HALO Smart Sensor Integration App-note

8 November 2023

Contents

1. Introduction

The document provides instructions for the integration of the HALO Smart Sensor solution with CathexisVision.

HALO Smart Sensor is a key component in the solution to providing a low-risk environment by monitoring Carbon Dioxide (CO2), Particulate concentrations, Humidity, Volatile Organic Compounds (VOC), and Nitrogen Dioxide (NO2) in the air. This multi-sensor is capable of vape detection, smoke detection, THC detection, and sound abnormalities like gunshots and shouting in areas a camera cannot be placed. HALO delivers safe, healthy, and comfortable environments that keep all personnel safe while saving money by efficiently running the HVAC system.

Note:

1. For information regarding the regular operation of the HALO Smart Sensor system, please consult the manufacturer's documentation.
2. There is a General Integration section in the main ***CathexisVision Setup Manual***. It contains information about creating an integration database, as well as a general introduction to the Integration Panel. **Read this section.**

1.1 Requirements

1.1.1 General Requirements

- CathexisVision 2023.2 or later
- Cathexis NVR 64-bit version
- Windows 10 Pro
- Ubuntu 16.04 LTS and 20.04 LTS

1.1.2 License Requirements

License	Name	Description
CHLO-1000	HALO Smart Sensor	These licenses apply to the smart sensor. The **CHLO-1000** will license a single sensor and may be added on a sensor-by-sensor basis.
CHLO-2000	HALO Smart Sensor Device	This license is the "base" license to integrate with the smart sensor system. It is applied to the server to which the HALO Smart Sensor is connected. This licence will allow for the connection of a single integration device.
CHLO-3000	HALO Smart Sensor bundle	This license includes one **CHLO-2000** smart sensor device license, and provides support for unlimited **CHLO-1001** HALO Smart Sensor licenses.

Note: In this integration, individual devices will require a license for each device.

1.1.3 Third-Party Device Information

This integration was tested on three different HALO sensors. All three sensors send CathexisVision the detected sensor data values via a configurable TCP port which can be configured in the HALO sensor web interface.

Tested Sensor 1:

Hardware name	HALO Smart Sensor 3C
Hardware model number	HALO-3C
Firmware as tested	2.6.2 build 7.218-3

Tested Sensor 2:

Hardware name	HALO Smart Sensor V2.50
Hardware model number	HALO-V2.50
Firmware as tested	2.6 build 14.173

Tested Sensor 3:

Hardware name	HALO Smart Sensor 2C
Hardware model number	HALO-2C
Firmware as tested	2.6.2 build 7.218-3

Note: Cathexis makes a best attempt to ensure that the equipment and license requirements of third-party equipment are adequately specified. However, it is possible that the requirements of third-party equipment may change over time, including the interface hardware/firmware and licensing. The user is advised to clarify the latest requirements directly with the third-party equipment supplier.

1.2 Integration Components

All CathexisVision integrations have two component levels: **Device** and **Object**.

Device	The device is CathexisVision software's interface, which handles all the interaction between CathexisVision and the integrated hardware. When an integration is added to the CathexisVision system, a device is added. The messages received from the device are called Device Events.
Objects	Objects are the individual pieces of hardware that comprise the integration. There may be multiple "object types" under the objects group. For example, the main controller and door nodes of an access control system are both objects. They are different types of objects.

1.3 Features and Abilities

CathexisVision receives event messages from the HALO Smart Sensor device which can be used to trigger a CathexisVision system event.

1.3.1 Device Objects

Object Type		Abilities
General		• This integration has **Sensor** and **Communication channel** objects. • Device objects can be commanded as an action of a CathexisVision system event. • All Device objects support overlays with a configurable timeout. • Events on the software can be used to trigger CathexisVision system and map events. • Objects may be linked to cameras to associate device events with video footage.
Sensor	**Object Properties**	• Name • IP • Firmware • Connected • Triggered • Temperature • Humidity • Pressure • Light level • Health index • AQI • TVOC • CO_2Cal • NO_2 • PM2.5 • PM10 • Sound
Communication Channel	**Object Properties**	• Type • ID • Name

1.3.2 Device Events

The CathexisVision HALO Smart Sensor integration generates Device events (logs), which are triggered on the device and reflected in CathexisVision.

Event Element	Features/Abilities
General	• Event messages generated by each sensor will generate event messages in CathexisVision. • Device event notifications populate both on the map and CathexisVision when an action/event triggers from a sensor. • A device can be associated with a camera in order to view live/recorded video with event overlays. • An overlay is generated, with a configurable timeout, when an event occurs.
Device Event Types: There are many different events that can be triggered from the Actions tab of each sensor (Gunshot, Vape, Humidity, etc.)	A device event notification is sent to CathexisVision when an event triggers from the sensor with the following properties: • Time (includes date) • Device Location • Device IP • Event identifier • Detected (set/reset)
CathexisVision Event Actions	There's a system list of different events that can be triggered from the Actions tab of each sensor (Gunshot, Vape, Humidity, etc.)

1.3.3 Metadatabase

A unique metadatabase is created on the CathexisVision server for this integration. It is fully searchable, with configurable filters based on device event information (as above), and time stamping. The filtered event/s, and the associated video, will then be available for review in a new window from which an archive can be created and exported.

Database Element	Features/Abilities
General	• All device events are databased. • Database entries include the footage from cameras linked to device objects. • Multiple cameras may be linked to multiple objects. • Device event metadata is displayed where applicable. • Databased device events may be viewed in the embedded video player, which includes the usual CathexisVision video review tools. • There's only one view option for device events and they can only be sorted by time from the metadatabase.
View Options	• Standard
Sort Options	• Time
Easy Search	• Time • Location • IP • Event • Event detected • Detected

Filter	• Time • Location • IP • Event • Detected Sub-stat F Stat • Sub-stat on/off • Log ID internal.
Export	Database entries may be exported in CSV and PDF format.

1.3.4 Maps

The CathexisVision GUI provides for configurable site maps that feature multi-layered, hierarchical, interactive interfaces providing representation and control of a site and its resources.

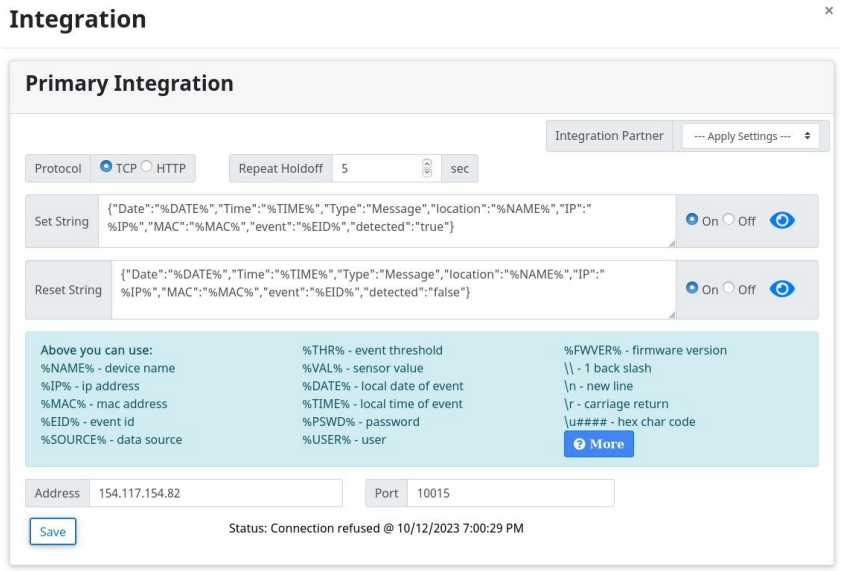
Map Element	Features/Abilities
General	Device objects can be embedded in a site map, which offers multiple action options when messages are received from the device, the device triggers an event, and/or the user manually initiates a map action.
Map Action Triggers	• All device objects may be set to trigger a map action if the user left-clicks on map. • Some device objects may be set to trigger a map action if an event *message* is received from the device. • All device objects may be set to perform a map action if *any* event occurs on the device. • Device objects, which can be configured to trigger CathexisVision events, may also be set to perform a map action when specific CathexisVision events are triggered.
Map Actions Options	When triggered (see above), objects may perform the following map actions (where applicable): • Connect to a site. • Perform an animation. • Go to a camera preset. • Load a map. • Set a PTZ relay output. • Show a popup menu. • Set a relay output. • Show an HTML block. • Show a block of text. • Show a device popup menu.

2. Device Addition

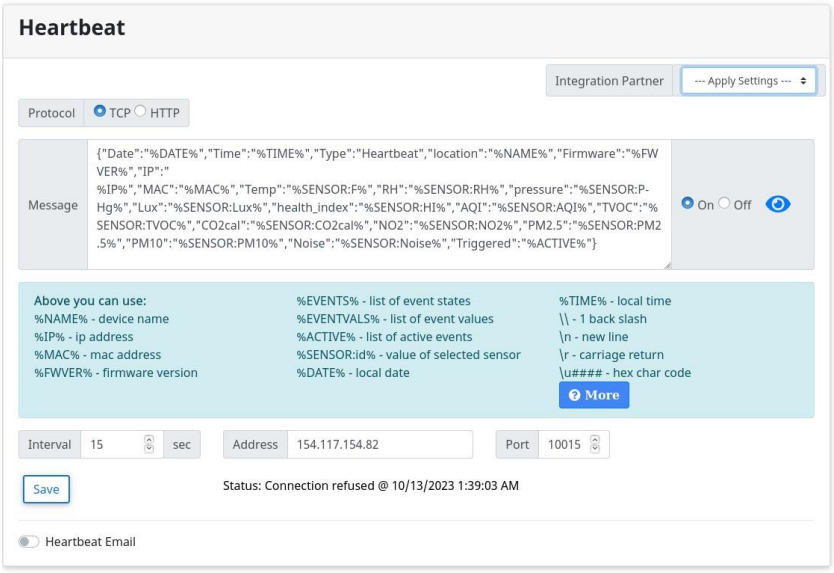
This section will detail the procedure for adding the the HALO Smart Sensor device to CathexisVision.

2.1 HALO Smart Sensor Specific Setup

The HALO Smart Sensor device requires some manual configuration for it to communicate successfully with the CathexisVision HALO Smart Sensor Integration. The integration communicates via a TCP listening port, and the device must be setup via the HALO web interface in order for it to send the data to CathexisVision.



- Navigate to the integration tab of the HALO Web Interface and fill in the IP and Port that the CathexisVision software is running on.
- Fill in the **request strings** for **Set, Reset**.
- Click **Save**.



- Fill in the **heartbeat request string.**
- Click **Save**.

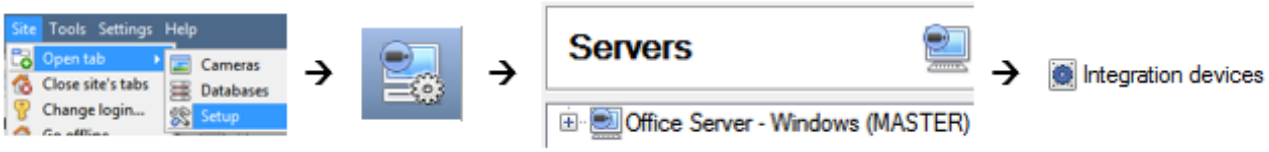
The **request strings** for **Set, Reset** and **Heartbeat** can be seen below:

Set: {"Date":"%DATE%","Time":"%TIME%","Type":"Message","location":"%NAME%","IP":"%IP%","MAC":"%MAC%","event":"%EID%","detected":"true"}
Reset: {"Date":"%DATE%","Time":"%TIME%","Type":"Message","location":"%NAME%","IP":"%IP%","MAC":"%MAC%","event":"%EID%","detected":"false"}
Heartbeat: {"Date":"%DATE%","Time":"%TIME%","Type":"Heartbeat","location":"%NAME%","Firmware":"%FWVER%","IP":"%IP%","MAC":"%MAC%","Temp":"%SENSOR:F%","RH":"%SENSOR:RH%","pressure":"%SENSOR:PHg%","Lux":"%SENSOR:Lux%","health_index":"%SENSOR:HI%","AQI":"%SENSOR:AQI%","TVOC":"%SENSOR:TVOC%","CO2cal":"%SENSOR:CO2cal%","NO2":"%SENSOR:NO2%","PM2.5":"%SENSOR:PM2.5%","PM10":"%SENSOR:PM10%","Noise":"%SENSOR:Noise%","Triggered":"%ACTIVE%"}

2.1 The Integration Devices Panel

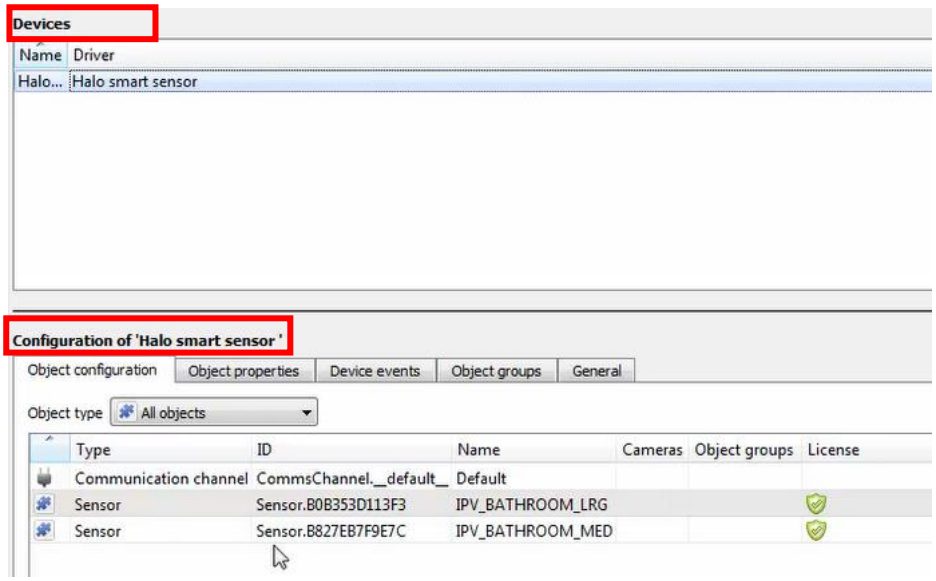
Integrations are added on a server-by-server basis. They are managed in the Integration Devices panel, under the **Setup Tab** of the servers to which they are added.

To get to the Integration Panel, follow this path: **Site / Open tab / Setup / Configuration icon / Server / Integration devices.**



There are two sections in the Integration Panel:

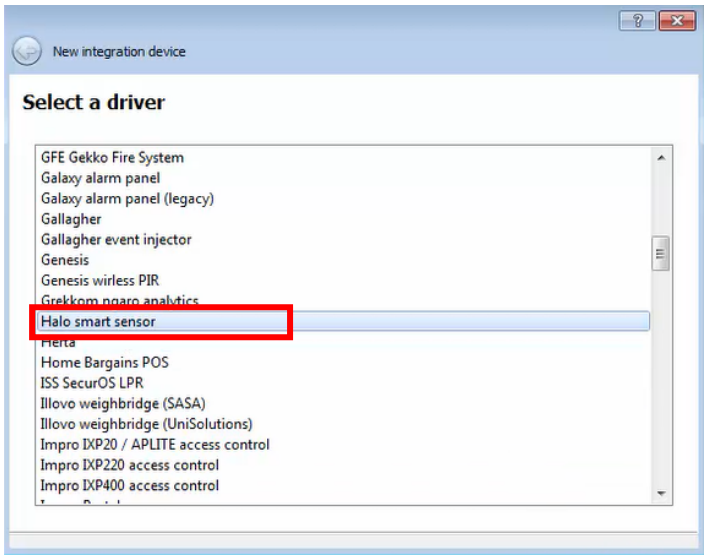
- The **Devices** list shows the integration devices attached to the integration database.
- The **Configuration** section enables editing/reviewing the device selected in the **Devices** section.



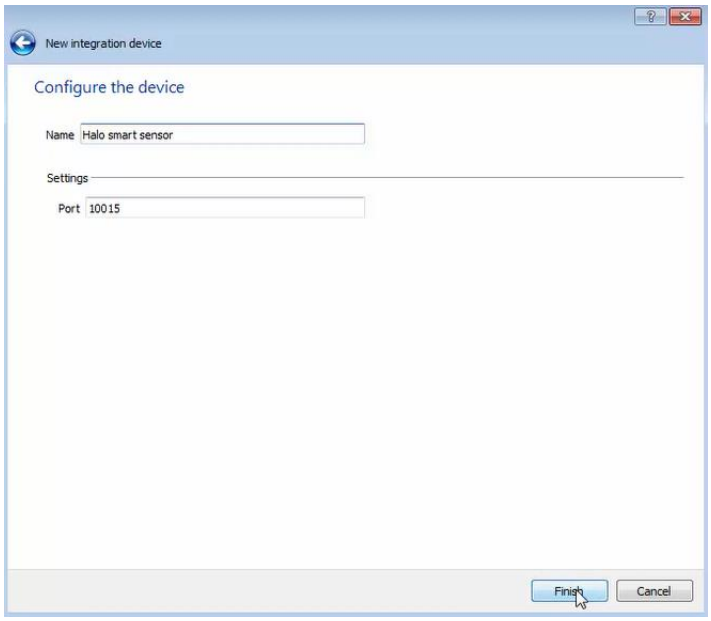
2.2 Add a New Device

→ In the Integration Panel, navigate to the **Devices section.**

→ Click on the **New device** button on the right-hand side. This will open the addition dialogue.



→ Select the **HALO Smart Sensor** driver from the list, and click Next.



→ Give the device a descriptive **name**.

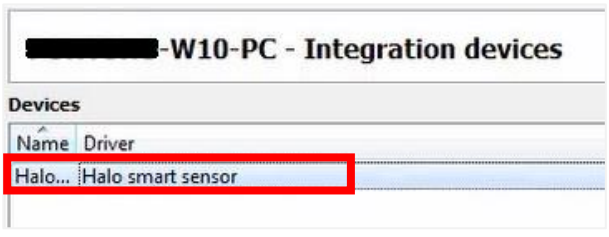
Note: This integration communicates directly with the HALO Smart Sensor device.

→ **Enter** the desired TCP **port number**.

→ Click **Finish**.

2.3 Select Device

The newly added device will show in the Devices section.



→ **Click on the device** name to select it.

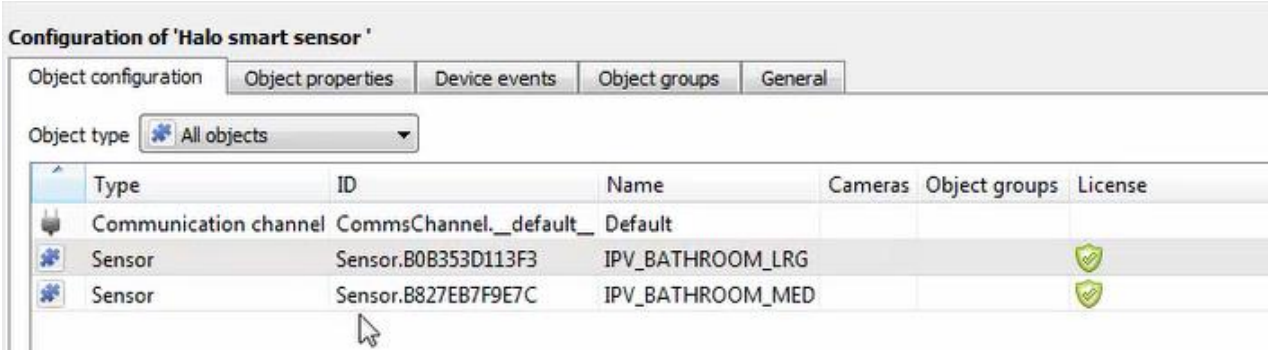
3. Configuration

The configuration section is divided into five main tabs. These tabs are: **Object configuration, Object properties, Device events, Groups,** and **General.**

3.1 Object Configuration Tab

The object configuration tab is where all the individual objects that comprise the integration may be viewed. Here, objects can be linked with cameras and overlays can be configured.

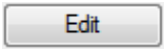
The HALO Smart Sensor system has two object types: **Sensor** and **Communication channel**.



All objects are automatically populated when communication to the HALO Smart Sensor device is established.

3.1.1 Object Configuration Buttons

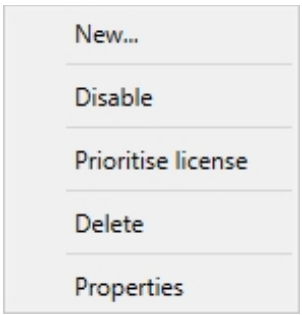
Click **New** to add a new object.



Click **Edit** to change an existing object.

Click **Delete** to remove an existing object from the CathexisVision configuration.

3.1.2 Object Configuration Right-Click Options



New will open the dialogue to add a new object.

Disable/Enable allows objects to be enabled/disabled manually.

Prioritise license allows the user to give specific objects priority when licenses are applied. This is useful if there are fewer licenses than objects.

Delete will permanently remove this object from the list.

Properties will open up the object editing window.

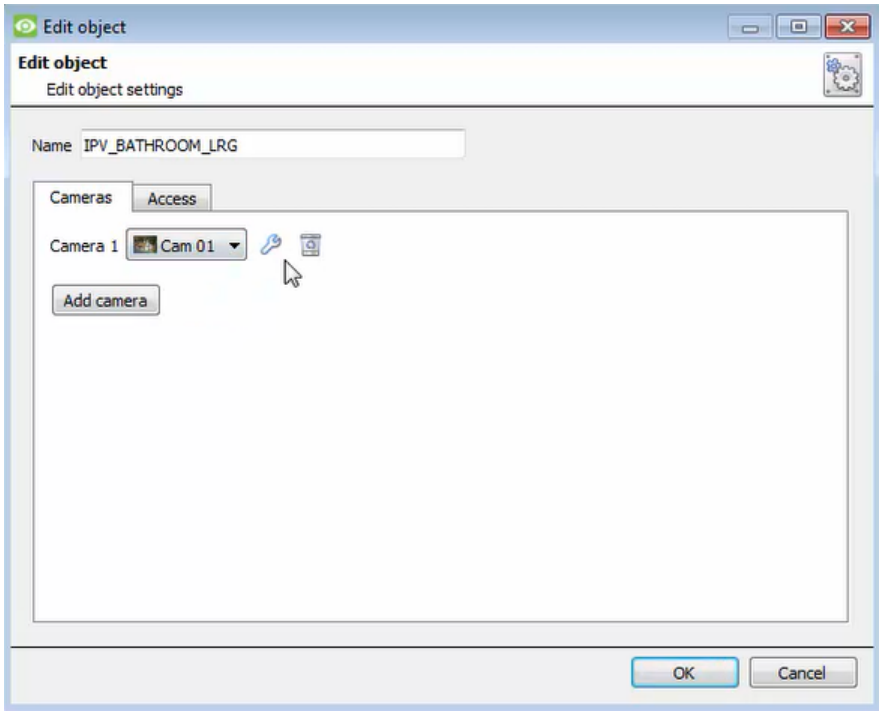
3.1.3 Edit Object

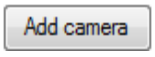
Open the object editing window by selecting an object from the list, and **right-clicking Properties**.

This window is where cameras are added to objects, overlays are configured, and access rights to the integration are added. These are dealt with in two tabs: **Cameras** and **Access**.

3.1.3.1 Properties: Camera

Adding a camera to an object will mean that whenever there is an event on that object, the recording from that camera will be related to the time and date of the object event, in the Integration database.





To **add** a camera, click Add camera, and select the relevant model from the drop-down menu.

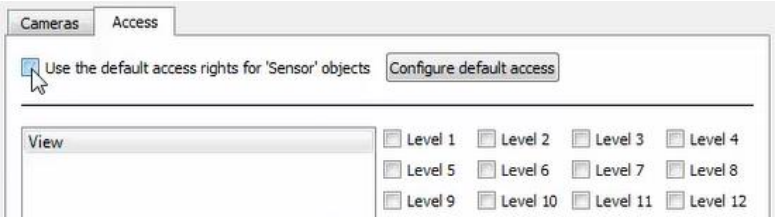
To **delete** a camera, click the trash icon.

To edit individual **overlays**, click the spanner icon. See instructions below.

Note: If ***continuous recording*** **is not** set up on associated cameras, there is the risk of an object event triggering while the cameras are not recording. To record cameras only when an object triggers, set up **Events** that trigger a recording, when one of these objects is activated.

3.1.3.2 Properties: Access

Access can be used to protect sensitive objects, by allowing only certain user levels access to them.



There will be a list of objects, for which access level may be set.

Note: If ***Use default access rights*** is checked, ensure drop-down that those default rights have been correctly defined. Click on **Configure default access** to do this.

3.1.4 Configure Overlays

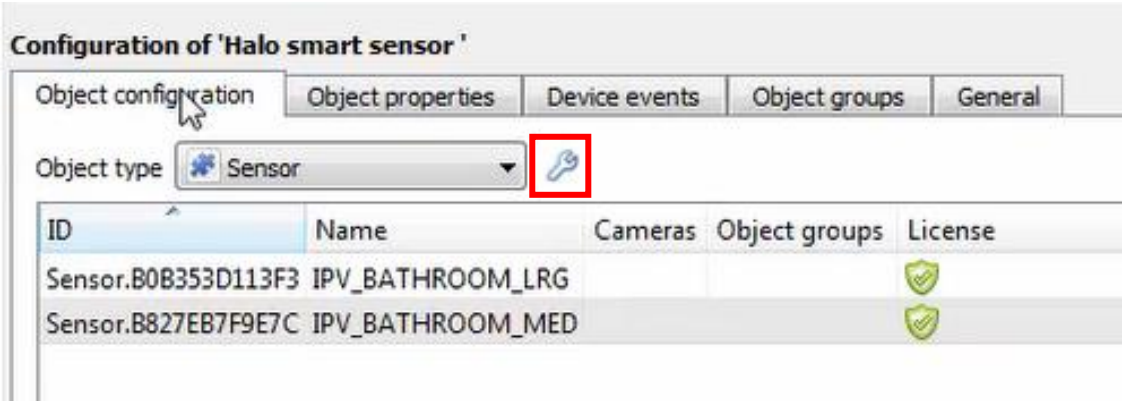
Overlays may be configured globally for all objects, or individually for selected objects (**Sensor objects**).

The path to follow for opening the configuration window for global or individual overlays is different, however the overlay configuration process is the same.

3.1.4.1 Configure Global Overlays

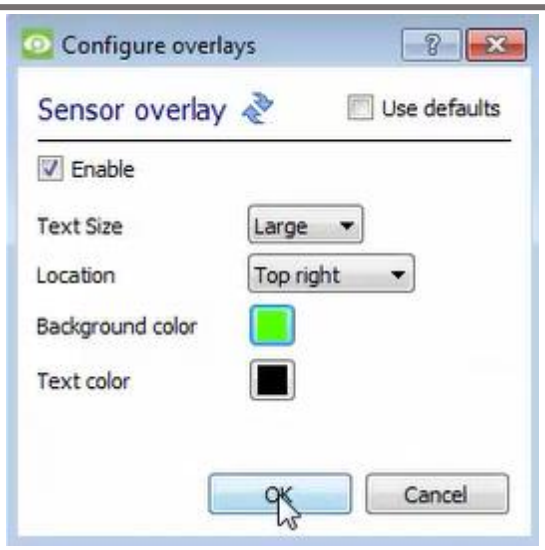
Global overlays may be configured for **Sensor** objects. If global overlays are configured for sensor objects, then configuration will then apply to *all* sensor objects.

Navigate to the global overlays setup by first opening the **Object configuration tab**. Choose an object type.



→ **Select the spanner icon** next to the drop-down menu to configure the global overlays for the chosen object.

A new window will open.



→ **Enable**: Check the box to enable overlay configuration.

→ Define the **Text size** by selecting from the drop-down menu.

→ Define the **Location** of the overlay by selecting from the drop-down menu.

→ Chose the **Text colour** and **Background colour** of the overlay stream.

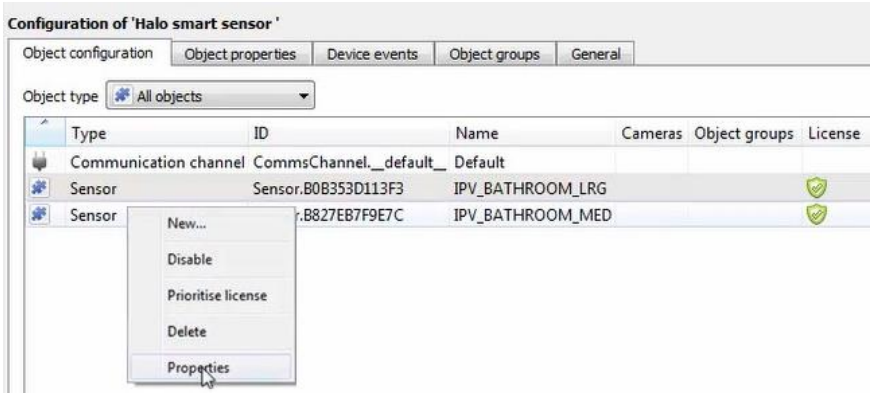
Click the colour boxes to bring up a colour chart.

Note: Click to reset values.

3.1.4.2 Configure Individual Overlays

For individual devices, there is a choice to use the global overlay settings (above), which apply to all objects, or to configure the settings for an individual device.

For example, the overlays for the camera on one sensor might be configurated to show up with yellow text, while another sensor displays in red.

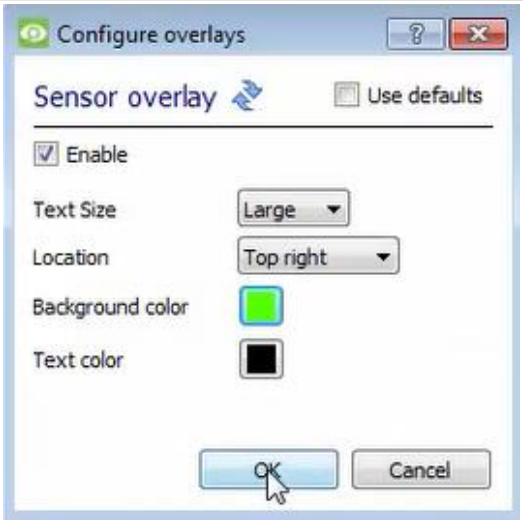


→ Right-click an item in the list and select **Properties** to edit the object.

→ **Add a camera** to the object, or, select a camera from the drop-down menu.

→ Then **click** the **settings** icon that appears next to the camera name.

→ **Uncheck the 'Use defaults'** box to configure the overlays.



→ **Enable**: Check the box to enable overlay configuration.

→ Define the **Text size** by selecting from the drop-down menu.

→ Define the **Location** of the overlay by selecting from the drop-down menu.

→ Define the **Text colour** and **Background colour** of the overlay stream.

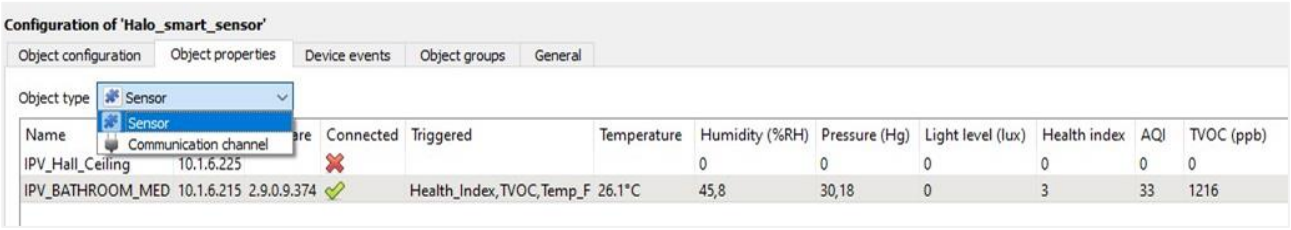
Click the colour boxes to bring up a colour chart.

Note: Click to reset values.

3.2 Objects Properties Tab

The Object properties tab allows objects to be viewed, sorted by type.

In the case of the HALO Smart Sensor system, there is the option of viewing by **Sensor,** and **Communication channel.**

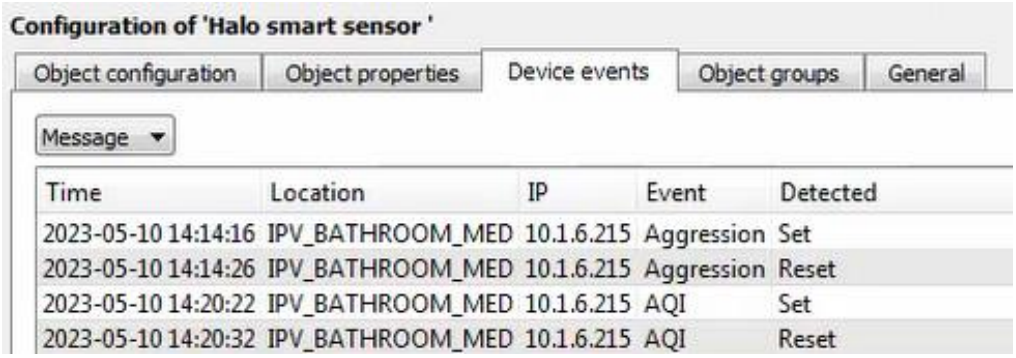


Note: The properties shown in the Object properties tab are the same as what can be seen on the HALO Smart Sensor dashboard. The dashboard was used as a guide to know what properties to include.

3.3 Device Events Tab

The Device events tab lists real-time events happening on this device. Installers can ensure that the integration is functioning, and monitor the Events happening on site.

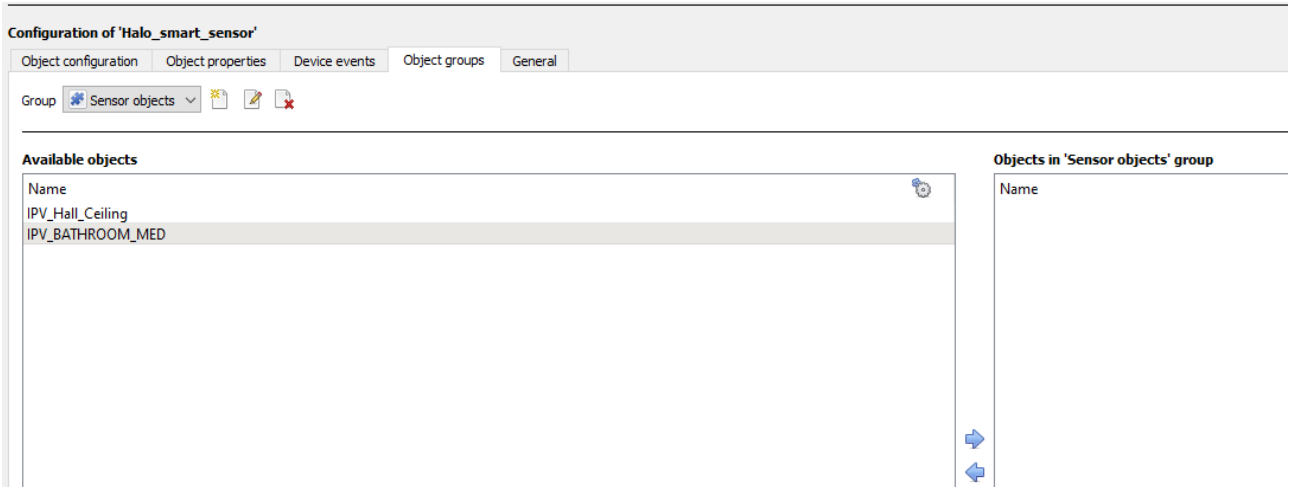
Return to CathexisVision and navigate to the Integration Panel. Open the Device events tab.



Use the drop-down menu to sort the events. This integration only has a **Message** event type.

3.4 Object Groups Tab

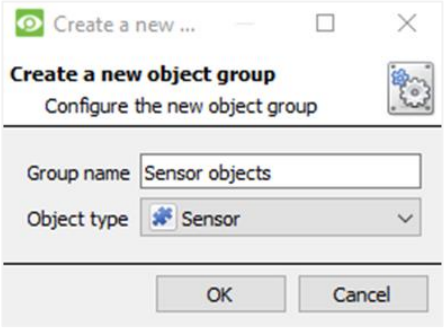
Groups of *the same type of object* can be created.



Tip: This is useful when setting up events, because events can be triggered by an object group. (E.g. a group will trigger an event if any of the doors in that group are triggered.)

3.4.1 Create a Group

→ To **create** a group, click on this icon.
A new dialogue box will open.



→ Give the group a descriptive **Group name.**

→ Click on the drop-down menu to select the **object type** to group.

Note: Once a group has been created, the object type of the group cannot be edited.

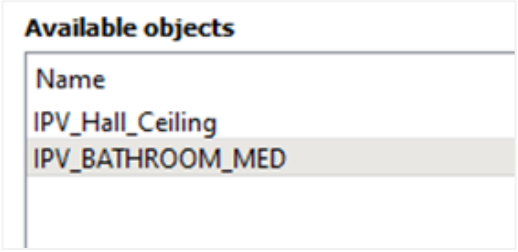
To **edit** a group, click on this icon.

To **delete** a group, click on this icon.

The next step is to add individual objects to the group.

3.4.2 Add or Remove Objects

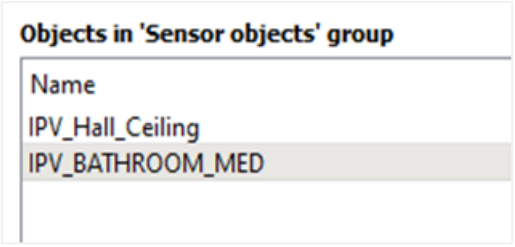
After creating a group, a list of all the available objects for that group will be displayed in the Available objects panel, on the left-hand side. Objects can then be chosen from this list, and added to the group.



To **add** these objects to the group, select them from the list, and **click on the right arrow**.

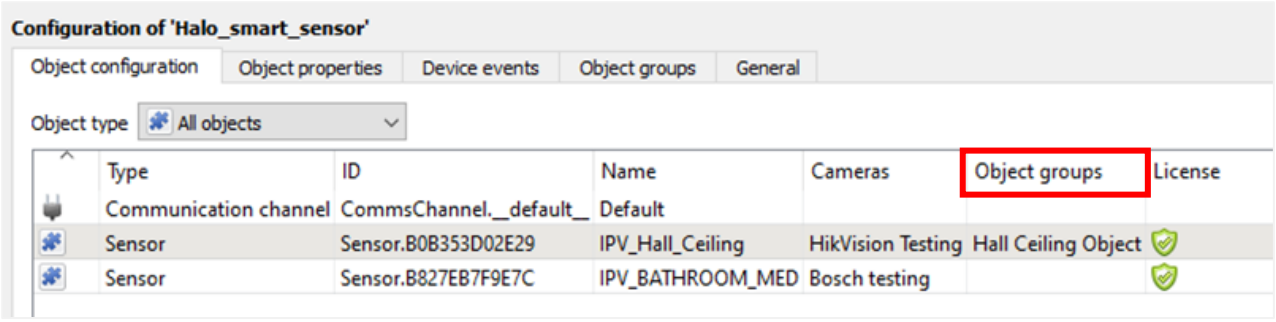
To **remove** these objects from the group, select them and **click on the left arrow**.

Note: Multiple objects may be selected at a time.



Once individual objects have been added to the group using the arrows (above), they will appear in the section on the right-hand side.

The object group information will also reflect in the Objection configuration tab:



3.5 General Tab

The General tab of the Configuration section (Integration panel) deals with the integration database. Setup must be completed here, before the Databases tab can be used to search events and view associated footage.

From the General tab, the user must:

- *Select* an existing database, or
- Configure a *new* database.

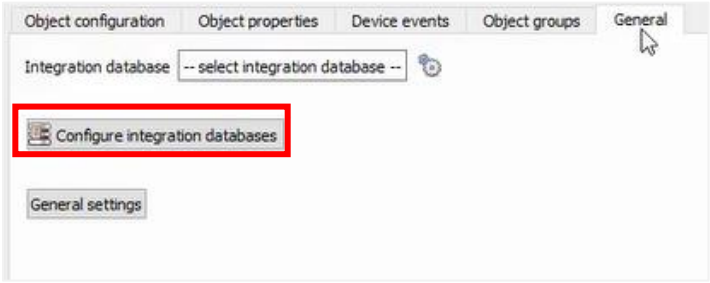
Note: Each integrated device needs to be attached to an integration database. Without setting up/adding a database here, the integration will not function properly within the CathexisVision system.

3.5.1 Configure a New Database

- The first time an integration database is added, the general integration database will need to be *initialised*.
- Once the general integration database has been initialised, then a database for a *specific integration* can be created**.**

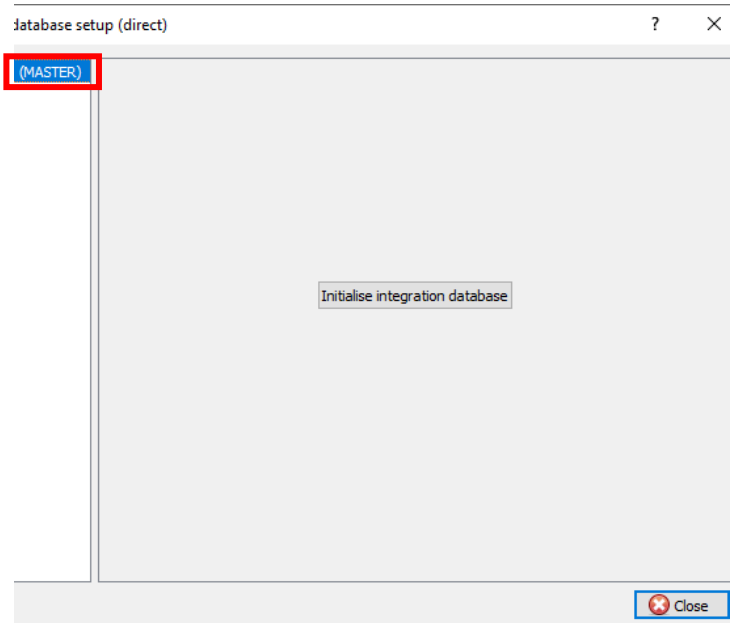
3.5.1.1 Initialise the Integration Database

If an integration database has not yet been created, follow the steps below.



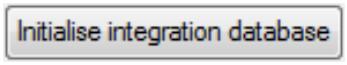
→ Click the **Configure integration databases button** from the General tab.

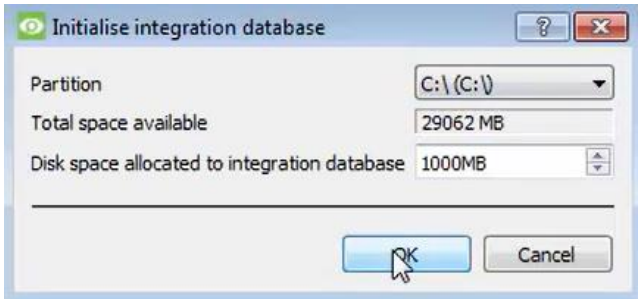
This opens the Integration database setup window.



→ **Select the unit** to which the database will be added, from the list on the left.

→ Then, click **Initialise integration database**.





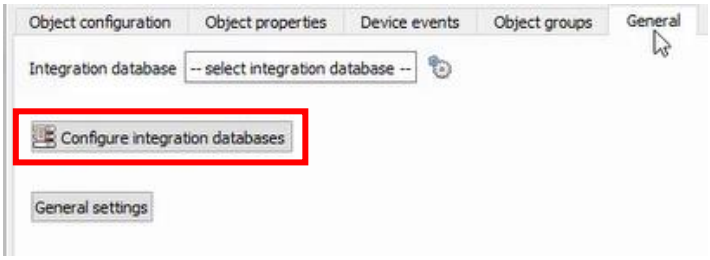
→ Choose the **partition** on which the database will be created.

→ Select **disk space** allocation.

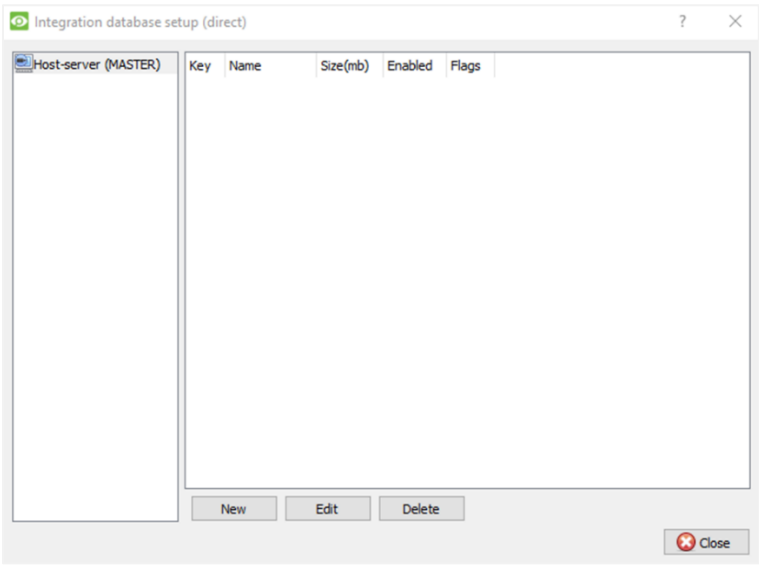
→ Click **OK**.

3.5.1.2 Add a New Devices Database

After initialisation, the database can be added to the integration.



→ To add a new database, click the **Configure integration databases button** from the General tab.



This opens the integration database setup window.

→ **Click** the **New** button.

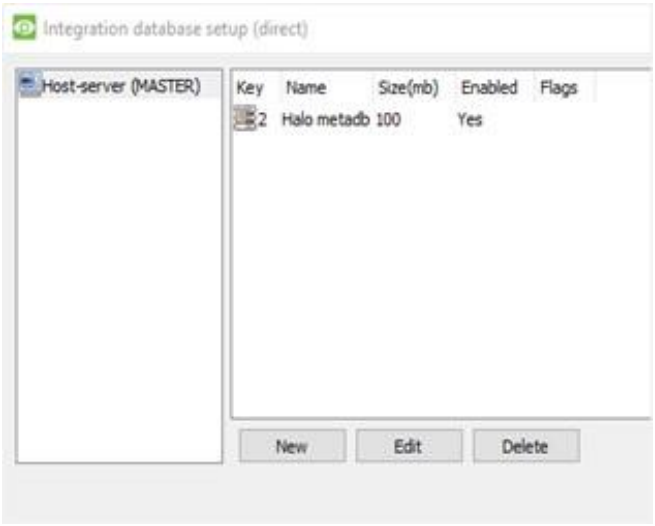
A dialogue will appear for creating the integration database.

→ Give the database a descriptive **Database Name**.

→ Allocate a **Size** to the new device database.

→ Select the device **Driver (HALO smart sensor),** from the drop-down list.

→ Click **OK** to create the database.

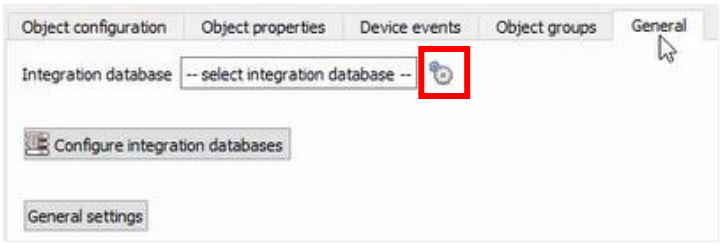


The newly created database will appear in the Integration database setup panel.

→ **Click Close** to return to the General tab.

3.5.2 Select the HALO Smart Sensor Integration Database

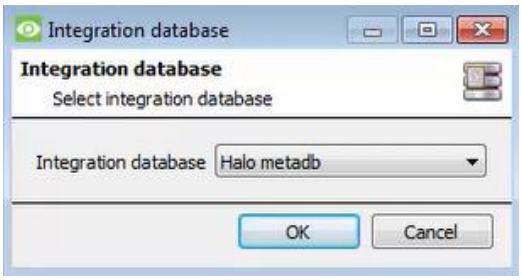
Once a **HALO Smart Sensor** database has been created, it must be actively selected.



→ Return to the General tab.

→ Then, click the **settings icon.**

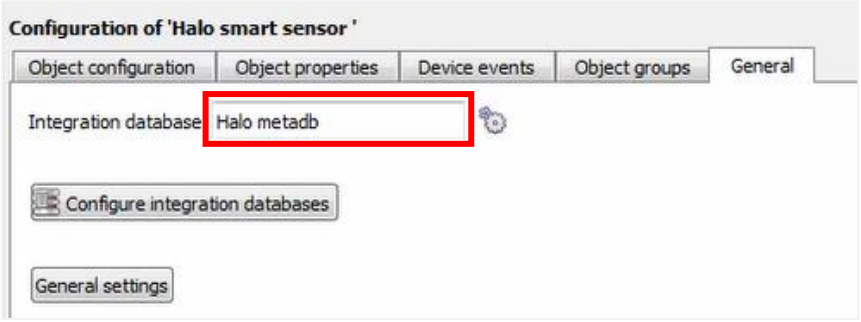
A dialogue will appear. Only databases which relate to the device being added should appear.



→ **Select** the **HALO Smart Sensor database** from the drop-down menu.

→ Then click **OK**.

Once selected, the database will reflect in the General Tab as shown below.



Note: The information on setting up an integration database may be found in the **Integration Devices General Settings** section of the ***CathexisVision Setup Manual***.

4. Events

A CathexisVision event has a trigger, which causes an action. Set integrated devices to act as triggers, or as actions. This document describes the **HALO Smart Sensor** specific aspects of Events. There is a comprehensive guide to CathexisVision Events in the main setup manual.

Most of the data that CathexisVision receives from a device is presented in the Events interface. This gives the user a full range of options. As a result, some of the options presented in the interface may be *impractical* as an event trigger, or action.

4.1 Event Window

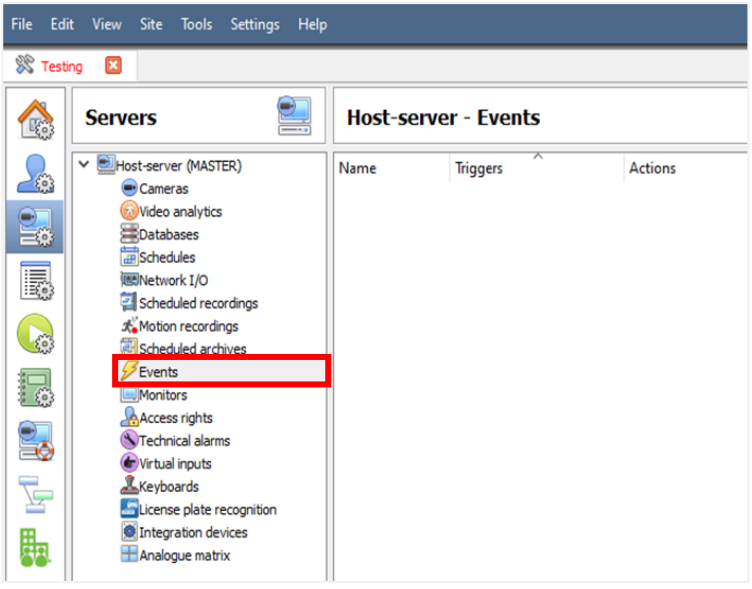
Events in CathexisVision are set up via the Event Window, which has four tabs.

- In the **General Tab**, an event is given a name, description, schedule, and priority.
- In the **Triggers Tab** the trigger/s for the event is defined.
- In the **Actions Tab** the action/s which the event takes, is defined.
- In the **Resources Tab** the various site resources which can be used as part of an event are defined.

4.2 Creating an Event

To create an event using the HALO Smart Sensor system, navigate to the Events management area by following the sequence: **Open Tab** / **Setup** / **Servers** / **Master Server** / **Events**. This is shown below.

This will allow the user to enter the Events management area:



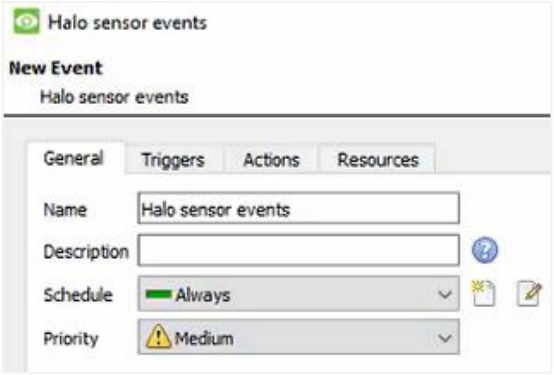
New Once in Events management area, click the **New** icon at the bottom of the screen.

This will open up the **New Event window**.

The new event window has four tabs which can be used to set up the event: General, Triggers, Actions, and Resources.

4.3 General Tab

Create a new event under the General tab by filling in the fields.



→ Give the event a descriptive **Name**.

2. Set up a **Schedule** if desired by clicking the icon.

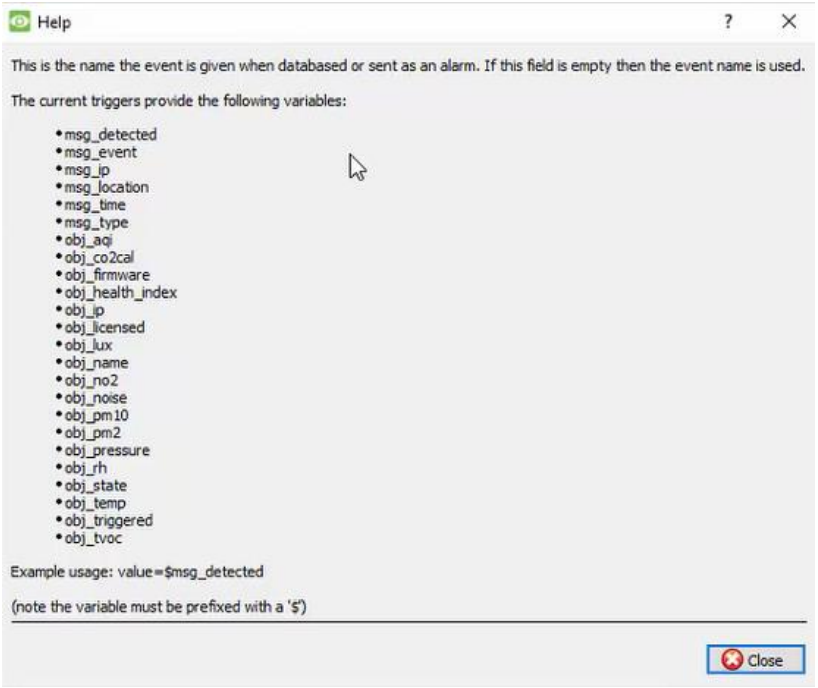
→ Select a **Priority**.

→ A description may be entered. Or, modify the **Description** if relevant according to the instructions below.

Note for group triggers: For an event to be databased under the name of a specific object, and not the name of the triggering group, modify the Description field in the **General tab** of the Event setup.

Click on the question mark icon to see a list of available descriptions and instructions for how to enter these descriptions.

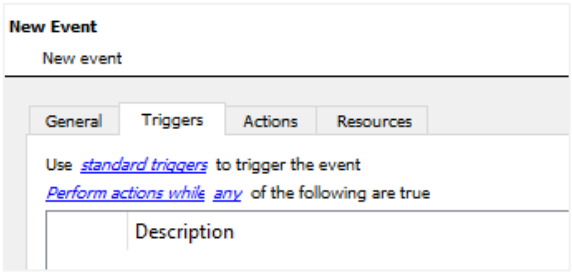
Below is a list of the descriptions available for the HALO Smart Sensor integration:



4.4 Triggers Tab

A trigger is a user-defined input, for example, the user may choose to define the trigger as a door opening on an access control system.

Once the user defines the *trigger*, it can be used to cause a subsequent *action*.

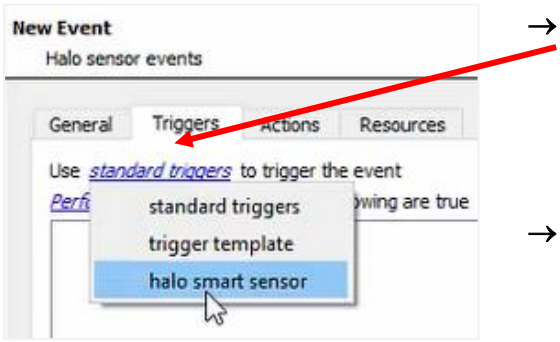


The user will need to click on the hyperlinks (depicted alongside) to set up the trigger.

The subsections below provide instructions.

4.4.1 Set the Device as the Trigger

For a new event, the trigger type will default to “standard triggers”. The user will need to change this to the HALO Smart Sensor system.



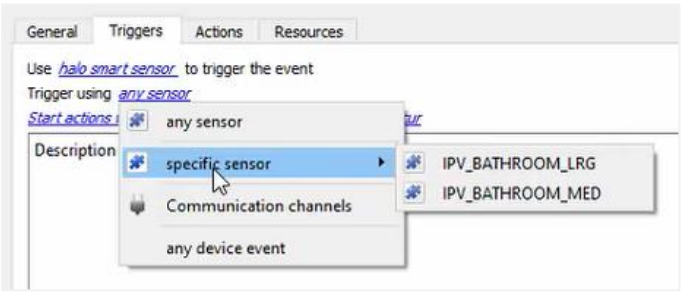
→ To change the event trigger, **click on “standard triggers”** (the hyperlink after the word “Use”).

This will open a drop-down menu with more options.

→ To set **HALO Smart Sensor** as the trigger, **select the name** from the drop-down menu.

4.4.2 Trigger Types (Trigger Using)

It is useful to think of this as a **master trigger type**.



→ **Click on** the **hyperlink** after the words “Trigger using”.

This will open a drop-down menu.

→ **Click an option** from the menu to select.

See the table below for descriptions of the options on the drop-down menu.

MENU OPTION	DESCRIPTION OF TRIGGER TYPE
Any [device]	This will trigger if anything happens on any device i.e. any sensor.
Specific [device]	This will trigger on the specific object chosen for example, IPV_BATHROOM_LRG.
Specific system	This will trigger if anything happens on a specific HALO Smart Sensor system
Any device event	This will trigger, initially, when any event occurs on the integration.

4.4.3 While/When and Any/All

The third row of hyperlinks further specifies when the event triggers. The user will choose to trigger either based on a *device event* occurring, or based on an *object property*.

To change these settings, click on the blue hyperlinks in the *third* row as shown in the image on the left.

The user can choose the option to:

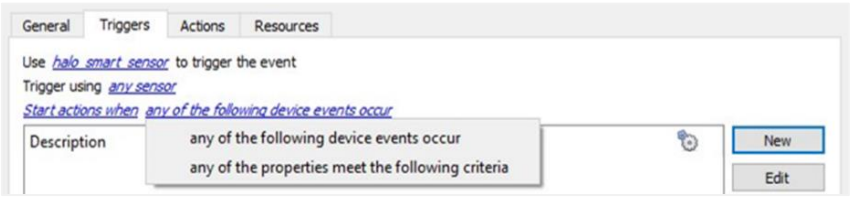
- **start actions when** any of the properties meet user-configured *criteria*, or any user-configured *device events* occur, or
- **perform actions while** any/all of the properties meet user-configured *criteria*.

Start actions when	*any of the following device events occur* *any of the properties meet the following criteria*
Perform actions while	*any of the properties meet the following criteria* *all of the properties meet the following criteria*

4.4.4 Define the Trigger ("Any Device Event" Option)

After using the hyperlinks to set up how the trigger will be defined, the user may proceed to creating a new *device* event.

One of these options is to select *any of the following device events occur*.



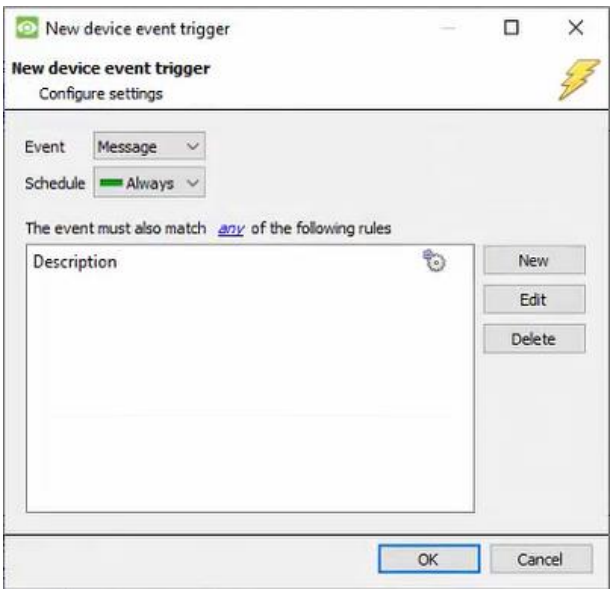
Pictured alongside is the **Triggers tab** where a user selects *any of the following device events occur*.

Click on **New** in the Triggers tab.

Clicking on New will bring up the **New device event trigger** dialogue box.

4.4.4.1 New Device Event Trigger

The user will then need to configure the new device event trigger.



→ Select the **type of Event** where applicable.

→ Choose a **schedule**.

→ Choose whether *any*, or *all* constraints need to be fulfilled to set off a trigger.

→ Use the **new/edit/delete** buttons on the right-hand side to add a device event rule (a constraint). Follow the instructions below.

4.4.4.2 New Device Event Rule

Note: From within the **New device event trigger** window (above), it is necessary to set further constraints. Multiple constraints can be set. If constraints are not defined, every device event will trigger this event.

→ To configure a New device event rule, **click on New** in the New device event trigger window.

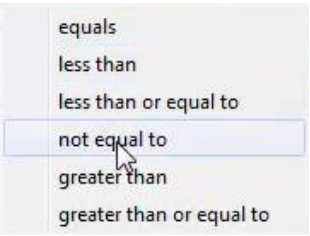
This will bring up a further window, called **New device event rule**.

→ Change the constraint by **clicking** on the **first hyperlink** (which is "Location" in this example).

This will bring up the full list of available constraints. In the HALO Smart Sensor integration the following constraints are available:

Location, IP, Event, and **Detected.**

→ **Click an item** to select it.



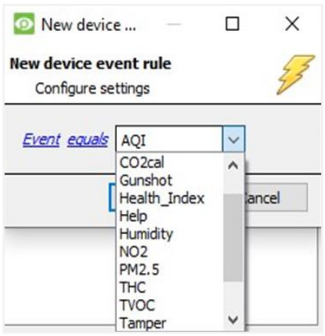
→ To modify the way this constraint will be treated, **click** on the **second hyperlink** (which is "equals" in the example). This will display further options.

Click an option to select.

Next, the constraint must be defined. Follow the instructions below to do this.

Defining a Constraint: Drop-Down Menu or Written Description

When all available options are known to CathexisVision, a drop-down menu will appear alongside the chosen constraint.



→ **Click an item** from the drop-down menu to select.

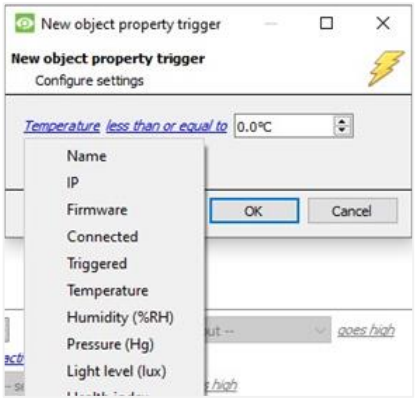
Or, if the variables for a constraint are *not* pre-defined, fill them in manually.

4.4.5 Define the Trigger ("Properties Meeting Criteria" Option)

If the user has defined the trigger by choosing according to *properties meeting criteria*, the **New object property trigger** dialogue box will open.

- In these instances, further constraints do not need be set, since they are being added one at a time.
- This option is better if a few triggers have been selected.
- This is also true for groups, since a group may only be made up of one object type.

4.4.5.1 New Object Property Trigger: Configure Settings

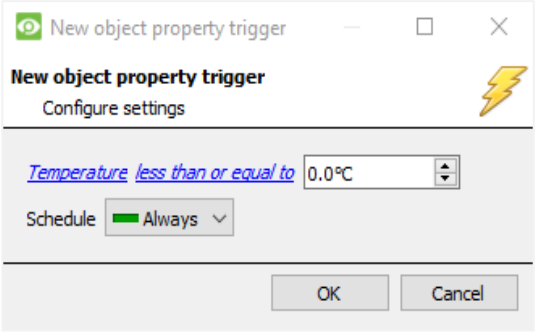


→ **Select the event type** by clicking the first hyperlink.

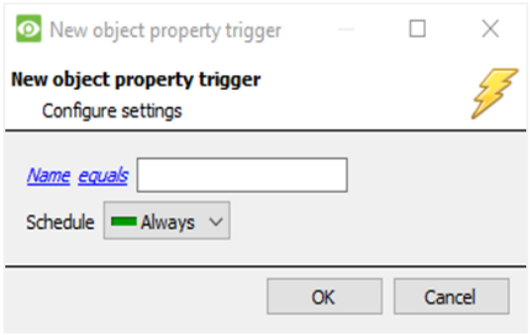
→ **Further define** the rule by clicking the second hyperlink.

Defining a Constraint: Drop-Down Menu or Written Description

When all available options are known to CathexisVision, a drop-down menu will appear alongside the chosen constraint.



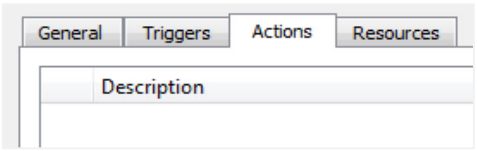
→ If the variables are pre-defined, **Select an item** from the drop-down menu.



→ If the variables are *not* pre-defined, fill them in **manually**.

Note: Descriptions are *case sensitive* and must be identical to how they appear in the Object Properties tab.

4.5 Actions Tab



Having defined the triggers that will initiate an event, the user will need to define Actions.

Select the **Actions tab** from the **New event** window.

One of the available actions will be to *control* a **HALO Smart Sensor** device.

4.5.1 Adding an Action

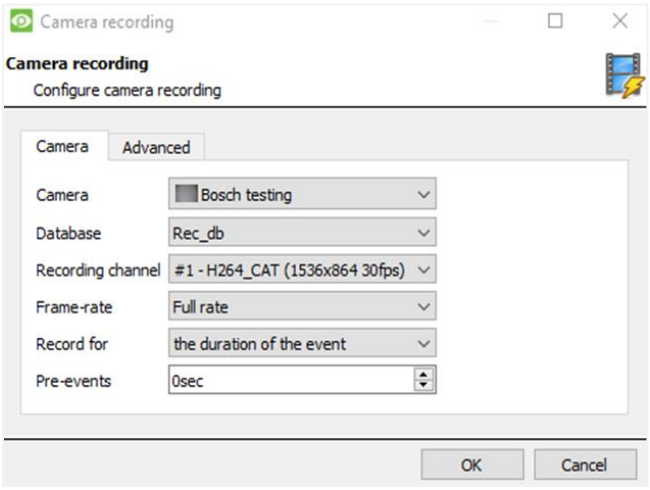
→ To add an action, click New in the Actions tab.

A list of **available actions** will appear. The drop-down contains all the available **action types**.

→ **Select an option**, for example, Record Camera.

4.5.1.1 Actions: Record Camera

If the user has selected a new action to record camera, the following setup steps are required



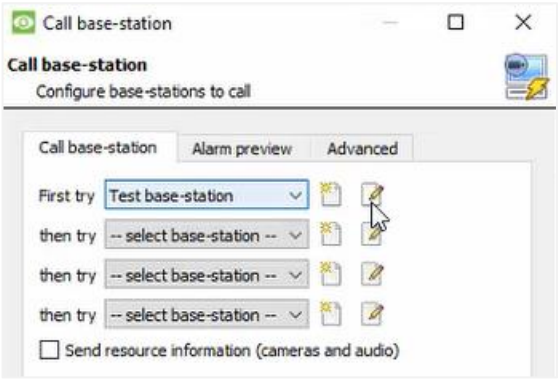
Click the drop-down menus to see more options and click to select the appropriate option.

→ Choose the **camera** appropriate for the event.
→ Choose the **database** to which the video recordings will be saved.
→ Edit **Recording channel**, **frame rate**, and **recording duration** if necessary.
→ Next to **pre-events**, increase the amount of time when recording begins before the event.
→ Click **OK**.

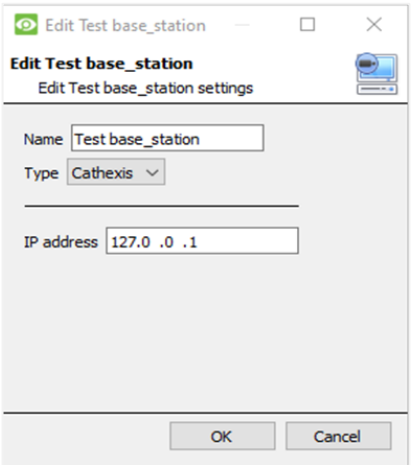
4.5.1.3 Actions: Call Base-Station

If the user has selected a new action to call base-station, the following setup steps are required. Use the tabs along the top of the window.

Call Base-Station Tab



→ Click the **edit icon** next to a base-station to configure.

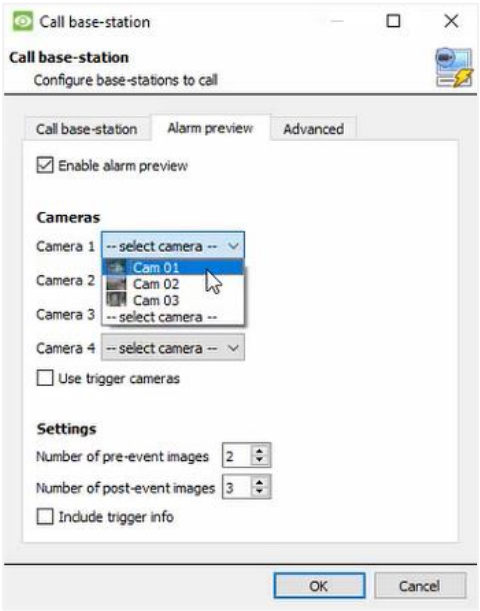


→ In the window that opens, edit or enter the **name** of the base-station and select the **type**.

→ Ensure that the **correct IP address** has been entered. This is the IP to receive the alarms on the specific unit.

→ Click **OK**.

Alarm Preview Tab

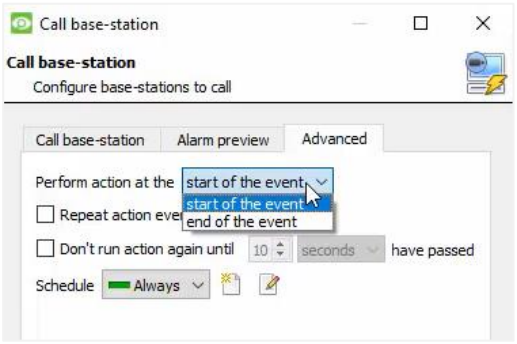


→ **Click the checkbox** to Enable alarm preview.

→ Select an appropriate camera/s.

→ Click OK.

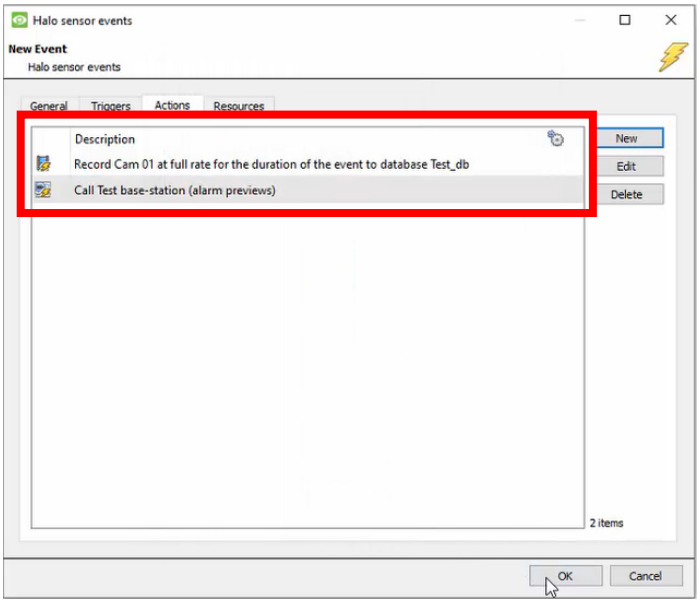
Advanced



→ From the Advanced tab, **choose** to *perform the action* either at the start of the event, or once the event triggers have subsided.

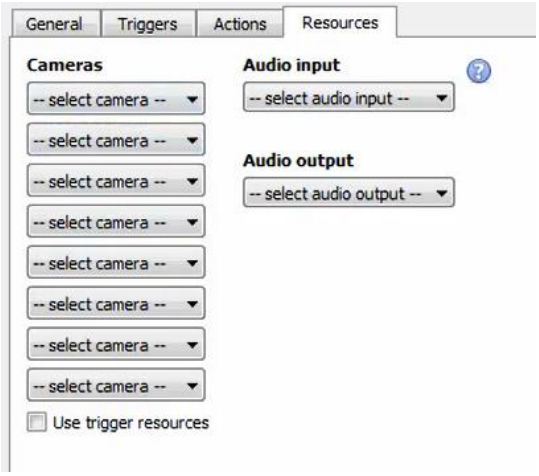
The two checkboxes allow the user to set the action to repeat every few seconds, and/or not run for a period after it has triggered.

→ **Select the schedule**. This is a standard Cathexis schedule, which may be applied to the actions.



All actions will be listed under the actions tab once set.

4.6 Resources Tab



In the Resources tab, users can select the cameras, audio input, and audio output to be used.

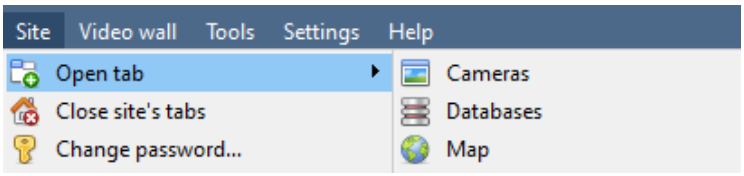
The default is to select “Use trigger resources.”

5. Camera Tab Overlay Setup

Once all the relevant settings have been configured, the fence system *overlay* can be pulled through over the appropriate camera feed.

Note: Cameras must have already been added to device objects, and overlays need to have been configured.

5.1 Navigate to the Cameras Tab



To see the camera feeds, go to the Cameras tab by following this path.

Site / **Open tab** / **Cameras**

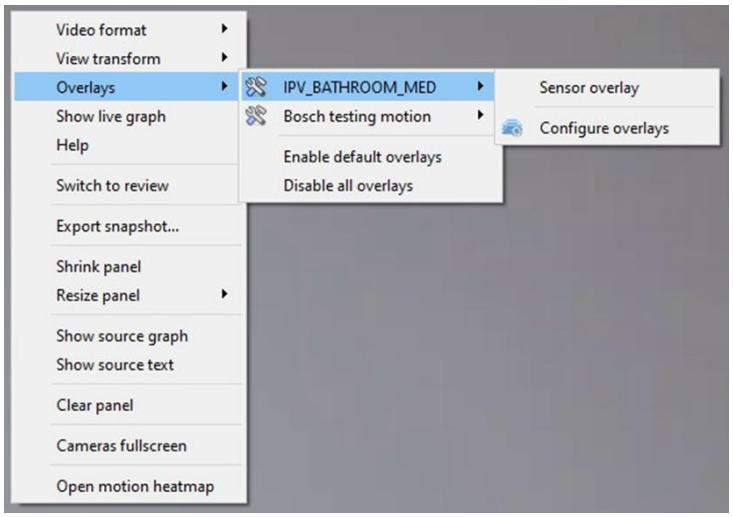
5.2 Video Feed Options Panel

To bring up the overlay, click the arrow to the left of the screen.

This will pop out the Video feed options panel.

The Video feed options panel will present options specific to the settings that have been configured.

Right-clicking on the feed will also bring up the overlay option as shown below.

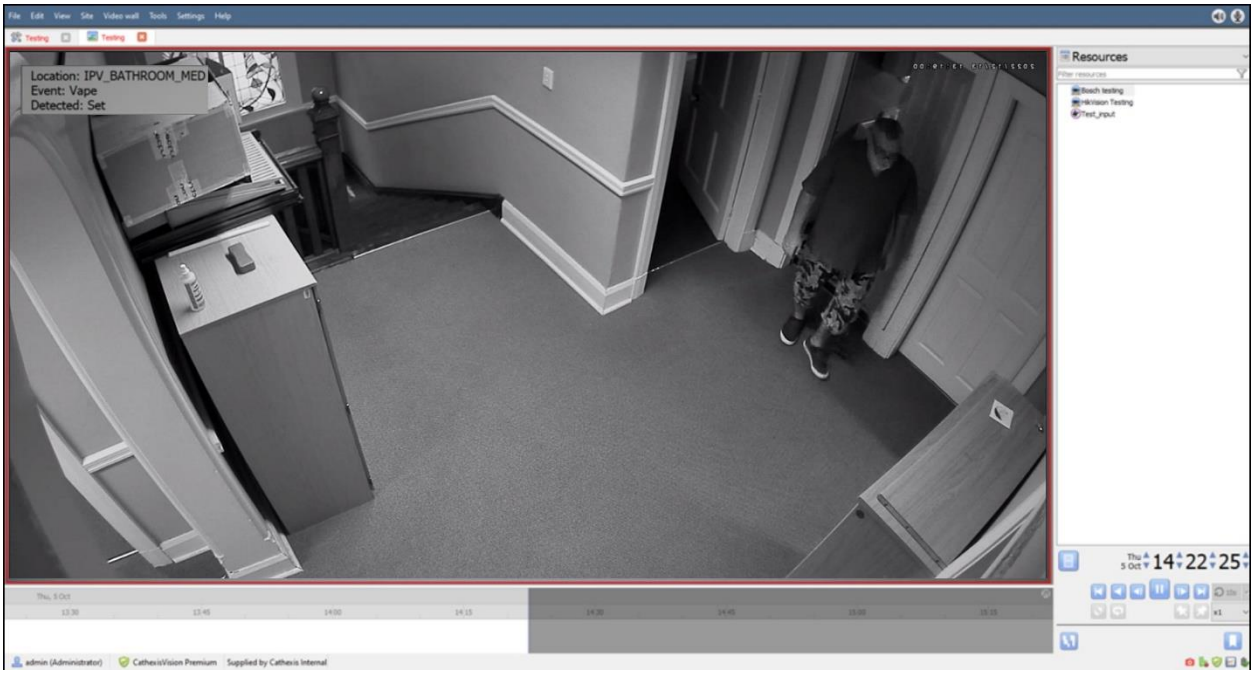


Through the right-click option, one can select the overlay and it will appear over the video feed, as above.

5.2.1 Select the Overlay

→ **Clicking** this icon will bring up the overlay options for this video feed.
→ **Select** the **device** and **enable** the overlay.

The overlay will appear over the video feed, as below.



5.3 Enable Overlays from the Database

→ Click this arrow on the central panel of the database.

→ Select the overlay icon on the left side of the camera player screen.

→ A red dot indicates that the overlay is enabled.

The overlays will appear as configured by the user.

For this integration the overlay is configured to show the device name (Location), event type (Event), and status (Detected) of the selected database entry.

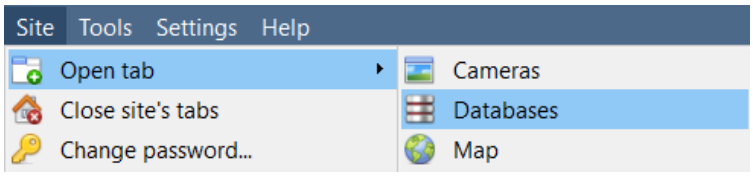
6. Database

The Databases tab allows the user to navigate to the databased entries for each individual database. In the Databases tab, each database is presented as a table. It has built in filters, and the ability to navigate by timestamp. If a database entry has an associated recording, this recording can be launched from within the Databases tab.

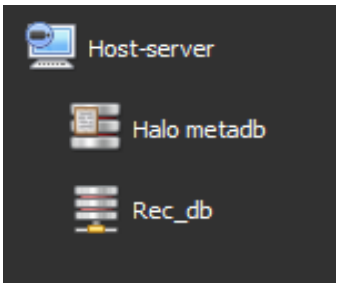
Most integrations will have a different database presentation, and unique filters, due to the different parameters sent to CathexisVision by the integrated device.

6.1 Navigate to the Database

To view information stored in the Integration, first navigate to the Databases Tab:



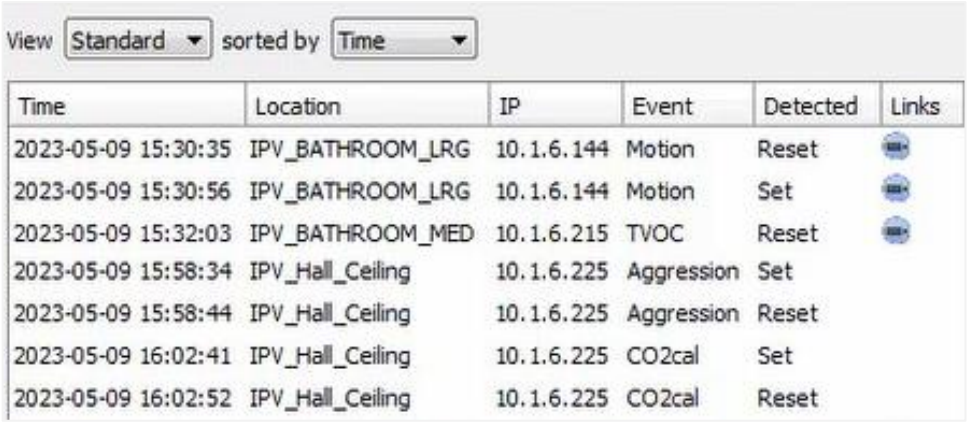
→ **Follow the path** on the left: **Site** / **Open tab** / **Databases**.



→ **Select** the **HALO Smart Sensor** integration database from the database panel that opens on the left-hand side.

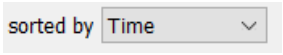
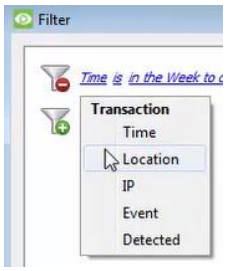
The databases are ordered under the NVRs to which they are attached.

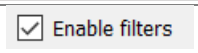
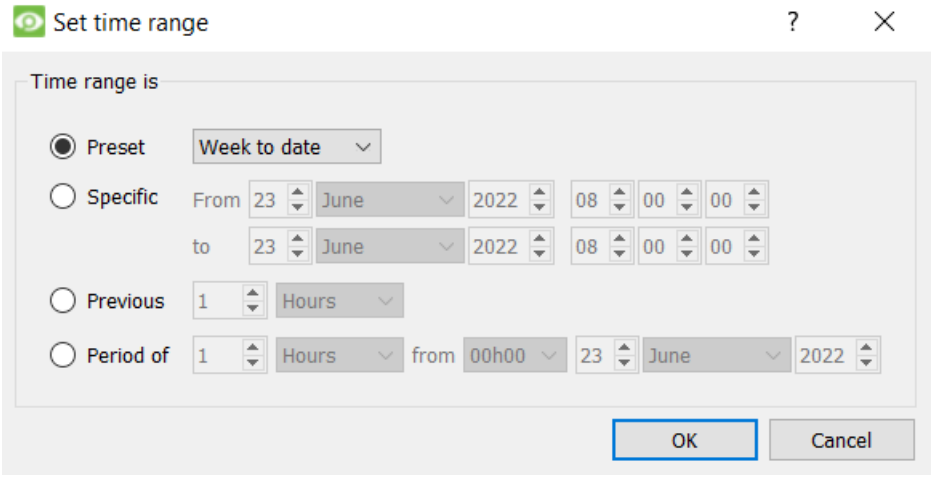
Below is an image of a **HALO Smart Sensor** database.



Time	Location	IP	Event	Detected	Links
2023-05-09 15:30:35	IPV_BATHROOM_LRG	10.1.6.144	Motion	Reset	
2023-05-09 15:30:56	IPV_BATHROOM_LRG	10.1.6.144	Motion	Set	
2023-05-09 15:32:03	IPV_BATHROOM_MED	10.1.6.215	TVOC	Reset	
2023-05-09 15:58:34	IPV_Hall_Ceiling	10.1.6.225	Aggression	Set	
2023-05-09 15:58:44	IPV_Hall_Ceiling	10.1.6.225	Aggression	Reset	
2023-05-09 16:02:41	IPV_Hall_Ceiling	10.1.6.225	CO2cal	Set	
2023-05-09 16:02:52	IPV_Hall_Ceiling	10.1.6.225	CO2cal	Reset	

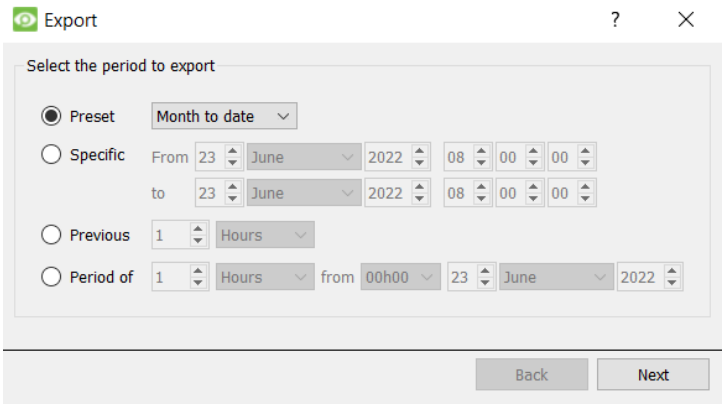
6.2 Database Interface

1 **View**	Change the way that the database is presented. Some integration databases have multiple view options. Click the field to see the available options in the drop-down menu.  The database view presentation available for the **HALO Smart Sensor** integration is: • **Standard**
2 **Sorted By**	Sort the Events based on the following parameter: **Time.** 
3 **Easy Search**	Easy Search options allow quick searching of the database. Click the field to see the available options in the drop-down menu.  The following options are available: • **Time** • **Location** • **IP** • **Event** • **Event detected** • **Detected**
4 **Filter**	Filter offers a more advanced manner of sorting information in the Integration Database table. For this integration the database can be filtered according to:  • **Time** • **Location** • **IP** • **Event** • **Detected** Once the filters dialogue is open, the following options are available:

	1. To **enable** filters, check this box:  2. To **add** a new filter, click on  . The filter icon  will change to  when filters are active. 3. To **delete** an added filter, click  . A **Time range,** within which the search will be conducted, may also be set. To set a Time range, click on the **blue hyperlinked text** which specifies time (e.g. in the week to date). This will bring up the following dialogue box, where the time range can be defined:  **Note**: 1. Multiple filters may be run simultaneously. Filters with the same parameters may be run more than once. 2. To change a filter, click on the blue hyperlinked text.
5 **Export**	Generate metadatabase reports in PDF or CSV format. See below.
6 **Manage Reports**	Generate scheduled metadatabase reports. See below.
7 **Go to Time**	This navigates to a specific point in time, down to the second. To navigate to a timestamp, set the time using the time and date boxes.  Then, click on the arrow icon.

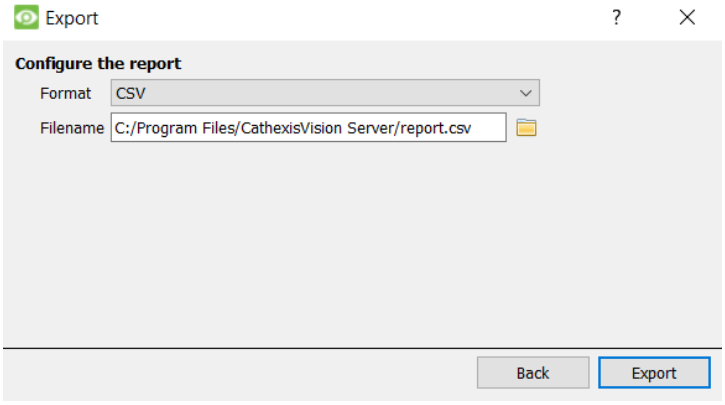
6.2.1 Generate and Export Metadatabase Reports

 → Click the save icon to open the Export window.



→ Select the **Period** to export and enter the required details.

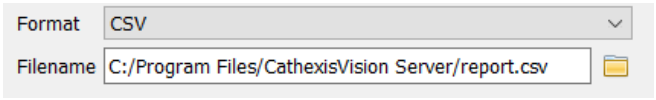
→ Click **Next**.



→ Select the **Format** to export the report in; either CSV or PDF.

See below for the two options.

6.2.1.1 Export CSV

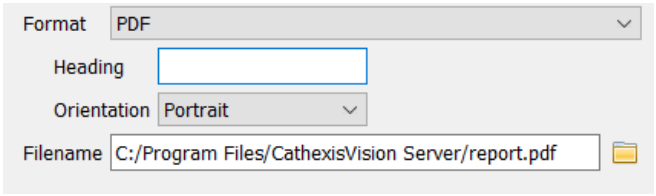


→ Select CSV **Format**.

→ Edit the **Filename** by entering it into the text field (replacing **report.csv**).

Or, click the folder to choose a new save folder and filename.

6.2.1.2 Export PDF



→ Select PDF **Format**.

→ Give the PDF a **Heading**.

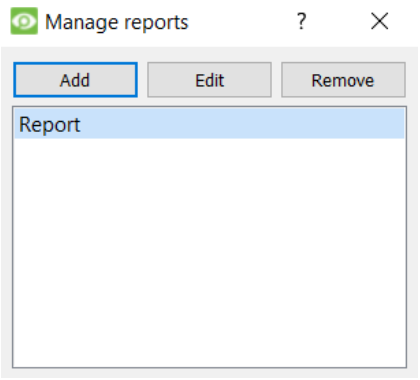
→ Select either Landscape or Portrait **Orientation** of the PDF.

→ Edit the **Filename** by entering it into the text field (replacing **report.csv**).

Or, click the folder icon to choose a new save folder and filename.

6.2.2 Scheduled Metadatabase Reports

→ Click the report icon to open the scheduled report window.

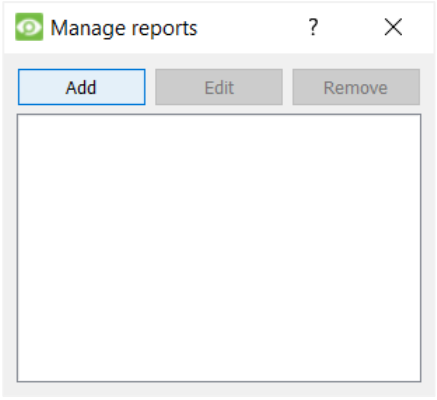


All created reports will be listed here.

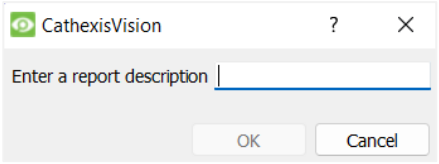
→ Click **Add** to create a report.

→ Then **edit** to define the reporting schedule. See below for more detail.

6.2.2.1 New Scheduled Report

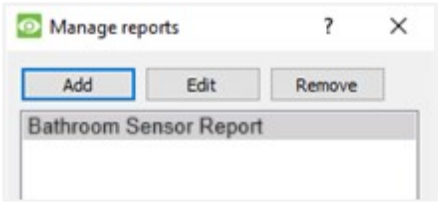


→ In the Manage reports window, click **Add**.



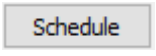
→ Give the report a description.

→ Click **OK**.

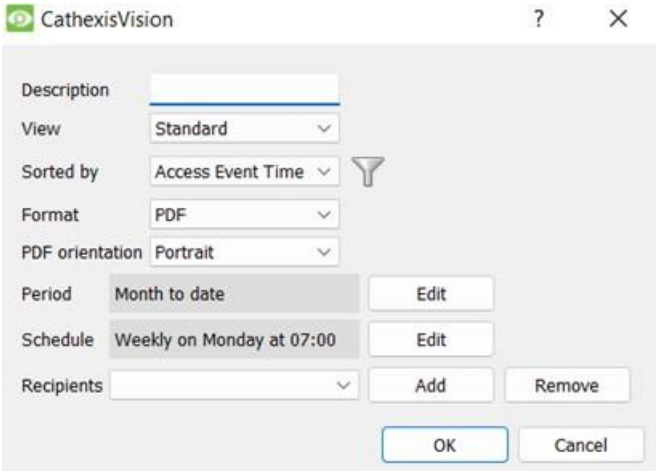


The item will appear in a list.

Once the new report is listed with the other reports, select it for editing to define the reporting schedule.



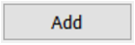
→ Either right-click the entry and select schedule or **select the entry** and **click the schedule button** at the bottom of the screen



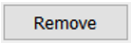
→ Edit the **Description** if needed.
→ Edit the **View** options.
→ Select a **Sorted by** option.
→ Select the **Format**.
→ Select the **orientation** of the Format.
→ Select the **Period** to be reported on.
→ Define the **Schedule** for the report.
→ Select **Recipients** from the drop-down menu to whom reports will be sent.

Add/Remove Recipients

Use the icons to edit the drop-down menu.

Add recipient 

Click **Add** and enter the email address of the recipient. Multiple recipients may be added. All will receive emails.

Remove recipient 

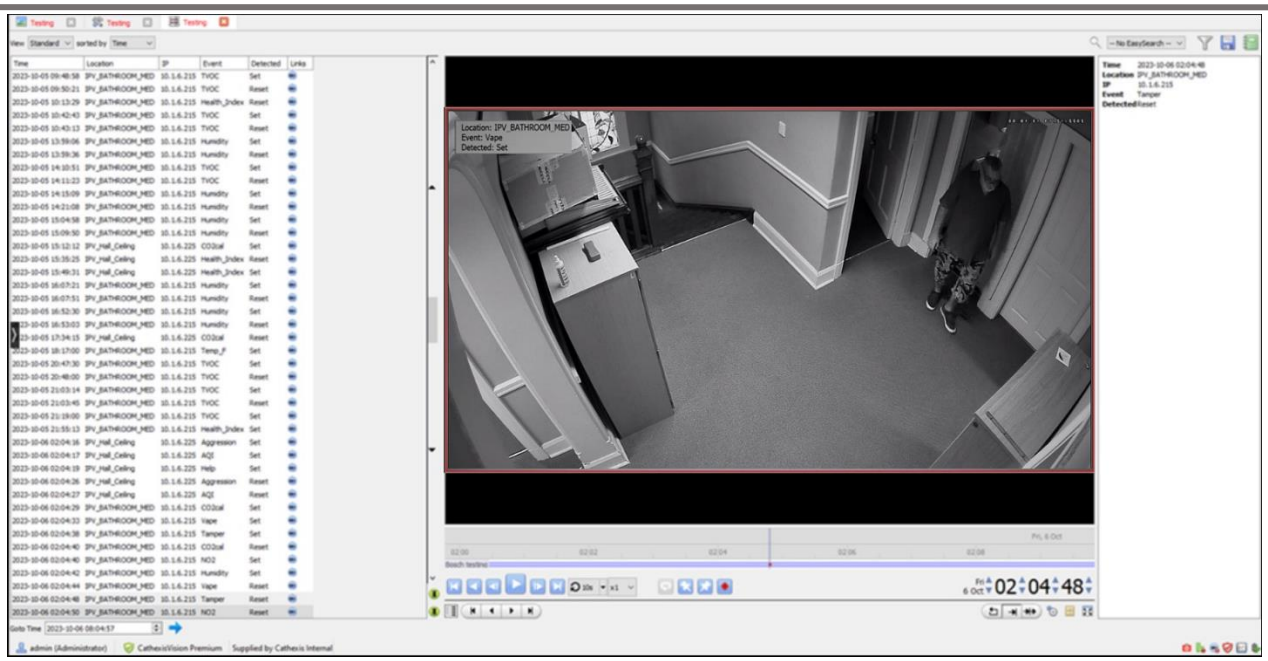
Select the recipient from the drop-down menu and click **Remove**.

6.2.3 Metadata

On the right-hand side of the database, metadata about the event entry is displayed.

6.2.4 Viewing an Entry's Associated Recording

If cameras are attached to device objects in the integration setup, and these cameras are set up to record continuously, each integration database entry will have a corresponding recording. See the image below.



To view an associated recording, simply left-click on a database entry which has the camera icon in the **Links** column.

Then click **play** in the video player.

7. Maps

It is possible to add the HALO Smart Sensor device to a site map, which will allow for a number of action options when zones/partitions are triggered. These options include the animation of triggered zones and connecting to site cameras when zones are triggered, etc.

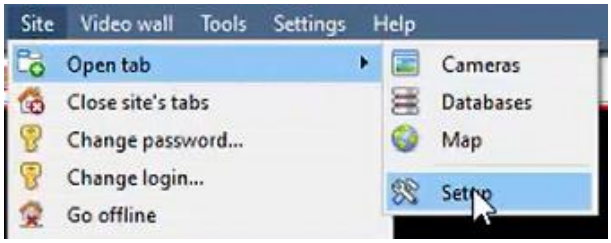
Note:

- This section will only deal with the specifics of the HALO Smart Sensor Integration. For more information on using the CathexisVision Map Editor and Map Tab, please consult the dedicated and detailed ***Map Editor Operation Manual***.
- The CathexisVision Map Editor is only available on **Windows** operating systems.

7.1 Add HALO Smart Sensor Device as a Resource

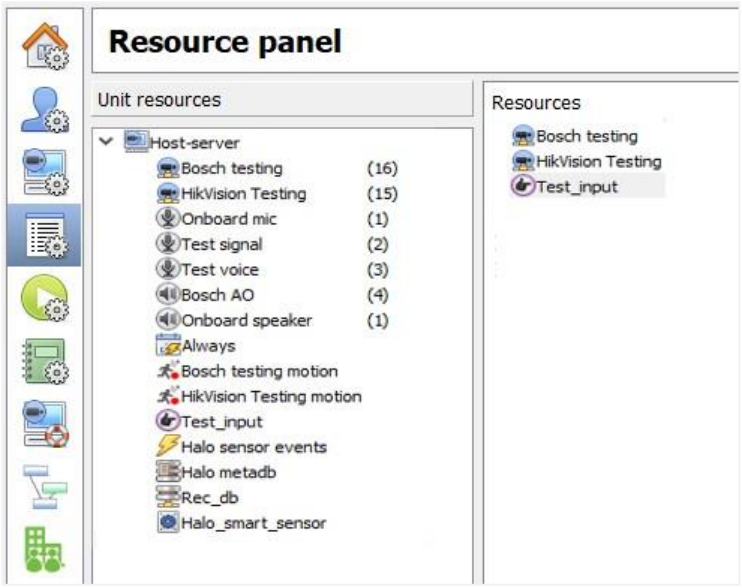
To configure the map, the HALO Sensor Smart Sensor device must be added as a resource to be added to the map.

7.1.1 Add the Device in the Resource Panel



→ Navigate to the **Resource Panel** by following:
Site / Open Tab / Setup / Configure resource Panel

→ Click the **Configure Resources** icon.



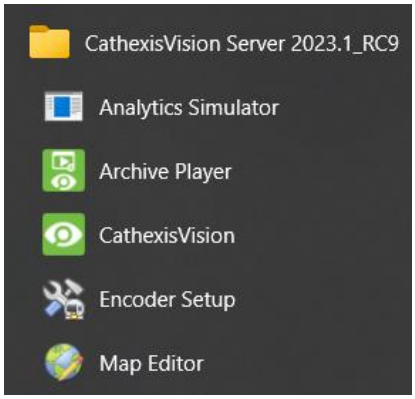
In the site's Resource panel, a list of resources will be displayed.

→ Select the **HALO Smart Sensor** integration device.
→ Drag and drop it under **Resources** on the right.

The HALO Smart Sensor integration device will now be listed as a Resource in the Map Editor.

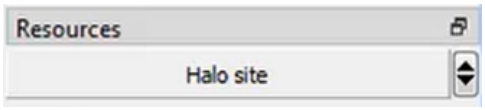
7.2 Configure Map Editor

Open the **CathexisVision Map Editor** software.



Follow the filepath:

Start / All Programs or Apps / CathexisVision / Map Editor



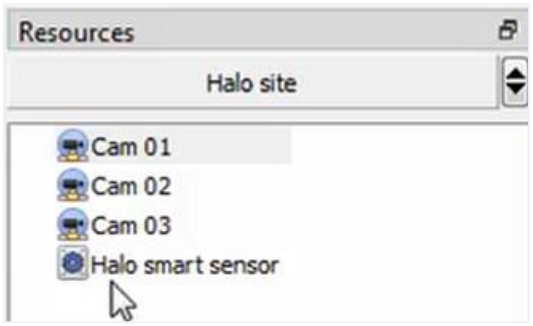
In the **Resources** panel on the bottom right, **select** the HALO Smart Sensor Site.

The HALO Smart Sensor integration device will then be listed as a resource underneath.

7.2.1 Add the Device in Map Editor

Once the HALO Smart Sensor device has been added as a **Resource** in CathexisVision, the HALO site will be available for connection in the **Resources** panel in the bottom-right corner of the Map Editor.

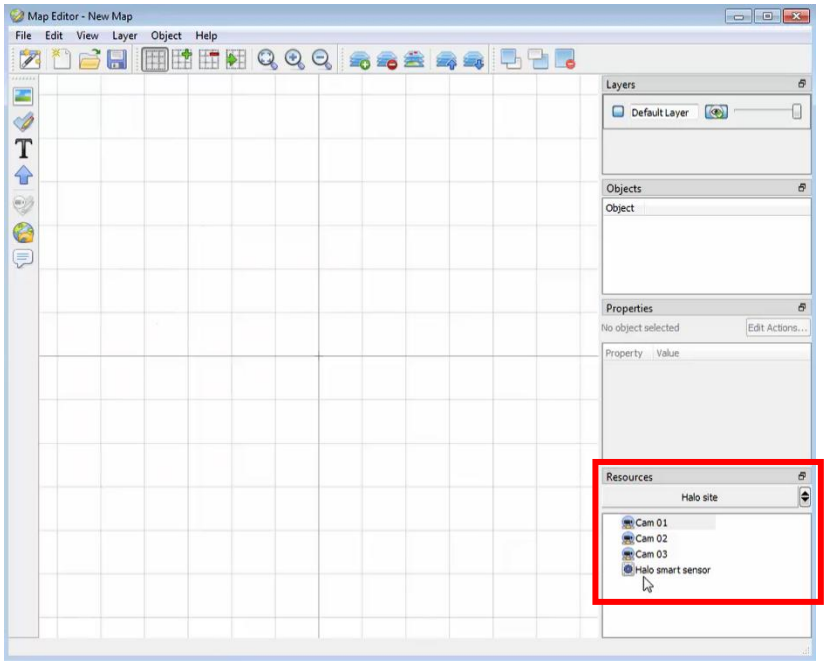
→ At the bottom right-hand of the Map Editor screen, click the drop-down menu to select the site to connect to.



→ Once connected to site, all the resources available will populate the panel below.

7.2.2 Add Device Objects

The Map editor will appear as below, with the selected site and resources appearing in the bottom right.



→ Drag the **HALO Smart Sensor** device from the Site Resources list onto the **map area**.
→ All the **HALO Smart Sensor** device objects will appear in a list.
→ Select an object.

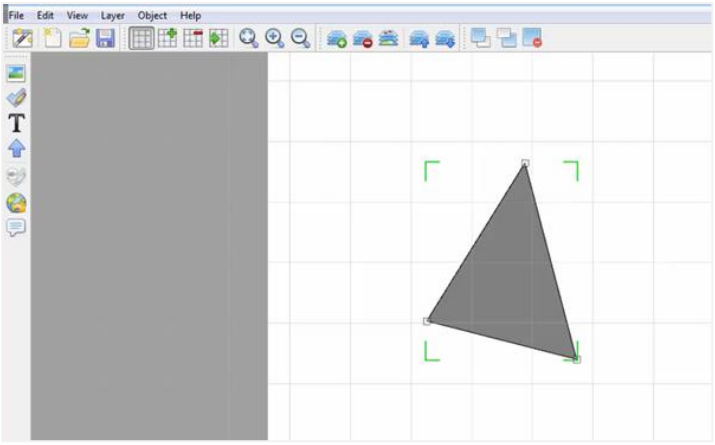
→ The selected object will appear on the map.

Note: To add multiple objects, repeatedly drag-and-drop the HALO Smart Sensor device onto the map area to bring up this option.

7.2.3 Add a Polygon

Some Actions require a polygon to show the action.

1. Select the draw icon in the icons bar on the left to begin creating a shape.

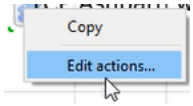


2. Use the mouse to draw the sides of the polygon (i.e., shape) on the map interface.

The polygon will now be listed under **Objects** on the right.

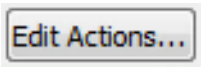
7.2.4 Adding and Editing Device Actions

→ To add or edit actions to the device objects, either:



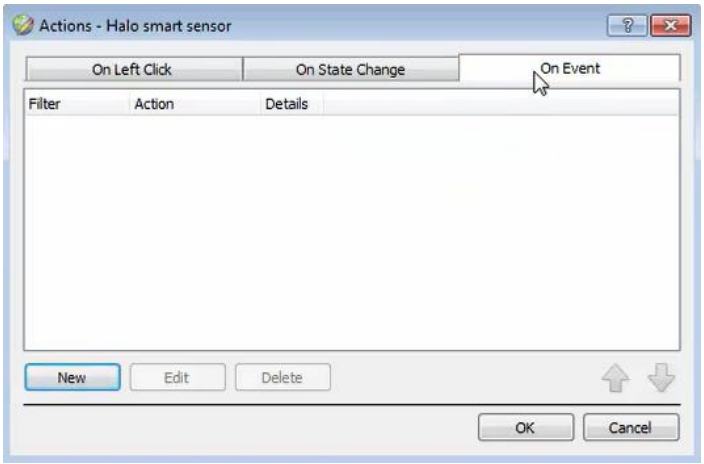
Right-click the map object and select **Edit actions**.

Or



Select the object on the map and click **Edit Actions** (in the Properties panel on the right)

This will open the **Actions window**.



For CathexisVision integrations, Actions may be set for **Left/Right-Clicks**, **State Changes** and **Events**.

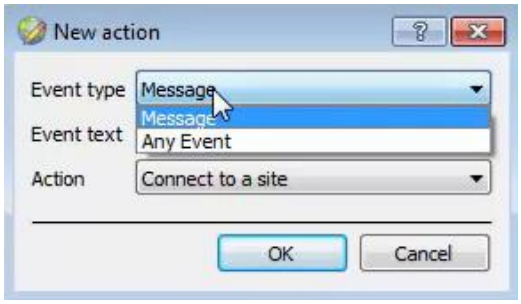
→ To create a new action, select 

.

7.2.5 Action Options

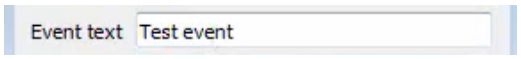
The action triggers will differ according to the object selected, as well whether the action is being set for a Click, State Change, or Event. In the HALO Smart Sensor Integration, Actions may only be set for **Events**.

7.2.4.1 On Event Tab

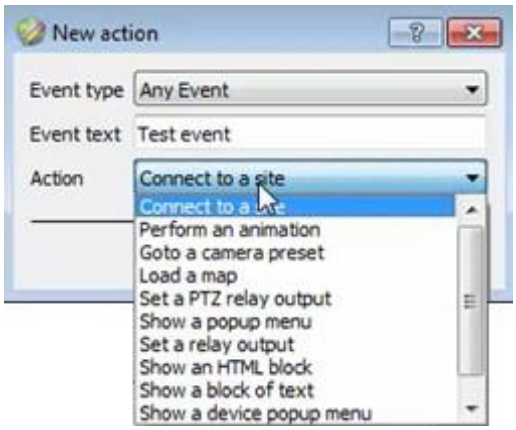


→ Select the event type of the device object which will trigger the map action.

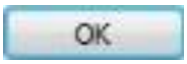
For this integration the available event types are: **Message** and **Any Event**



→ Enter Event text which will appear on the map when the selected event triggers this map action.

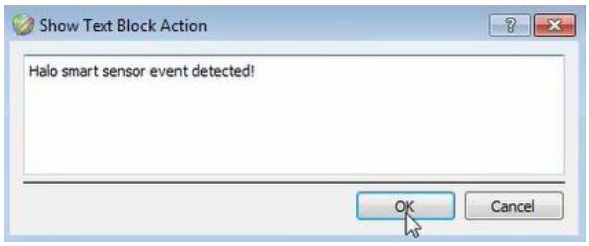


→ Select the map action which will be triggered by the device object event.

→ 

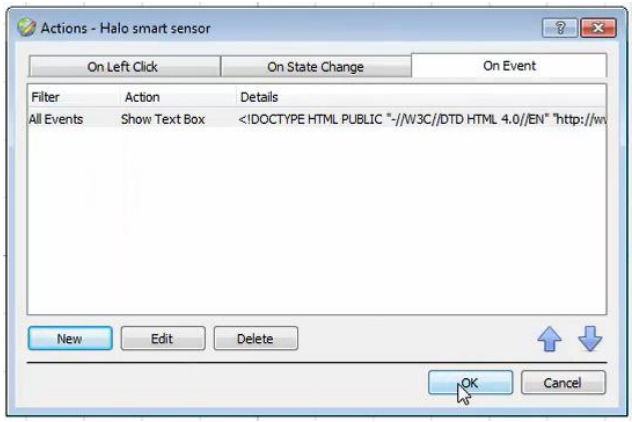
Click **OK**.

Note: Some actions such as *Show Text Block* will require a further step of setup



→ Setup as desired.

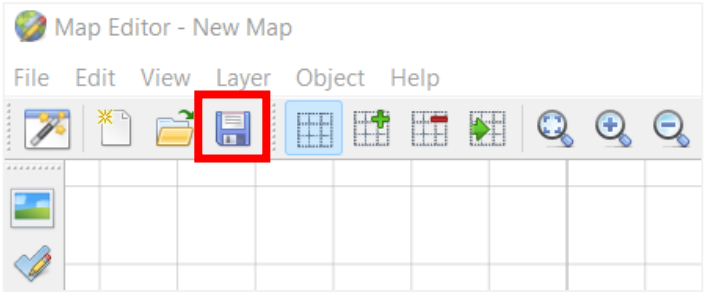
All set actions will appear under the On Event Tab in the Actions window as shown below:



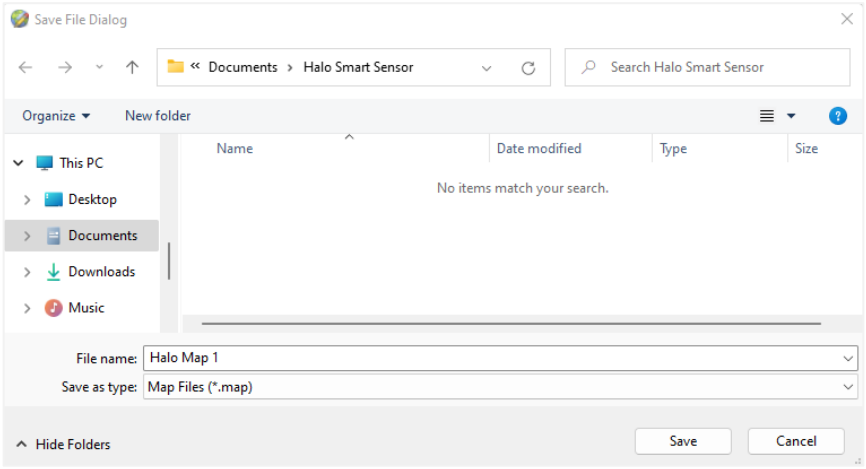
Note: Multiple actions may be added to the map objects.

7.3 Save Map

Once finished, save the map.



→ In map editor click the **Save** icon.

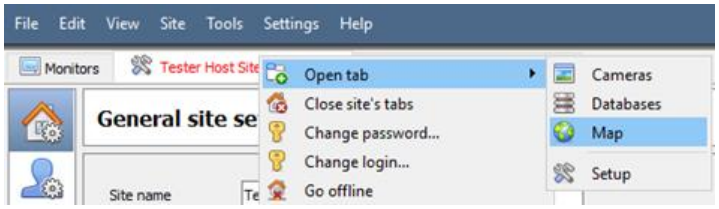


→ Navigate to the desired folder.
→ Give the map a name.
→ Click **Save**.

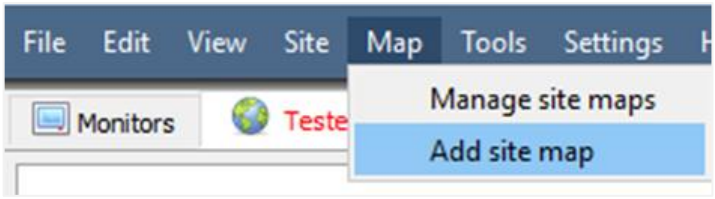
Note: **NB** - The map **must not be saved** in the Work folder of the installation directory.

7.4 CathexisVision Map Tab

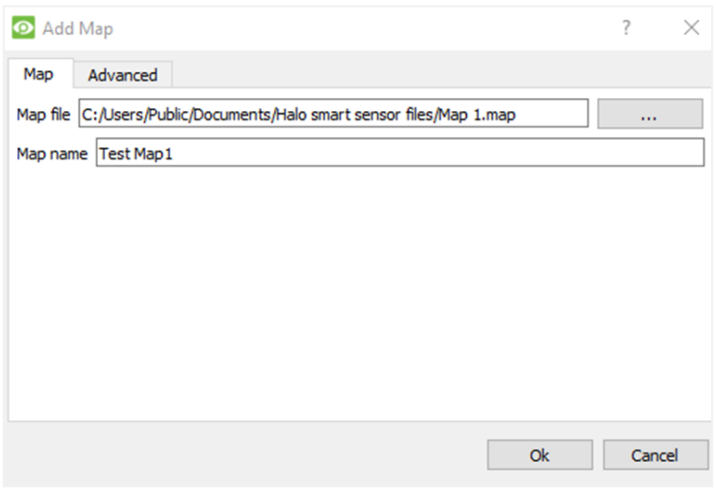
The saved map now needs to be uploaded to CathexisVision. Once opened in CathexisVision, all objects added to the map area in the Map Editor will be visible on the map, and all actions set will be available.



→ Navigate to the Map tap by following the filepath:
Site / Open tab / Map



→ Once the Map tab is opened follow the filepath: **Map / Add site map**



The **Add Map** window will open.

→ Click the icon to retrieve the **Map file** from its location.

→ Give the map a **descriptive** name.

→ Click **OK**.

Once the map is open, all objects added to the map area in the Map Editor will be visible on the map, and all actions set will be available.

8. Conclusion

This document was designed to deal specifically with this integration. For further information about the CathexisVision software, consult the main manual (https://cathexisvideo.com/).

For support, email support@cathexisvideo.com.

USEFUL LINKS

*To view **tutorial videos** on CathexisVision setup, visit https://cathexisvideo.com/resources/videos*

*Find answers to Cathexis **Frequently Asked Questions**: https://cathexis.crisp.help/en/?1557129162258*