Milestone User Guide 2021- [EN]
XXII CORE - Smart City

[INTRODUCTION]

XXII CORE is a software solution designed to deploy artificial intelligence skills for real-time video streams analysis. Developed specifically to work in combination with a VMS (Video Management System), XXII CORE offers two user interfaces:

- **Settings** : to set up the Artificial Intelligence skills and associate them to camera streams.
- **Dashboard :** to provide analysis resulting from the detections made by the system.

XXII CORE offers two product variations :

- XXII Smart City
- XXII Smart Infrastructure

This user guide is for XXII CORE - Smart City.

[GLOSSARY]

Before we get started, here is the glossary for the terms we will be using all along this user manual:

- **License**: The number of cameras on which you will be able to activate skills. Licenses are “floating” as they are not linked to a particular camera but to the total number of active cameras.
- **Skill** : Artificial Intelligence algorithm specifically trained for a use case. You can add and configure multiple skills on each camera.
- **Counting skills** : These skills send data to the dashboard only.
- **Detection skills** : These skills can feed data back to the VMS and the dashboard.
- **GPU (Graphics Processing Unit)** : Refers to the hardware dedicated the computations required by our Neural Networks (The Graphics term refers to the fact that this hardware is traditionally used for rendering computer graphics). The number of simultaneous video streams the system can handle is directly related to the power and number of its GPUs.
- **VMS (Video Management System)** : A video surveillance software like Milestone XProtect.
- **RTSP (Real Time Streaming Protocol)** : An application-level communication protocol for media streaming systems. It enables remote control of a media server, providing typical video player features such as "play" and "pause" and allowing time-based access.
- **Camera ID** : An identifier that Genetec gives to each camera added in the Genetec Config Tools software.
- **Camera GUID** : An identifier given by Milestone to each camera added in the XProtect Management Client software.

[0] Milestone Set up

[1] Technical requirements

Here is the list of technical requirements before continuing the installation, this list is for the R1 2021 version of XProtect Corporate :

Name	Description
Operating System	Microsoft® Windows® 8.1 Pro (64 bit)
	Microsoft® Windows® 8.1 Enterprise (64 bit)
	Microsoft® Windows® 10 Pro (64 bit)
	Microsoft® Windows® 10 Enterprise (64 bit)
	Microsoft® Windows® 10 IoT Enterprise LTSB (Long-Term Servicing Branch)2016 (version 1607 or later)
	Microsoft® Windows® 10 IoT Enterprise, version 1803 or later (64 bit), IoT Core
	Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter
	Microsoft® Windows® Server 2012 R2 (64 bit): Standard and Datacenter
	Microsoft® Windows® Server 2016 (64 bit): Essentials, Standard and Datacenter
	Microsoft® Windows® Server 2019 (64 bit): Essentials, Standard and Datacenter
	To run clustering/failover management servers, you need a Microsoft® Windows® Server 2012/2012 R2 Standard or Datacenter edition, Microsoft® Windows® Server 2016 Standard or Datacenter edition, or a Microsoft® Windows® Server 2019 Standard or Datacenter edition
File system	For the Recording Storage Location, NTFS file system is recommended
SQL Versions	Microsoft SQL Server® 2012 SP1
	Microsoft SQL Server® 2014
	Microsoft SQL Server® 2016
	Microsoft SQL Server® 2017
	Microsoft SQL Server® 2019 (Only supported on Microsoft® Windows® 10 or greater and Microsoft® Windows® Server 2016 or greater)

Software	Microsoft® .NET 4.7.2 Framework
	Microsoft® .NET Core 3.1.13 Framework
	DirectX 11 or newer
Hardware acceleration	Hardware acceleration with Intel® Quick Sync requires an Intel® CPU from 4th generation up to 11th generation, supporting Intel Quick Sync and Intel® GPU enabled in BIOS.
	Decoding with NVIDIA graphics card is supported with GPU capability version 6.x (Pascal) or newer.

To know the list of requirements for the other Milestone systems, go to this page:

Milestone Systems product system requirements

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[2] Milestone Open Network Bridge

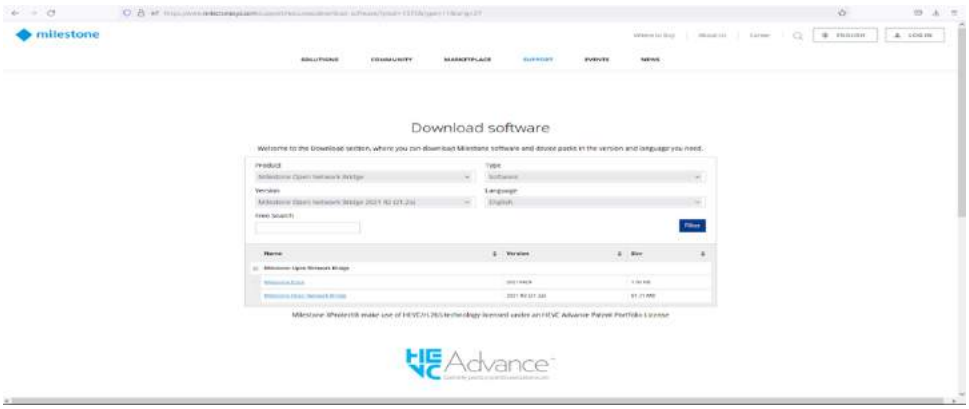
[a] Why does XXII Core need the Milestone Open Network Bridge?

XXII Core needs the Milestone Open Network Bridge in order to access the RTSP streams of the cameras recorded in the Milestone XProtect software. The RTSP streams are then read by XXII Core in order to perform the skills programmed by the user.

[b] Download Milestone Open Network Bridge

Go to the Milestone download center at the following address :

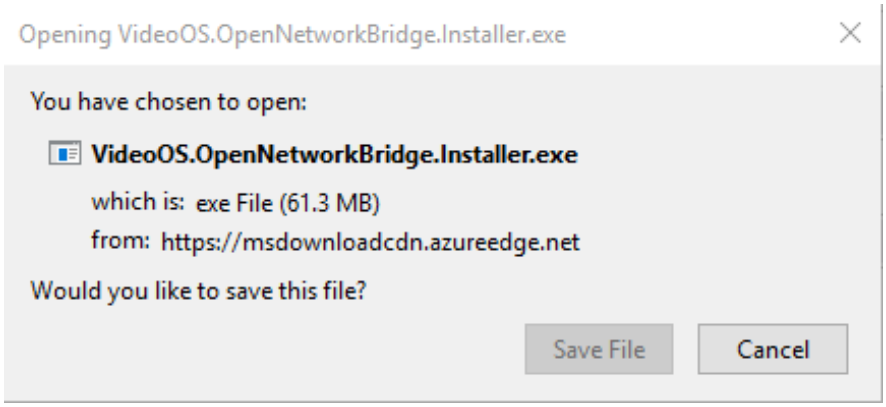
Vos téléchargements Milestone Systems Download | Milestone Systems



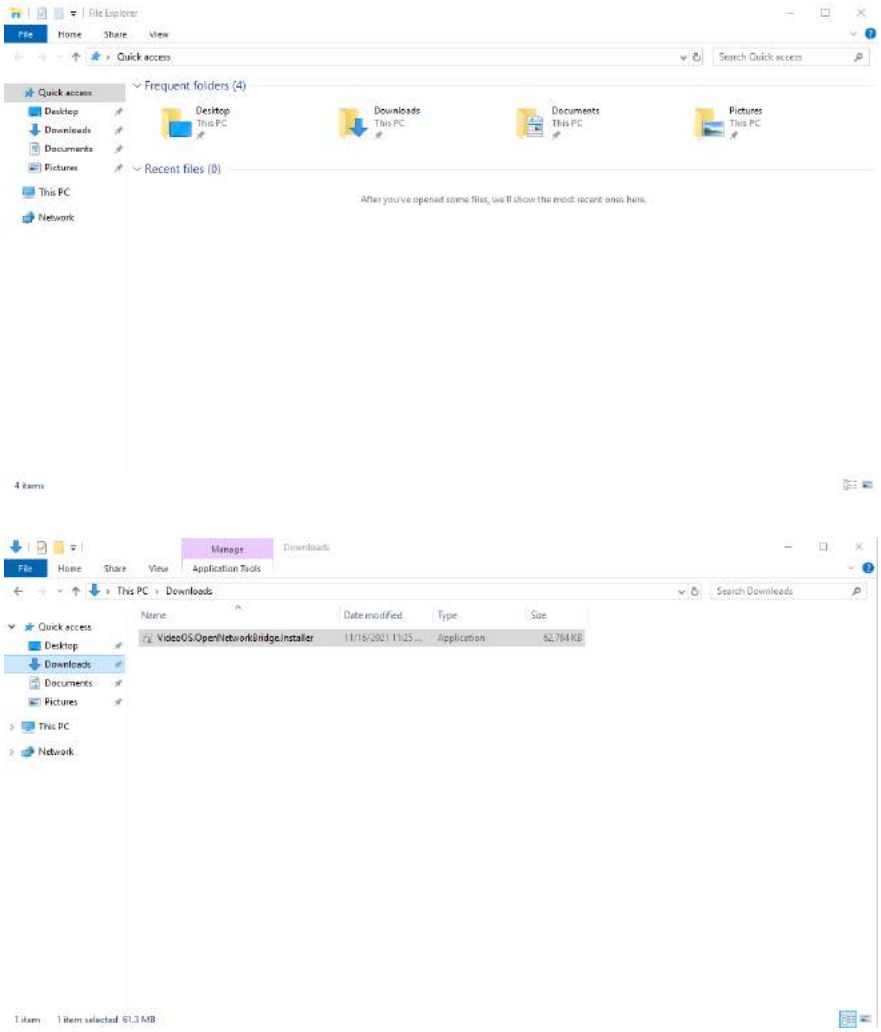
Then select Milestone Open Network Bridge and download it.

Milestone Open Network Bridge	2021 R2 (21.2a)	61.31 MB

Click on “Save File” button

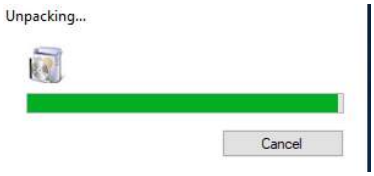


Then go to the Windows file explorer, then to the Download file.



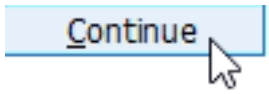
[c] Install Milestone Open Network Bridge

Click on the right button on VideoOS[…]. Install, then “Run as administrator”



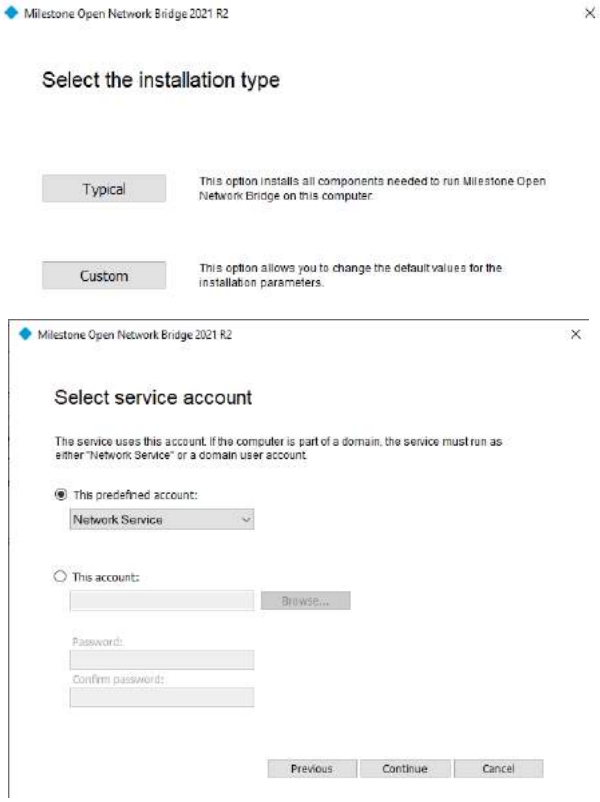
Select language

and then click on “Continue”

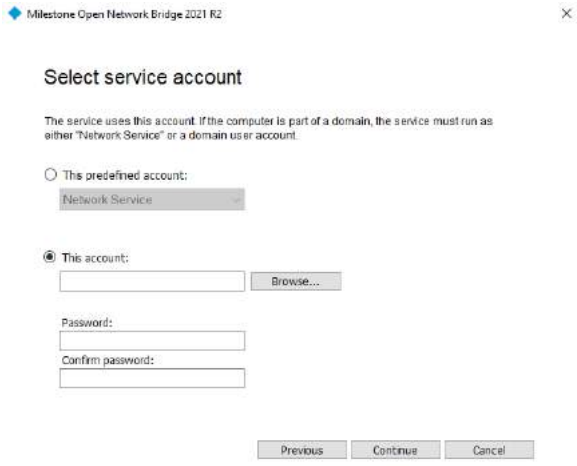


Accept the Milestone licence agreement

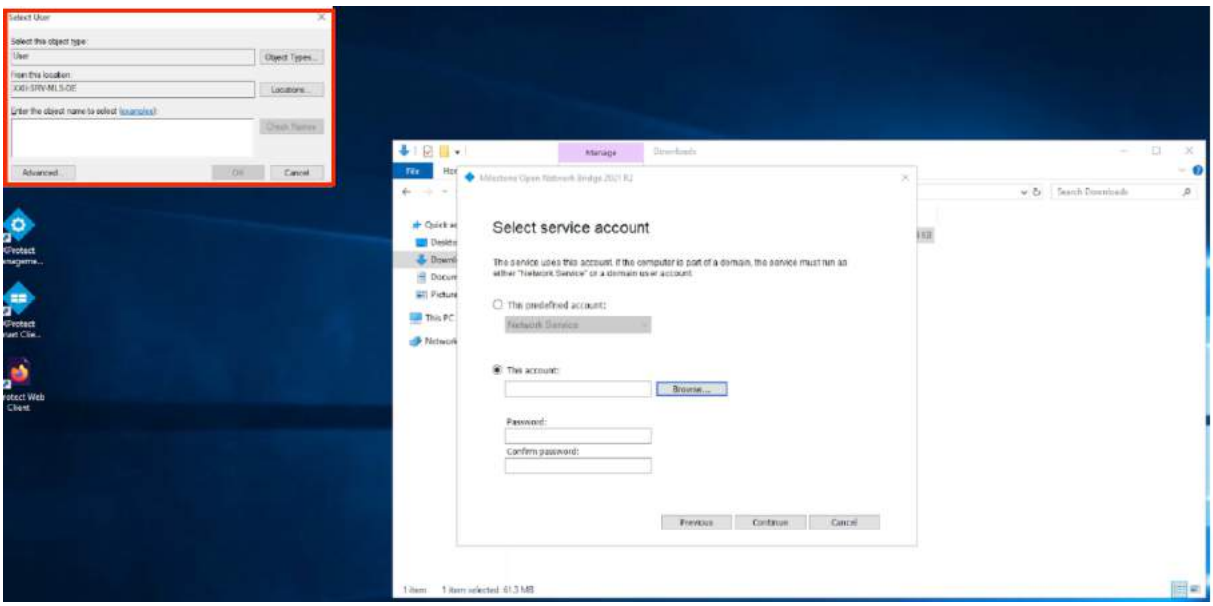
Then choose the type of installation: "Typical".



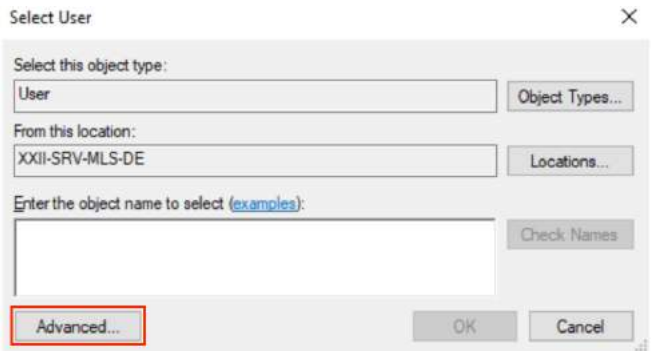
Then select "This Account", and press "Browse".



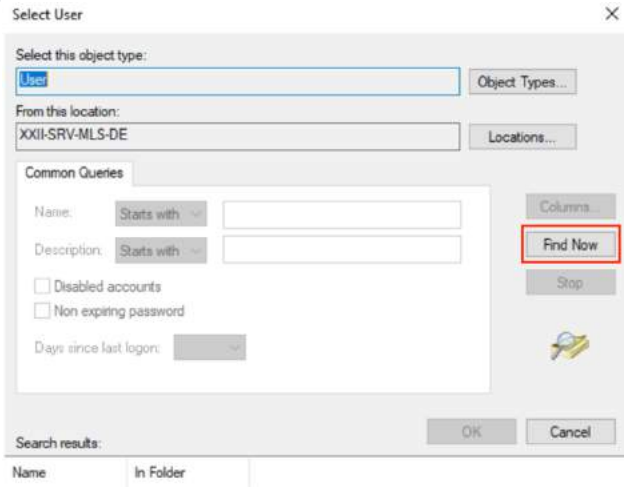
A new window opens



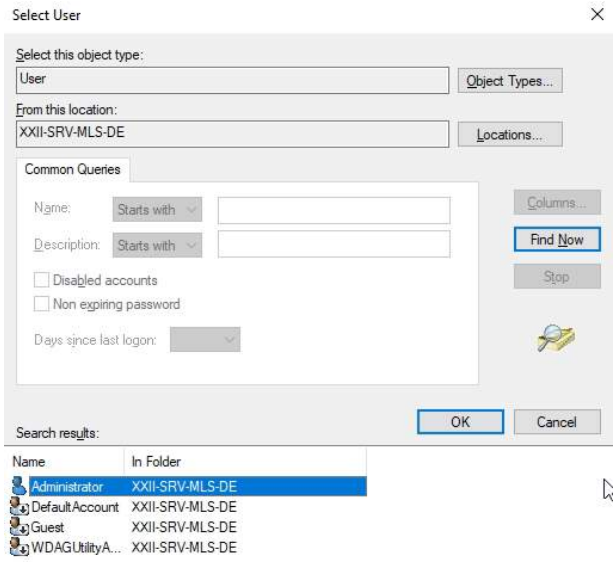
Click on “Advanced”



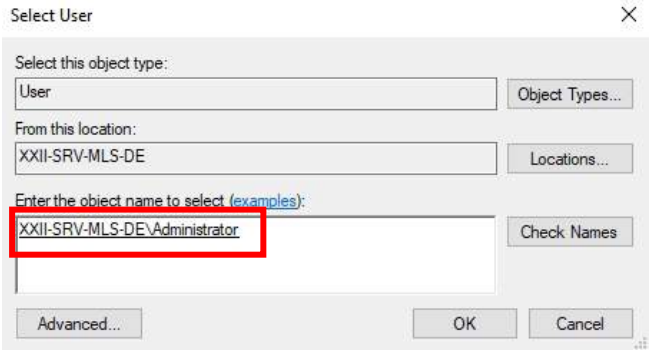
A new window will open and then click on "FindNow"



Then select "Administrator" user and click "OK".

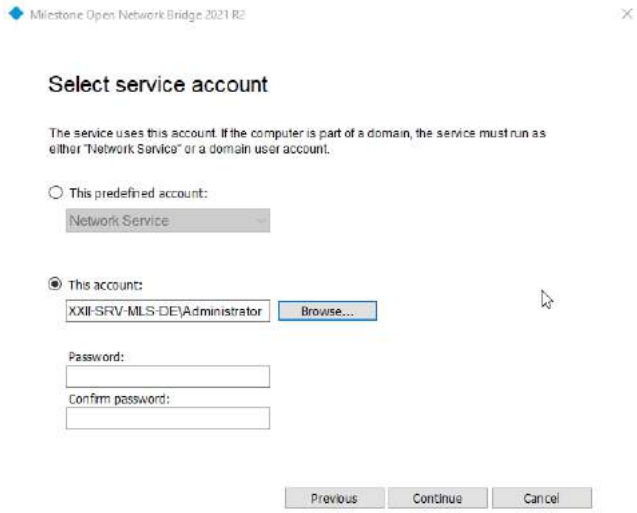


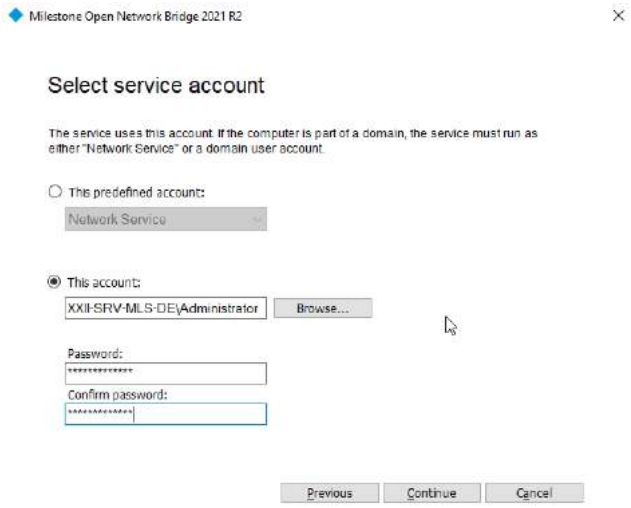
Here is the desired display:



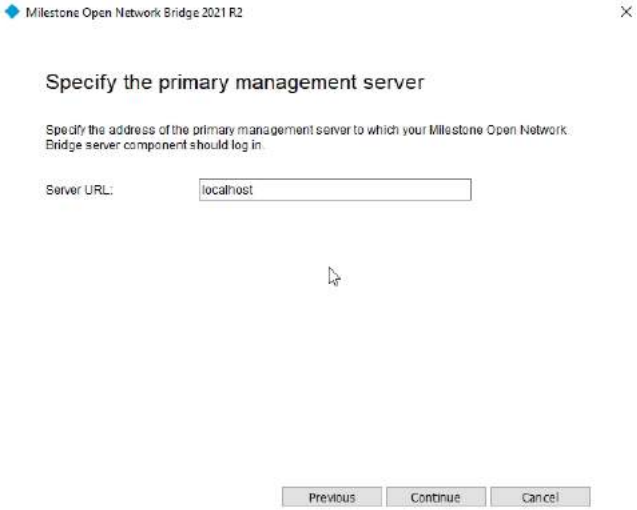
Click on “OK”.

Then enter the Windows account administrator password, and press "Continue".

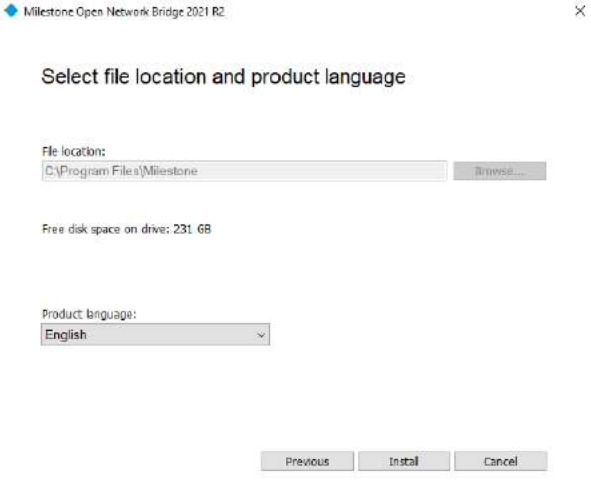




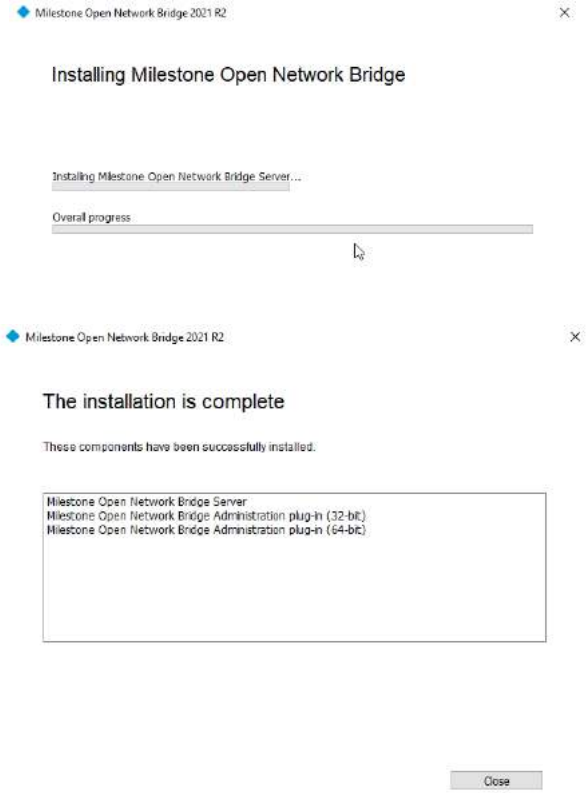
Now specify the management server, leave "localhost" in the text field and press "Continue".



Choose language and press "Continue".



The installation program starts

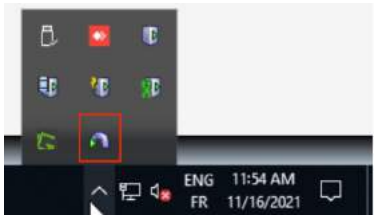


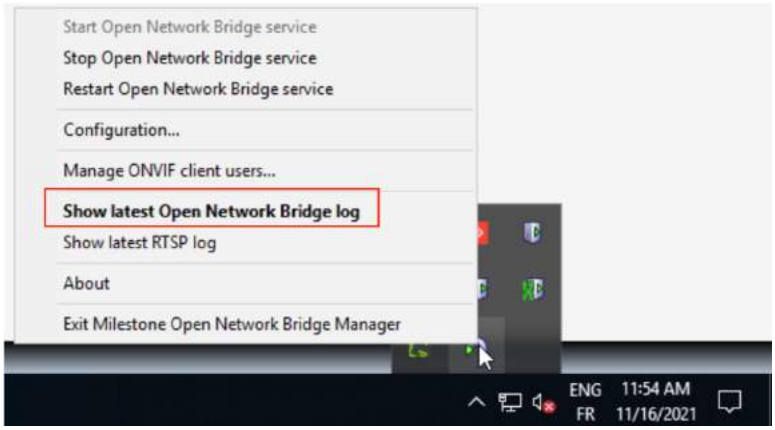
Once the installation is complete, click on "Close"

[d] Check the Milestone Open Network Bridge status

Once the installation is complete, the Milestone Open Network Bridge is launched. You can check it in the Windows programs status bar :

Right click on the Milestone Open Bridge icon, then "Show [...] Bridge log"



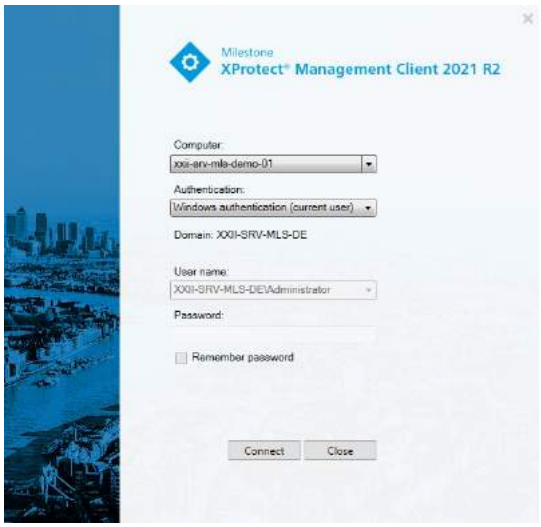


If the program is started correctly, then here is the screen.

[e] Add the Milestone Open Network Bridge

Open the "Xprotect Management" program

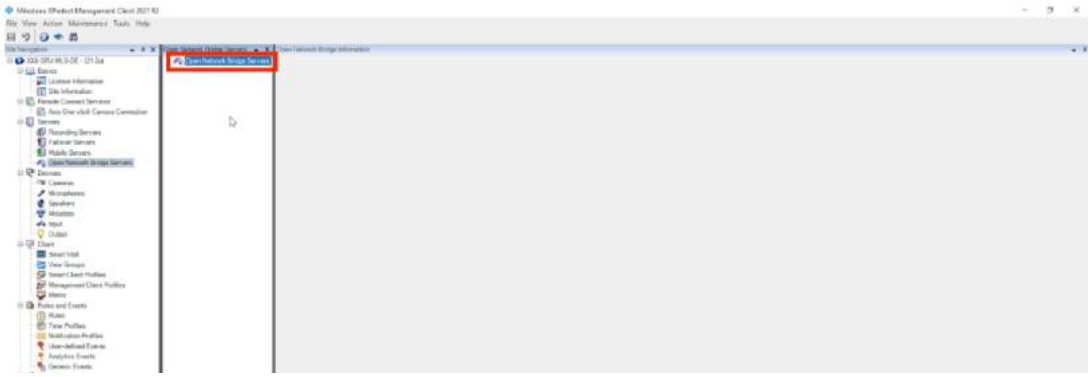
Log in and click on "Connect



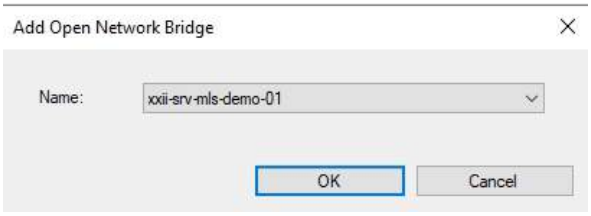
On the main page of the XProtect Management Client, click on "Server" in the left menu

In the list of servers, choose "Open Network Bridge"

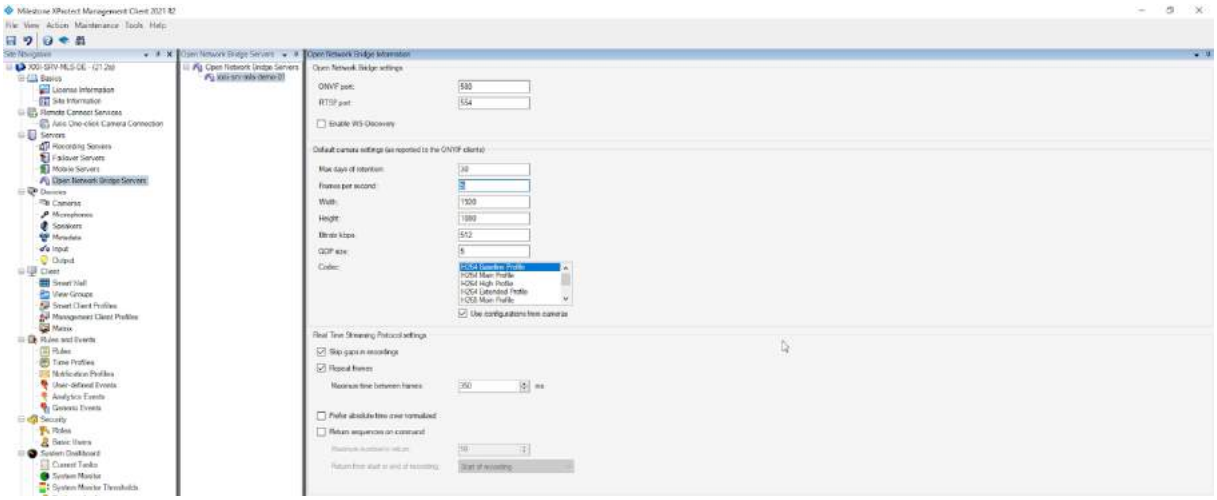
Right click and press "Add New"



Press "OK" to continue

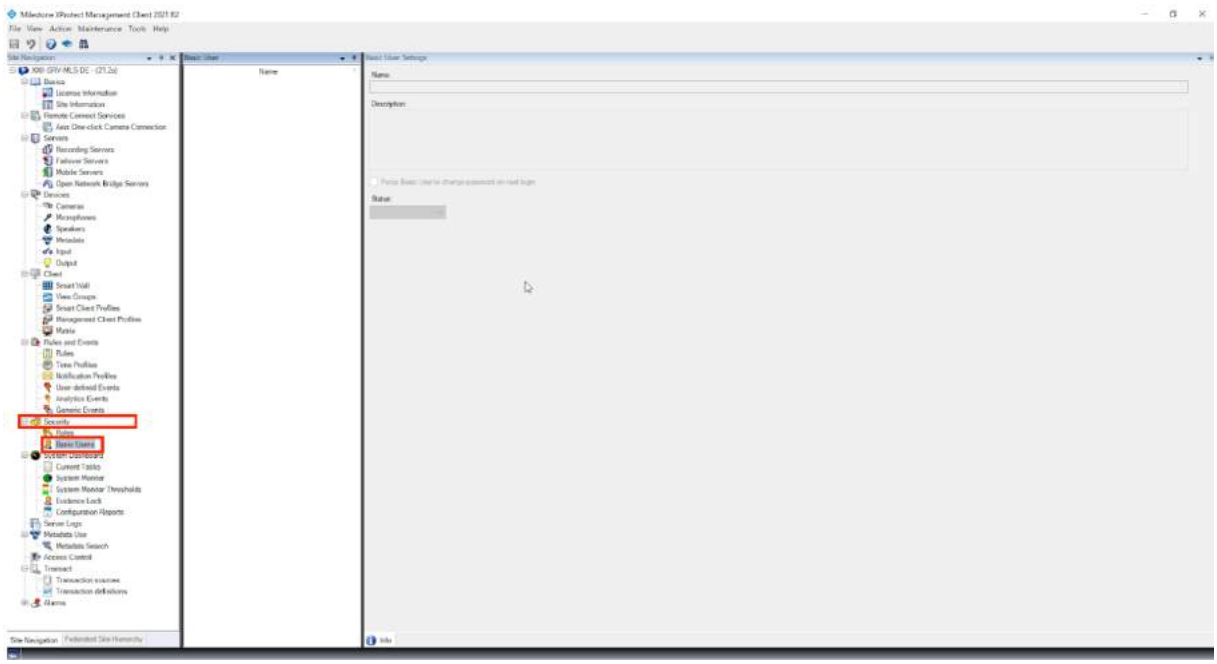


The Open Network Bridge is now correctly added

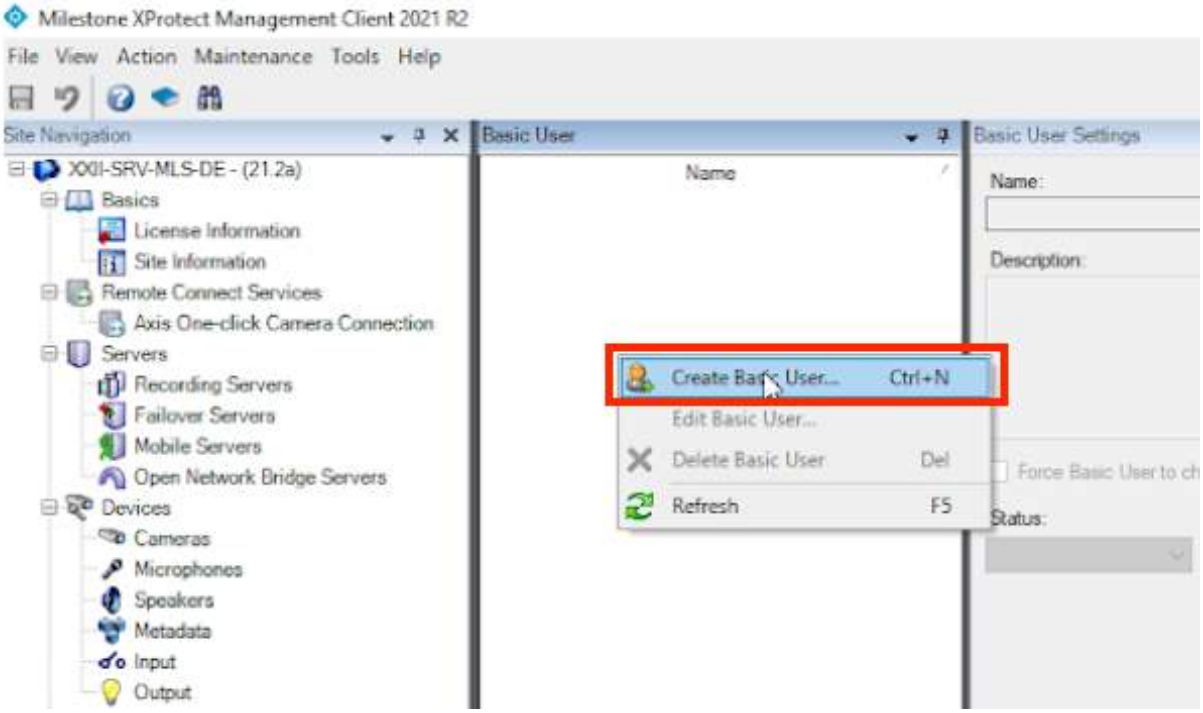


[f] Adding a Milestone user

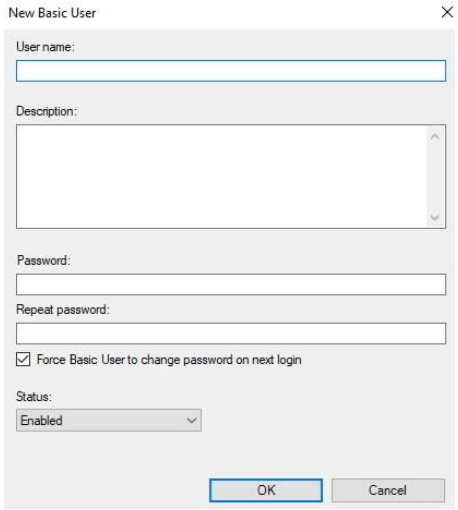
On the left side of the screen, go to "Security", then "Basic User".

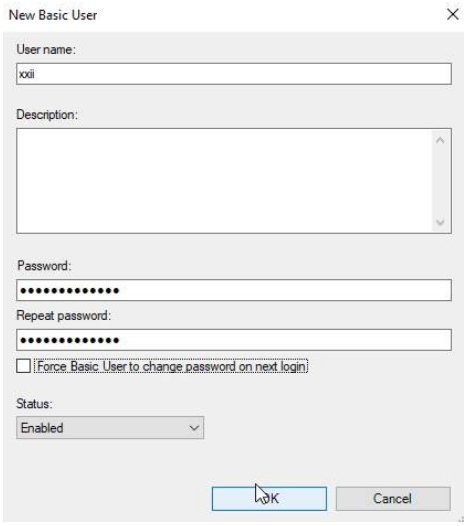


Right click on "Basic Users", then click on "Create Basic User".

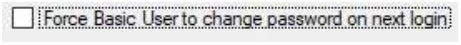


A pop-up window opens to add a user, enter your user information



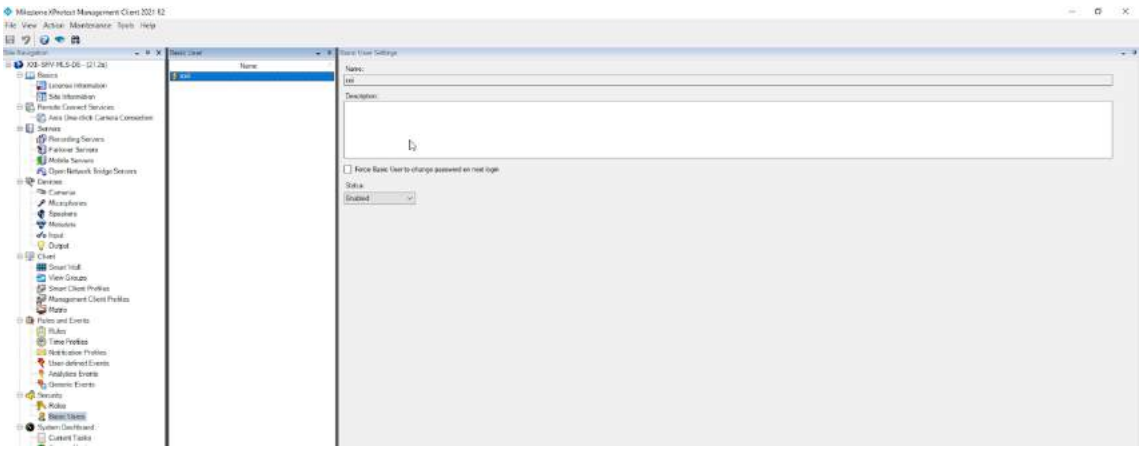


Before continuing, uncheck the "Force Basic [...] Login" box

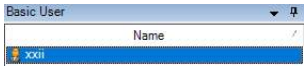


Press "OK" to proceed

You have now added a Milestone user. A user is now available in the "Basic User" tab on the left side of the screen.

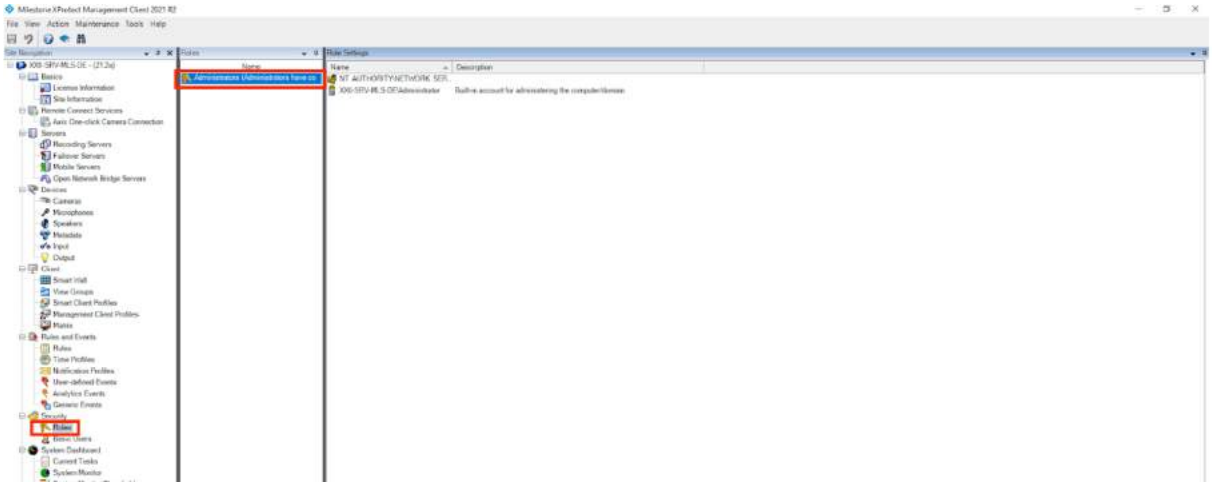


XXII user :

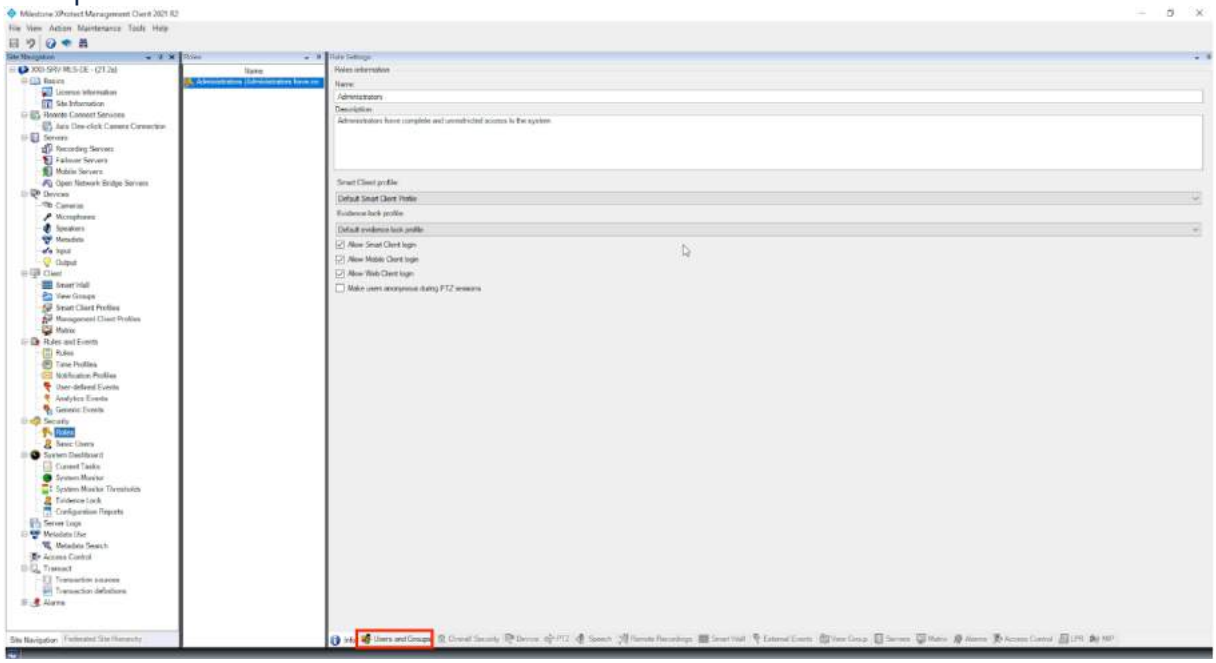


[g] Creation of user roles

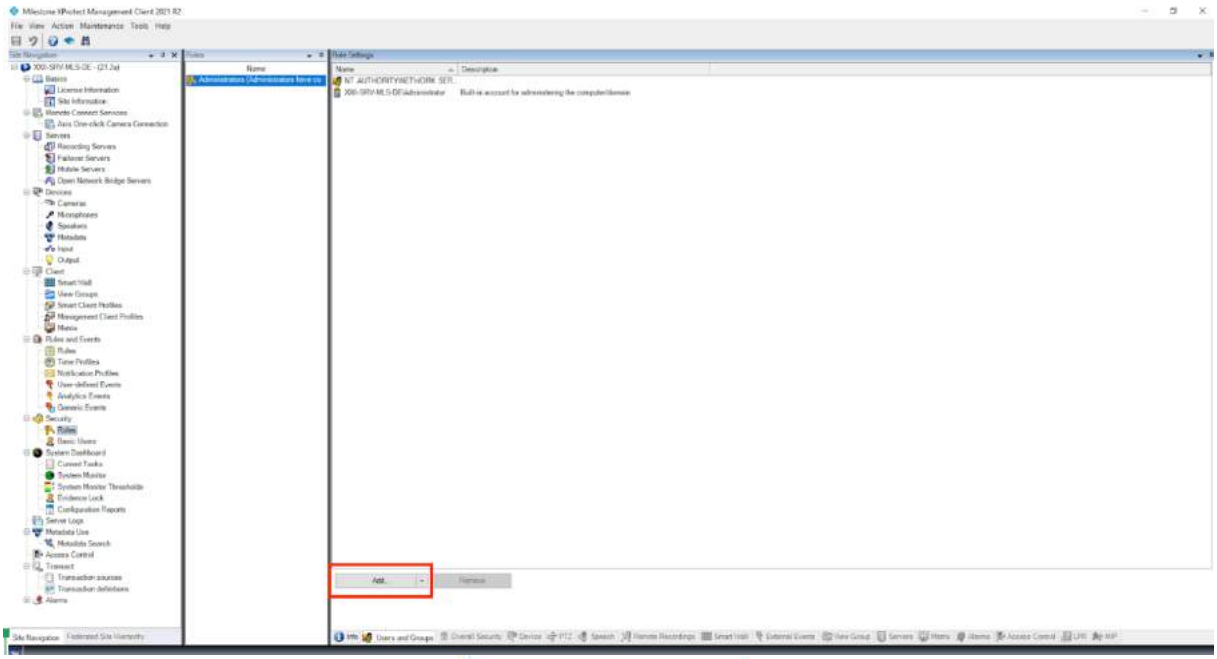
On the left side of the screen, go to "Security", then "Roles"



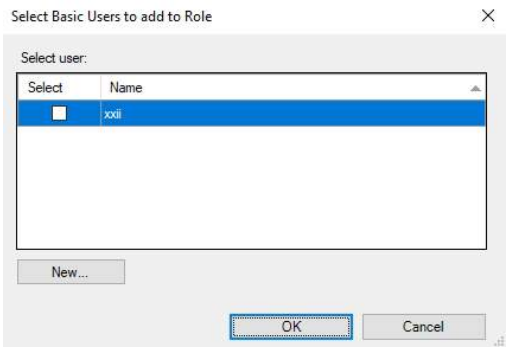
Then, select “Administrators” and after at the bottom of the screen, select "Users and Groups"

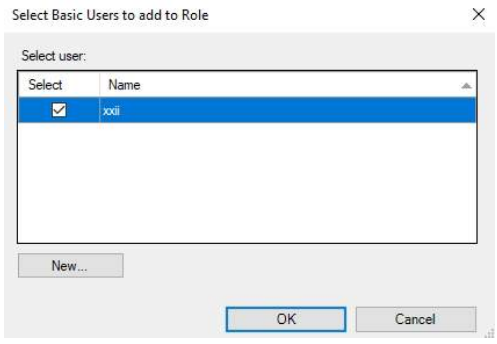


And finally "Add", then "Basic user”



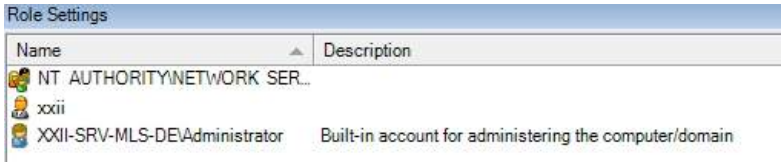
Select the newly added user





Press "OK".

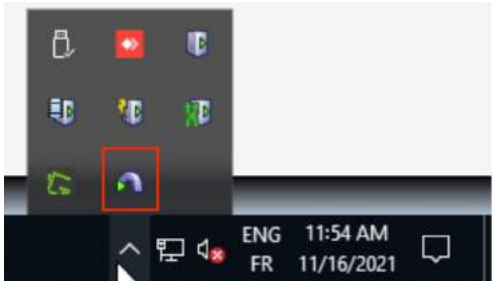
The user is now in the list of roles

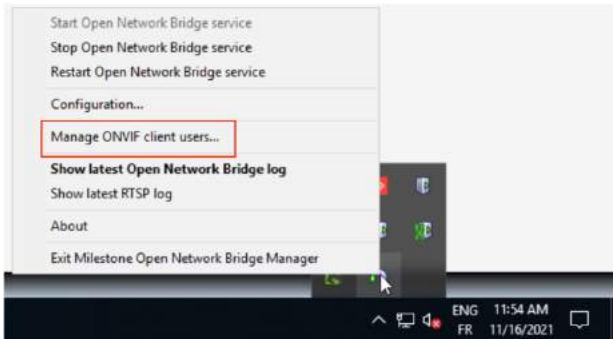


[h] Milestone Open Network Bridge user creation

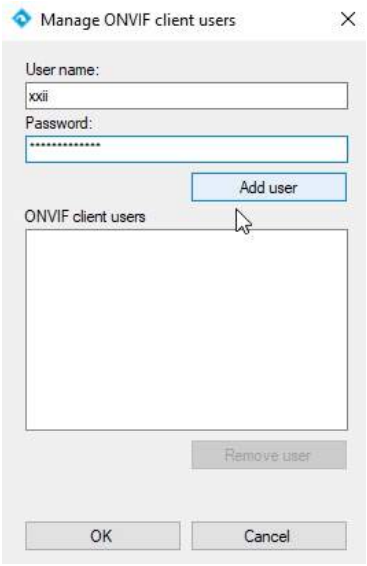
In the Windows status bar, click on the small arrow on the right.

Right click on the Milestone Open Bridge icon, then "Manage [...] user..."

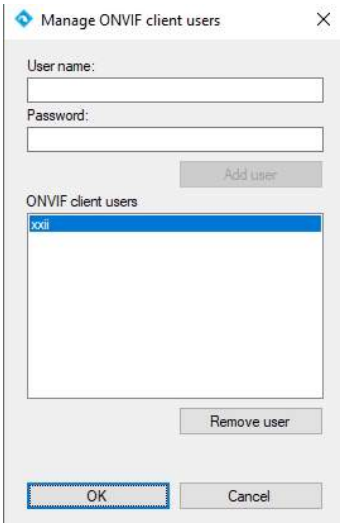


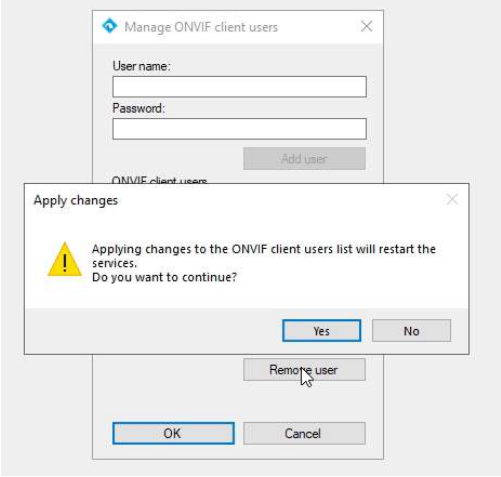


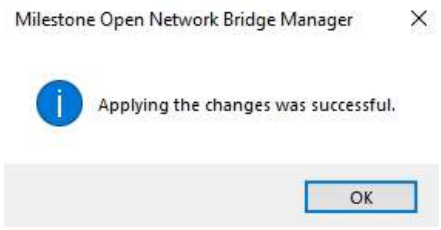
Add a new user and password, then press "Add user"



The user is then visible in the list, press "Ok", then "Yes"

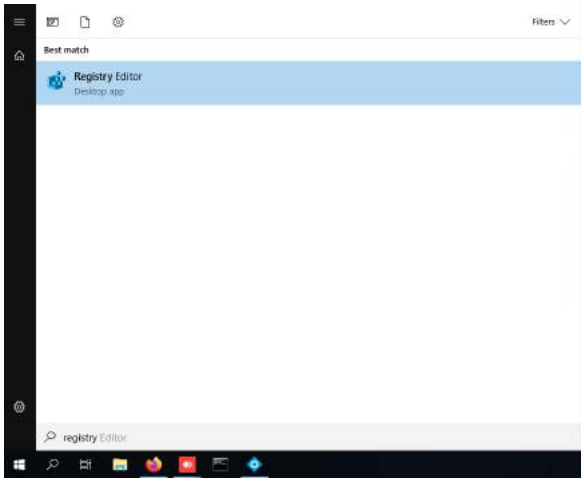






[i] Add Registry

In the Windows search bar, type "Registry Editor" and select the program below:



On the home page of this program, add a new registry key to Path :

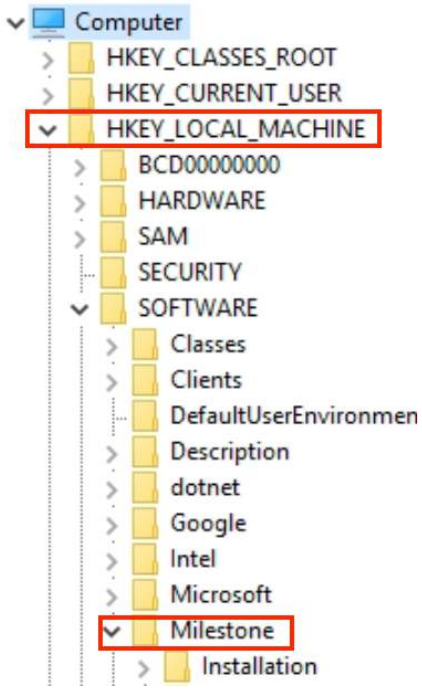
Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Milestone\Milestone Open Network Bridge\

DWORD value: SHA256Auth

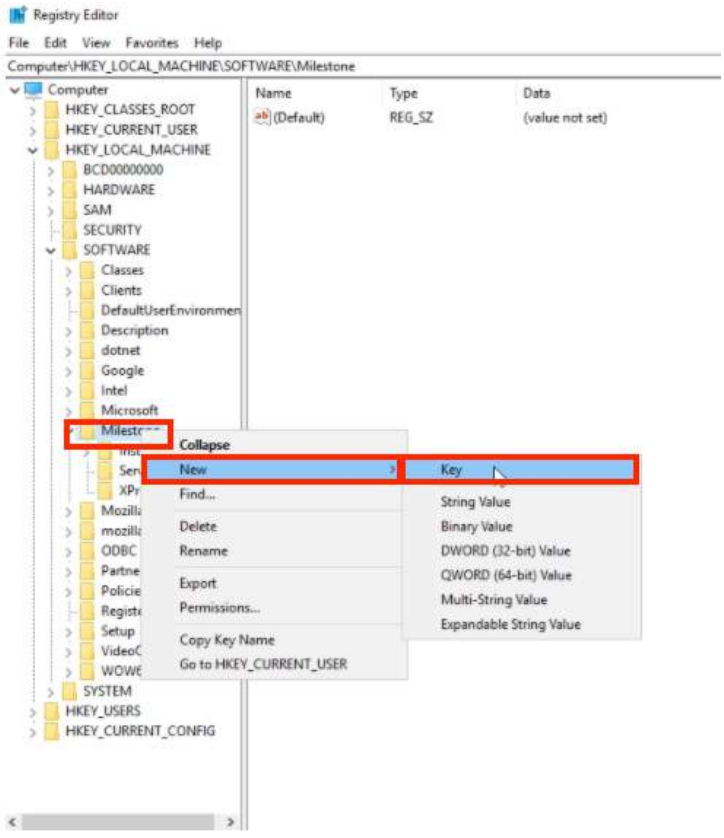
Value to disable SHA256: 0

Then, open the following sub-menus:

- HKEY_LOCAL_MACHINE
- Milestone

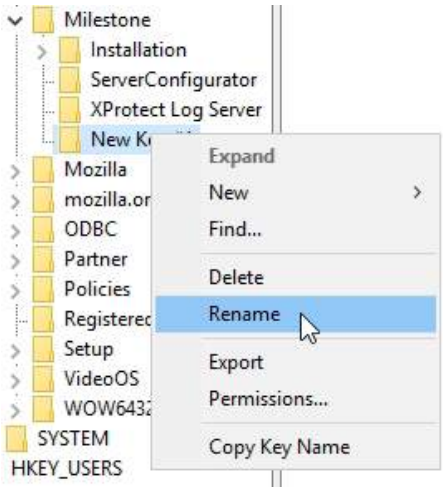


Then right click on "Milestone", move the mouse to "New" and press "Key".



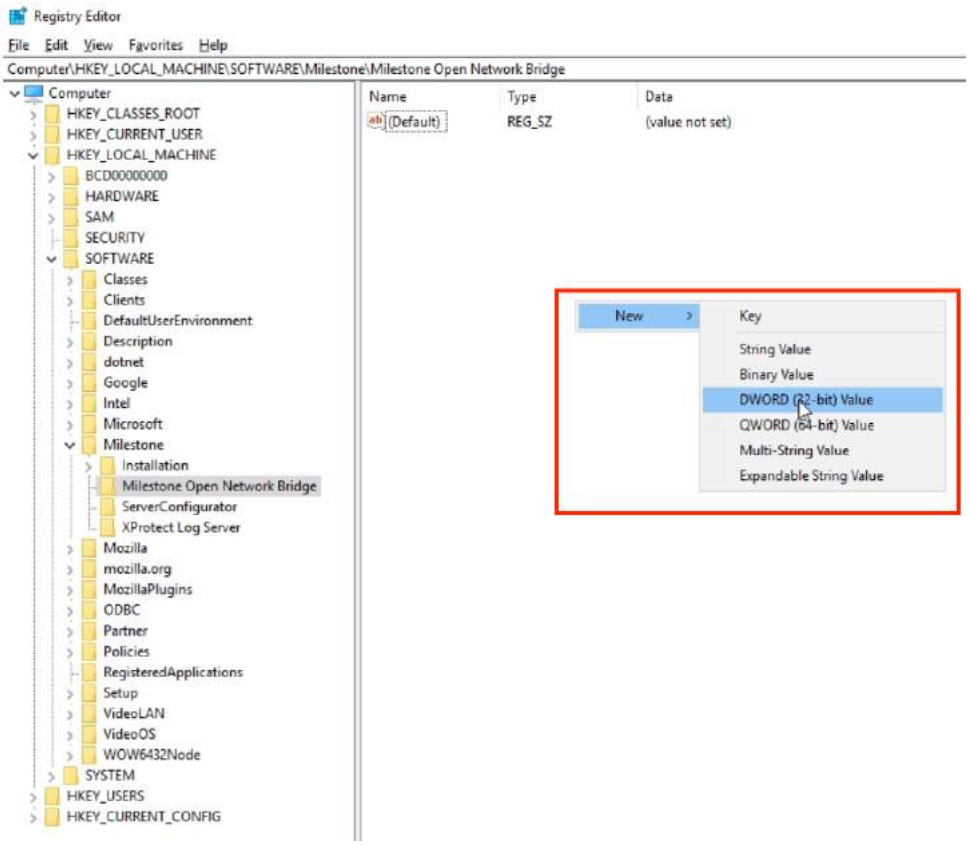
A new key is added, with the default name "New Key #1".

Then, right click on "New Key #1" and press "Rename".

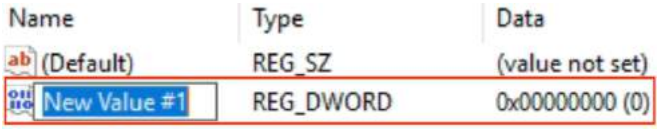


Rename it with the name "Milestone Open Network Bridge".

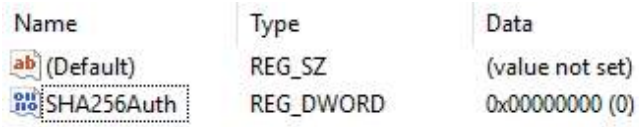
Then right click on the same folder "Milestone Open Network bridge". Then move the mouse over "New" and click on "DWORD (32-bit) Value".



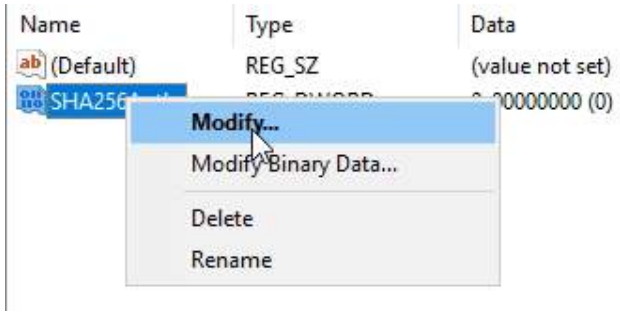
On the top of the screen, a new line has been added:



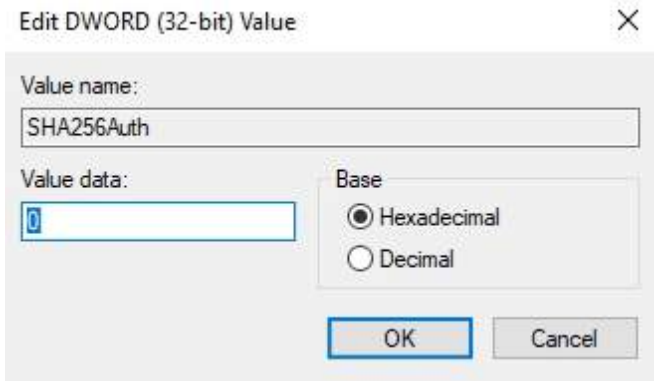
Rename the line "New Value #1" added to “SHA256Auth”



Right click on “SHA256Auth” and press “Modify”

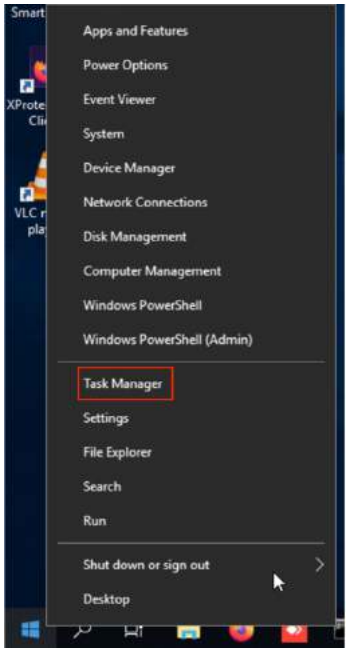


Check if the "Value data" is set to 0. If not, enter "0" and finally, press "OK".

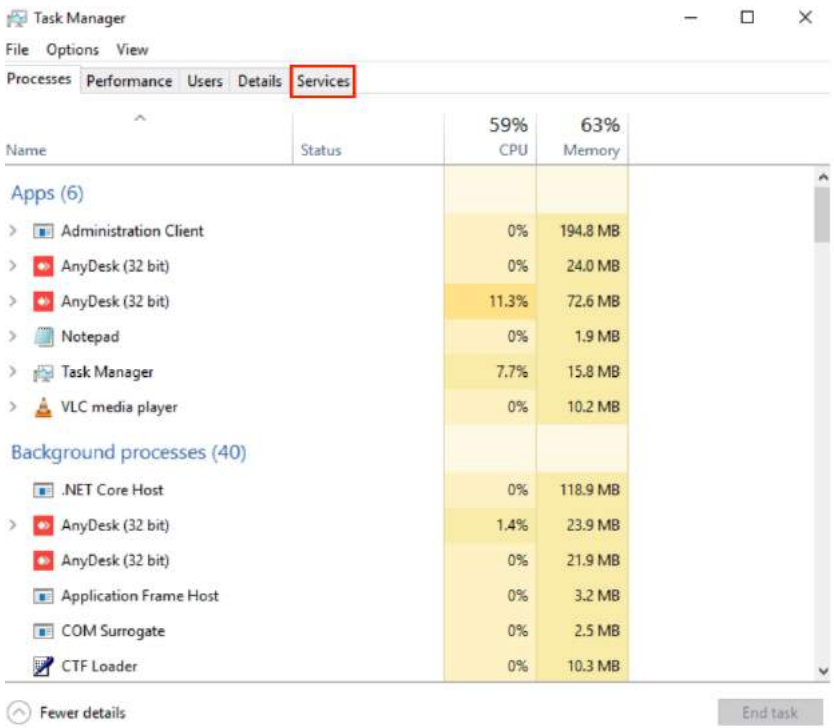


[j] Milestone Open Bridge re-start

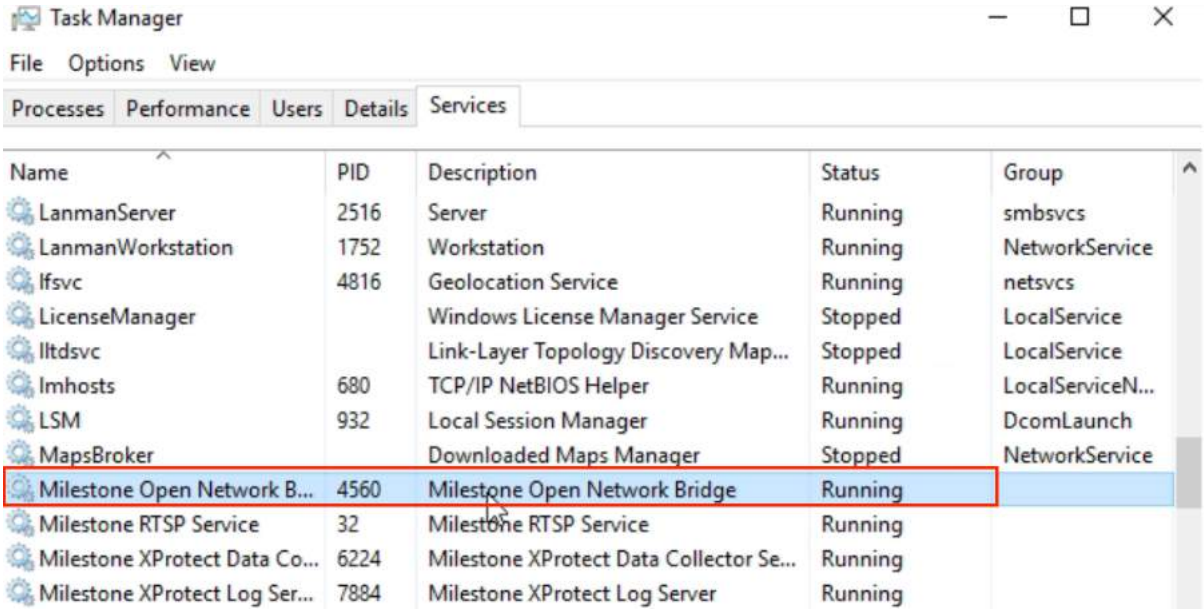
Right click on the Windows button, then press "Task Manager".

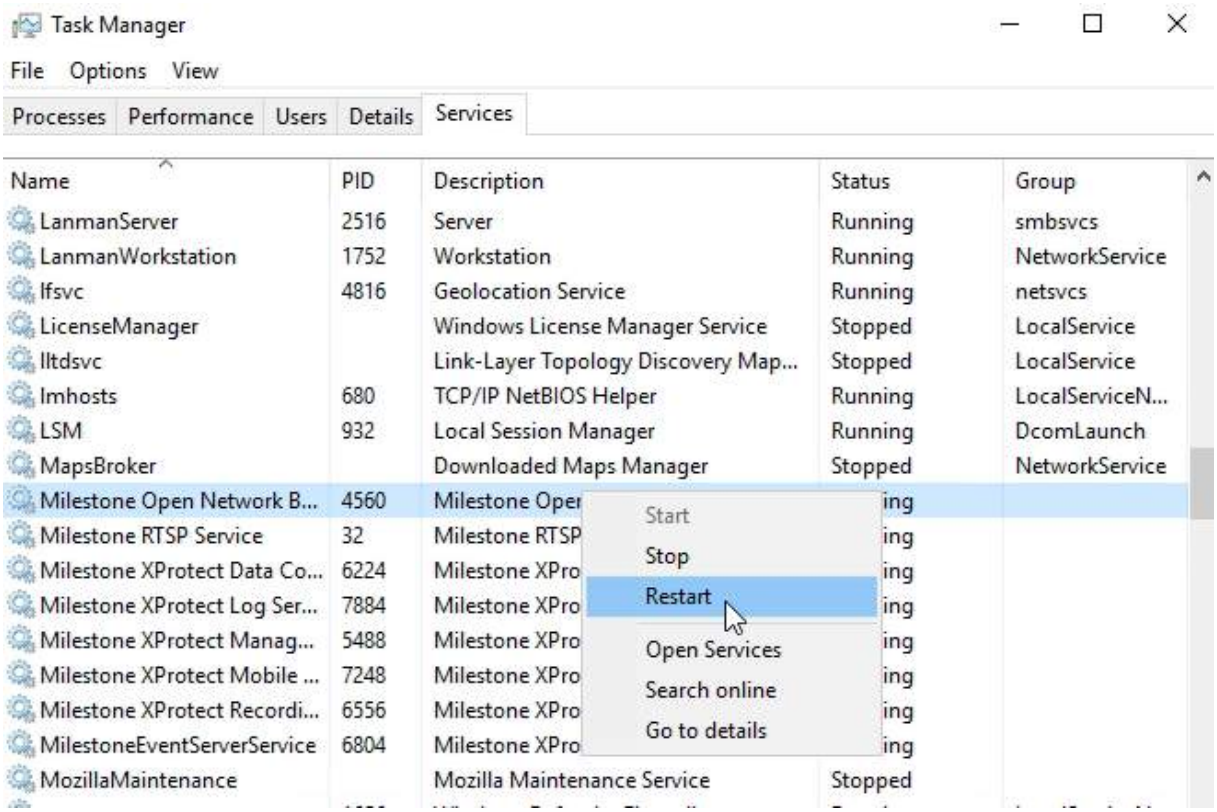


Click on “Services”



Look for the line "Milestone Open Network Bridge", then right click and press "Restart".





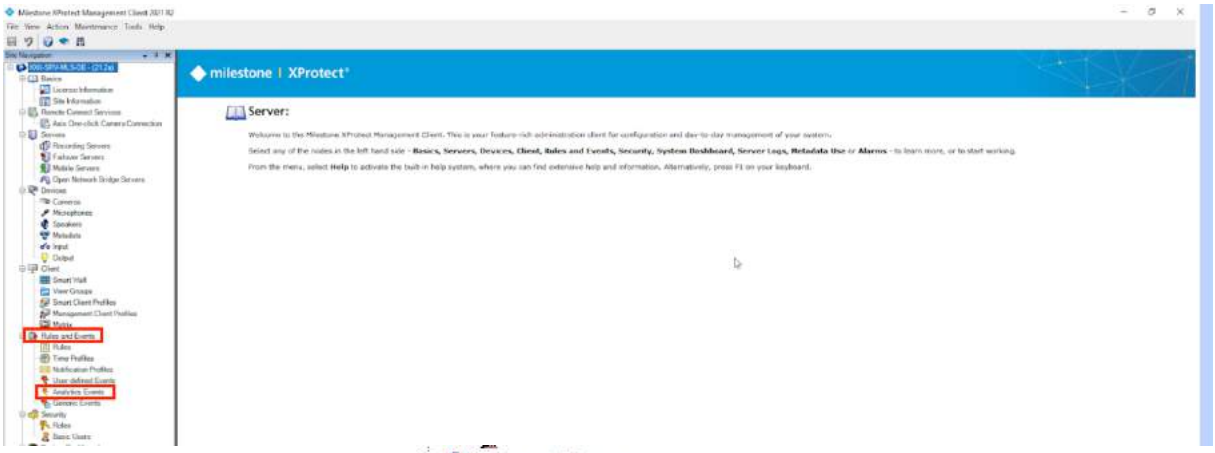
Note: If the service does not restart automatically, do a right click and press "Start". Then go to the XXII Core Settings.

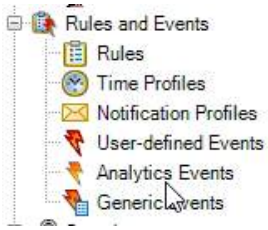
[3] Events, alarms and rules creation

This part is dedicated to alarms and events creation. Thanks to it, XXII Core will send information (events or alarms) to the Milestone VMS.

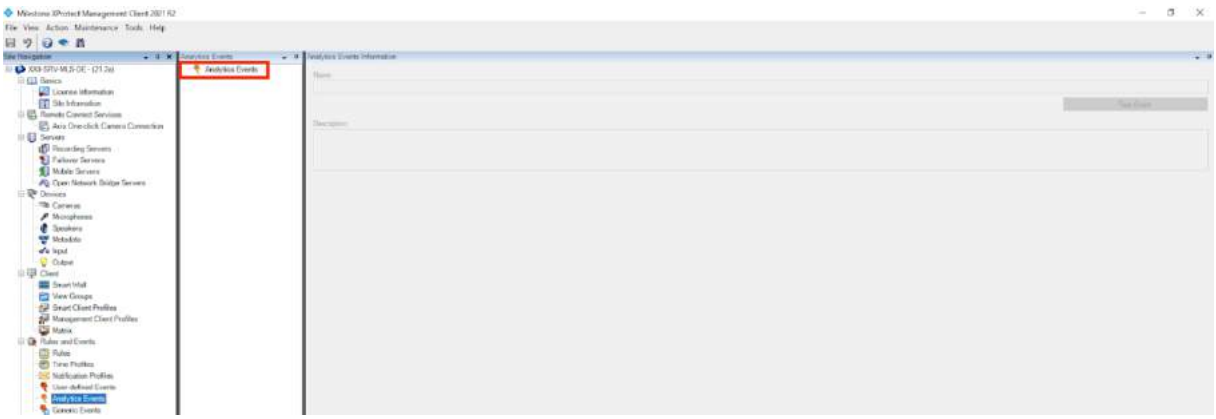
[a] Analytics events creation

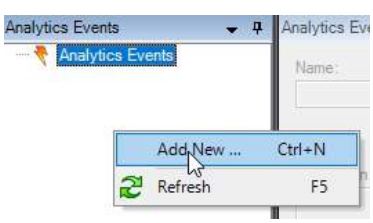
On the left side, look for the "Rules and Events" section, then select "Analytics Events"





Right click on “Analytic Events” and then press “AddNew …”



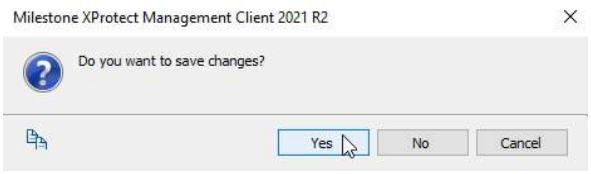


The middle section of the screen is now available. Enter the name and description of the desired event.

The event name must be similar to the VMS ID in XXII Core, it must contain only numeric characters.

The event description is not mandatory. You can enter a description that will help you to remember on which camera this event is. For example: EVENT 2201.

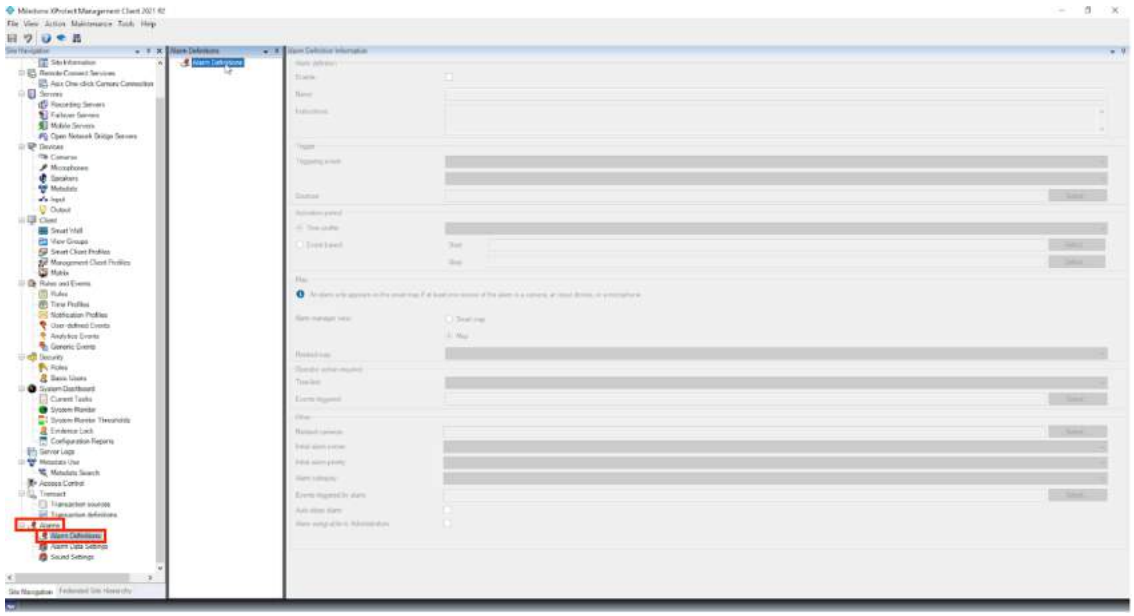
Then save the event.



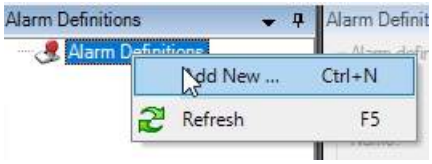
The event is now on the list.

[b] Alarms creation

On the left side, look for the "Alarms" section, then select "Alarm Definition"



Right click on “Alarm Definition”, then press “Add New …”



The middle section of the screen is now available. Enter the relevant informations into it :

- Name
- Instructions
- Triggering event

In the "Name" section, enter the same number as for the analytics event seen previously

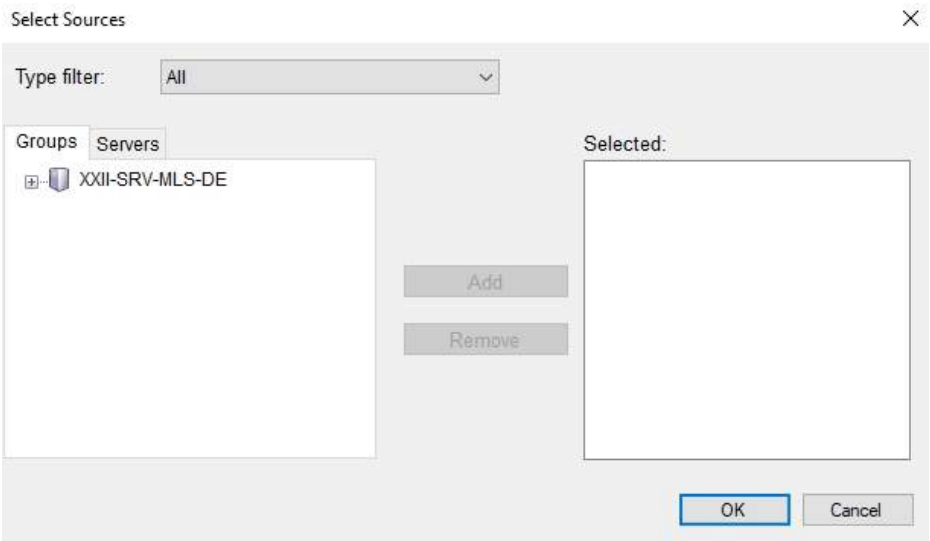
In the "Instructions" section, enter a hint that will help you remember which camera this alarm is. For example: ALARM 2201

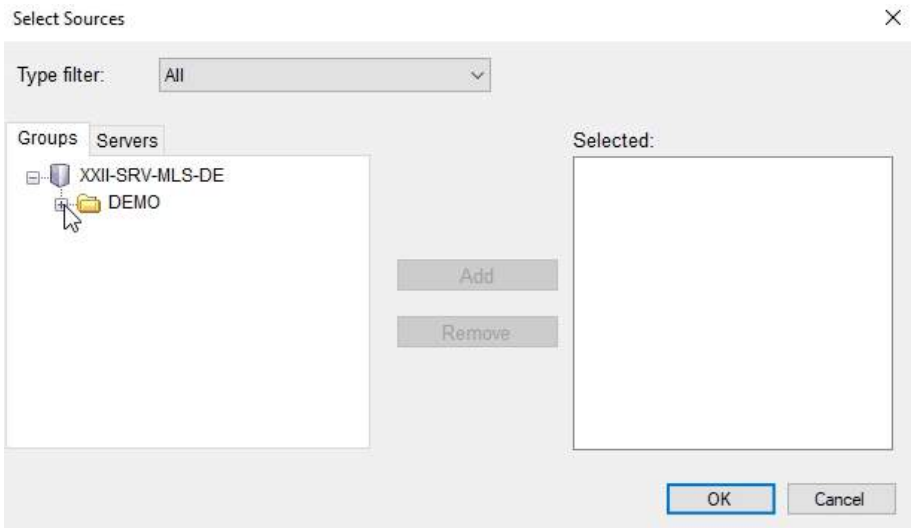
In the "Triggering event" section, in the first drop-down menu, select "Analytics Event".

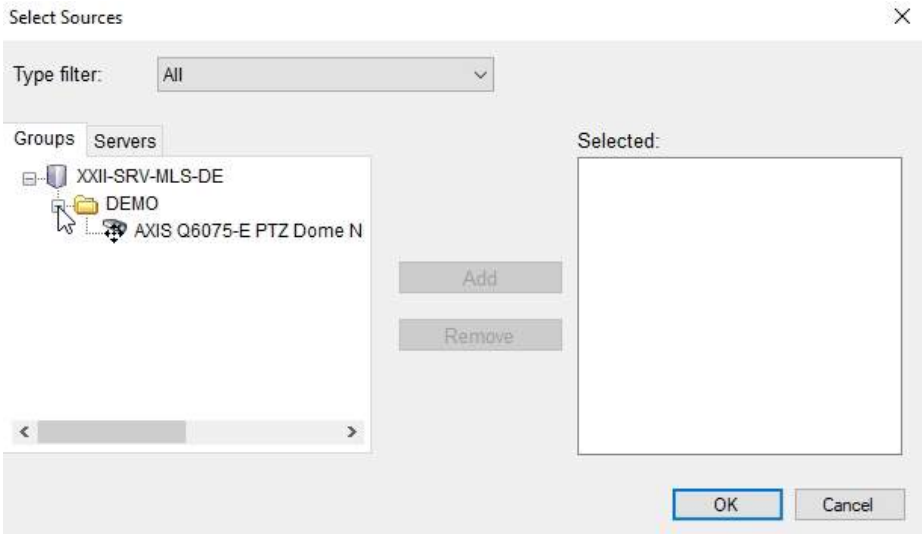
Then, in the second drop-down menu " Sources ", select the analytical event previously set up.

Then, press "Select"

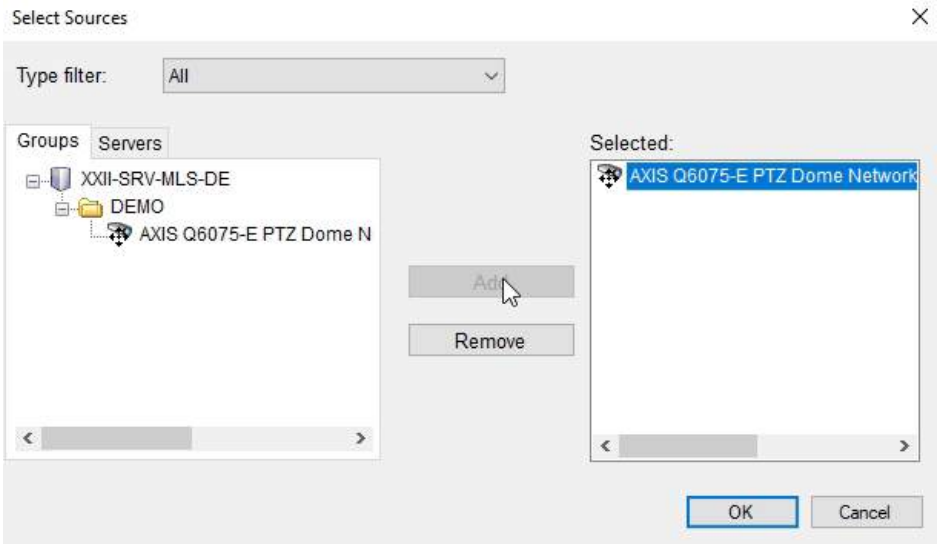
A new pop up window opens, press the "+" button until you see the camera you want to analyze. Here, the camera named "AxisQ6075".



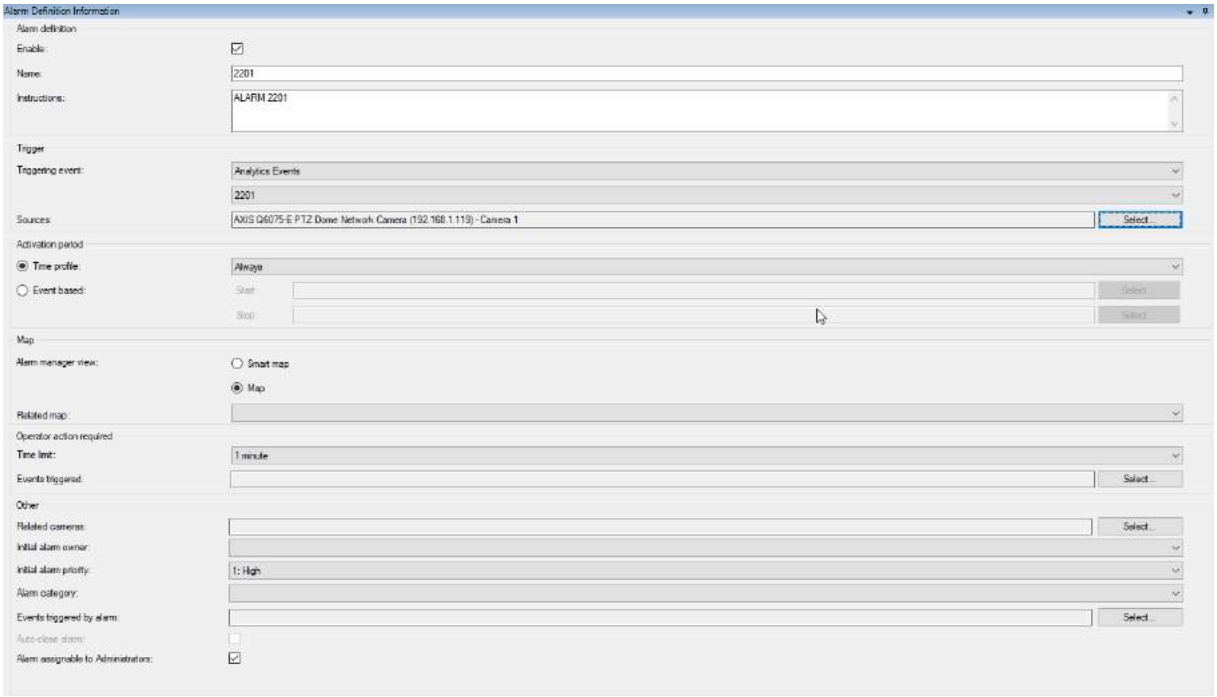




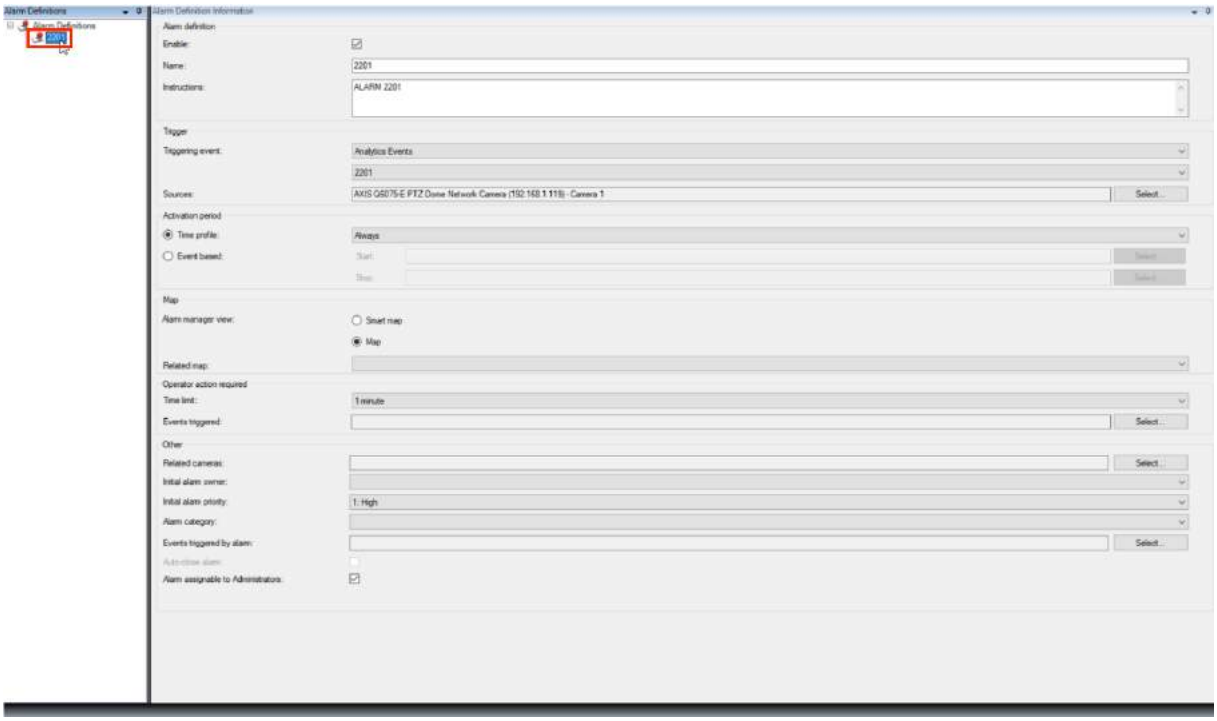
Select the camera here "AxisQ6075" and then press the "Add" button. The camera is added to the "Selected" menu



Press “OK”, the pop up window closes.

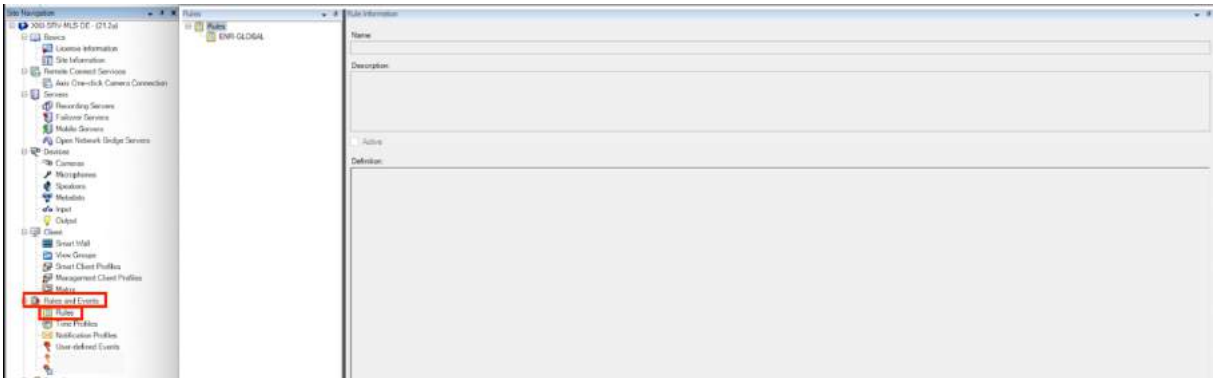


Save this alarm. It is now displayed in the left menu.

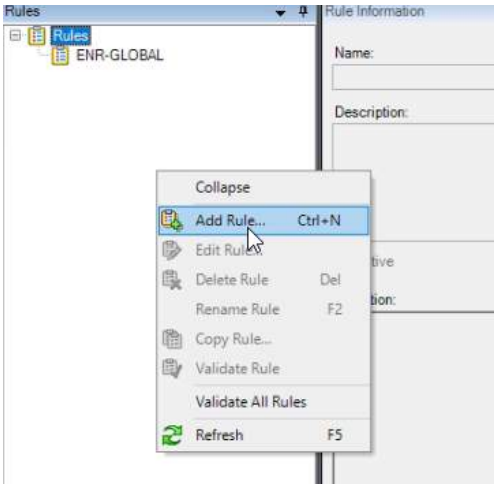


[c] Rules creation

On the left side, look for the “Rules and Events” section, then select "Rules".

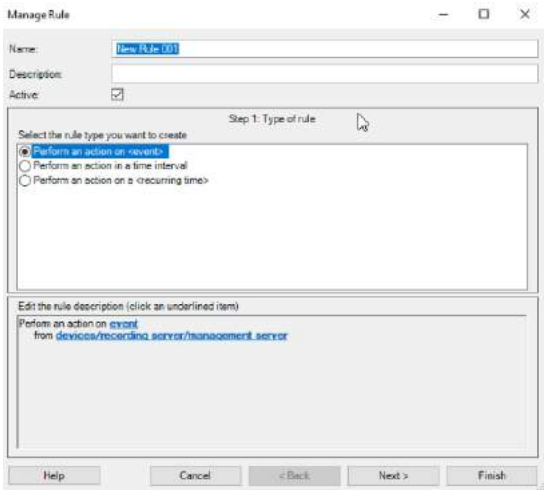


Right click on “Rules” and then press “Add Rule…”

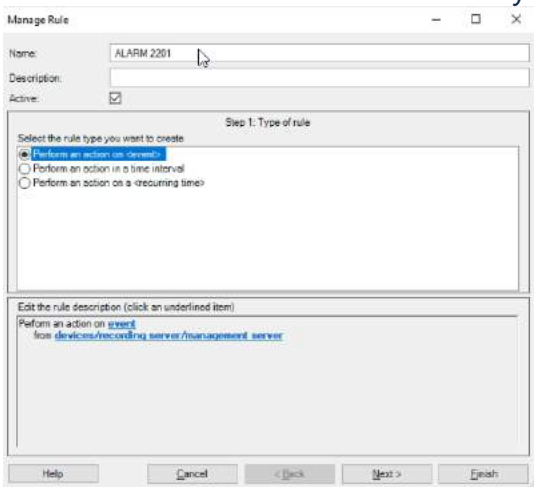


A new pop up window opens. Enter the relevant information into it:

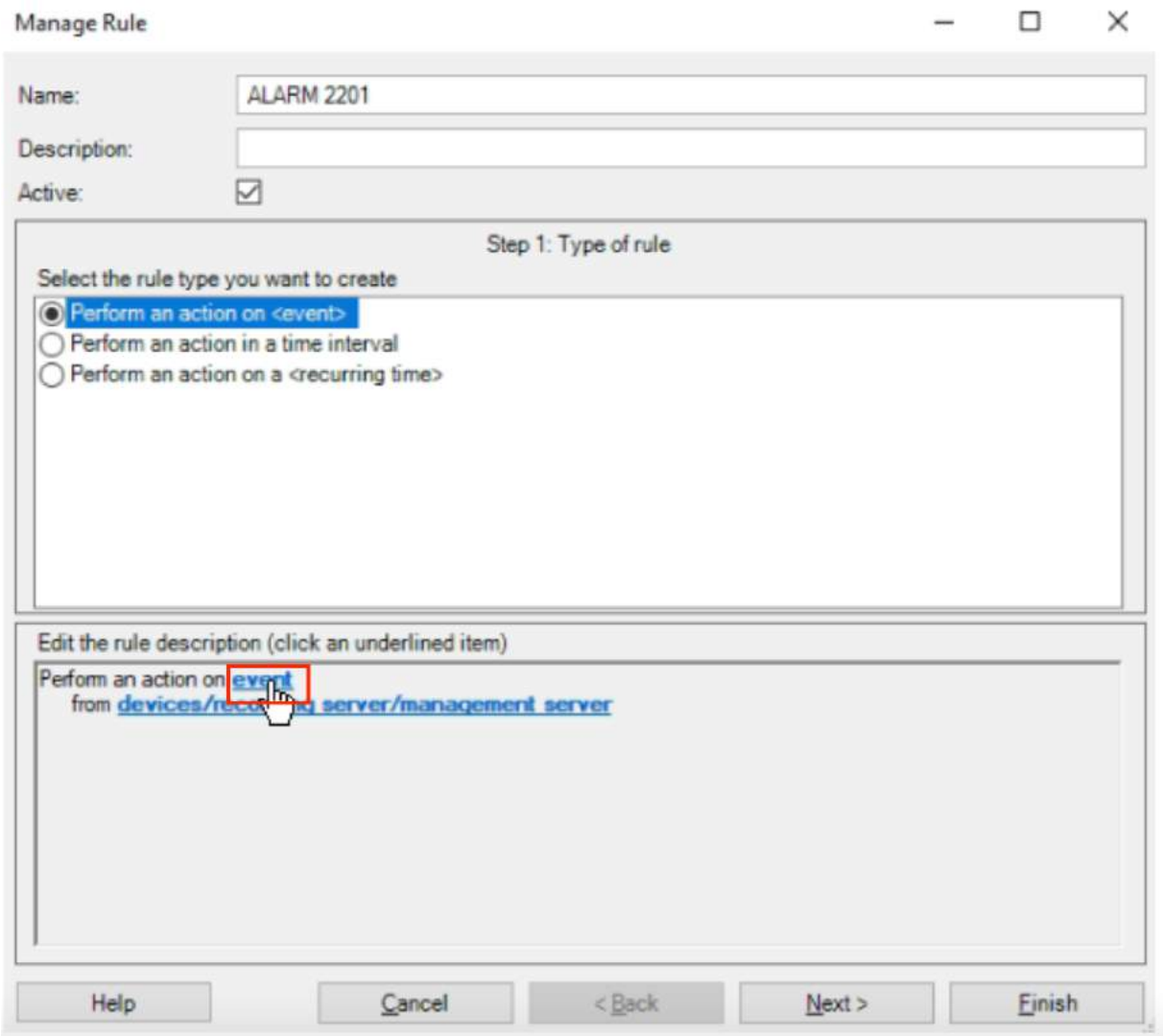
- Name
- Description



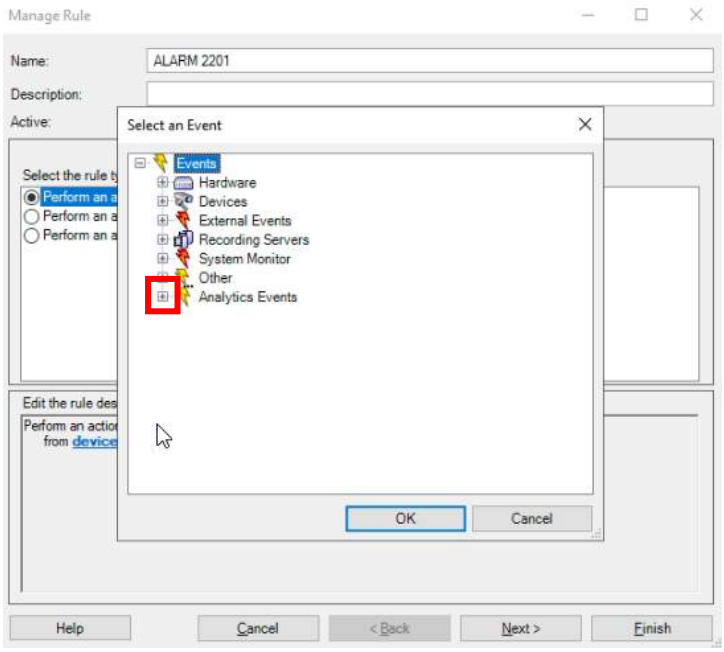
In the "Name" section, enter the rule name. You can enter any name.

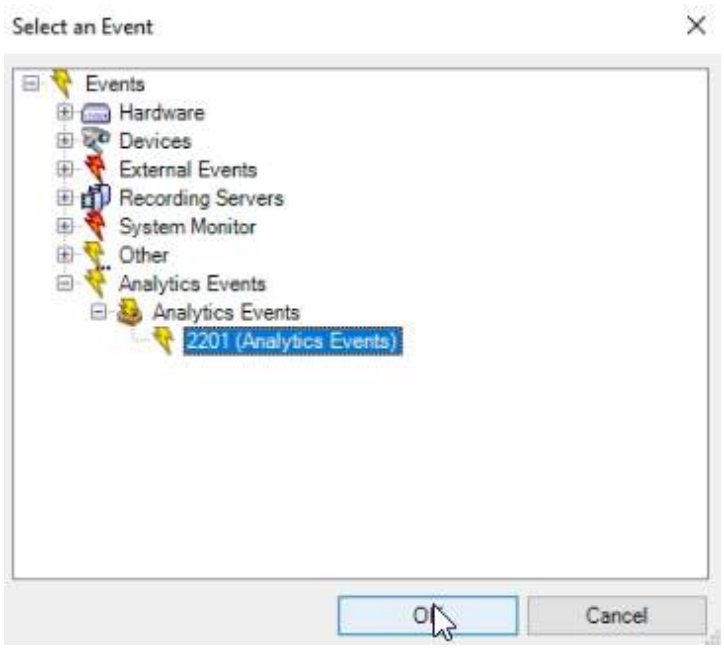


then, in the "Edit rule description" menu, press "Event".

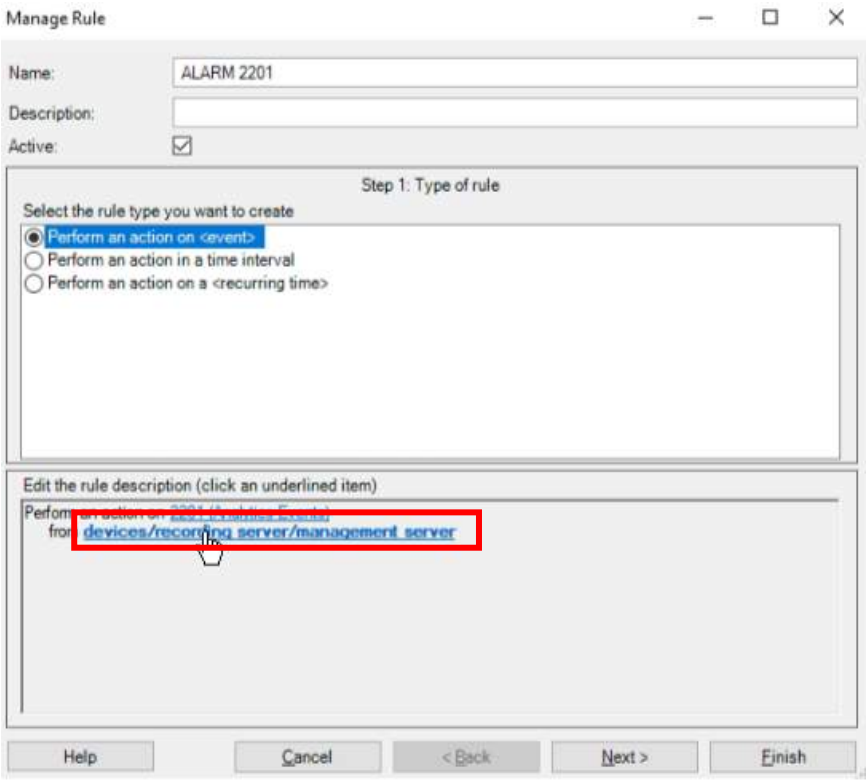


A pop up window opens to select the rule associated event. Press the Analytics Events "+" buttons until you find it, then "OK".

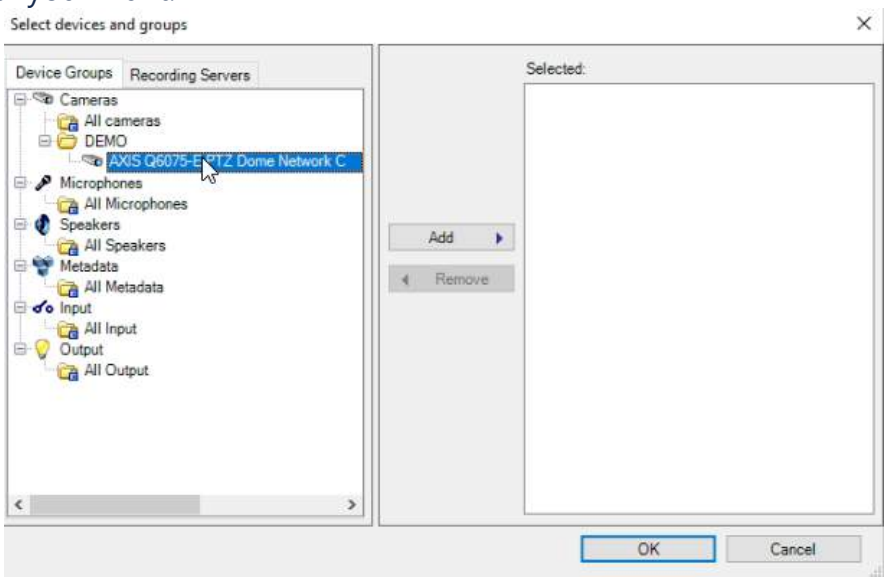




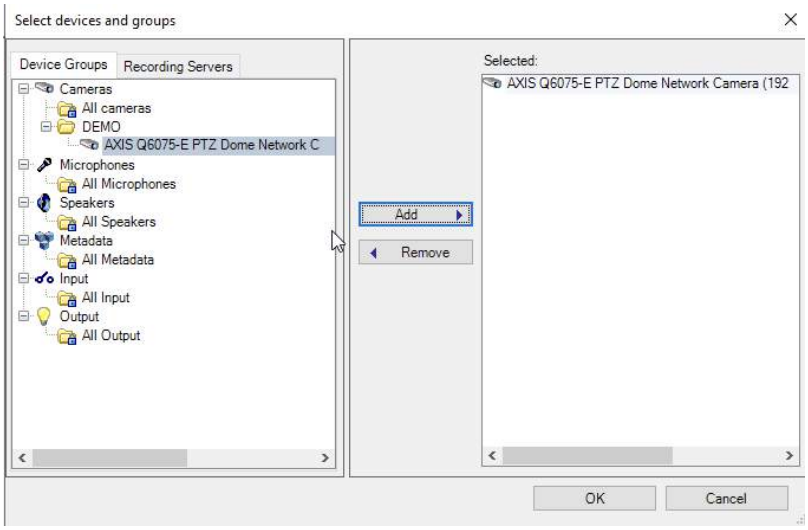
The event is associated with the rule. Then press "device/recording server/management server".



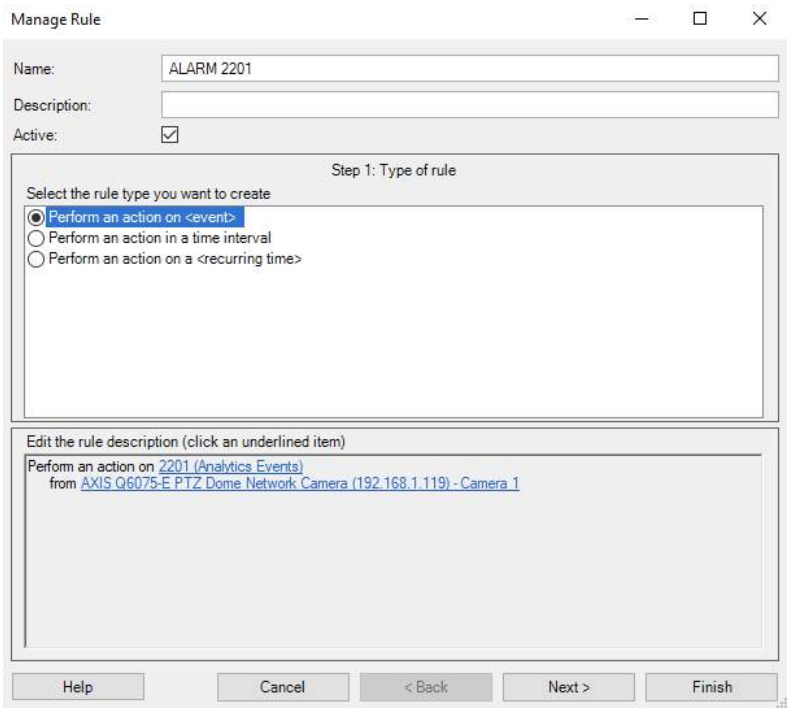
A pop up window opens to select the associated cameras. Press the Cameras "+" buttons until you find it.



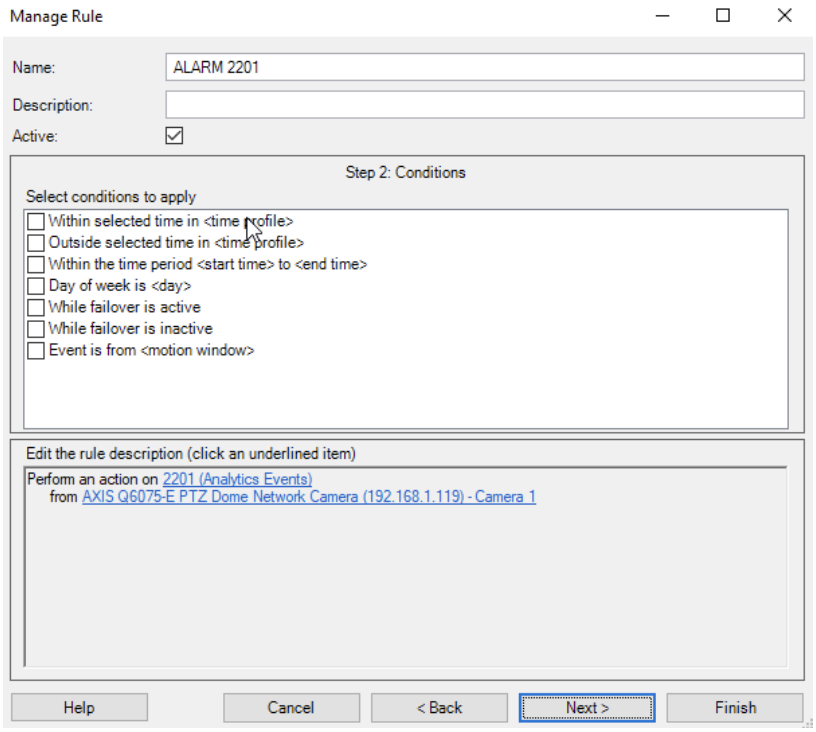
Select it and then, press “Add” so that the camera is added on the right side of the pop up window. When all cameras are added. Press "Ok".



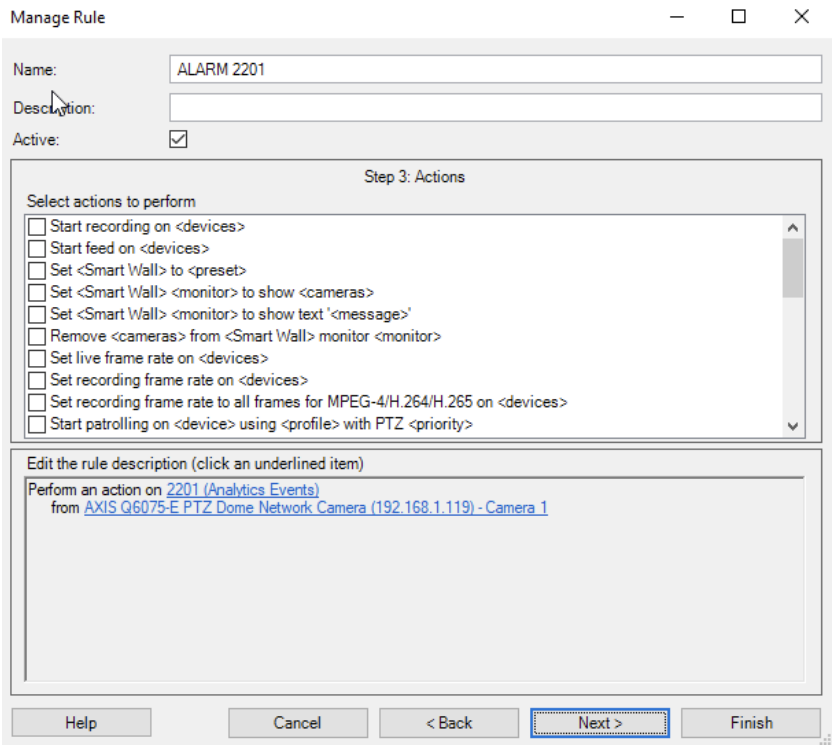
Then, press “Perform an action <event>”, then press “Next”



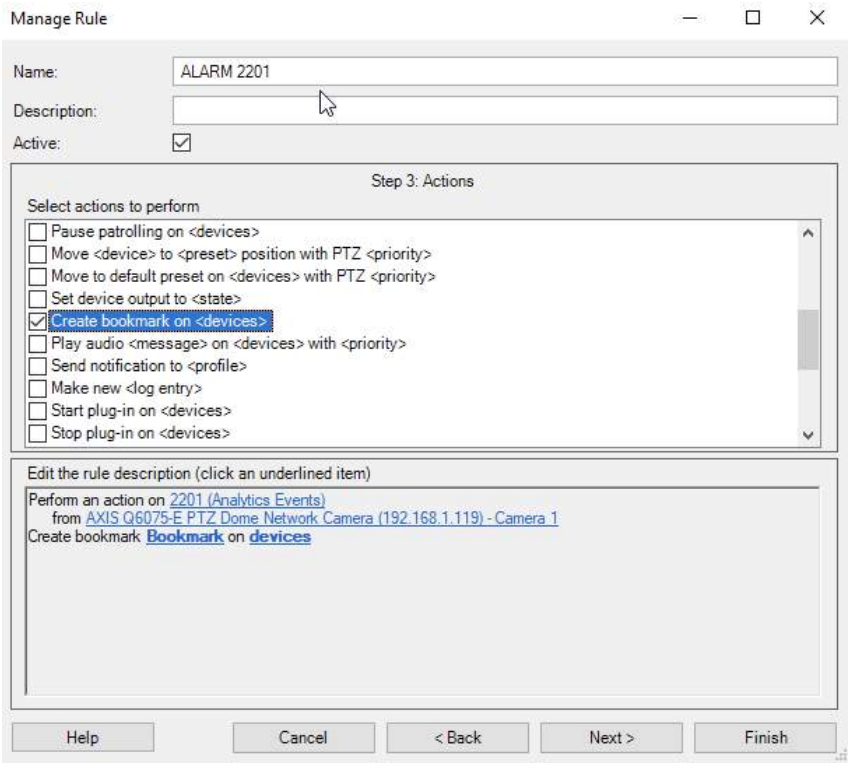
On the Step 2 “Conditions”, do not check anything, then press “Next”



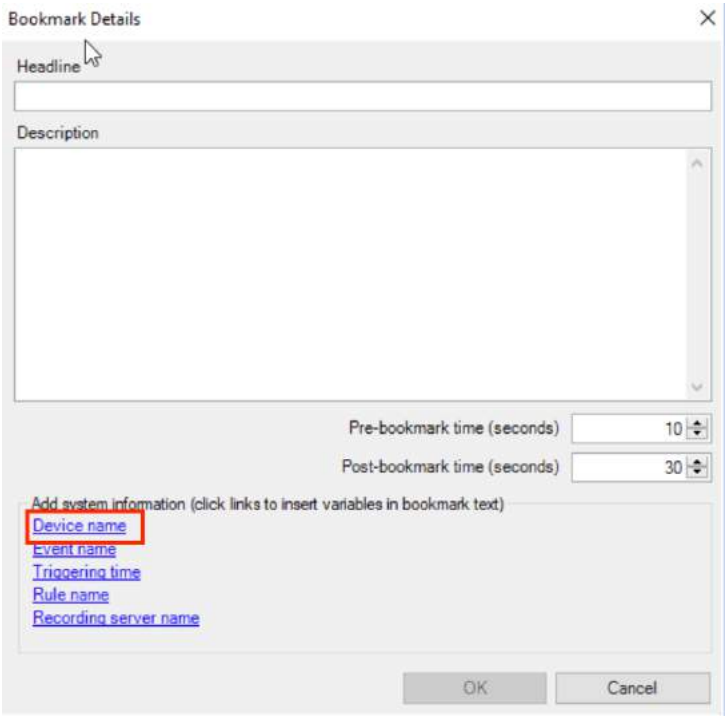
On the Step 3 “Actions”, do not check anything, then press “Next”



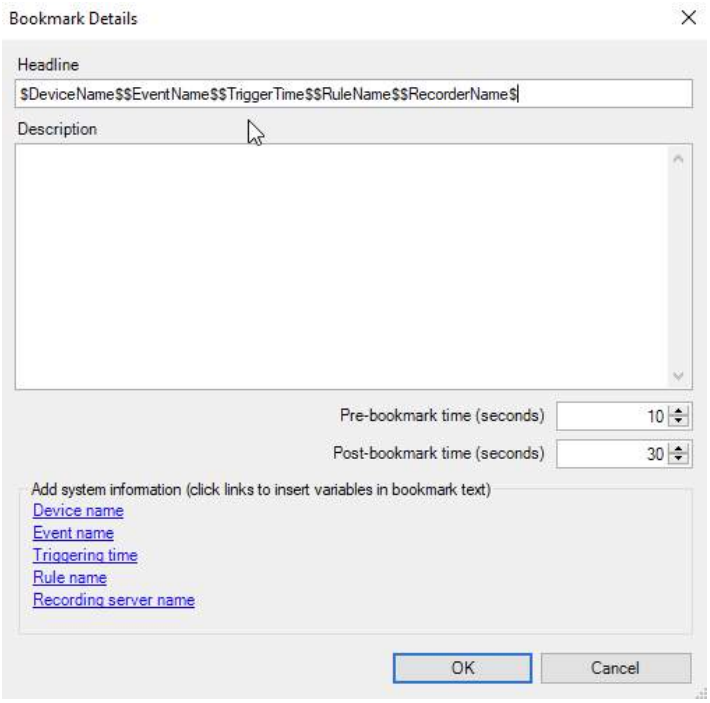
On the Step 3 “Actions”, check the box “Create bookmark on <devices> and press “Next”



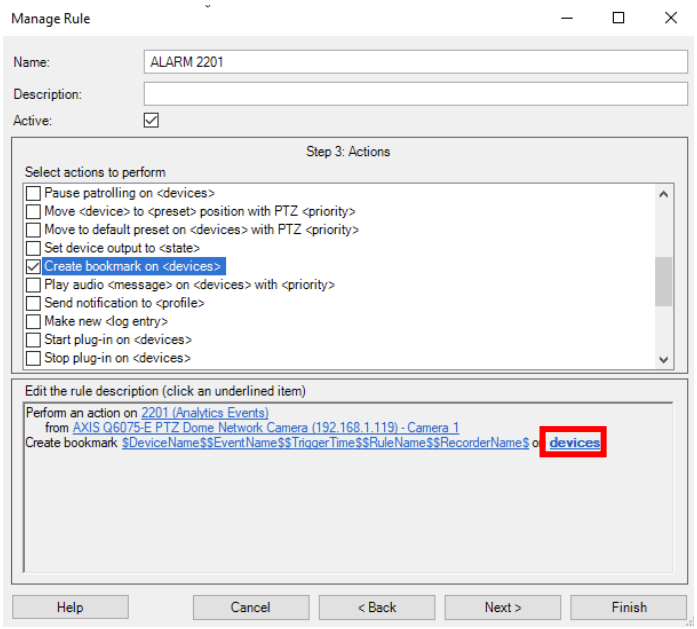
Then press “Boomark” on the “Create bookmark” line to modify the bookmark text



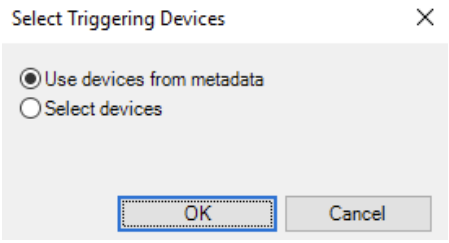
A pop up window opens. Press “Device name” then “Event Name” then “Trigger Time” then “Rule Name” then “Recorder Name” and leave the Pre-bookmark time set at 10s and Post-bookmark time set at 30s by default then click on "OK”



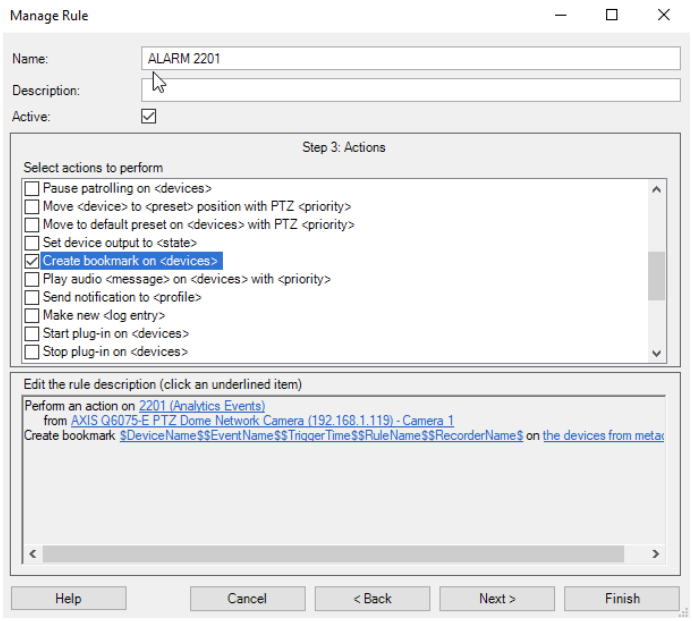
Then press “devices” to select a source



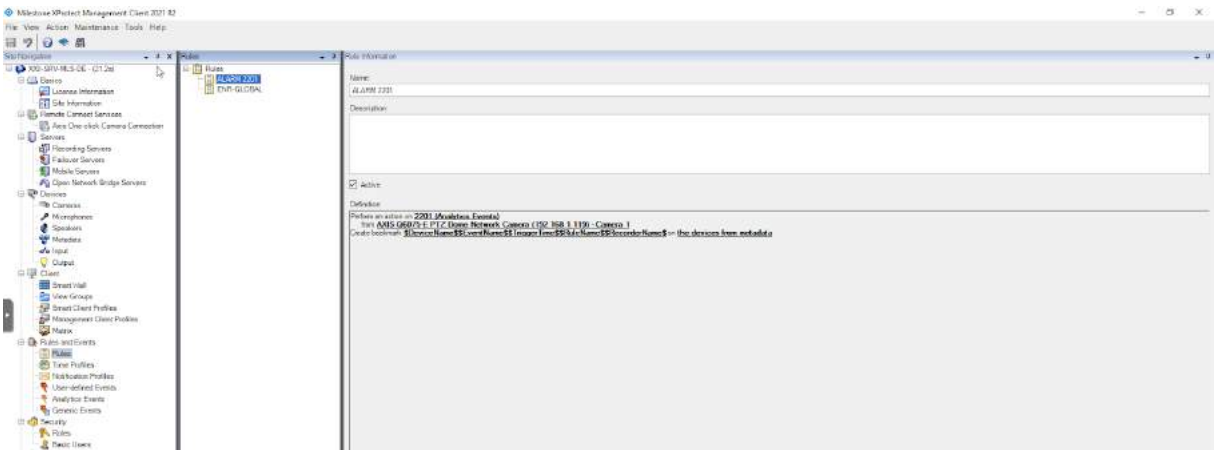
Then select “Use devices from metadata” and validate “OK”



Then press “Finish”.



Your rule will then appear in the rules list.

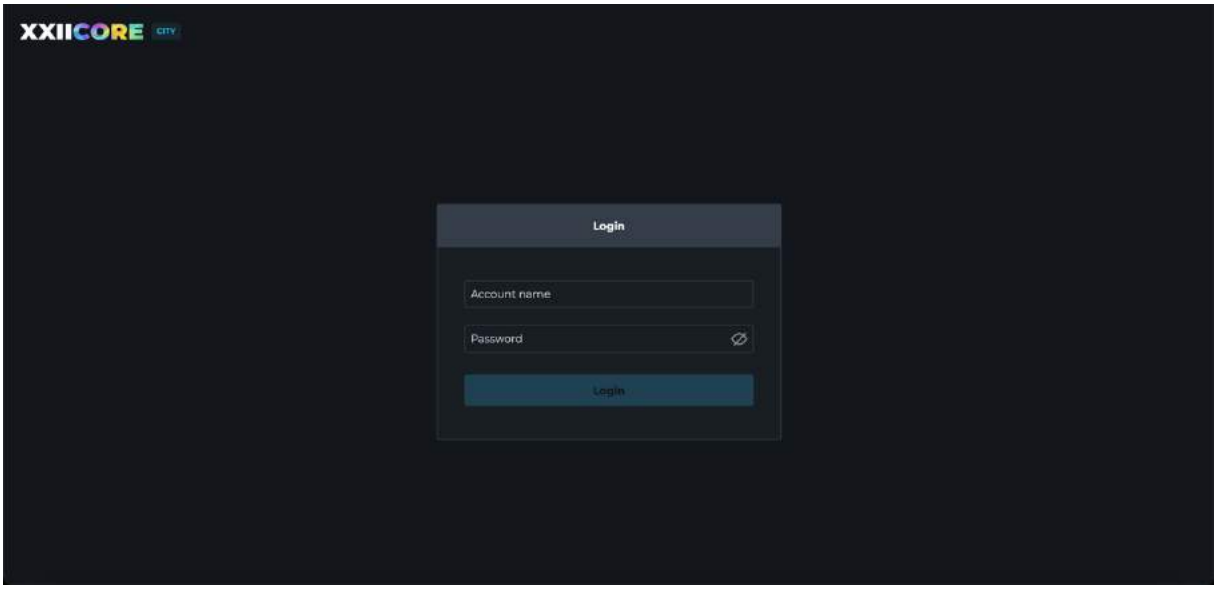


[I] Settings

[1] Authentification

You can access XXII CORE - Smart City via the following url :

```
smartcity.xxii-core.io:32080
```



You can enter your username and password provided during installation *(if you don't have this information, please send an email to support@xxii.fr)*.

Once the authentication is completed, you will be directed to the home page.

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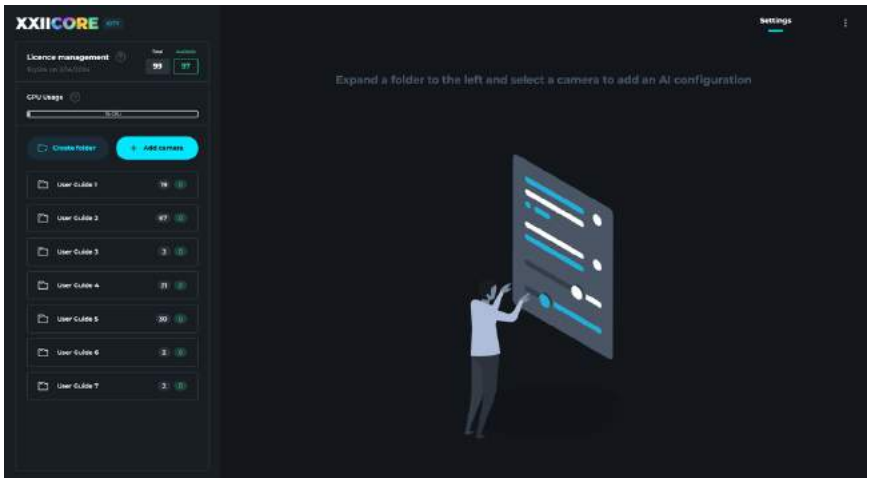
[2] Home Page

On this page, you will find the following items:

- License management
- GPU monitoring
- Create folder
- Add camera
- Context menu (top right)



[a] License management

XXII CORE - Smart City works with a floating license system. A license refers to a video stream coming from a camera. On this image we can see that the user has bought 10 licenses and that 7 licenses are still available ; the user has therefore 3 licenses in use. If you deactivate a camera, your number of available licenses increases accordingly. Similarly, if you activate a camera, the number of available licenses will decrease. Below the “License Management” text you will find the licence’s expiration date. All your licenses expire on the same date.

(Contact XXII's sales department before your licenses expire).

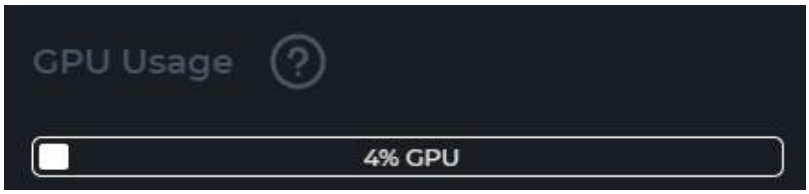
[b] GPU Monitoring

On each camera, you can add skills. Moreover, each new active stream coming from a camera uses part of the available GPU resources; the GPU usage capacity gauge will therefore increase or decrease depending on the activation or deactivation of the cameras.

During the pre-sales phase, an Expert XXII will estimate the hardware requirements of the dedicated server according to your needs. Each server will therefore have a unique GPU usage score.

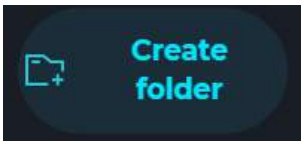
For example, if your server has a score of 1000 and each stream consumes 100 GPU usage points, you will be able to activate a maximum of 10 streams on 10 different cameras.

The GPU usage capacity gauge will fill up by 10% every time a new stream with at least one skill is activated.



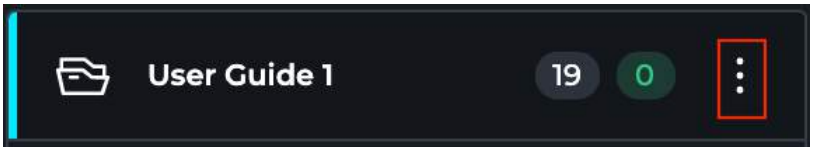
[c] Create Folder

You can create folders associated to your cameras. When you press the following button a folder is created and placed at the bottom of your folder list. A new folder is named "New Folder". In case a folder has already the name “New Folder”, the system generates new folders by adding consecutive digits. As an example, clicking on the button twice will generate two new folders named "New Folder" and "New Folder 1".

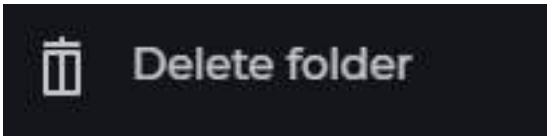


[d] Erase folder

If you want to delete a folder, press the button to the right of the folder name:



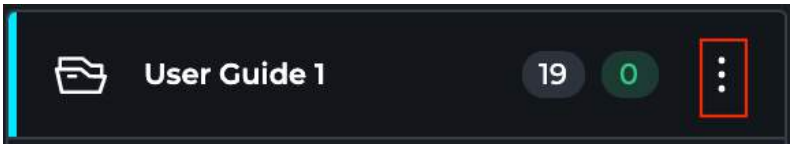
Then press “Delete Folder”:



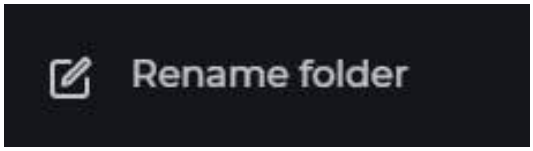
⚠️ *Be careful, you cannot delete a folder that contains one or more cameras regardless of whether they are active or inactive. You must therefore move from or delete all the cameras of a folder to be able to delete it* ⚠️

[e] Rename a folder

If you want to rename a folder, press the button to the right of the folder name:



Then press “Rename folder”:



⚠️ *Warning, you can put several times the same name for a folder. Any character is allowed in the folder’s name.* ⚠️

[f] Cameras indication in folders

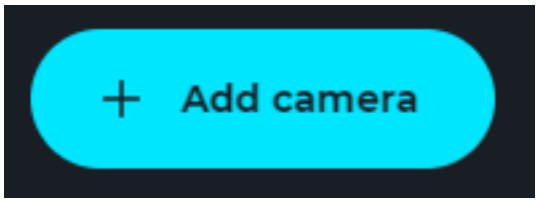
To the right of the name of each folders, before the context menu, you can see two numbers .

These two numbers indicate :

- The number of cameras in the folder
- The number of cameras for which the switch is on "activated".

[g] Add a camera

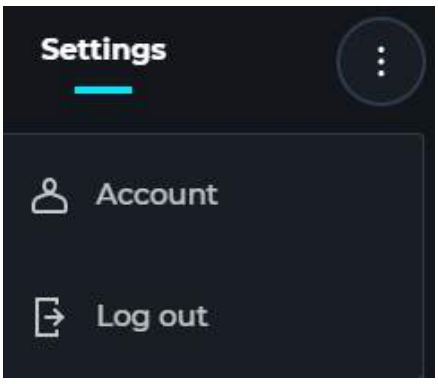
You can add streams (camera) by pressing the following button. You can add as many cameras as you want whatever the number of licenses you have purchased. Licenses are only consumed if your skills are enabled.



[h] Context menu

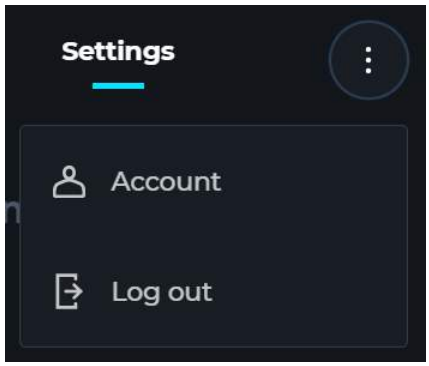
Through this menu you can:

- View your account settings
- Log out of Smart City software



[3] XXII CORE - Smart City Settings

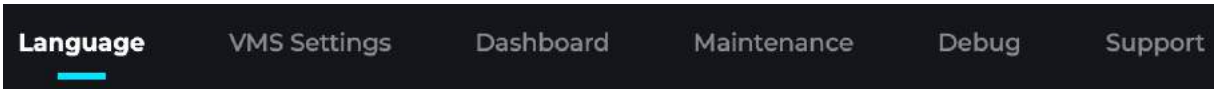
For your account's informations, click in the menu at the top right, then click on "Account".



[a] Tabs

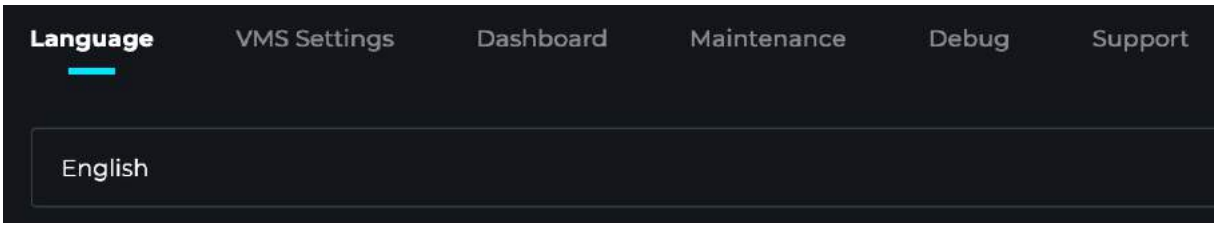
At the top of the page you will find the tabs:

- Languages
- VMS Settings
- Dashboard
- Maintenance
- Help



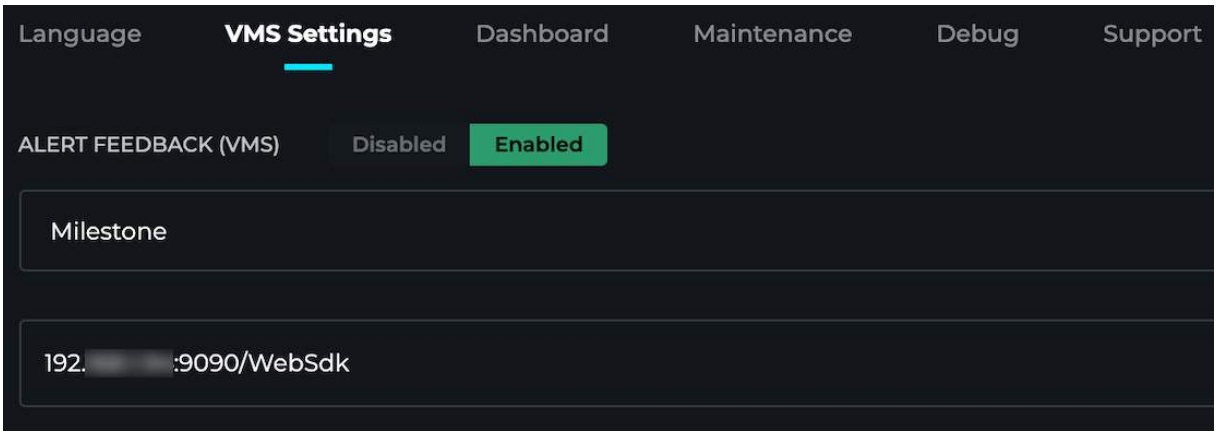
[b] Languages

XXII CORE - Smart City is available in English and French.



[c] VMS Settings

In the "VMS parameters" section you have to choose the VMS you will be using. Depending on the chosen VMS, the information to be entered will be different.



[I] Milestone

- Server host URL
    - Enter the IP address of the machine where the VMS is located
    - Enter the WebSDK port; default : 9090

[d] Dashboard

Coming soon.

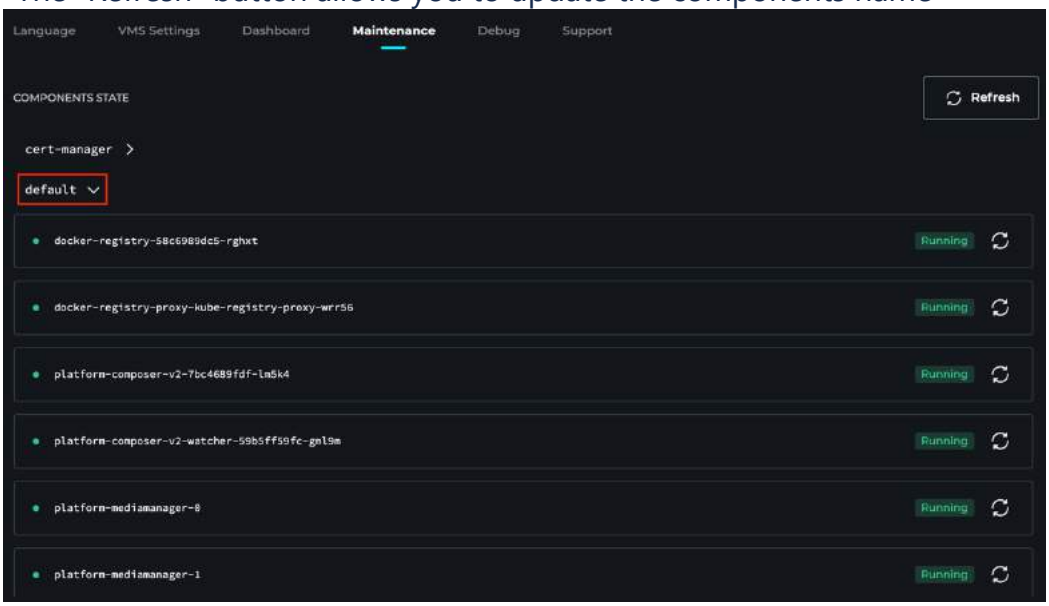
[e] Maintenance

- Restricted to SuperAdmin
- Il est seulement possible de modifier le statut des composants dans le dossier “default”. Dans les autres dossiers, vous pouvez seulement visualiser l'état et non relancer les composants. The words circled in red, correspond to folders inside the XXII machine. You can only modify the status of components in the "default" folder. In the other folders, you can only view the status and not restart the components.

To restart a component, press the button located on the right of its name:

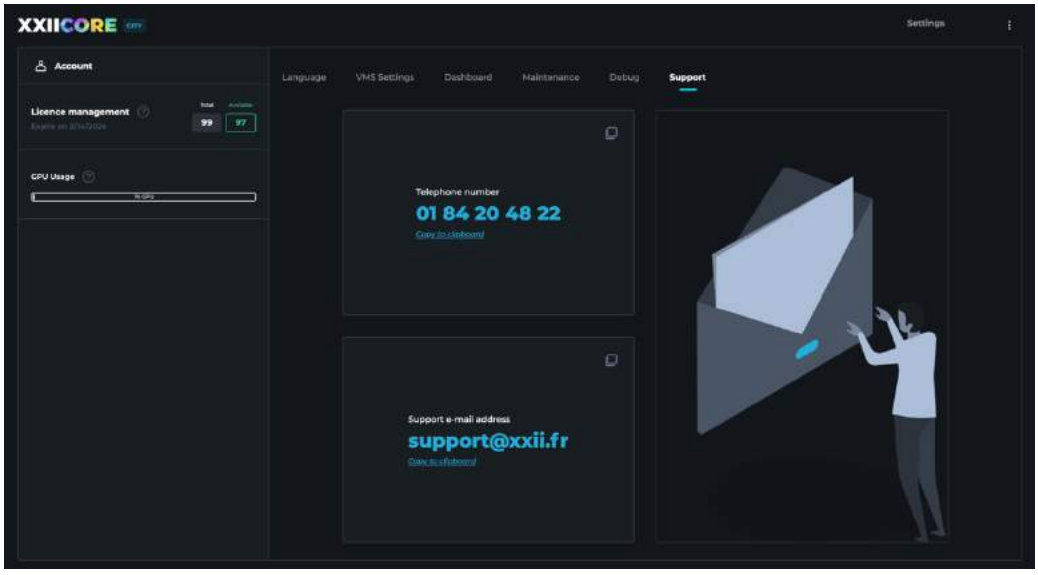
- This page allows you to check the System components status through three statuses :
    - Running : the component is functional, nothing to report
    - Pending : the component is starting, wait a few minutes
    - Error : the component is in error, press on the picto to restart it

- The “Refresh” button allows you to update the components name



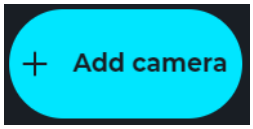
[f] Help

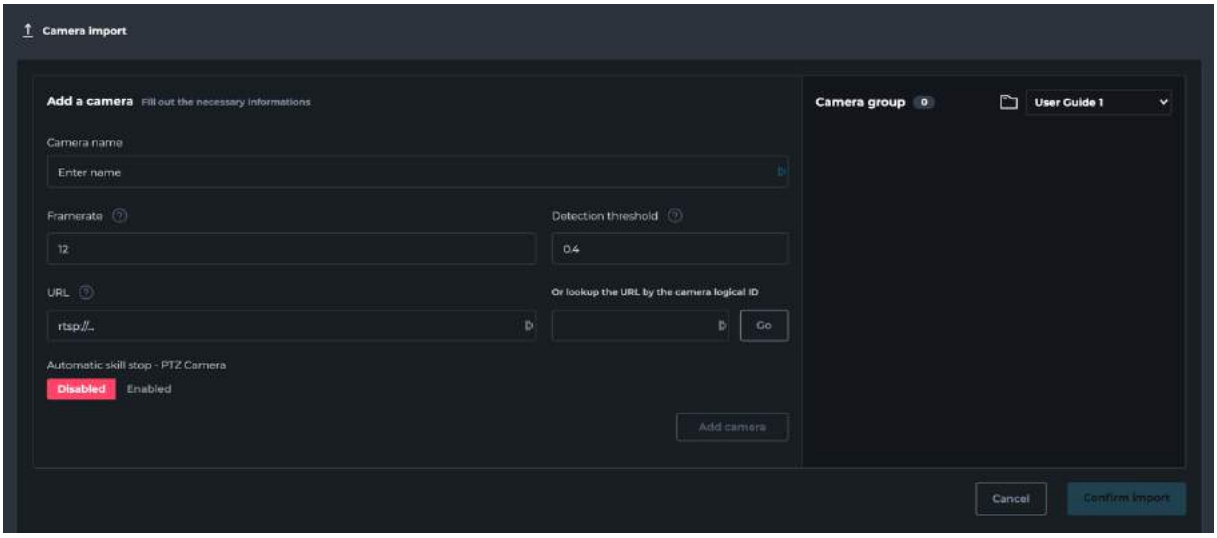
- Restricted to SuperAdmin
- Help Page with XXII support information
    - Mail : support@xxii.fr
    - Phone : +33 (0)1 84 20 48 22



[4] Add a camera

If you want to add a camera, press the "Add Camera" button on the home page; the "camera import" page then opens.





[a] Simple import

On this page you can:

- Name your camera (required)
- Enter the number of frames per second of your camera - restricted to SuperAdmin (not mandatory)
    - The default value is 12, if nothing is filled in
    - Value corresponding to the number of images per second processed by XXII Core for this camera
- Enter the detection threshold - restricted to SuperAdmin (not mandatory)
    - The default value is 0,4, if nothing is filled in
    - Value corresponding to the objects detection limit
        - The closer the threshold is to 0.1, then more objects are detected, but with an increased risk of false detections
        - The closer the threshold is to 0.9, then it allows a higher quality of the detections, but with an increased risk of missed detections
- Enter the URL of your camera's RTSP feed (required)

Once all required fields are filled, click on the "add camera" button at the bottom of this window. The camera is then displayed on the right side of the screen.

[b] Multiple Imports

If you want to add another camera, you have to repeat the steps described above in the “Simple import” section. You can add as many cameras as you want. The number of cameras can be found in the tooltip on the right of the "Camera group" title.

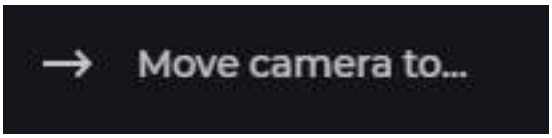
⚠️ *Be careful, cameras can be added to one folder only at a time. The name of the cameras folder is shown in the top right corner of the image. All available folders are displayed if you click on it.* ⚠️

Once your choice has been made press the "Confirm import" button to add all cameras to the folder. You will be able to move the cameras to another folder via the home page.

[c] Moving a camera

To move a camera from one folder to another, press the button to the right of the camera name:

Then press “Move Camera to …”:

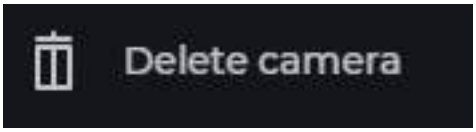


And choose the destination folder. You can do this as many times as necessary.

[d] Delete a camera

To delete a camera, press the button to the right of the camera name:

Then press “Remove Camera”:



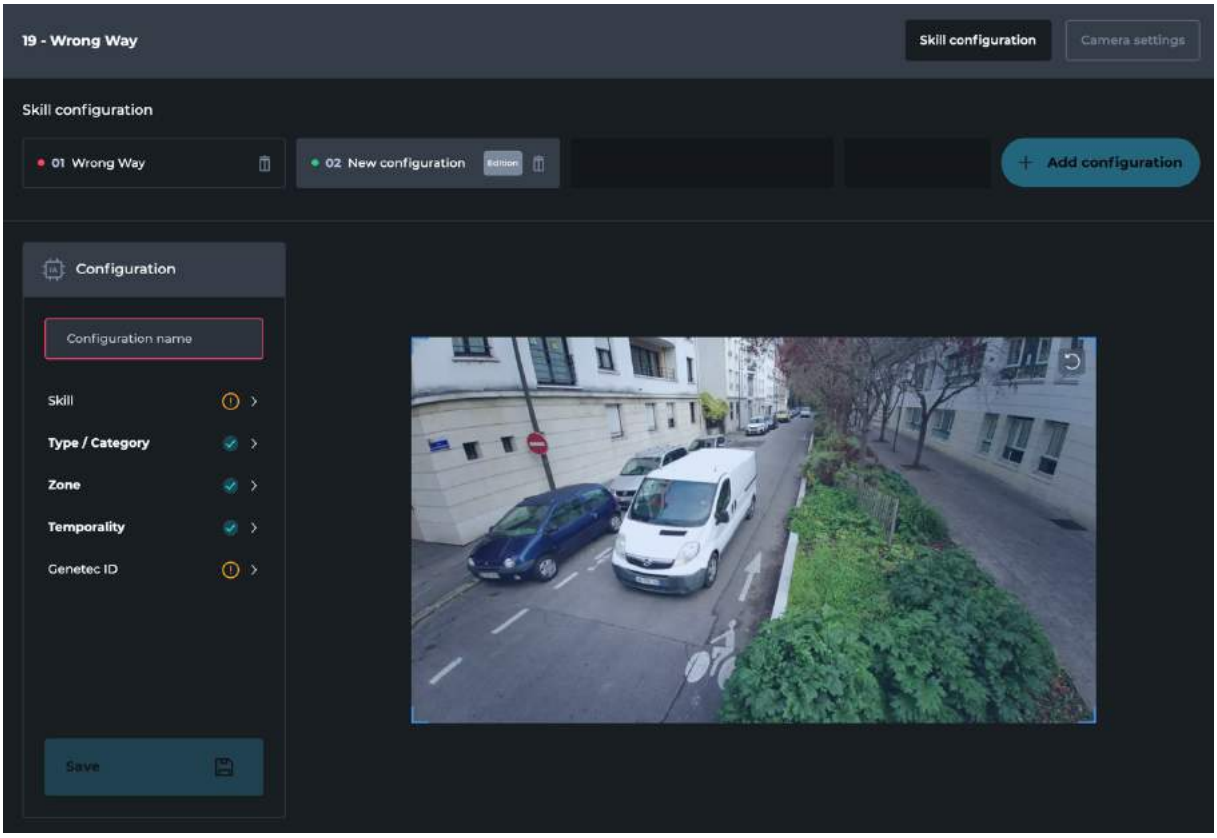
⚠ *You can delete a camera while skills are configured inside. If this happens, the skills will be automatically disabled, then deleted.*⚠

---

[5] Skill configuration

To set up a skill, open a folder containing at least one camera and click on that camera. A static image grabbed from the camera’s stream at the moment the camera’s menu was first opened will be displayed. You may refresh this image by clicking on the icon in the upper right hand corner.

Clicking on the "+ Add Camera" button on the right side of your screen displays the configuration panel of a skill.

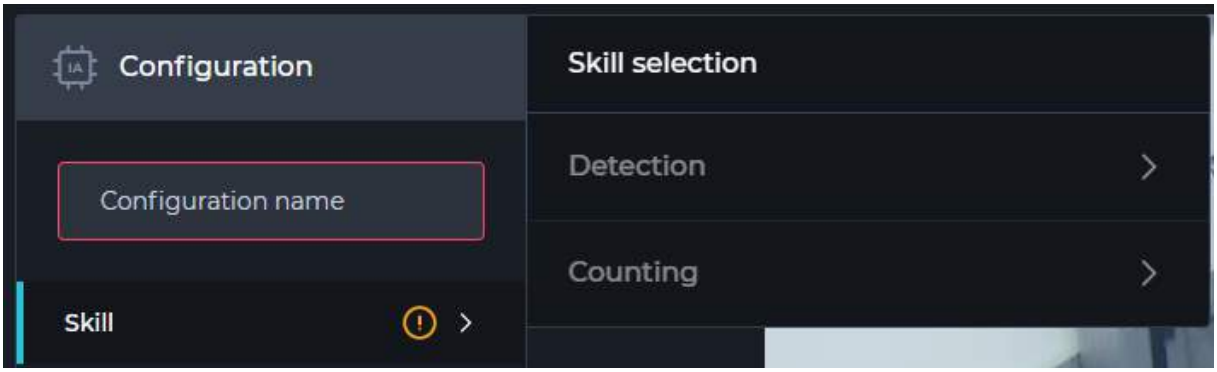


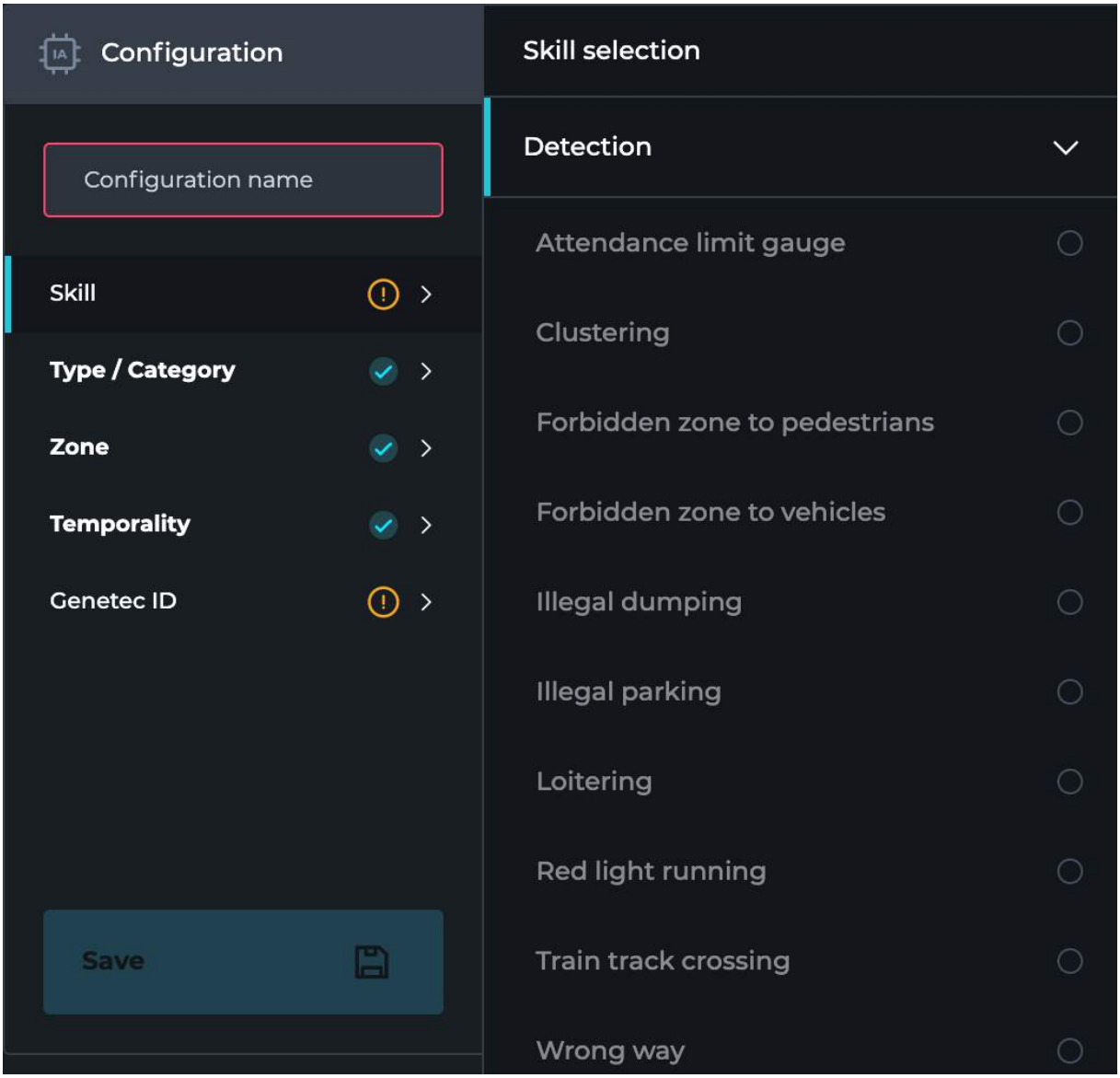
Summary of the fields to be filled in :

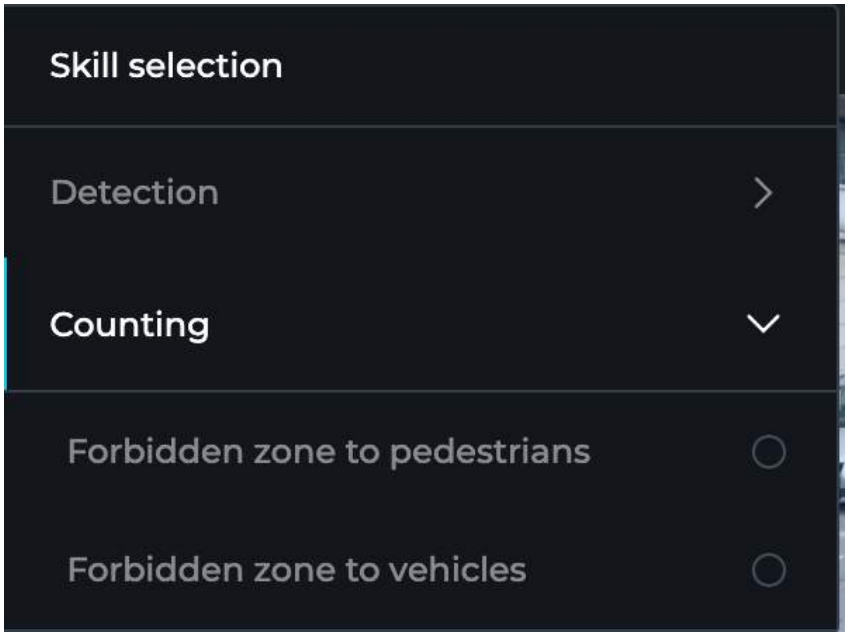
- Give a name to your skill

  Note: if you do not fill in any text in this field before selecting a skill, the skill name automatically fills in this field.

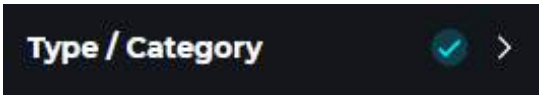
- Choose a skill type (Detection and Counting are the choices available)
  ⚠ *The choice of the skill type is mandatory* ⚠

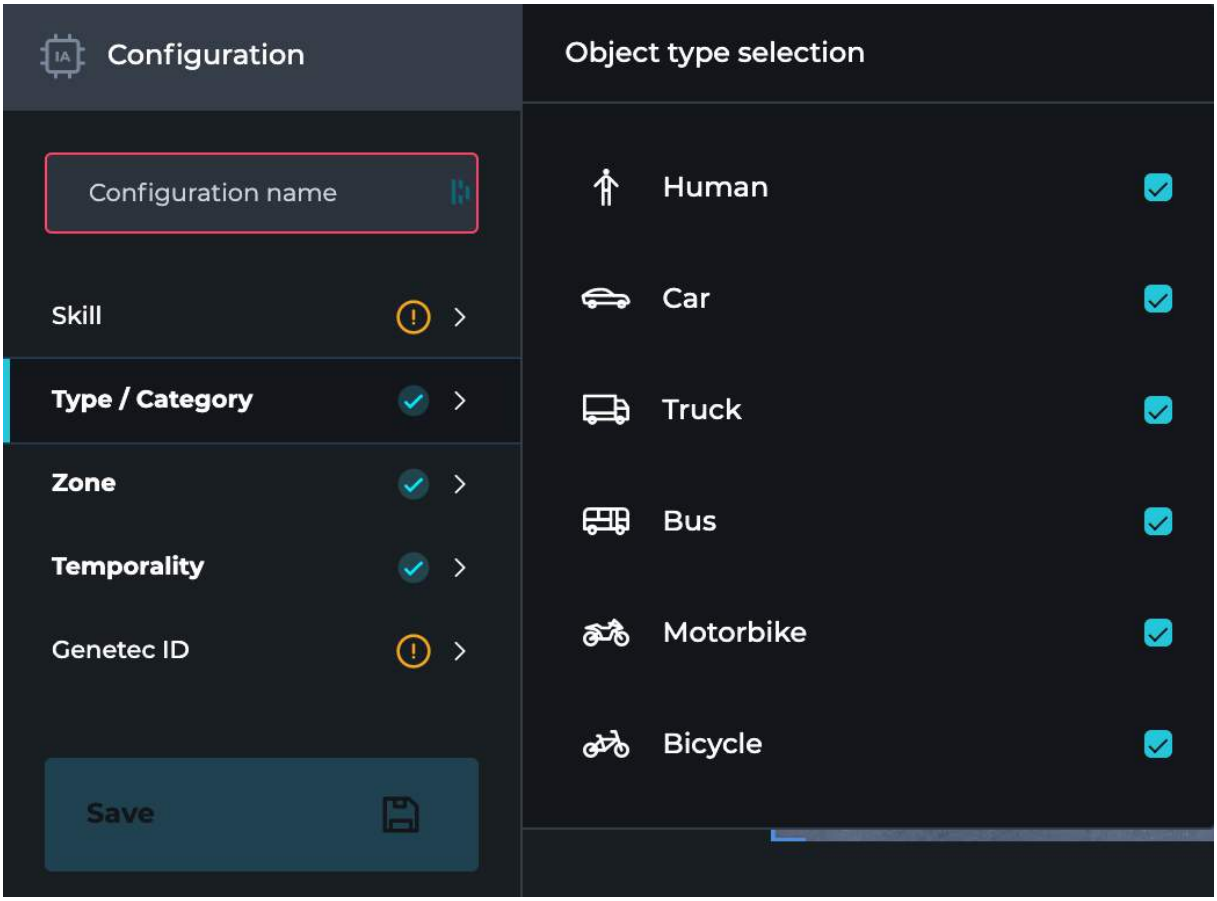

Configuration
Configuration name
Skill
Skill selection
Detection
Counting


Configuration
Configuration name
Skill
Type / Category
Zone
Temporality
Genetec ID
Save
Skill selection
Detection
Attendance limit gauge
Clustering
Forbidden zone to pedestrians
Forbidden zone to vehicles
Illegal dumping
Illegal parking
Loitering
Red light running
Train track crossing
Wrong way

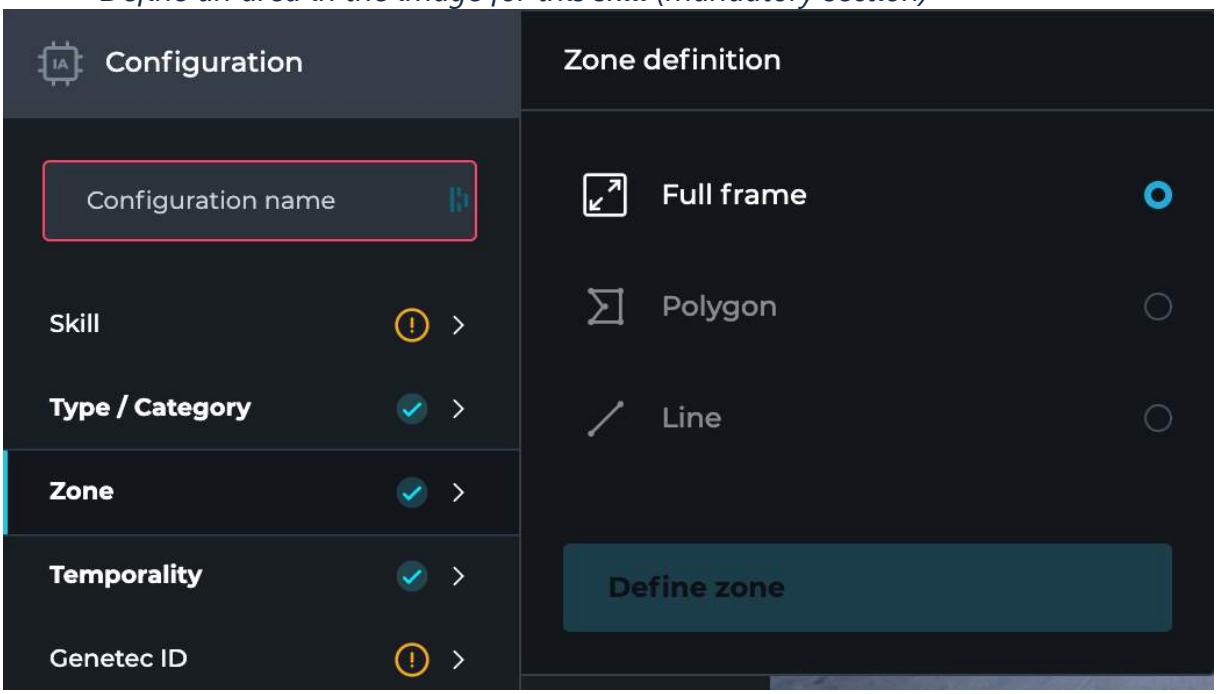


- Define a type / category

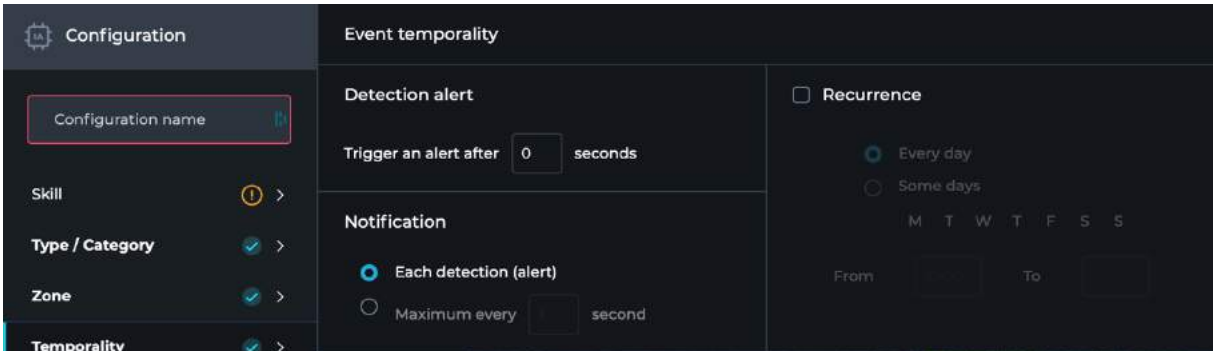




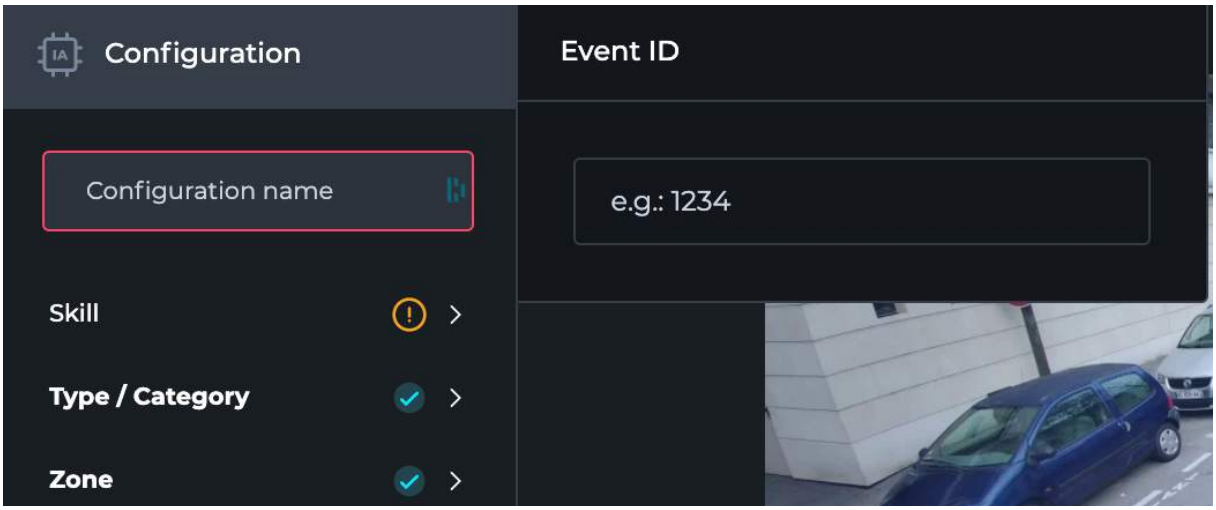
- *Define an area in the image for this skill (mandatory section)*



- *Define a timeframe for this skill (optional)*



- *Enter a VMS ID for this skill (mandatory field if you are using a Detection skill)*



[a] List of skills

XXII CORE - Smart City gathers a set of skills classified in two types: Detection and Counting. You will find a description and a functional diagram of all the skills available in the platform below:

Detection :

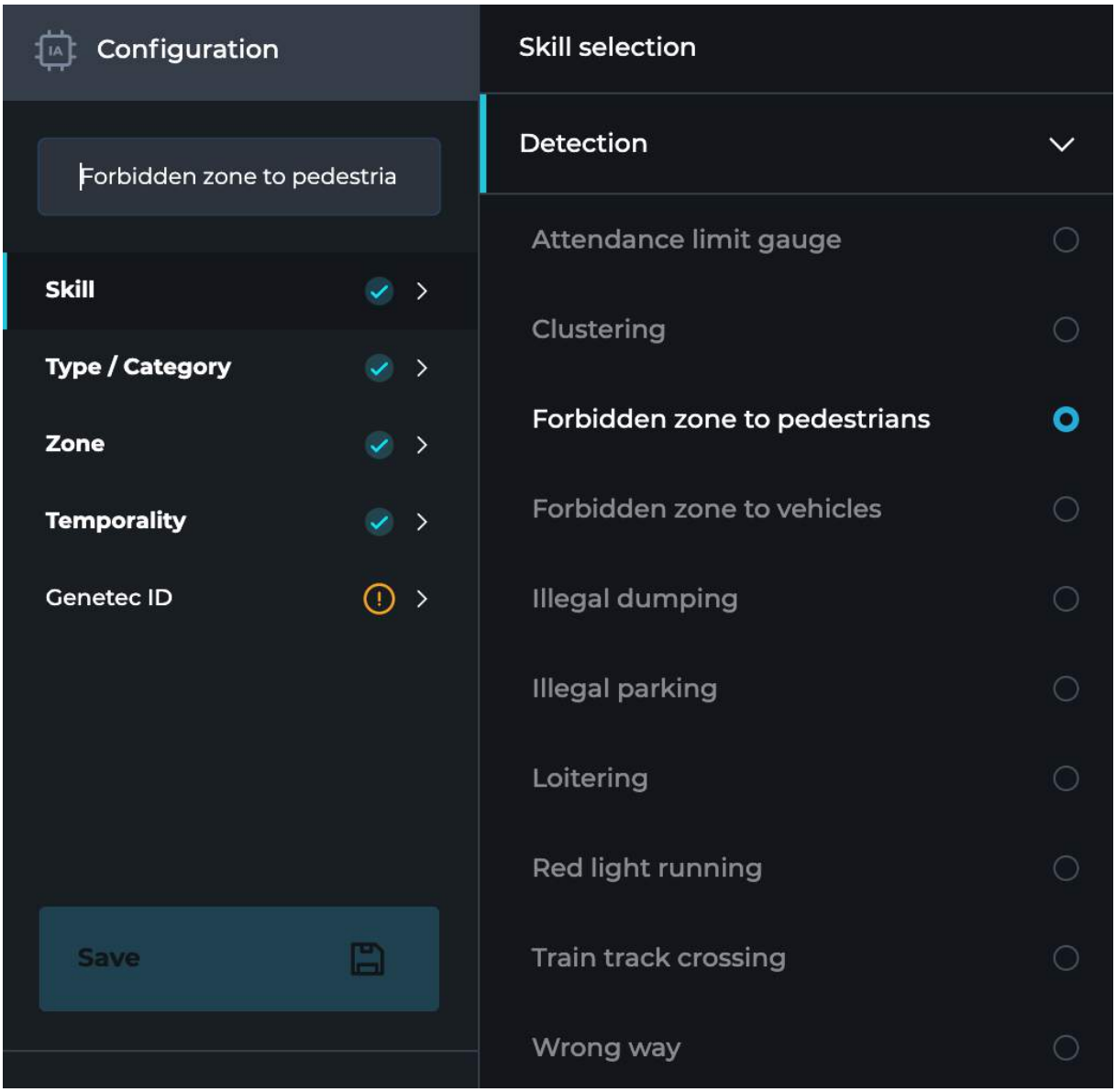
- Red light running :
  - This skill makes it possible to identify the color of the traffic lights and the respect of stops according to the types of vehicles.
- Illegal dumping :
  - This skill makes it possible to detect static vehicles dropping trash in an area.
- Train track crossing :
  - This skill makes it possible to identify unauthorized persons on the railroad in real time.
- Attendance limit gauge :
  - This skill makes it possible to detect when a gauge (threshold) is exceeded in a public place.
- Loitering:
  - This skill makes it possible to identify in real time if a person is in an area for more than a user-defined amount of time.
- Clustering :
  - This skill makes it possible to evaluate the number of humans present in an area. An alert is triggered when the set threshold is exceeded.
- Wrong Way :
  - This skill makes it possible to identify in real time the different types of vehicles circulating on the roadway and to ensure that the direction of traffic is respected.
- Illegal Parking
  - This skill makes it possible to identify in real time the different types of vehicles not authorized to circulate in certain zones.
- Forbidden zone to pedestrians
  - This skill is used to identify in real time if one or more unauthorized persons enter a forbidden zone.
- Forbidden zone to vehicles
  - This skill makes it possible to identify in real time the different types of vehicles not authorized to circulate in certain zones.

Counting :

- Vehicle counting :
  - This skill makes it possible to measure in real time the frequentation on your roads according to the periods.
- Pedestrian counting :
  - This skill makes it possible to know in real time the frequentation of your urban space.

[b] Detection skills

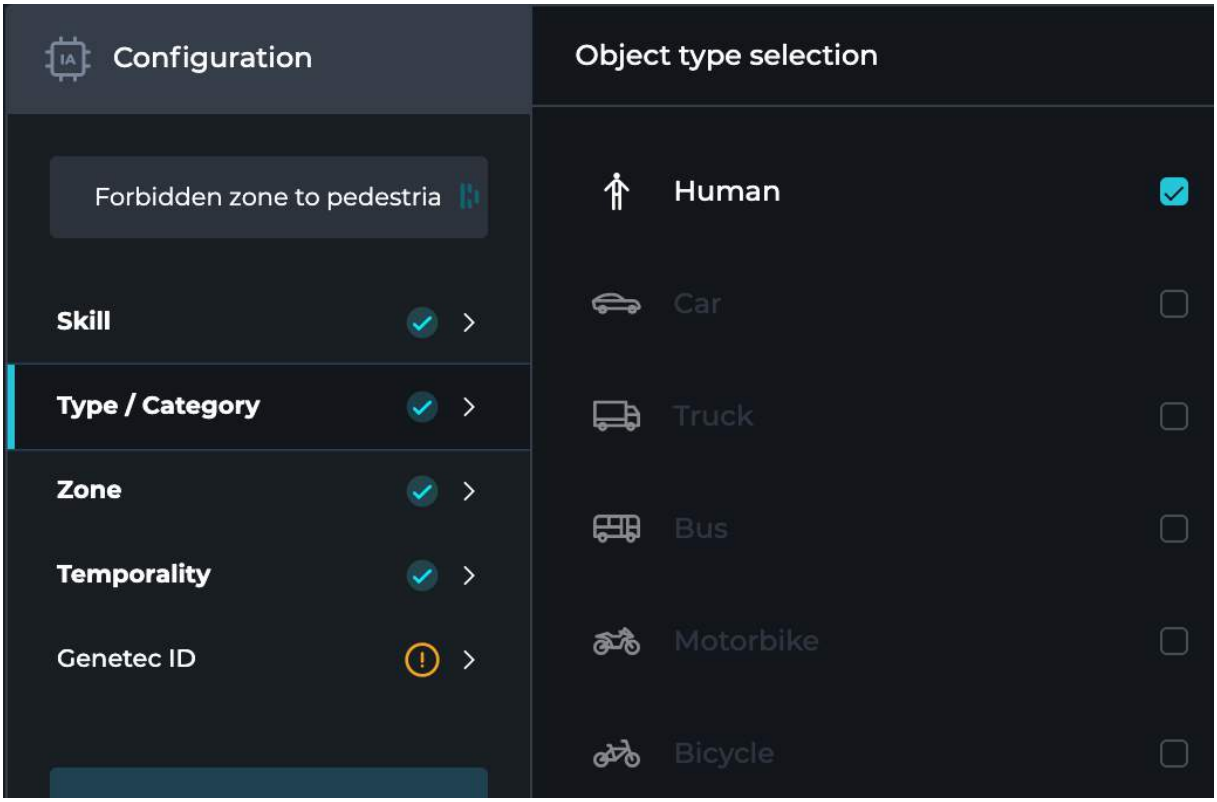
Once you have entered the name of the skill, you can proceed to the choice of the skill. Select the "Detection" skill type (the "Counting" skill types are explained in a section below).



i. Example: Polygon detection (geometric shape)

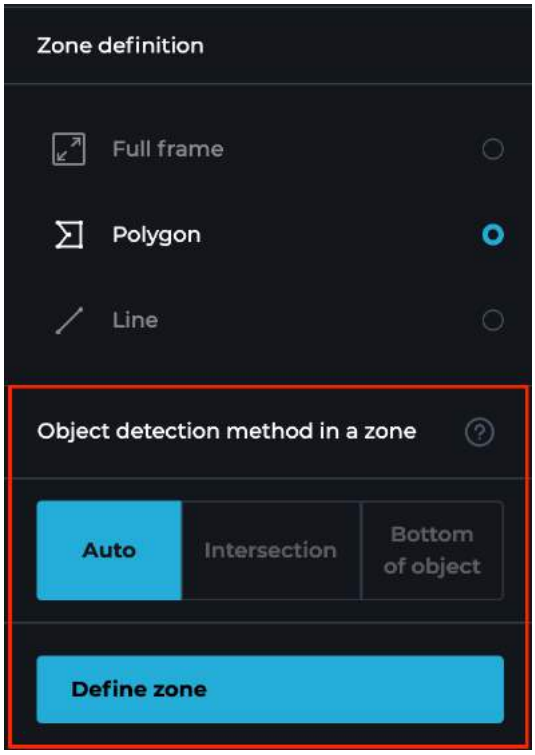
As an example, select the Forbidden zone to pedestrians skill (Skill > Detection > Pedestrian Zone Management).

Then select the class(es) you want to detect. By default as it is a forbidden area for humans, the human box is already selected.



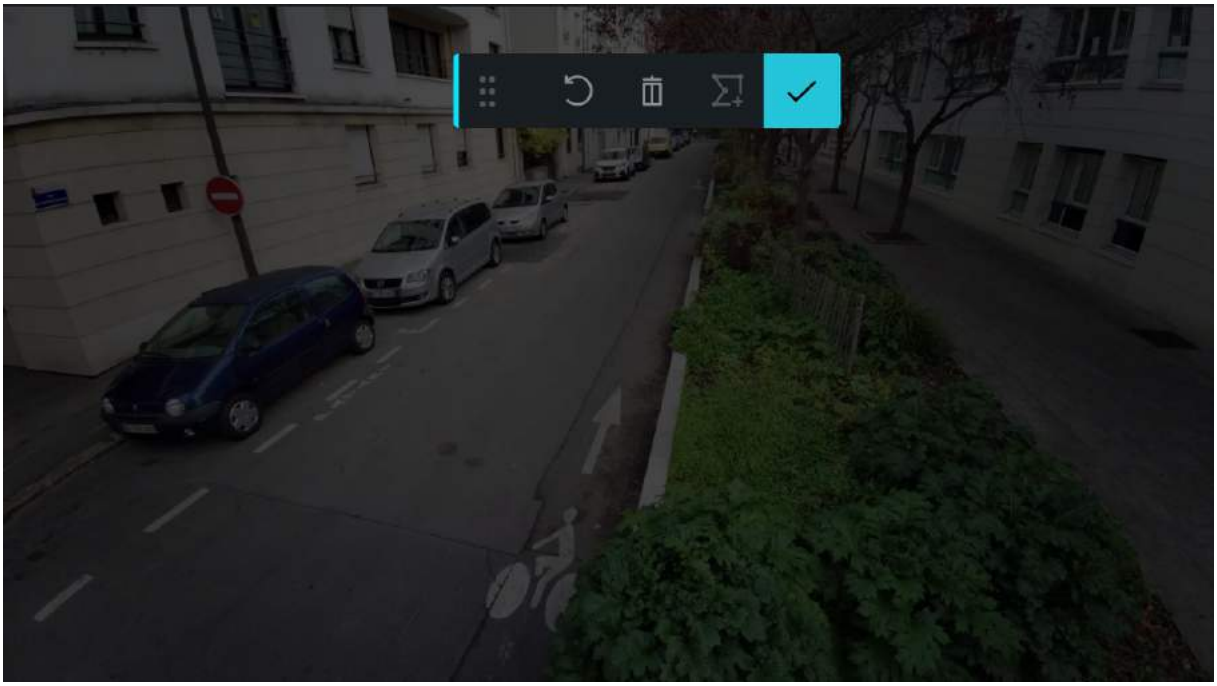
Step 1: Draw the area

Select a type of zone, a polygon (geometric shape) in the present case and press the "Define zone" button. Once selected, a skill option will appear, named "detection method". This option is only available for the "polygon" zone type.

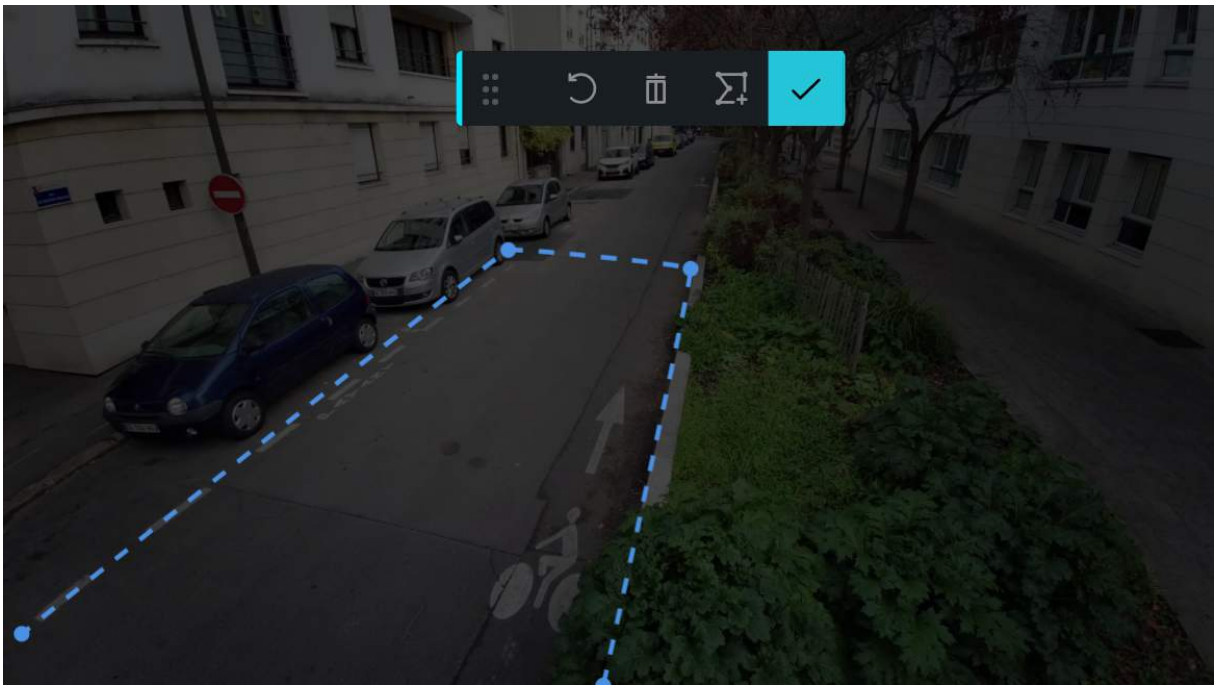


- There are three positions, each with specific features:
    - Auto: Best setting in most situations.
    - Intersection : Detection when 60% of the object (human or vehicle) is in the detection zone.
    - Bottom of object: Detection once the bottom, central, point of the box object is in the detection zone.

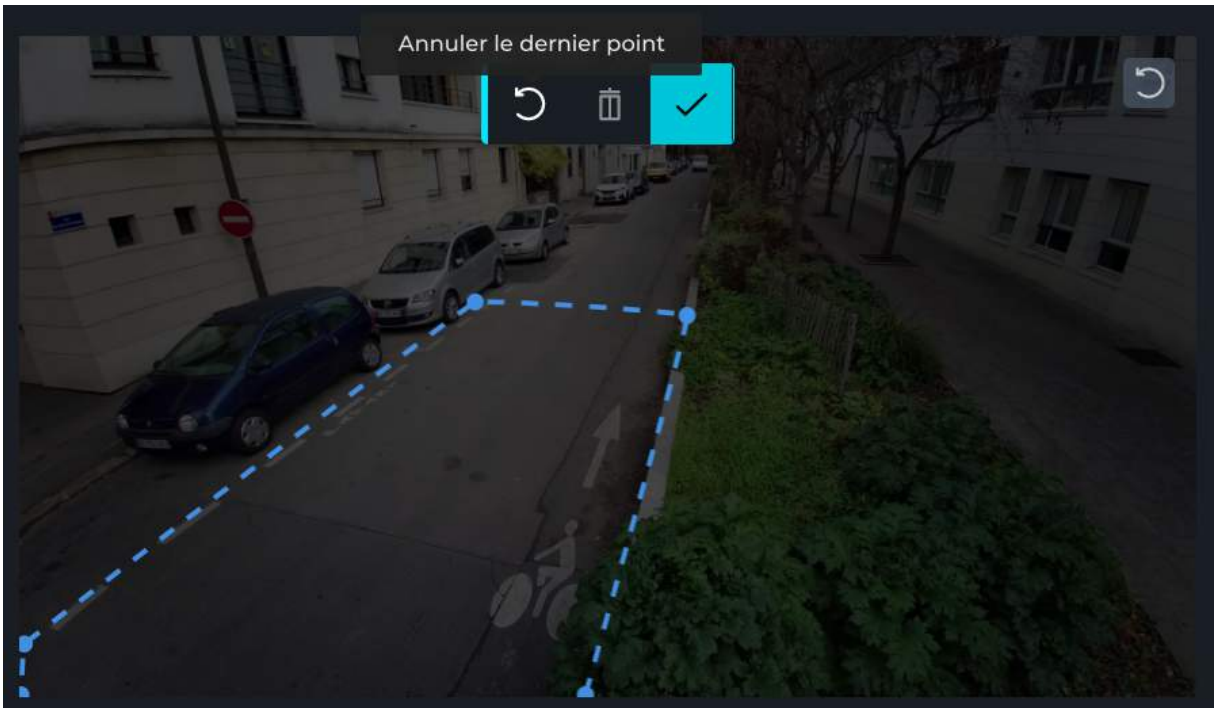
Then, press the button "Define zone" : The image will darken, the zone configuration mode is activated. Draw the area in the image.



To draw, press a part of the image, your first point is validated. Continue to see your full detection area. There is no contour limit on the area you can configure.



To undo your last point, press the "Undo" button.



To remove the entire polygon, press the "trash can" button and restart your detection zone drawing from the beginning.

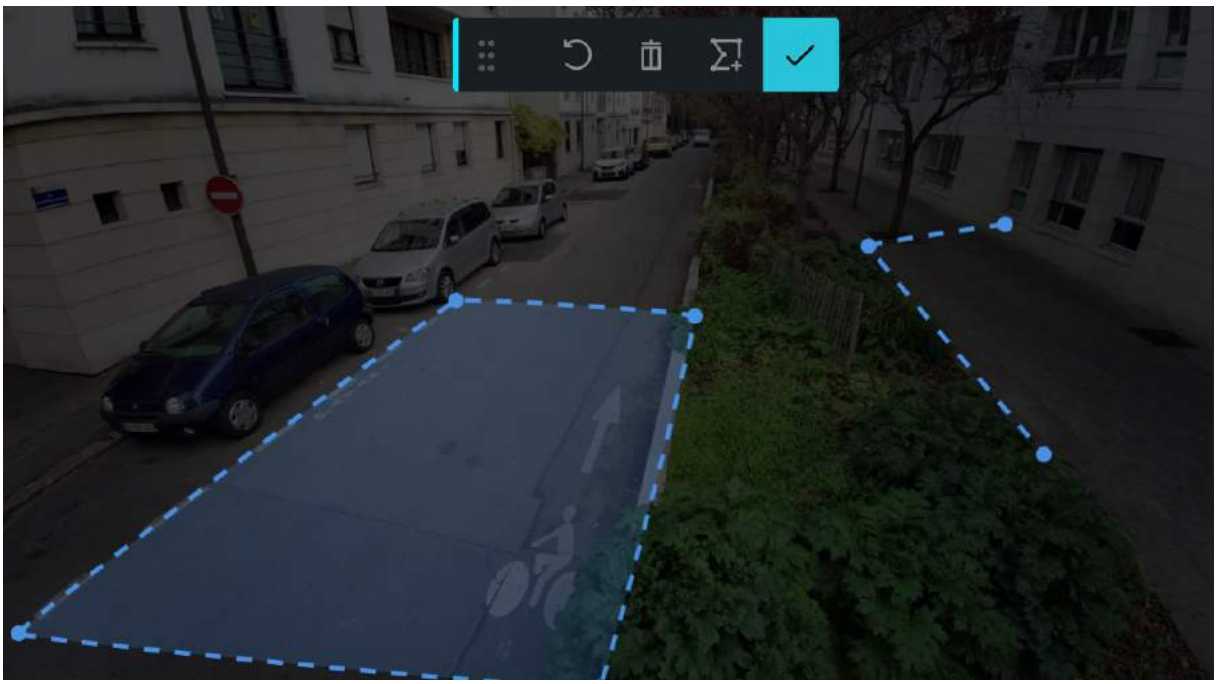
Once your zone is finished, press the "Validate" button.

Note: If you do not close your zone, the software will do it automatically.

The image recovers its initial color and the zone is validated. The step validation icon is also checked.

You can also draw another area (polygon) in the image, for this press the button :

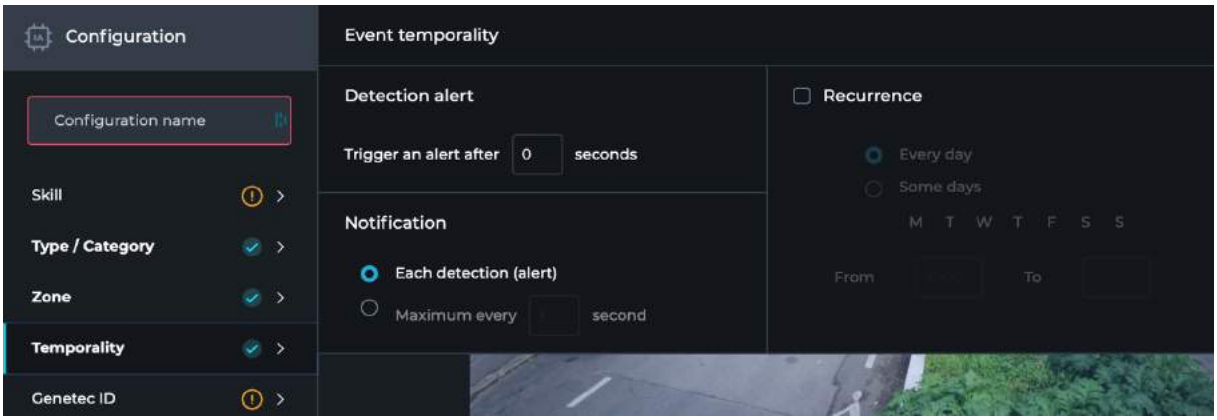
Carry out the same steps seen before, to validate the second zone press the button above.



Note: It is possible to draw an infinite number of zones in the image, but this may cause problems in the analysis. We recommend not to exceed three zones in an image.

Step 2: Define the temporality

Click on the "Time" section.



Here you will find three distinct sections:

- Detection alert
- Recurrence
- Notification

Detection alert:

- This option can be used to trigger an alert after a specified number of seconds.
- For example, to detect that a person remains at least 30 seconds in an area.

Recurrence :

- This option can be used to configure the operation of the skill only on certain days and/or at certain times of the week.
- For example, to run a skill from Monday to Friday from 6 p.m. to 11 p.m.

Notification :

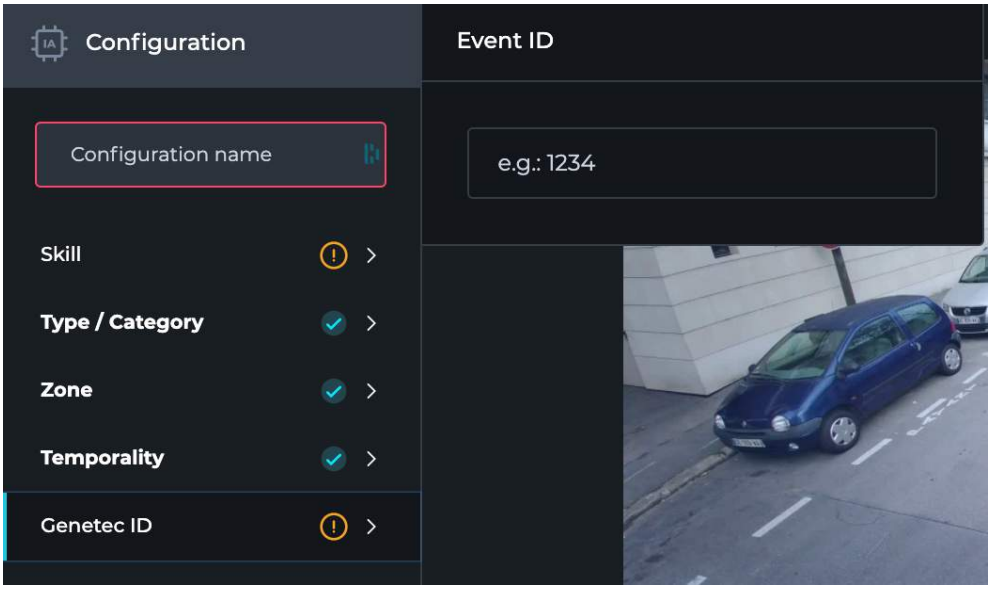
- This option can be used to configure the maximum number of alerts that are received per period of time.
- For example, if you want to have an alert at most every 10 seconds you can set this option to 10.

Notes: All options can work separately, but also all together. None of these options are required to proceed to the next section. By default the skill will start at the time it is recorded and will only stop if manually deactivated.

Step 3: VMS ID

Finally, press the "Milestone ID" button. The related section will change depending on the VMS used. Fill in the related field with the Analytics Event ID (Milestone) that you have created in the VMS.

Note: This field is numeric.

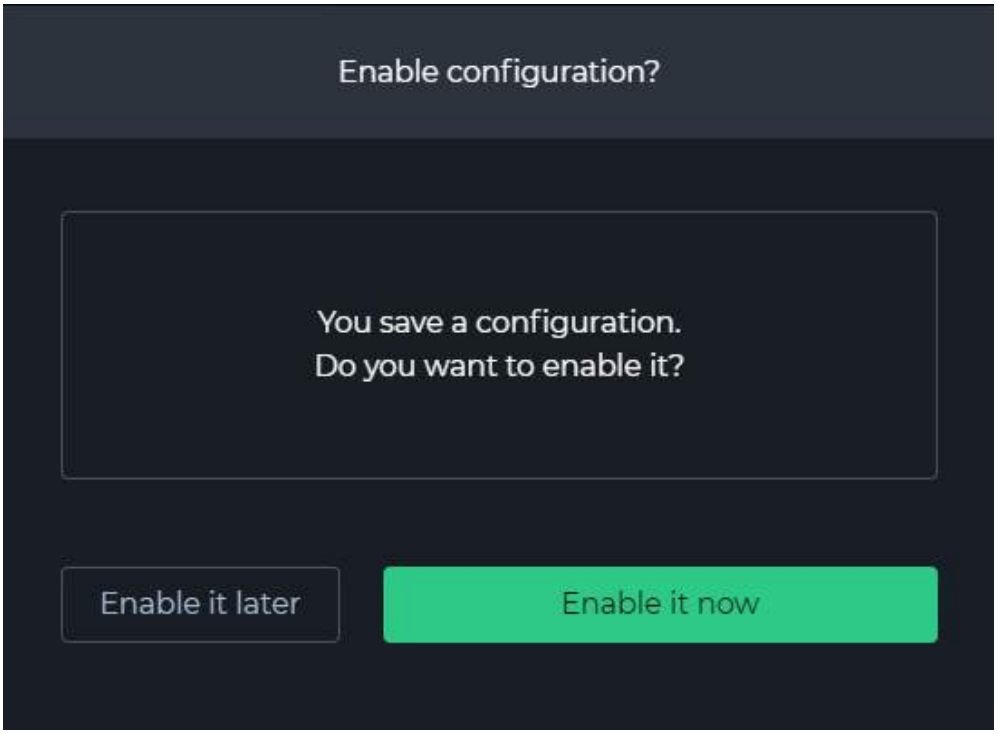


To confirm the skill configuration, click the "Save" button.

Step 4: Launch

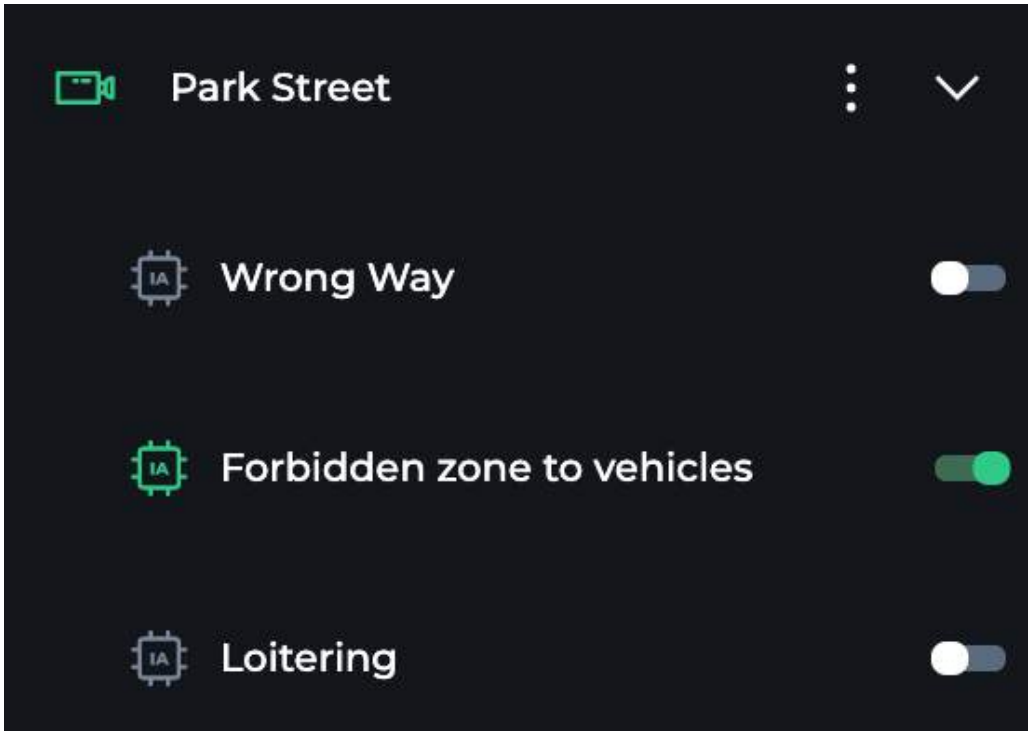
A window appears with two options:

- Yes, activate my skill immediately - "Yes, activate".
    - The skill is immediately launched
- No, activate my skill later - "Later".
    - Skill is registered, but disabled



Regardless of the choice, an alert is displayed at the bottom right of the screen to confirm that the skill configuration was correctly registered.

The status of the skill, which is to the right of the name, then becomes active or inactive depending on the choice made in the previous step.



Active status: the switch is on the right and green.

Status inactive: the switch is on the left and white.

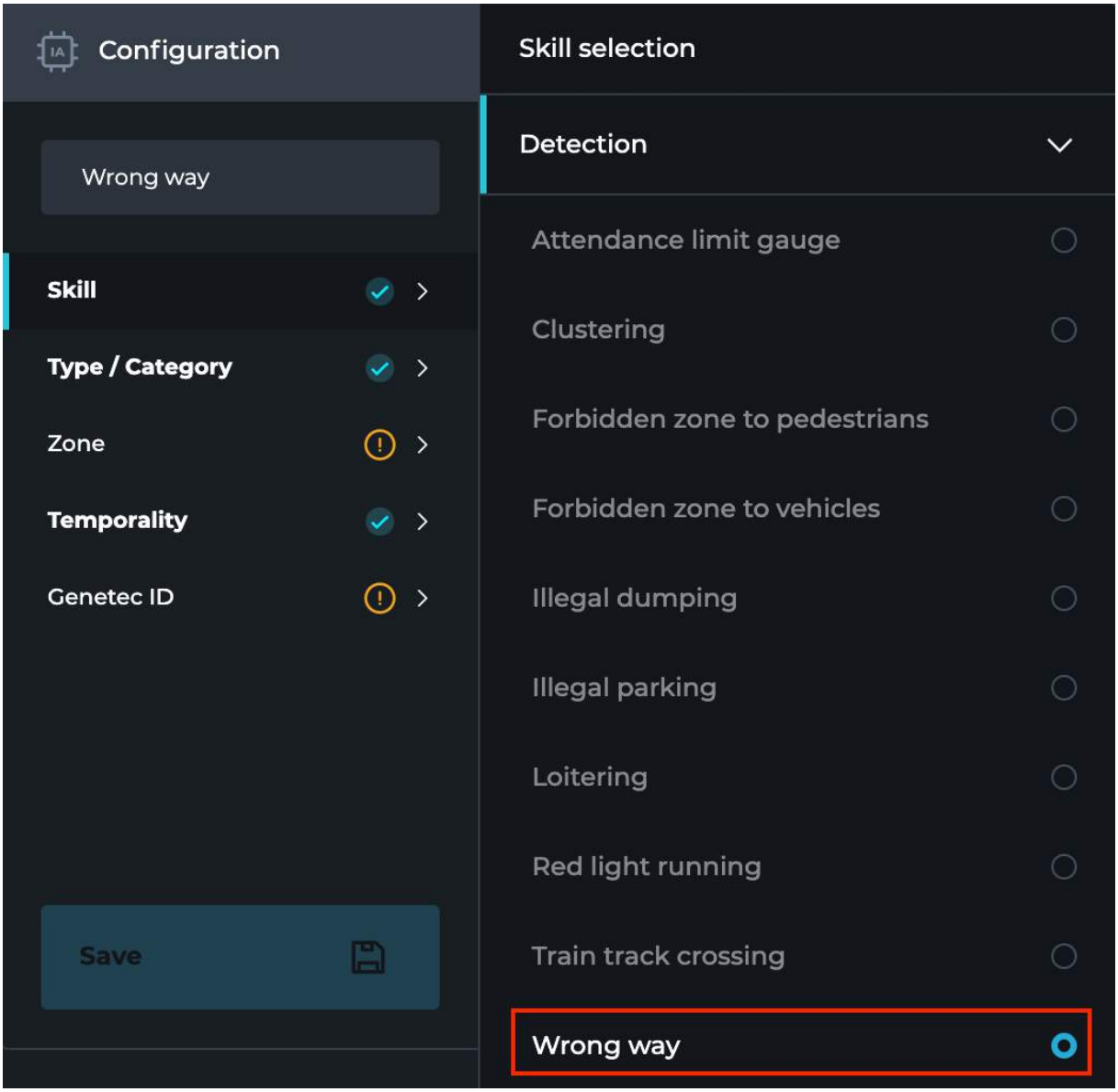
Programmed status: the switch on the right is green and a clock pictogram is on the left.

This means that you have configured the skill with a time frame, and therefore the skill is not currently active. It will be active at the time and date you set in the timer options.

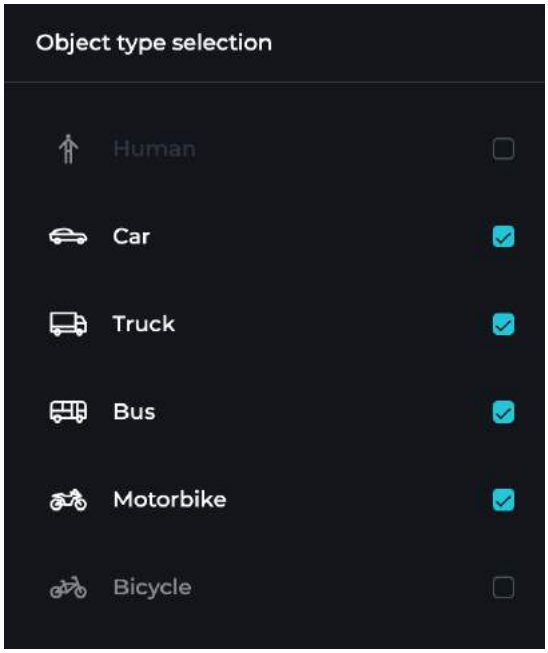
Notes: The switch is activated even if the pictogram indicates that the skill has a timer.

ii. Example: Line detection

For the example, select the “wrong way” skill.



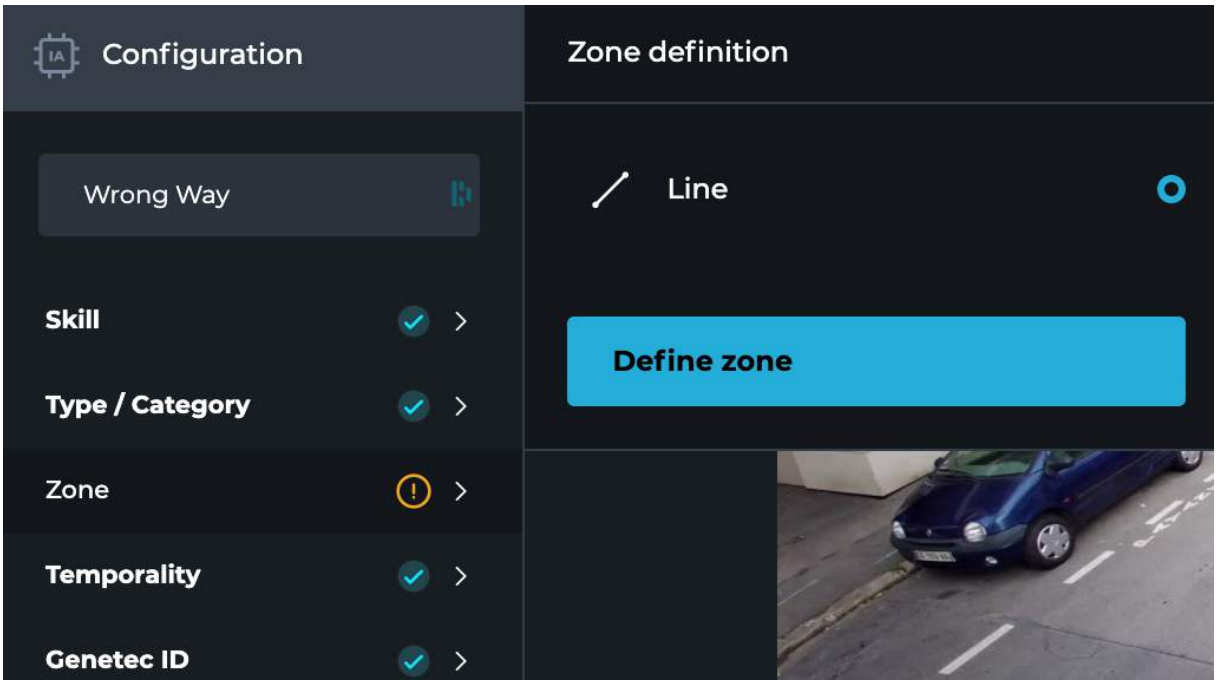
Then select the types of objects you want to detect. All vehicles are here selected by default.



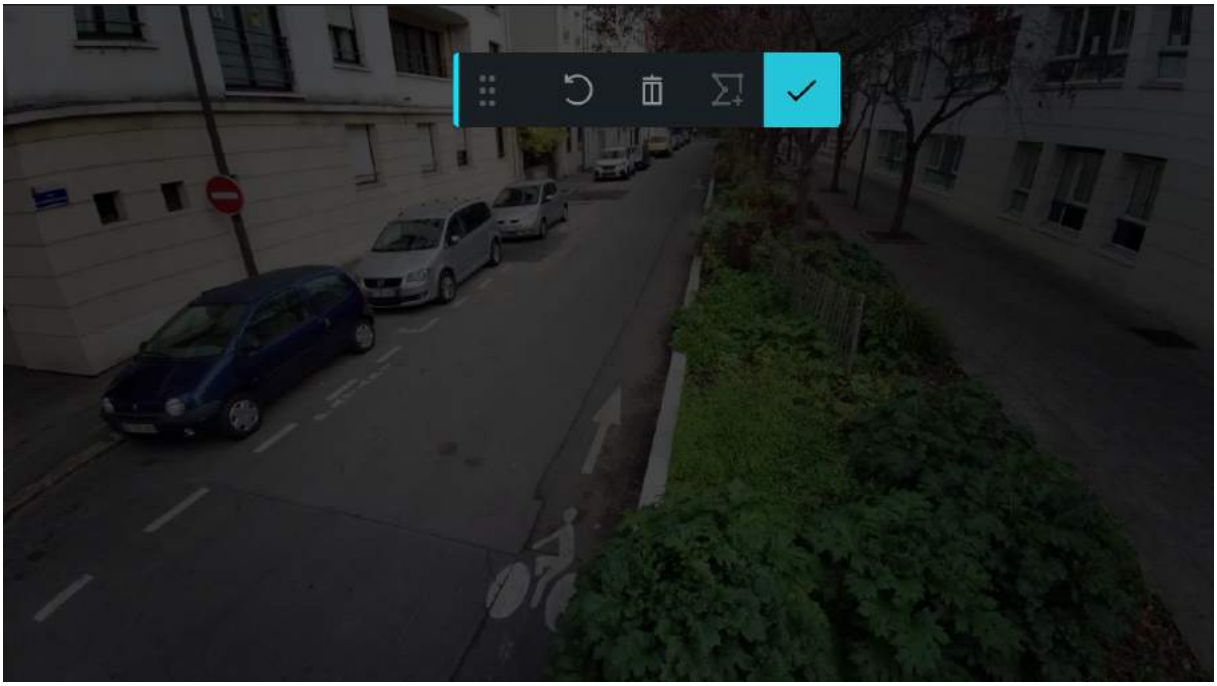
You can deselect the objects you do not want to detect. Note that at least one type of object must be selected to proceed to the next step.

Step 1: Draw the area

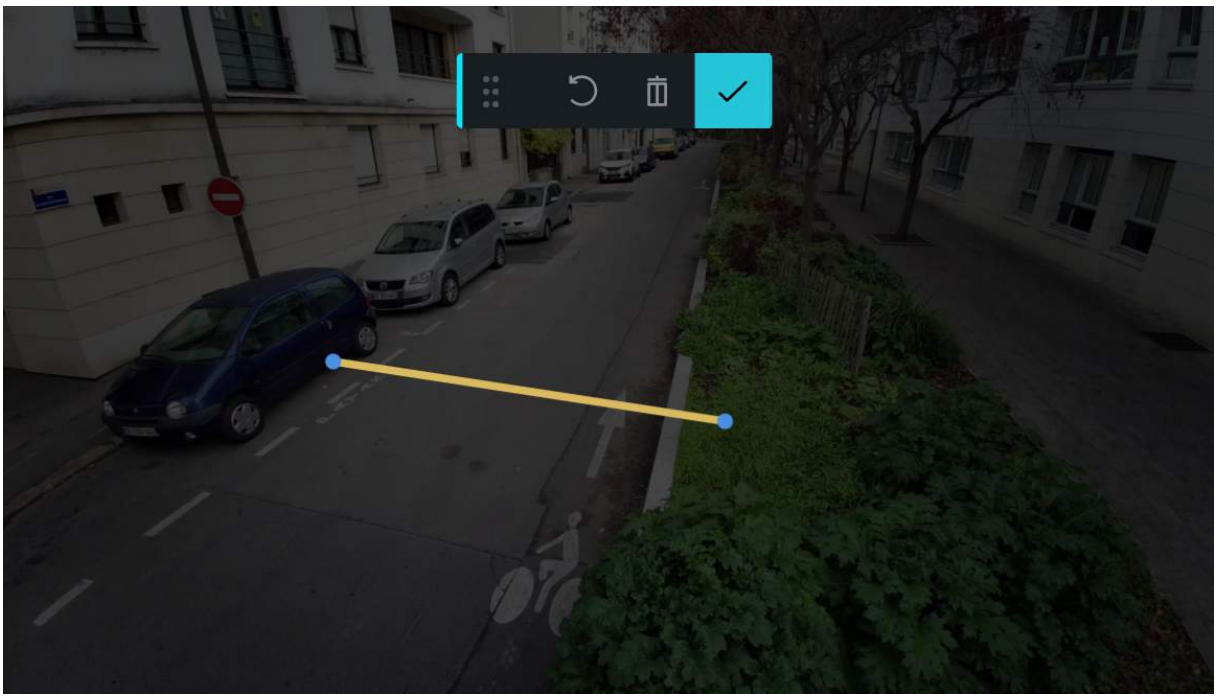
Select a zone type, a line in the present example, and click the "Define area" button:



The image will darken; the zone configuration mode is activated. Draw the area in the image.



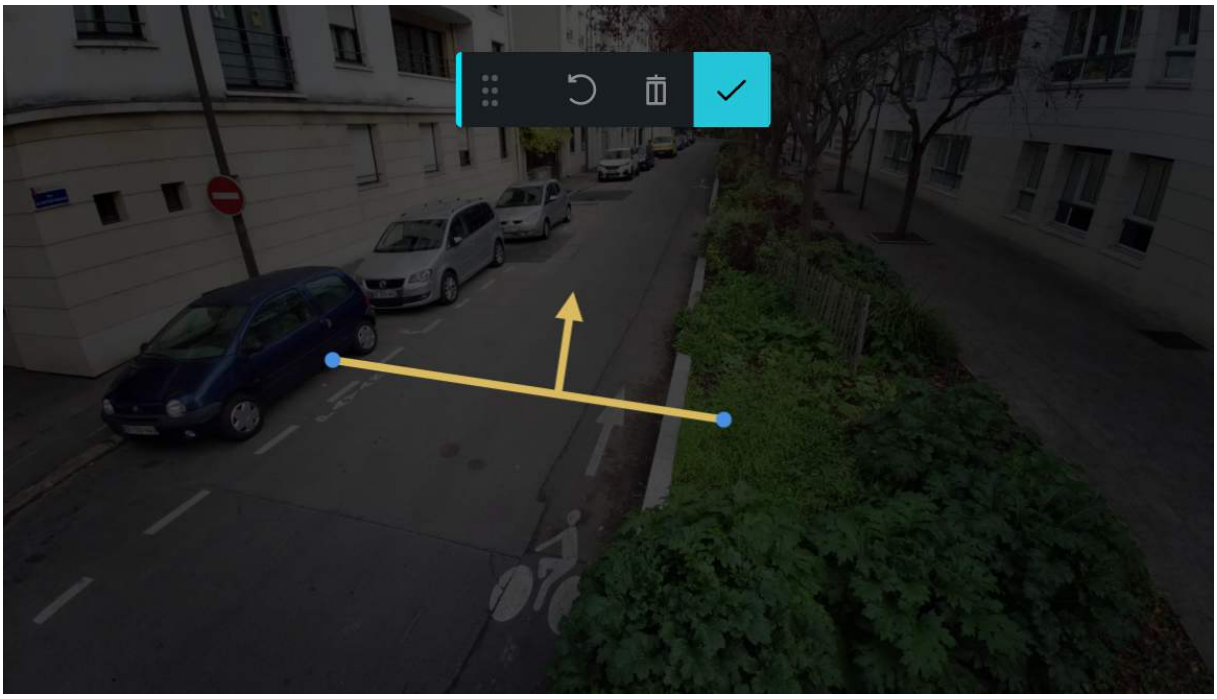
To draw, click on a point in the image, your first point is displayed, then click on another point in the image, the line between the two points is automatically drawn.



For this type of detection, you must draw a single line between two points.

Draw the arrow that indicates the direction of detection.

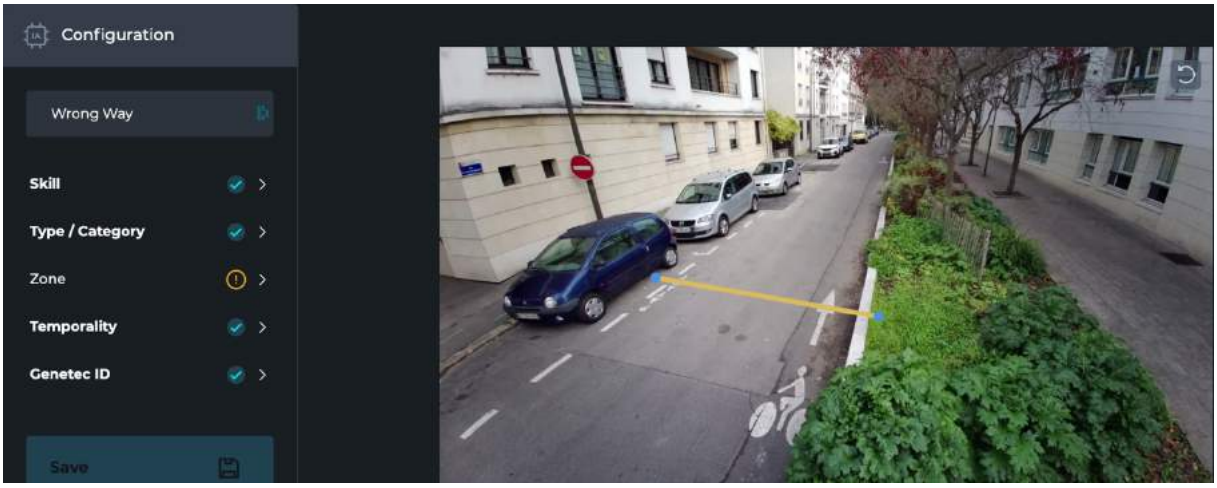
To remove your last point, press the "Undo" button.



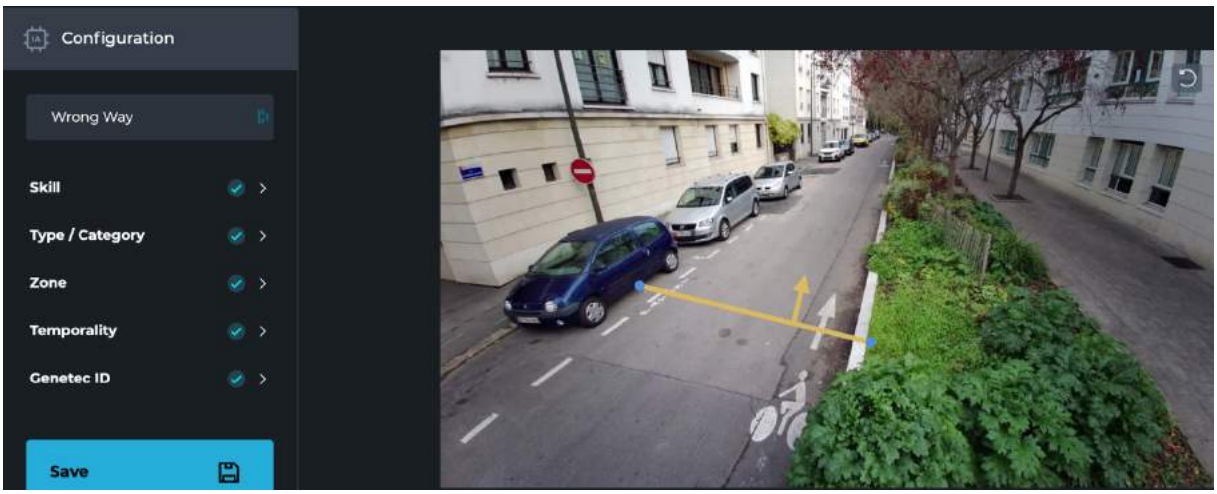
To delete the entire line, press the "trash can" button and start the zero detection line again.

Once the zone is finished, press the "Confirm" button.

Note: If you do not draw the line and arrow all the way to the end a "warning" icon appears to the right of the word "area".



If the arrow and the line are correctly drawn the image reverts to its original color. The step validation icon is also validated.

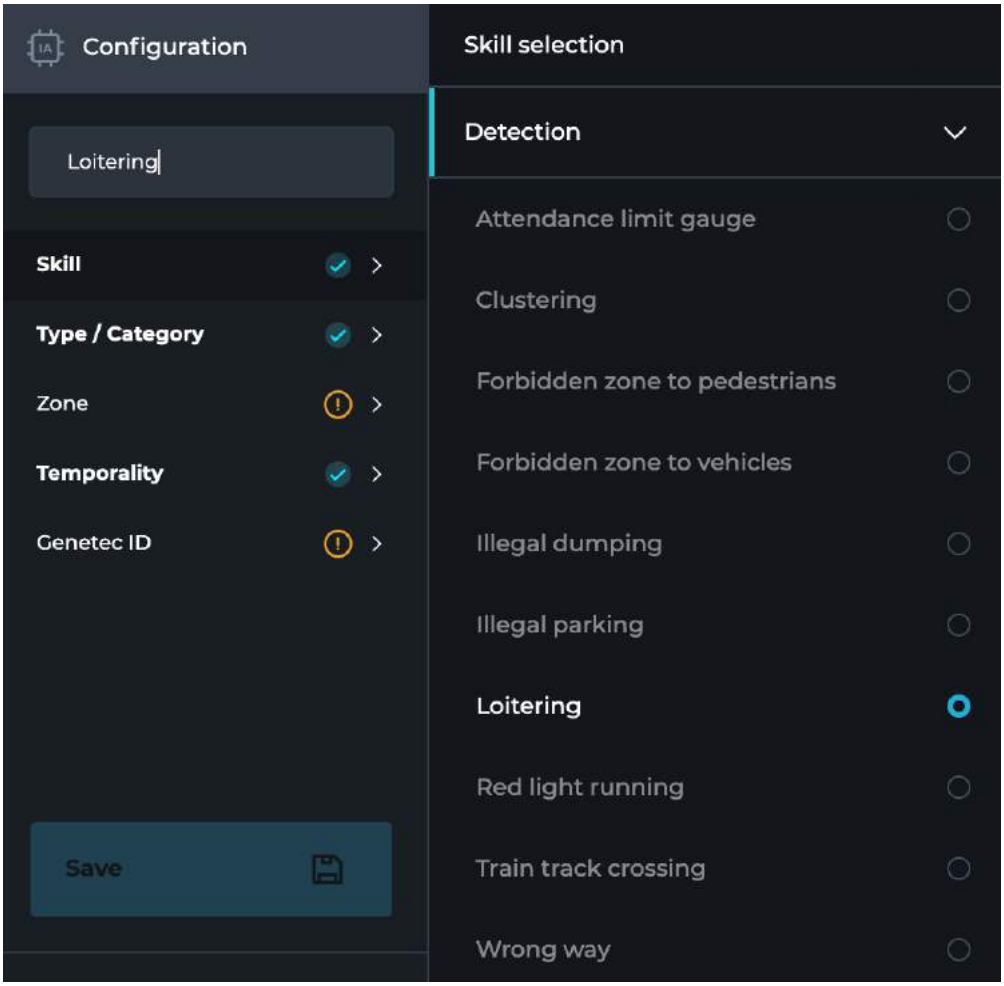


Steps 2, 3 and 4 are identical to those described earlier in the sections above :

- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

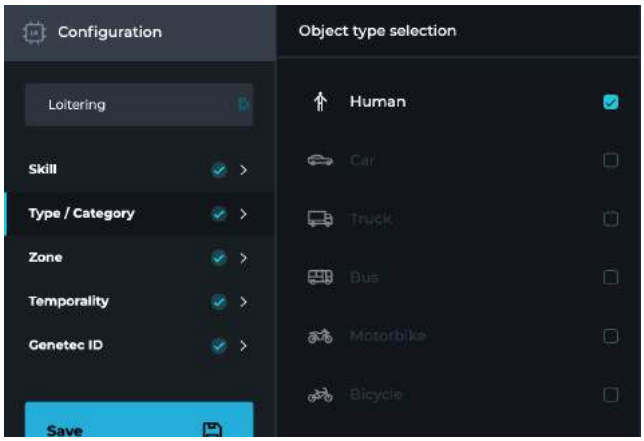
iii. Example: Full image detection

For the example, select the “Loitering” skill:



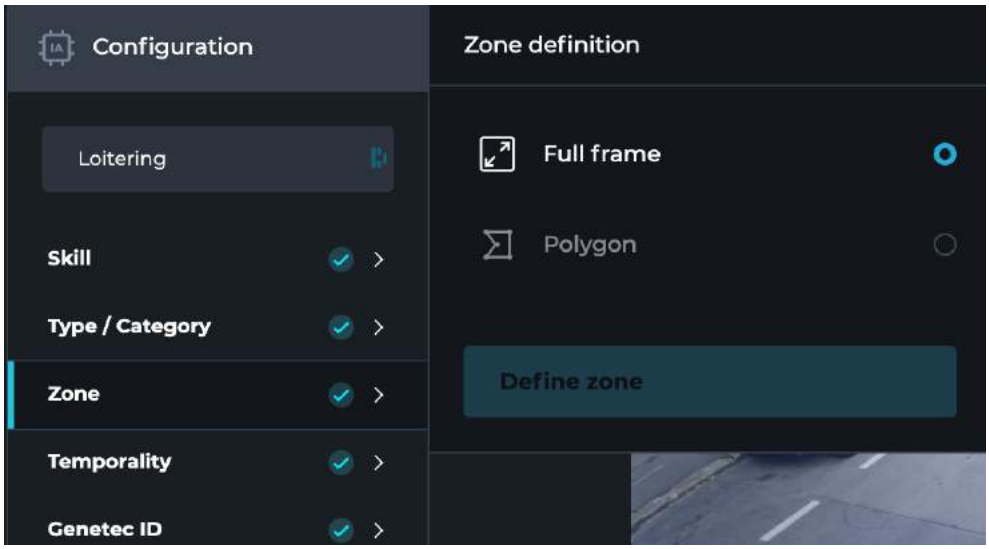
Then select the object or objects you want to detect, for this skill, “Human” is selected by default.

A minimum of one object must be selected to proceed to the next step.



Step 1: Draw the area

Select an area type, "Full screen" in the present case. There is no need to press the "Define zone" button when this zone is selected. Blue corners are automatically added at the four corners of the image and the pictogram to the right of "Zone" will change to validated status.



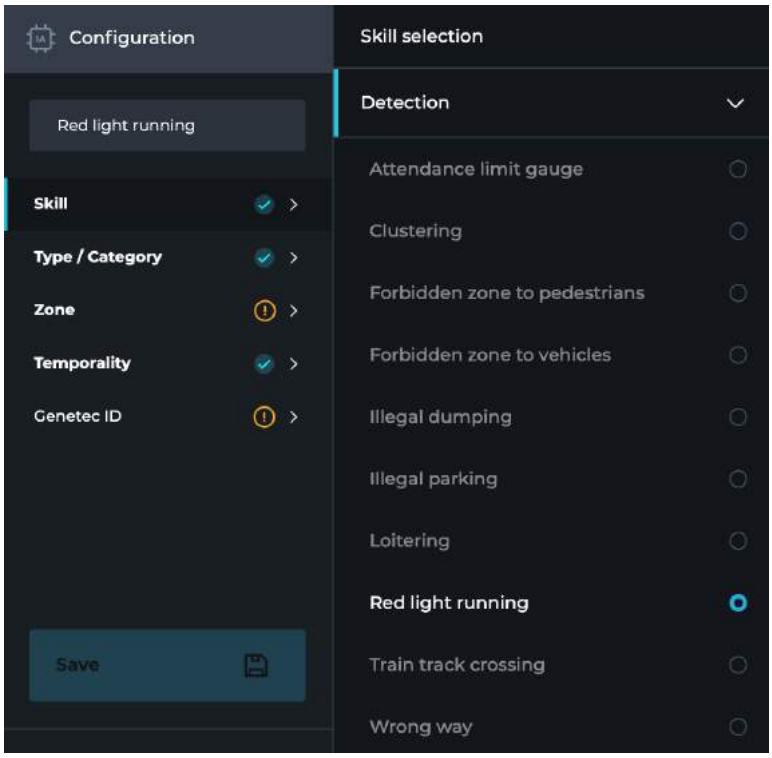
Proceed directly to the next step.

Steps 2, 3 and 4 are identical to those described earlier in the sections above :

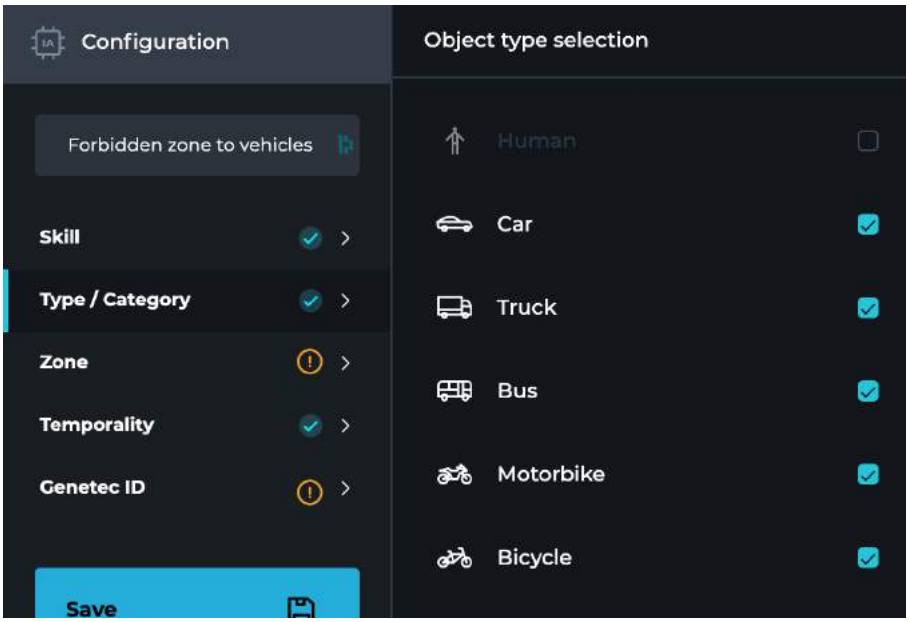
- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

iv. Example: Non-conventional detection (Red light running):

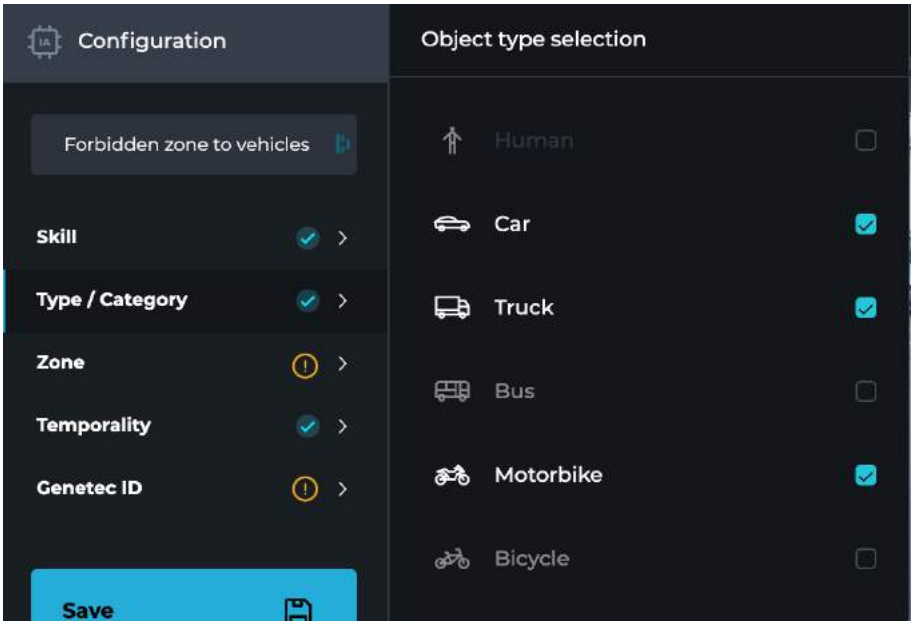
Select the “Red light running” skill.



Then select the types of objects you want to detect. For this skill all vehicle types are selected by default.

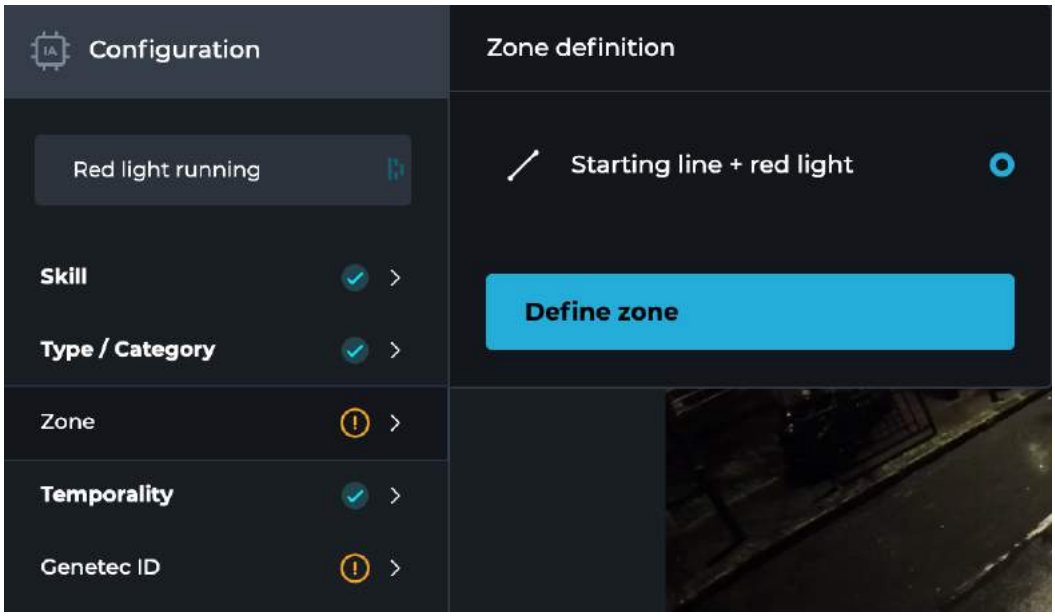


You can deselect the objects you do not want to detect. Note that at least one type of object must be selected to proceed to the next step.

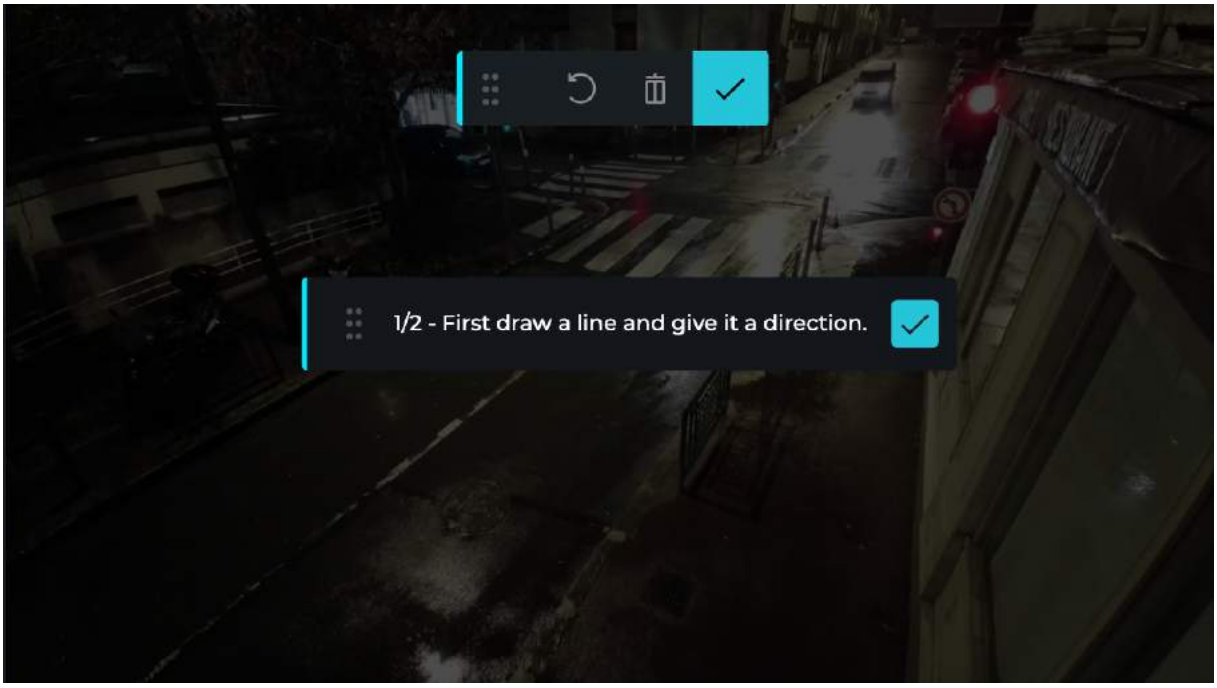


Step 1: Draw the area

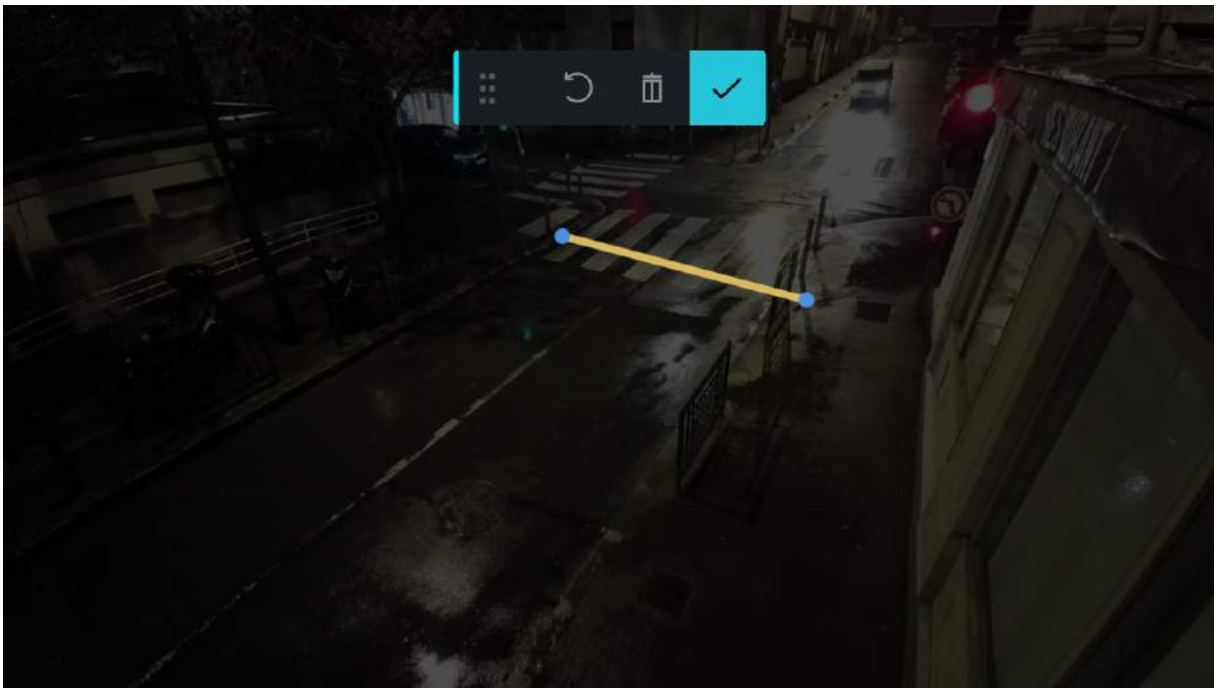
You don't have the choice of the type of zone to draw, select "Start line + red light" and press the "Define zone" button :



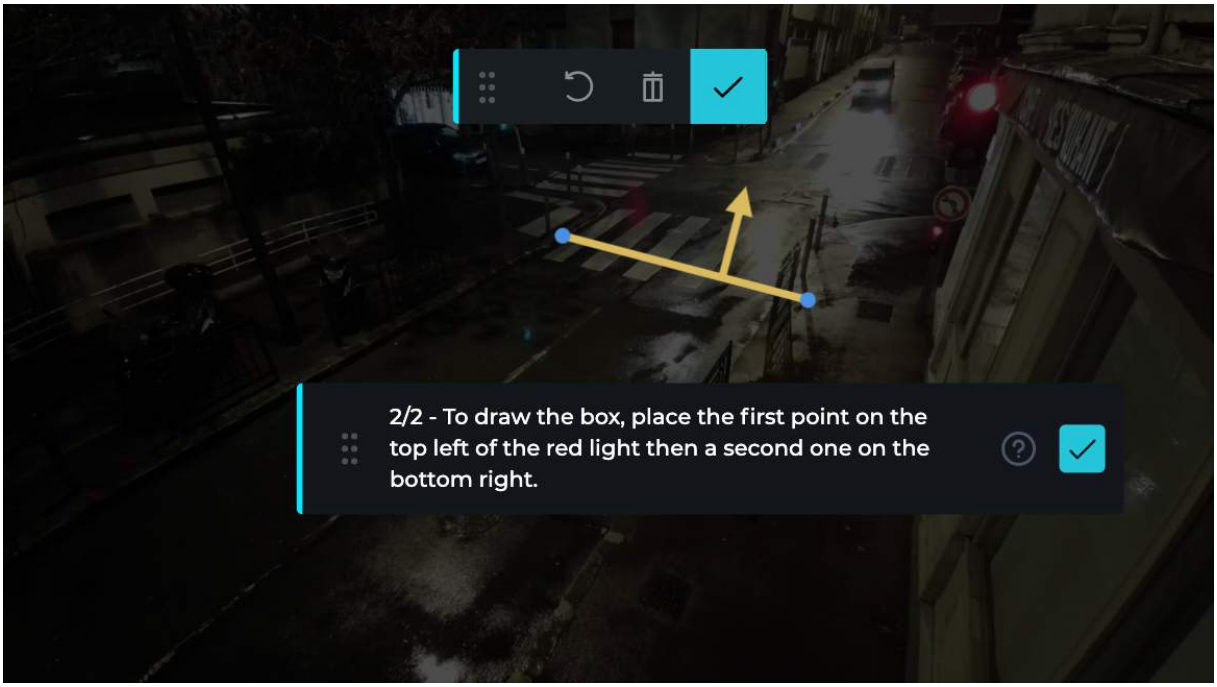
The image will darken; the zone configuration mode is activated. Draw the area in the image.



To draw, click on a point in the image, this will draw your first point. Then click on another point in the image, the line between the two points is automatically drawn. For this type of detection, you must draw a single line between two points.

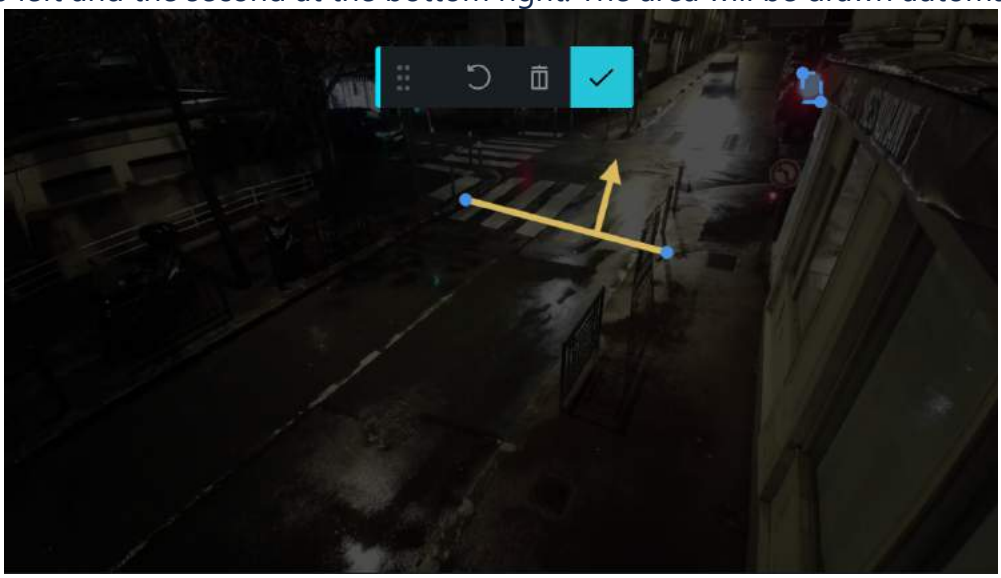


Then draw the arrow indicating the direction of detection.



Note: If one of the action buttons is in front of the traffic light, move it by pressing the button below.

Then define the contours of the red light of the traffic light by placing the first point at the top left and the second at the bottom right. The area will be drawn automatically.



Move your mouse over the "?" pictogram to see an image sample.

To remove your last point, press the "Undo" button.

To remove the entire line, press the "trash can" button and restart the detection line and the area around the red zero light.

Once the zone is finished, press the "Confirm" button.

<u>Note:</u> If you do not draw the line, arrow and area around the red light all the way to the end, a "warning" icon will appear to the right of the word "area".

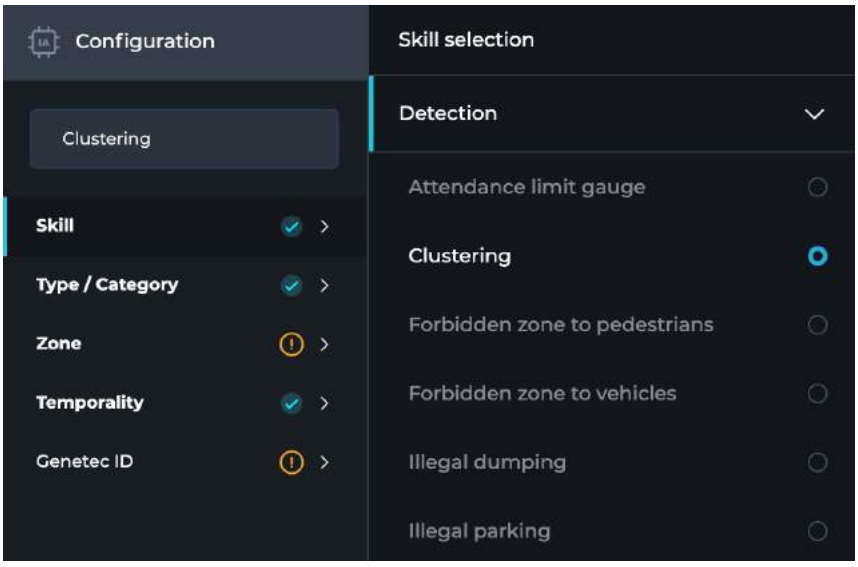
If the arrow and the line are correctly drawn, the image reverts to its original color. The step validation icon is also validated.

Steps 2, 3 and 4 are identical to those described earlier in the sections above :

- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

v. Example: Non-conventional detection (Clustering)

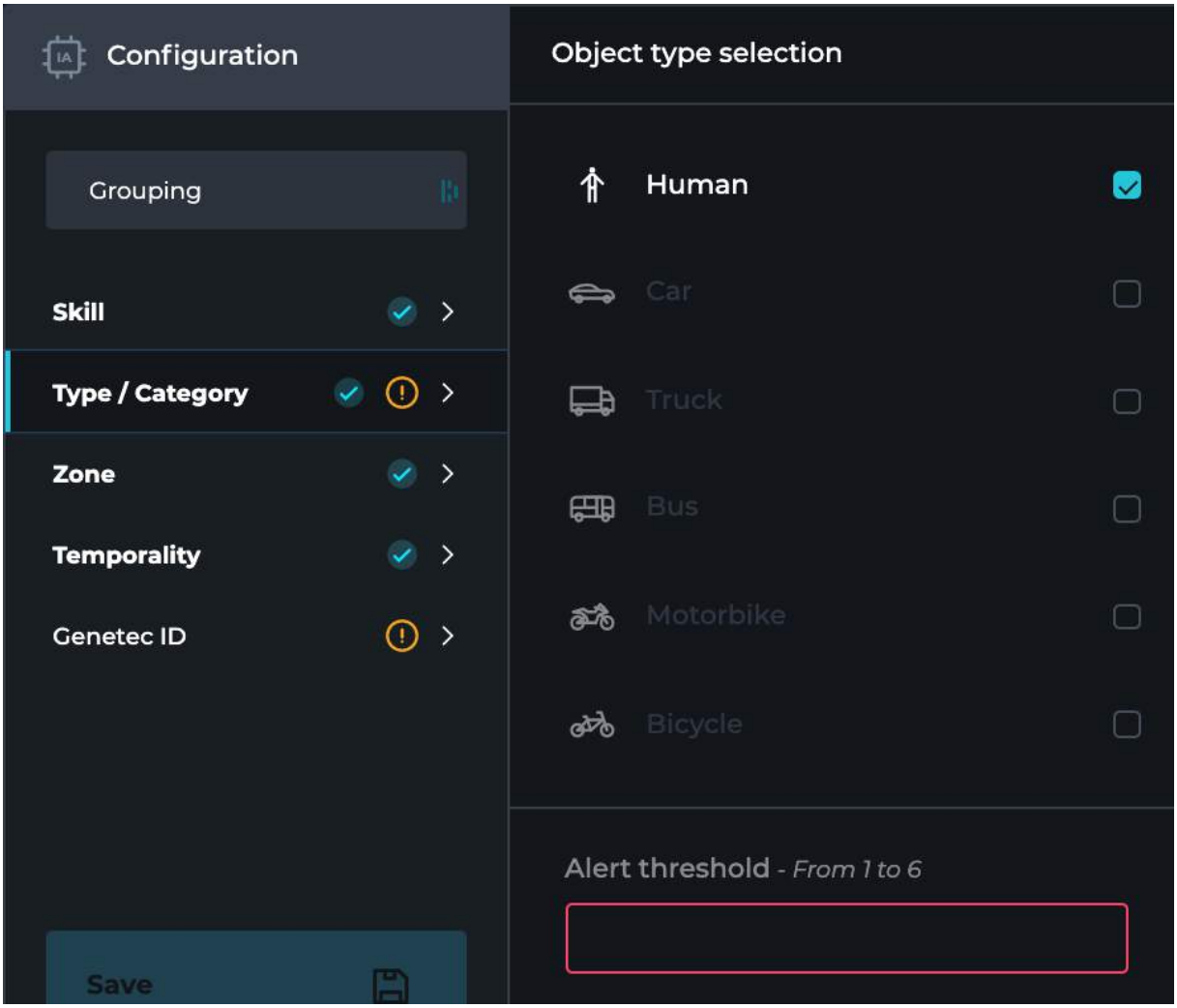
Select the “Clustering” skill.



Then select the object you want to detect, for this skill the human class is already selected and is the only one that can be selected.

Then enter a threshold between 1 and 6 person(s), if this threshold is exceeded then an alert is triggered.

At least one object and one threshold must be selected/entered to proceed to the next step.

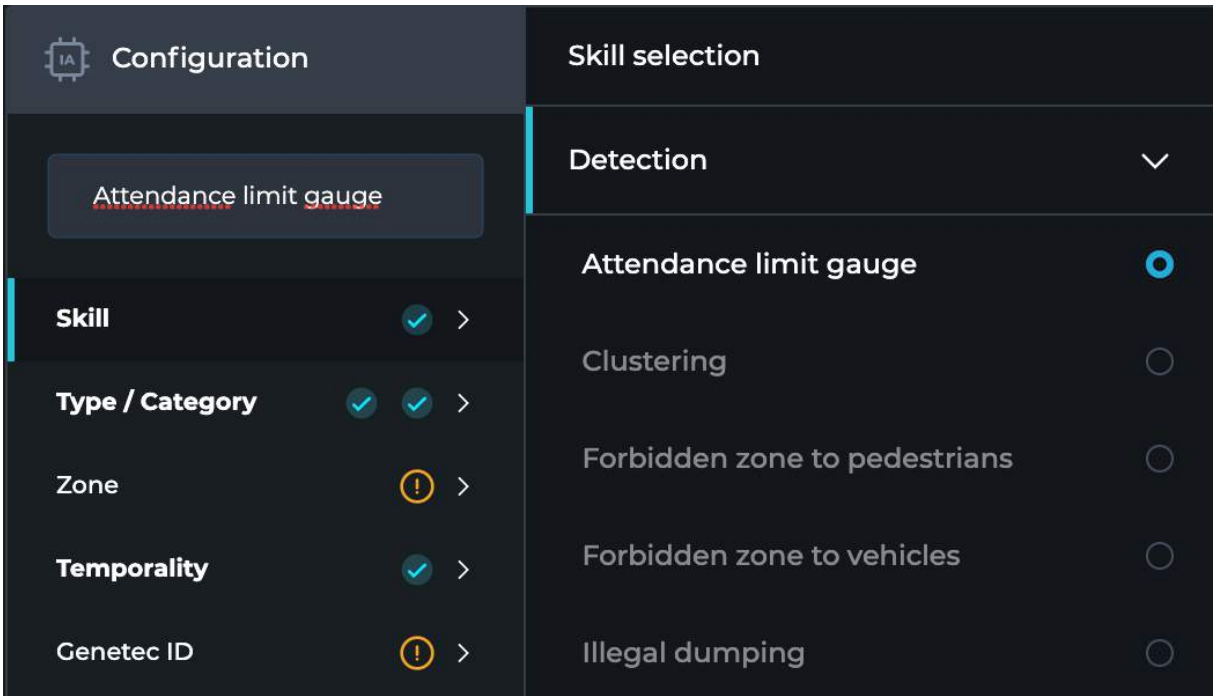


Steps 1, 2, 3 and 4 are identical to those described earlier in the sections above :

- Step 1: Draw the area
- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

vi. Example: Non-conventional detection (attendance limit gauge)

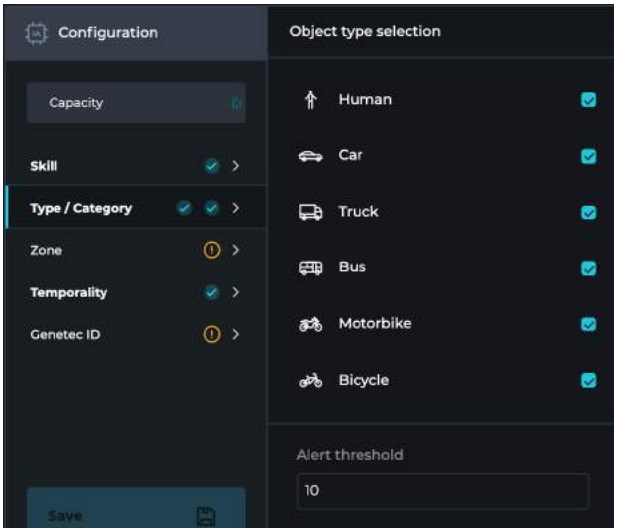
Select the “attendance limit gauge”.



Then select the object you want to detect. For this skill all objects are selected by default.

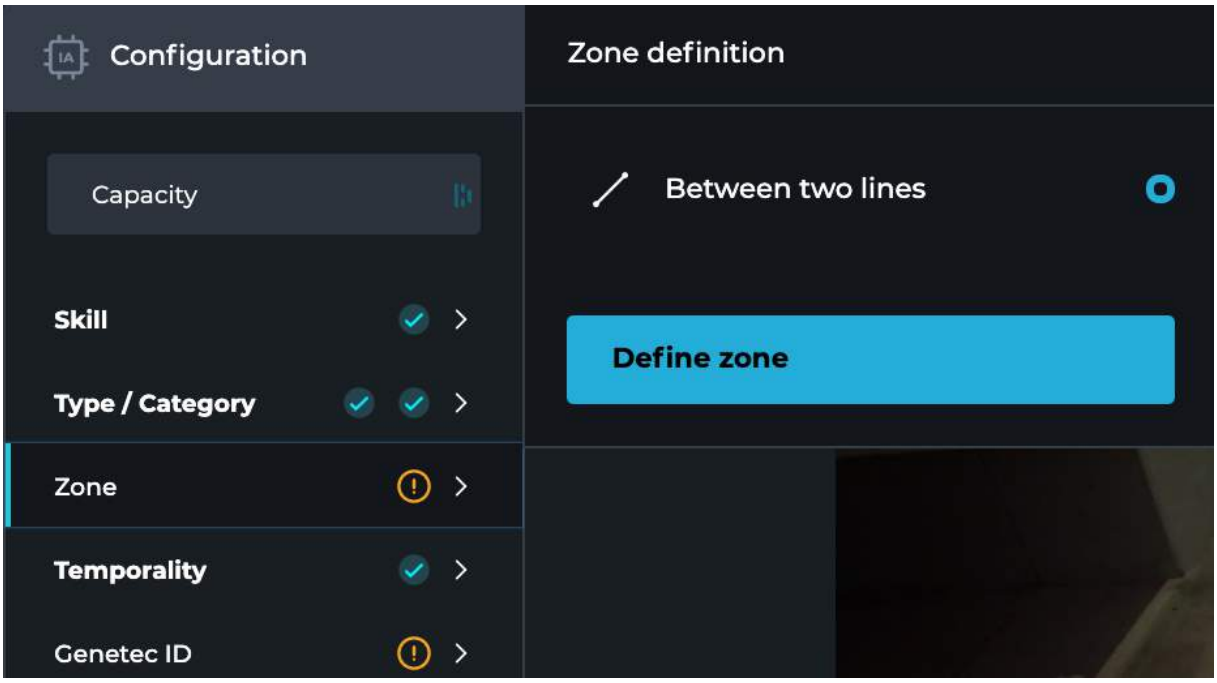
By default, the alert threshold is 10, it is possible to change it by the desired value, if this threshold is exceeded then an alert is triggered.

At least one object and one threshold must be selected/entered to proceed to the next step.

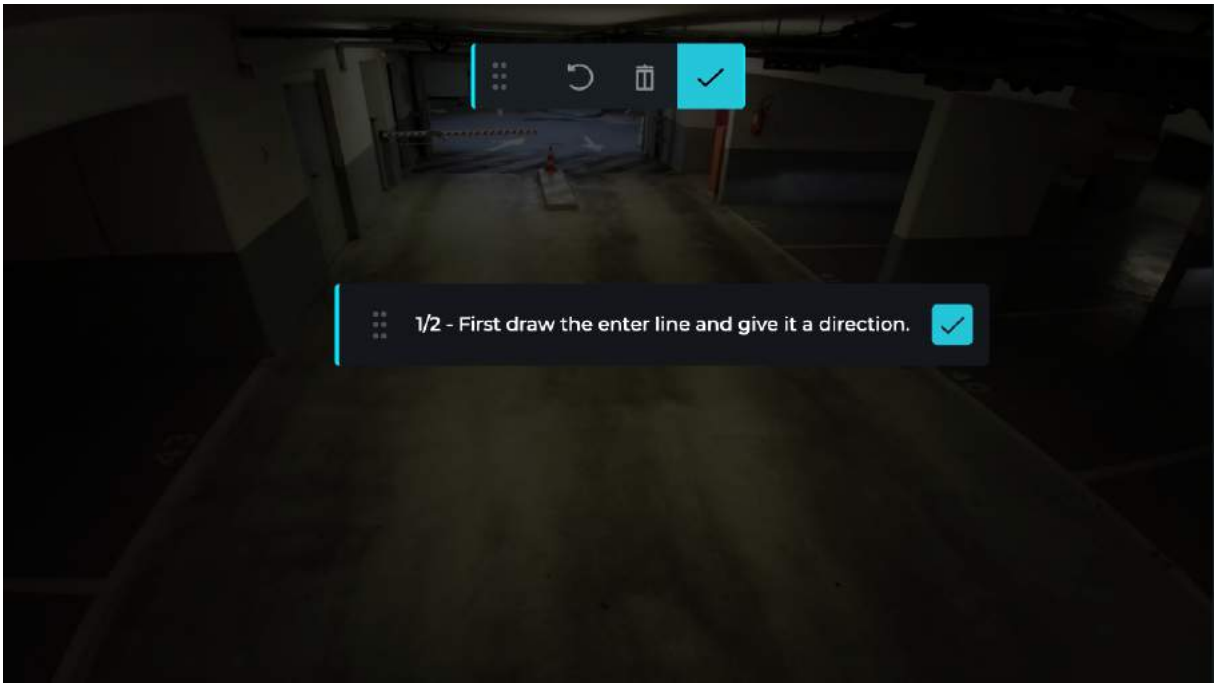


Step 1: Draw the area

You don’t have the choice of the type of zone to draw. Select "Between two lines" and press the "Define zone" button:

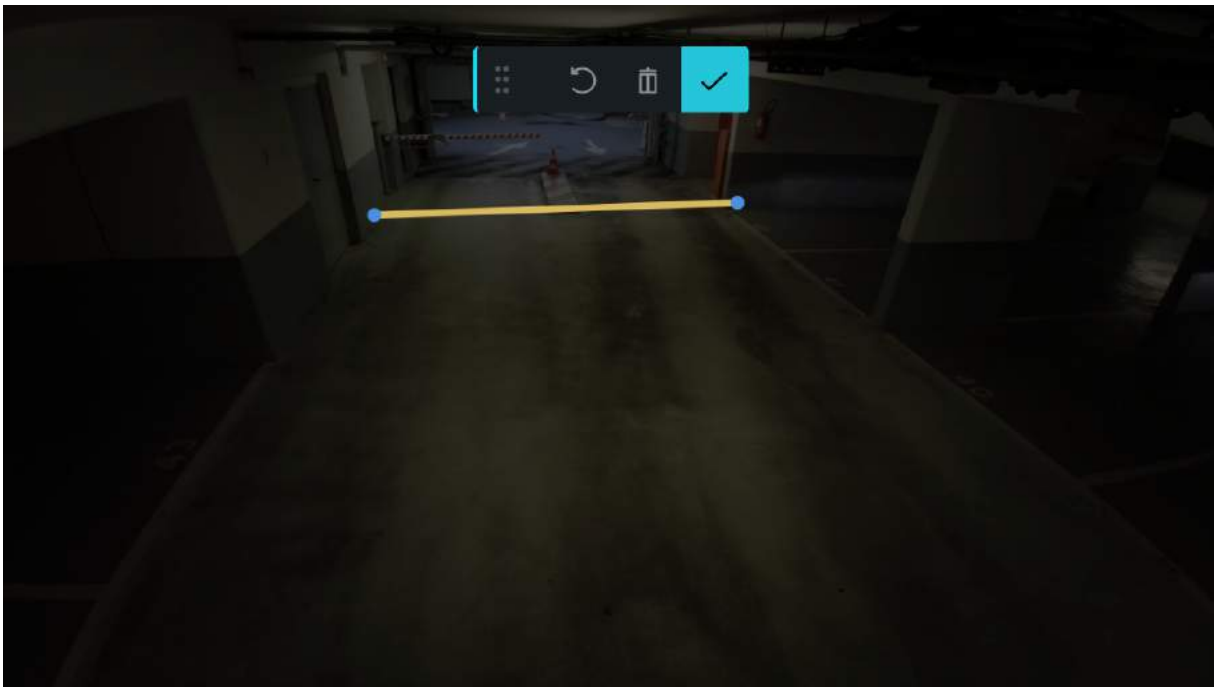


The image will darken; the zone configuration mode is activated. Draw the area in the image.

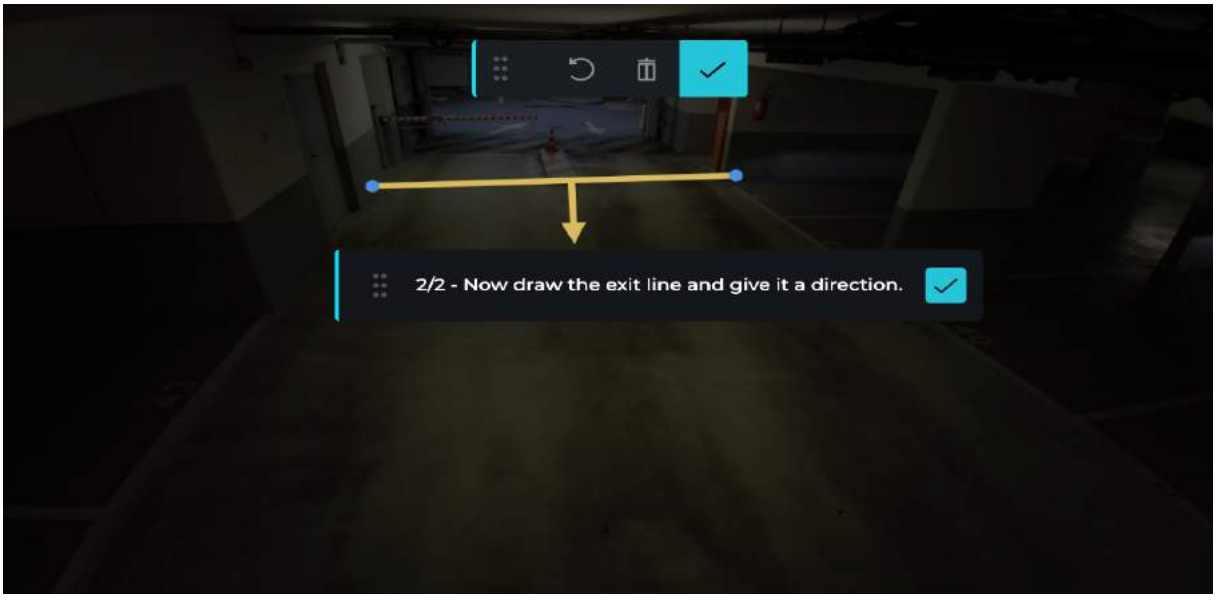


To draw, click on a point in the image, this will draw your first point. Then click on another point in the image, the line between the two points is automatically drawn. For this type of detection, you must draw a single line between two points.

The first line corresponds to the input line, therefore to the objects that will make +1 on the threshold entered previously.



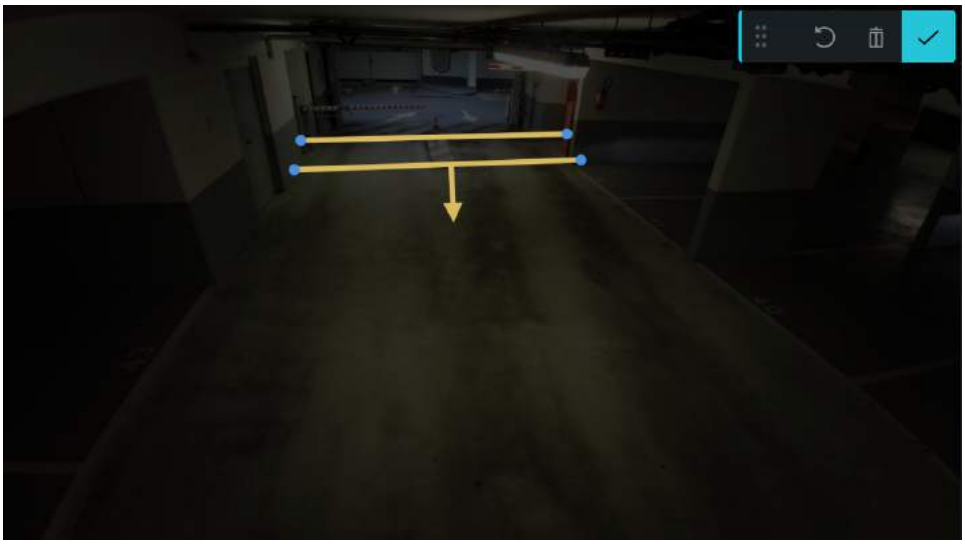
Then, indicate the direction of the vehicles/humans. To do this, click on one side or the other of the previously drawn line. An arrow will appear indicating the desired direction.

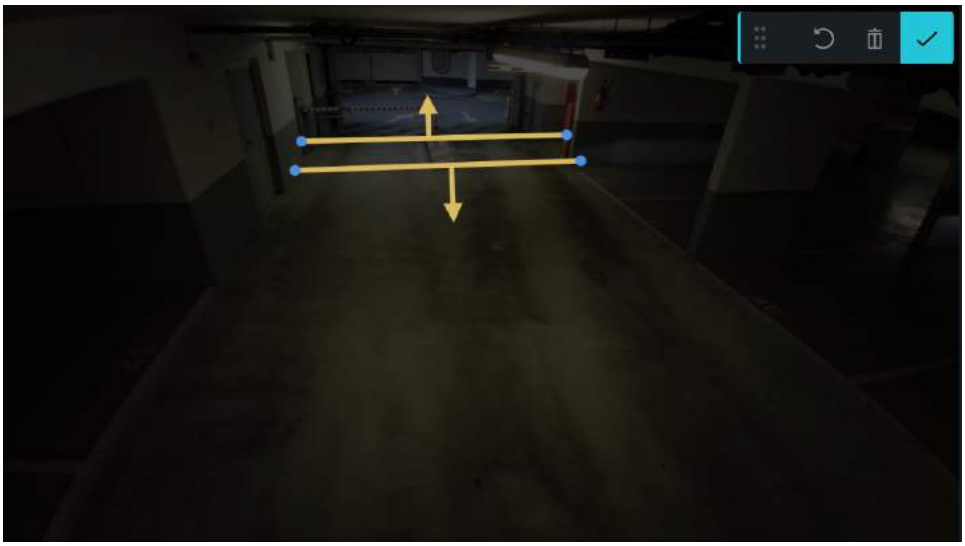


Note: If one of the action buttons is masking the line, move it by pressing the button below.

Then draw the second line repeating the same steps as the first.

The second line corresponds to the output line, therefore to the objects that will make -1 on the threshold entered previously.





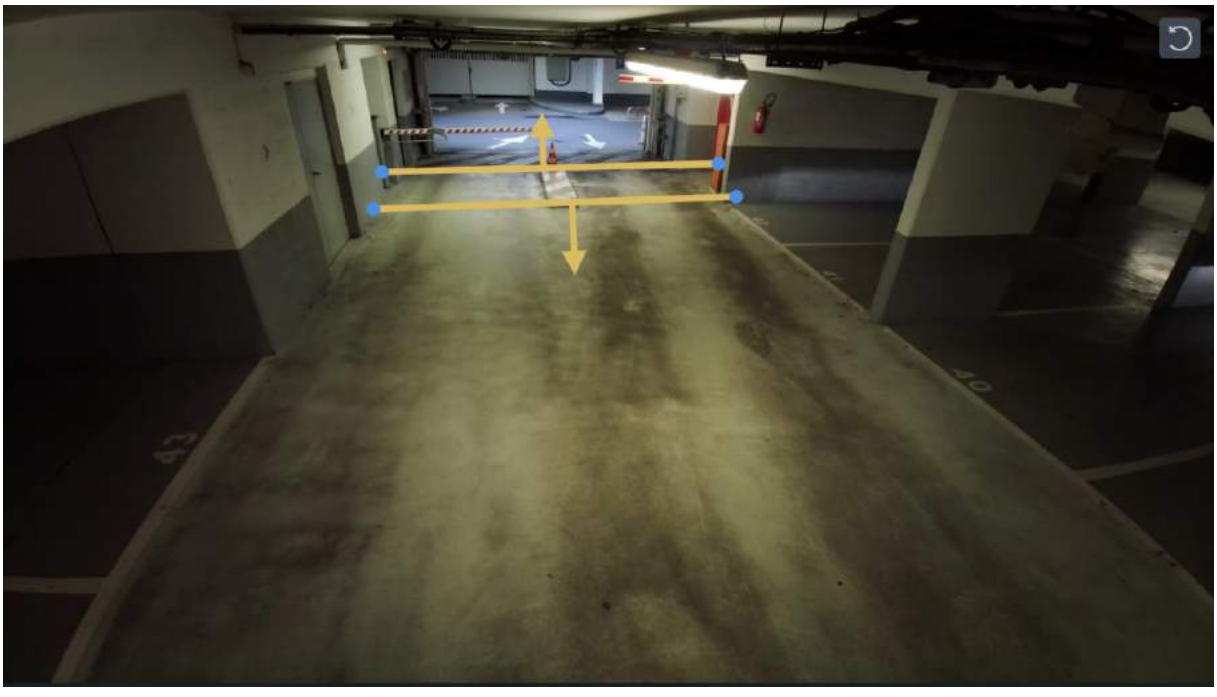
To remove your last point, press the "Undo" button.

To remove the entire line, press the "trash can" button and restart the detection line.

Once the zone is finished, press the "Confirm" button.

<u>Note:</u> If you do not draw the line and arrow all the way to the end, a "warning" icon will appear to the right of the word "area".

If the arrow and the line are correctly drawn, the image reverts to its original color. The step validation icon is also validated.

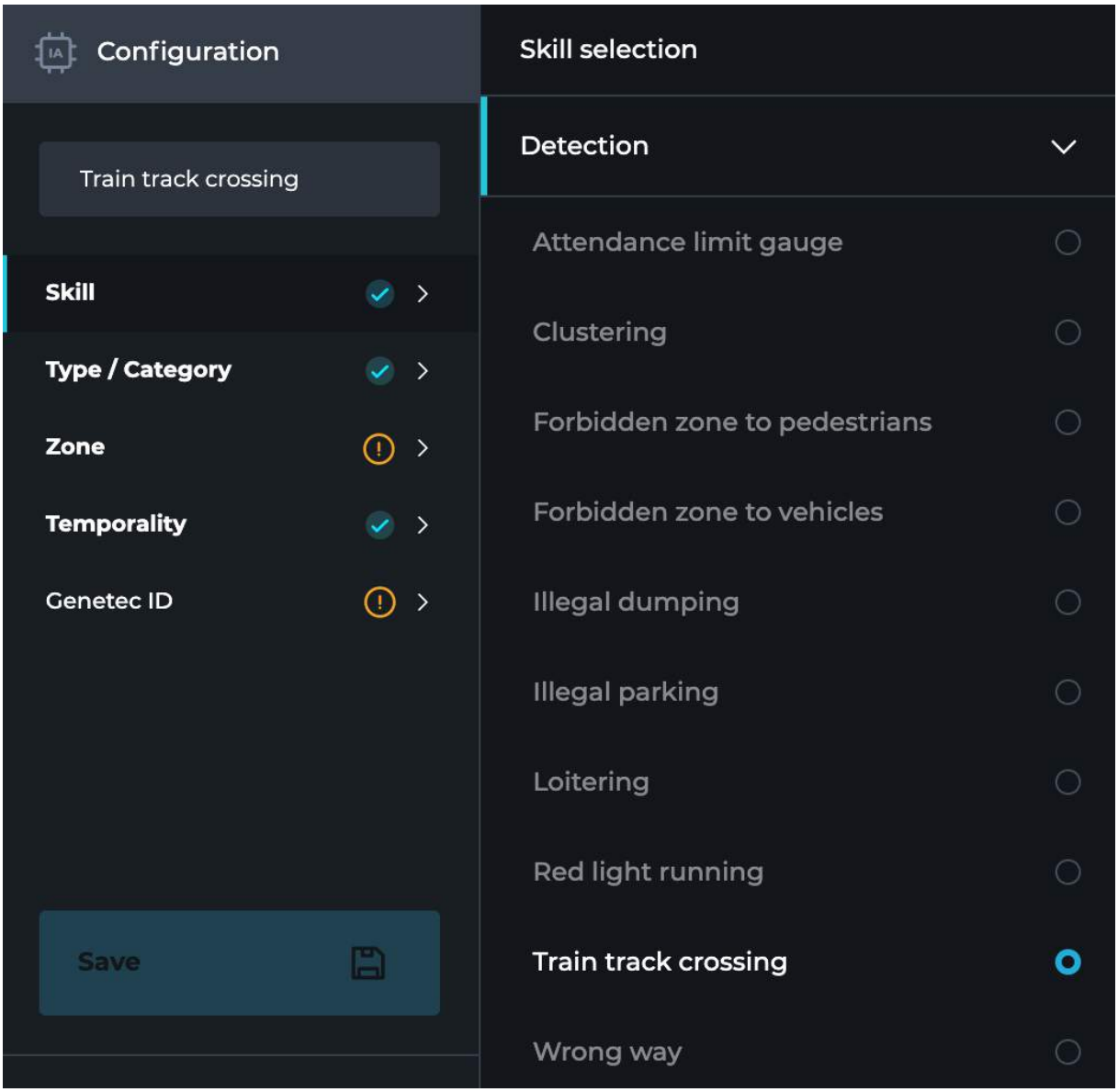


Steps 2, 3 and 4 are identical to those described earlier in the sections above :

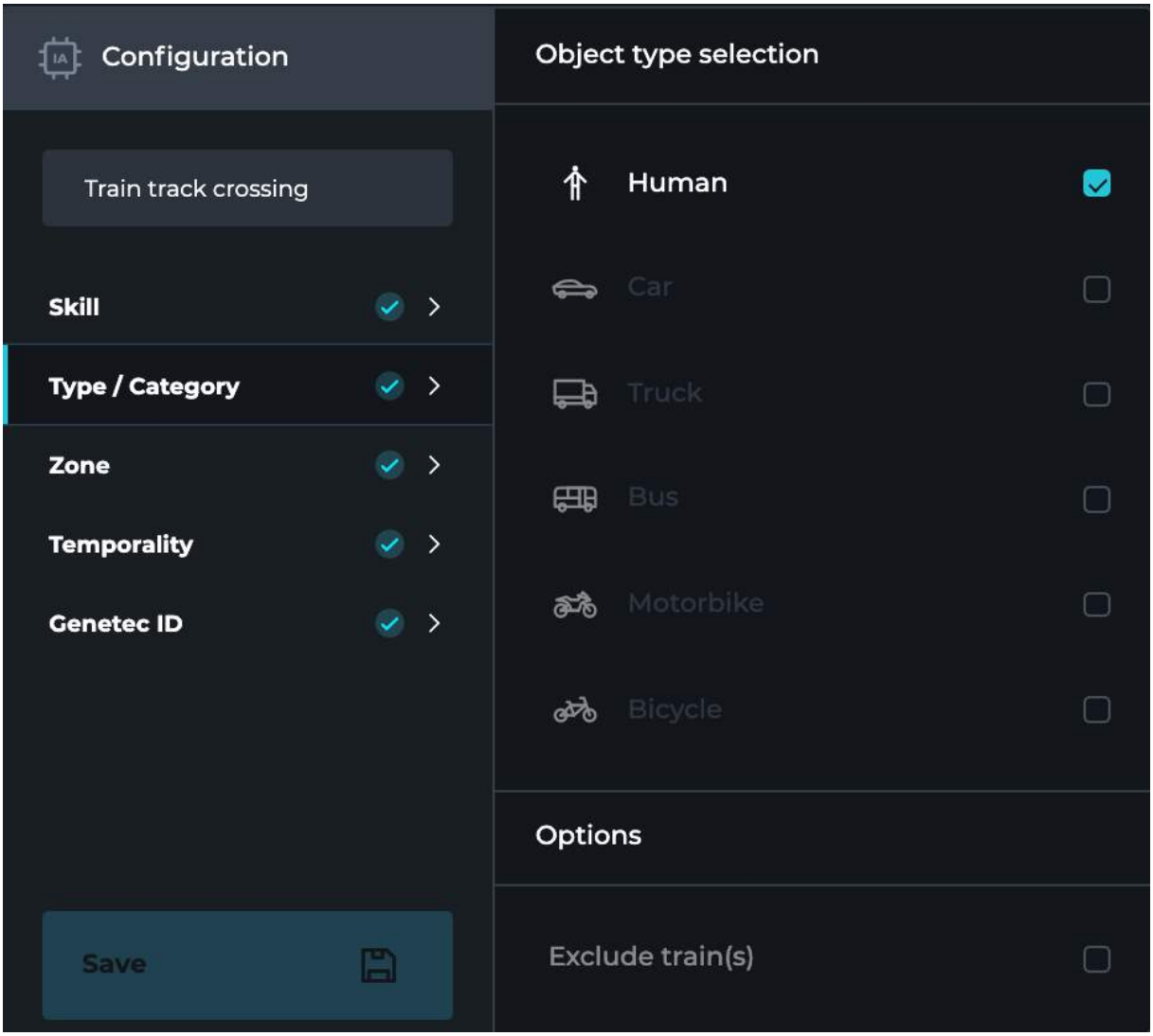
- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

vii. Example: Non-conventional detection (Train track crossing)

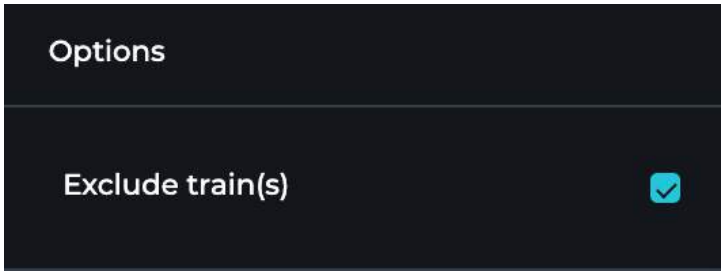
Select the “Train track crossing” skill :



Then select the object you want to detect. For this skill the human class is selected by default.



The “exclude train” option will ignore detection of humans in a train. No false alarm will be sent if people are visible in a train.

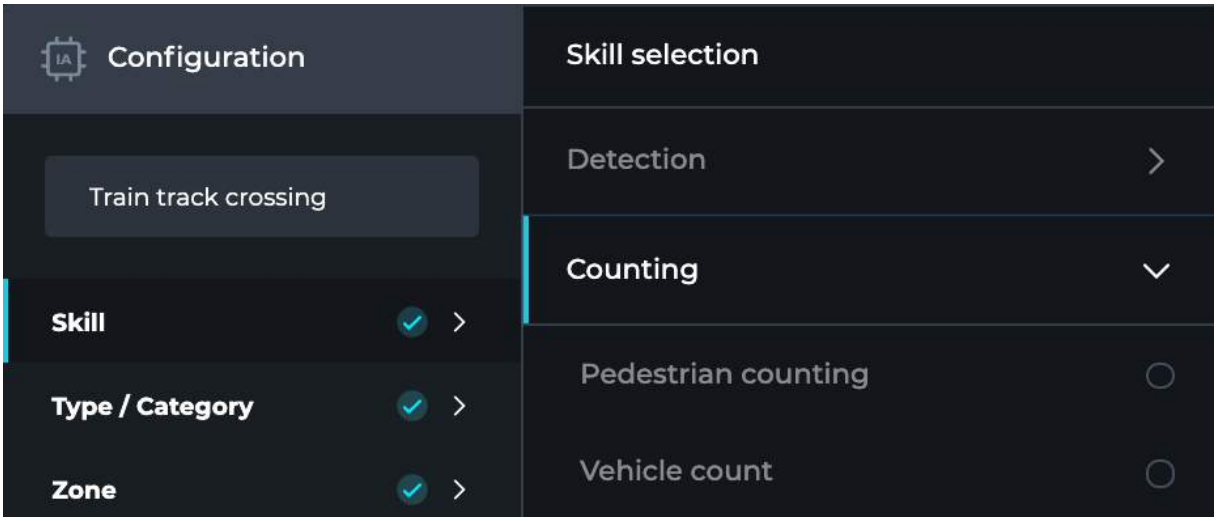


Steps 1, 2, 3 and 4 are identical to those described earlier in the sections above :

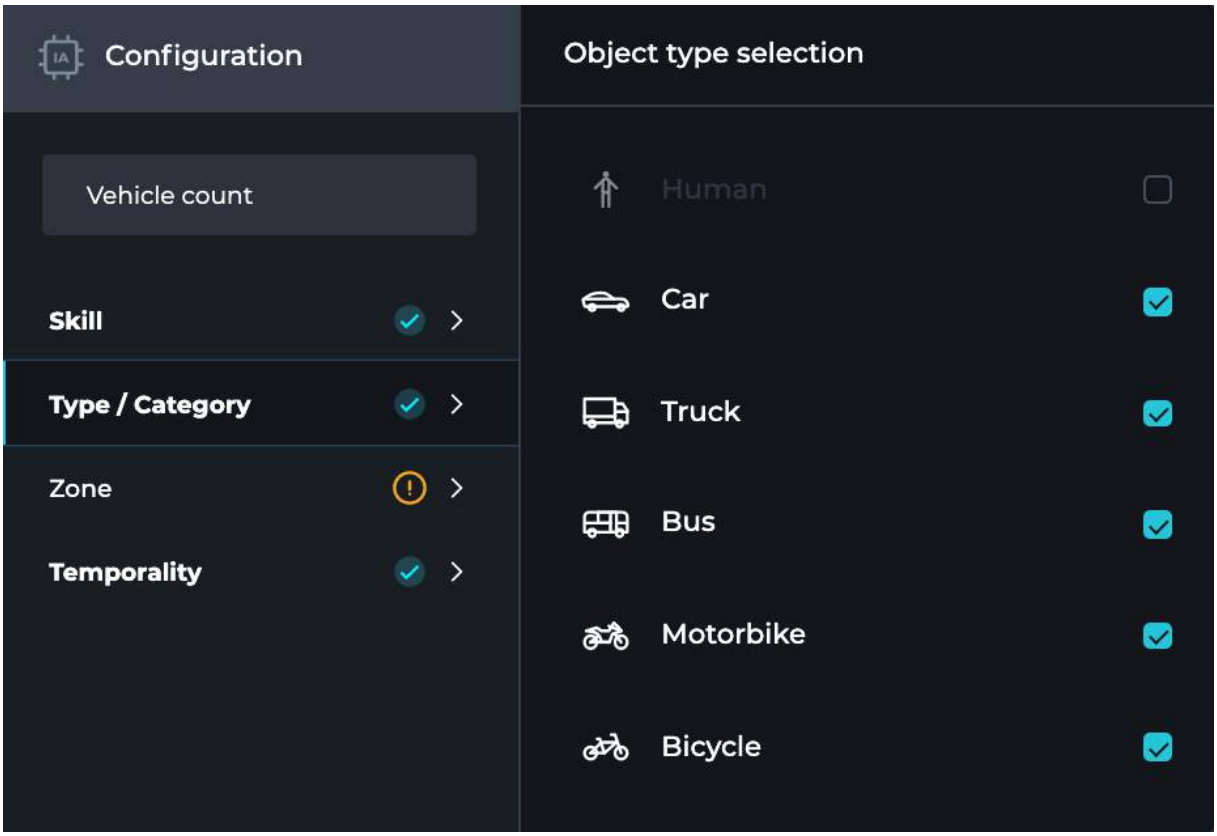
- Step 1: Draw the area
- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

[c] Counting skills

Select the vehicle counting (traffic analysis) or pedestrian counting (pedestrian flow management) skill.



Then select the object you want to count. For this skill all vehicles are selected by default.



Steps 2, 3 and 4 are identical to those described earlier in the sections above :

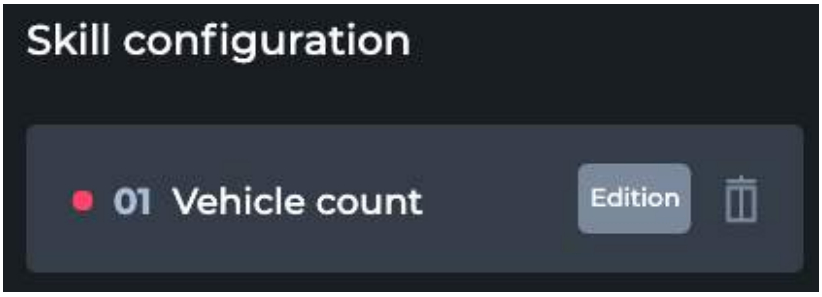
- Step 2: Define the temporality
- Step 3: VMS ID
- Step 4: Launch

The following steps for counting skills are similar in every way to those for line detection. In fact, the counting skills have only one type of zone, the line.

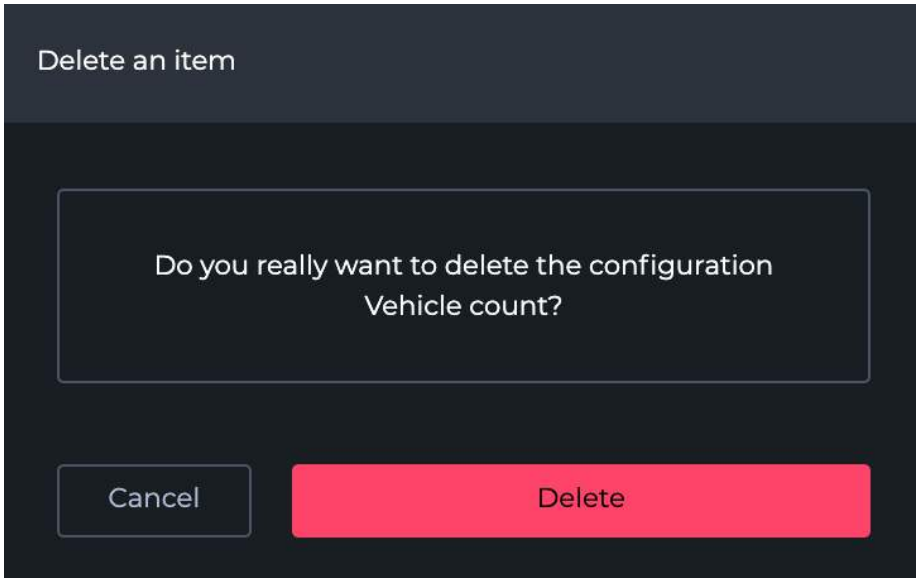
For the counting you do not need to enter a VMS ID. Counting skills do not send alerts in the VMS but in the dashboard. You will find more explanations in the "Dashboard" section.

[d] Delete a skill

To delete a skill press the trash can icon in the skill list at the top of the screen.



Press the "delete" button.



A validation message appears at the bottom right of the screen.

The behavior is identical for any XXII CORE - Smart City skill.

[II] Support

For any further questions, please contact XXII CORE - Smart City support at the following address:

- support@xxii.fr
- 01 84 20 48 22 (Monday to Friday from 9AM/12AM - 2PM/6PM GMT+1)