«AeroGIS Cemetery», version 2.0

User manual

Installation

The server part of «AeroGIS Cemetery» software is usually installed by our specialists on the customer's local computer, either on the customer's server, or on our cloud server (to access to the software with customer data from anywhere via the Internet).

1. **1. Installation on a local computer and installation on a server in the customer's local network.** Depending on the customer's operating system, the software is installed as a local web server. For Windows operating systems, the program can be installed on a freely distributed web server OpenServer (https://ospanel.io/).

2. **Installation on a cloud server.** When installed on our cloud server, the customer receives 24/7 access to the database with backup of stored data on the server. In this case, the customer receives the server address on the Internet, a login and password to access the software. The customer can export all data for each cemetery from the cloud server into a separate file, in Excel spreadsheet format. If necessary, the exported file with cemetery data can be imported back to the cloud server. This feature is useful to create additional backups on the customer's computer, or to transfer data from a local server to a cloud server and vice versa. Since the software is being improved, when installed on a cloud server, software updates and the addition of new functionality will appear automatically for the customer.

Launch

If the web server was installed on the customer's computer, ensure that the server is in the "started" state. If you use OpenServer under Windows OS, you should see a green flag in the notification area of taskbar.

Open a web browser and enter the server address in the address bar. To avoid manually entering the server address, you can create a shortcut on your desktop or in your web browser bookmarks. If the web server is running on the same computer on which the software is installed, the default server address is "localhost" or "127.0.0.1". When the authorization window appears, enter the login and password (if applicable) issued during installation.

1. The «AeroGIS Cemetery» software consists of the following elements:

The table displays the graves of the selected cemetery, according to the filters from the menu bar. (By default, all graves of one quarter from the "Quarters" section are displayed).

The interactive map displays all fences (or GPS tags if no fence perimeter is specified) associated with the rows displayed in the table. When a user selects a grave in the table, the map moves to the fence/GPS marker corresponding to this grave. When a user selects a fence/GPS marker on the map, the table scrolls and highlights graves related to the selected fence.

The Image Gallery displays photos related to the selected rows in the table. To select several rows in the table, a user can hold down the "CTRL" key on the keyboard and select several non-adjacent rows, or the "SHIFT" key to select a range of rows (the functionality is similar to EXCEL tables). When a user clicks on an image in the image gallery, it opens in a new tab at full scale.

When re-inventorying the same cemetery, a user can switch between filming years and visually see the difference on the map, how the cemetery has changed since the previous inventory (if there are layers, based on a drone's photography). The data in the table is displayed as a cumulative total. If a user selects the last filming year (selected by default), the table displays data from all inventories, if the first one, the table displays only the data that was entered in the first inventory.

When a user hides interface elements, such as the map, the table expands to fill the entire screen, and vice versa. When a user hides the image gallery, the table and map expand to fill the entire screen.

2. The «AeroGIS Cemetery» software in edit/add new data mode:

When data-editing mode is enabled, a user can make changes to existing data and/or add data for new graves. New graves are entered in empty lines, highlighted with a light green background.

To speed up input, the table implements the auto-substitution and auto-replace functions:

- when a user enters three words separated by a space in the "Last Name" field and presses the "ENTER" key, the program will fill in the "Last Name", "First Name", "Middle Name" fields with these words, respectively, and move the cursor to the "Date of Birth" field. (When a user enters two words, the "Last Name" and "First Name" fields will be filled in)

- If new data is the same as on the previous row of the table (for example, the same last or middle name), a user can press the key combination "**CTRL+ENTER**" to copy the value from the previous cell and move the cursor to the next cell.

- If a user enters the symbol "*****" instead of the last name, then the last name is taken from the previous row and the gender is changed according to the rules of Slavic languages, when the last name depends on gender (for example, Ivanov>Ivanova, Berezhnaya>Berezhnoy, etc.)

- "First name" and "Middle name" fields implement auto-replacement.

- When a user enters three numbers (day, month, year) in the "Date of Birth" field, the numbers will be converted to a date in the form yyyy-mm-dd, for the convenience of further sorting by date, if necessary (sorting is done by clicking on the caption of the desired column). When entering six digits (day, month, year,

day, month, year), both fields "Date of Birth" and "Date of Death" will be filled in, respectively. When entering four digits (year, day, month, year), in the "Date of Birth" only the year will be filled in in the form "yyyy-??-??", the "Date of Death" field will be filled in completely. When entering two digits (year, year), both fields will be filled in as "yyyy-??-??". If the day or month is unknown, you can enter a symbol (any letter, such as "x" or the symbol "?"). They will be converted to an incomplete date, like "yyyy-??-dd" after save.

- The combination **«CTRL+4»**[1] sets a mark (checks the box) that this burial place (the entire fence) is the leftmost one in the row (the mark uses for the "Printable report" generator, indicates from which burial place it is necessary to turn deeper into the quarter and how many fences to go along this row to the desired one)

- The combination **«CTRL+6»**[1] sets a mark (checks the box) that this burial place (the entire fence) is the rightmost one in the row (the mark uses for the "Printable report" generator, indicates from which burial place it is necessary to turn deeper into the quarter and how many fences to go along this row to the desired one)

- When a user enters two numbers in the "Last Name" field, the table will fill in the "Fence Length" and "Fence Width" fields of the previous row of the table with them, without moving the cursor there (useful when information of the size of the fence is entered from photographs in the gallery).

- The fields: "Fence length", "Fence width", "Leftmost", "Rightmost" refer to the common fence. When a fence contains several graves (same area/quarter/grave number), it is enough to enter data in these fields on one grave, and after saving the changes, they will be reflected on all in common fence.

All data changes are saved in the database when a user clicks the "Save" button. Clicking the "Cancel" button discards all changes.

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[1] On extra keyboard (number pad)

3. Creating the fence in edit/add new data mode:

To attach a fence, select the corresponding grave in the table, click the "Add a fence" button, mark the corners of the fence "in a circle". To complete the editing, close the outline of the fence by reselecting the corner from which you started drawing. When closing the contour, the map will display the dimensions of each straight segment in centimeters and the occupied area of the fence. If you need to adjust the location of the fence corners or add another one, click the "Move/add fence corners" button and move the corner to the desired location with the mouse cursor. After saving the entered data, the outline of the fence will be displayed on the map (instead of a GPS mark, if there are coordinates in the "Longitude" "Latitude" field).

New fence will be attached to all graves with the same quarter and grave numbers.

4. Image gallery in edit/add new data mode

Upload new photos

Clear gallery

Linked photo filenames to the selected row in the table

Pointer to active photo

Auto-linking of common photo is enabled

Photo contains GPS coordinates

In edit/add new data mode, the photo gallery is used to attach photos to graves in the table. Click the "Upload new photos" button to upload photos for further analysis and linking to graves.

Image Gallery supports the following keyboard shortcuts:

- **«CTRL+9»**[1] - scroll up one photo in the gallery

- **«CTRL+3»**[1] - scroll down one photo in the gallery

- **«CTRL+*»**[1] - open the photo in a new browser tab in full screen (if you have two monitors, you can expand the new tab in full screen on the second monitor for easier recognition)

- **«CTRL+5»**[1] - enable auto-linking of common photo (applies to photographs of a common fence, when it is necessary to link the same photo to each grave in this fence). Usually, the order of photos should be as follows: first is an overview photo of the fence, then are photos of each tombstone (grave) in common fence. So, when a user presses this combination, the software perceives this as the beginning of entering the next fence, so it automatically sets the next grave number in the "Grave No." field. (Without using hotkeys, auto-linking can be activated by double-clicking on the paperclip icon on the photo, or manually linking a common photo to each grave in a common fence)

- **«CTRL+.»**[1] - Link the active (top) photo of the gallery to the current row in the table. If auto-linking of the common fence was enabled, then the common photo will be linked to the current row as well. If the active photo contains GPS coordinates and these fields are not filled in in the table, the software will fill them in automatically. If the fields: "Area", "Quarter", "Grave", "Fence Length", "Fence Width" are not filled in at the time of pressing this keyboard shortcut, the values are duplicated from the previous row. After that, the input cursor is moved to the beginning of the next row to enter a new grave. (Without using hotkeys, linking can be done by single-clicking on the paperclip icon in the photo). To unlink a photo from a table row, it's nessesary to click on the paperclip icon again.

When saving changes, linked photos are copied to the server to the folder, specified in the settings of the cemetery being edited. Then linked photos hide from the gallery.

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[1] On extra keyboard (number pad)

5. Program settings

Latitude/Longitude specifies the GPS coordinate where the map should scroll to when a cemetery is selected.

The path to the folder with the photo and to the folder with the map's underlay (if available) is tied to the filming year. The path to the photo folder indicates from which folder on the server the gallery should load photos of graves for the selected cemetery. The path to the map folder points to the map's underlay (if available), based on a drone's photography, which is overlaid on top of the public map. The map's underlay must be cut into tiles for each map scale and compatible with the Google Maps map format. If you have a technical support agreement, our specialists will help you make a compatible map's underlay (link the orthomosaic to the actual location, cut it into tiles for each scale and load it to the software).

The "Import .xlsx" button imports a cemetery from a previously exported file in EXCEL spreadsheet format. The name of the cemetery is contained inside the imported file. If a cemetery already exists, user will be prompted to overwrite the entire cemetery, or append importing data.

The "Export .xlsx" button exports all data of the selected cemetery (in the list of cemeteries), including the coordinates of each corner of fences and quarters into one file in EXCEL spreadsheet format. Exported file can be used to create backups.

The "Calculation of free territory" button allows you to calculate the percentage of cemetery occupancy by subtracting the areas of the fences from the areas of the quarters.

All settings changes (including deleting/adding cemeteries) are physically applied only after clicking on the "Save" button.

Be careful! When you delete a cemetery and click the "Save" button, the cemetery and all its graves will be deleted! Don't forget to export a backup file before deleting!