

Video analytics system for cities
and business

VEZHA

Five light gray L-shaped corner brackets are arranged in a circle around the central text. Two are at the top, two are at the bottom, and one is at the bottom center.

User Guide

Crowds

Contents

Crowds - Module of Crowds Detection	4
1.1 Installation.....	4
1.2 Log In.....	7
1.3 Settings.....	8
2. Crowds - User Guide	8
2.1 Crowds - Analytics.....	9
3. Crowds - Events History	16

Crowds - Module of Crowds Detection

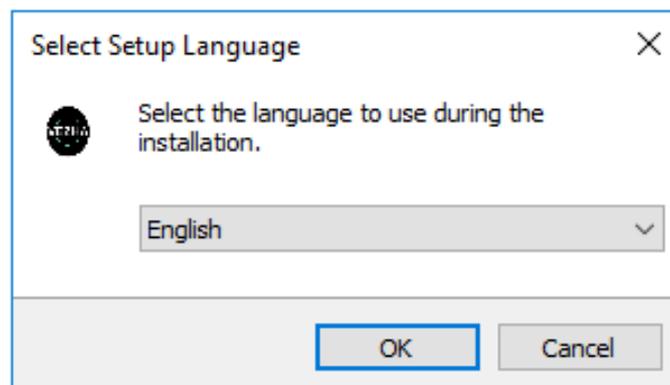


Description of Crowds Detection:

- Control of safety and concentration of people in city streets, squares, subways and public transport stops
- Control of crowd formation in malls, educational establishments, supermarkets, in halls of airports and stations
- Informing security or public oversight staff about the formation of clusters or mobs / crowds and the location of them

1.1 Installation

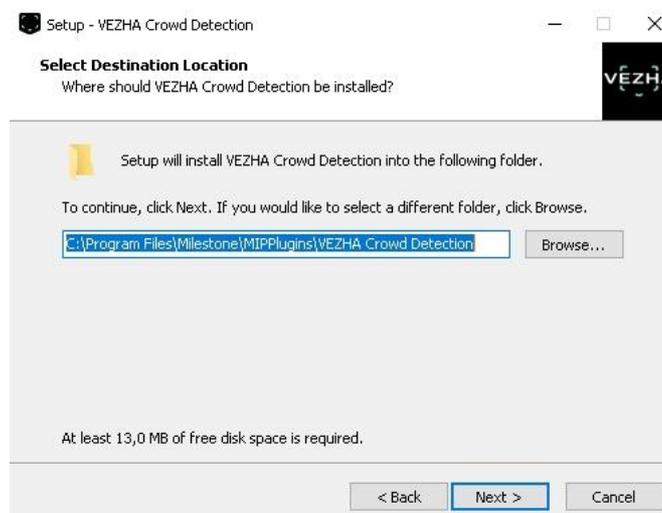
- 1) Launch the installer by double-clicking the downloaded file with the left mouse button **Vezha_CrowdsDetection_Setup.exe**.
- 2) In the window that opens, select the language that will be used during the installation process. To go further, click **OK**. To abort the installation, click **Cancel**.



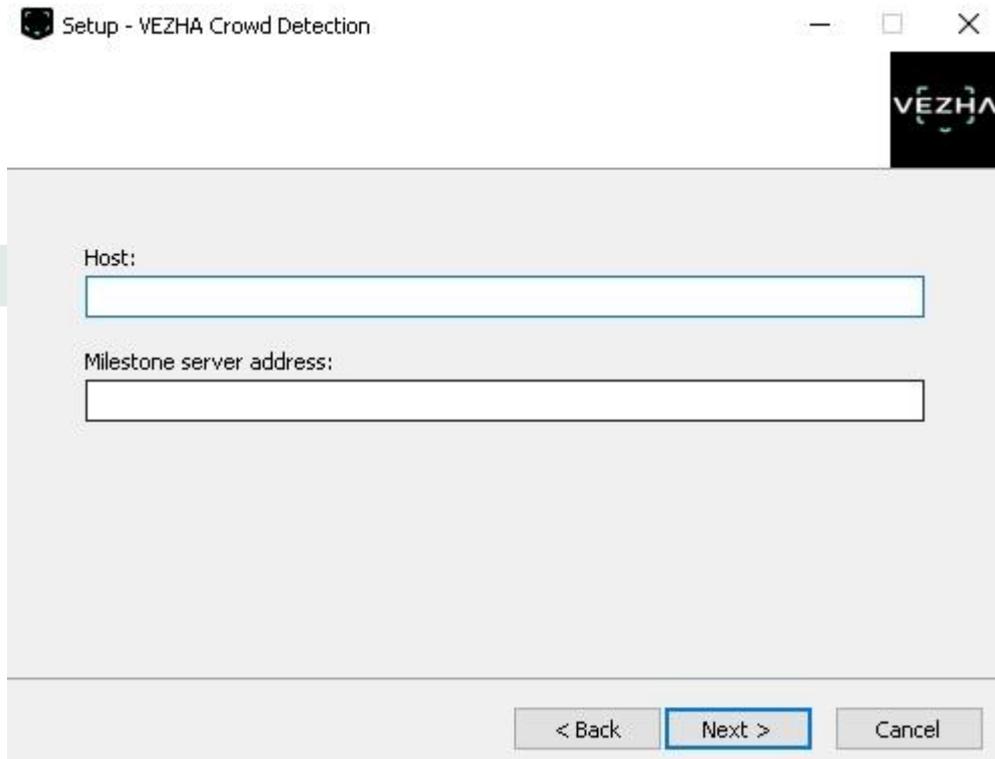
- 3) In a new window, read the installation recommendations and click **Next** to continue the installation, or the **Cancel** button to abort the installation.



- 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.



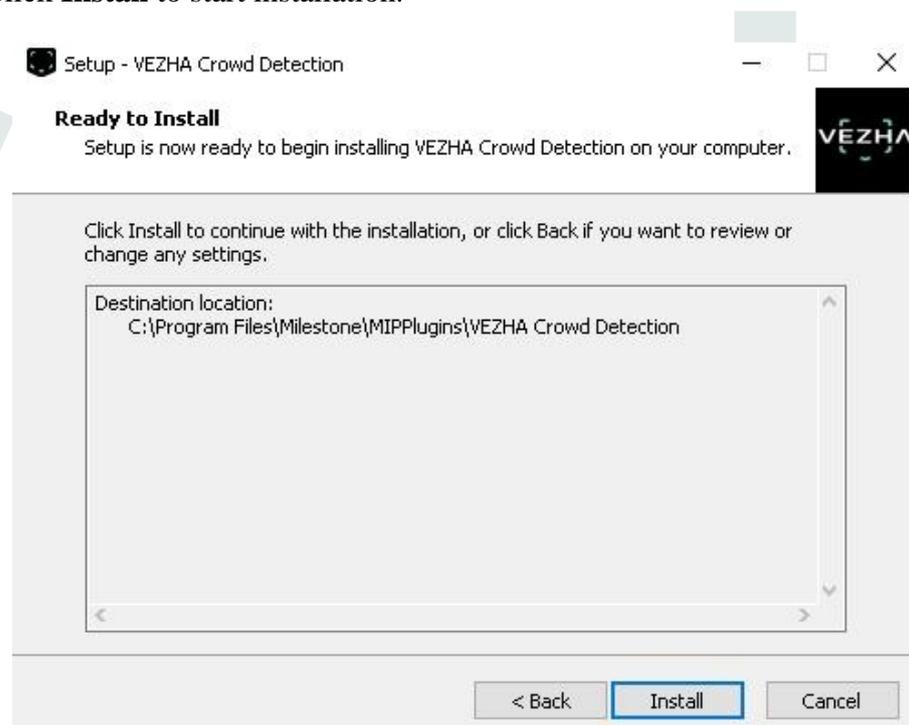
Setup - VEZHA Crowd Detection

Host:

Milestone server address:

< Back **Next >** Cancel

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



Setup - VEZHA Crowd Detection

Ready to Install
 Setup is now ready to begin installing VEZHA Crowd Detection on your computer.

Click Install to continue with the installation, or click Back if you want to review or change any settings.

Destination location:
 C:\Program Files\Milestone\MIPPlugins\VEZHA Crowd Detection

< Back **Install** Cancel

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



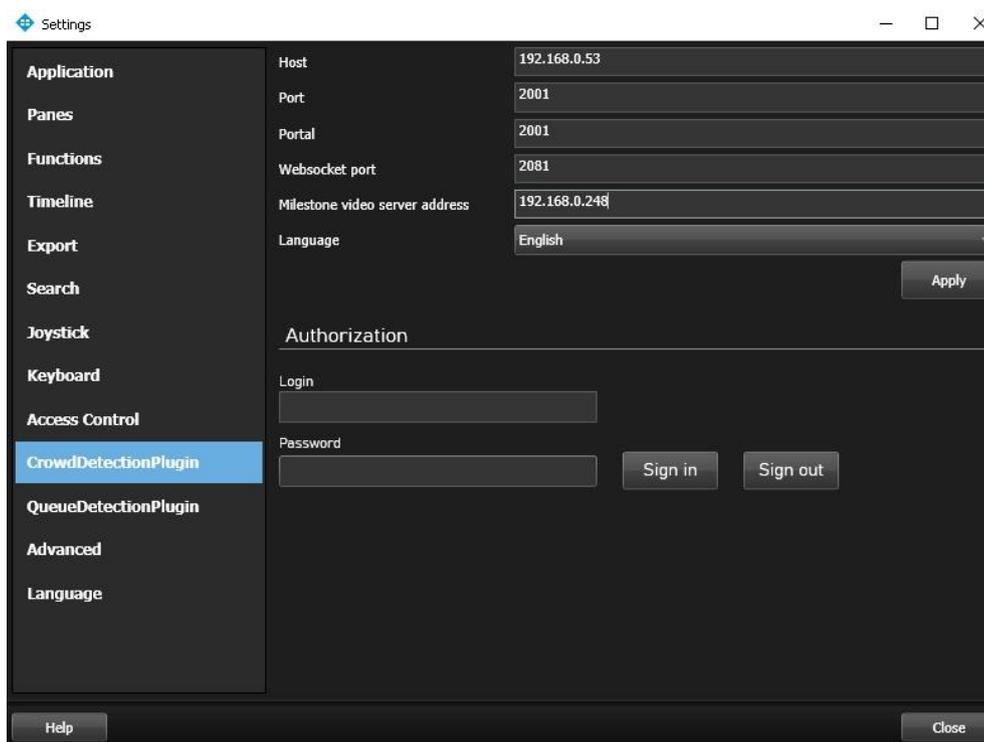
1.2 Log In

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

A dark-themed modal window titled "Authorization". It contains three input fields: "Login" (with a horizontal line above it), "Password", and a "Sign in" button at the bottom.

1.3 Settings

In order to open Crowds Detection settings, click the icon  in the upper right corner of the screen. Select and click **Settings**. In the window that opens, select the **Crowd Detection Plugin** tab.



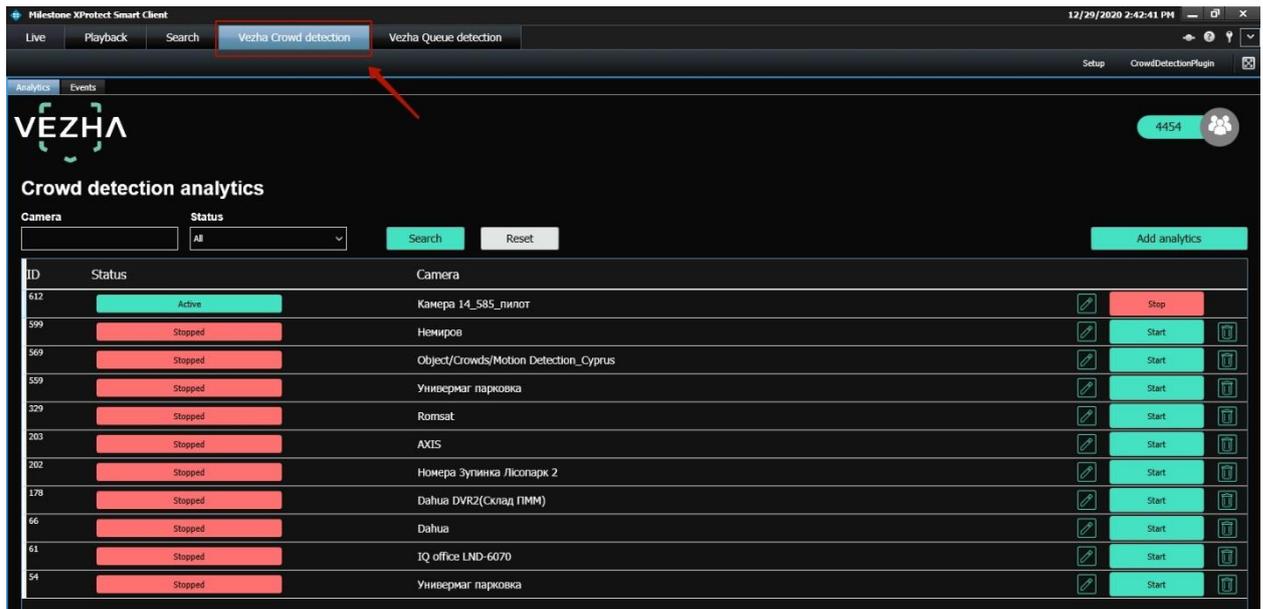
To change the server settings in the **Vezha Crowd Detection Plugin** tab, you can edit the following fields: **Host**, **Port**, **Portal**, **Websocket port**, **Milestone video server address**.

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

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

2. Crowds - User Guide

To open this section, select **Crowd** section in the top menu.



Crowd section consists of the following subsections:

Section Name	Description
Analytics	Section is intended for Crowds detection analytics viewing.
Crowds Events	This section is intended for viewing crowds history.

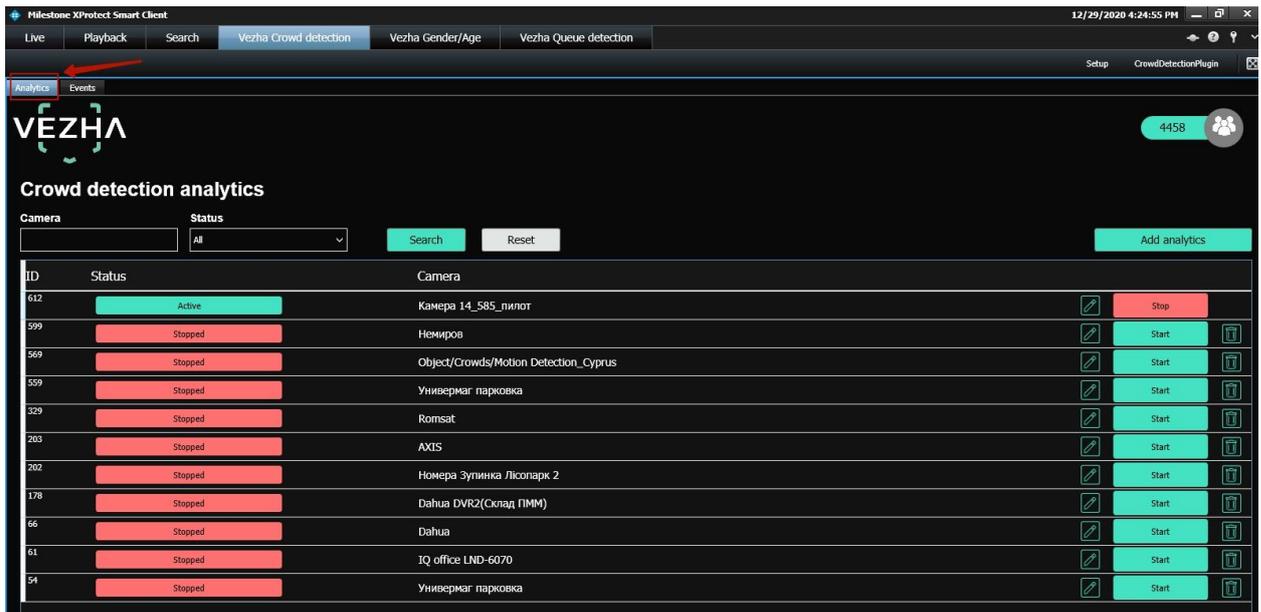
2.1 Crowds-Analytics

- [Adding of New Crowds Analytics](#)
- [Editing of New Crowds Analytics](#)

In order to view crowds definition analytic select **Crowds** in the left menu and pass into section **Analytics**.

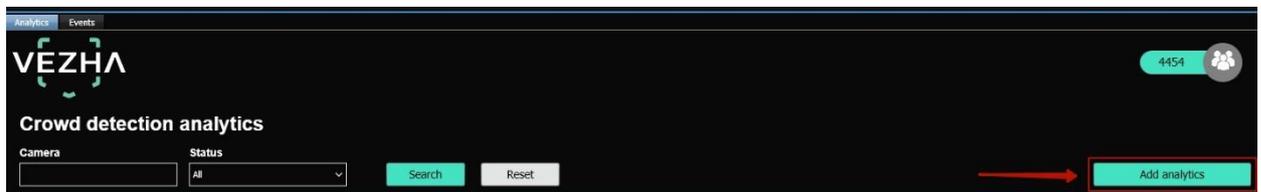


Video analytics system for cities and business

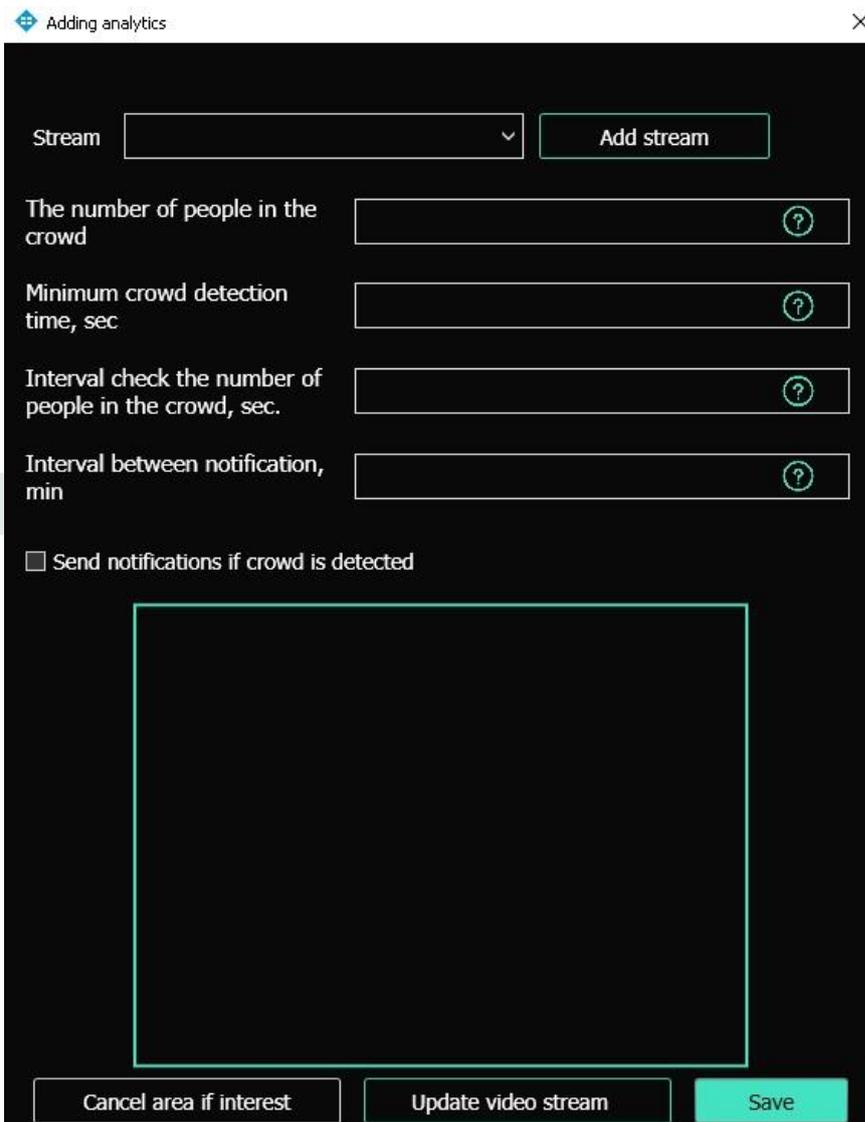


2.2 Adding of New Crowds Analytics

In order to add a new crowd definition analytics, press **Add Analytics** in the upper-right corner of the screen.



When press **Add Analytics** the form is opened.



By pressing **Update Video Frame** button you can see a frame in real time in the field of frame addition. It is possible if videostream was selected.

For adding of analytics it is necessary to fill the following fields:

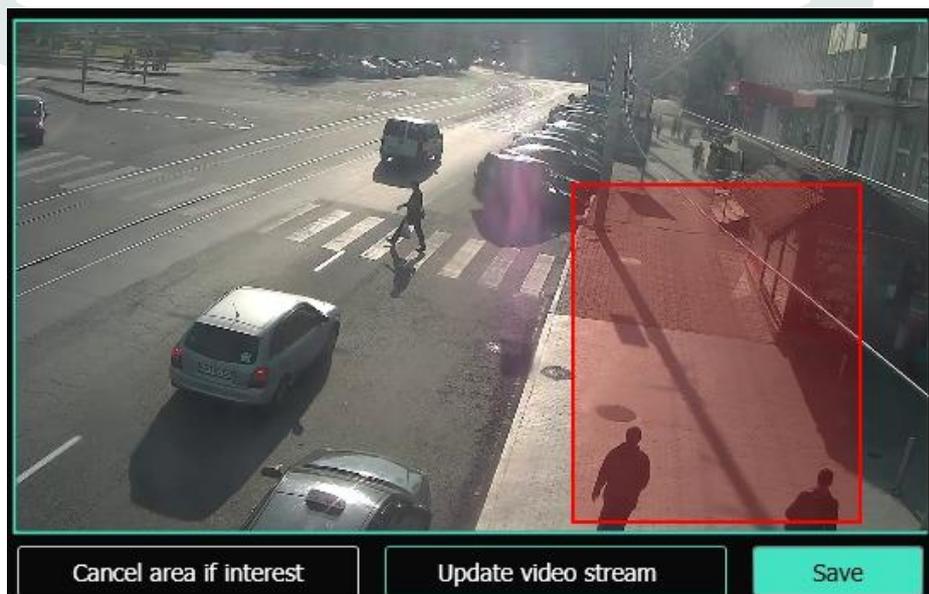
Field Name	Values for Input
Videostream	Press in the field and select the videostream from a drop-down list. In the selected videostream the area where the crowd of people detection will be displayed.
Number of persons in the crowd	Enter the minimum number of persons in the area of interest to fix the crowd of people. Possible range is from 2 to 100 persons. Recommended value is from 6 to 20 persons.
Minimum detection time of crowd, sec	In the field, enter the time period during which the specified number of people should be in the area of interest. Possible range is

Field Name	Values for Input
	from 15 to 600 s. Recommended value is 60 seconds.
Checking interval of number of people in the crowd, sec	Enter the frequency with which the system will count the number of persons in the area of interest in the field. Possible range is from 1 to 60 s. Recommended value is 20 s.
Interval between notifications, min	In the field, enter the frequency with which the system will send notifications about crowds from one camera. Possible range is from 1 to 60 minutes. Recommended value is 5 minutes.
Send notification if crowd is detected	To send notifications about detected crowds to external resources (Telegram, Email, etc.), check the box.
Events	Select the event for which notifications will be sent from the drop-down list.
Additional Parameters	If necessary, it is possible to add additional parameters for further use when event creating. Fill in the parameter fields. To add parameters, press "+" button. To remove parameters, press "-".

To accept changes press **Save**.

Adding an Area of Interest

1. Add camera to **Videostream** field.
2. A video from the added camera will appear below **Videostream** field.
3. Add area of interest.
 - a) Press **Add Area of Interest**. Red color area appears.



- b) Using the tools at area edges, reduce and set the area to the desired location for definition. Crowds will be recognized in the exposed area.

In order to cancel the area of interest, press **Cancel Area of Interest**.

To create the analytics, press **Save**.

2.3 Editing of Crowds Analytics

To open crowd definition analysis editing window, press **Editor** button on the right side of analytic record.



By clicking **Editor** button the form of crowds detection analytic editing is opened.

The screenshot shows a dark-themed editing window for crowd detection analytics. At the top left is a blue plus icon and a close button (X). Below is a teal 'Start' button. The 'Stream' is set to 'Немиров'. There are four input fields, each with a question mark icon: 'The number of people in the crowd' (value: 2), 'Minimum crowd detection time, sec' (value: 0), 'Interval check the number of people in the crowd, sec.' (value: 20), and 'Interval between notification, min' (value: 1). A checkbox 'Send notifications if crowd is detected' is unchecked. At the bottom, there are three buttons: 'Cancel area if interest', 'Update video stream', and 'Save'. Two video preview windows are shown: the left one shows a road with yellow zigzag markings, and the right one shows two people walking on a sidewalk.

It is possible to change the analytic if the analytic is not started.

By pressing **Update Video Frame** button you can see a frame in real time in the field of frame addition. It is possible if videostream was selected.

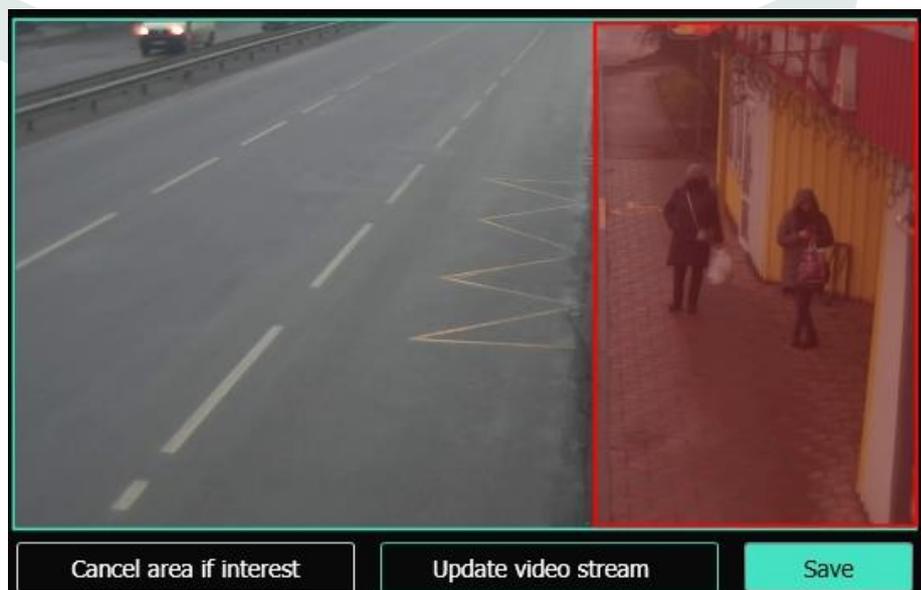
In order to run analytics, press **Start**. To stop analytics, press **Stop**.

System user can change the following fields:

Field Name	Value
Number of persons in the crowd	The user can change the number of persons in the crowd (integer)
Minimum detection time of crowd, sec	The user can change the crowd detection time (in seconds)
Checking interval of number of people in the crowd, sec	Check interval is set in seconds
Interval between notifications, min	Interval between notifications, min
Send notification if crowd is detected	To send notifications about detected crowds to external resources (Telegram, Email, etc.), check the box.
Events	Select the event for which notifications will be sent from the drop-down list.
Additional Parameters	If necessary, it is possible to add additional parameters for further use when event creating. Fill in the parameter fields. To add parameters, press "+" button. To remove parameters, press "-".

Change Area of Interest

a) Press **Add Area of Interest**. Red color area appears.



b) Using the tools at area edges, reduce and set the area to the desired location for definition.

Crowds will be recognized in the exposed area.

In order to cancel the area of interest, press **Cancel Area of Interest**.

To create the analytics, press **Save**.

2.4 Work with Crowds Analytics

Search field is located at the top of the Analytics page

Analytic Search

Crowd detection analytics

Camera

Status

All ▾

Search

Reset

To find the necessary analytics, enter the name or status of videostream.

To start the search press **Search** button

Search Field	Parameters
Camera	It is possible to enter videostream name or part of the name in this field
Status	Select the Analytics status from the drop-down list

Analytics Start and Delete

To start analytics, press **Start** button on the right side of analytics field.

Analytics Events
4454

Crowd detection analytics

Camera

Status

All ▾

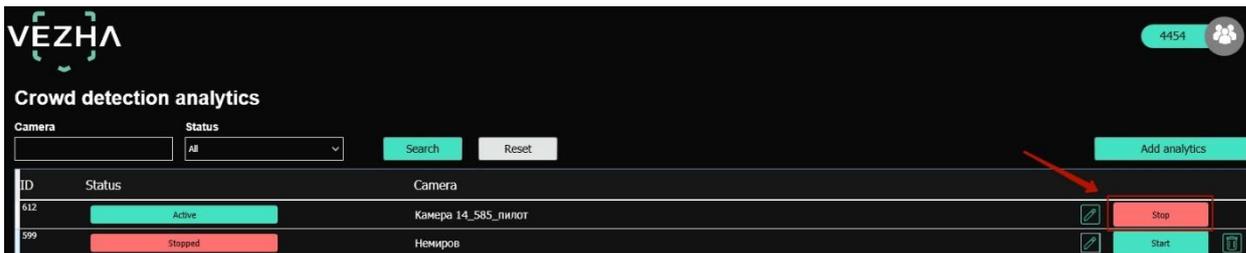
Search

Reset

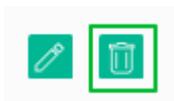
Add analytics

ID	Status	Camera		
612	Active	Камера 14_585_пилот	✎	Stop
598	Stopped	Немиров	✎	Start
568	Stopped	Object/Crowds/Motion Detection_Cyprus	✎	Start
559	Stopped	Универмаг парковка	✎	Start

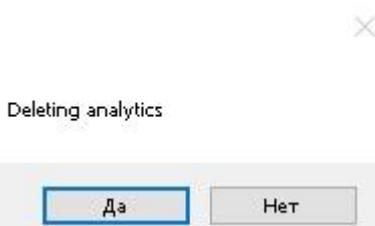
To stop analytics, press **Stop** button.



To delete analysis, click delete icon on the right side of analytic field.

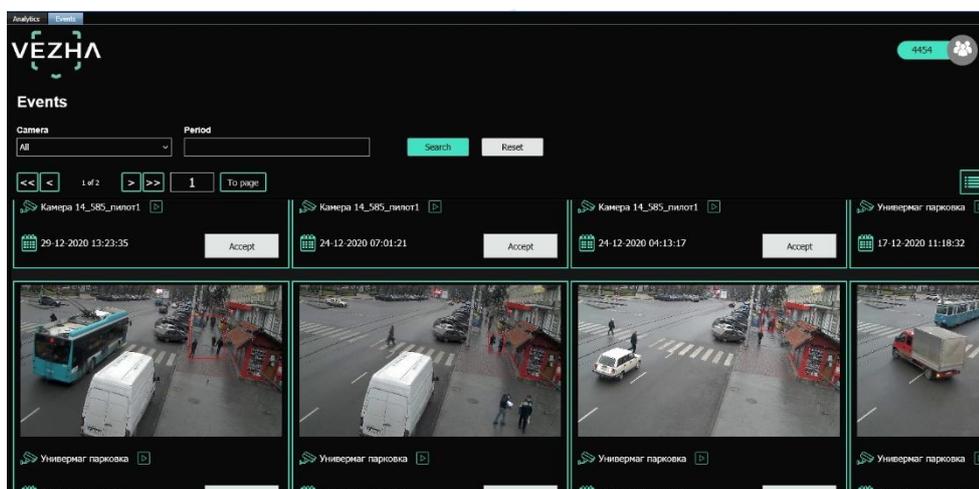


In opened window click **Yes** to confirm the deletion or **No** to cancel the deletion.



3. Crowds - Crowds History

In order to view crowds history select **Crowds** in the left menu and pass into section **Crowds History**.



To change the View of crowds list, press the change list view button in the upper-right corner of the screen.

The screenshot shows the VEZHA Events interface. At the top, there is a search bar with 'Camera' set to 'All' and a 'Period' field. Below the search bar are navigation controls for a list of 2 items, currently on page 1. The main area contains a table with the following data:

Camera	Date	Video	Accepted by
Камера 14_585_пилот1	29-12-2020 13:23:35		Accept
Камера 14_585_пилот1	24-12-2020 07:01:21		Accept
Камера 14_585_пилот1	24-12-2020 04:13:17		Accept
Универмаг парковка	17-12-2020 11:18:32		Accept
Универмаг парковка	17-12-2020 11:15:23		Accept
Универмаг парковка	17-12-2020 11:13:56		Accept
Универмаг парковка	17-12-2020 11:10:33		Accept
Универмаг парковка	17-12-2020 11:08:15		Accept

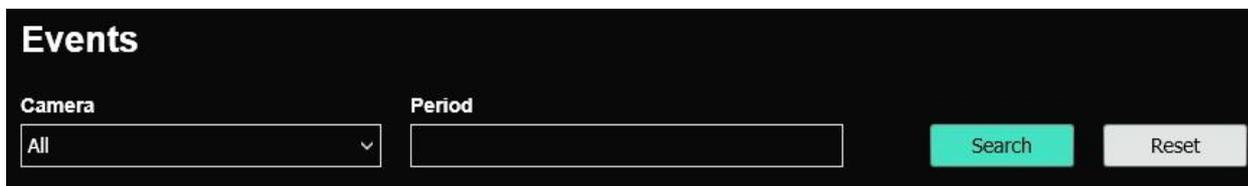
On the right side, there is a video preview window showing a street scene with a red bounding box around a group of people. Below the video, the camera name 'Универмаг парковка' is displayed.

To accept a notification about a new crowd, press **Accept** next to the notification entry.

This image shows a close-up of a notification entry. It features a video frame of a street scene with a red bounding box around a group of people. Below the video frame, the camera name 'Универмаг парковка' is displayed with a video icon. At the bottom left, there is a calendar icon and the timestamp '17-12-2020 11:03:54'. At the bottom right, there is a large 'Accept' button.

3.1 Search of Crowds History

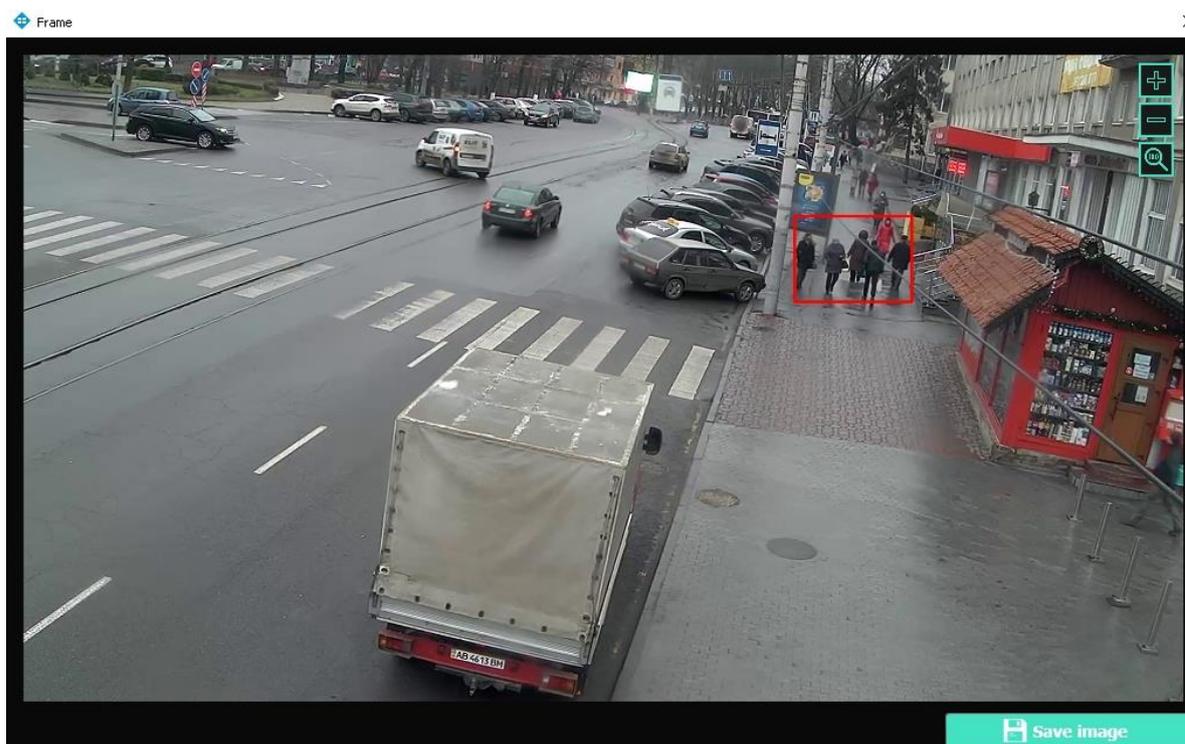
There is a search field at the top of the screen



Title	Recommendations
Period	Click on the field and select the desired time period.
Camera	Click on the field and select cameras. This field allows to filter all records by a specific camera or multiple cameras.

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

To enlarge a frame with a crowd of people, press the photo of interest (when using the grid view) or press on the icon to enlarge the frame  when using the list view.



If desired, it is possible to save the image by pressing the appropriate button.

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/>



Ukraine, Vinnitsa

vezha@incoresoft.com

+38 (044) 599-30-03

Monday - Friday: 9 AM - 7PM

