Bintelan Module - LPR

User Manual
Version 5.0

TABLE OF CONTENTS

For technical support contact our Support Department:

support@ganetec.com

1 Configuring License Plate Recognition

1.1 Creating the process

The **license plate recognition** video analytic is used when the presence of any license plate appears in an image. In order to configure this type of video analytic, we must first **select the camera** and then **select the type** from a dropdown list. This selection will load its corresponding **configuration panel**. This panel contains three tabs: **basic** options, **advanced** options and **video** options.
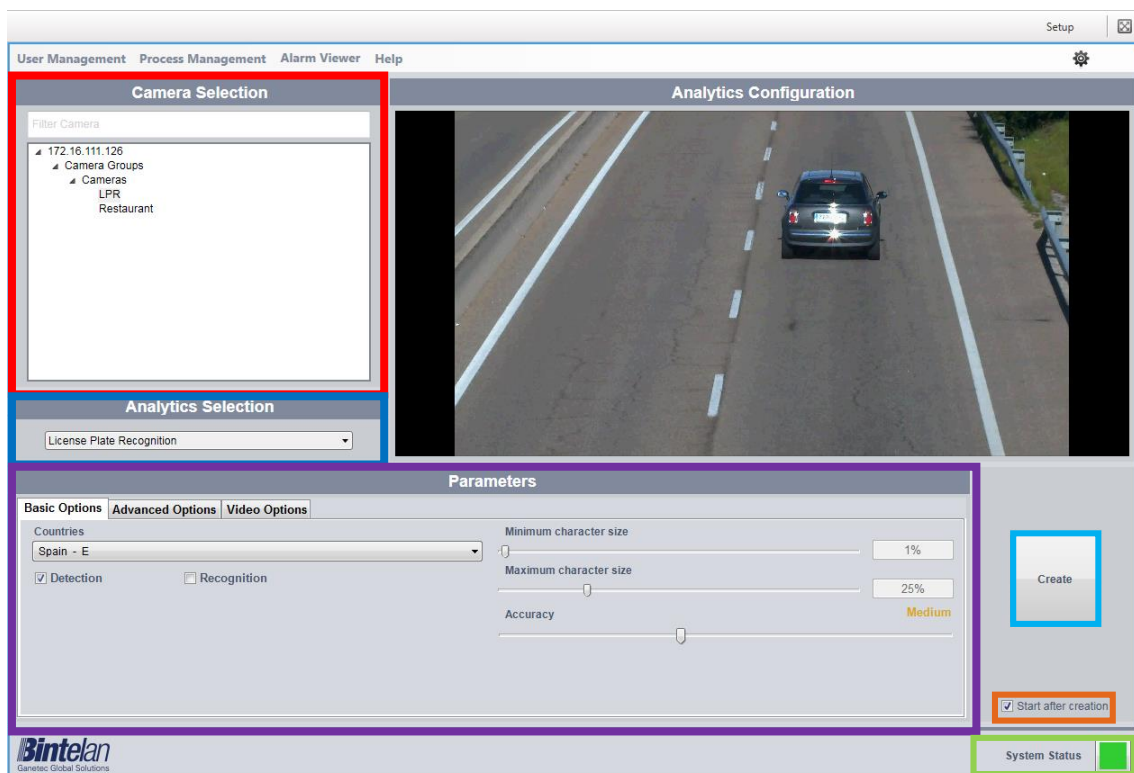
Once all the parameters are correctly configured, including the Basic, Advanced and Video options, we must create a new process. As depicted in the above image, below the **Create** button is a checkbox labeled as **Start after creation.** This checkbox ensures, if selected, that the process will be initiated after its creation. If you prefer to manually start the process simply uncheck this option.

We can also check if the **global system state** is correct. Click on the colored square at the right of the message system status for additional details. There are three possible states of the system, represented by colors:

- **Ok**: all Bintelan Analytics Platform modules and services are working properly.

- **Warning:** one or more modules or services in the Bintelan Analytics Platform is showing a warning. Warnings do not affect the correct performance of the system, but should be verified and resolved to avoid future errors.

- **Error**: one or more of the modules or services in the Bintelan Analytics Platform is having problems. By clicking the icon you can check the source of the problem.

1.2 Manage Analytics

Additionally, you can view and manage the processes created. Select the "**Manage Analytics**" from the "**Process Management**". You will obtain a detailed view of all the processes created and their current status. A process can have up to seven different states:

- **Launching**: the process has just been created.

- **Scheduling**: the process is queued and will start soon.

- **Initializing**: the process is starting and configuring.

- **Processing**: the process is running correctly. The process output should now appear.

- **Stopping:** the process is stopping.

- **Hold**: there something missing and the process cannot be started. Usually this happens when you need a hardware license to be placed in the Licenses folder under Bintelan installation path.

- **Failed**: the process could not execute properly. Check the logs or contact support.

- **Empty state**: if this field is empty the process is ready to be started. Currently the process is stopped.

	Group	Analytic	Source	Status	Options
Select all					▶ ■ ✖
Face Detection - Restaurant	Testing	Face Detection	Restaurant	Launching	▶ ■ ⚙ ✖
License Plate - LPR	Testing	License Plate	LPR	Scheduling	▶ ■ ⚙ ✖
Face Detection - Restaurant	Testing	Face Detection	Restaurant	Initializing	▶ ■ ⚙ ✖
Face Recognition - Enroll	Testing	Face Recognition	Enroll	Processing	▶ ■ ⚙ ✖
Intrusion - LPR	Testing	Intrusion	LPR	Stopping	▶ ■ ⚙ ✖
Area Counting - LPR	Testing	Area Counting	LPR	Hold	▶ ■ ⚙ ✖
Gate Flow - LPR	Testing	Gate Flow	LPR	Failed	▶ ■ ⚙ ✖
Face Recognition - Enroll	Testing	Face Recognition	Enroll		▶ ■ ⚙ ✖

User Management   Process Management   Alarm Viewer   Help
Start Analytics
Manage Analytics

Furthermore, you can **Start**, **Stop** and **Delete** any process from this pane. You will only have to press the desired button in each case. You should take into account that you will only be able to delete a process if it has been previously stopped.

Moreover, you can also configure any process once it has been created. In this way you will be able to perform fine adjustments to the module in order to achieve better results or due to changes in the camera or the scene. To do so, click the **Settings** button, between the stop and delete buttons. A window containing all the module information will appear, as depicted in the next image. From it, you will be able to adjust all the parameters that correspond to the module selected.
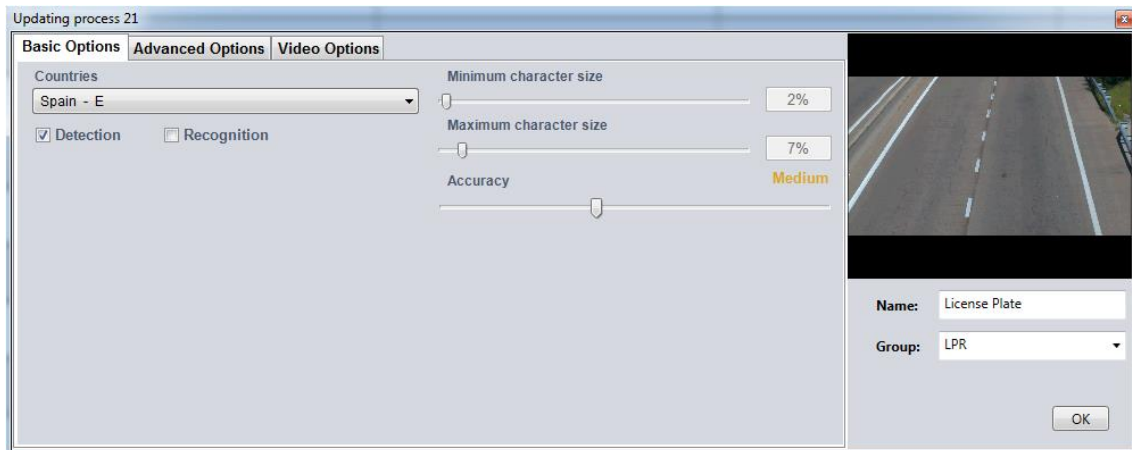
1.2.1 Basic Options

On the Basic tab, the following parameters can be configured:
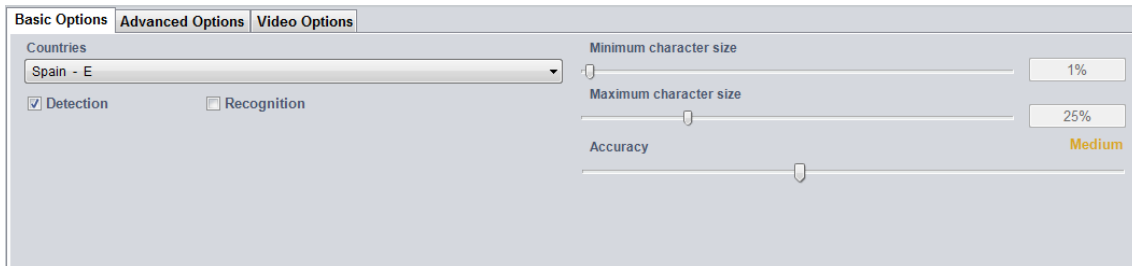
- **Parameters:**
  - o **Countries:** you can select one or more countries from the dropdown list that we want to trigger alerts. These countries will be available depending on the installed module.
  - o **Minimum character size:** represents the minimum character height of the license plate. License plates with a smaller character size than this value on the image will not be detected by the algorithm. By moving the track bar, a visual representation of the size is displayed on the image.
  - o **Maximum character size:** represents the maximum character height of the license plate. License plates with a larger character size than this value on the image will not be detected by the algorithm. By moving the track bar, a visual representation of the size is displayed on the image.
  - o **Accuracy:** the algorithm provides license plate that obtain a higher value than the accuracy threshold established. This value refers to the precision with which it is determined whether the detected object is or not a license plate, or if it is a license plate from a list. Please note that a higher accuracy level implies that it is less likely to obtain a false alarm and, consequently, a lower level increases the probability of "false positives".
  - o **Type of Process:** there are two modes in which you can launch a LPR process:
    - ▪ **Detection:** the algorithm detects alarms for all license plates present in the image that fulfill the size and accuracy requirements. You do not have to enroll them previously in the database.
    - ▪ **Recognition:** the algorithm only trigger alarms if the detected license plate fulfill the size and accuracy requirements and belongs to a previously enrolled one in the database (belonging to one of the lists). When selecting the recognition mode, a dropdown list shows the different lists you can select to use for this process. One or more lists can be used for recognition.

1.2.2 Advanced Options

In the advanced settings tab you can configure more specific parameters of the module type selected.

- o **Maximum number of Plates (*):** stops processing the frame after finding the specified number of license plates, even if not all the frame has been processed. For parking solutions 1 is recommended for better performance.
- o **Vehicle visible side (*)**: determine the side of the car where you want to read license plates. By default ANY recommended.
- o **Scenario (*)** you can choose from the 3 predefined scenarios:
  - ▪ **Parking:** low resource consumption.
  - ▪ **Street:** average consumption of resources.
  - ▪ **Highway:** high resource consumption.
- ▪ **Alerts before send**: number of alerts that must be generated of the same detected or recognized object before sending one alarm of it.
- o **Time between alerts (sec):** time required to expire between two consecutives alerts, in order to consider them as two different ones.
- o **Reconnection attempts:** number of times the algorithm will try to reconnect to the camera in case the connection is lost. Reconnection will be retried for the number of times specified, waiting 10 seconds between each retry. It can also be defined as **infinite**, so that the process will always try to reconnect.
- o **Use ROI (Region of Interest):** we can define a region of interest in the image. The algorithm will only process that part of the image, reducing the amount of CPU required.

(*) Features available only for some algorithms.

1.2.3 Video Options

In the video options tab you can change some settings specific from the VMS and/or the output types of the module.

o **Video Streaming**: we can choose to analyze the live video (Live) or stored video (Stored) by selecting the starting and ending time. This option is enabled only if the client is connected to a VMS system that supports it.

o **Motion Detection**: we can start a process with the motion detection mode enabled. This will make the algorithm to process only when motion is detected in the video stream, reducing the amount of computational cost required. The motion sensitivity can be configured one the checkbox is enabled, providing visual feedback to the user through an overlay image.

o **Frame rate**: we can modify the rate of frames per second used in case the scenario doesn't need to process all the images, thus can reduce CPU requirements.

o **Resolution**: we can scale the camera's native resolution to reduce the bandwidth consumption.

o **Alarm or Event**: we can select the output type of the process, through an alarm or event. This distinction is useful when working with Milestone because if we select the alarm option we avoid creating a specific event for each door or area.

2 User Enrollment

Before initiating a recognition process, a new user must be previously registered in the database. To do this, access the **User Management** tab located at the top left corner of the screen.
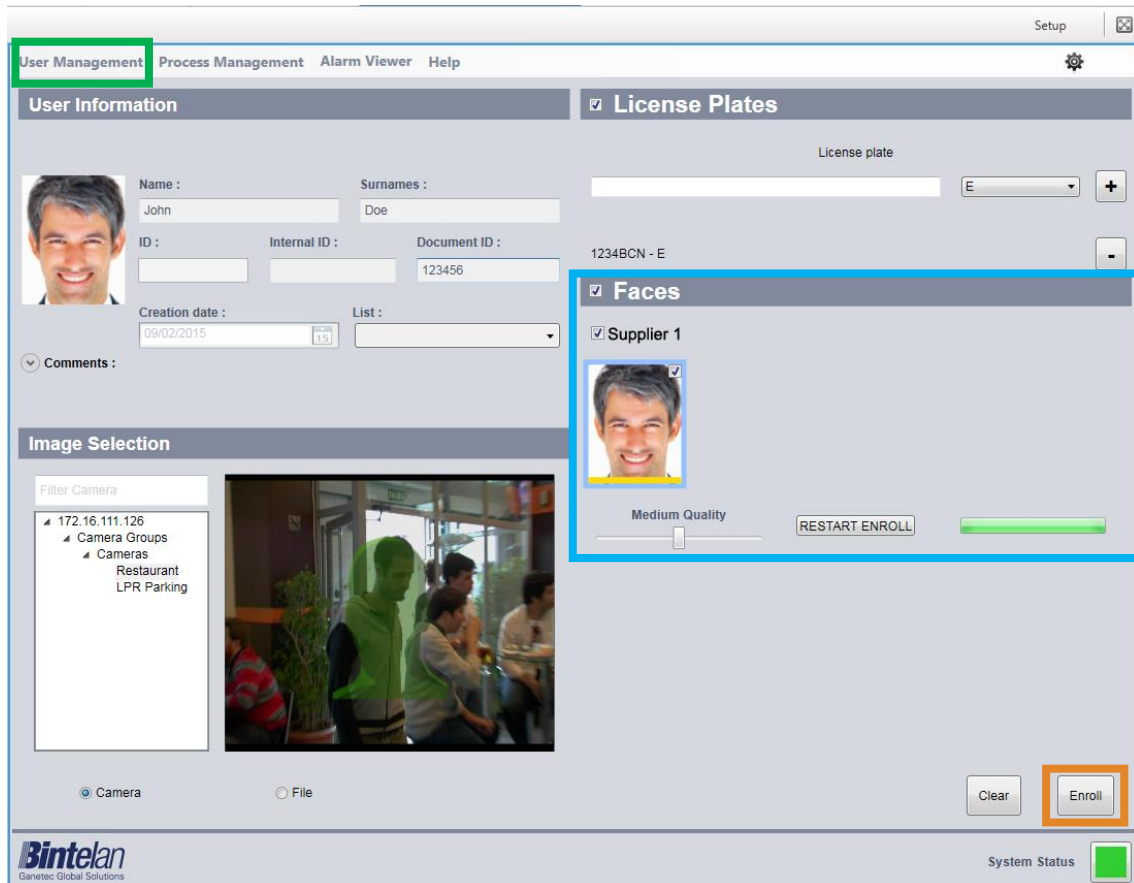
Furthermore, from the Registration screen, if you right click with the mouse the **Lists** pane, you would be able to **Add**, **Delete** or **Rename** them. In this way, you can easily and quickly manage all your lists.

When registering a new registration in the system there are two options:

- o **Assign a new license plate to an existing user:** the user must select desired registered user from the **Search** panel within the **User Management** menu. From this panel, you should search for the desired user and press the **Edit** button. Then, the Enroll panel will be displayed with the current user information, as shown in the image above. Now, all the User information is loaded and you can **assign new license plates** to it. When finished, click the "**Enroll**" button and the information will be stored in the database.

- o **Create a new user**: the following User fields must be filled:

  - o **Name:** name of the subject. This field is **mandatory**.

  - o **Surnames:** surnames of the subject. This field is **mandatory**.

  - o **ID:** private identifier of the system, it is automatically assigned and you cannot modify it. It will correspond to the one that appears with the alerts.

  - o **Internal ID**: number representing the ID in the internal database system. This can be useful for example if we want to cross data from an internal database of employees with the database of the system. This field is <u>optional</u> and can only be a number with a maximum of 11 digits.

  - o **Document ID:** normally used to store the passport or identity number of the user's country. This is an <u>optional</u> field and can be any alphanumeric value with a maximum of 45 characters.

  - o **List:** the subject can belong to one or more lists. At least **one** list must be selected.

  - o **Creation date:** this field is automatically filled with the current user creation date.

  - o **Comments:** optional field. Any text can be introduced, including multiple lines.

  - o **License Plates**: in this field the license plate will be written (without including the hyphen). Select the country from the plate and click the **"+"** button to add it to the user. As many plates as you want can be added to the same user.

After filling in all these values, we can click on the "Register (Enroll)" button, and the new user is stored in the database.

3 User Search

This section allow us to search and manage de registered user information. It also enables us to manage the different permission lists and their linked users. To access the **Search** Users screen, click **User Management**, but this time select **Search** from the dropdown list.

User search options: on the Search screen there are two options to find the user: a **user information** and **Lists**.

- o **User Information:** introduce the user data you want to search in their correspondent fields (the more fields you fill, the higher the accuracy of the results) and then press the Search button
- o **Lists:** select one or several lists from which you want to know the user information and click the Search button.

In the **lower panel** all search results will appear. By default they will appear 10 to 10. You can change this value in the right panel dropdown. Select the user that you want to manage. Its information will fill in the user information fields.

The data of the selected user is displayed in the **user information** panel and its corresponding **lists** where the user is registered or not. Thus, we can easily manage both user data and lists to which it is linked. By clicking the **Update** button the changes are saved. Pressing the **Delete** button deletes the record from this user database forever, and the biometric models and license plates bound to it.
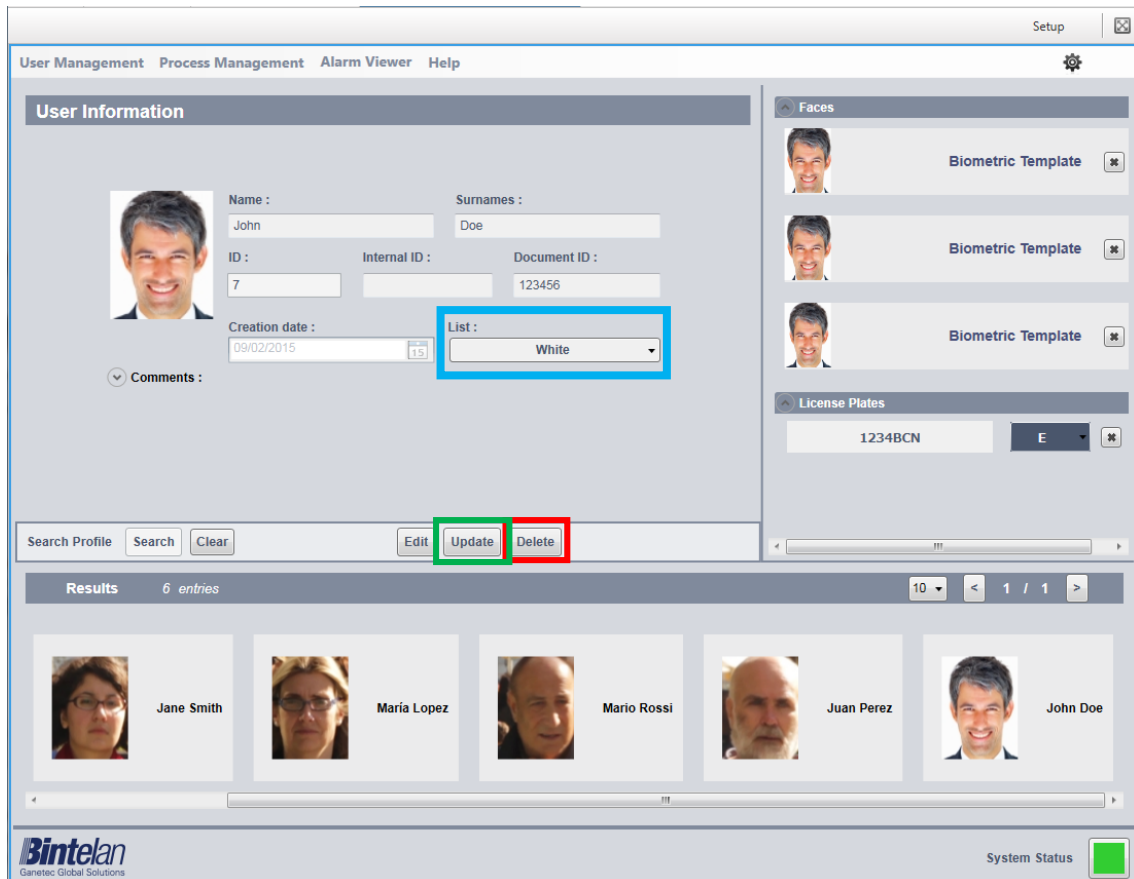
Finally, if you want to make changes to the user information or add more biometric templates, you must select the **Edit** option. Then you will be redirected to the Registration screen. On this screen you can update all the data from the selected user.

4 Alarm Viewer

The visualization of the alarms can be performed in two ways:

1. Through Bintelan **Alarm Viewer**, located within the Bintelan Client platform.
2. Through the **VMS Client** you are using after a correct configuration.
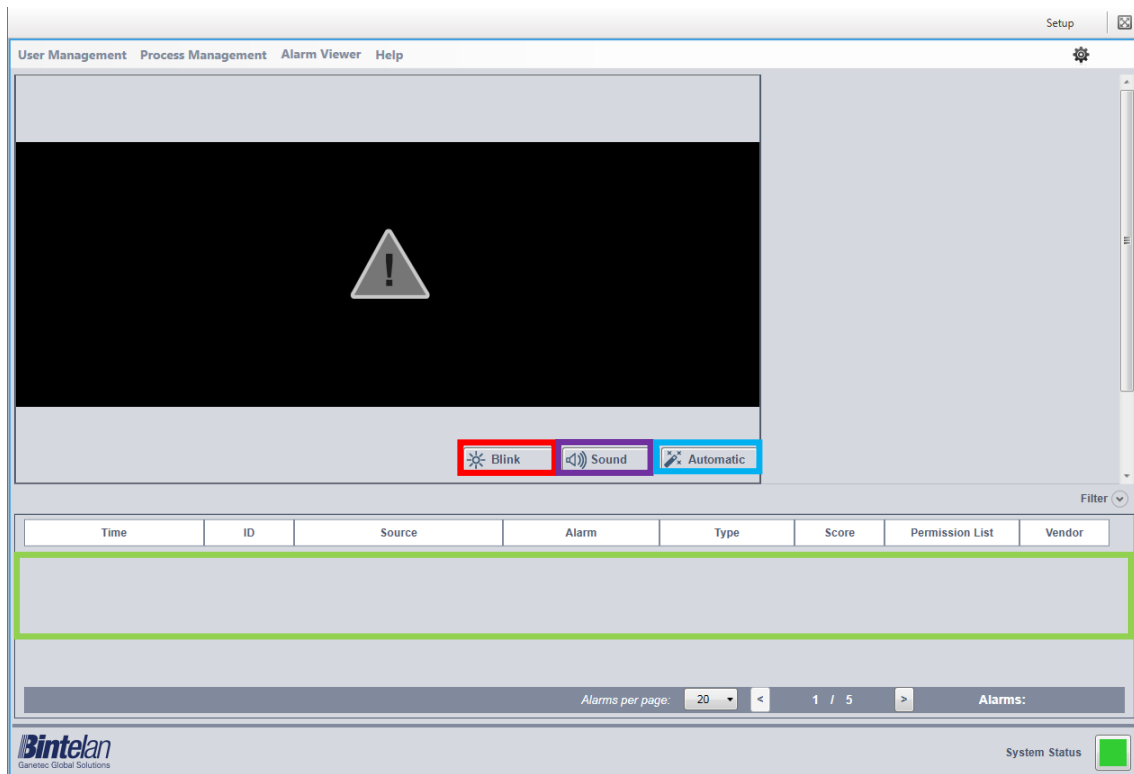
4.1 Alarm Viewer

Inside the Bintelan Client, both the StandAlone-and the specific ones from each VMS, you can view the generated alarms in the "**Alarm Viewer**" tab. On this screen, the information of the alarms is detail presented. The layout consists of three different areas. In the top left we have the image of the alarm, where a square highlights the source of it. In the case of using a video analytics involving recognition (facial or lpr), the square color will match its accuracy level (**Very Low** - **Low** - **Medium** - **High** - **Very high**).

At the top right the information of the registered user is displayed. If you are using analytics involving detection, **an image** from the alarm will appear over this informarion.

Finally, under both screens is **the alarm list**, where the parameters of each alarm are depicted: date and exact time of the alarm, its identifier, its source (camera name), the object's name, the analytics type, accuracy, list (in case of recognition) and analytics provider. Additionally, it

has an option to **filter the alarms**. Above the list, on the right, you can expand the options available to filter the alarms. You can filter by **source, alarm name** or **type**, using one or more of these options simultaneously.


In addition, the "**Alarm Viewer**" has 3 operational modes, which can be activated by selecting or deselecting the buttons at the bottom right of the alarm image. The first mode is called **Blink**, it activates a red flashing border around the alarm image every time a new one is received. The second one, **Sound**, enables an acoustic signal after receiving a new alarm. The last mode, **Automatic** implies that the last alarm received is displayed on the image and in the information layout. These three modes can be selected independently or combined as the end user prefers.

Another option available in the "**Alarm Viewer**" is to see a small clip of 5 seconds before and 5 after of the alarm received, 10 seconds in total. To view this clip, double-click the alarm line that you want to see its detailed information.

Furthermore, a screen with two superimposed images will appear. The left image corresponds to **5 seconds before and 5 after of the alarm**. On the other hand, the right image shows the camera video that launched the alert in "**Live**" mode. Thus, this feature allows us to simply and intuitively review the received alarms.
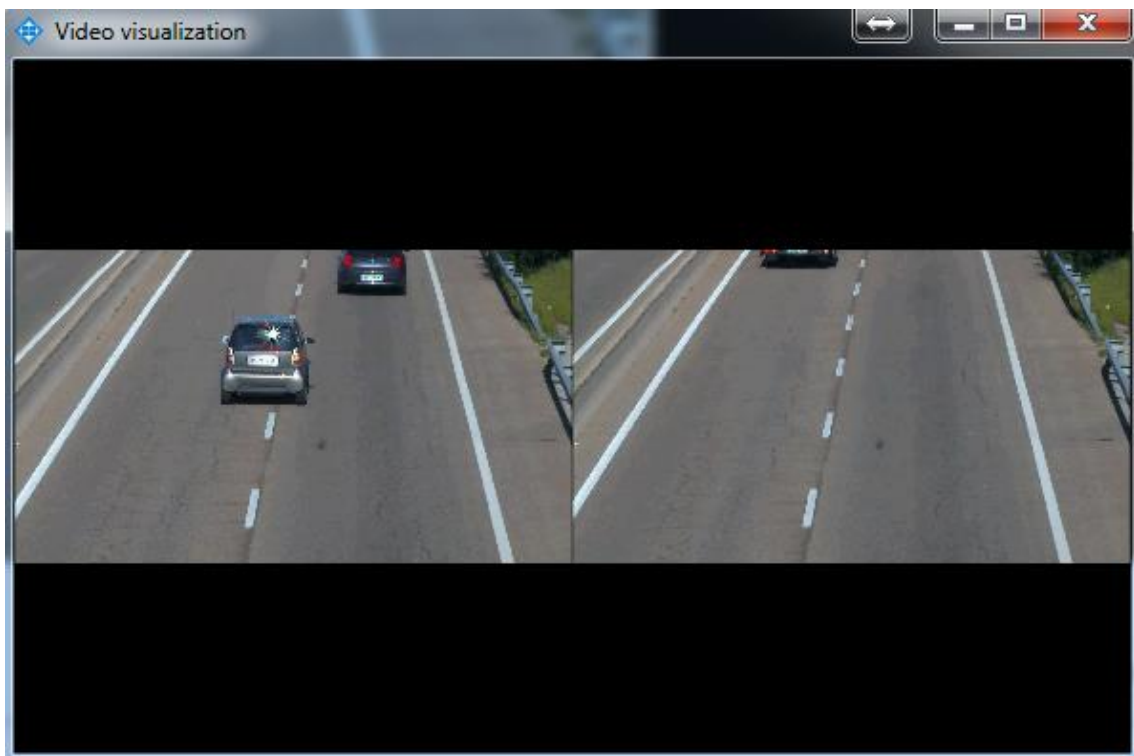
4.2 VMS's Alarm Viewer

Within each VMS there are different options for viewing alarms. In this section it will be explained how you visualize if you are using the VMS from Milestone Systems.

Once inside the Milestone XProtect Smart Client and if you are using a version of Milestone XProtect Smart Client 7.0 or higher, the easiest way to view the information alarm is through the **Alarm Manager** tab. This panel is extremely useful as you can visualize and link both the alarm and its source location.

In the "Alarm Manager" you will see, in the upper left display, a map of the location of all the cameras. The alarm images are displayed in the right pane, depicting the alarm with a colored square. The square color will match your range accuracy level (**Very Low** - **Low** - **Medium** - **High** - **Very high**). The alarms list is found under both screens, where the different parameters of the analytic event are presented: the object name, camera model which has performed the event, date and exact time at which the alarm was triggered.
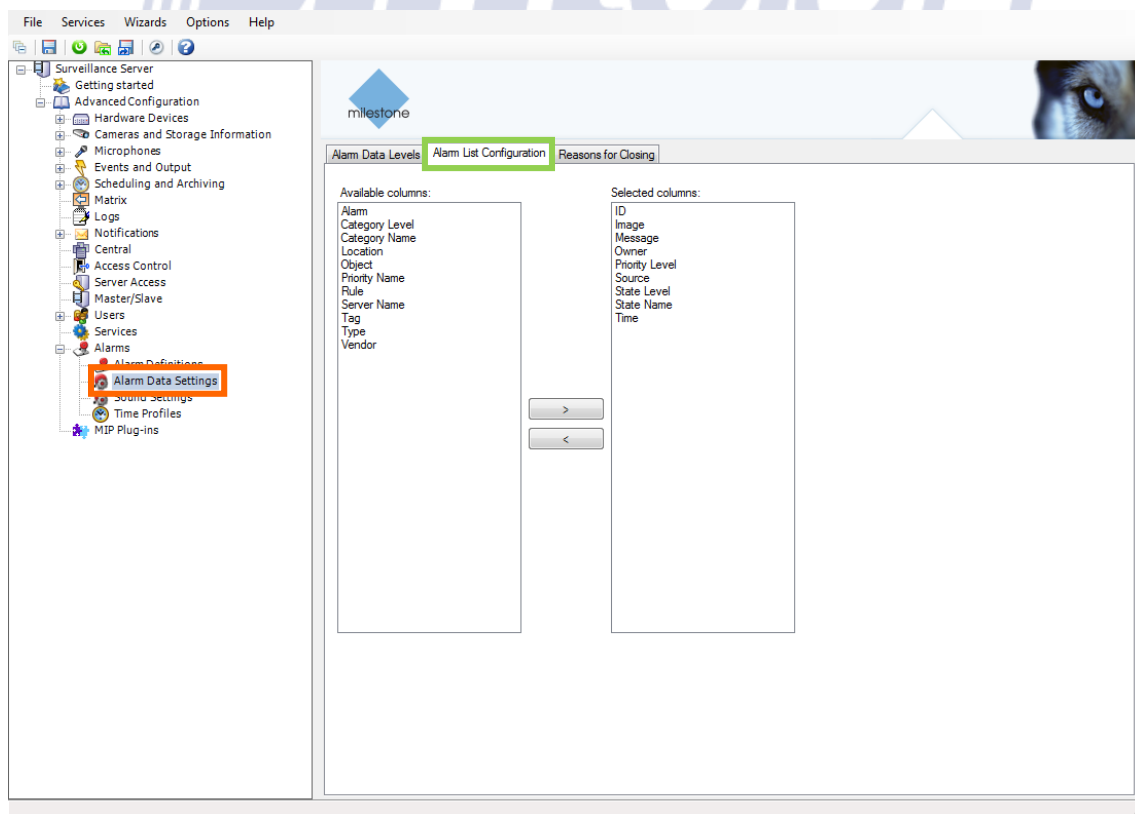

Additionally, to display the alarms, you can create your own alarm view within the "**Live**" panel. First of all, create a panel **1+2*** and locate in the upper left panel the live stream from the camera. Then, place in the upper right panel the **alarm preview** to finally position the **alarm list** on the bottom. This provides you with a suitable layout to check alarms in real time, both in "**Live**" and "**Playback**" modes. Also take into account that when you click each record you can view the pictures from the instant in which the alarms were generated. To

navigate between the two options you can simply change the selected tab ("Live" or "Playback"). In the next picture an example of the configuration described before is presented.
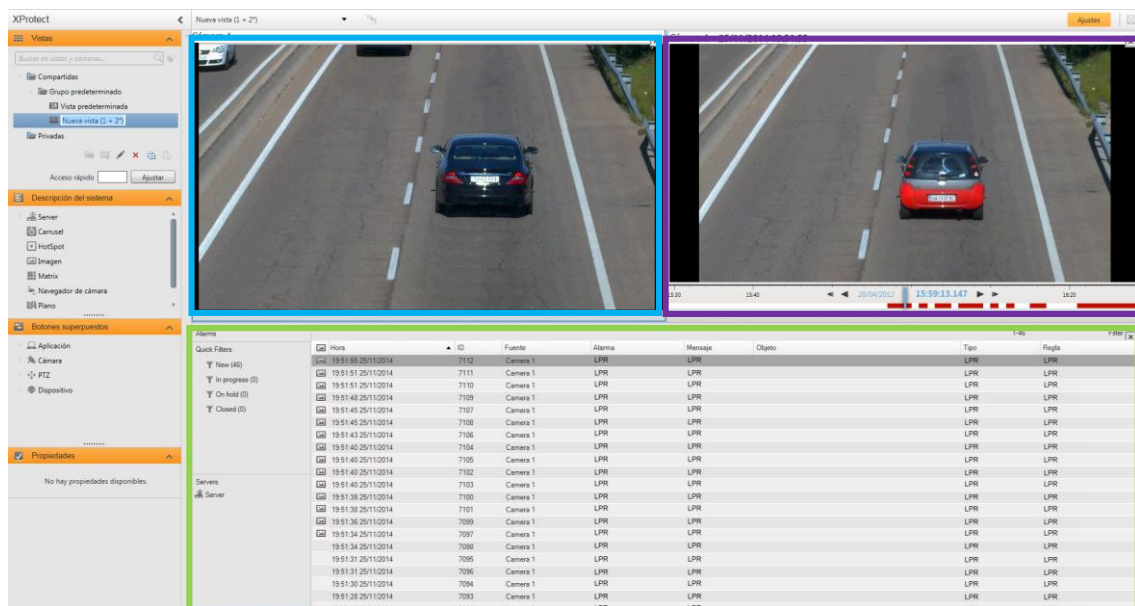
Finally, note that in order to display the fields in the list of alarms as in the previous examples, both panels must be configured from the **Milestone XProtect Management** application. To do this, select the **Alarms Data Settings** within **Alarms**, and then the **Alarm List Configuration** tab. Arrange the fields as described in the next image:

www.ganetec.com