

Video analytics system for cities
and business

VEZHA

VEZHA

User Guide for VEZHA Person Re-Identification Plugin

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Description of VEZHA Person Re-Identification

What this module of the VEZHA system can do:

- Search and detection of people from photographs from the base of captured frames in real time.
- View the locations and movements of people on the wanted list.
- Search and identification of people based on their special signs.
- Determination of additional information: gender, age, features of appearance and clothing.
- Storage and transmission of data.

Person Re-Identification can be used to:

- Crime prevention.
- Creation of security systems for schools, kindergartens, educational institutions.
- Control of space and events at train stations and airports.
- Controlling shoppers in stores.

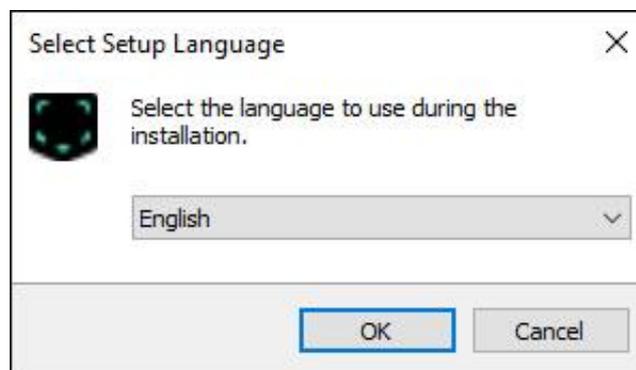
Basic data used by the Person Re-Identification:

- Fixing people in a video stream on city streets, in a crowd or indoors.
- Data analysis and selection of frames with people from the video stream received from surveillance cameras.
- Collection of photographic materials with information about the location, time of fixation and special features.

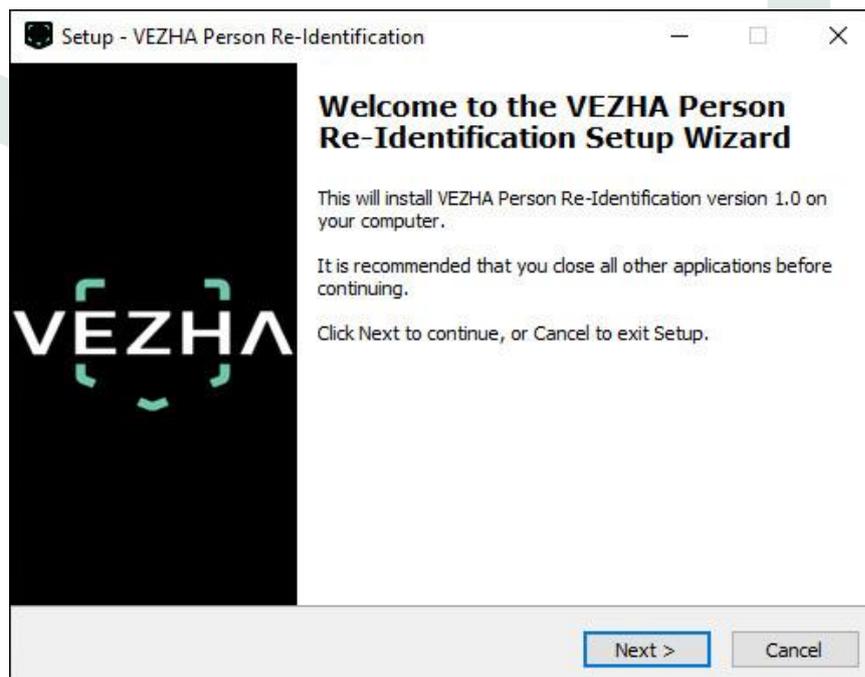
1. Installation

Before installation of VEZHA Person Re-Identification Plug-In – Milestone Xprotect Management Client 2020 and Milestone Xprotect Smart Client 2020 R2 need to be installed on Your system.

- 1) Launch the installer by double-clicking the downloaded file with the left mouse button `Person_Re_Id_Setup`.
- 2) In the window that opens, select the language that will be used during the installation process. To go further, click **OK**. To abort the installation, click **Cancel**.

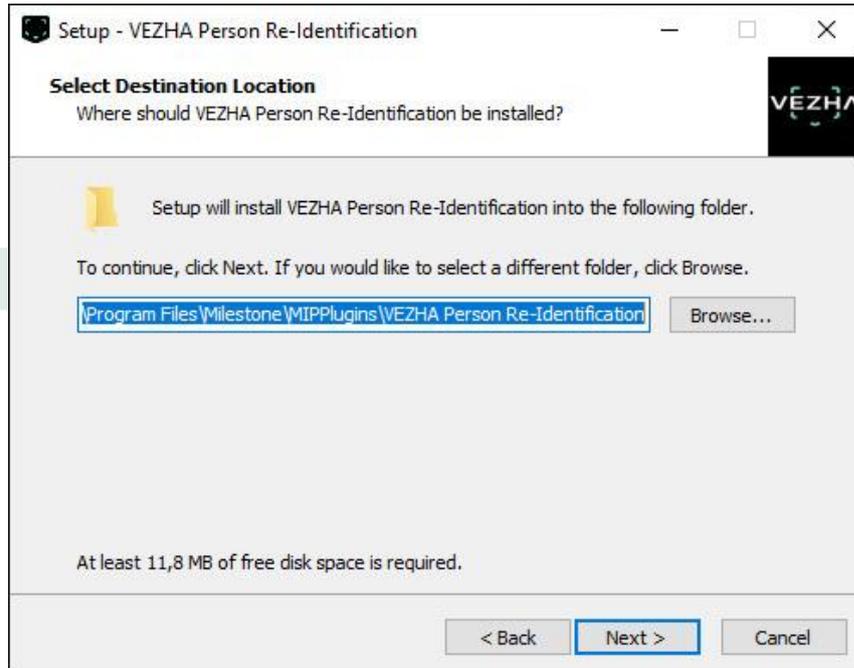


- 3) In a new window, read the installation recommendations and click **Next** to continue the installation, or the **Cancel** button to abort the installation.

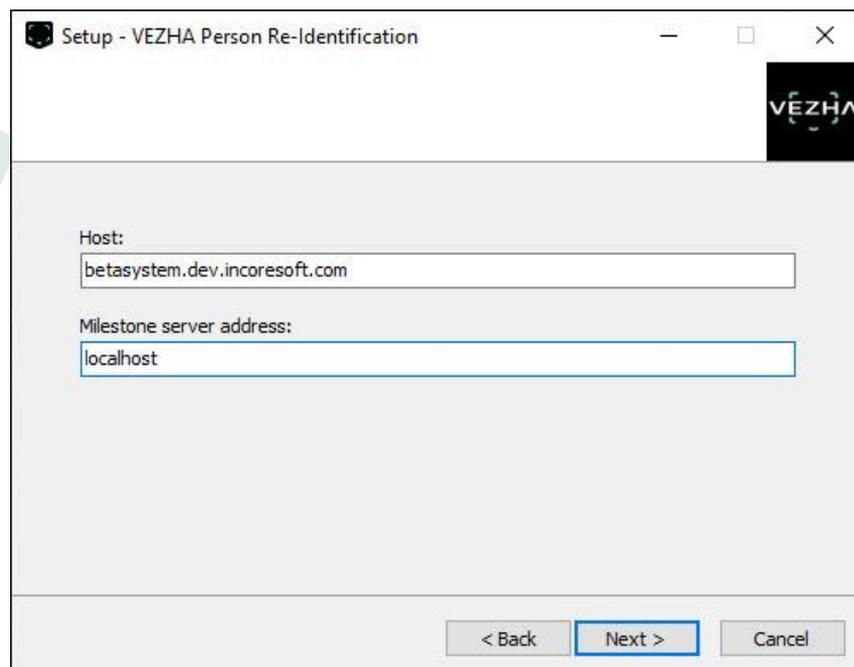




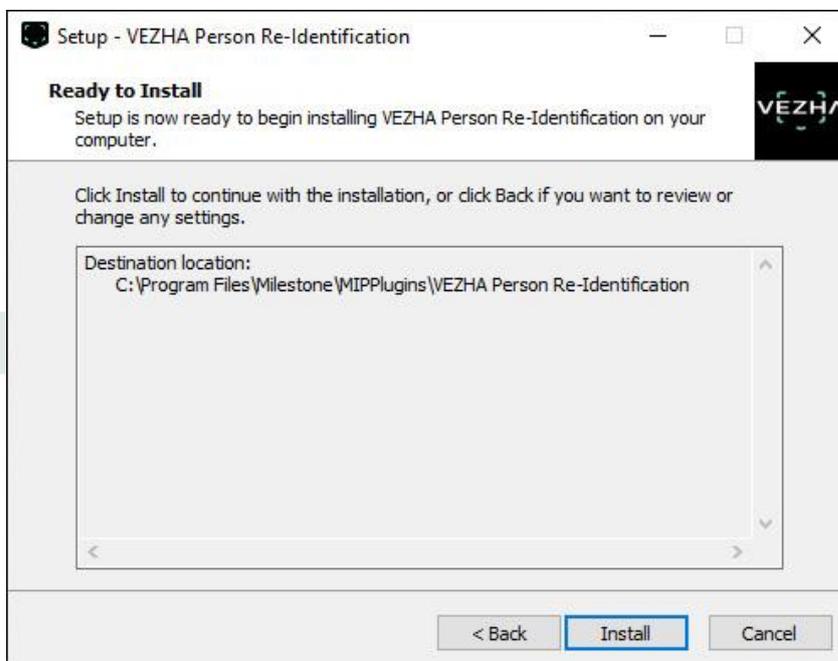
4) In the **Select Destination Location** window using the **Browse** button, specify the place where you want to install the plugin. The plugin must be installed in the **Milestone** folder with other plugins. After selecting the desired folder, click **Next** to continue the installation or **Cancel** to abort the installation.



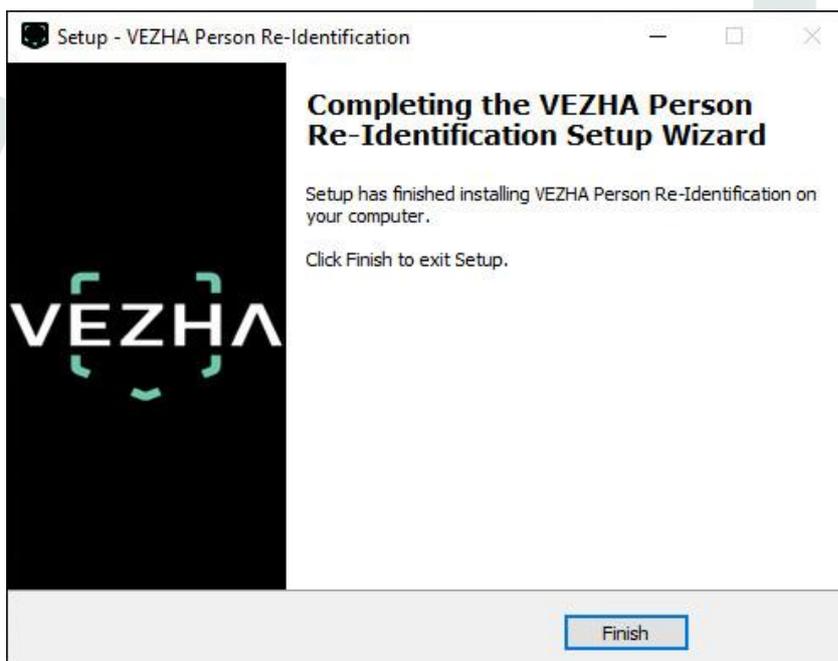
5) In this window, for correctly program work, you must correctly fill the fields and click **Next** to continue the installation or **Cancel** to abort the installation.



6) Click **Install** to start installation.

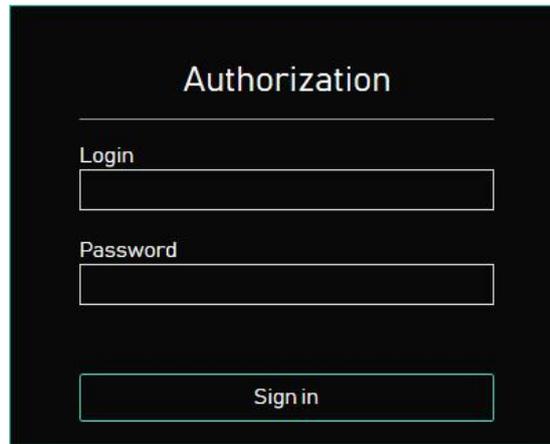


After the installation is completed, click **Finish**.



2. Log In

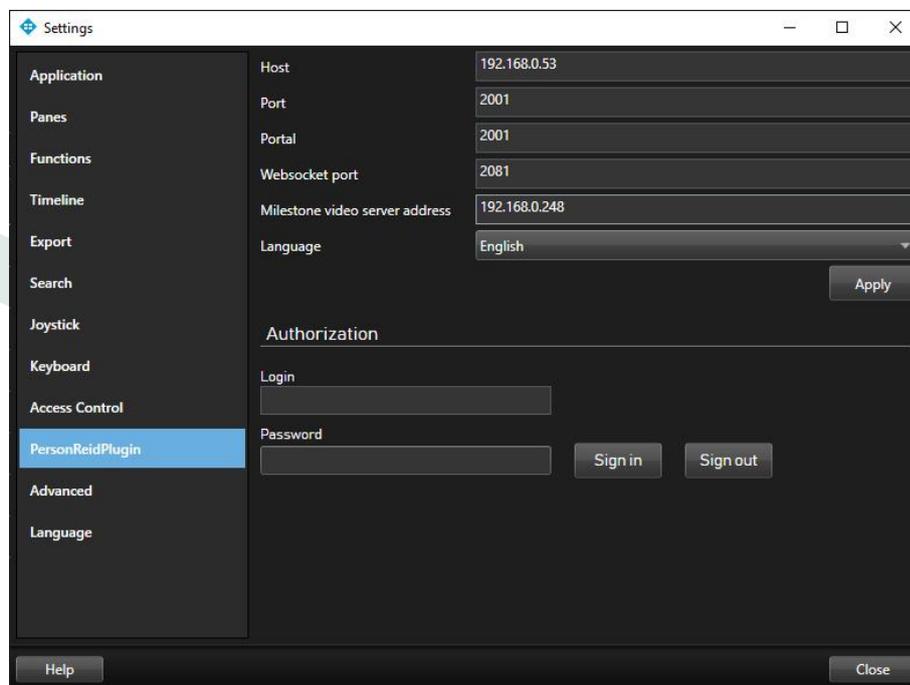
To enter the system you need to go through authorization. To do this, enter the **Login** and **Password** in the appropriate fields of the modal window and click **Sign in**.



The image shows a dark-themed modal window titled "Authorization". It contains two input fields: "Login" and "Password". Below these fields is a "Sign in" button. The window is centered on the screen with light gray decorative shapes on either side.

3. Settings

In order to open the **VEZHA Person Re-Identification** settings, click the icon in the upper right corner of the screen. Select  and click **Settings**. In the window that opens, select the **VEZHA Person Re-Identification** tab.



The image shows a "Settings" window with a dark theme. On the left is a sidebar menu with the following items: Application, Panes, Functions, Timeline, Export, Search, Joystick, Keyboard, Access Control, PersonReidPlugin (highlighted in blue), Advanced, and Language. The main area displays configuration options for the selected tab. The "Authorization" section is expanded, showing "Login" and "Password" input fields, and "Sign in" and "Sign out" buttons. Above this, other settings are visible: Host (192.168.0.53), Port (2001), Portal (2001), Websocket port (2081), Milestone video server address (192.168.0.248), and Language (English). An "Apply" button is located to the right of the Language dropdown. At the bottom of the window are "Help" and "Close" buttons.

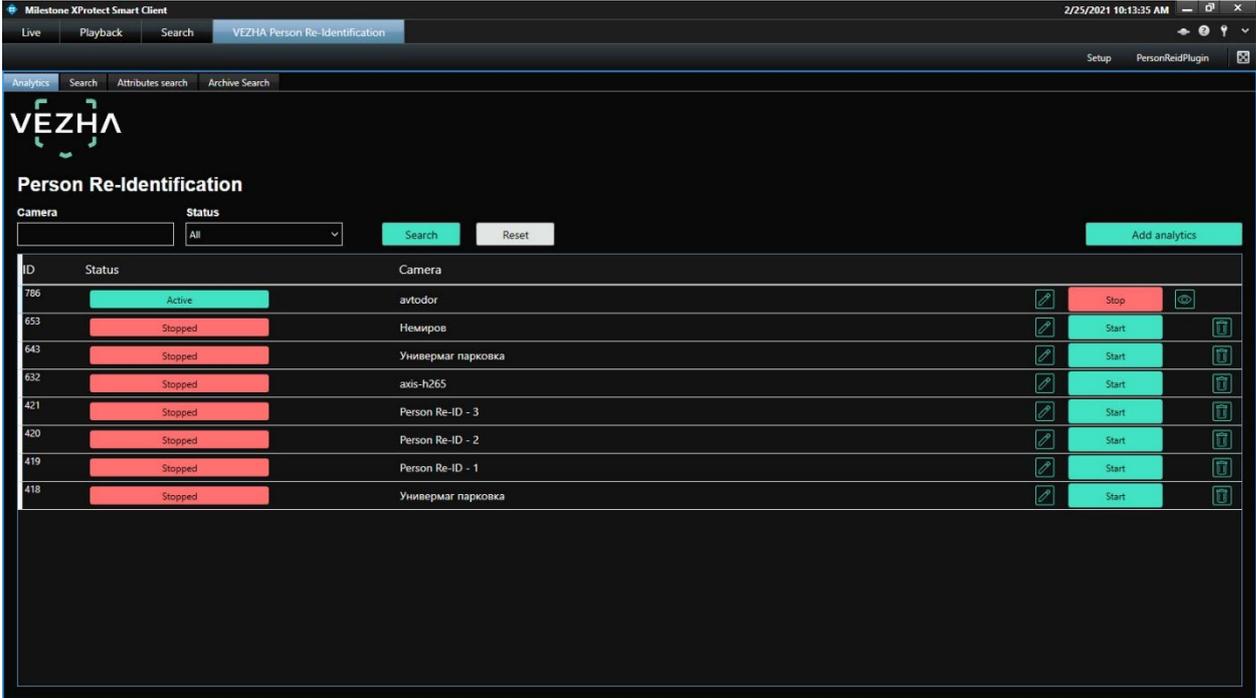
To change the server settings in the VEZHA Person Re-Identification tab, you can edit the following fields: **Host**, **Port**, **Portal**, **Websocket port**, **Milestone video server address**.

To change the language, use the **Language** field and select most convenient for you.

To make changes, click **Apply** and reload the plugin.

4. Analytics

This tab is developed to view the list of analytics with the ability to add, edit, delete analysts, view video from active analysts in real time.

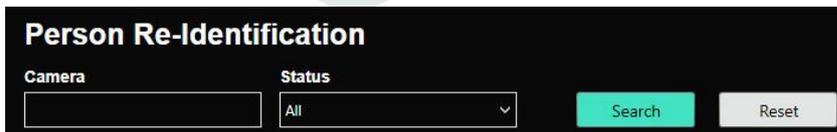


The screenshot shows the 'Person Re-Identification' interface. At the top, there are tabs for 'Live', 'Playback', and 'Search'. Below the tabs, there are buttons for 'Search', 'Attributes search', and 'Archive Search'. The main area displays a table of analytics with the following columns: ID, Status, and Camera. The table contains the following data:

ID	Status	Camera
786	Active	аитодор
653	Stopped	Немиров
643	Stopped	Универмаг парковка
632	Stopped	axis-h265
421	Stopped	Person Re-ID - 3
420	Stopped	Person Re-ID - 2
419	Stopped	Person Re-ID - 1
418	Stopped	Универмаг парковка

4.1. Analytics Search

At the top of the screen is a search field.



The close-up shows the search field with the following elements:

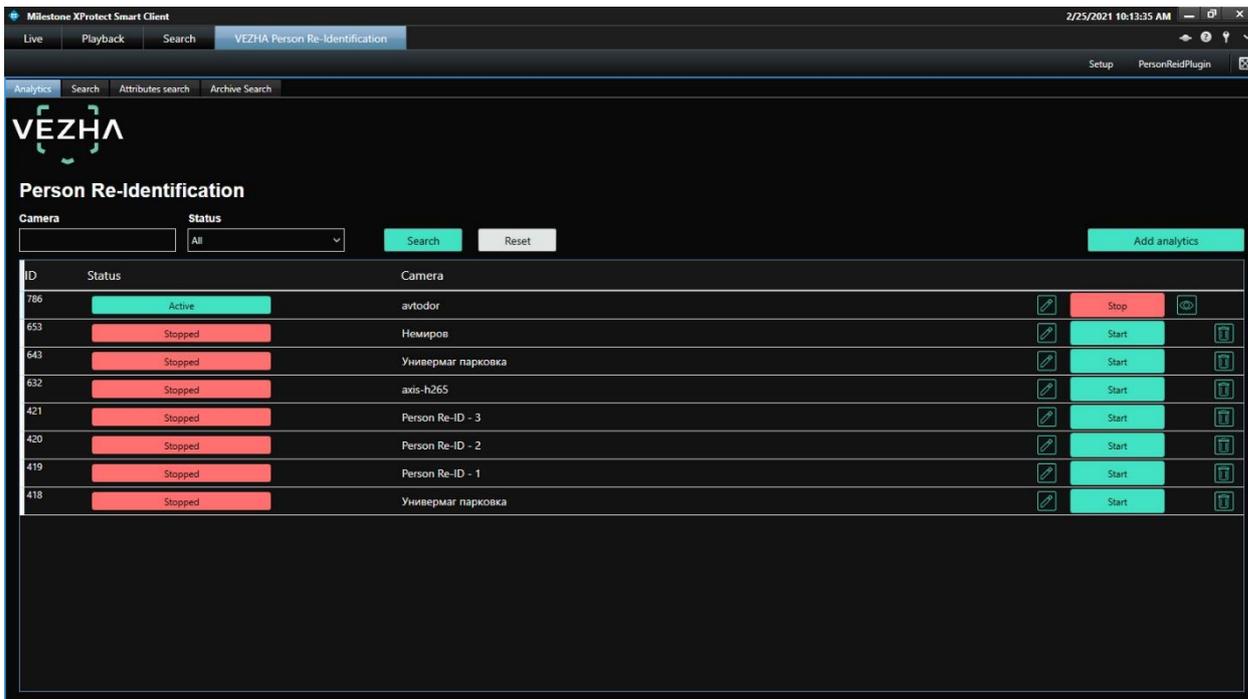
- Camera:
- Status:
- Search button
- Reset button

To find the analytics you need, enter the name of the camera or select the analytics status.

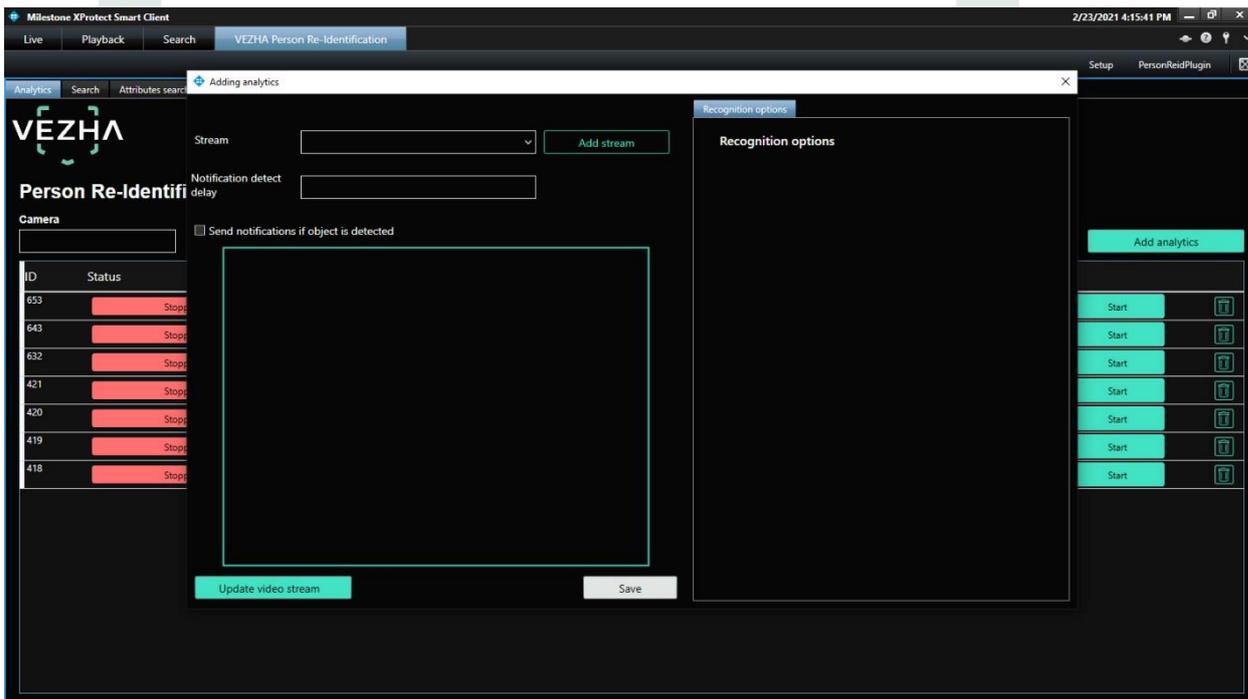
To start the search, click the **Search** button.

4.2. Add analytics

To add analytics, push button **Add analytics**.

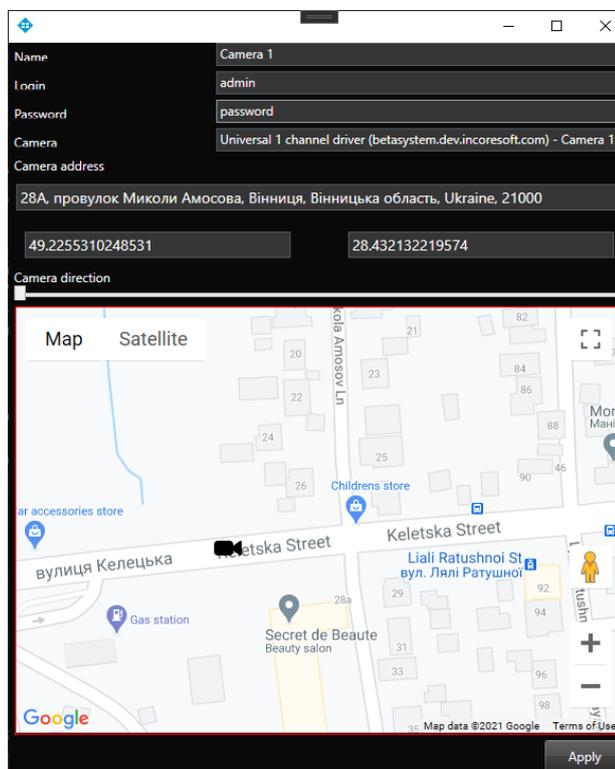


New window will appear.



Field name	Description
Stream	Click on the field and select a name from the drop-down list cameras. The video stream will be used to create analytics.
Notification detect delay, seconds	The time after which the system will send notifications about detection. The recommended time is 5-10 seconds.
Send notification if object is detected	Check the box Send notifications if object is detected to create your own event to send notifications.

In order to create new analytics click **Add stream**.



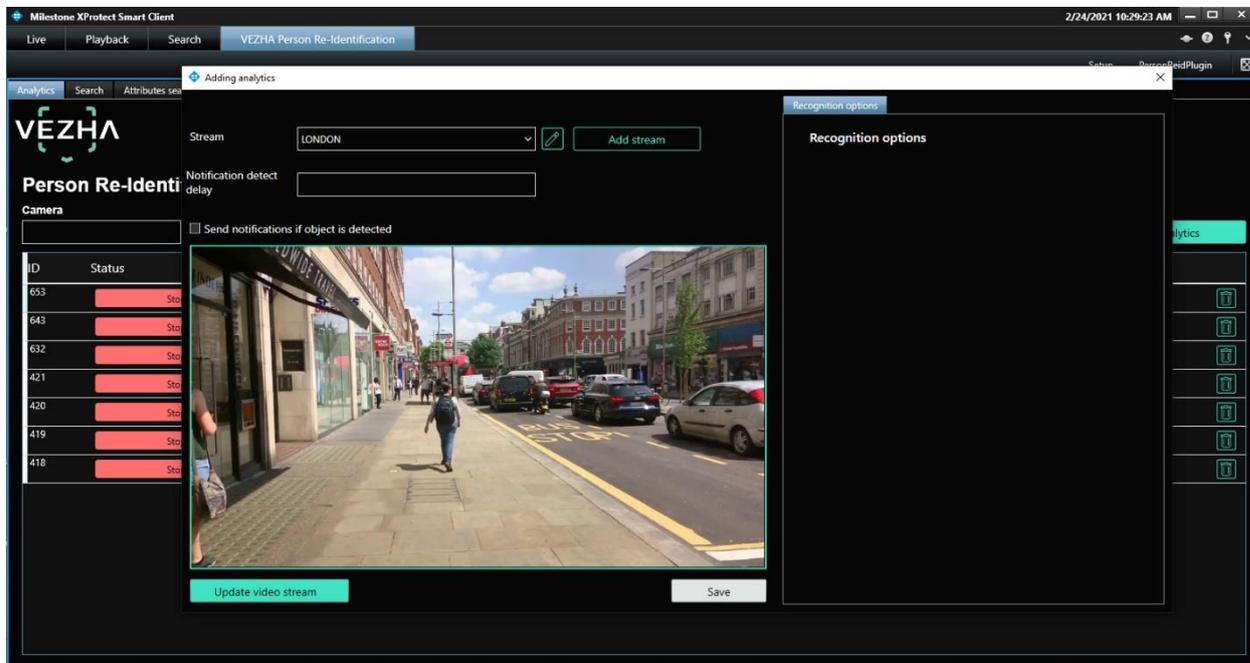
In the opened window fill the fields:

Field name	Description
Name	Enter the name of the video stream in the field. This field will be displayed in all components of the program that use video streams.
Login	Enter the name of the current user in the field.
Password	Enter password
Camera	Select a camera from the drop-down list.
Camera address	Enter the address in the field, or select on the map below the location of the camera. The system will automatically determine the location coordinates.
Camera direction	drag the slider to change the direction of the camera. Indication of camera rotation helps in determining the direction of the vehicle.

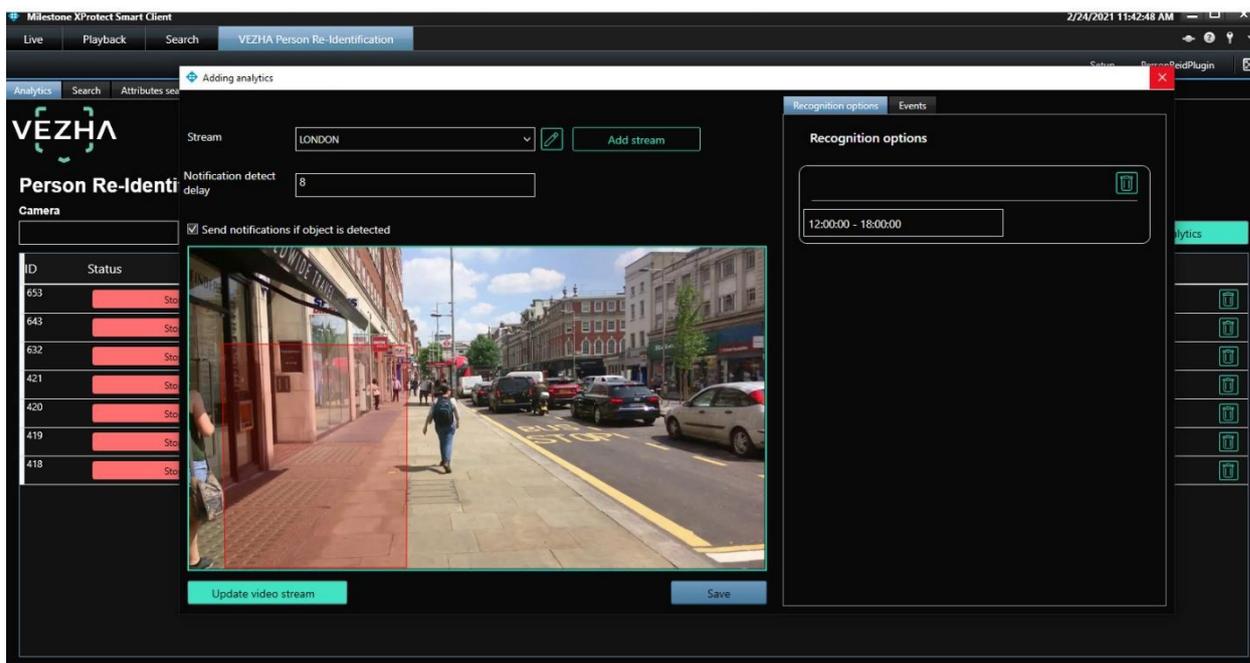
To save the changes, click **Apply**.

Example:

Press **Stream** in selector and choose your stream. Related to this stream picture will appear below.



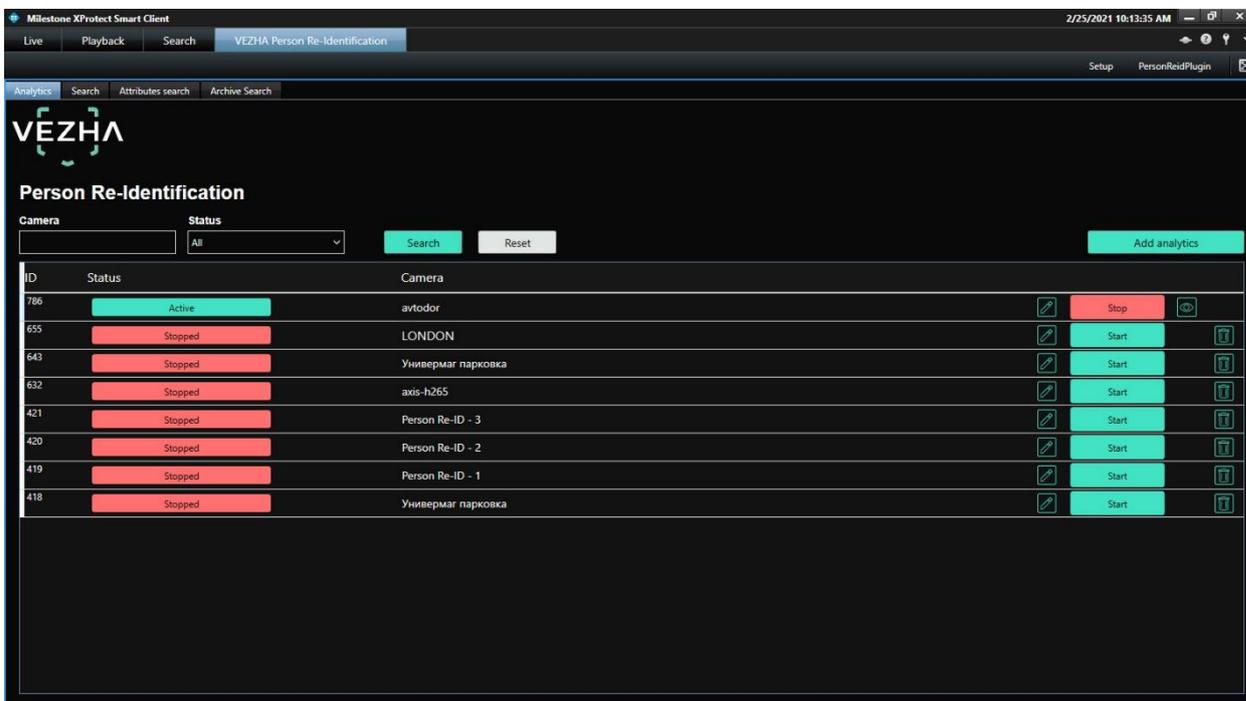
Then you may set the area you want be detected by drawing any shape you want, for example as a rectangle on the picture. Also you may mark checkbox **Send notifications if object is detected**, set time in seconds in **Notification detect delay** (recommended 5-10 seconds) and set analytics working time from the right side, but exactly in time format: 00:00:00 – 23:59:59



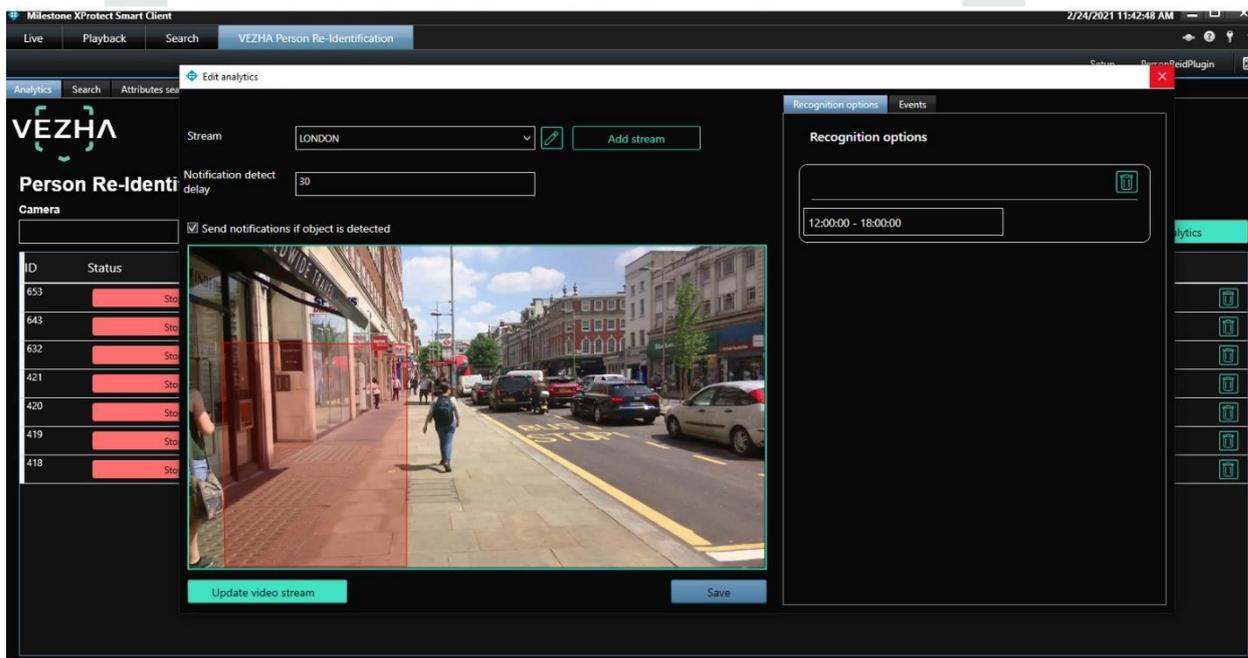
At the end push blue button **Save** and wait analytics to be added.

4.3. Edit analytics

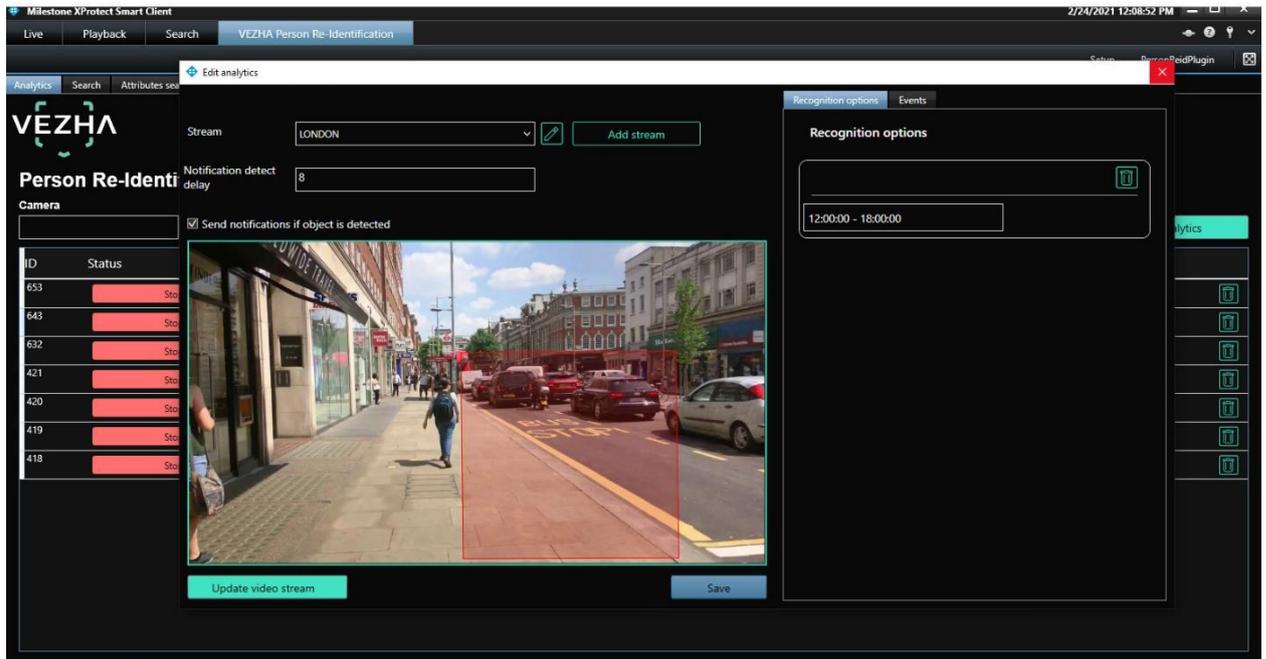
Press  icon.



The window **Edit analytics** will appear with settings which was set when analytics were added. If you want edit detection area press  icon to delete it. Then you can set a new area.

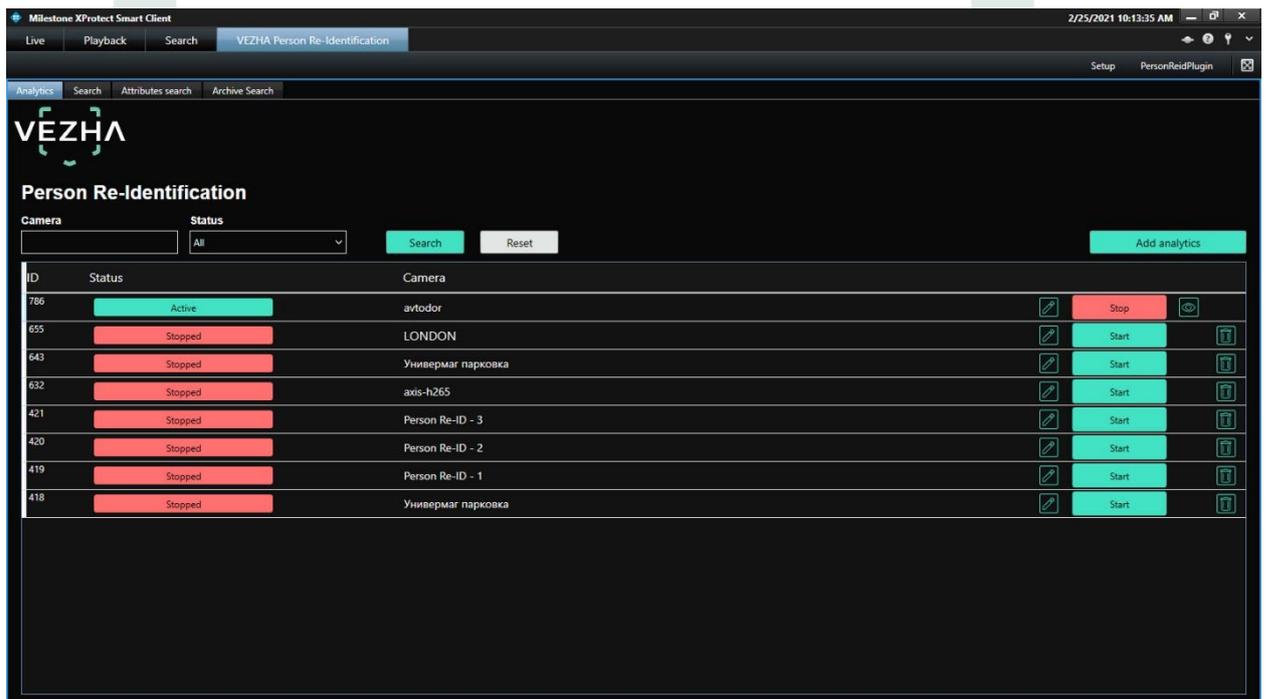


When new area is set, and all other changes are done you should press blue button **Save** and wait until all changes are saved.



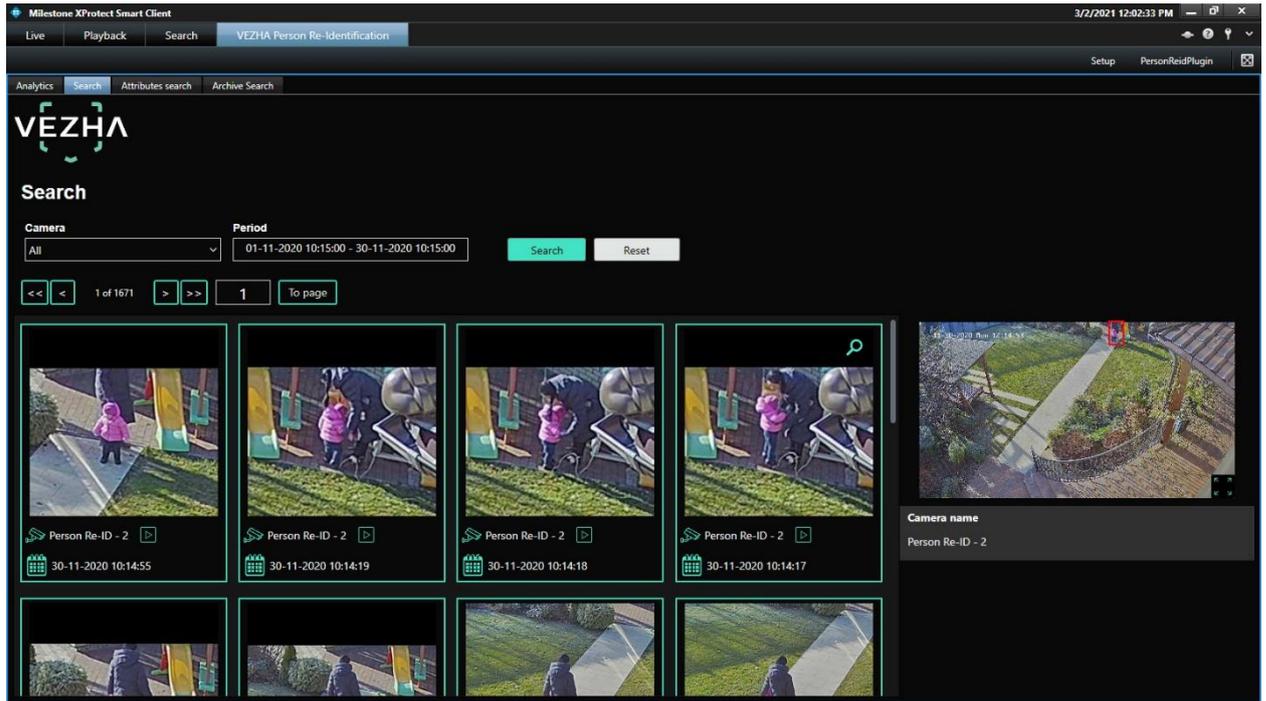
4.4. Start, Stop, Watch Analytics

When your analytics are ready you may start any by pressing button . When it needs to be stopped you should press red button . Also you may watch running analytics by clicking corresponding  icon on picture below.

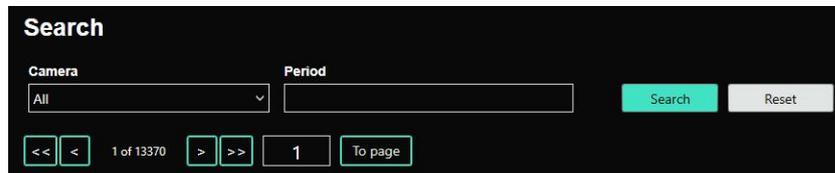


5. Search

Next section in VEZHA Person Re-Identification Plug-in menu is **Search**.

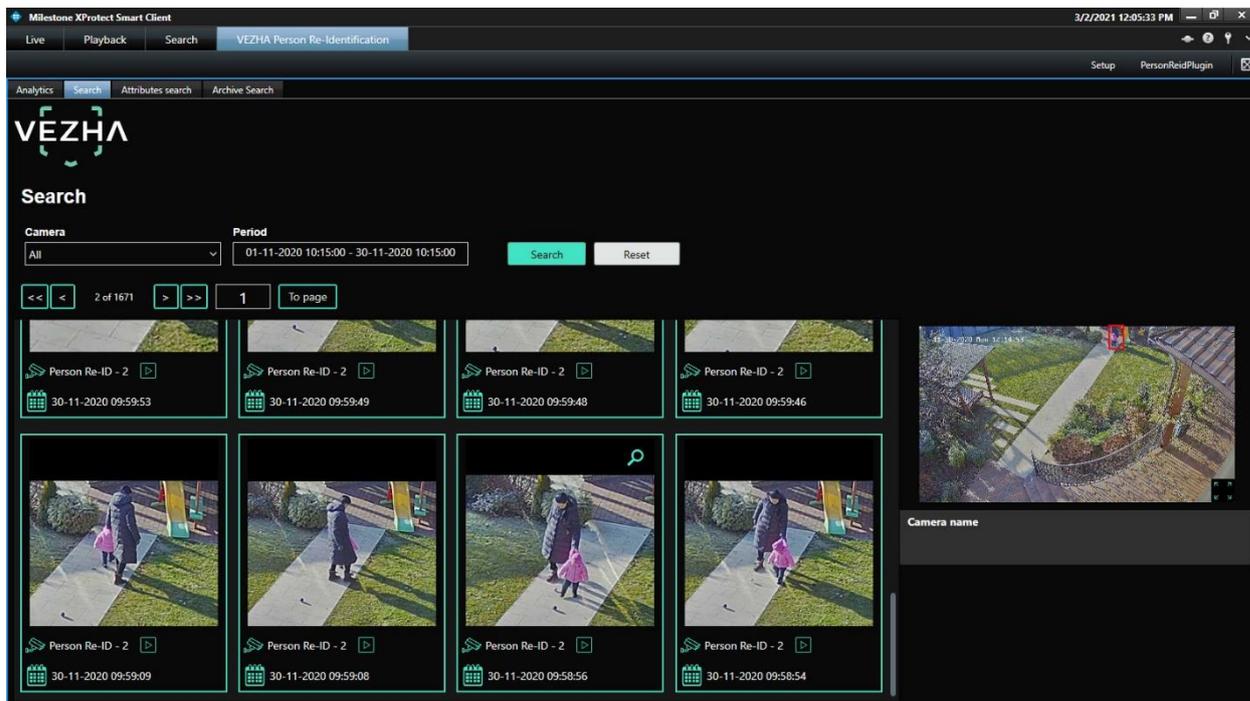


Click **Search** to display the search results. Click **Reset** to clear the input fields.

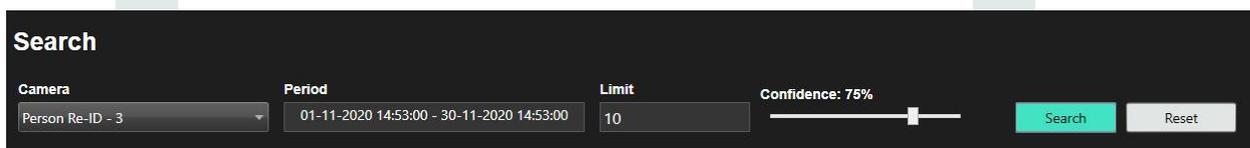


Field name	Description
Time period	Select period of time for which the search will be performed.
Camera	Select the cameras by which search will be performed.

In our case, we choose baby we want be detected with more information about her. First of all, we choose any photo with her, and then press magnifier  icon.

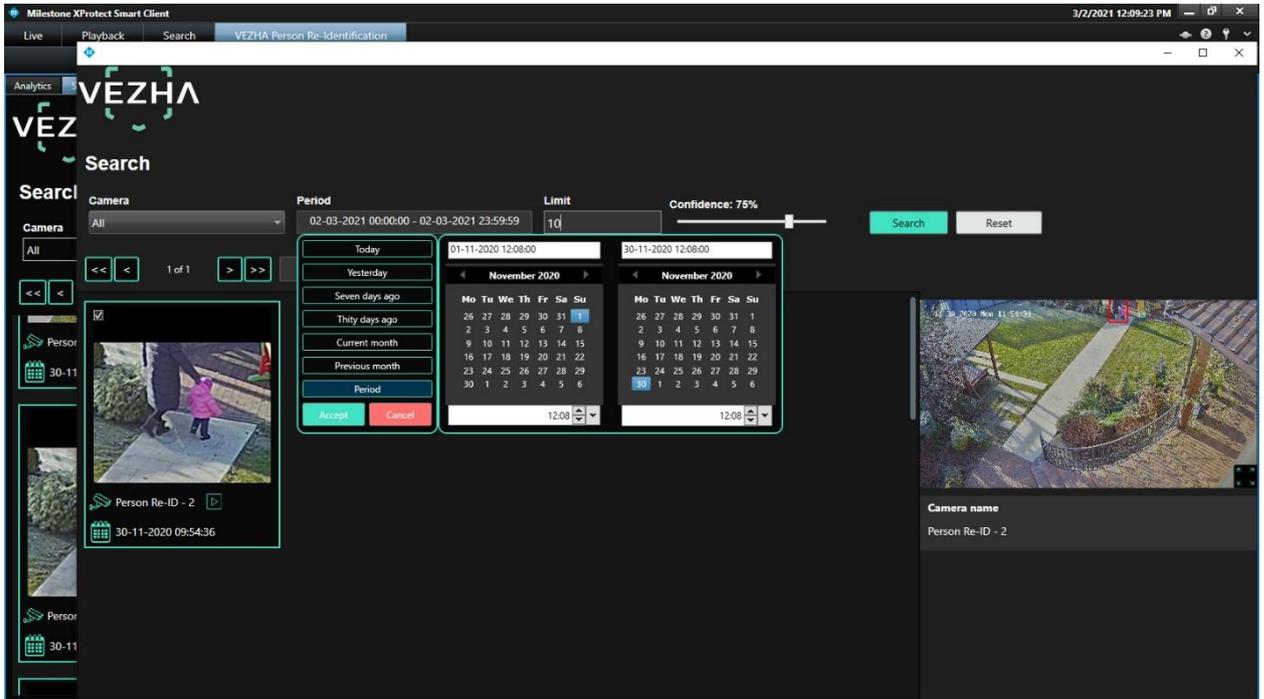


In the window that opens, you can search with more detailed parameters.

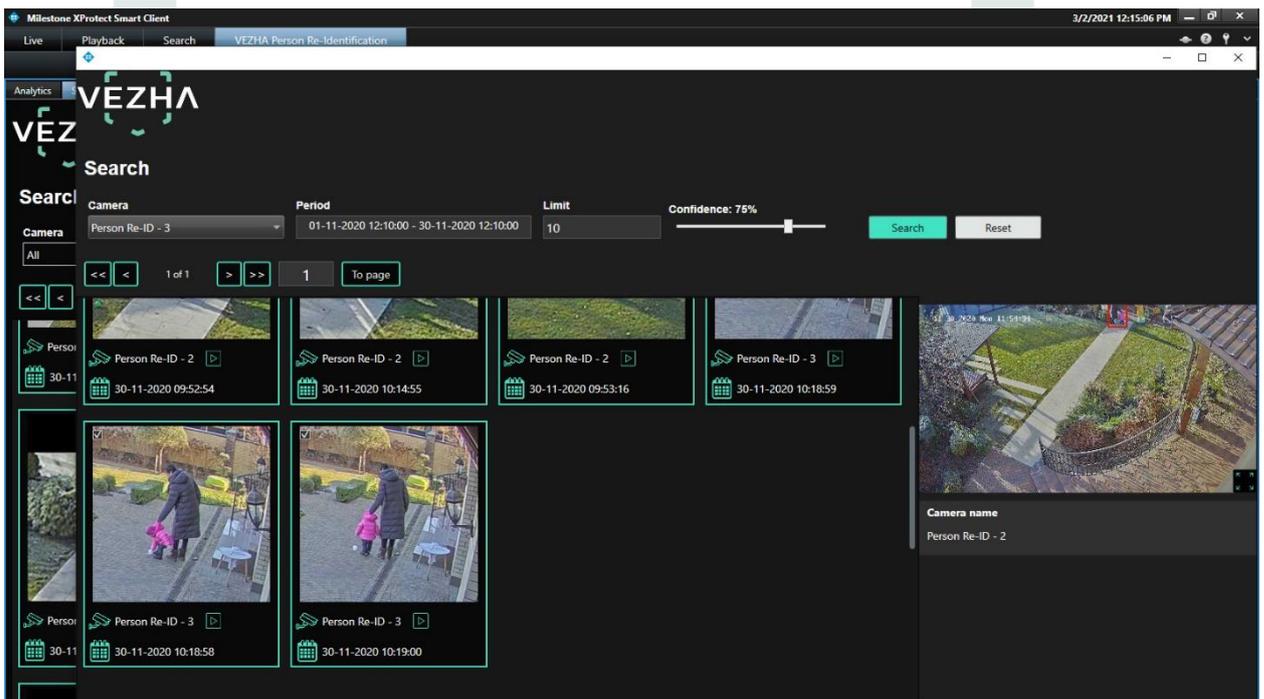


Field name	Description
Time period	Select period of time for which the search will be performed.
Camera	Select the cameras by which search will be performed.
Limit	Set the number of displayed frames
Confidence	Set the percentage of matching the search frames to the original frame

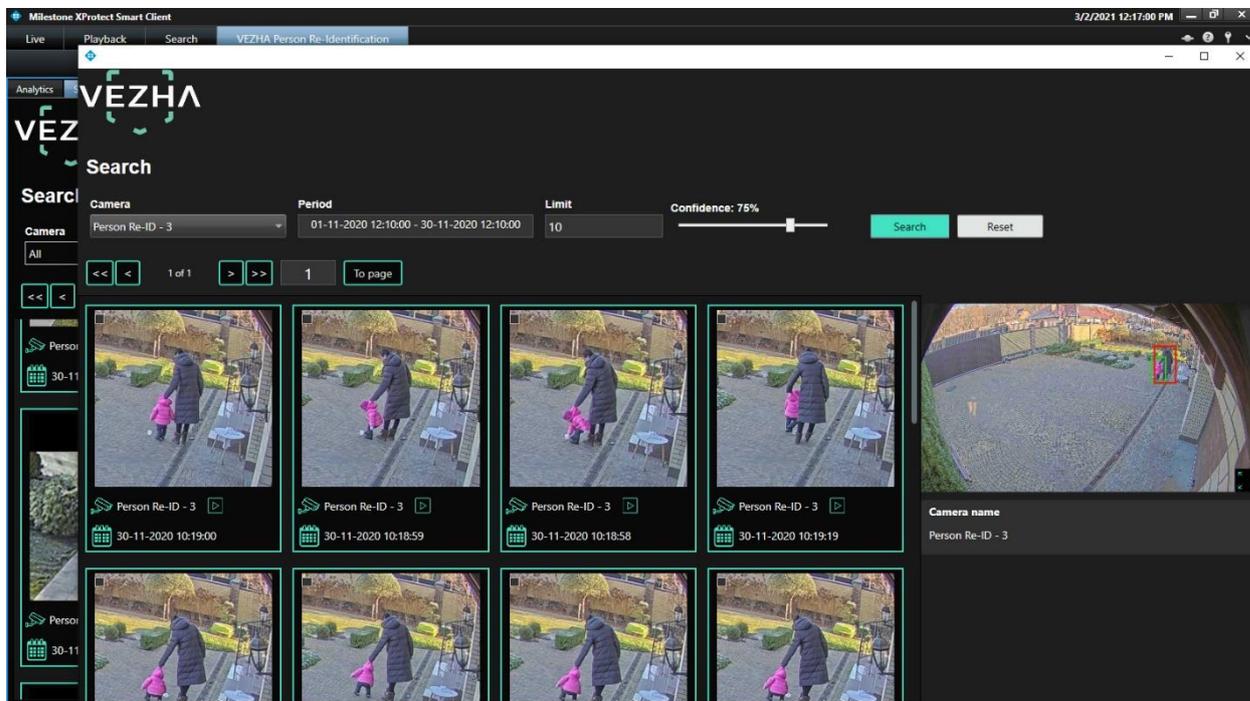
In our case, we mark the checkbox , set **Period** of time by using calendar and press green button **Accept** for changes to be saved, then we may set **Limit** of photos to be founded and **Confidence** from 0 to 100%. At the end we press green button **Search** for detailed searching process to be started.

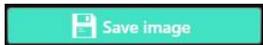


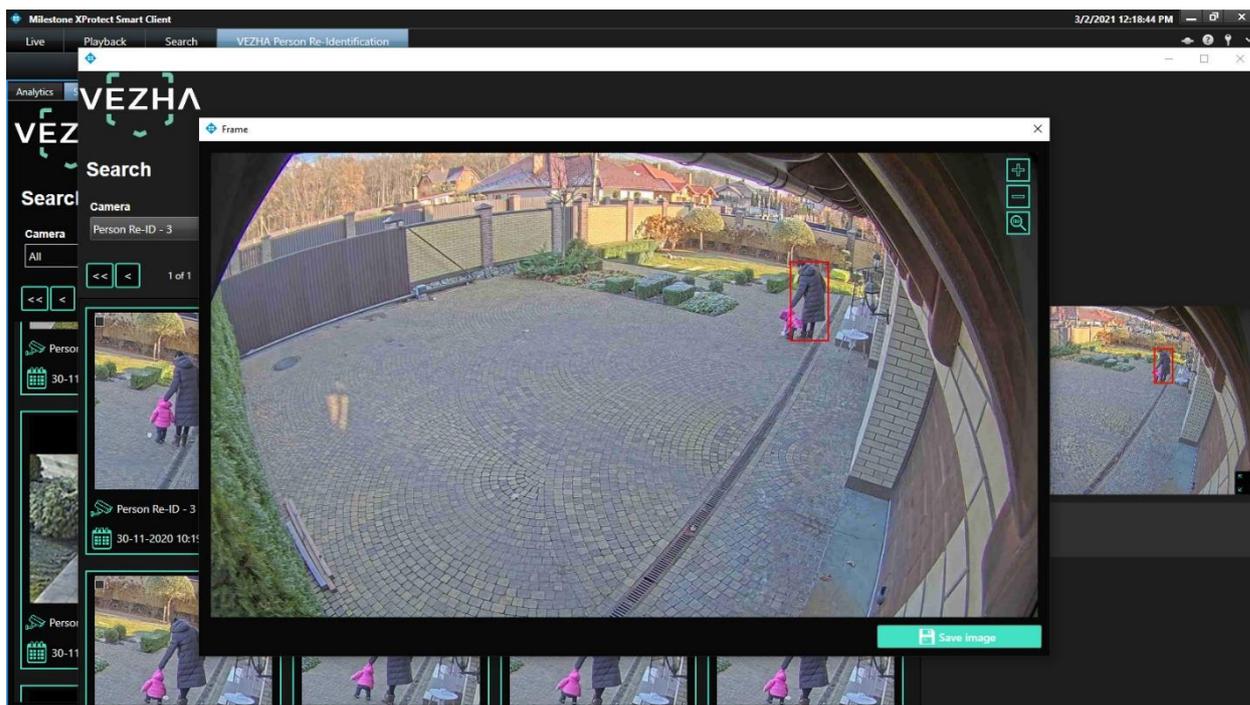
After getting results we choose photos which are most suitable for us and proceed our search by selecting camera gave us best results to get more related photos in next search.



And we get more results.

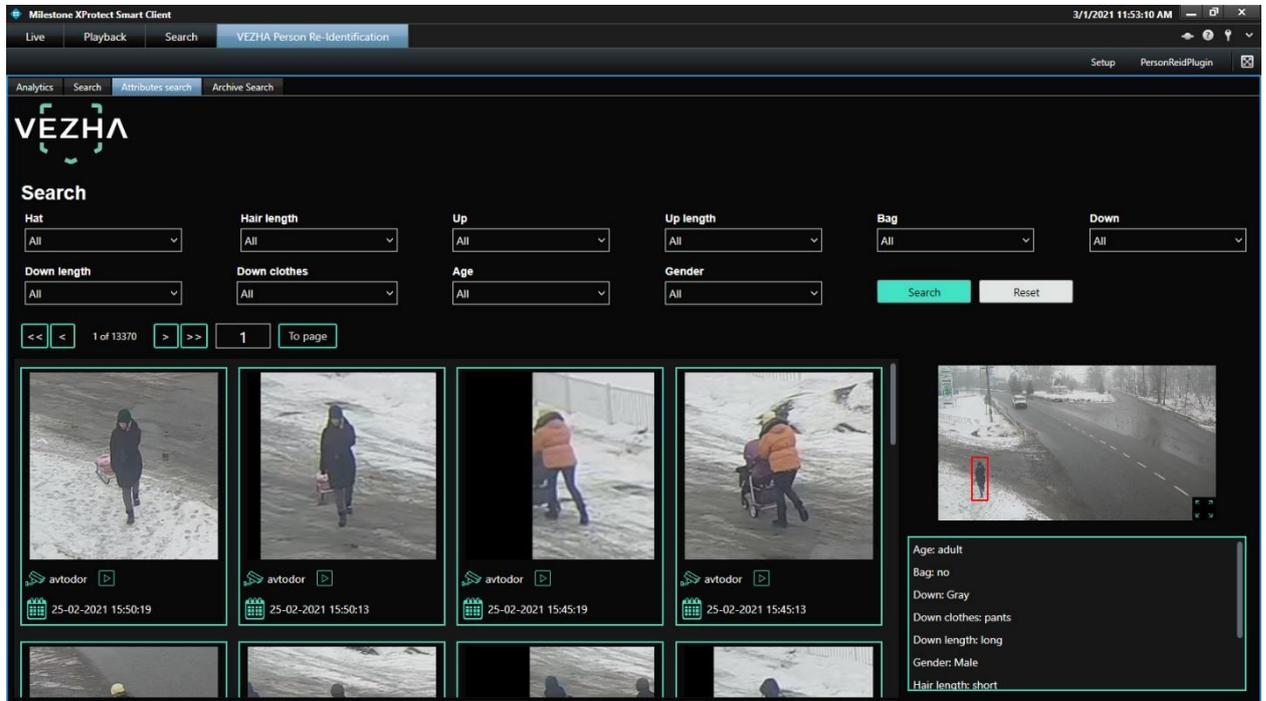


As it shown below, by clicking  icon from the picture in the right side of screen it will appear in full size as it made by camera and you may save it pressing button .

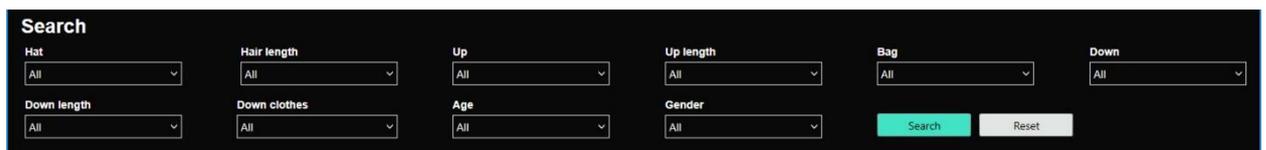


6. Attribute Search

Next section in VEZHA Person Re-Identification Plug-in menu is **Attributes Search**.



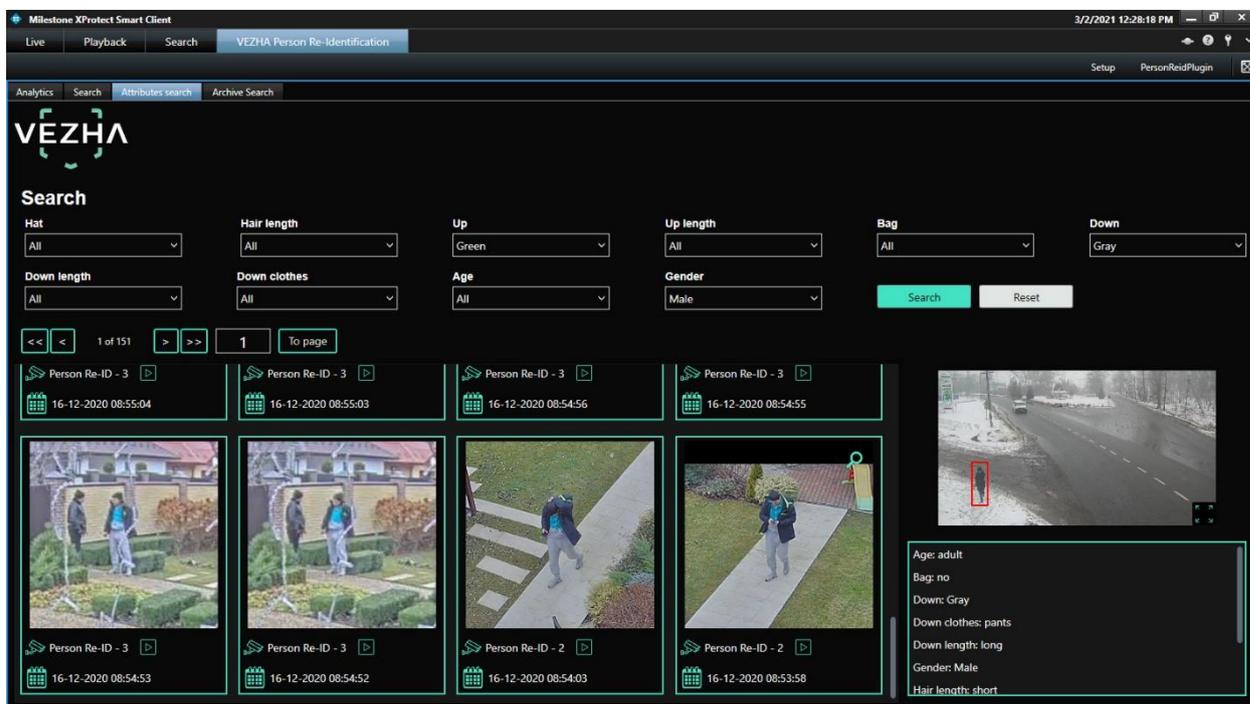
There are such search fields.



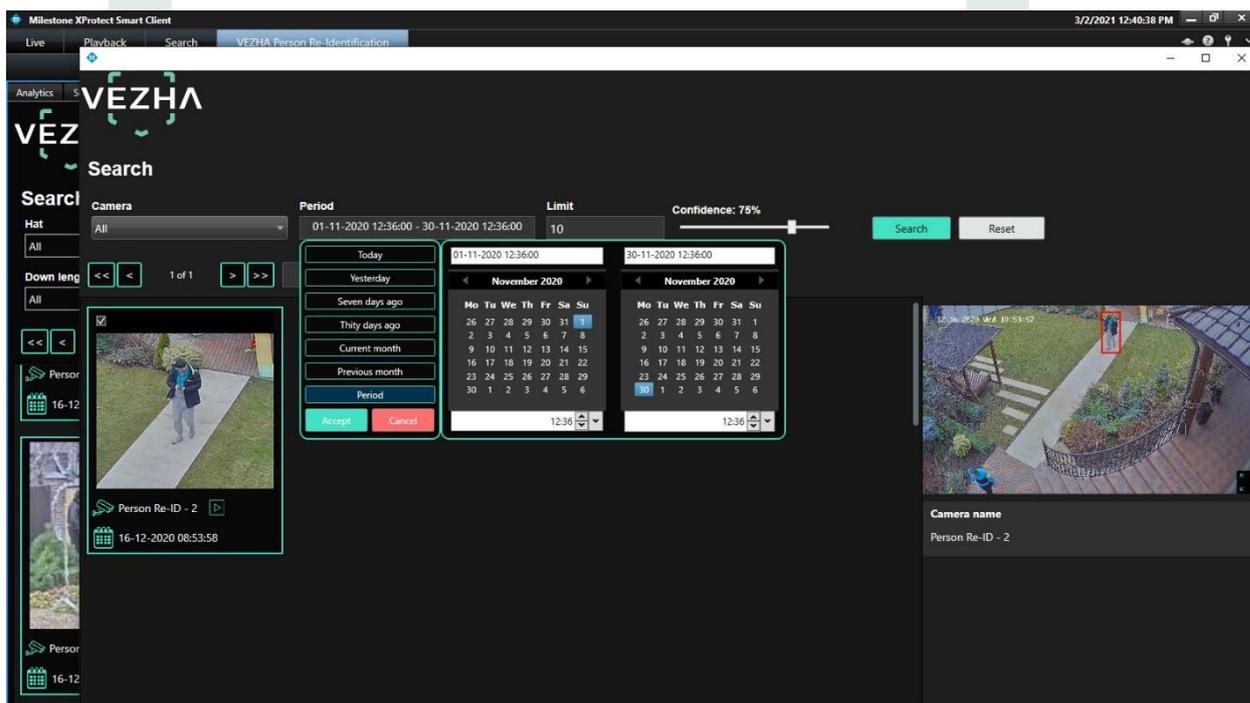
Search field	Description
Hat	The presence or absence of a headdress
Hair length	Short or long hair
Up	Choosing the color of outerwear from the proposed list of colors
Up length	Choosing a short or long top
Bag	Backpack or bag
Down	Choosing the color of the bottom of the clothes from the proposed list of colors
Down length	Choosing a short or long bottom of clothing
Down clothes	Choosing the type of bottom of clothing
Age	Choosing an approximate age
Gender	Gender selection

For example, let's set attributes as it shown on picture below and start search.

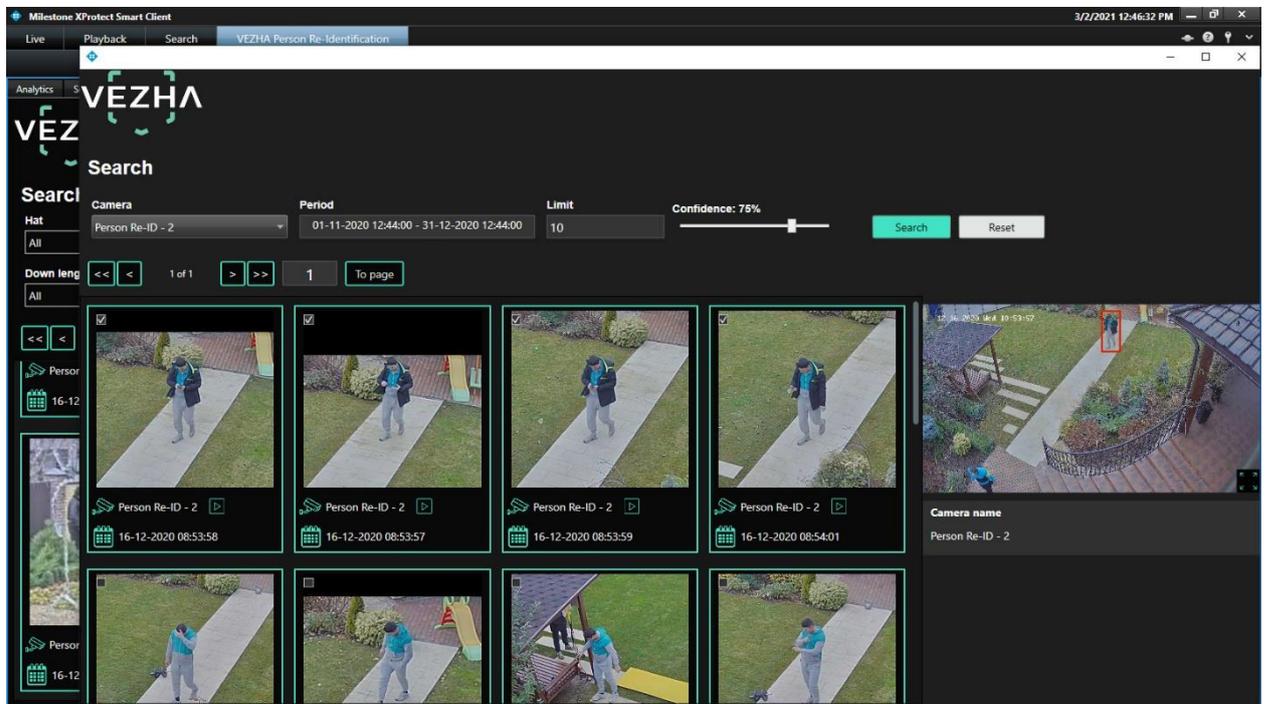
So, we are looking for male in green top and gray bottom clothes. We got results and then choose one photo and press magnifier icon to proceed search in details.



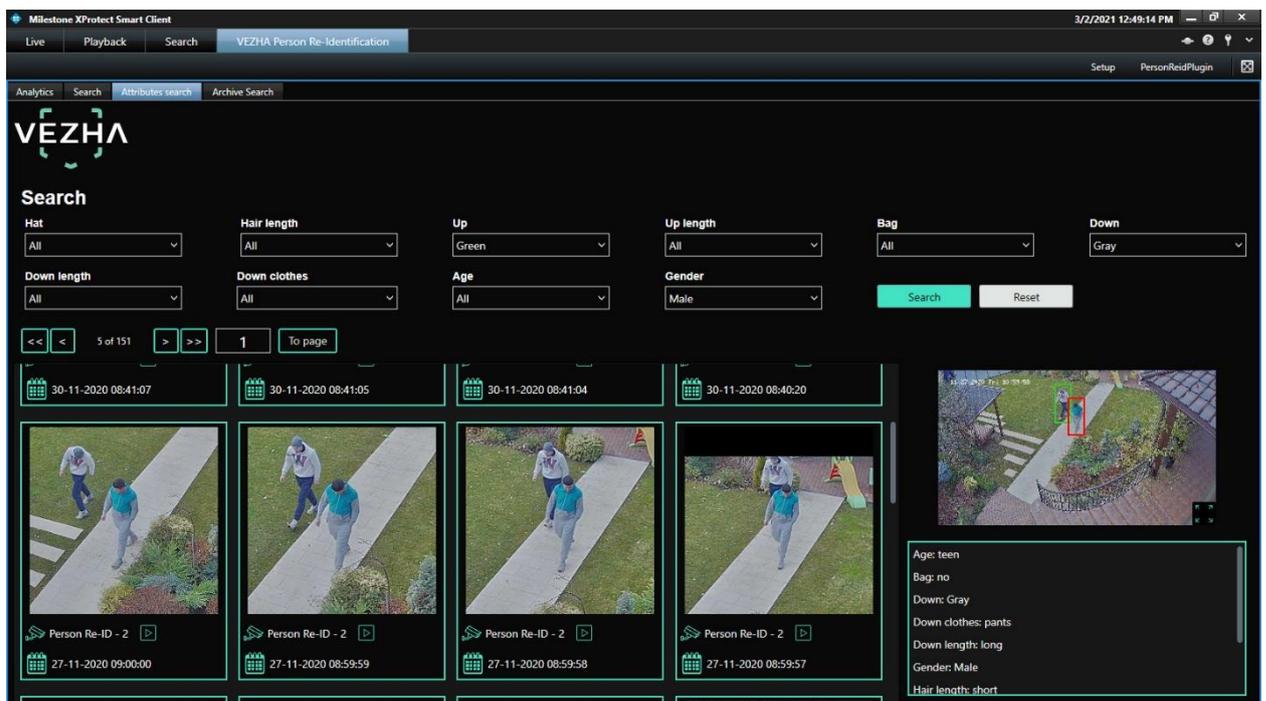
New window appears and we mark the checkbox , set **Period** of time by using calendar and press green button **Accept** for changes to be saved, then we may set **Limit** of photos to be founded and **Confidence** from 0 to 100%. At the end we press green button **Search** for detailed searching process to be started.



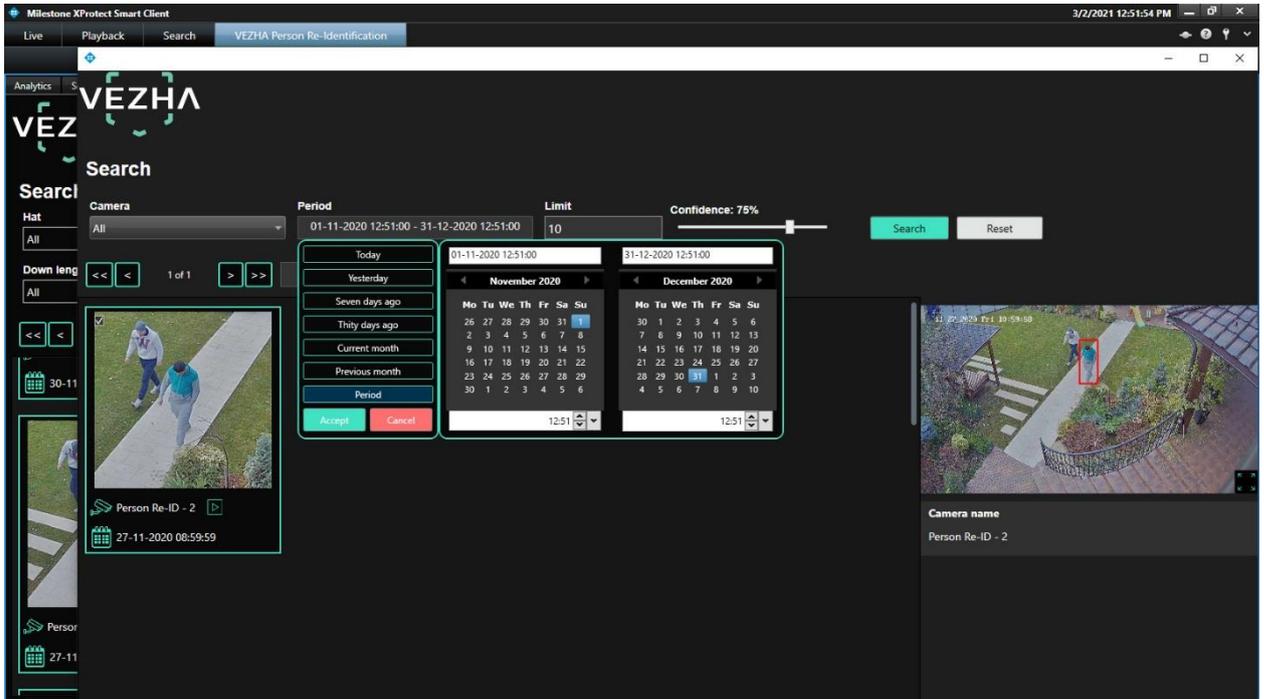
After getting results we choose photos which are most suitable for us and proceed our search by selecting camera gave us best results to get more related photos in next search.



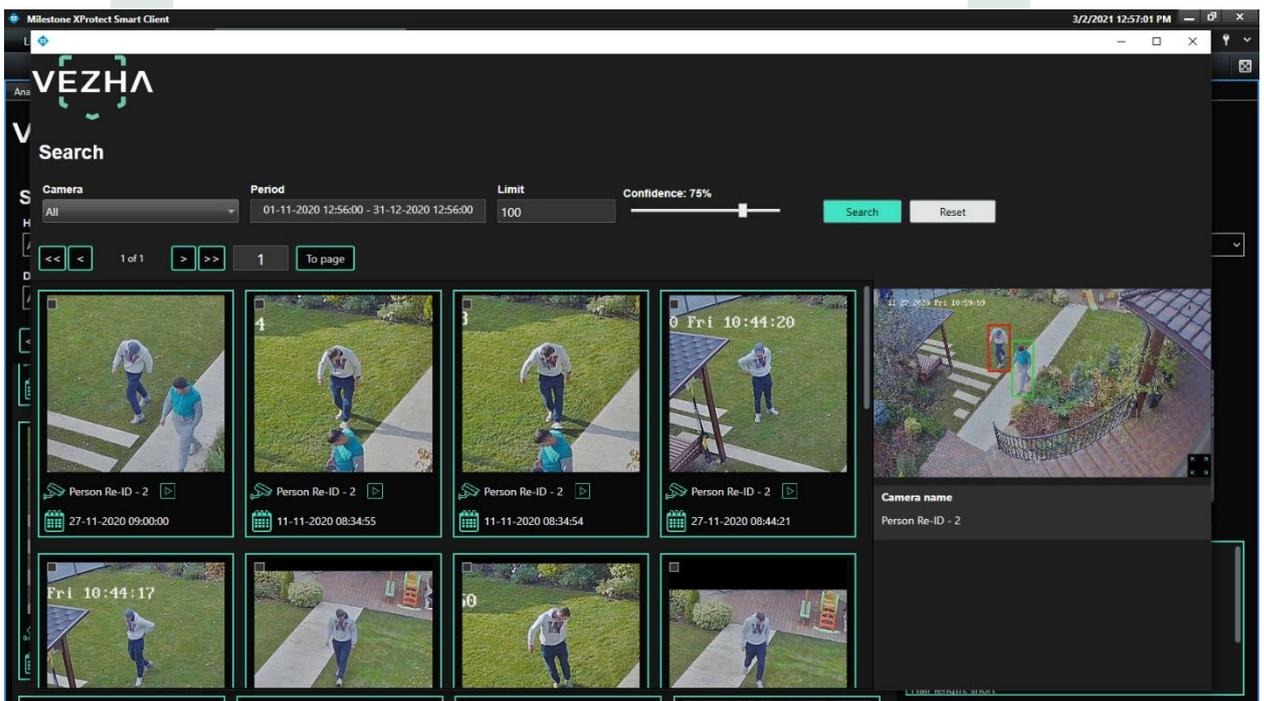
Also we may start a new search of person standing nearby. For example, guy in gray top.



New window appears and we mark the checkbox , set **Period** of time by using calendar and press green button **Accept** for changes to be saved, then we may set **Limit** of photos to be founded and **Confidence** from 0 to 100%. At the end we press green button **Search** for detailed searching process to be started.



And we get more results by that guy standing nearby.



About VEZHA:

Our mission is to create a safe environment
for residents of cities of all sizes
and to help Ukrainian businesses optimize their security
and safety management processes.

For more information visit: <https://vezha.io/>



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