



# APPLICATION NOTES

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DEVA – VTRACK CONFIGURATION

# DEVA - VIDEO ANALYSIS CONFIGURATION

## How to get the VTRACK License

To license the *VTrack* video analysis software by *Technoaware*, you have to generate the hardware identification file needed to generate the license file.

## Installing procedure

First, install the program and then follow these steps:

- Launch the Technoaware Central Manager.
- The default login is user: admin and password: 1234. You can use the shortcut ctrl + "<" the fills automatically the 2 fields with the default parameters.
- Double click on the VTrack server IP address on the top left of the window (127.0.0.1).
- Have a login again.
- Click on the padlock icon on the bottom left corner.
- Push the "Save hardware configuration" button and select "VTrack".
- Select a folder and save the XML file.
- Send the XML file to [support.audio@powersoft.com](mailto:support.audio@powersoft.com).

We will send you *.lic* file and you have to upload it on the *VTrack SW* following these steps:  
(From 1 to 5 as before)

- Click on the "Upload" button and select "VTrack"
- Browse to the folder that contains the *.lic* file we sent you.
- Click on the button "Open".

The picture below shows the Technoaware Central Manager interface with red arrows showing the icons and buttons quoted in the procedure steps:



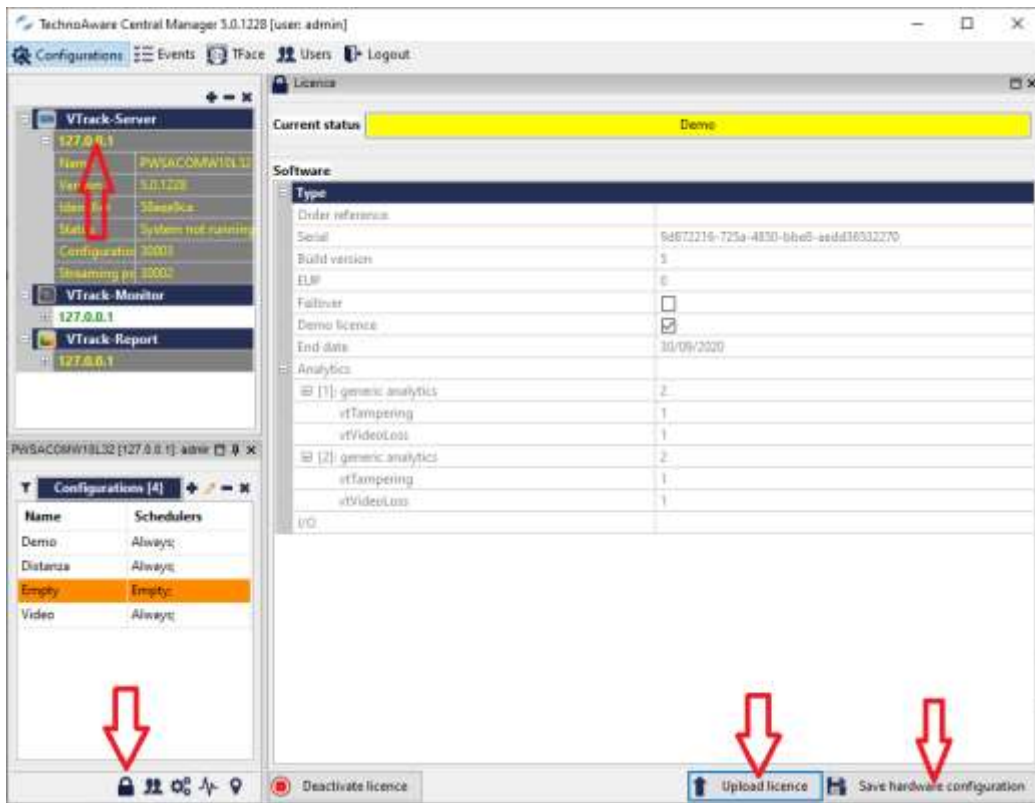


Figure 1 – Technoaware Central Manager interface

## VAC – People Counter

Following the Deva installation guide, you proceed with the installation of the devices and their wiring to the POE switch. When the PDD, on which the DSM and the video analysis software has been installed, is connected to the POE switch, it will be able to communicate with the Devas and it will automatically detect and display them in the “System” window. The video analysis software can also run on the same PDD PC or on a separate one. Consider that the PDD can also be a “Virtual Machine”. Launch the **Technoaware Control Manager** video analysis management software window. Enter the credentials (by default **user** = admin; **password** = 1234, or the shortcut CTRL + <). We take for granted that the license is already installed.



Figure 2 – Starting window



Double click on the address 127.0.0.1\* to access the video server at this point you have to enter the same credentials again.

Create a new “Configuration” (do not use the “Empty” one) clicking on the “+” button and set the schedule. In the following example the name is “Demo” (in green):

*\* the characters must be green otherwise there is a license problem*



Figure 3 – Creating new configuration

Double click on the configuration name (In the above example “Demo”) and you will see a Dropdown Menu with the modules activated by your license. Configure the RTSP connections with a DEVA HD. To do this, double click on the New configuration to open the configuration and module panels:

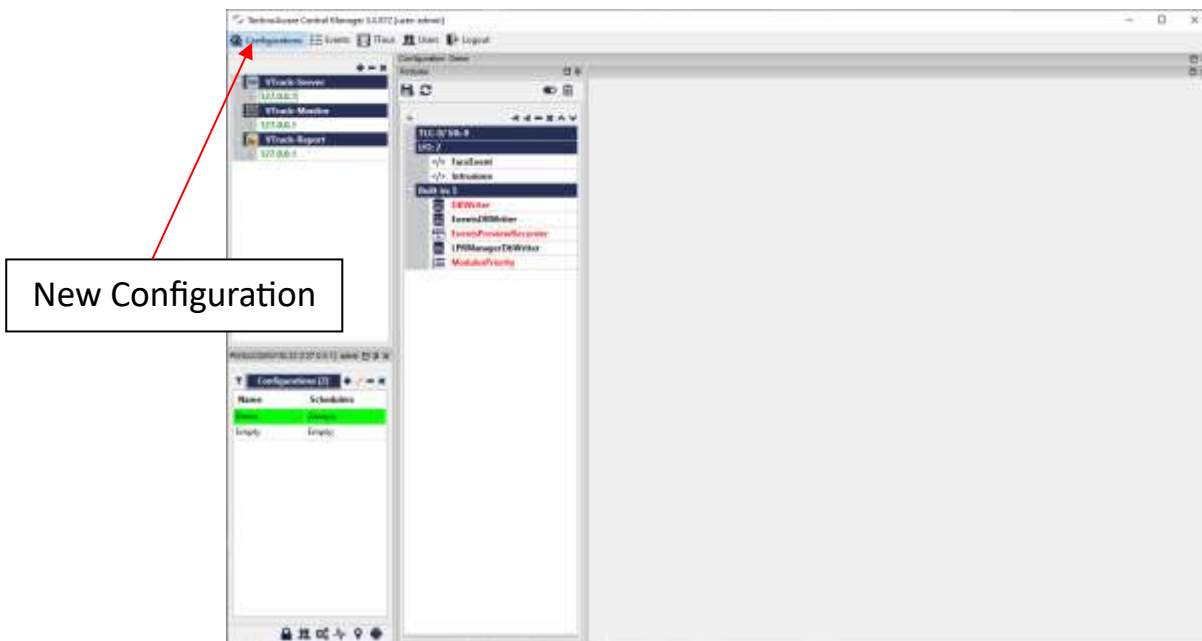


Figure 4 – Creating new configuration

Click on the video camera icon to add a video source, as indicated by the arrow in the below picture. You will see a device named by default “Tlc01” (highlighted in yellow here below). Double click on the “Tlc01” and you will see the “Parameters” panel on the right:



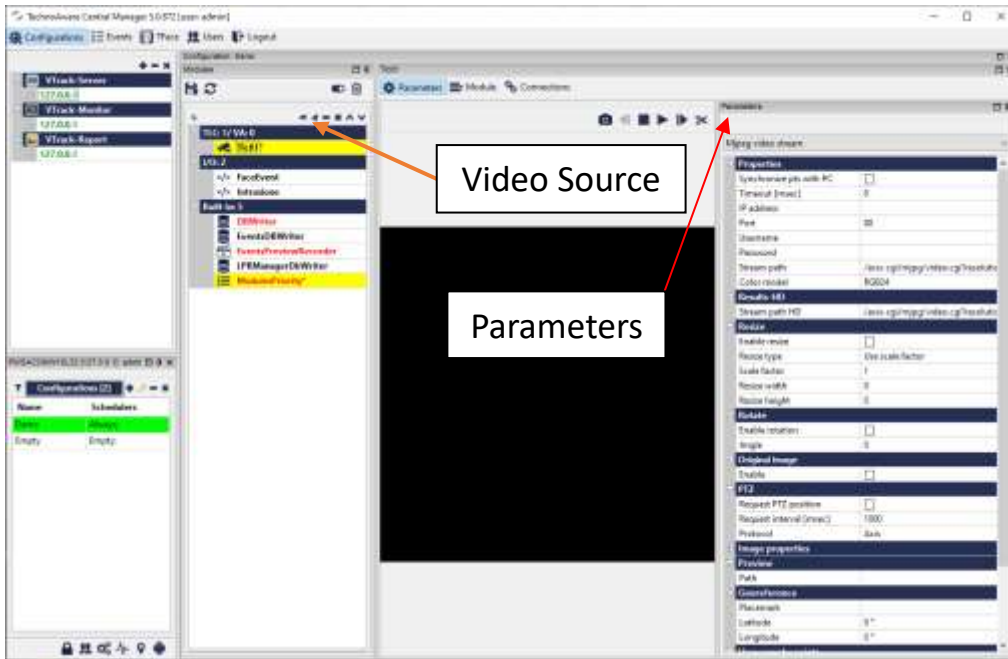


Figure 5 – Creating new configuration

For the Deva select the item RTP/RTSP video streaming in the combo box:

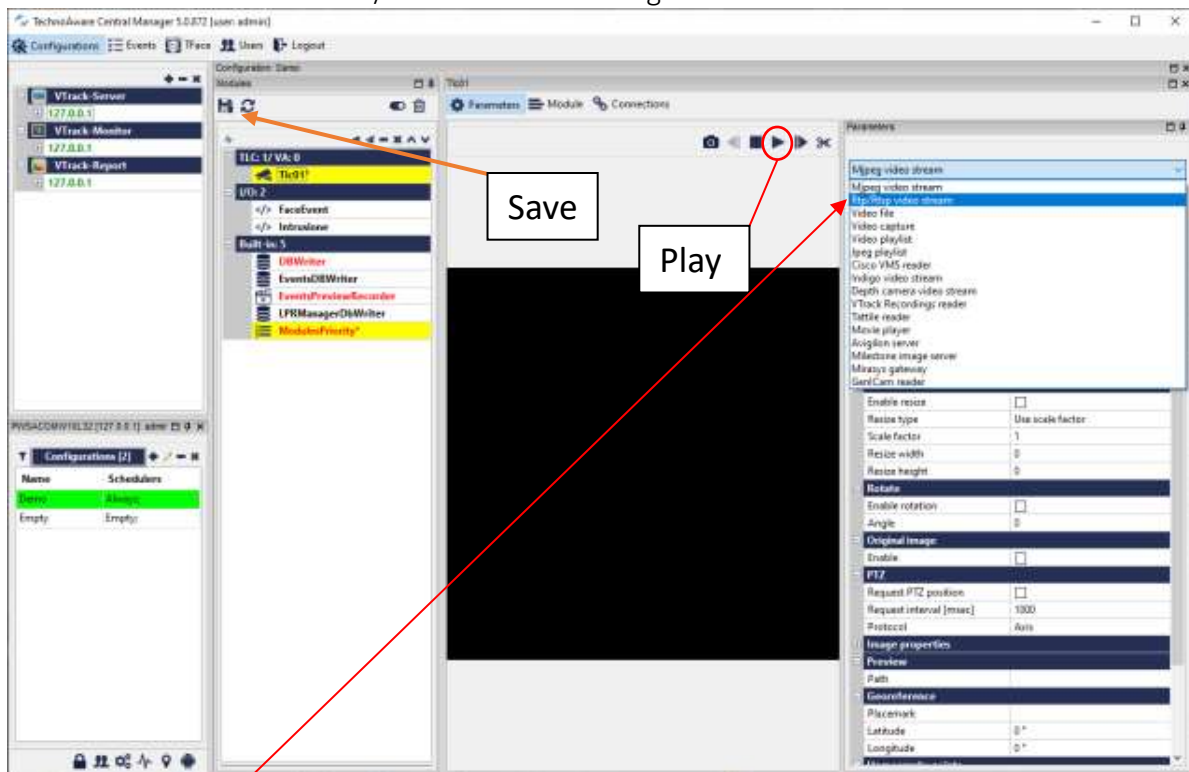


Figure 6 – Setting video streaming

Insert the **RTSP connection** string with username and password for the Deva video stream (by default user: admin and password: 123456).



If you press the Play button over the black area you can watch the live video. Check the **"Synchronize pts with PC"** and **"Check H264 frame"** check boxes.

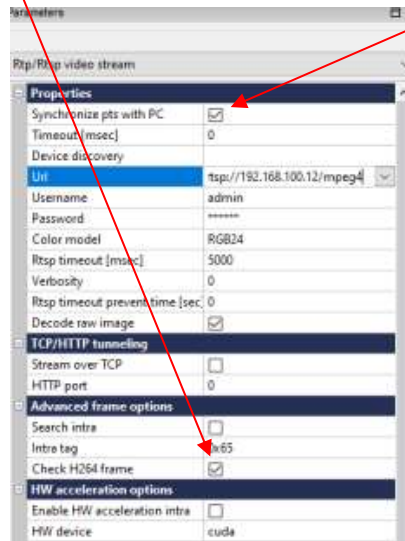



Figure 7 – Setting Properties

NOTE: The Deva video camera must be activated using the button  on the DSM web interface of the PDD.

The yellow colour background means that there are changes not saved. To save them click on the button with the icon of a diskette as indicated by the arrow in the previous picture.

If you click with the right mouse button on the video channel name "Tlc01" you will see the list of all the available video analysis functions. Obviously, you can use only those included in the license. If you want to count the people in a specific area and to set a threshold for the maximum allowed number to trigger an alarm for the social distancing, select the item "VTrack area Counting". The next steps are similar for the "Area occupancy".



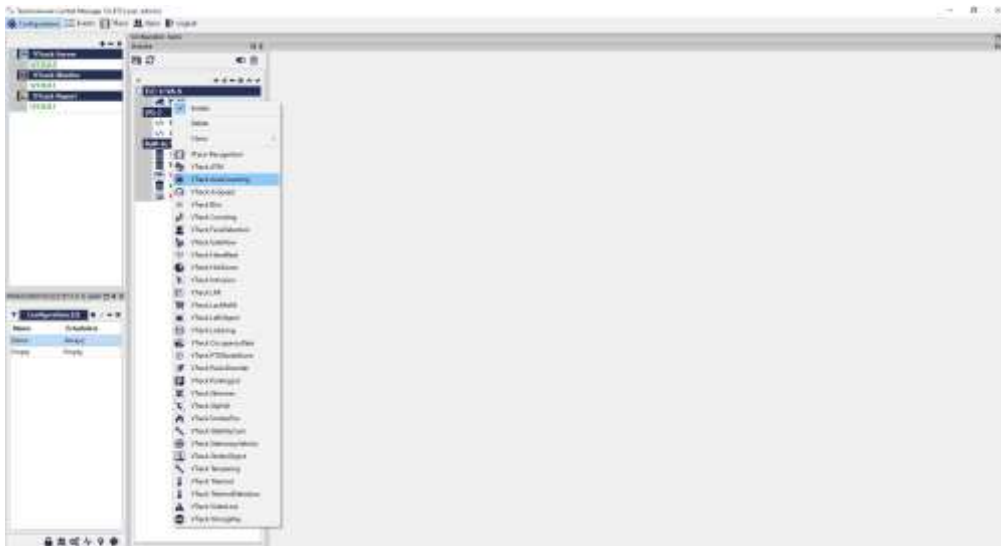


Figure 8 – Selecting VTrack AreaCounting

Double click on the module name “AreaCounting01(Tlc01)” just activated, you will see the configuration panel and a visualization area:

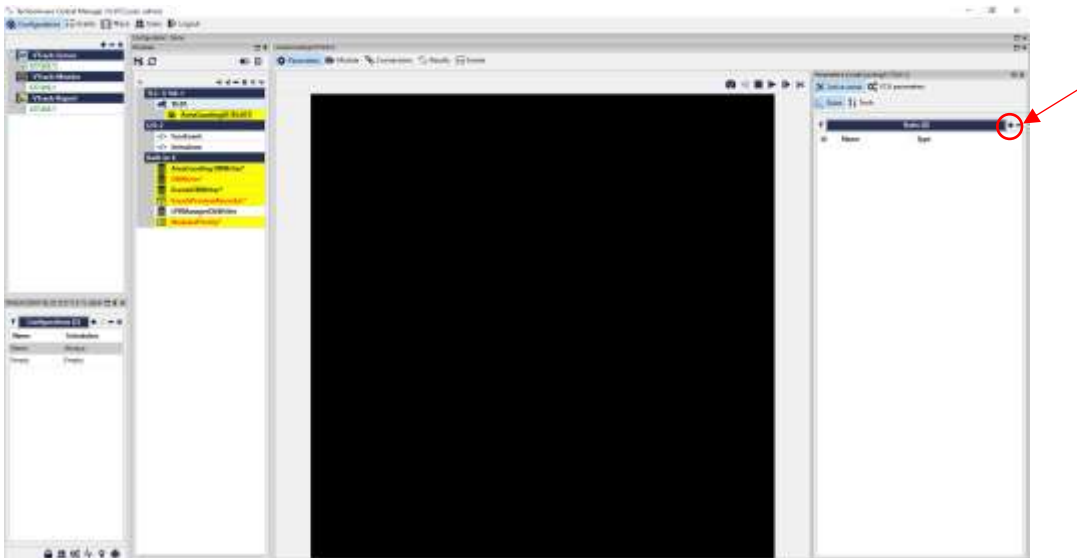


Figure 9 – Adding Monitoring Area

Click on the “+” symbol indicated by the arrow to add a monitoring area. To start, click on the black area on 3-4 points (*in order to define a Hypothetical control area*) and then click on the “checked” icon as indicated by the arrow in the following picture:



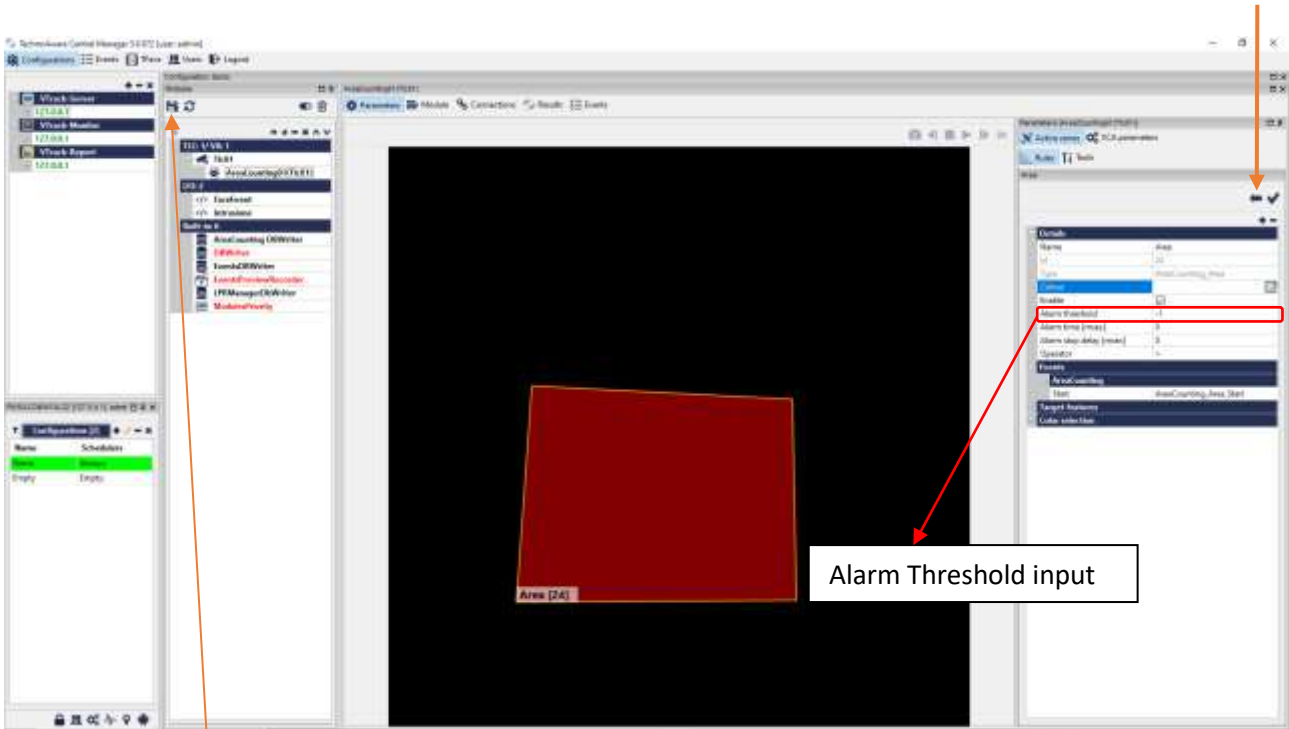


Figure 10 – Adding Monitoring Area

Click on the **save icon**. To define the monitoring area, you can activate the live play to have the Deva video streaming of scene as a reference.

To activate the live video, click on the play button over the black area.

Selecting the area name just added you can modify its shape by moving the circle grip on the corners. If you click on a line, a new grip will appear to better draw the area.

Once you are satisfied with you're the definition of your controlled area, in the field "*Alarm threshold*" you have to set the maximum number people over which an alarm is triggered, for example 100.

Save the changes. **Now you must create the interaction with the PDD.**





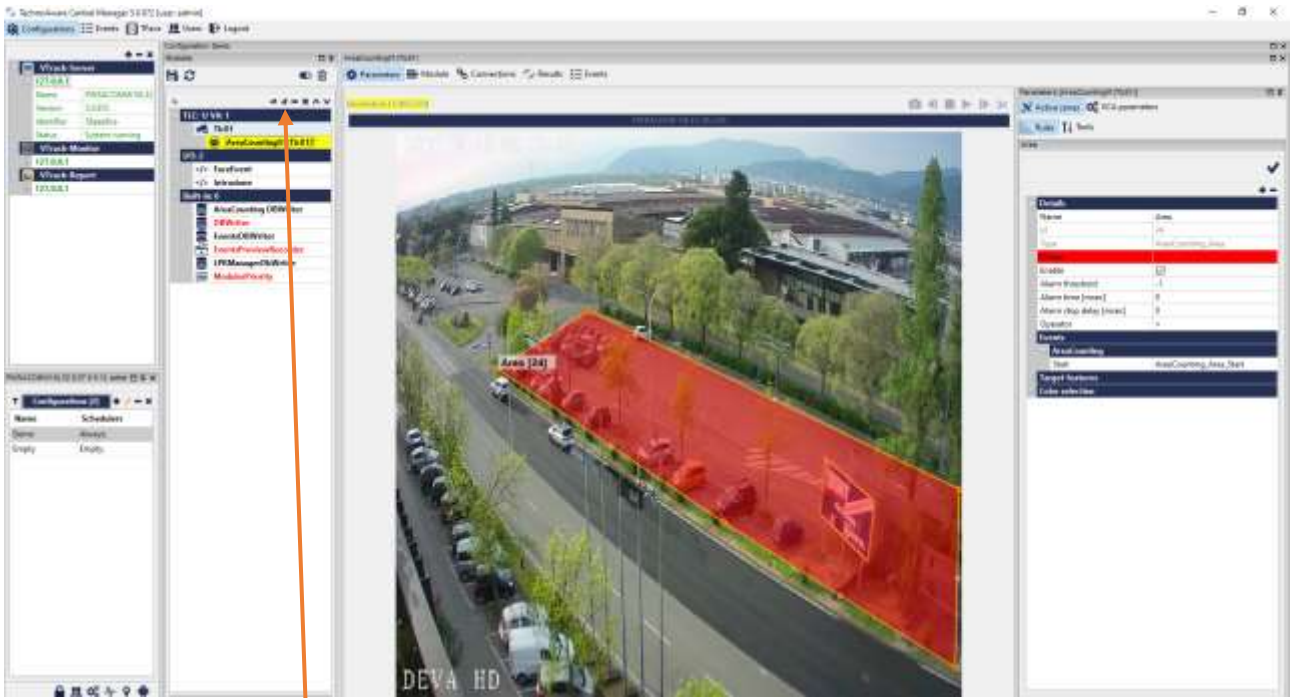


Figure 11 – Setting Monitoring Area

Click on the indicated icon by the arrow. You will see a list of all the available I/O modules:

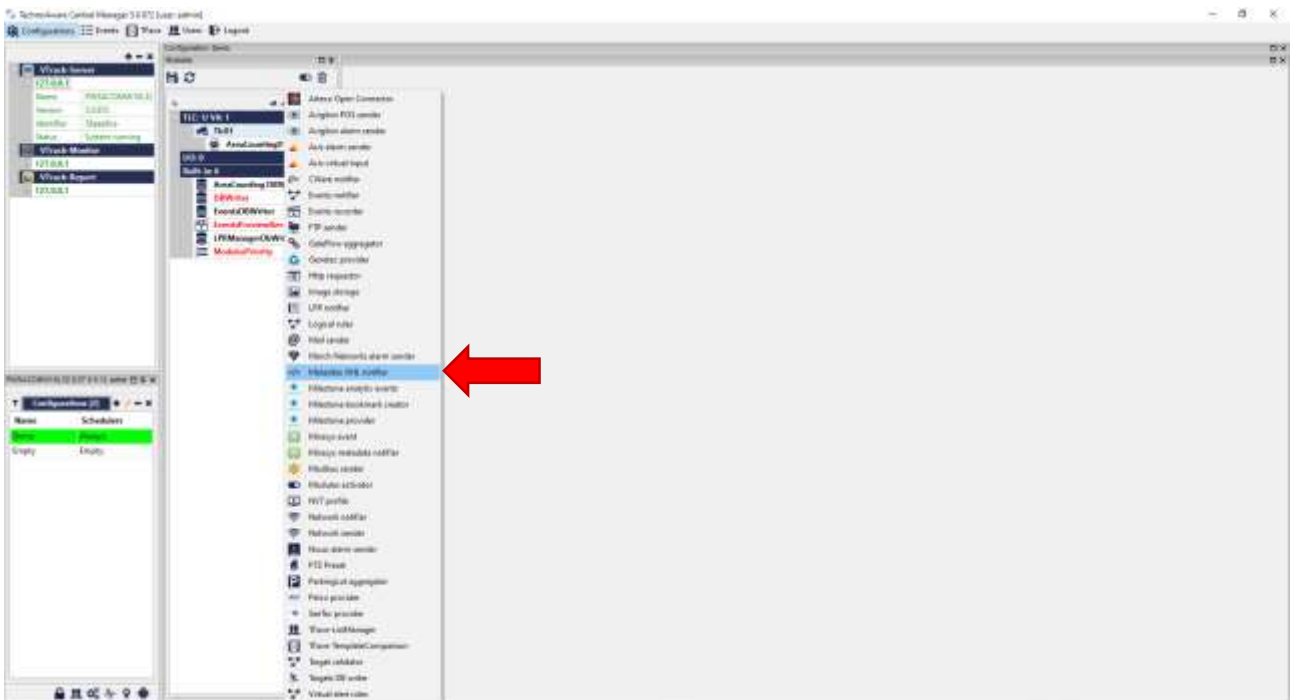


Figure 12 – Metadata XML notifier

Select “Metadata XML notifier”.



Double click on the module name and select the item TCP as “Sender type” in the Parameters panel. Insert the value 7778 in the “Port” field. This is the TCP\IP port number on which the DSM on the PDD is in listening for external software connection:

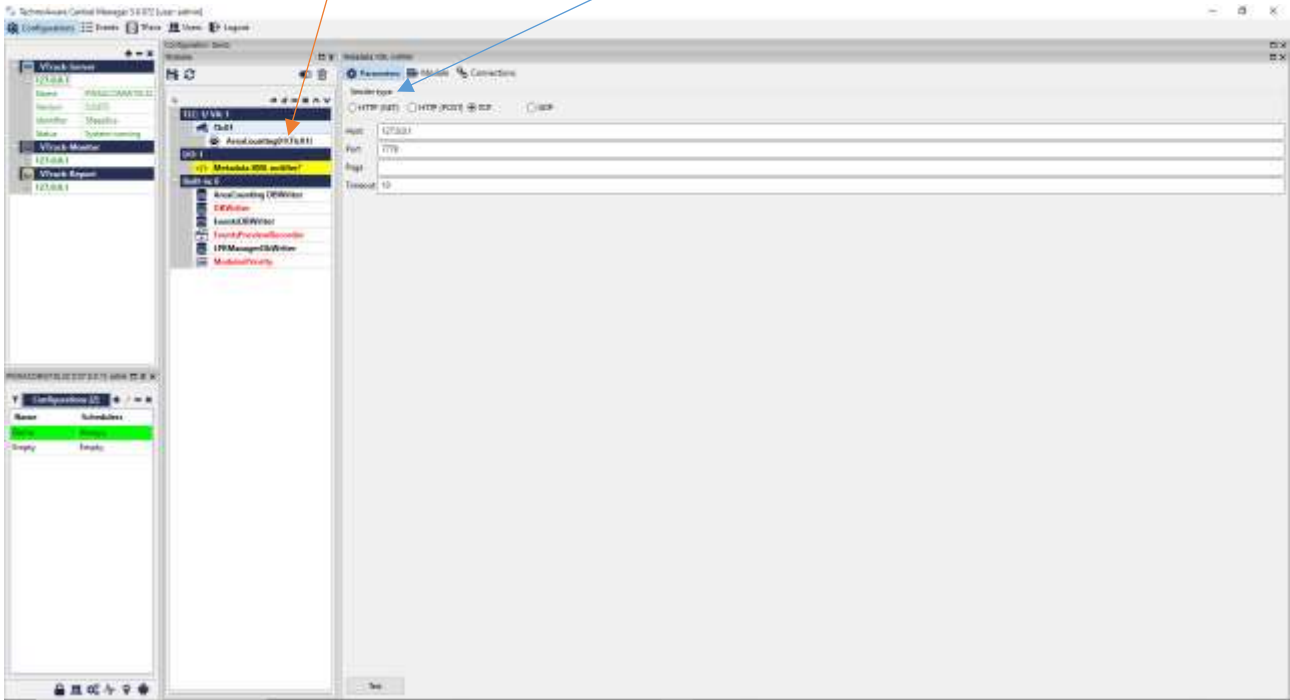


Figure 13 – Setting Metadata XML notifier

Click on the “Connection” button and select the checkbox referred to the “*Tlc01*” module.

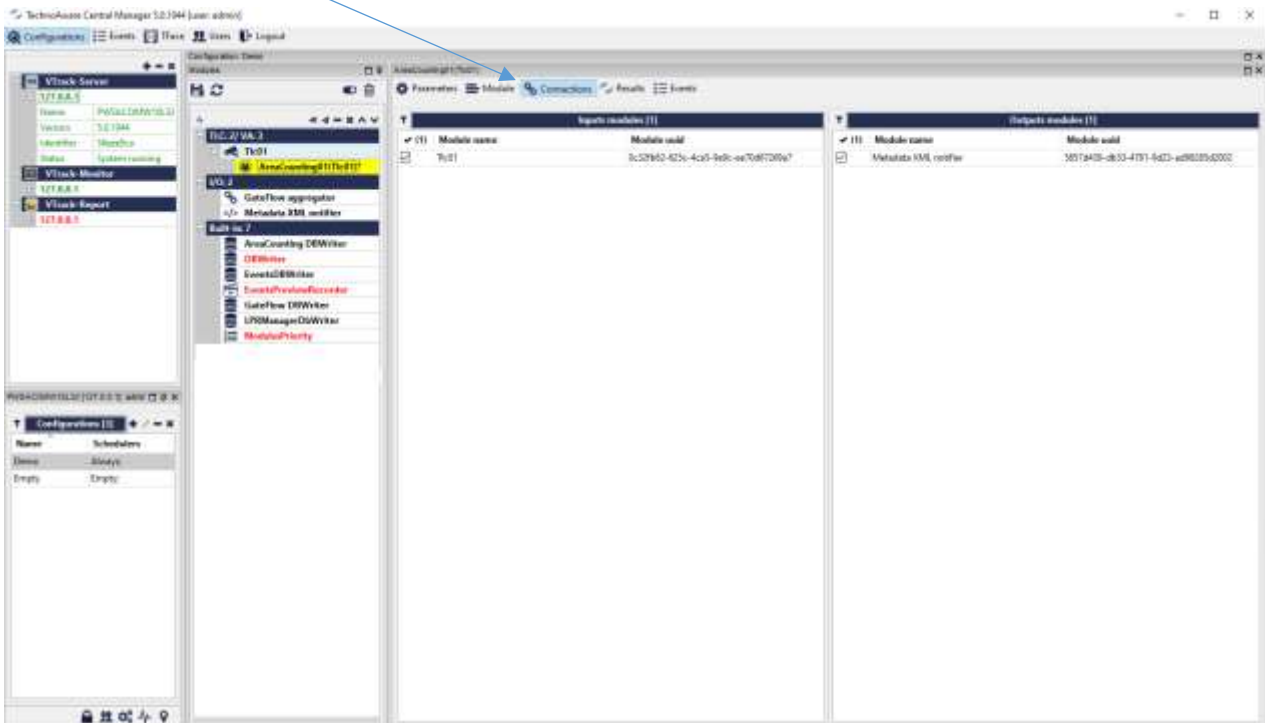


Figure 14 – Setting Connection



Save the changes.

Now you must assign a name to the alarm. Click on the “Module” button and insert the “Name” and “Description” in the “Alarm parameters” box. The “Name” is the keyword to use in the DSM Event setting. In the example below the word is “AreaCounting”

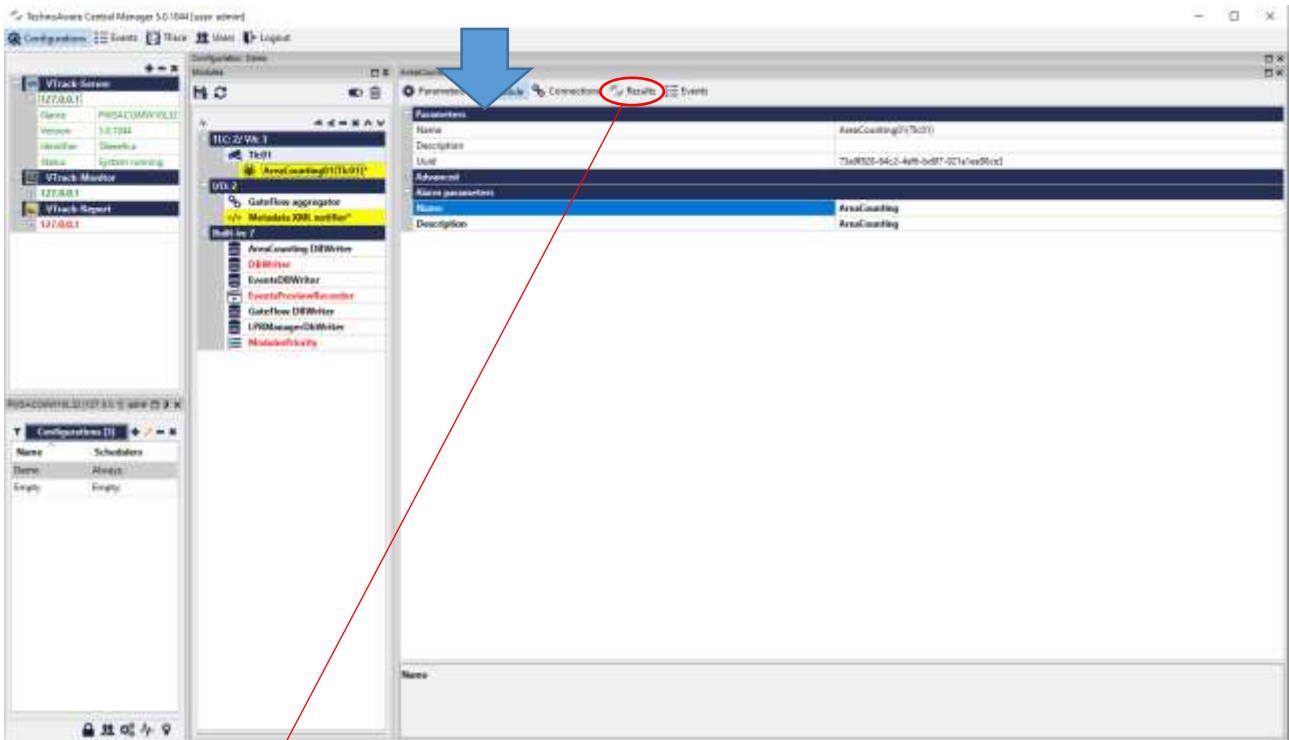


Figure 15 – Assigning Alarm

Click on the “Results” button to access to the interface where you can verify in real time how the video analysis engine is working. If you click on the gears icon you can set the monitor area visible. In the box “current” you can see the real time video. In the box “background” you can see the picture that the algorithm considers the background. In the box “foreground” you can see pixels that change referring to the background. On the right there is the alarm list with the last event picture:

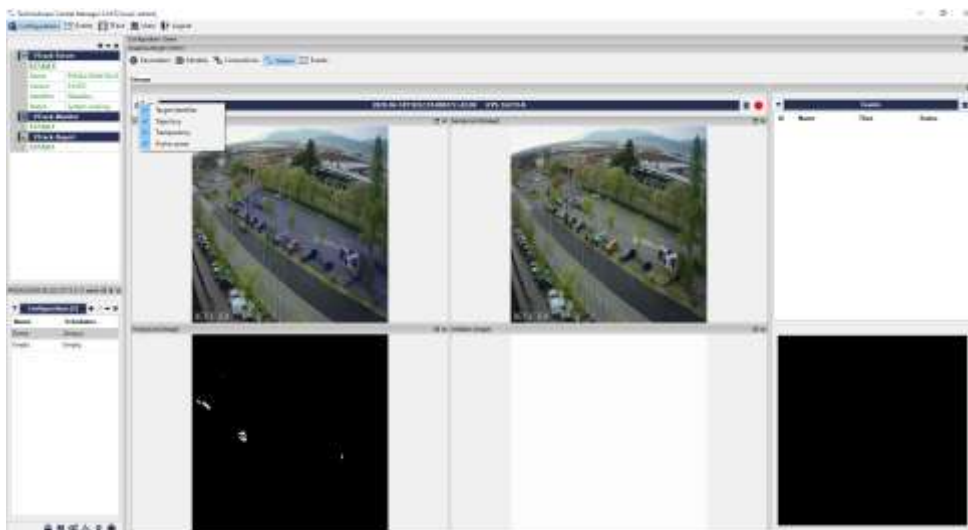


Figure 16 – Arranging monitor view



If you click on the gears icon you can set the monitor area visible. In the box “current” you can see the real time video. In the box “background” you can see the picture that the algorithm considers the background. In the box “foreground” you can see pixels that change referring to the background. On the right there is the alarm list with the last event picture. In case of deep learning people counter, the output is shown in the picture below:

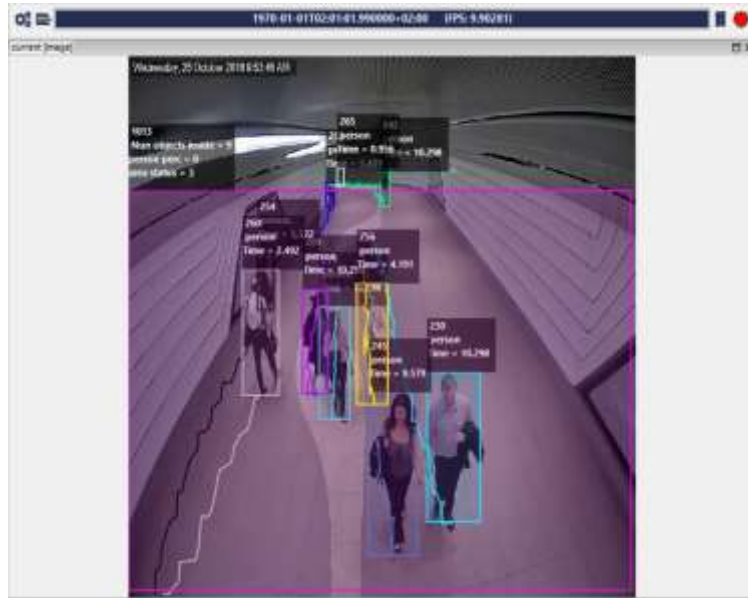


Figure 17 – Example of monitoring human body

As you can see, there is a human body recognition and for each person there is the area presence time.

At this point the last thing to do is to set the alarm event on the DSM on the PDD. To do this, select the Deva or the Deva zone where you want to activate the alarm and open the “Events” page. In the example below when the DSM receives the alarm with the label “AreaCounting”, the Devas belonging to the zone will play the file Alarm.mp3 and the DSM will send a SMS to all the enabled contacts to communicate the alarm using a cloud SMS service.



Figure 18 – DSM event window



If you want to monitor the people occupancy percentage in an area, you must select the “Occupancy rate” module. All the settings are the same but the threshold. In this case it is a percentage instead of a maximum people number.

## VAC – GateFlow

Following the Deva installation guide, you proceed with the installation of the devices and their wiring to the POE switch. When the PDD, on which the DSM and the video analysis software has been installed, is connected to the POE switch, it will be able to communicate with the Devas and it will automatically detect and display them in the “System” window. The video analysis software can also run on the same PDD PC or on a separate one. Consider that the PDD can also be a “Virtual Machine”. Launch the **Technoaware Control Manager** video analysis management software window. Enter the credentials (by default **user** = admin; **password** = 1234, or the shortcut CTRL + <). We take for granted that the license is already installed.



Figure 19 – Starting window.

Double click on the address 127.0.0.1\* to access the video server at this point you have to enter the same credentials again. Create a new “Configuration” (**do not use the “Empty” one**) clicking on the “+” button and set the schedule. In the following example the name is “Demo” (in green):

\* *the characters must be green otherwise there is a license problem*



Figure 20 – Creating new configuration.



Double click on the configuration name (In the above example “Demo”) and you will see a Dropdown Menu with the modules activated by your license. Configure the RTSP connections with a DEVA HD. To do this, double click on the New configuration to open the configuration and module panels:

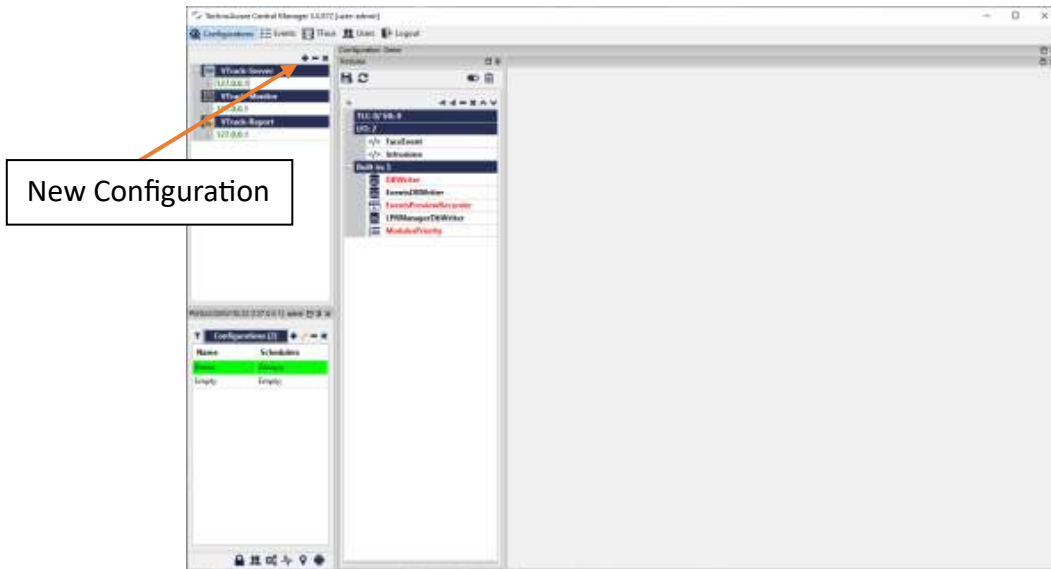



Figure 21 – Creating new configuration.

Click on the video camera icon  to add a video source, as indicated by the arrow in the below picture. You will see a device named by default “Tlc01” (highlighted in yellow here below). Double click on the “Tlc01” and you will see the “Parameters” panel on the right:

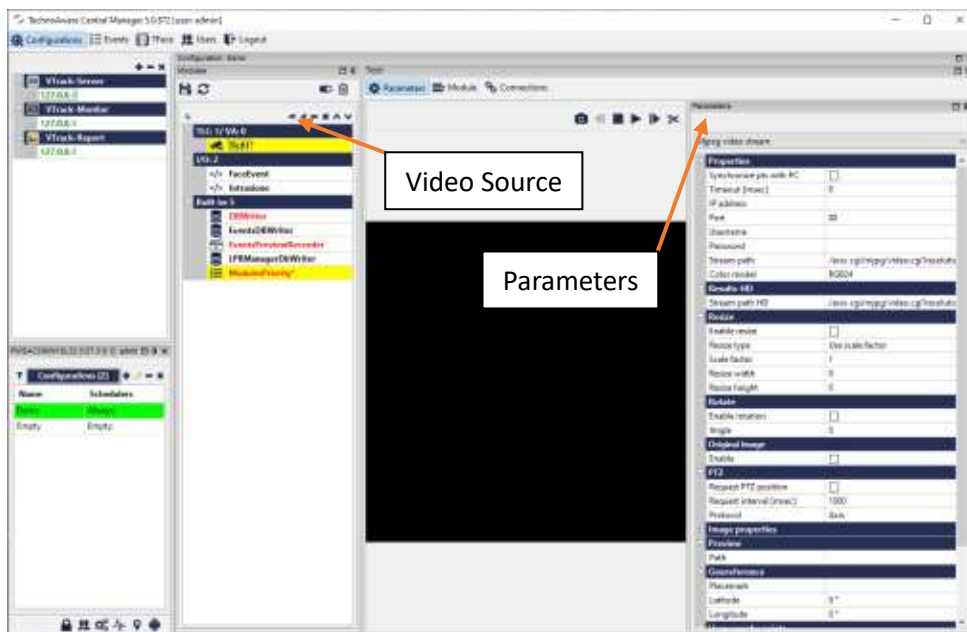


Figure 22 – Adding video source.

For the Deva select the item RTP/RTSP video streaming in the combo box:





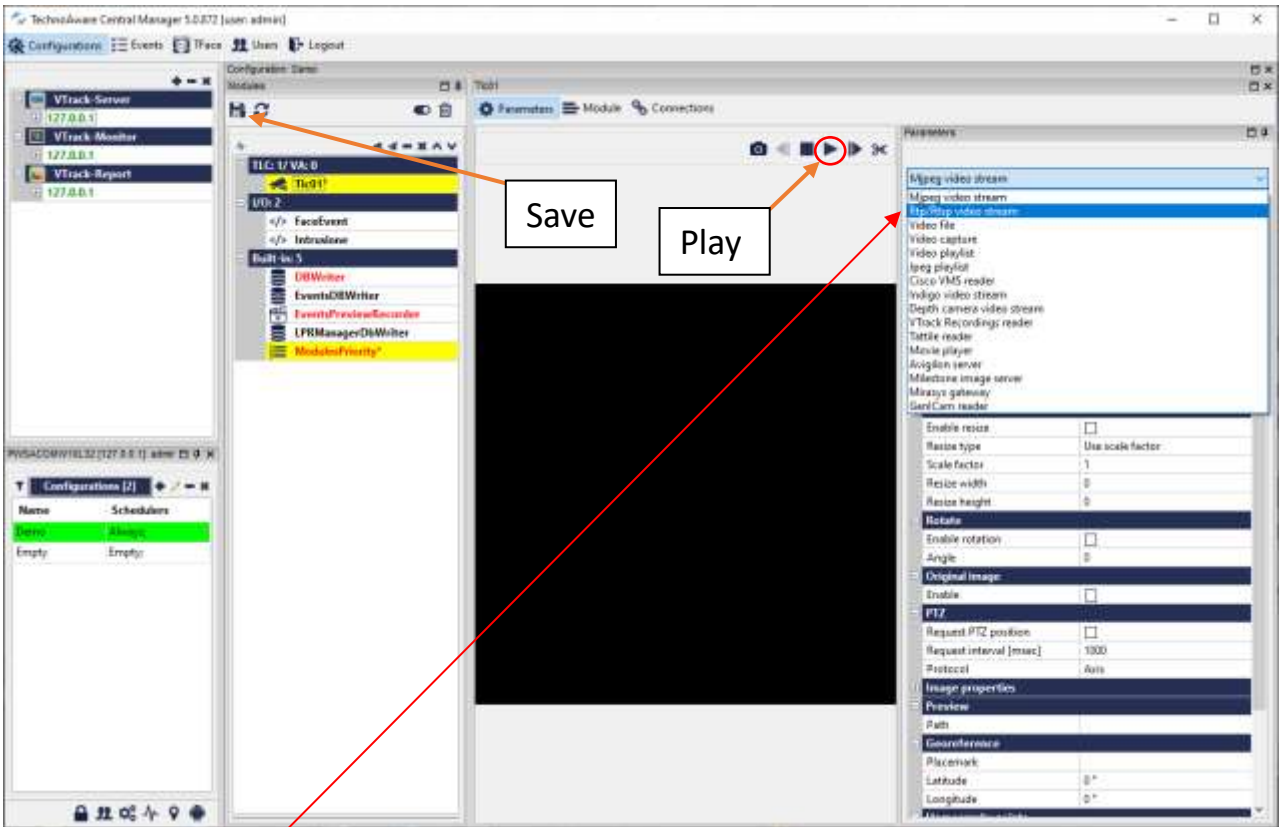


Figure 23 – Adding video source.

Insert the RTSP connection string with username and password for the Deva video stream (by default user: admin and password: 123456). If you press the Play button over the black area you can watch the live video. Check the "Synchronize pts with PC" and "Check H264 frame" check boxes.

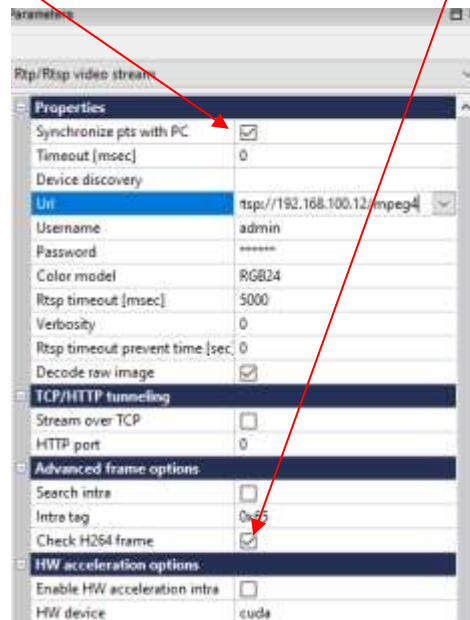



Figure 24 – Parameters window



NOTE: The Deva video camera must be activated using the button  on the DSM web interface of the PDD.

The yellow colour background means that there are changes not saved. To save them click on the button with the icon of a diskette as indicated by the arrow in the previous picture.

If you click with the right mouse button on the video channel name “Tlc01” you will see the list of all the available video analysis functions. Obviously, you can use only those included in the license. If you want to count the people accessing to a specific area through one or more gates and to set a threshold for the maximum allowed number to trigger an alarm to stop the people flow, select the item “GateFlow”.

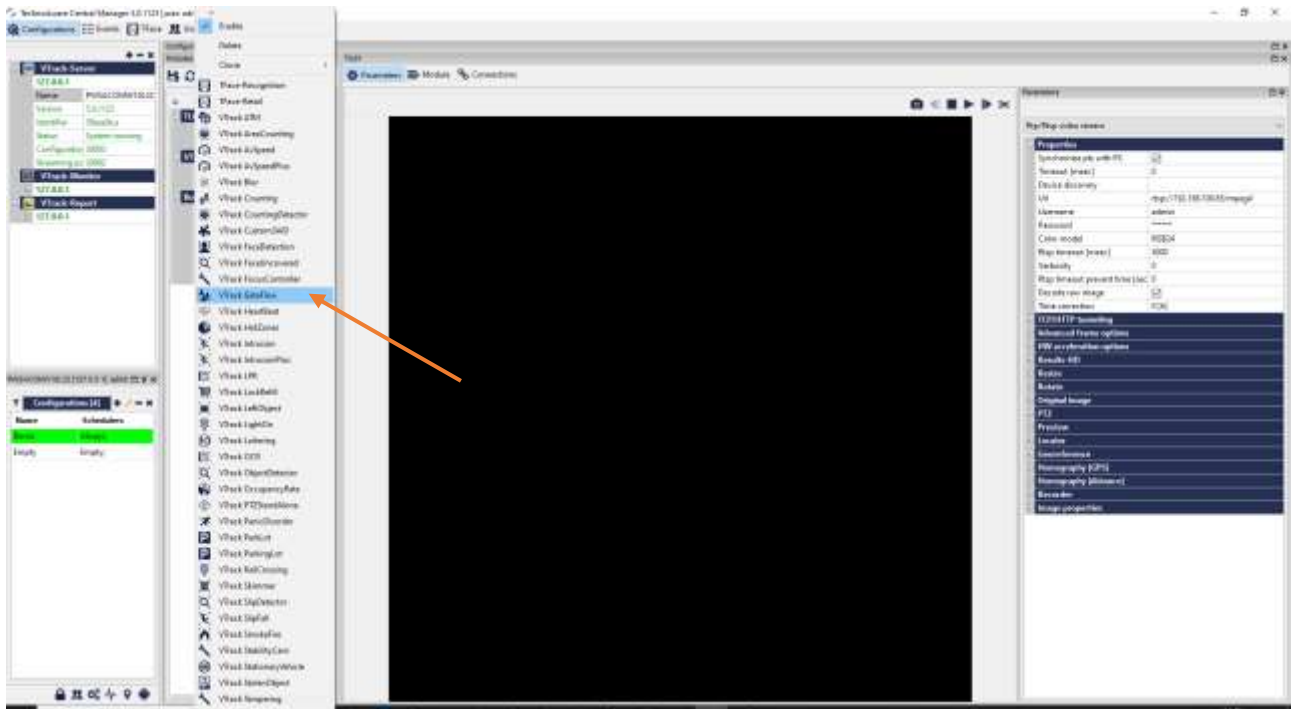


Figure 25 – Selecting VtrackGateFlow.

Double click on the module name “GateFlow01(Tlc01)” just activated, you will see the configuration panel and a visualization area:





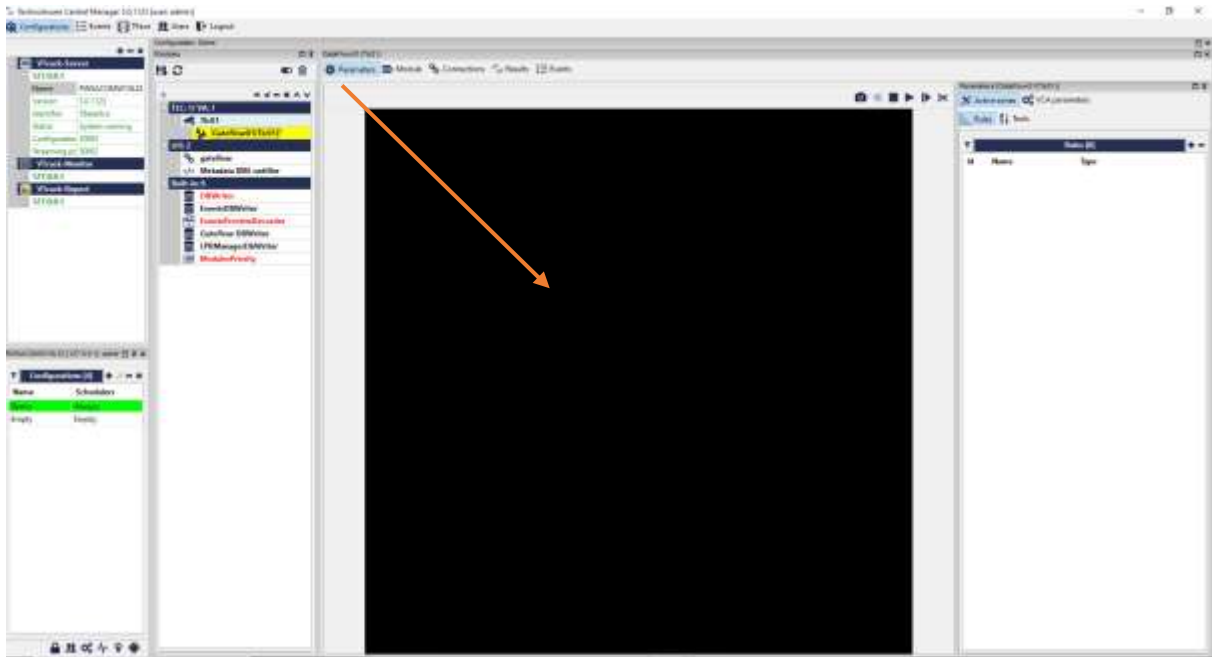


Figure 26 – Adding monitor area.

Click on the “+” symbol indicated by the arrow to add a monitoring area. To start, click on the black area on 3-4 points (*in order to define a Hypothetical control area*) and then click on the “checked” icon as indicated by the arrow in the following picture:

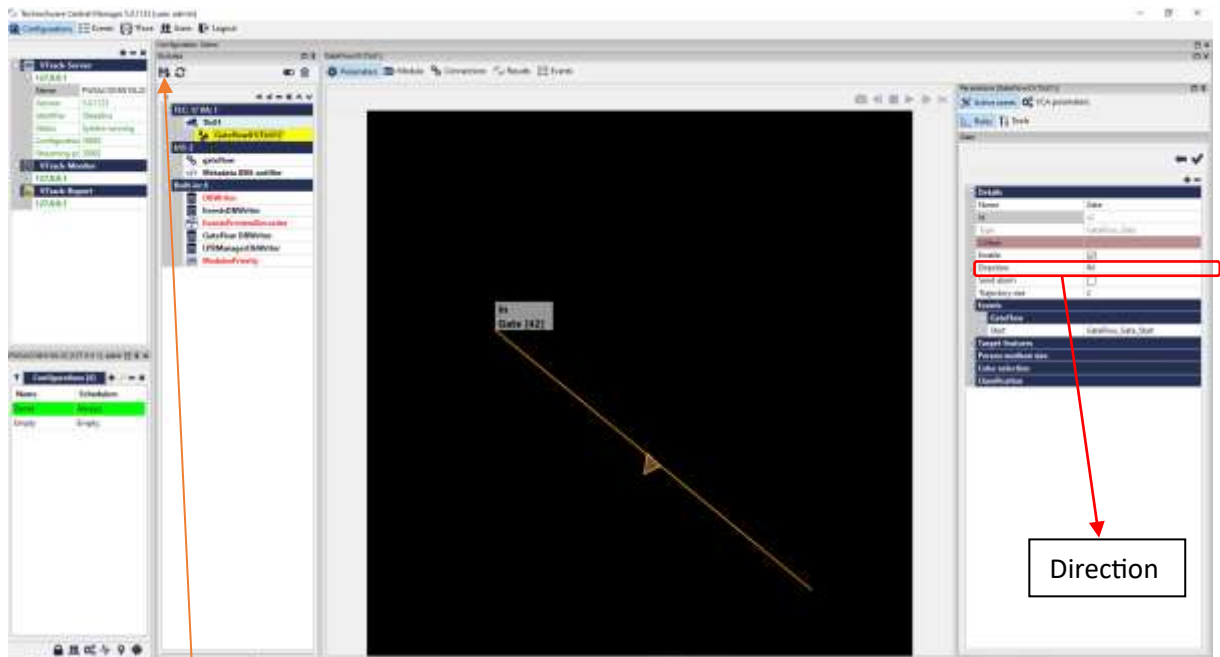


Figure 27 – Adding monitor area.

Click on the save icon. To define the gate, you can activate the live play to have the Deva video streaming of scene as a reference.



To activate the live video, click on the play button over the black area.


Draw the line that define the gate by moving the circle grip on the corners. If you click on a line, a new grip will appear to better draw the gate. You can also define if you want to detect the people that cross the line in the IN direction or in the OUT direction or BOTH.

Save the changes.

If you have a second gate controlled by a second Deva you have to repeat all they previous steps, adding a second video stream and so on. You can also add other gates on the same Deva video stream. In this case you don't need to activate a second license because you use the same stream.

For example, I add a second gate IN\OUT.

A this point you have to configure the aggregator module that allows the global area counting, upgrading a total counter adding all the people that cross the gate in the IN direction and subtracting all the people that cross the gate in the OUT direction. In that module you can also set the maximum people number present in the area to get an alarm managed by the Deva.

Click on the I/O icon  and then on the "GateFlow Aggregator" menu item.

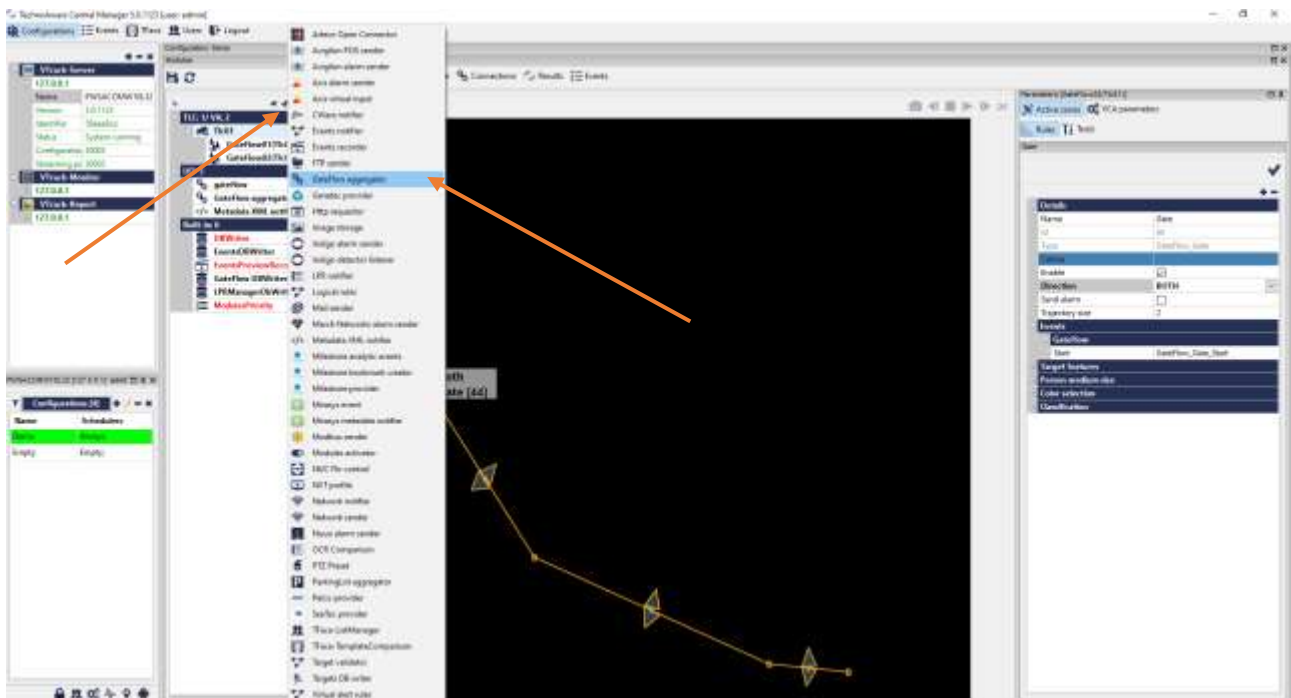


Figure 28 – Selecting GateFlow aggregator.

Double click on the I/O module and click on the "+" button to add an aggregator:



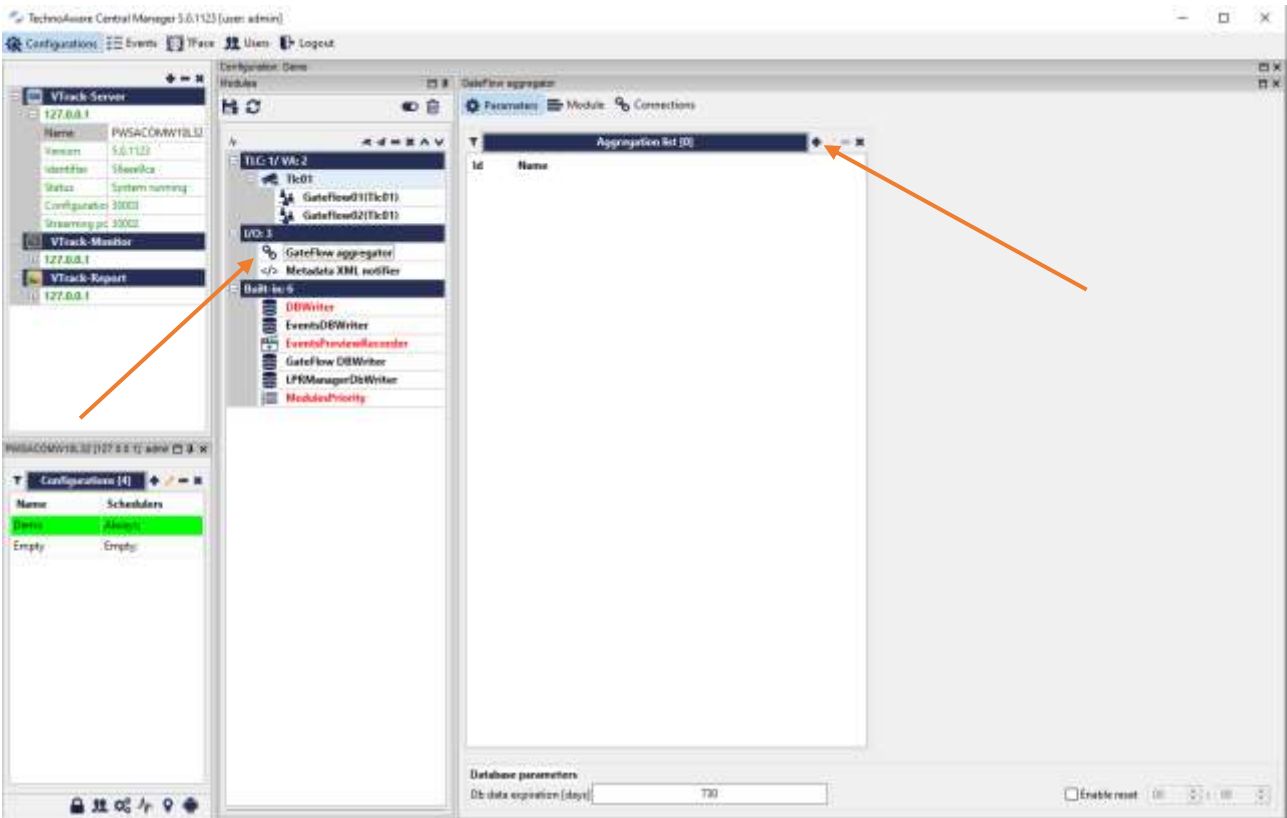


Figure 29 – Adding aggregator.

Insert a name, for example “Hall” and click on the label “Connections”.

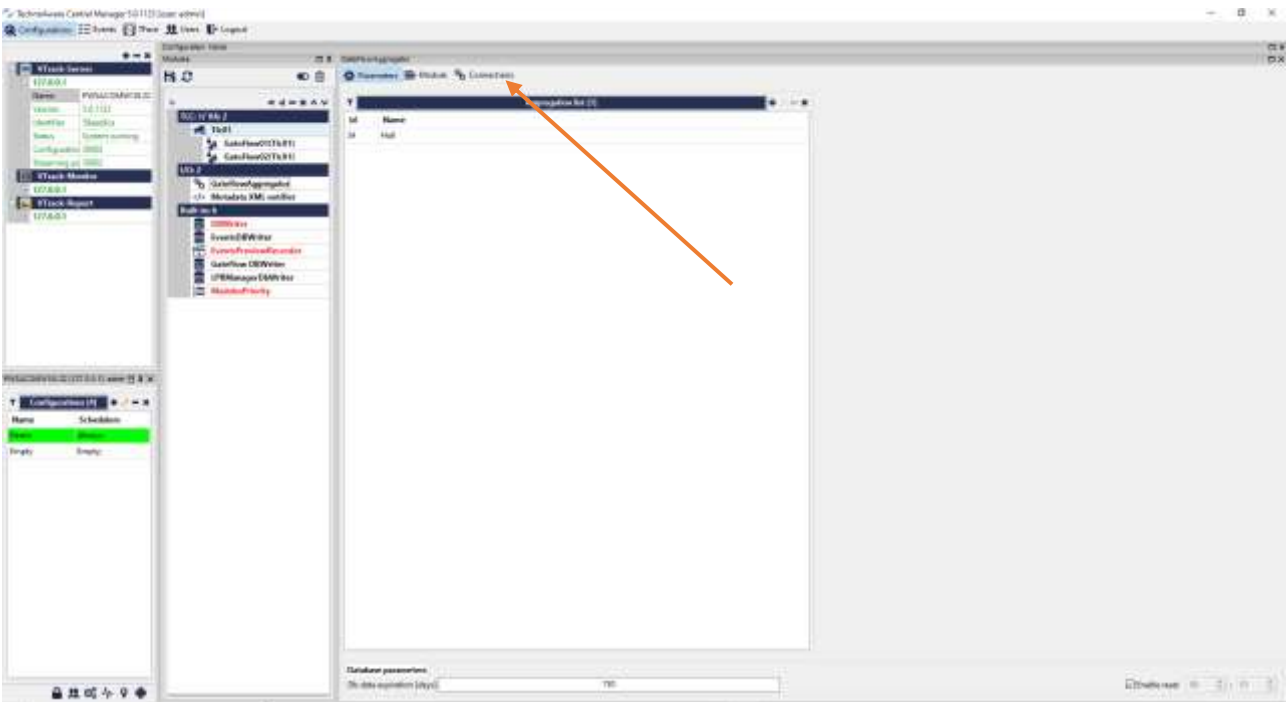


Figure 30 – Renaming aggregator.



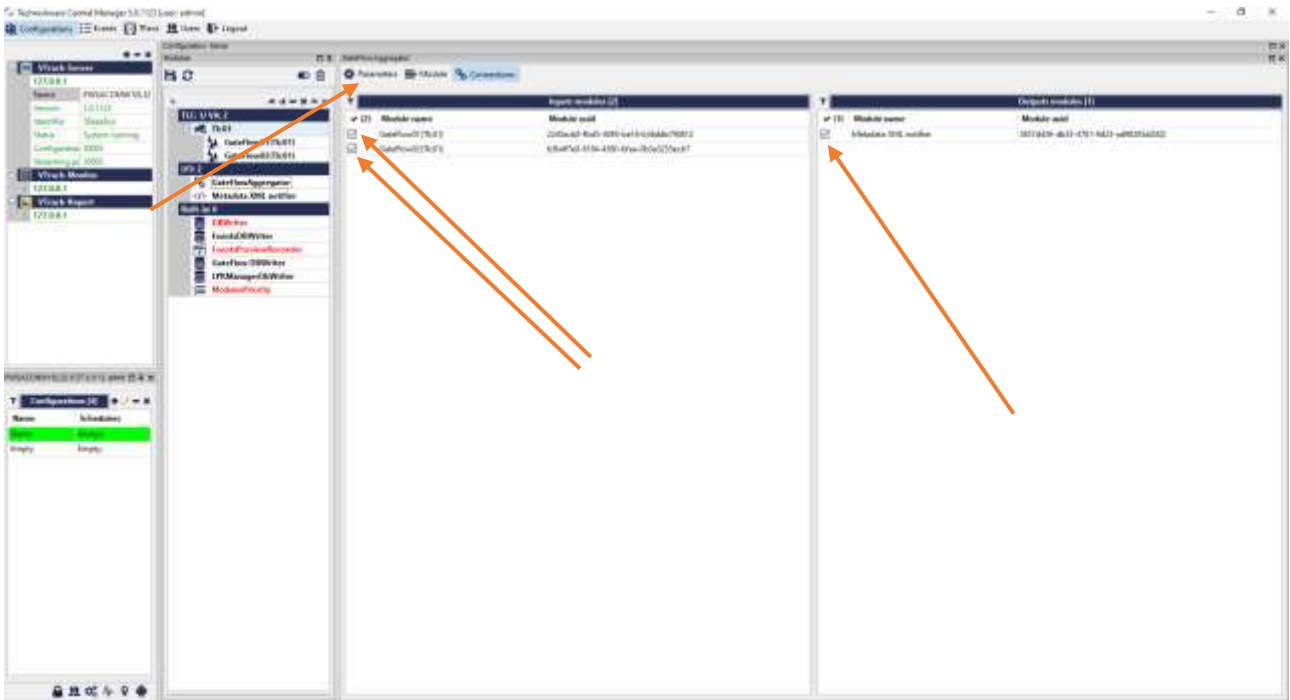


Figure 31 – Setting aggregator.

Select the gates and the output module (the configuration is going to be explained later).  
Click on the label Parameters:

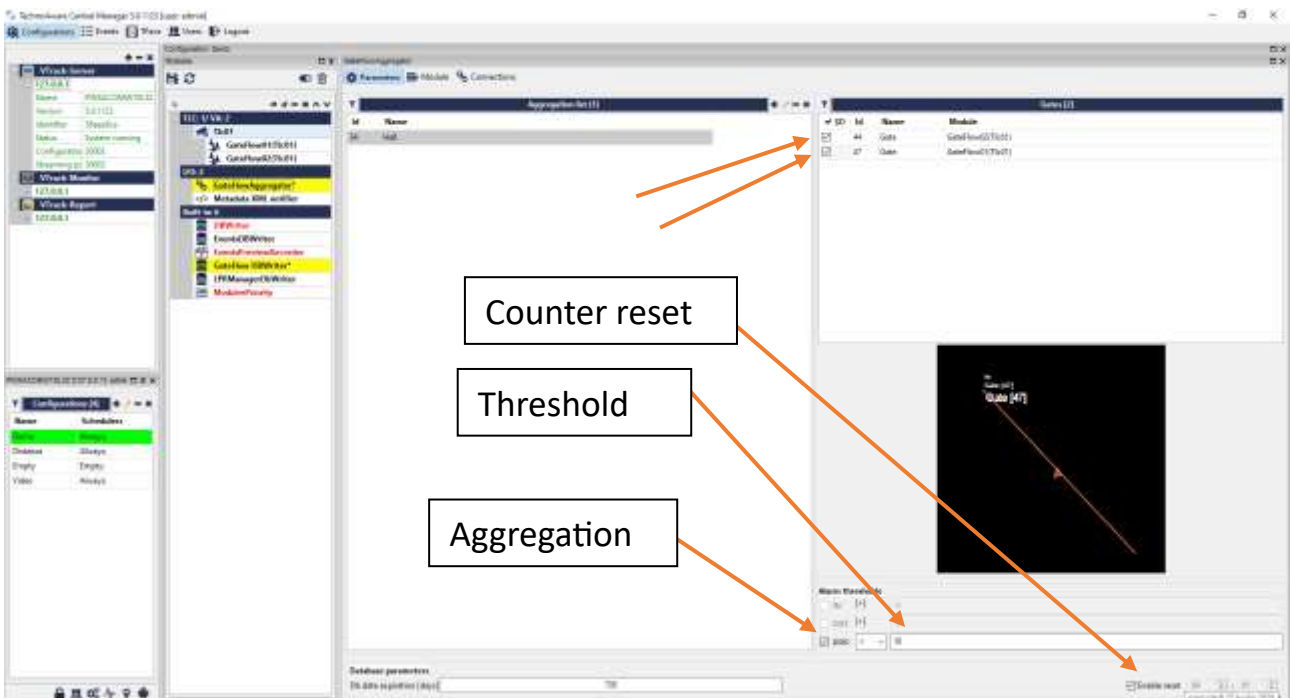


Figure 32 – Setting aggregator.



Check the module checkboxes and the option Aggregation so there will be a unique counter for the area. Insert the maximum people number alarm you want to use to trigger the Deva event. You can also enable a counter reset for example for the places that are closed in the night so you can suppose that at the 00:00 the counter can be reset.  
Save the changes.

**Now you have to create the interaction with the PDD.**

Click again on the I/O icon and select the module “*Metadata XML notifier*”:

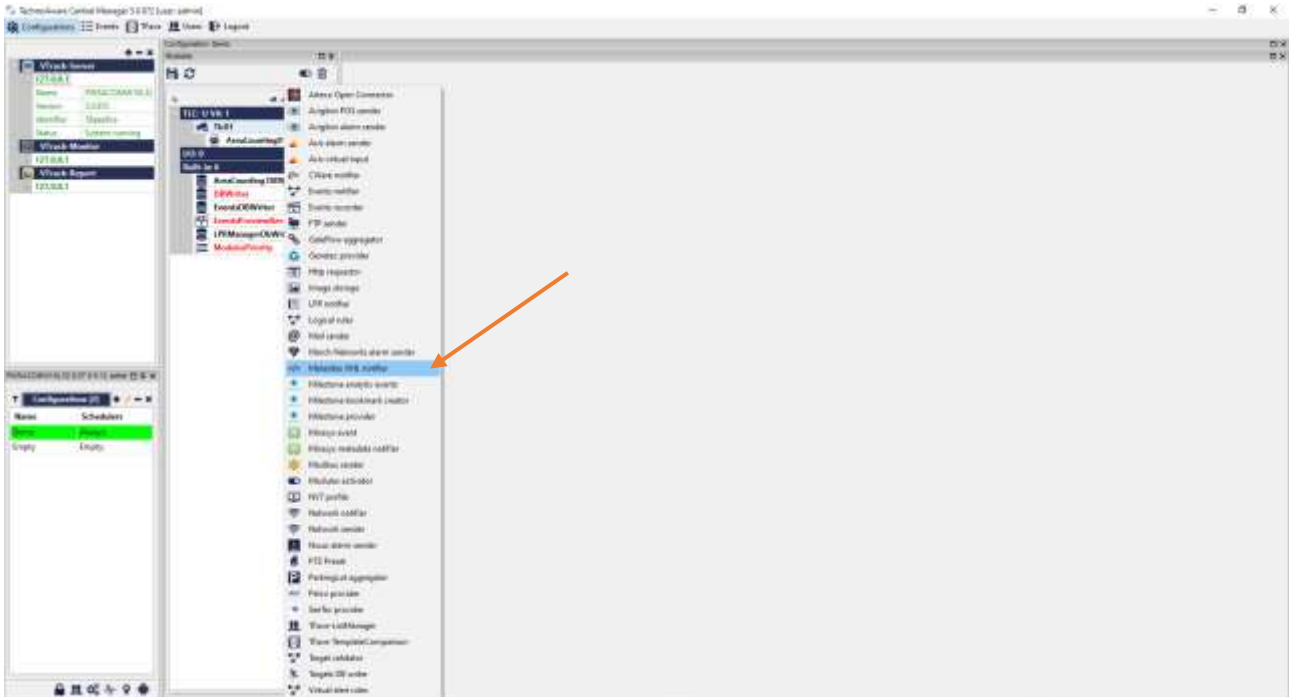


Figure 33 – Setting Metadata XML Notifier.

Double click on the module name and select the item TCP as “*Sender type*” in the Parameters panel. Insert the value 7778 in the “*Port*” field. This is the TCP\IP port number on which the DSM on the PDD is in listening for external software connection. If the VTrack runs on the PDD then leave the IP address 127.0.0.1, otherwise you have to insert the PDD IP address.



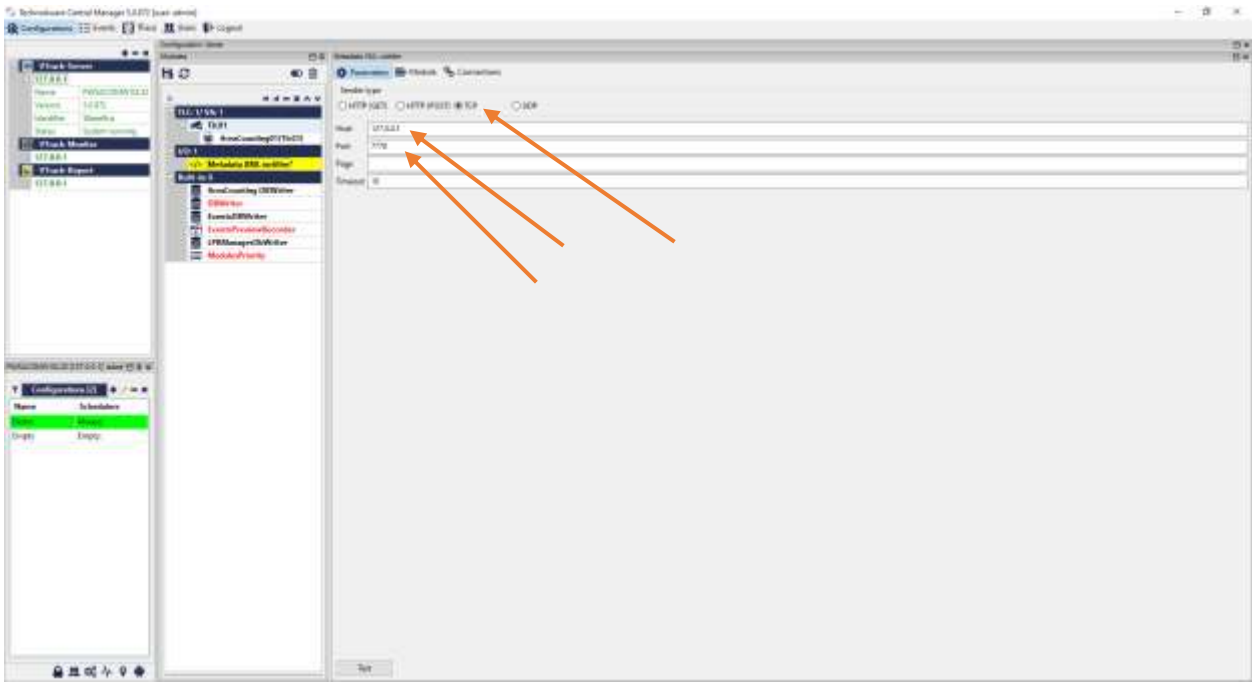


Figure 34 – Setting Metadata XML Notifier.

Click on the “*Connection*” button and select the checkbox referred to the “*GateFlowAggregation*” module.

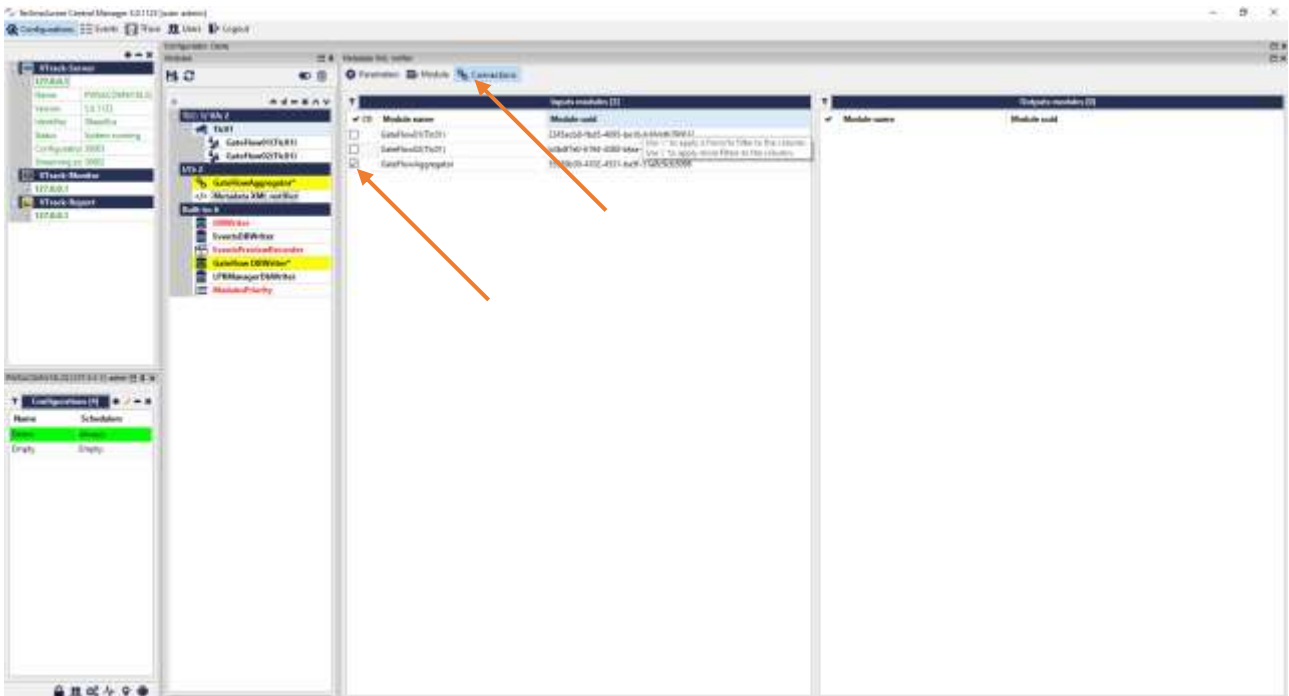


Figure 35 – Setting Metadata XML Notifier.

Save the changes.

Now you must assign a name to the alarm. Come back to the GateFlowAggregator window by double click on the module name:



Click on the “Module” button and insert the “Name” (optional) and the “Description” that is the keyword to use in the DSM Event setting. In the example below the word is “areacounting”

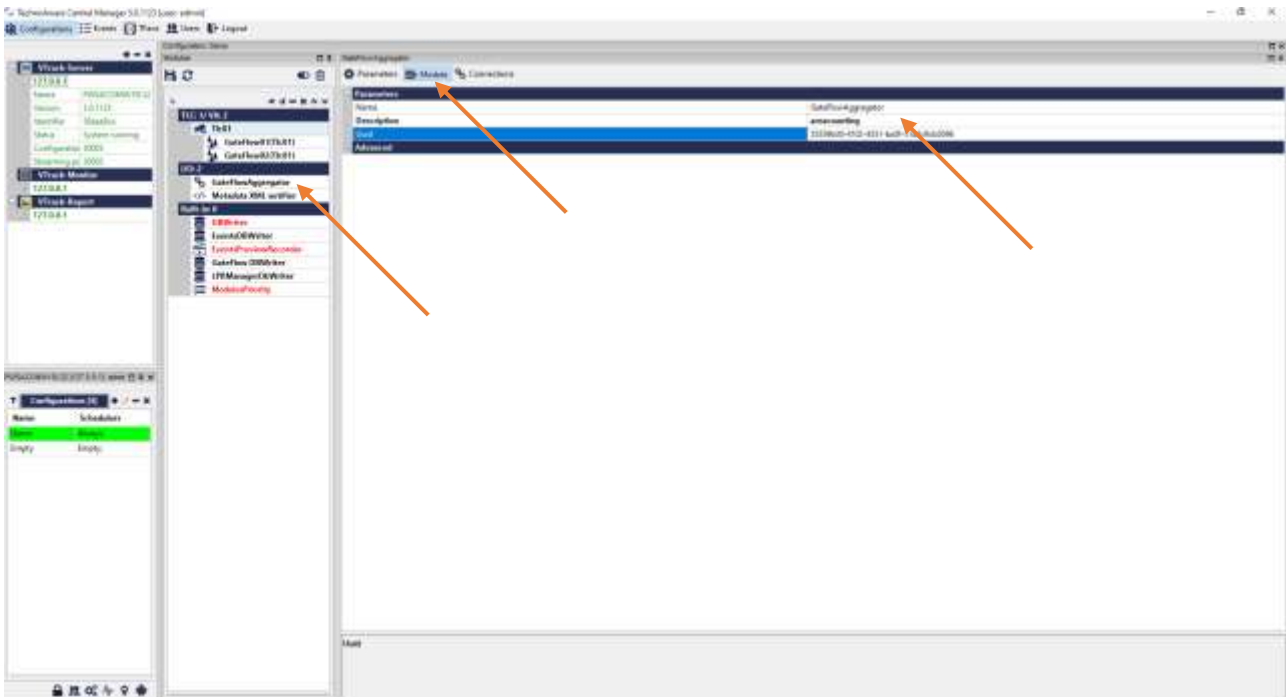


Figure 36 – Assigning alarm name.

Save the changes.

To test the gate configuration, you can use the window “Results”. Double click on the GateFlow01(Tlc1) module name and click on the label “Results”:

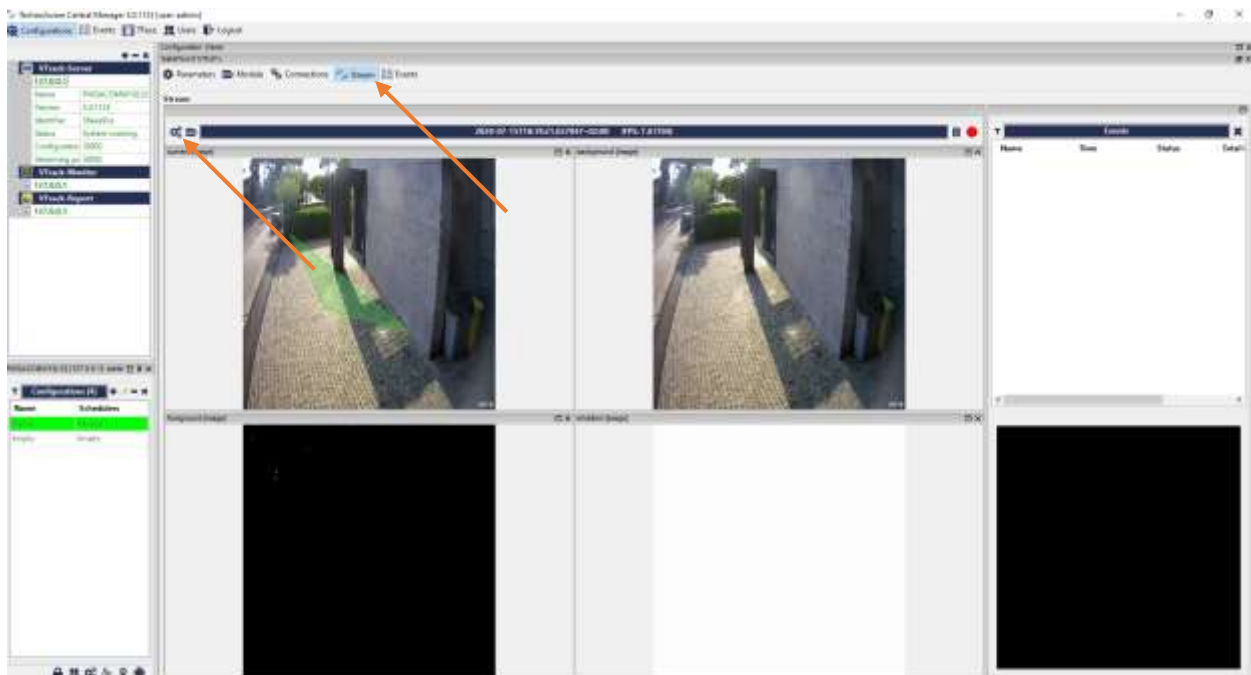


Figure 37 – Testing gate configuration.



If you click on the gears icon you can set the gate area visible. In the box “current” you can see the real time video. In the box “background” you can see the picture that the algorithm considers the background. In the box “foreground” you can see pixels that change referring to the background. On the right there is the crossing alarm list with the last event picture.

At this point the last thing to do is to set the alarm event on the DSM on the PDD. To do this, select the Deva or the Deva zone where you want to activate the alarm and open the “Events” page. In the example below when the DSM receives the alarm with the label “AreaCounting”, the Devas belonging to the zone will play the file Alarm.mp3 and the DSM will send a SMS to all the enabled contacts to communicate the alarm using a cloud SMS service.



Figure 38 – Setting Deva event.





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**Reference:** DO000293.00 REV.00

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