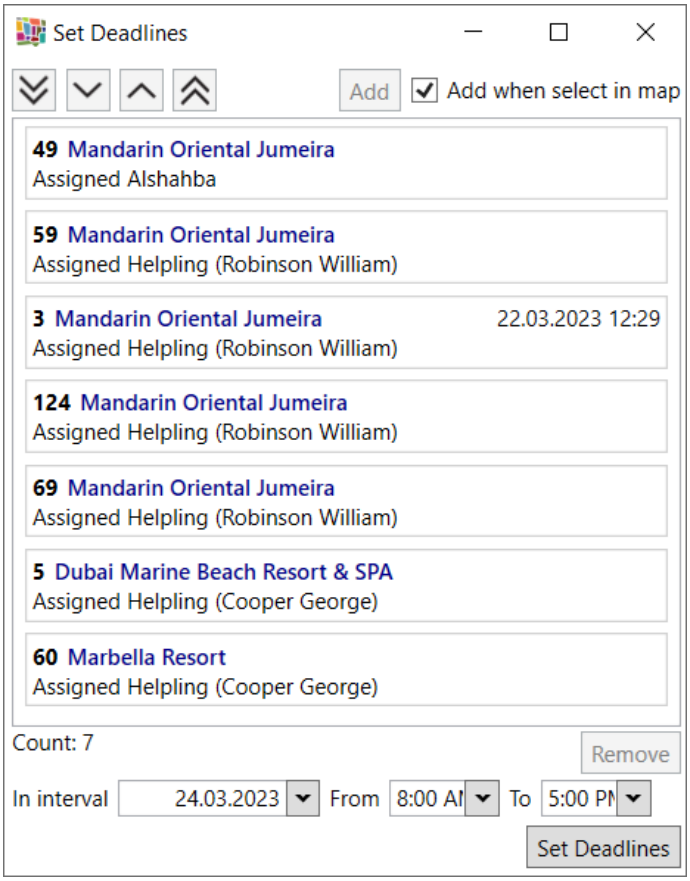


Fig. 2.133: Distribution of task execution order

2.2. Or add tasks from the Main window:

2.2.1. In the “Set deadlines” window, clear the checkbox “Add when selected in the map” (Fig. 2.134).

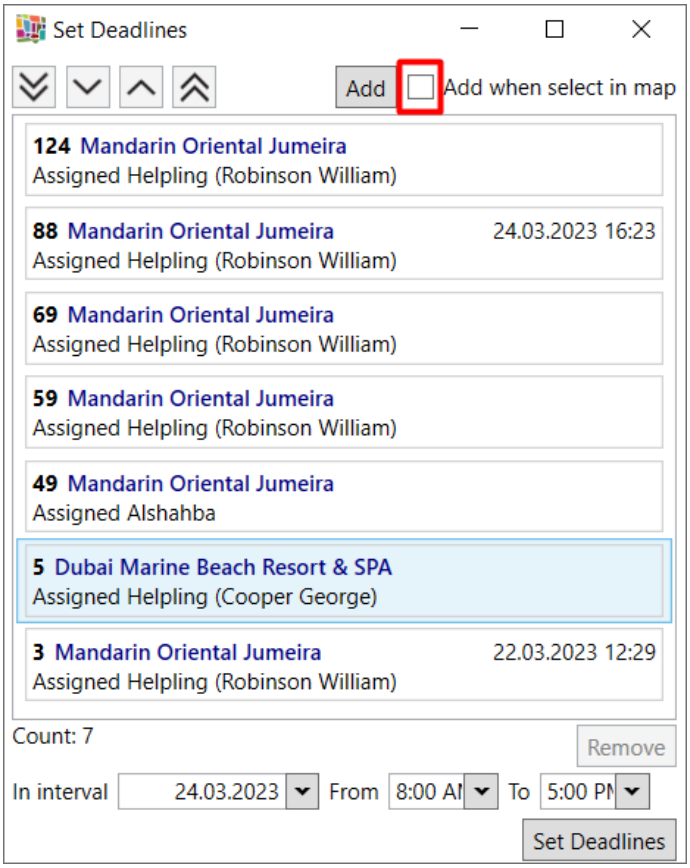


Fig. 2.134: Removing the “Add when select in map” flag

2.2.2. Switch to the main window, select a task (one task or multiple tasks) (Fig. 2.135)

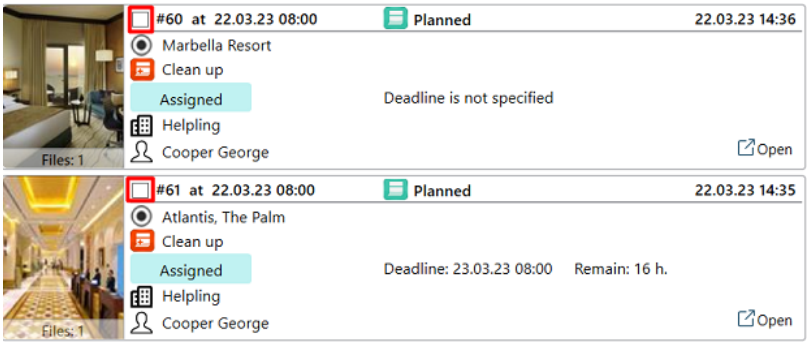


Fig. 2.135: Selecting tasks

2.2.3. Click “Add” in the “Set deadlines” window (Fig. 2.136)

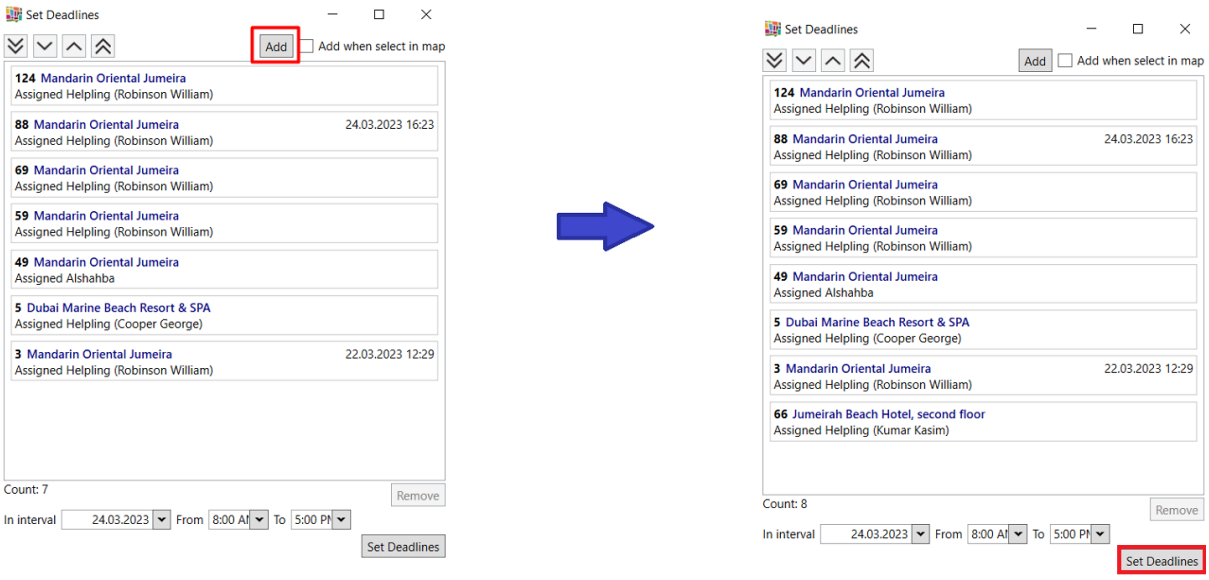


Fig. 2.136: Distribution of the task execution order

You can move tasks up and down in the list using the up and down arrows .

3. Set the interval:

3.1. Select date and time range (Fig. 2.137).

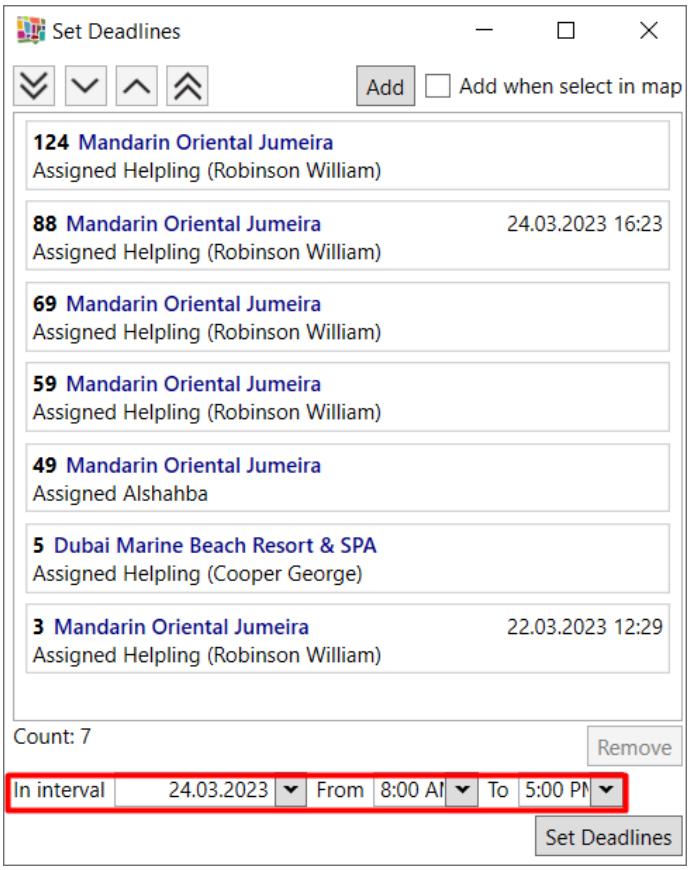


Fig. 2.137: Selecting the period of task execution

3.2. Click “Set deadlines” (Fig. 2.138).

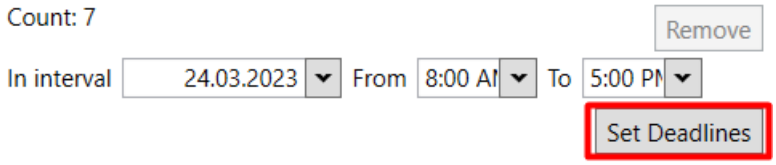


Fig. 2.138: Applying changes

3.3. Confirm the actions (Fig. 2.139).

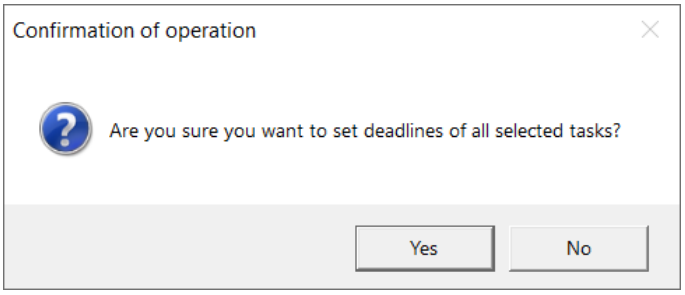


Fig. 2.139: Confirmation of changes

As a result, the Program distributes the task deadlines among the selected tasks within the set time interval.

At the bottom of the window, the “Edit selected” button is duplicated (this button is also located in the lower right corner of the task list area) (Fig. 2.140). Thus, you can select one or several tasks on the map and apply mass changes to them, as well as delete or print them.

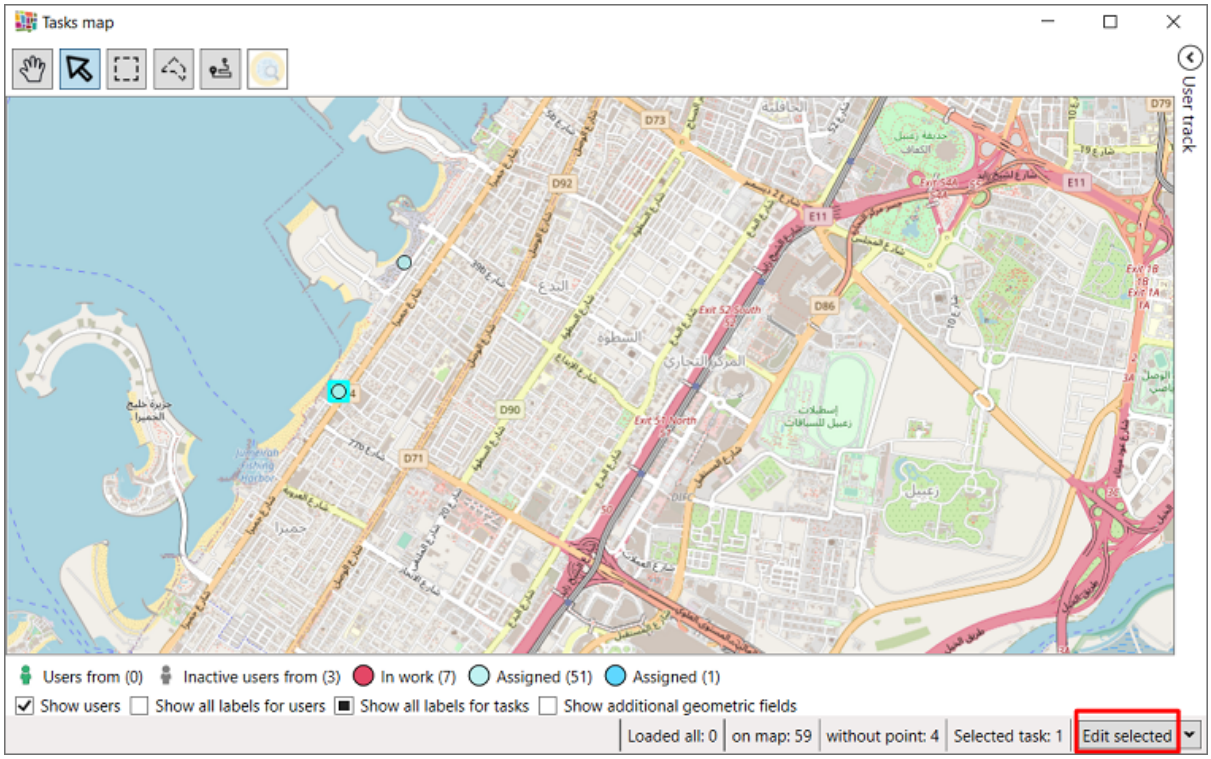


Fig. 2.140: “Edit selected” button in the “Task map” window

2.8 Adding new tasks

You can add new tasks to the system in the desktop component ActiveMap Desktop, in the web component ActiveMap Web, and mobile application ActiveMap Mobile. The created tasks are available in all components according to the access rights of an authorized user.

You can add new tasks to ActiveMap Desktop in one of the following ways:

1. Using the “Create task” button on the “Task list” panel in the main window of the Program.
2. By uploading georeferenced photos.
3. Based on a timelapse video taken in the ActiveMap Mobile application.
4. Using an excel-table (mass creation of tasks).
5. With linking to service objects.

2.8.1 Creating a task in the main window of the Program

To create a task in the main window of the Program, follow these steps:

1. Click the “Create task” button located in the task list area in the central part of the screen (Fig. 2.141).

Fig. 2.141: “Create task” button.

2. Fill in the basic fields in the “Create task” window (Fig. 2.142). By default, the following main fields are included:

- “Title”;
- “Priority”;
- “Type of work”;
- “Organization”;
- “Executor”;
- “Creation date”;
- “Deadline”;
- “Contract”;
- “Creator organization” (this field is only available to users with the System Administrator and System Inspector rights);
- “Parent task”;
- “Service object”;
- “Text of the task”.

In addition to the main fields shown by default, the task creation window may include custom fields.

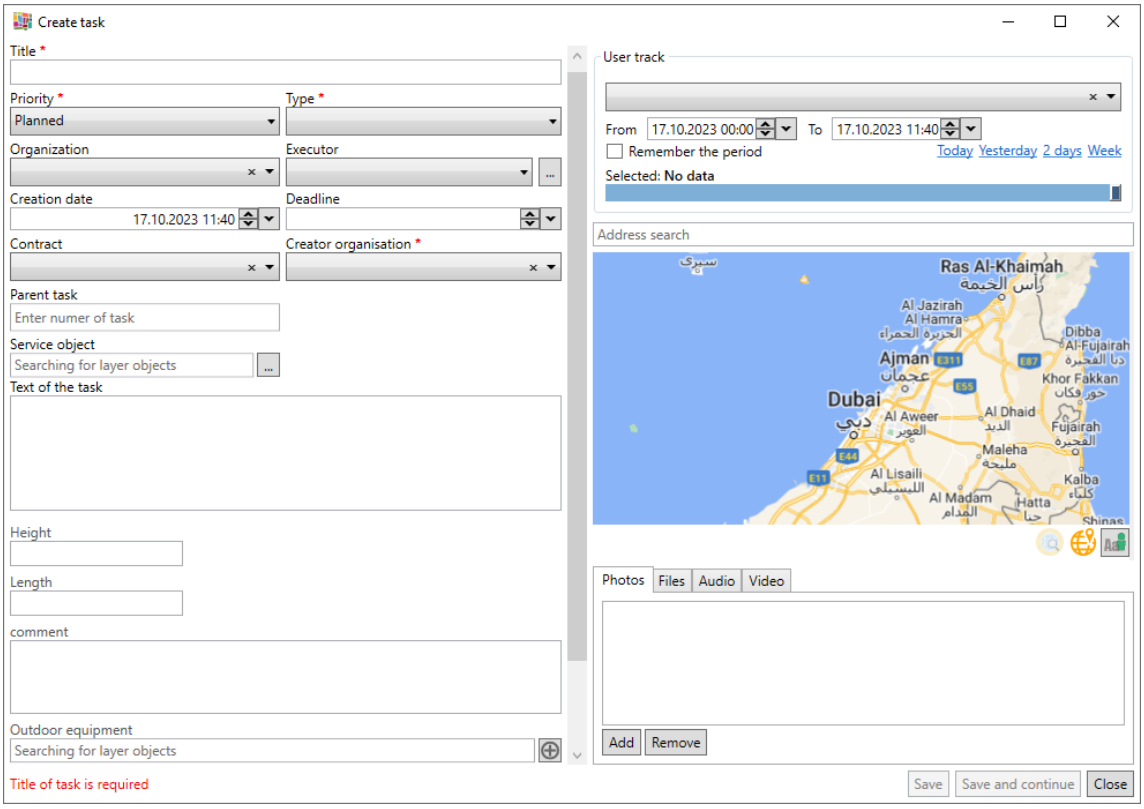


Fig. 2.142: “Create task” window

You can select priority, type of work, organization, executor, contract, and the creating organization from the drop-down lists. The executor’s choice is available after selecting the

organization from its employees. You can also select the executor in the window that opens by clicking ... to the right of the field (Fig. 2.143).

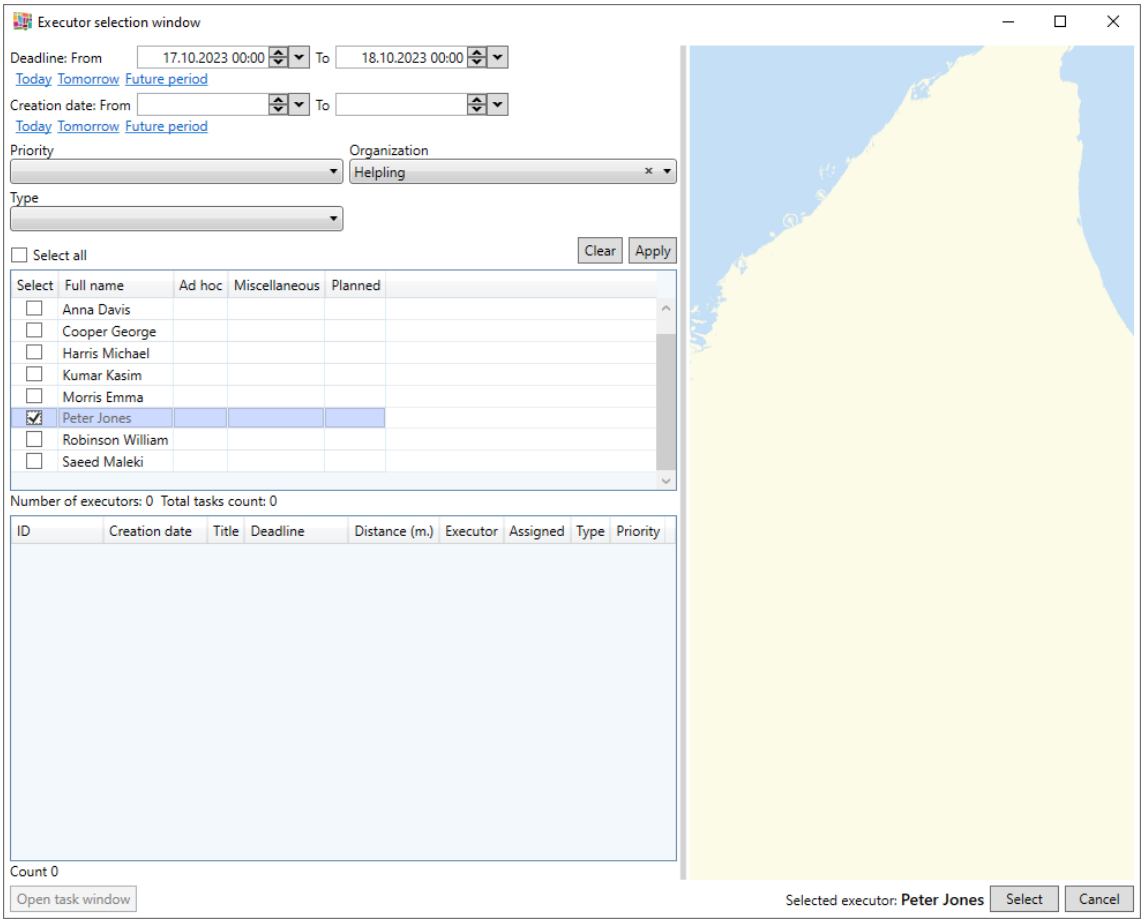


Fig. 2.143: Executor selection window

In this window, you can find previously assigned executors by filtering by completion deadline and creation date of assigned tasks, priority, organization, and type of work.

You can create tasks under a contract only during its validity period. A task is always created within a contract cluster and assigned to the contract executing organization. If the task executing organization is not specified, it is substituted. Users with the roles of System Administrator, System Inspector, Cluster Administrator, Cluster Inspector, the Administrator and Inspector of the executing organization can create a contract task, if the corresponding option is enabled for the contract. The Administrator of the contracting organization can create tasks based on service objects located in its organizations or cluster-level service objects. The contract may specify service objects and types of work for which you can create tasks. If the list of service objects is not empty, you can create tasks only for objects in this list. If the list of types of work is not empty, you can create tasks only using types from this list.

When you place a cursor in the “Service object” field, a list of layers used for searching appears (Fig. 2.144). By default, these are the layers of service objects.

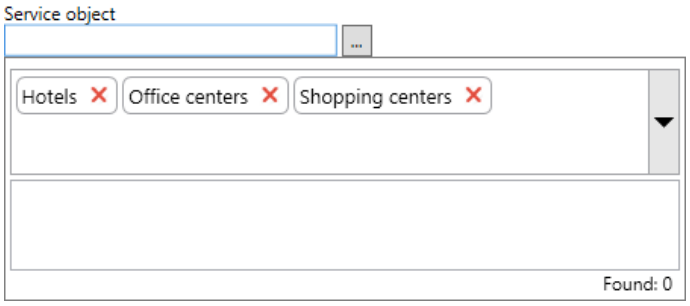


Fig. 2.144: Extended search field for objects in layers

To exclude a layer from the search, click ✕ next to the layer name. To include additional layers in the search, click the arrow – a drop-down list of available layers appears (Fig. 2.145).

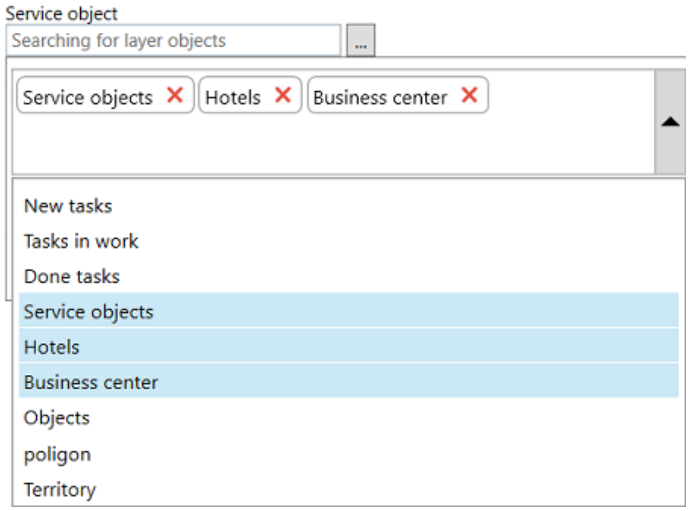


Fig. 2.145: Full list of layers available for the object search

Clicking ... on the right side of the service object search field opens a separate window for selecting the layer to search in. By default, only service object layers are enabled (Fig. 2.146).

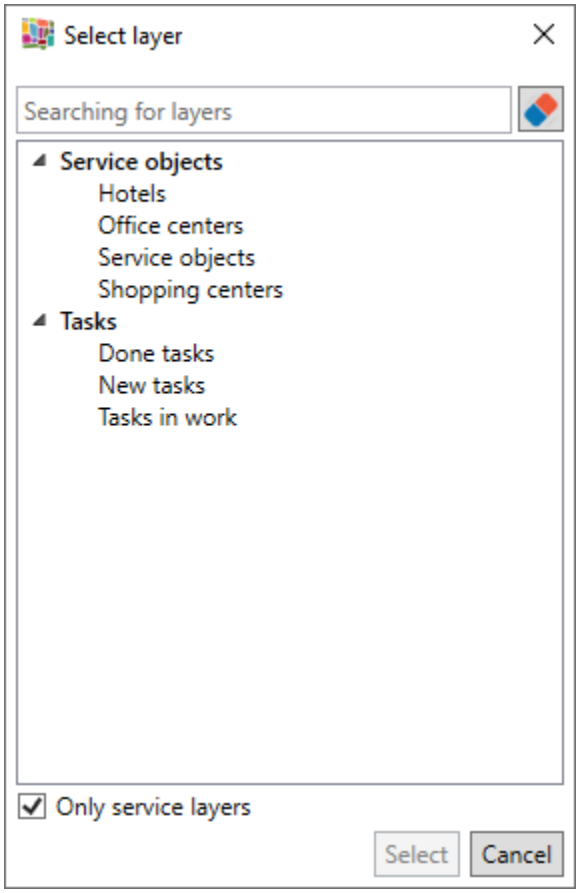


Fig. 2.146: “Select layer” window

To select from the full list of layers, clear the “Only service objects” checkbox (Fig. 2.147).

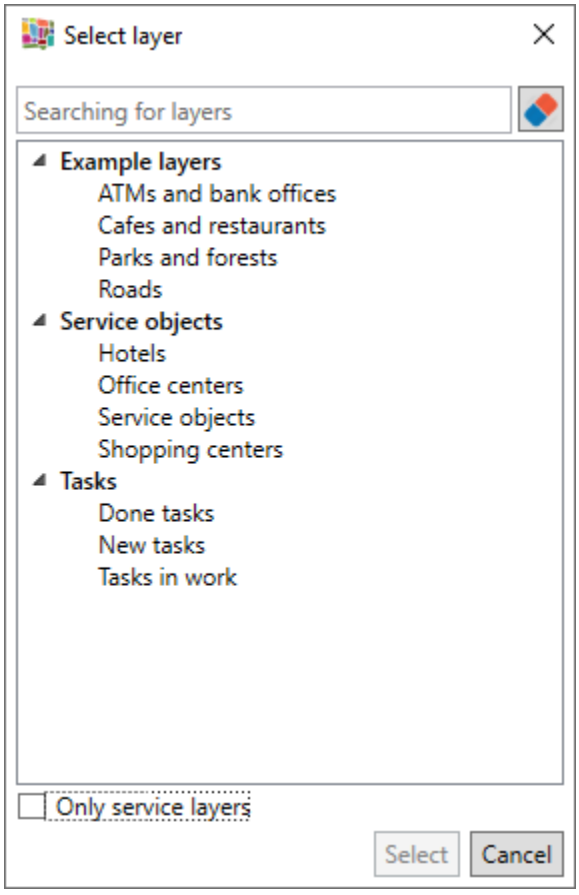


Fig. 2.147: Displaying all available search layers

After selecting the layer name and clicking “Select”, the layer window opens, where you can find the object of interest (manually or using filters). You can assign a service object even after creating a task. But you cannot delete or edit the assigned service object in a task.

Important: Parameters marked with “*” are mandatory. If the “Save” button remains inactive after filling in the fields, a red tooltip appears in the lower left corner of the task creation window. It describes the reason for such behavior and gives advice on how to correct it. This can occur if one of the mandatory fields is not filled in, or if the contract and the type of work or the contractor organization do not match.

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3. Fill in custom fields, if any. The set of custom fields is formed in the ActiveMap Web web component. The following data types are supported:

- 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;
- 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).

Using a field with the "Data Objects" type, you can add one or more objects of a layer, data table, or reference table to the task. Each custom field with the "Data Objects" type corresponds to a single layer, data table, or reference table. One task can have several fields of this format, connected to its own layer, data table, or reference table. The system supports attaching the amount of an objects (configured in the ActiveMap Web web component).

When filling in the field with the "Data Objects" type, you can find the required object and select it from the drop-down list using the search string (Fig. 2.148).

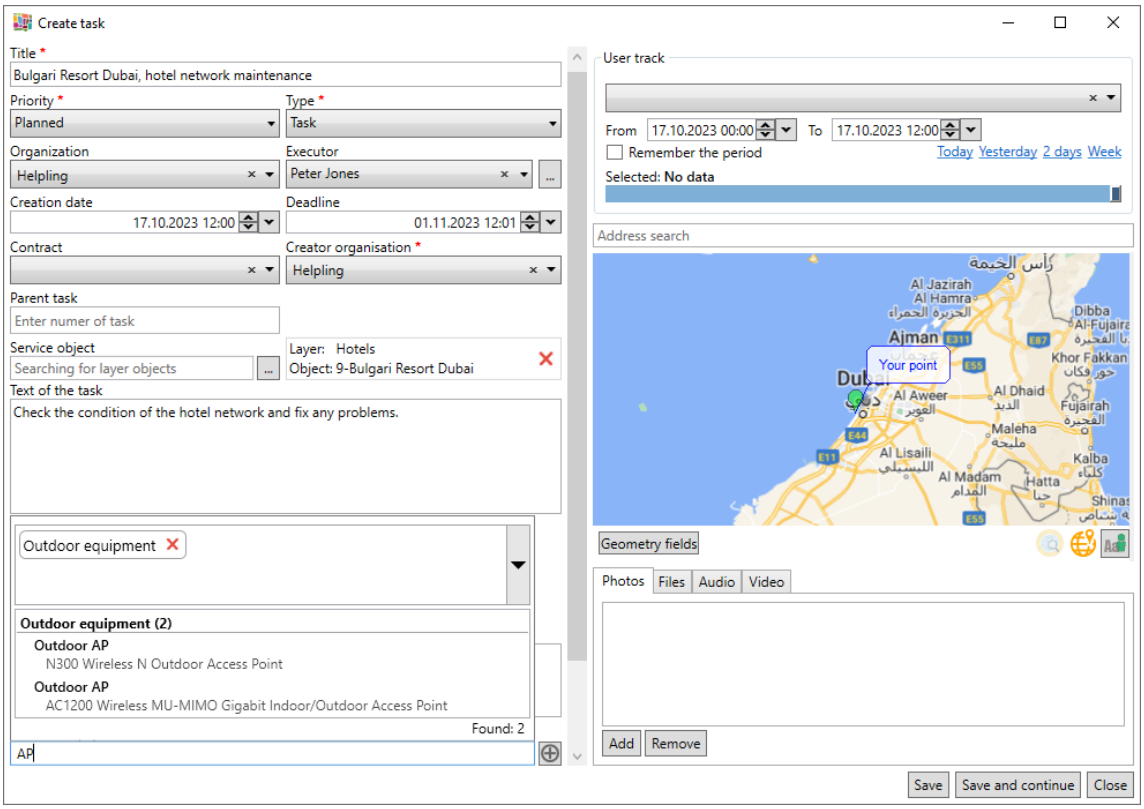

Fig. 2.148: Searching for a data object

Clicking opens a table for single object selection. If the "Allow Multiselect" option is not activated in the field settings, the search line will be hidden after selection. Clicking on the selected object opens a card where you can view its attributes (Fig. 2.149).

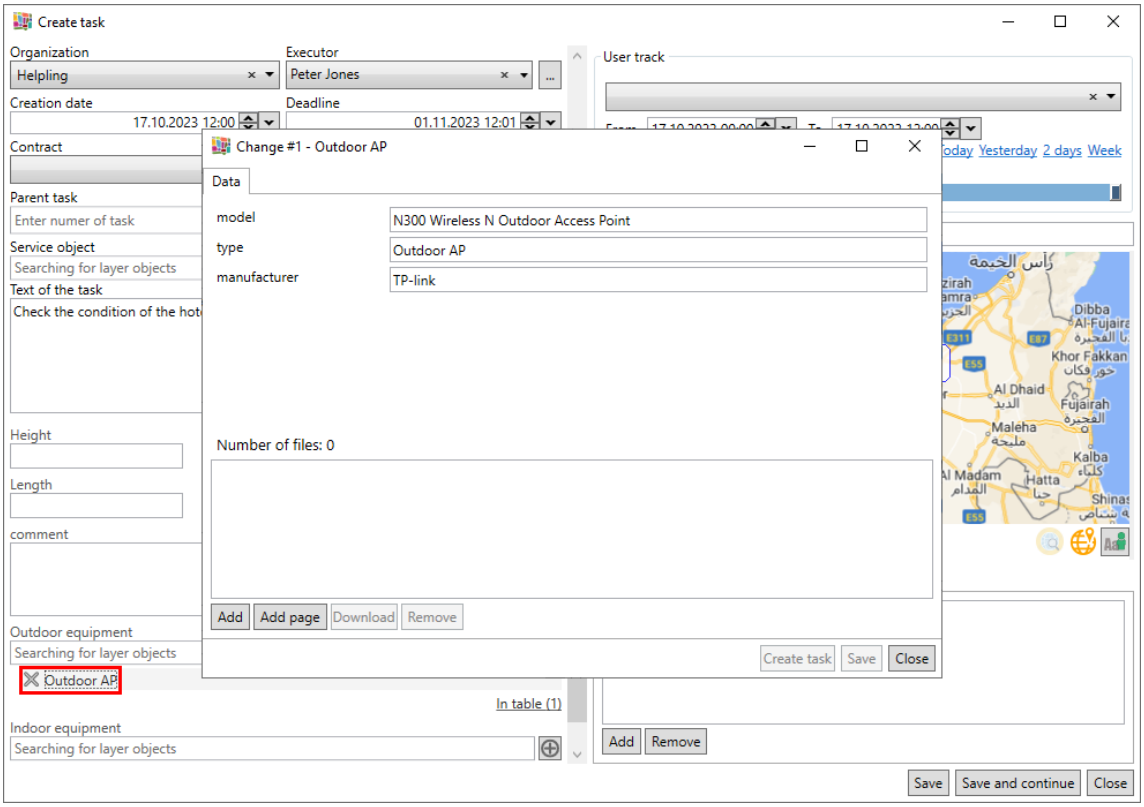

Fig. 2.149: Data object card

If the “Allow Multiselect” setting is activated, you can select several objects from the specified table in the custom field. Using the search line, you can find the required objects and add them one at a time. To add objects in bulk, click . In the opened window, select the required objects using the Shift and Ctrl keys and mouse buttons and click “Select” (Fig. 2.150).

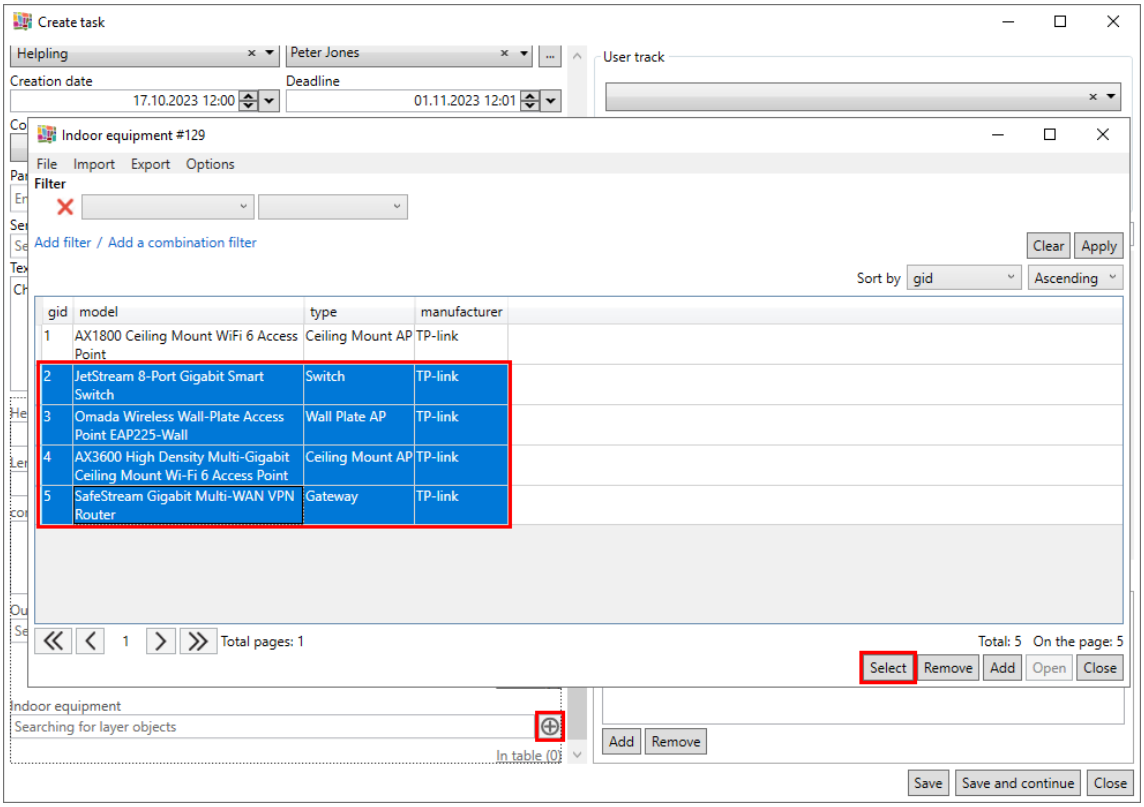

Fig. 2.150: Selecting multiple data objects

The selected objects appear in the task creation window. If the selected layer/table does not have a title field, the object id is displayed in the custom field. When you click on the selected object, a card opens where you can view its attributes. When you activate the “Allow add and edit amount” setting, you can specify the quantitative characteristics of the selected object (Fig. 2.151).

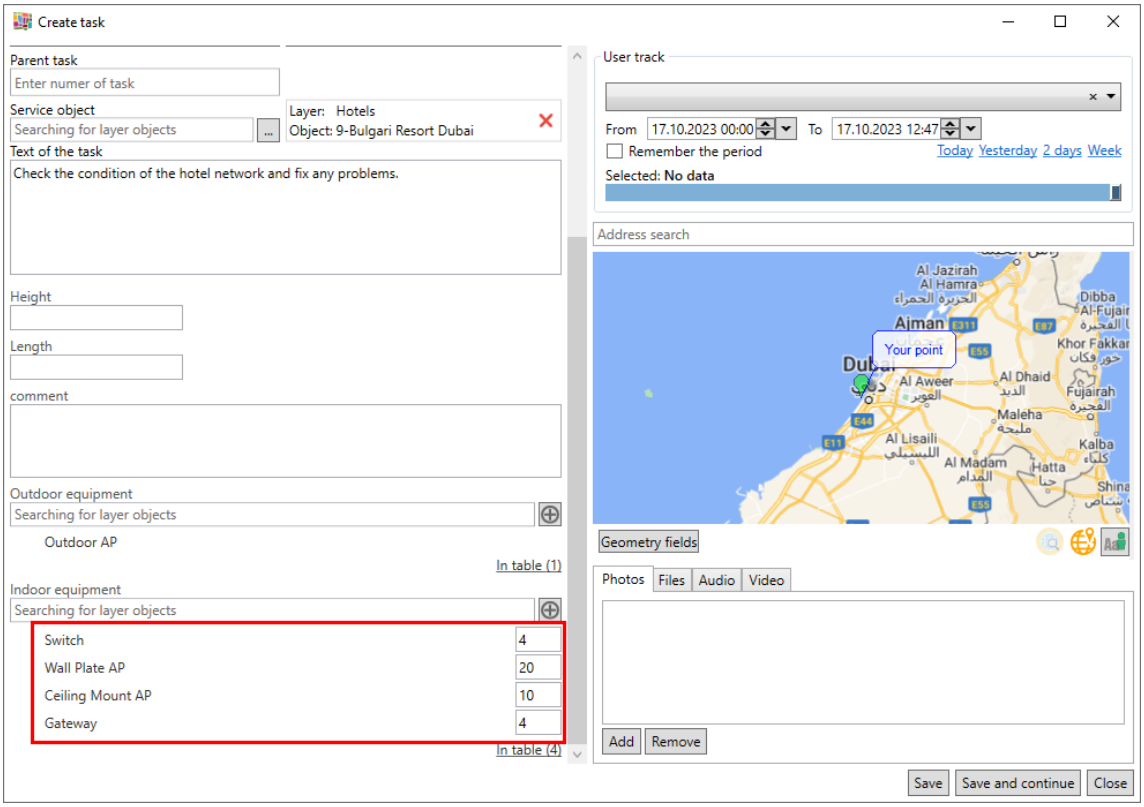

Fig. 2.151: Entering the number of objects

Clicking “Open in table” (the number of objects is indicated in brackets) opens a table with the objects selected in the task (Fig. 2.152).

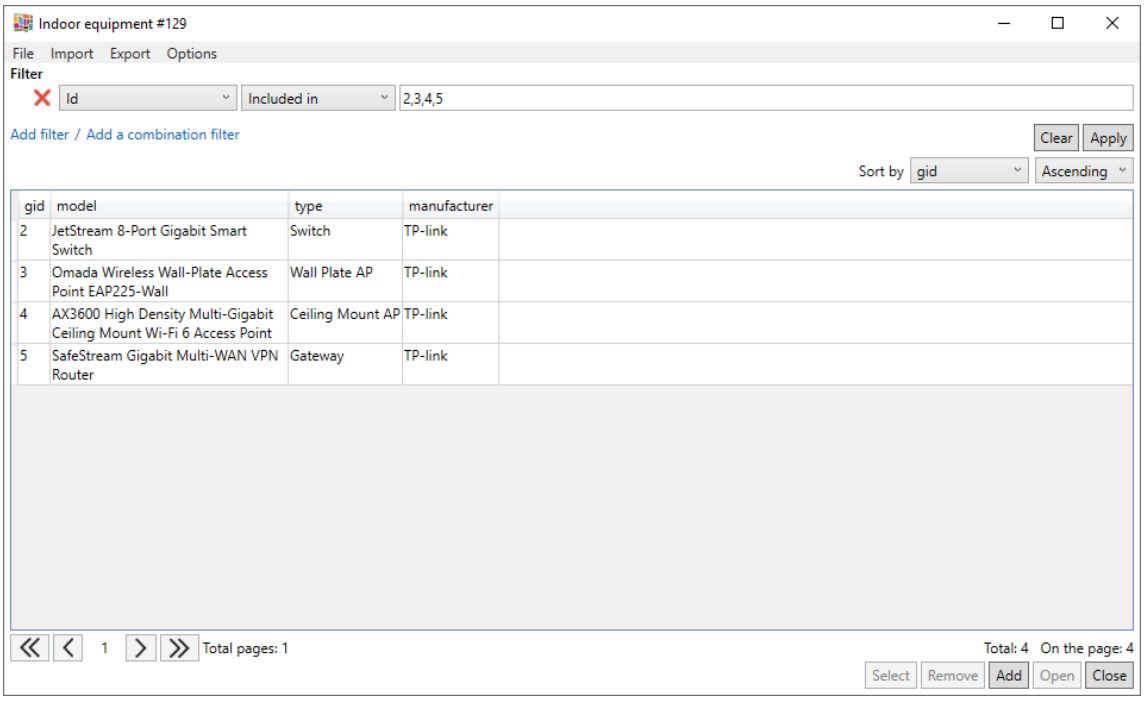

Fig. 2.152: Table with objects attached to the task

If the user does not have rights to the added layer or table, then this custom field is displayed

in the task card without the ability to edit it.

4. Specify the geographic location of the task in one of the following ways:

- mark the location of the object by clicking on the map;
- enter the coordinates manually in the window that opens after clicking (Fig. 2.153);

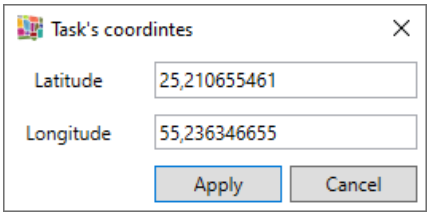

Fig. 2.153: Window for entering task coordinates

- enter the required address in the search field (Fig. 2.154).

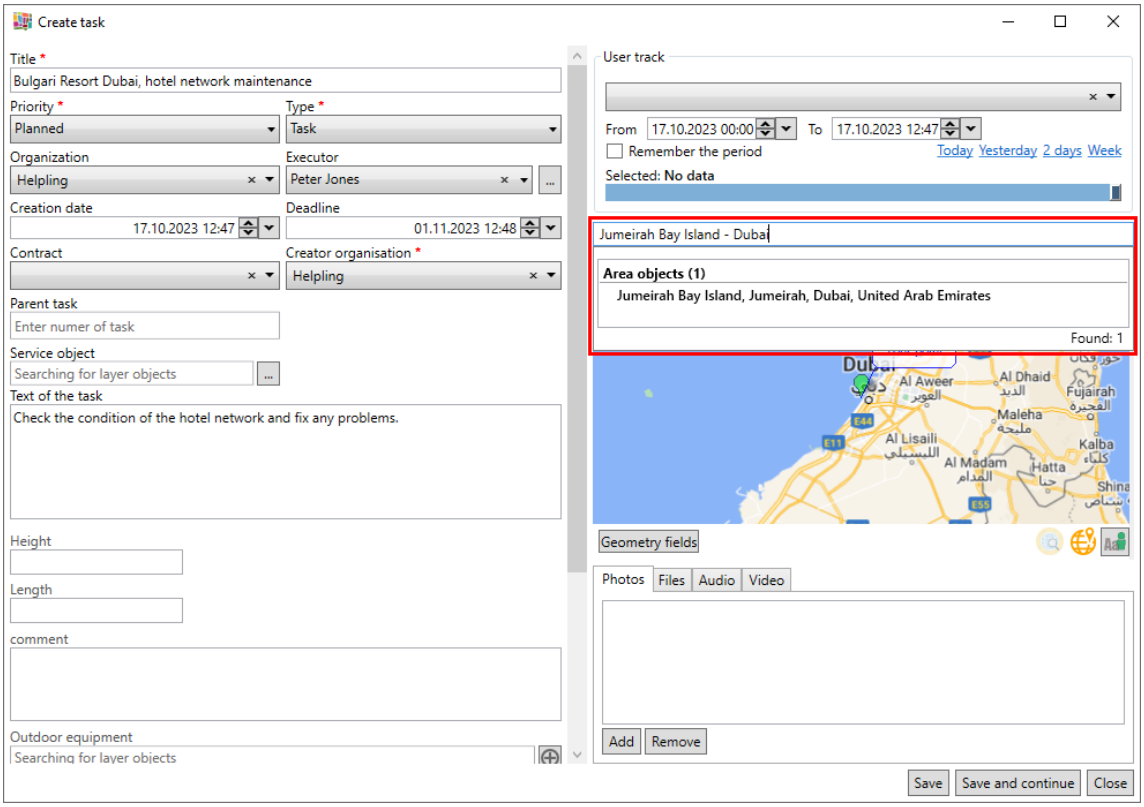

Fig. 2.154: Linking an address to the task

5. If necessary, attach photos, audio, video, or other file types useful in the task execution (Fig. 2.155).

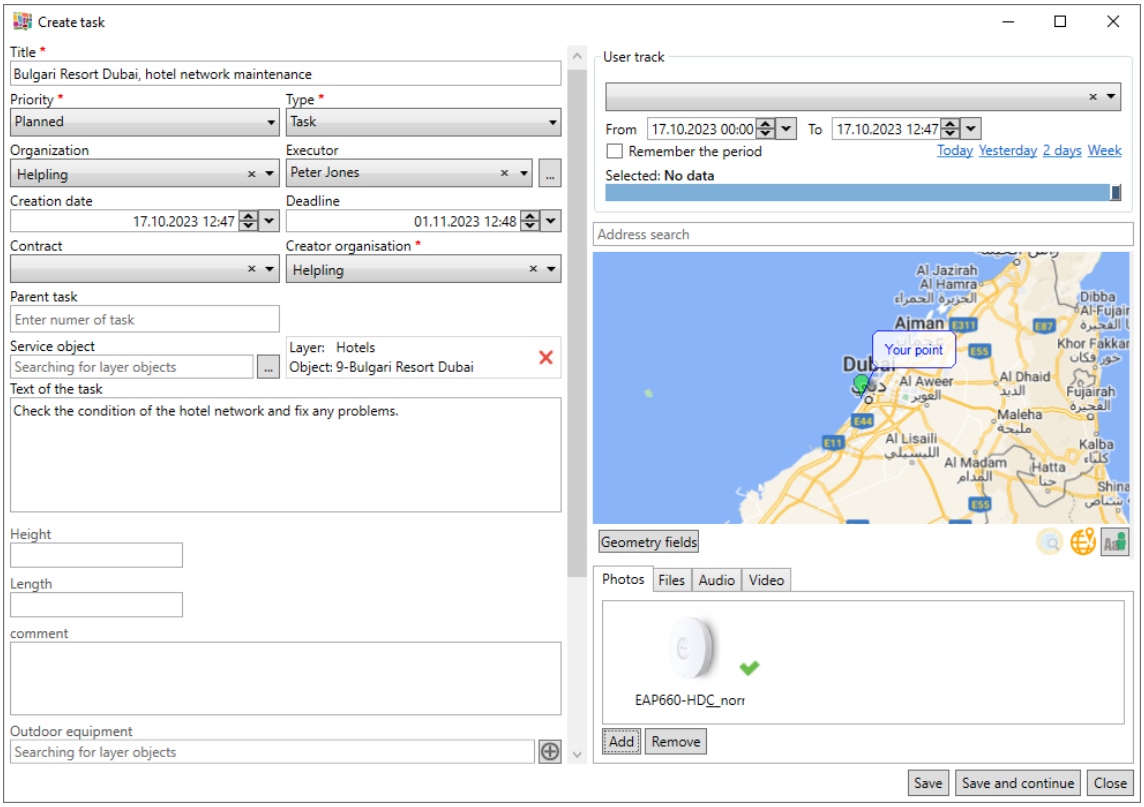

Fig. 2.155: Task window with an attached photo

6. Click “Save”. After that, the task is created and sent to the server. If you click “Save and continue,” the task is also created and sent to the server, but the window remains open for the subsequent task creation. You can see the created tasks in the general task list.

2.8.2 Create tasks by uploading geotagged photos

To create tasks by uploading geotagged photos, follow these steps:

1. Prepare a folder on your PC containing geotagged photos. The system creates a task for each photo added to the folder.
2. Select the “Loading from GPS camera…” tab in the “Options” menu.
3. Specify the following task parameters in the “Loading from GPS camera…” window (Fig. 2.156): “Title”, “Text of the task”, “Priority”, “Type”, and “Organization”.

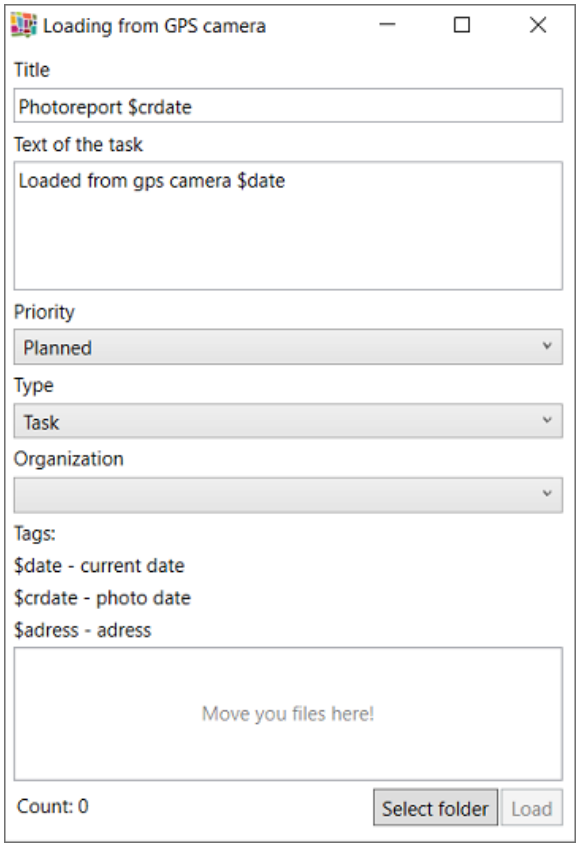

Fig. 2.156: Loading from a GPS camera

4. Click “Select folder” and navigate to the folder containing the geotagged photos to be attached to the task.

The message “Loading is complete! A message was created” indicates the successful completion of the process. Created tasks appear in the general task list.

2.8.3 Creating tasks using a timelapse recorded in the ActiveMap Mobile application

To create new tasks based on a timelapse, follow these steps:

1. Go to the previously created task with the attached timelapse and double-click the video icon. A player window opens, allowing you to simultaneously view the device’s movement track and its location at the time the current frame was recorded (Fig. 2.157).

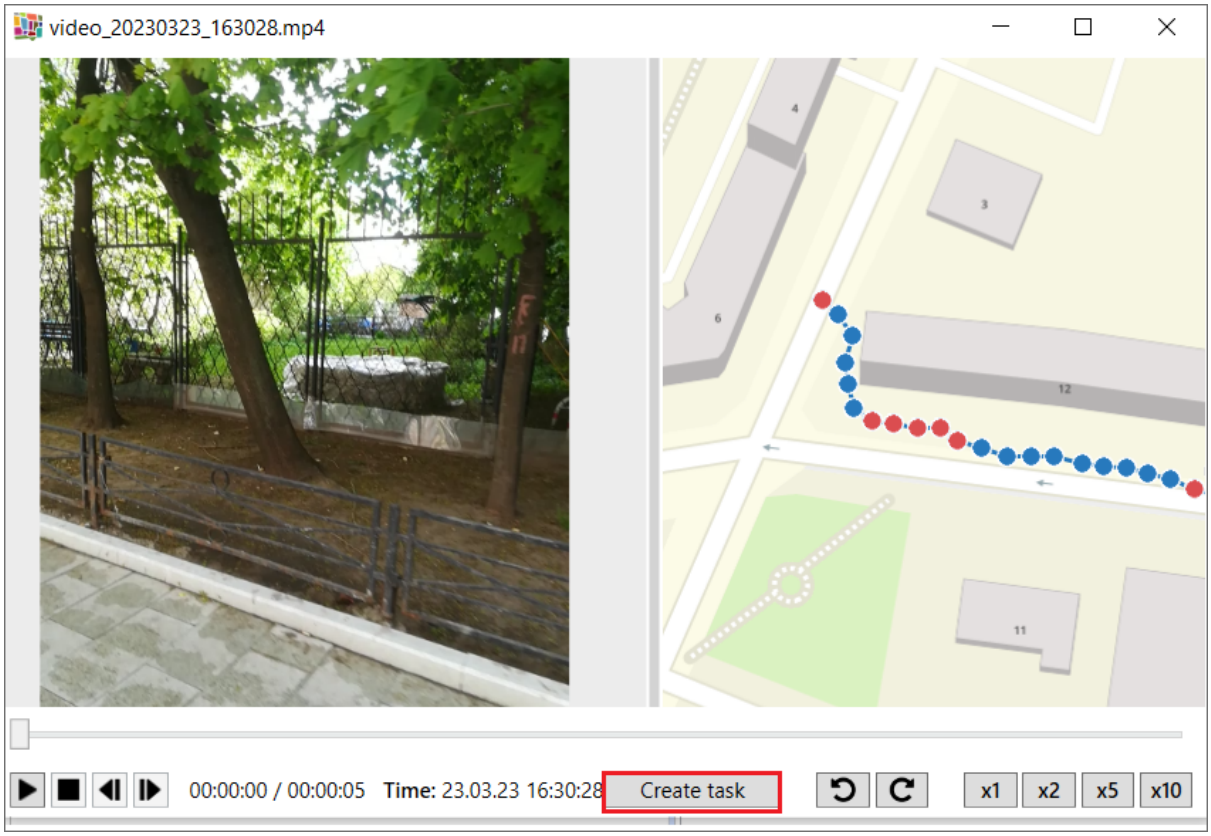

Fig. 2.157: Timelapse view window

2. Start playing the video ▶ or use the frame-by-frame navigation buttons ◀▮ ▮▶ to reach the desired frame/location on the track, and then pause the playback ❚❚. If necessary, you can increase the playback speed by clicking one of the corresponding buttons x1 x2 x5 x10.

3. Click "Create task" at the bottom of the player window (Fig. 2.157). A task creation form opens with a video frame added as a photo. The coordinates of this frame become the task location.

2.8.4 Mass task creation and updating using an Excel spreadsheet

2.8.4.1 Creating tasks using an Excel spreadsheet

You can mass-create tasks based on a template or without one, using the original Excel spreadsheet.

To obtain a template, you have to:

1. Go to the "Options" menu section -> "Import" -> "Save template…". The template is an Excel spreadsheet.

2. Fill in the obtained template. The first rows of the table show examples that you can use to fill in the rest of the rows (Fig. 2.158). The coordinates in the examples are in the Longitude/Latitude coordinate system on the WGS 84 ellipsoid – EPSG: 4326. They correspond to the centroid of the user's organization bounding box. For the fields

of “reference table (dictionary)” type, you can select values from the drop-down list instead of entering them manually. When filling in the fields, it is important to remember that the executor should belong to the assigned organization, and the custom fields should correspond to the selected work type. If there is no such correspondence, an error will occur during the upload.

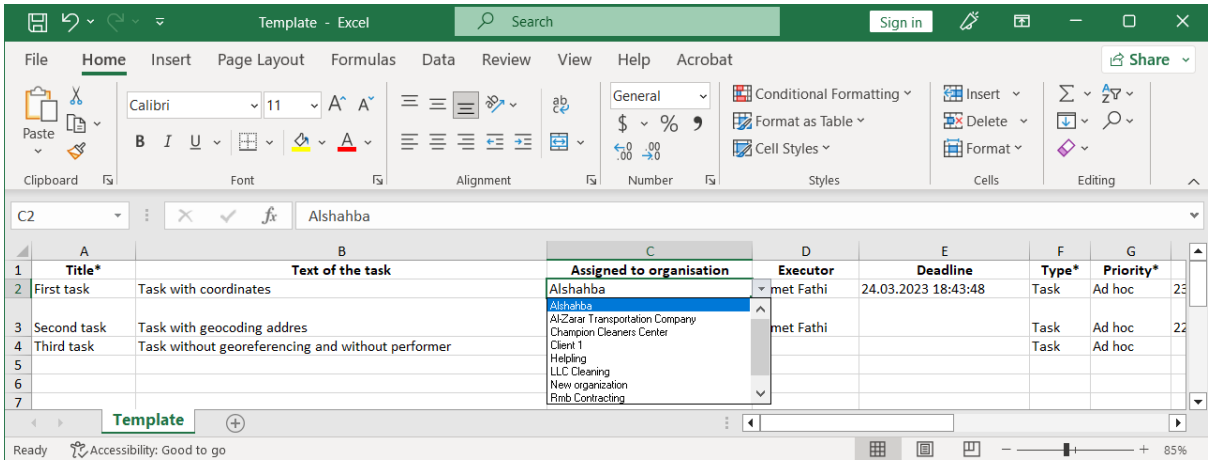

Fig. 2.158: Template for the mass task creation

3. Save and close the edited Excel spreadsheet.

You can also upload the original *.xlsx file. The first row of the file should contain the column headings.

To import the template or the original Excel spreadsheet, go to the “Options” menu -> “Import” -> “Import tasks from MS Excel”, and choose the table you want to import. A preview window opens (Fig. 2.159).

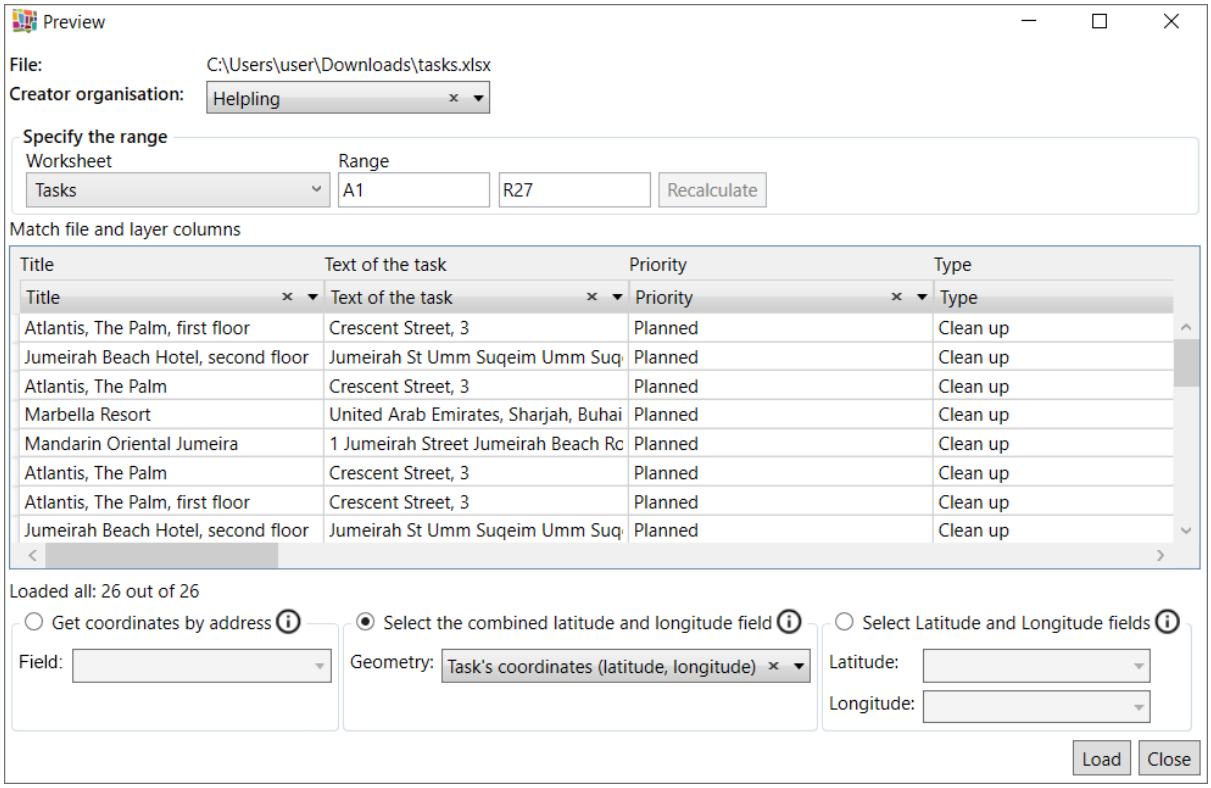

Fig. 2.159: Preview window for importing tasks from MS Excel

When logging in under an account with the System Administrator role, select the corresponding creator organization from the drop-down list. By default, the program determines the worksheet from which data is imported, as well as the range for the upload. You can specify a different range and click “Recalculate” (the first row must be the header). Next, specify column correspondences in the preview window. If the column names match, the application automatically sets correspondences for such columns.

To geolocate a task, select one of the suggested methods:

- Obtain coordinates by address (select the field for the geocoding from the drop-down list);
- Choose the combined field of latitude and longitude (select the field that contains geometry in the specified format from the drop-down list (hovering over ⓘ displays a hint));
- Choose the “Latitude” and “Longitude” fields (select the fields that contain geometry in the specified format from the drop-down list (hovering over ⓘ displays a hint)).

It is also possible to use the table field to specify the coordinates and to fill in the custom task field at the same time. Once all the values have been marked, click “Load” to start import or “Close” to cancel. If the button is inactive, a message appears at the bottom of the window explaining why the button is disabled. This message is displayed in the “Import/update tasks”, “Import from MS Excel” and “Import/update objects” windows. The import is not possible if the imported table has multiple fields with the same name.

After confirming the upload, the import starts. New tasks appear in the general task list.

2.8.4.2 Updating tasks using an Excel spreadsheet

To update tasks using an Excel spreadsheet, you should first export the existing tasks to a *.xlsx file:

1. Go to the “Options” menu -> “Export” -> “Export to MS Excel” or click the “Export to MS Excel” button in the task list area.
2. Edit the table without changing the task IDs, the number of columns, and the column names.
3. Save and close the edited Excel spreadsheet.

To import a table, go to the “Options” -> “Import” -> “Update tasks from MS Excel” and select the desired table. A preview window opens (Fig. 2.160), similar to the window that appears when importing tasks from MS Excel.

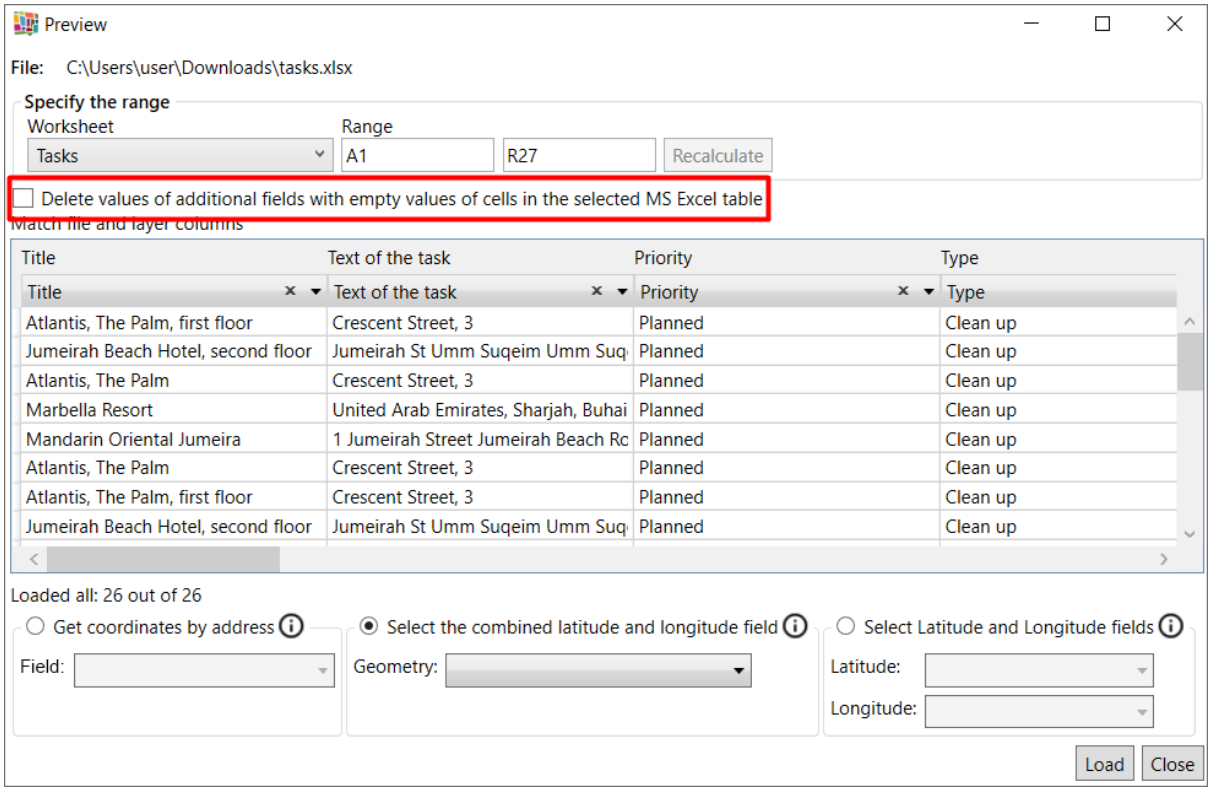

Fig. 2.160: Preview window for updating tasks from MS Excel

In this window, define the parameters described above. You can also enable the deletion of custom fields if the selected MS Excel table cells are empty. Click “Load” to start importing the file with the updated data, and “Close” to cancel the import. After confirming the upload, the tasks are updated in the system.

2.8.5 Creating tasks in the service object window

When creating tasks linked to service objects, the task fields are automatically filled in according to the configured mapping (the correspondence between the layer attribute and the task field). To create tasks linked to service objects, follow these steps:

1. Go to the "Service Objects" menu section and select the desired layer from the list. A window opens with a list of objects in the selected layer and a map with their location marks (Fig. 2.161).

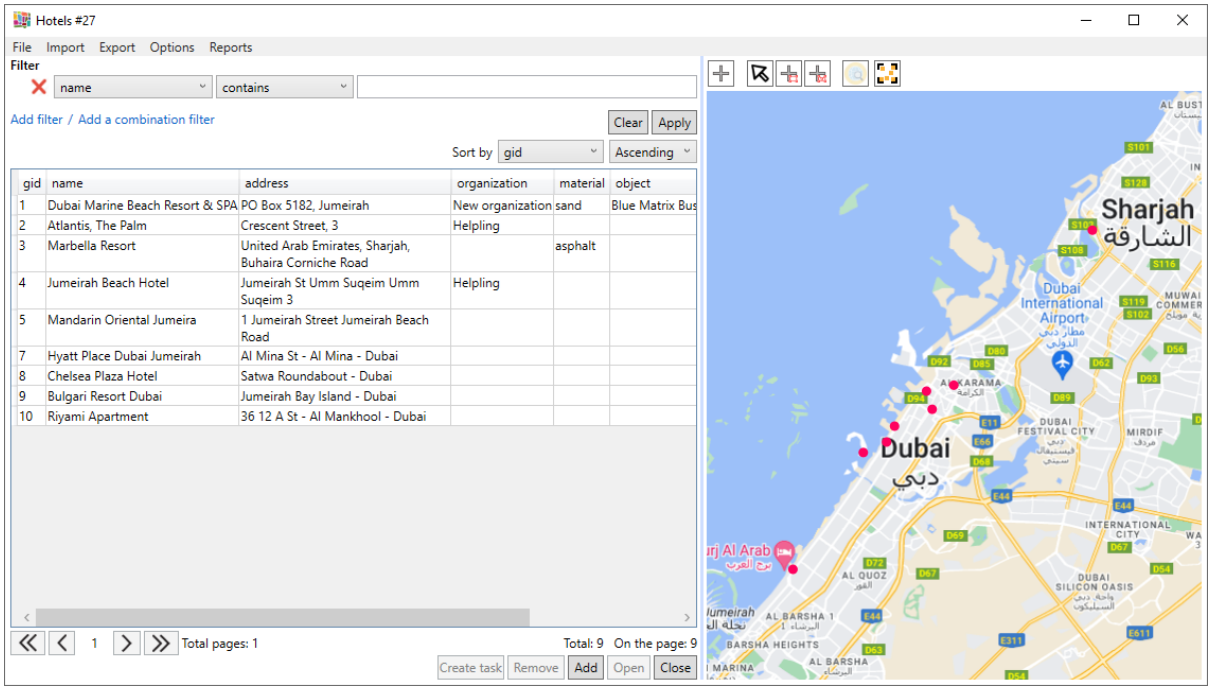

Fig. 2.161: Service objects window

2. To create a task linked to a service object, first select the object of interest in the list or on the map, after clicking the "Select on the map" , "Select rectangle on the map" , or "Select polygon on the map" button . Then, the "Create task" button becomes active in the bottom part of the window. Alternatively, double-click the object name in the list and click the "Create task" button in the opened object window.

After clicking the "Create task" button, the task creation window opens with automatically entered information about (Fig. 2.162):

- task title (the field contains the name of the service object, it can be edited);
- selected service object;
- task coordinates that match the coordinates of the service object.

Fill in the remaining fields manually. You can see only the main task fields. Mandatory fields are marked with an asterisk (*). After filling in the required fields, the "Save" and "Save and continue" buttons become active. Click one of them to complete the task creation process.

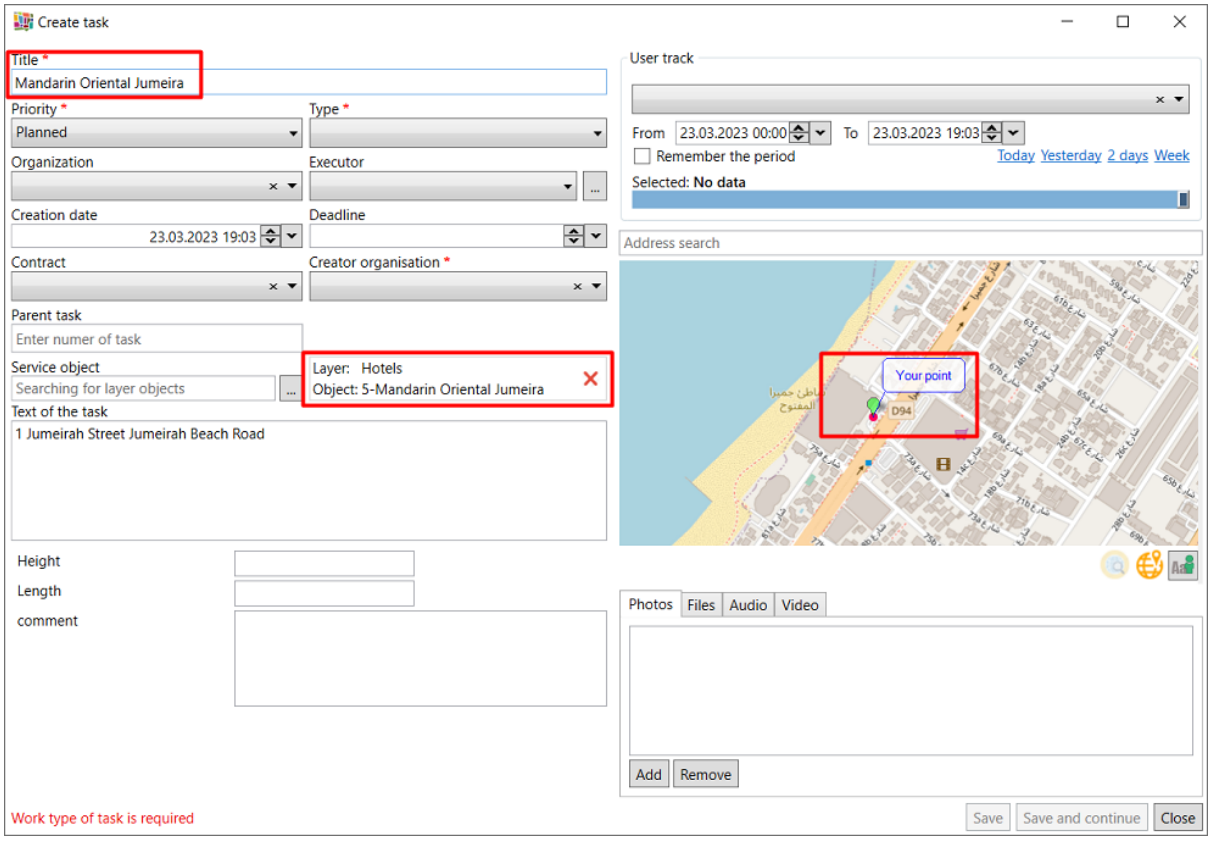

Fig. 2.162: Task creation window linked to the service object

3. To create several tasks linked to different service objects, select the objects of interest in the list using the “Shift” or “Ctrl” keys, or on the map using the rectangle or polygon selection tool . Click “Create task”. If you need to create tasks linked to all the service objects in the layer, go to the “Options” -> “Create tasks for all in the list” tab in the service object layer window (Fig. 2.163).

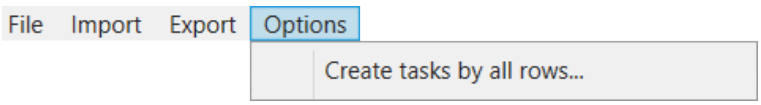

Fig. 2.163: Creating tasks for all objects in the list

After performing any of these actions, the task creation window appears (Fig. 2.164).

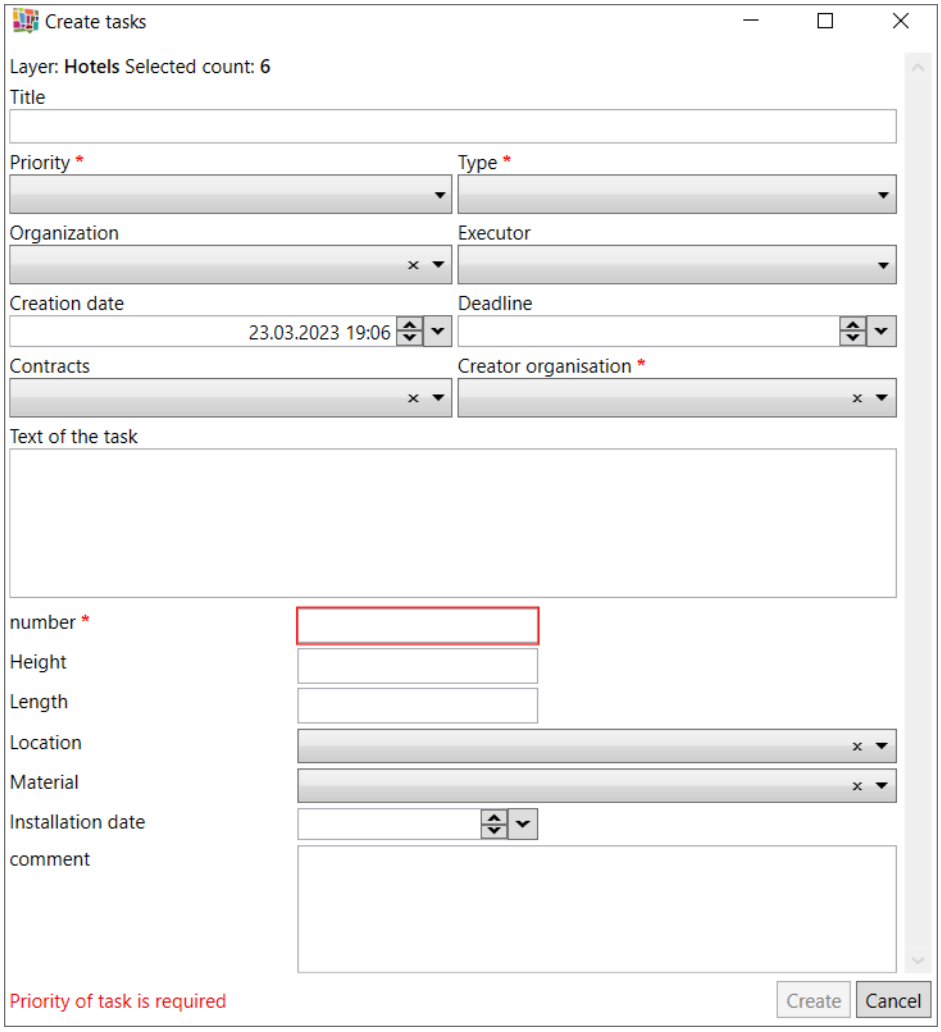

Fig. 2.164: Task creation window linked to service objects

The opened window specifies the service object layer and the number of selected objects for creating tasks. You can fill in both the main and custom task fields. After selecting a task type, the “Organization” and “Creating organization” fields show only those organizations that have access to the marked task type, the others are hidden.

Important: When filling in the “Contracts” field, select only those service objects that are listed in the contract. If the selected service objects are not listed in the contract, you cannot create the tasks.

If the “Title” field is left blank, the titles of the created tasks are the same as those of the linked service objects. If you leave this field blank, all created tasks have the same title. If you leave the “Deadline” field blank, a default date (3 days) is automatically assigned.

Mandatory fields are marked with the symbol “*". After filling in the required fields, the “Create” button becomes active. Created tasks appear in the general task list. The coordinates of each of the tasks match the coordinates of the associated service objects.

2.9 Creating and editing schedules

Schedules allow you to automatically generate tasks based on templates at a certain time with the required frequency. Task templates are the samples of tasks that are created according to the schedule. Creating and editing schedules and task templates are available for the following roles:

- System Administrator,
- Cluster Administrator,
- Organization administrator.

2.9.1 Adding tasks to a new schedule

To add one or more tasks to a new schedule, select them in the task list (select the checkbox next to the task number). Then go to the "Schedules" -> "Add to new schedule" menu section or select the "Add to new schedule" operation from the drop-down list in the lower right corner of the task list area. The "Schedule creation" (Fig. 2.165) window opens.

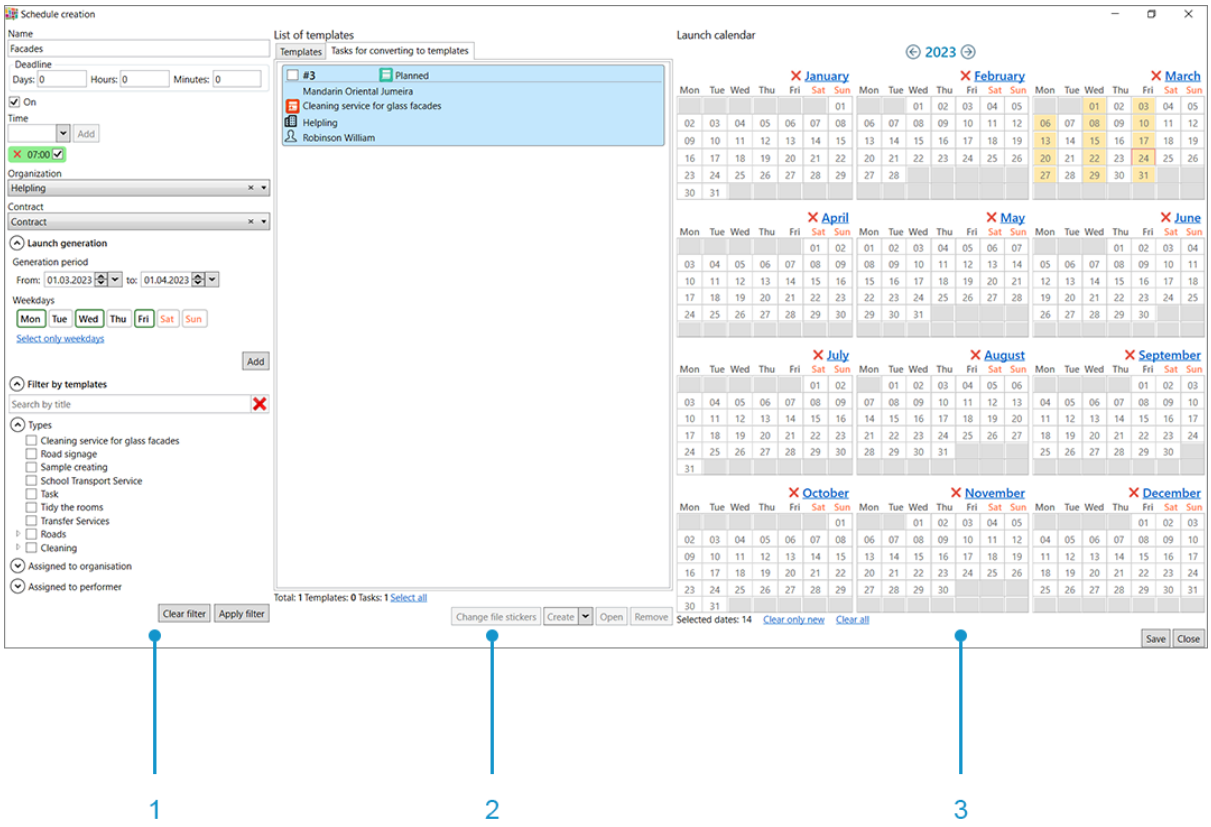

Fig. 2.165: "Schedule creation" window

The window includes 3 areas:

1. Schedule parameters.
2. Template list.

3. Launch calendar.

To create a new schedule, you have to set its parameters:

- **Name**.
- **Deadline (days, hours, minutes)**.
- **Schedule enable flag** – selecting the "On" checkbox makes the schedule active.
- **Creation time** – selected from the drop-down list. After selection you can adjust the minutes value in the field. Click the "Add" button to apply it. The added time should appear below the drop-down list.
- **Organization** – selected from the drop-down list. The user to whom the task is assigned should belong to the selected organization. If the user does not belong to the organization, the task cannot be generated.
- **Contract** – selected from the drop-down list of available contracts. The schedule according to the contract, like the contract itself, is created at the cluster level. If you delete its contract in ActiveMap Web, the schedule is automatically considered as deleted, but the tasks created according to this schedule are saved. If the schedule is created according to the contract, the "Organization" field is not filled in. If the schedule is not created according to the contract, you should select the organization. After creating tasks according to the schedule with the attached contract, it is not possible to change the service object or work type in them.
- **Launch generation period** – sets the period for creating tasks with the indication of the days of the week for generation. After selecting the days, click "Add". The selected days appear in the launch calendar area.

The template list area includes "Templates" and "Tasks for converting to templates" tabs. The selected tasks are displayed in the second tab. At the bottom of the area, there are buttons with operations that can be applied to selected templates and tasks for converting to templates:

- "Change file stickers" – replace photo stickers in tasks;
- "Create/Create a copy" – create a new template or copy and edit one of the attached (the operation is not available for tasks for converting to templates);
- "Open" – open a template or task for converting into a template (if necessary, you can edit and save the opened template/task);
- "Remove" – delete a template or task for converting into a template.

After setting all the necessary parameters, click "Create". After the selected tasks are converted to templates, they no longer appear in the general list of tasks. You can view and edit the templates by switching to the task templates mode ("View" -> "Mode of work with task templates" menu section).

2.9.2 Working with existing schedules

To edit schedules, go to “Schedules” -> “Manage schedules” menu section. The “Schedule list” (Fig. 2.166) window opens. Here you can create, search, edit, and delete schedules, and view the results of template task launches.

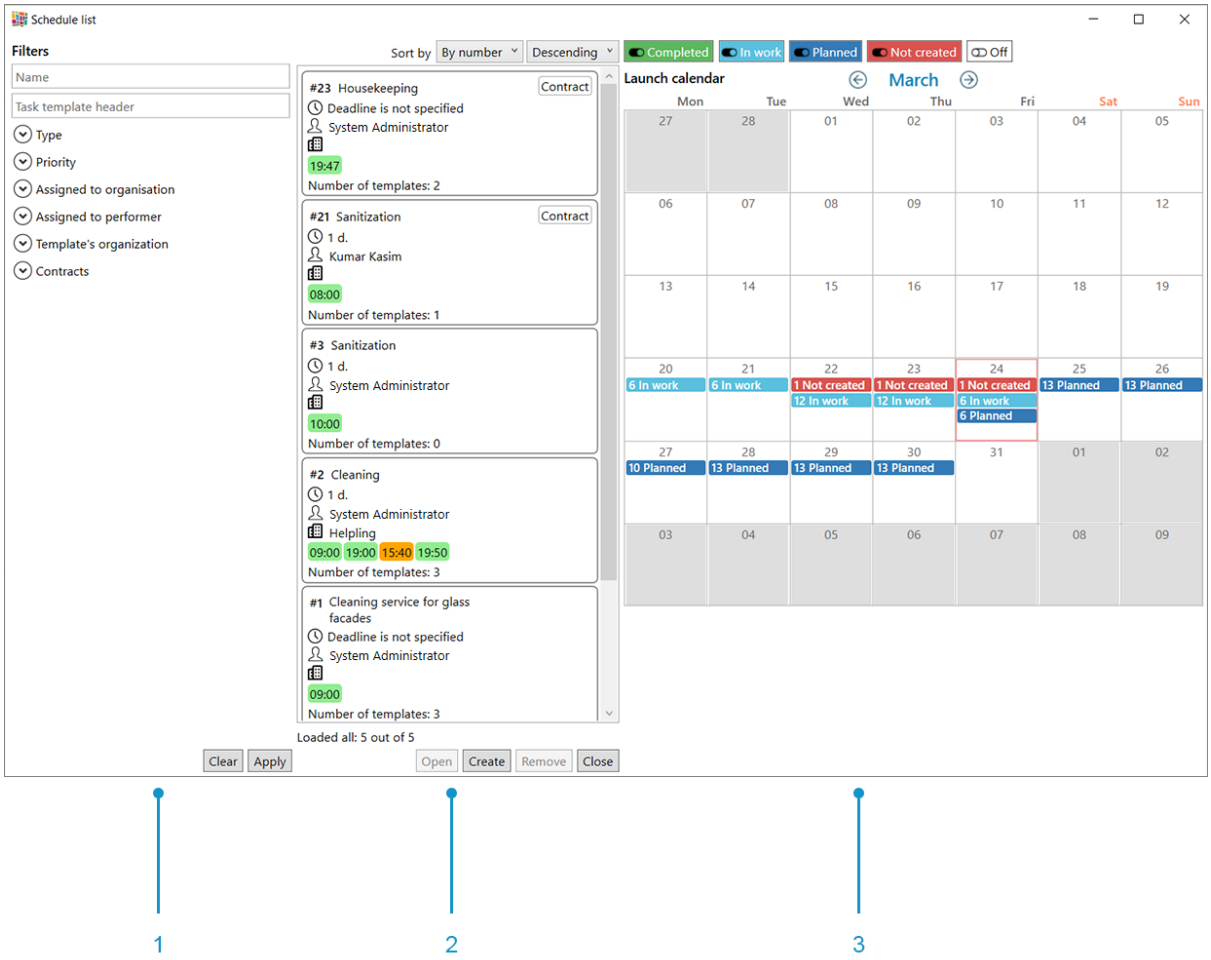

Fig. 2.166: “Schedule list” window

The window includes 3 areas:

1. Panel for filtering schedules.
2. List of schedules.
3. Launch calendar.

Double-clicking a date in the calendar opens the list of launches for that day. (Fig. 2.167).

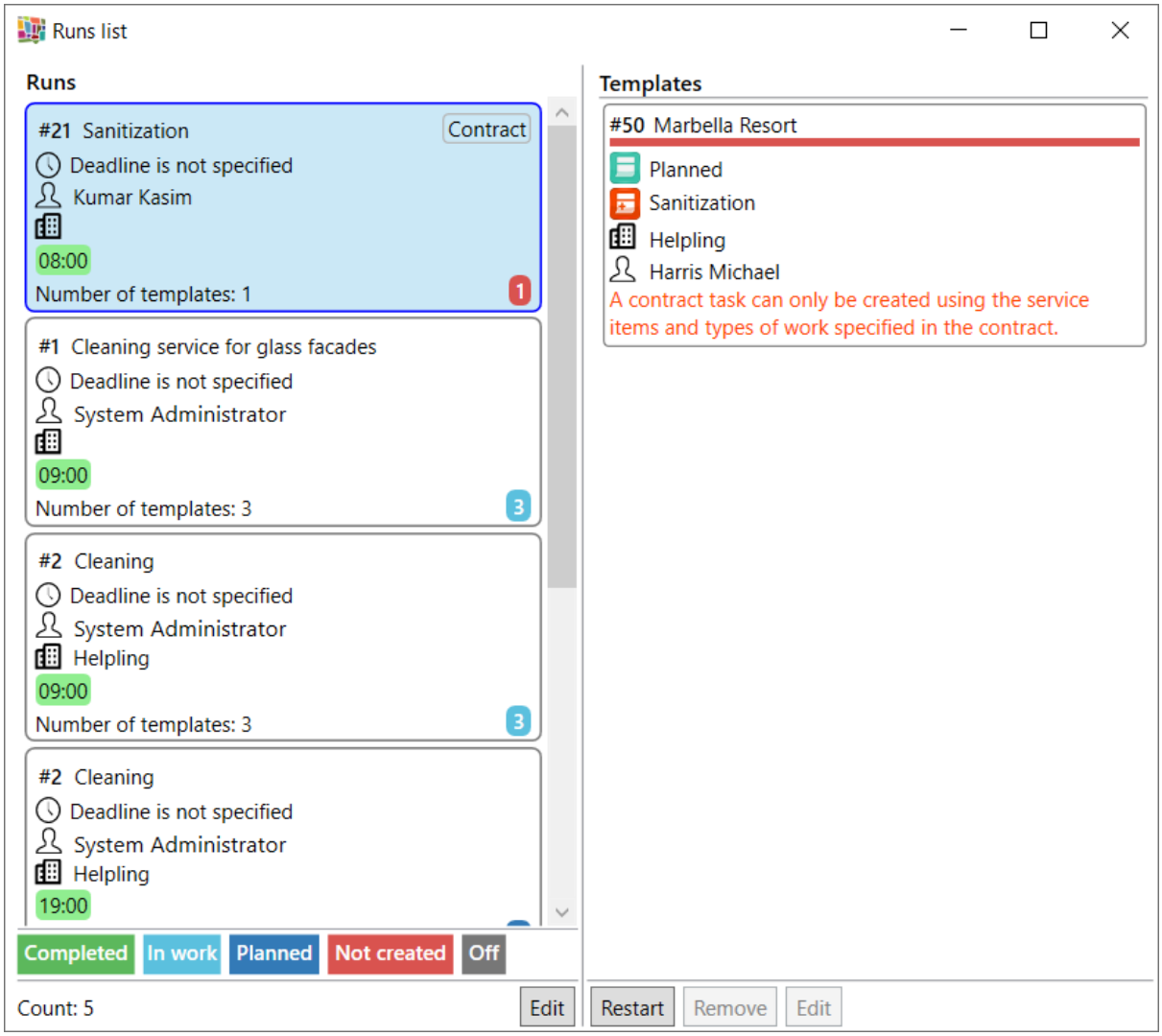

Fig. 2.167: “Runs list” window

This window shows launches, templates used, and task steps. If a task has not been created, a red icon with the number of tasks in the “Not created” step appears in the left part of the window. Clicking this card displays the templates for created tasks on the right side of the window. Here you can see the reasons why the task was not created (for example, if the type of work, contract, organization, or executor does not match).

If the task was not created, you can restart the template creation. To do this, edit the selected template and click “Restart”. If necessary, you can delete the template from the schedule. It is also possible to edit the schedule itself by selecting it in the list of launches and clicking “Edit”. The “Schedule change” window opens (Fig. 2.168). You can also open this window by double-clicking the schedule of interest in the “Schedules list” window.

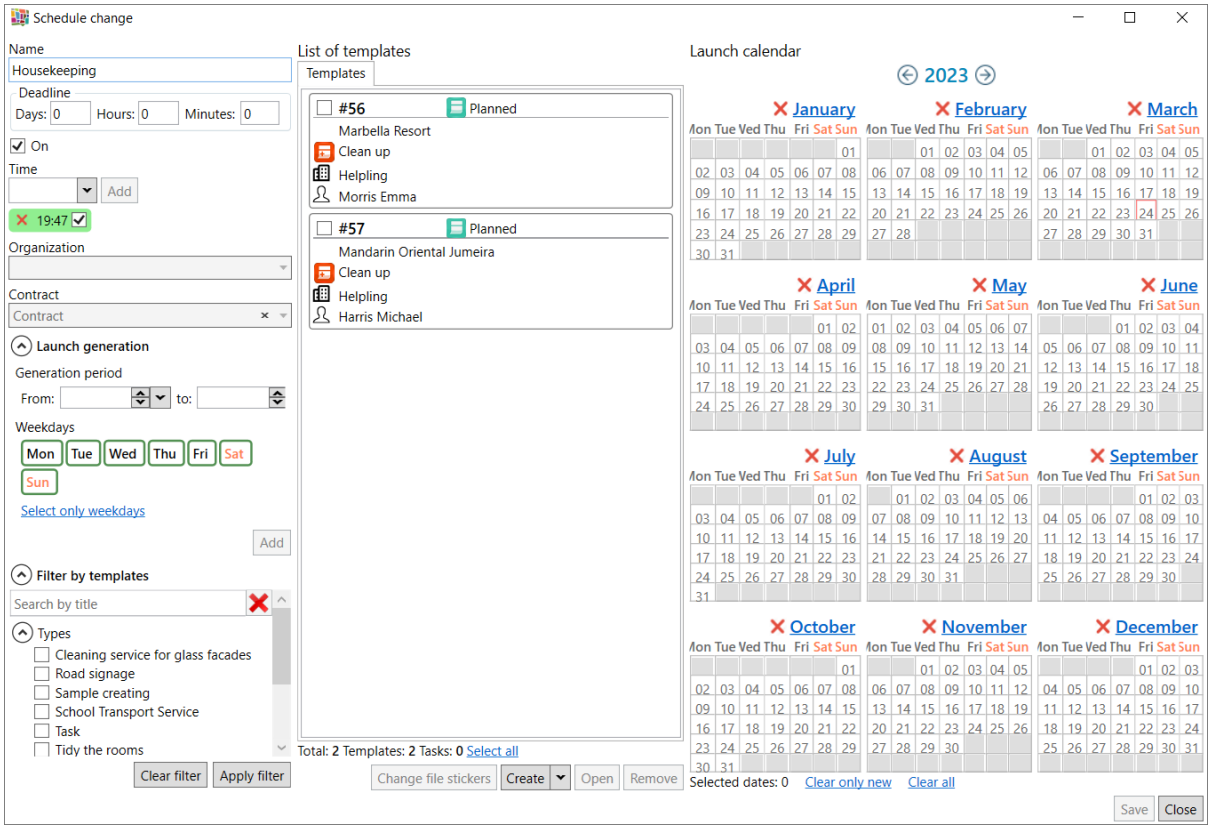

Fig. 2.168: “Schedule change” window

In the opened window, you can change the name, deadline, time, and period of generating launches, as well as select one of the attached templates using the filter by templates. You can open, edit, save, and delete the attached templates, change file stickers. In addition, you can create a new template or copy and edit one of the existing templates.

To edit existing schedules by adding tasks selected in the task list area to them, use the “Add to schedule” operation from the drop-down list in the lower right corner of the task list area (Fig. 2.169).

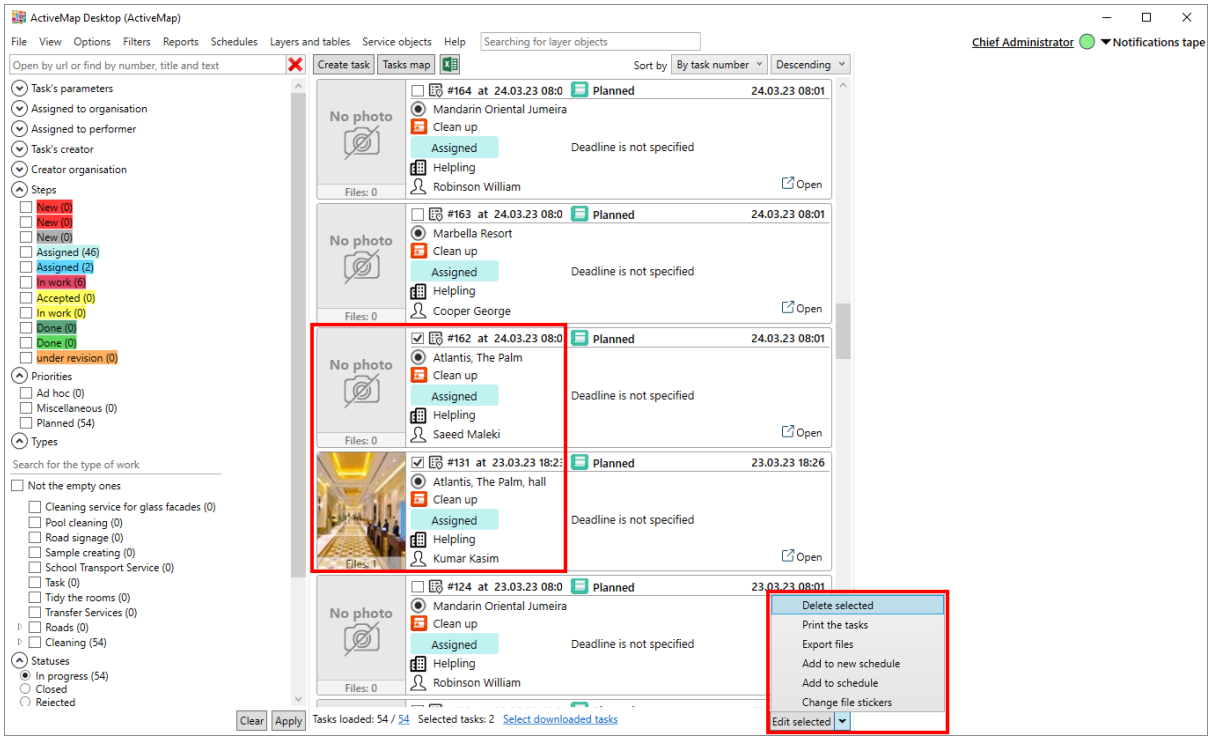

Fig. 2.169: Adding tasks selected in the list area to the schedule

After clicking “Add to schedule”, the “Schedule list” window opens (Fig. 2.166). Here you can select the schedule for including the selected tasks. To select a schedule from the list, click on it and click “Select” (Fig. 2.170). You can use the filter bar on the left side of the “Schedule list” window to make it easier to find the desired schedule.

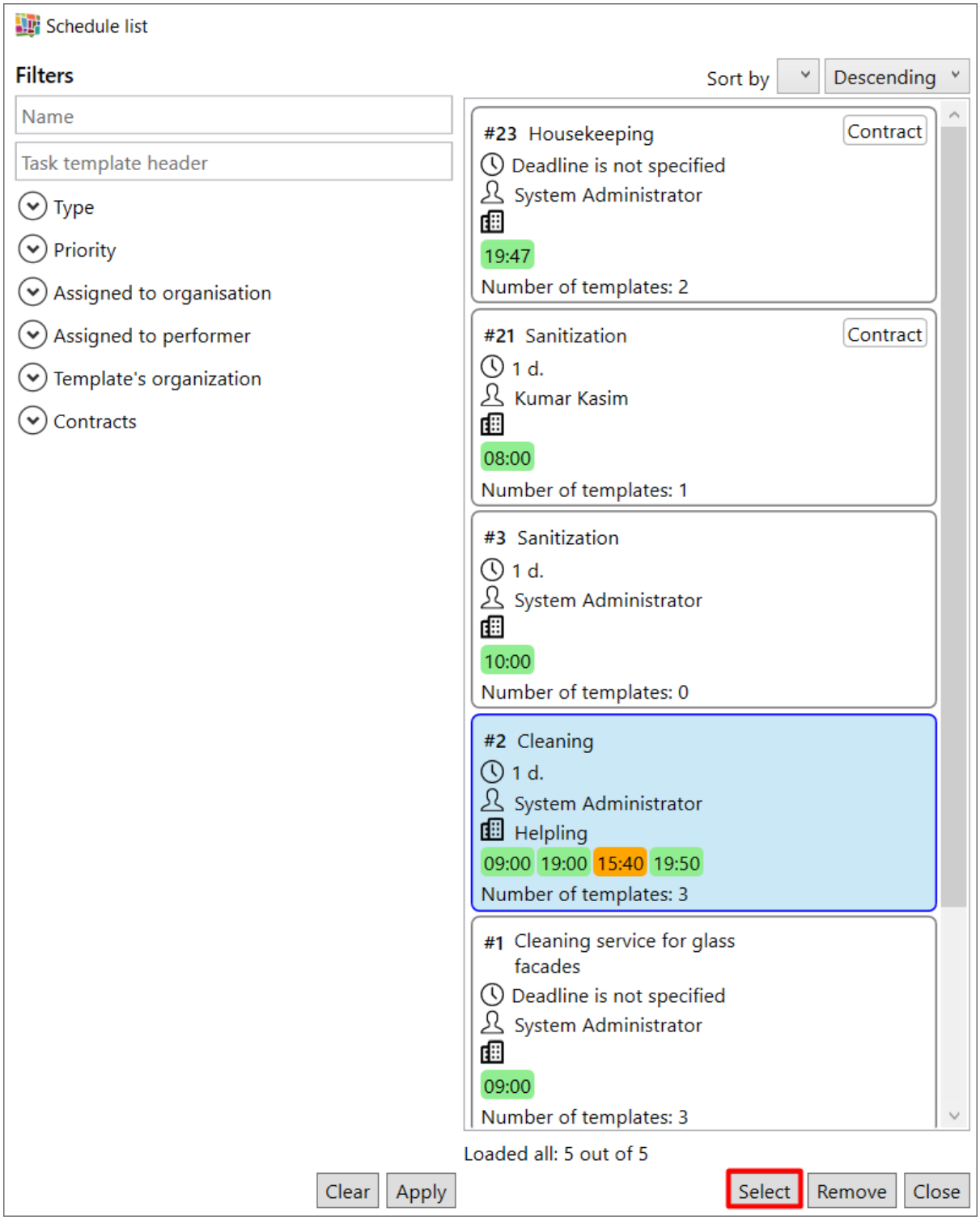

Fig. 2.170: Selecting a schedule for adding tasks

2.10 Completion of work

To exit the program (complete the work), close the window using the button located in the upper right corner of the ActiveMap Desktop window, or click “Exit” in the “File” tab on the toolbar.

CHAPTER

THREE

FREQUENTLY ASKED QUESTIONS

3.1 Log in to the Program

If you are experiencing authorization problems, please check your internet connection. If you are connected to the internet but the problem persists, contact the technical support hotline at the phone number listed on the https://activemap.me/ website, or send an email to support@activemap.me.

3.2 Updating the Program

If you have a problem while updating ActiveMap Desktop, please check if another copy of the desktop application is running. If it is running, close the application and try to update again. If the application is not running or these actions do not help, disable your antivirus software and update again.

3.3 Photo from the task does not open in the Program

If you cannot open photos in the application, please check if you can open other images from any folder on your computer. If they do not open, this problem may be related to the absence of an image viewer application or a default image viewer not being set up. Install an image viewing program and/or set it as the default viewer for used image and photo formats.

3.4 Planned tasks are not created

If a schedule has been created for tasks but they do not appear in the system at the specified time, check whether the assigned executor belongs to the organization. If the executor does not belong to it, the task generation becomes impossible. Change the executor or the organization in the task template attached to the schedule.

3.5 Impossible to import a service object layer or a task from MS Excel

Before you start loading data into ActiveMap Desktop you should close the imported file if it is opened in external programs. Column headings are read from the first line of the imported *.xlsx-file. Headings are required for the import.

If the imported *.xlsx-file is opened in the import preview window, but the “Load” button is inactive, red tips appear in the lower left corner of the window indicating the possible reasons for rejection. The import is impossible if no layer group is specified or if the imported table has several fields with the same names. Specify the group, delete the fields with duplicate names in the source file or exclude them from the import by deleting the data type under the field names during previewing in the current window.

When importing tasks, remember that the executor should belong to the assigned organization, and the additional fields should correspond to the selected type of work.

CHAPTER

FOUR

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Operational tasks are the tasks created to solve current issues.

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

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

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

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

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

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

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

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

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

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

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

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

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

SQLite Data Format is the SQLite relational database file format.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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