Optex REDWALL/REDSCAN Laser Scan Detector Integration Guide

Contents

1 Introduction

This document will detail the integration of the Optex REDSCAN Laser Scan Detector device (which is part of the Optex REDWALL product range), with the CathexisVision software. [1] CathexisVision will receive information from the integrated device which scans the area to detect movement. Multiple devices can be added, and CathexisVision will receive information from each device regarding the trigger and the type of alarm that is triggered. A heartbeat received from the device will alert CathexisVision in the event of a communication failure.

Note:
1. For information regarding the regular operation of an Optex device, please consult the relevant documentation.
2. There is a General Integration section in the main CathexisVision manual. It has vital information about creating an integration database, as well as a general introduction to the Integration Panel. **Read over this section**.

a. Requirements

CathexisVision Requirements

- *CathexisVision Software*

  - CathexisVision 2017 Service Pack 2 and later.

- *CathexisVision Licenses*

License Code	License	Description
CORL-1001	Optex REDWALL Laser Scan Detector object license.	Licenses individual objects.
CORL-2000	Optex REDWALL Laser Scan Detector device license.	Licenses device.
CORL-3000	Optex REDWALL Laser Scan Detector bundle license.	Includes device and unlimited object licenses.

Optex REDWALL/REDSCAN Requirements

The following are the Optex REDWALL/REDSCAN firmware versions supported for this integration: [2]

- REDWALL version PIE-1.

Note: As CathexisVision has integrated with the REDWALL module version PIE-1, any REDWALL devices using this module will also be integrated with CathexisVision.

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[1] While Cathexis has made every effort to ensure the accuracy of this document, there is no guarantee of accuracy, neither explicit, nor implied. Specifications are subject to change without notice.

[2] Cathexis makes a best attempt to ensure that the equipment and license requirements of the 3rd party equipment are adequately specified. However, it is possible that the requirements of the 3rd party equipment may change over time, including the interface hardware/firmware and licensing. The reader is urged to clarify the latest requirements directly with the 3rd party equipment supplier.

b. Integration Components and Features

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. Adding an integration to the CathexisVision system means adding a device. 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.

Optex REDWALL/REDSCAN Integration Features

This section indicates the features/abilities of the REDWALL/REDSCAN device when integrated with CathexisVision.

- ### General Device Features

  - As CathexisVision has integrated the REDWALL module version PIE-1, any devices in the REDWALL product range using this module will also be integrated with CathexisVision.
  - Communication between CathexisVision and the device takes place over Ethernet connection.
  - Heartbeat received from device monitors communication with CathexisVision and indicates whether device is in Normal or Offline state.
  - All CathexisVision device events are databased.
  - Some device objects can be used to trigger events, and some can be controlled as event actions.
  - Device can be embedded in a site map which offers multiple action options when messages are received from the device, and/or the device triggers an event.

Note:
  - Overlays not supported.

- ### Device Objects

The REDWALL device only has Sensor objects, which are generated automatically when events are received from the particular devices.

Object Type	Feature	Abilities
General		- Device objects will be generated automatically when device events are received. - Presence of some object states/properties are dependent on state of object.

		• Objects may be linked to cameras to associate device events with video footage.
Sensor	**General**	• Sensor object has multiple state options, dependent on device and event. • Indicates condition of various facets of the object. See below.
	State Indication	**The Sensor object supports multiple states which indicate the condition of the sensor.** These are: • Normal/Offline status (heartbeat). • Master Alarm Condition. • Disqualification Circuit Activated. • Anti-rotating Function Activated. • Anti-masking Function Activated. • Sensor Error Condition. • Dirt on Laser Window. • Tamper Circuit Activated. • Fault Circuit Activated.

	Object Conditions	The sensor object may have various object conditions, besides the states, which are indicated in device events. These include but are not limited to:
		• Alarm state.
		• Nature of the 'Latest Detection' message, e.g.:
		   ○ Creep.
		   ○ Far.
		   ○ Far near.
		• Indication of whether detection made in multiple locations.
		• Tamper indication.
		Note: Presence of conditions dependent on device and event type.

	Command	Not possible to command sensor object.

- *Events*

A CathexisVision Event has a trigger, which causes an action. The Optex REDWALL/REDSCAN device can be used to trigger an event. The device cannot be controlled.

Event Element	Features/Abilities
General	• A message is displayed when communication to the panel is lost. • Status and Detection type events may be configured. • Events are populated in the device events section, and in the Meta-database.
Event Triggers	Sensor objects (and groups of appropriate objects), and object conditions may be used to trigger CathexisVision events:

- Sensor Object (and groups of objects).
- Notification.
- Latest Detection.
- Multiple locations.
- Object ID.

Event Actions	All CathexisVision events can generate actions, such as: • Recording cameras and trigger cameras. • Sending alarms to base-stations. • Sending emails. • Control PTZ/virtual output/virtual input. • Play audio clip. The Optex REDWALL/REDSCAN device cannot be controlled as an event action.

c. Meta Database

A unique meta-database 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 messages received from the device are entered into the database. • Database entries include the footage from cameras linked to device objects. • Multiple cameras may be linked to multiple objects. • Device event meta-data is displayed where applicable. • Databased device events may be viewed in the embedded video player, which includes the usual CathexisVision video review tools.
View Options	The meta-database may be viewed by the following options: • Detection events. • Status Events.
Sort Options	The meta-database may be sorted by: • Device event time.
Easy Search	The meta-database may be searched specifically for: • Object. • Notifications. • Latest Detection. • Multiple Locations.
Filter	The meta-database may be filtered according to: • Time. • Event Type. • Object. • Notification. • Latest Detection. • Multiple Locations.
Export	Database entries may be exported in PDF and CSV format.

- *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 a state change message is received from the device.[3] - 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. - Show a device event notification.

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[3] See the Device Object Features table, above, for state change information.

2 Device Addition and Configuration

This section will detail the procedure for setting up the two systems to effectively communicate with each other.

a. REDWALL/REDSCAN Web Interface

The only thing that needs to be done here is to make sure that the port number matches the one entered when adding the integration in CathexisVision.

b. Devices Section (Add a New Device in CathexisVision)

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:

The Integrations Panel
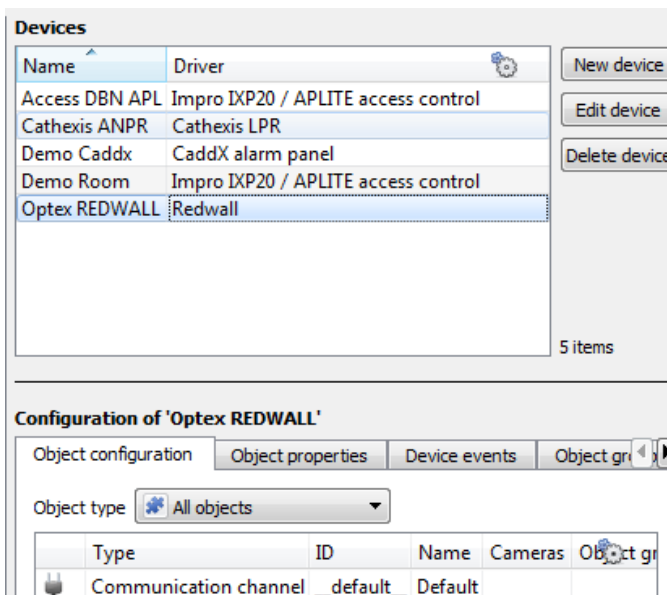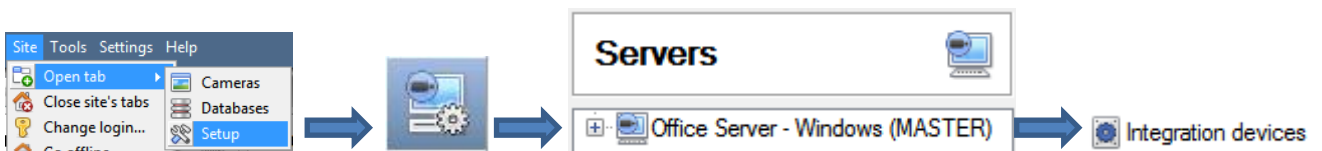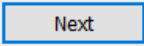
There are two sections in the Integration Panel:

The **Devices** list will list the integration devices that are attached to the server.

The **Configuration** section enables the editing/review of the device which added in the **Devices** section.

- *Device Addition*

  1. Once in the Integration Panel, click on New device, in the Devices section. This will open the addition dialogue.
  2. Select the Redwall driver from the list and click on Next.

Name the device.

Enter the **UDP Listen Port number**. Leave this as default unless a different port number has been configured.

Click **Finish** when done.

c. Configuration Section (Tabs)

The configuration section is divided up into a number of tabs. These tabs are: **Object configuration, Object properties, Device events, Groups,** and **General.**

Note: Device objects will be generated automatically when device events are received.

Object Configuration Tab
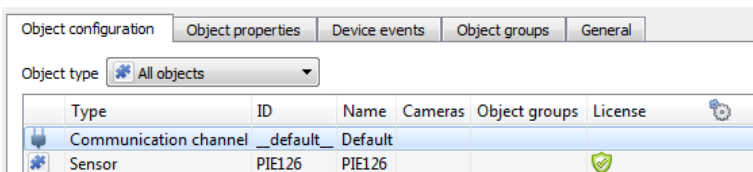
The object configuration tab is the tab in which the individual objects that comprise the integration can be viewed.

Objects will only be created when the corresponding hardware is present.

Select the Object type dropdown to view all objects that comprise the integration. Select one of the object types from the menu to view only objects of that type in the list area.
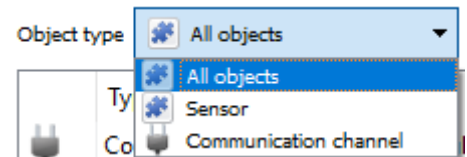
Note: See the Integration Components section, above, for more information on the object types.

- *Object Configuration Buttons*

 Add a new object by clicking on New.

 Will open up an existing object for editing.

 Is used to delete an existing object from the CathexisVision configuration.

- *Object Configuration Right-click Options*
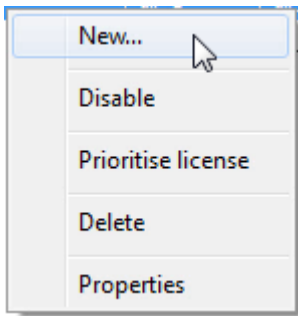
New will open up the dialogue to add a new object.

Disable/Enable will manually enable/disable individual objects.

Prioritise license will give a specific till license preference, in case there are more tills than licenses.

Delete will permanently remove this object from the list.

Properties will open up the object properties. Objects may be edited from here. (Specifically, cameras will be assigned to this object, as well as user access levels assigned.)

Properties: Cameras

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.
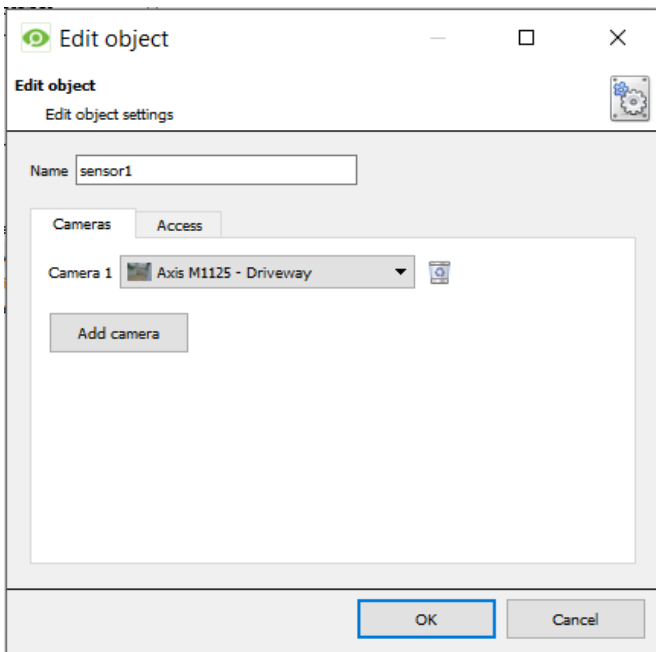
Click **Add camera** .

From the dropdown menu that appears, click the desired camera.
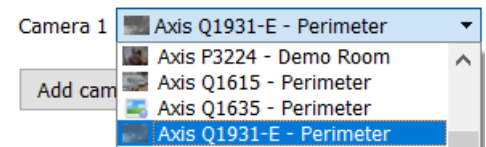
To delete a camera, click on .

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

Properties: Access

Access protects sensitive objects by ensuring that only certain user access levels can access them.

Under **View,** set the access levels.

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

Objects Properties Tab
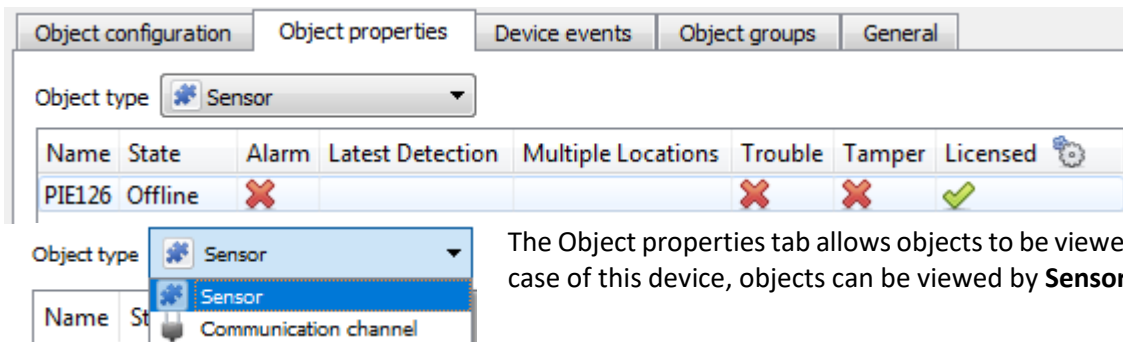
The Object properties tab allows objects to be viewed by type. In the case of this device, objects can be viewed by **Sensor**.

Selecting any of these objects types will populate the configuration section with the object type properties.

- *Sensor Object States*

The sensor object supports multiple states indicating the condition of the sensor. These are:
- Normal/Offline status (heartbeat).
- Master Alarm Condition.
- Disqualification Circuit Activated.
- Anti-rotating Function Activated.
- Anti-masking Function Activated.
- Sensor Error Condition.
- Dirt on Laser Window.
- Tamper Circuit Activated.
- Fault Circuit Activated.

Device Events Tab

This will list all events sent from this device. It is an excellent way for installers to see that the integration is functioning, and to monitor the events happening on site.
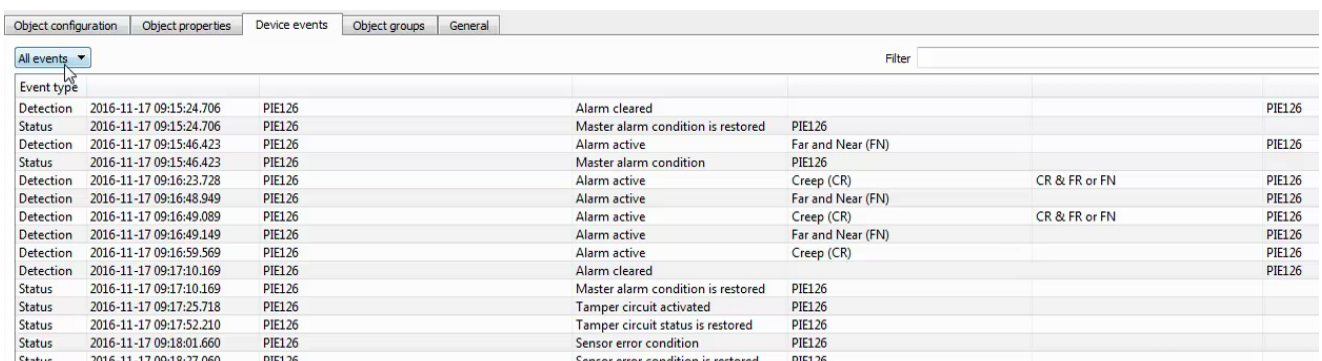
Filter the device events by selecting the dropdown menu and choosing an event type:
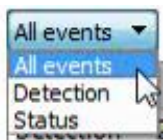
Groups Tab
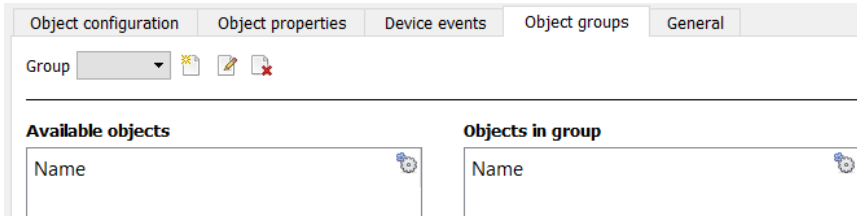
Groups of the same type of object can be created.

This is very useful when setting up Events, because events can be triggered by an object group. (E.G. a group will trigger, if any of the devices in that group are triggered.)

- *Create a Group*
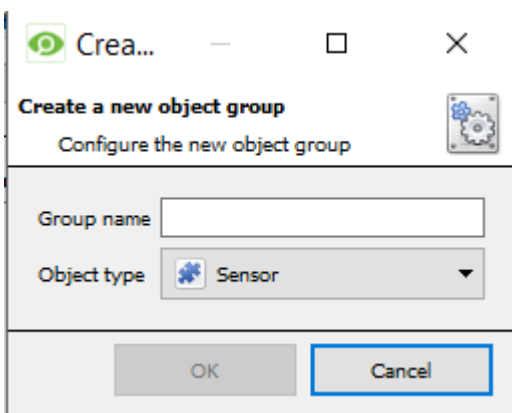
To create/edit a group click on /. (**Note**: Once a group has been created, the object type of the group may not be changed.)

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

Click on the drop-down menu to select the **Object type** to view.

A list of Available Objects will appear. To add/remove, select the object/s (multiple may be selected), and click on /.

General tab
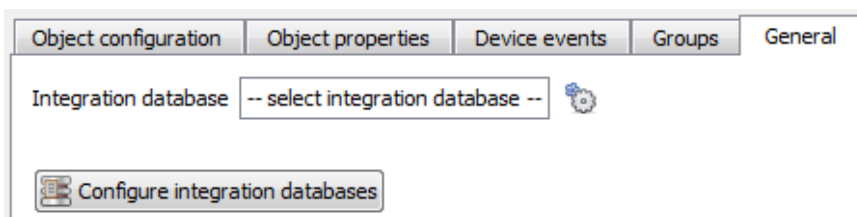
Currently the general tab deals with the **Integration database**. Here it is possible to either select an existing database, or configure a new database for the integration.

Important 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.

- *Configure a new database*
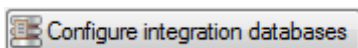
If there is no database created yet, click on this button to set up the integration database.

Initialise the Integration Database
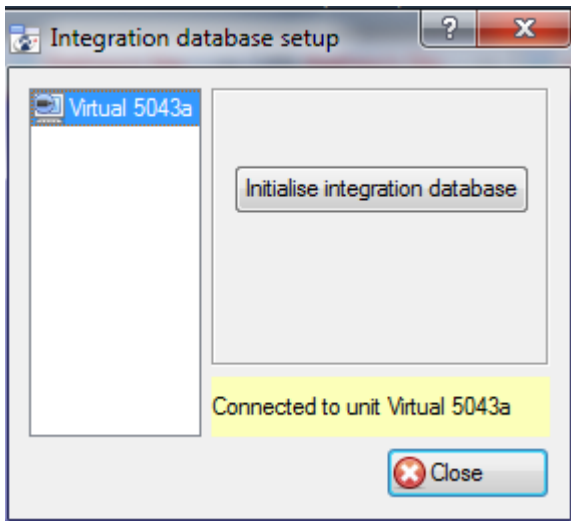
The first time an integration database is added, this feature needs to be initiated on the unit. This will add a broad database, within which all of the integrated device's databases will be added.

Select the unit to add the database to, from the list on the left, and click **Initialise integration database**. Choose which partition the database will be formed on, and select how much space it will take up.
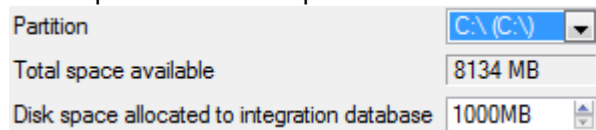
Add a New Devices Database

After initialisation, add the database for the current integration. Click on the **New** button, at the bottom of the Create database window.
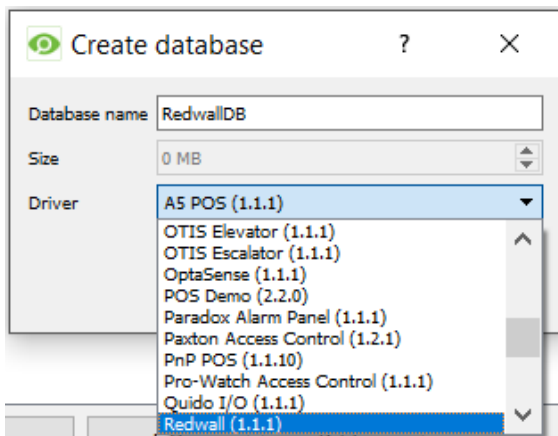
Give the Integration database a descriptive **Database Name**.

Allocate a **Size** to the new device database. The max is 500MB.

Choose the **Redwall Driver**.

Click **OK** to create the database.

Once created, close the **Integration Database Setup** window.

- *Select the Redwall Electric Fence Integration database*

Once a database has been created the user may select it by clicking on the ⚙ icon, and selecting it from the dropdown menu in the dialogue that appears
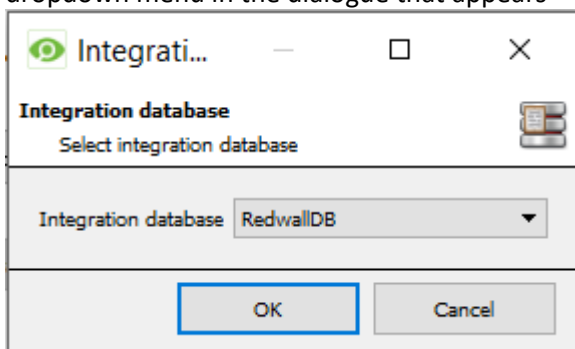
3 Database

a. Introduction

The database tab will allow the user to navigate the databased entries, for each individual database. In the database 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 the user will also be able to launch this recording, from within the database tab.

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

b. Navigate to the Database
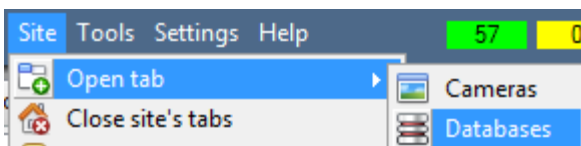
The information stored in the Integration database may be viewed by following this path.

Site → Open tab → Databases
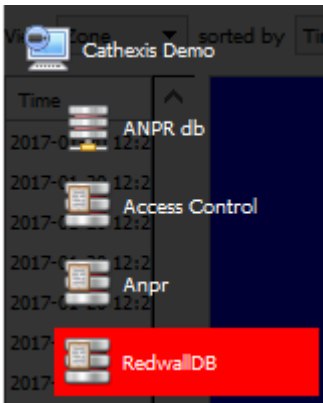
From 2016.2 onwards, when the database tab opens, the relevant integration database must be selected from the database panel that opens on the left hand side. The databases are ordered under the NVRs that they are attached to. To open and close this list click on the arrow in the centre of the list:

❬ and ❭

c. Database Interface

① **View**	The user may change the way that the database is presented.
② **Sorted By**	Events can only be sorted by certain perameters.
③ **Easy Search**	The easy search option lets the user quickly search the database.
④ **Filter** 🔻	Filter offers a more advanced manner of sorting information in the Integration Database table. Once the filters dialogue is open, the following filter options are available: 1. To **enable** filters check this box: ☑ Enable filters 2. To **add** a new filter click on 🔻⊕. 3. To **delete** an added filter click on 🔻⊖. It is possible to filter the same perameters more than once. To change a filter click on the blue hyperlinked text. (For example, click on *Timestamp* to change the filter from Timestamp, to any of the other available options.) The filter options in this integration are:

	Transaction Time Type Object Notification Latest detection Multiple Location **Note**: 1. Multiple filters may be run simultaneously. 2. The filter icon 🔽 will change to 🔽 when filters are active.
⑤ **Export**	Generate meta-database reports in PDF or CSV format. See below.
⑥ **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, and then click on the ➡ icon.

Generate Meta-Database Reports

Click the 💾 icon to open the Export window.

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

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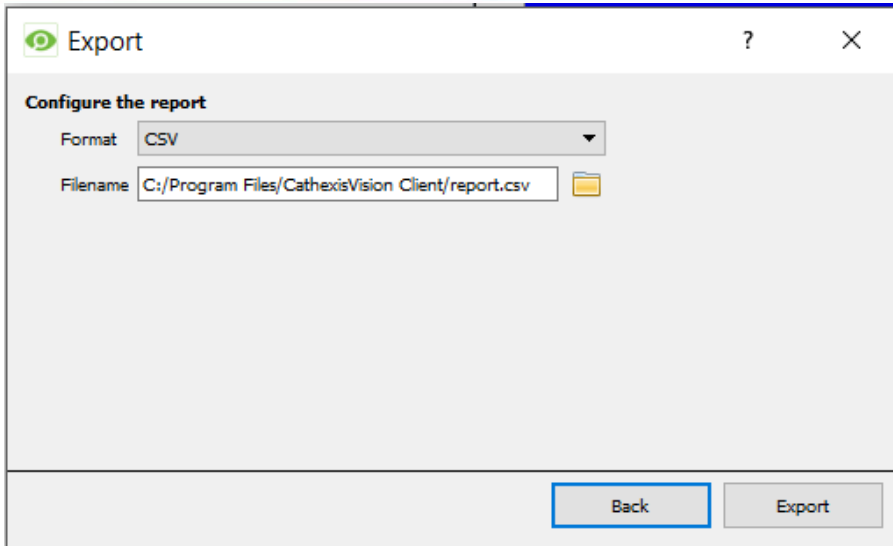
Select the **Format** to export the report in; either CSV or PDF.

See below for the two options.

- *Export CSV*
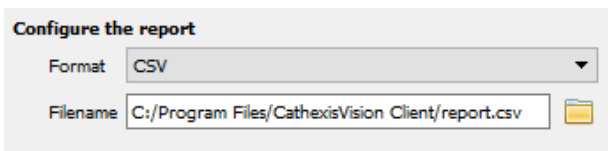
Select CSV **Format**.

Edit the **Filename** by either entering it straight into text field (replacing **report.csv)**, or click the 📁 to choose a new save folder and filename.

- *Export PDF*
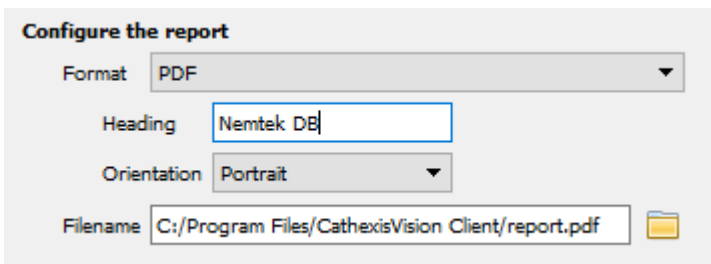
Select PDF **Format**.

Give the PDF a **Heading**.

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

Edit the **Filename** by either entering it straight into text field (replacing **report.csv)**, or click the 📁 to choose a new save folder and filename.

Viewing an Entry's Associated Recording

This integration uses the new video option where the video player is embedded in the database view. This player uses the same timeline features as the CathexisVision cameras tab.

To view an associated recording, simply left-click on a database entry which has the ⬤ icon in the **Links** column. Then click play in the video player.

- *Reviewing Multiple Cameras*

If multiple cameras were added to the recorded object during the integration setup, these are displayed on the left of the video player screen as thumbnails.

Select a camera thumbnail to review it.

- *Device Event Metadata*

When an integration database entry is selected, its event information will be displayed on the right of the video player:

a. Introduction

A CathexisVision Event has a trigger, which causes an action. Integrated devices can be set to act at triggers, or as actions. This document will detail the Optex REDWALL specific aspects of Events. There is a comprehensive guide to CathexisVision Events in the main setup manual. For more information, please consult it.

Most of the data that CathexisVision receives from a device is presented in the Events interface. This is done in order to give the user a full range of options. As a result, some of the options presented in the interface may be *impractical* for being used as an event trigger, or action.
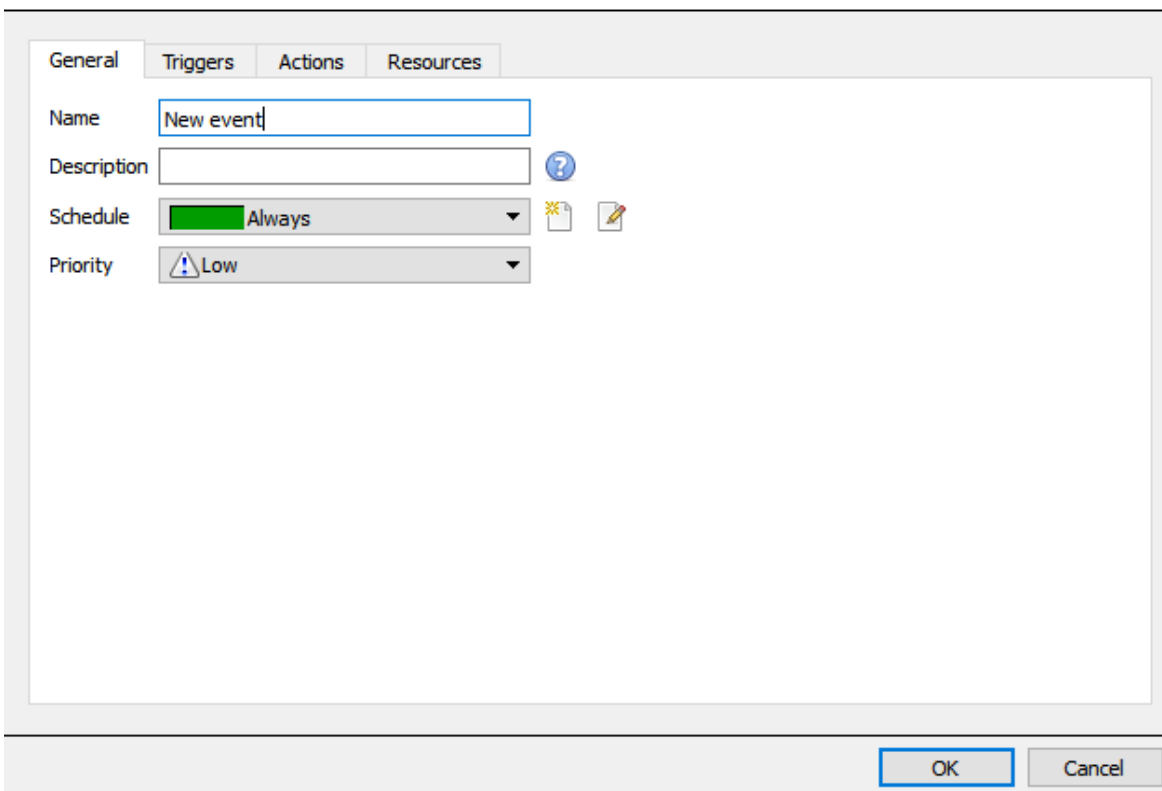
Event Window

Events in CathexisVision are setup via the Event Window. This has 4 tabs:
1. In the **General Tab,** an event is given a name, description, schedule and priority.
2. In the **Triggers Tab,** the trigger/s for the event is defined.
3. In the **Actions Tab,** the action/s which the event takes is/are defined.
4. In the **Resources Tab,** the various site resources which can be used as part of an event are defined.

b. Creating an Event

To create an event using the Optex REDWALL/REDSCAN device, enter the Events management area:

Once in Events management click on [New]. This will open up the New Event window.

• *While/When and Any/All*

When triggering on an object the user will have the option to trigger **while/when** a trigger is active. The user will also be able to select multiple triggers, and define whether **all/any** of the triggers need to be active to start an event.

As usual, to change these settings click on the related, blue, hyperlinks.

c. Triggers

A trigger is the user defined input that tells the event to start. The trigger causes the subsequent action (which the user will also define).

Set the device as the trigger
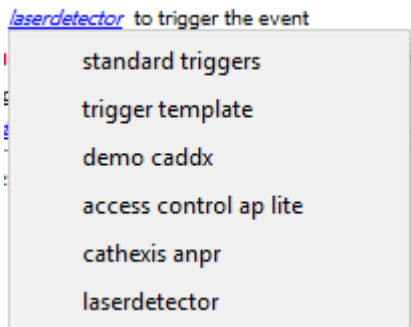
If creating a new event, the trigger type will default to: Use *standard triggers* . To define which device will trigger the event, click on the hyperlink after "use". To set it as the Optex REDWALL device, click on the hyperlink, and select the relevant device name from the dropdown menu.

Trigger Types (Trigger Using)

It is useful to think of this as a **master trigger type**.
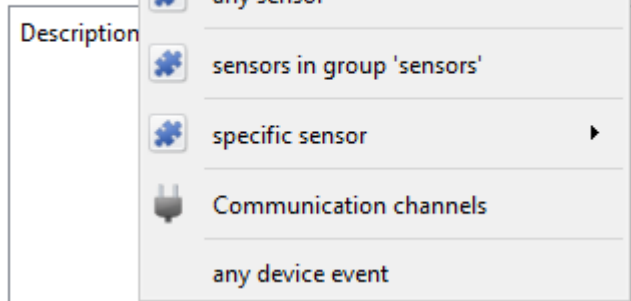
Any … will trigger when on an event from *any* of these objects.

Specific … will only trigger on an event from a specific object.

Sensors in group... If an object group has been set up it will appear in this list. When any object in the group triggers, the event will be triggered.

Communication channels will trigger only on the Communication channels.

Any device event will trigger on any event that occurs on the device. Within the "any device event" setup the user may set "device event rules" which will constrain which device events will trigger the event.

Note for group triggers: For events to be databased under the name of a specific object, and not the name of the triggering group, the Description field in the **General tab of the Event setup** needs to be modified. Click on the to see a list of available descriptions.

Define the Trigger

After selecting a master trigger type, add a trigger to the event. Click on New in the Triggers tab. This will bring up the dialogue box below, for the various trigger types:
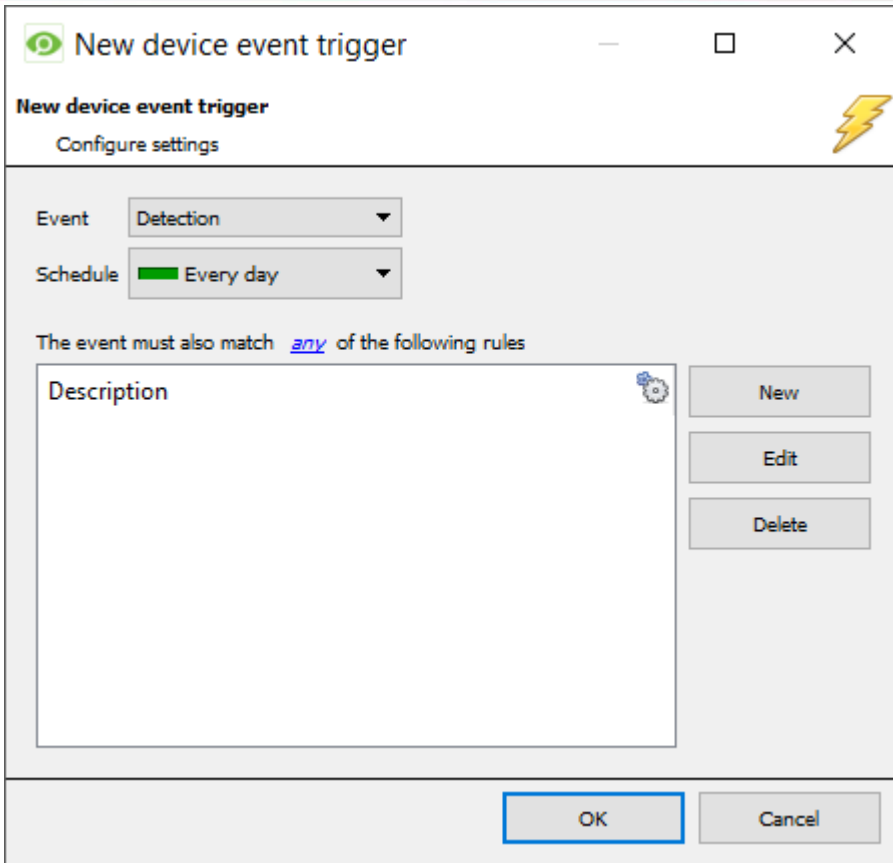
For example, within the *any device event* option, choose what type of device Event will be the trigger. Choose an event type from the drop down menu.

Note: Multiple constraints (**Device Event Triggers**) may be set. If a constraint is not defined, every single device event will trigger this event.

To add/edit/delete a **Trigger** (a constraint) use the **New, Edit,** and **Delete** buttons on the right hand side.

Choose if *any*, or *all* constraints need to be fulfilled to set off a trigger.
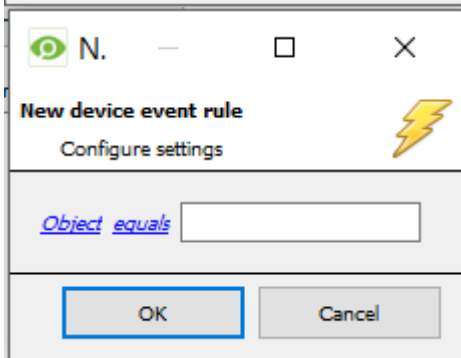
To change the constraint, click on the first hyperlink, this will bring up the full list of available rules.

To modify the way this rule will be treated click on the second hyperlink (*equals* in the example) to display the rules options.

Note: When all available options are known to CathexisVision a drop-down menu will be available. When these variables are not pre-defined they will need to be filled in manually. The information pulled through to the events is information sent to CathexisVision from the Optex REDWALL/REDSCAN device, see the Optex settings for the strings needed here.

d. Actions

Once the triggers that are going to initiate the event have been defined, the user will need to define some Actions in the **Actions tab** of the **New Event** window.

To set an action for an event trigger, click [New] and select an action from the available options.

It is possible to add the Optex REDWALL/REDSCAN device to a site map, which will allow for a number of action options when objects 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 Optex REDWALL/REDSCAN device. For more information on using the CathexisVision Map Editor and Map Tab, please consult the dedicated and detailed **Map Editor Operation Manual**.

a. Add the Optex Device as a Resource

To configure the map, the device must be added as a resource to be added to the map.
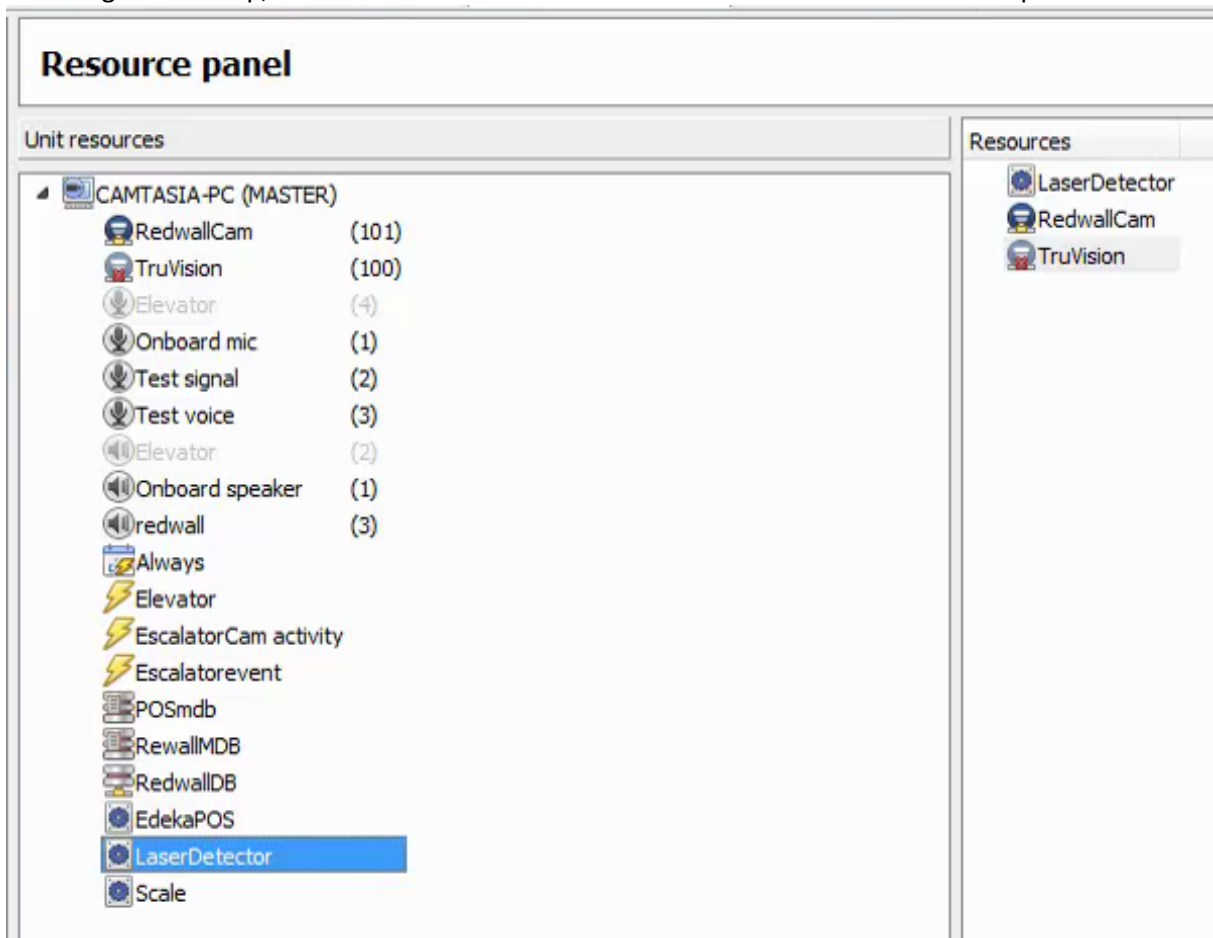
- *Add the Device in the Resource Panel*

1. Navigate to the **Resource Panel** by following **Site → Open Tab → Setup → Resource Panel.**
2. Drag the device from the **Unit Resources** list into the **Resources** list, on the right.
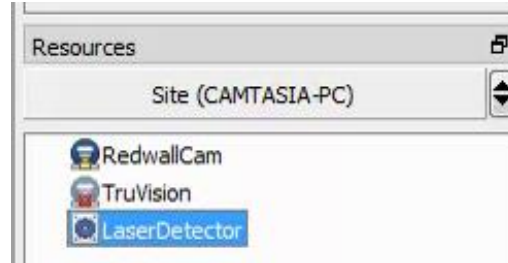
b. Add the Device in Map Editor

Once the device has been added as a **Resource**, it will be available to drag onto the map area from the **Site Resources** list.
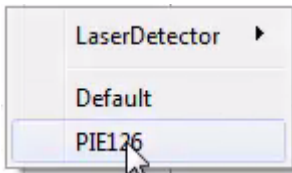
Connect to Site
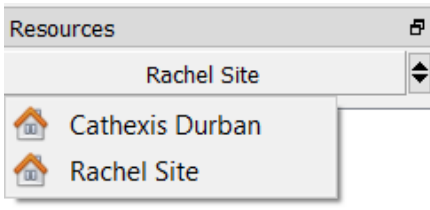
At the bottom right-hand of the Map Editor screen, click the dropdown menu to select the site to connect to.

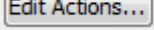Once connected to site, all the resources available will populate the panel below.


Adding Device Objects

Drag the device from the Site Resources list onto the map area. All of the device objects will appear in a list. Select an object.

Note: To add multiple objects, repeatedly drag-and-drop the device onto the map area and select the desired objects individually.
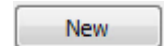
c. Adding Device Actions

To add actions to the device objects, either select the object on the map and click or right-click the map object and select .
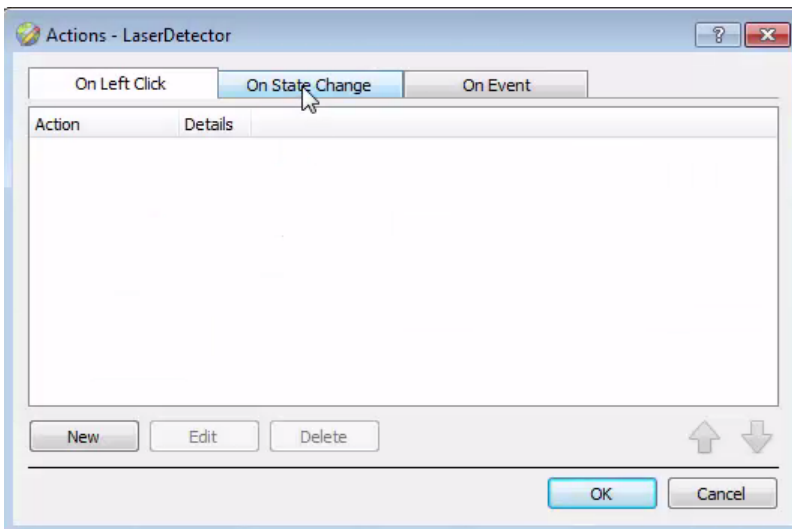
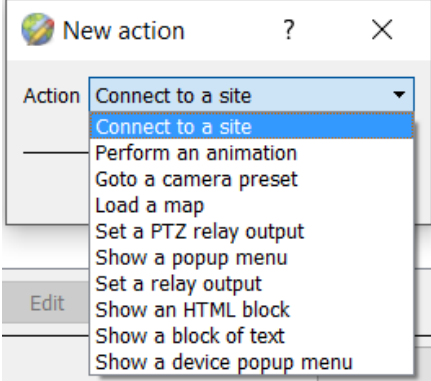Actions may be set for **Left/Right-Clicks**, **State Changes** and **Events**.
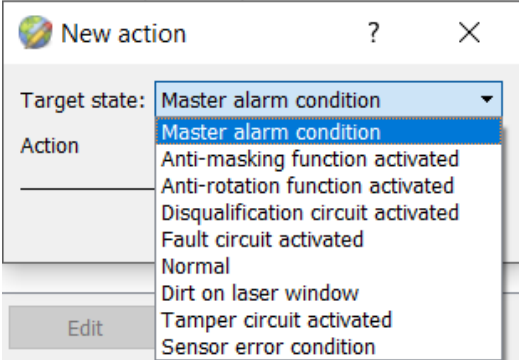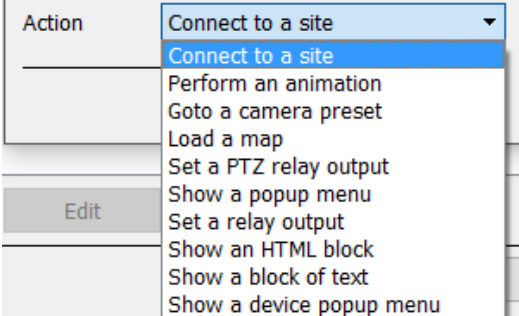
To create a new action, select .

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. See below.
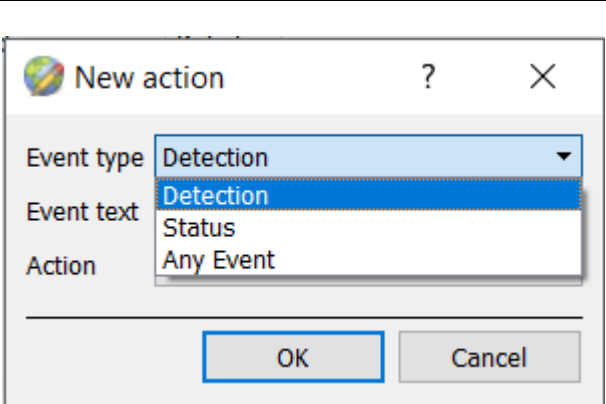
- *On Left Click Tab*

	Select a map action to be triggered when this device object is left-clicked on the map.

- *On State Change Tab*

	Select the target state of the device object which will trigger the map action. **Note**: State Change action is available/unavailable depending on the device object.
	Select the map action which will be triggered when the device object changes to the target state.

- *On Event Tab*

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

Event text [ ]		Enter Event text which will appear on the map when the selected event triggers this map action.
Action	Connect to a site ▼ Perform an animation ⌃ Goto 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 **Show a device event notification** ⌄ r1	Select the map action which will be triggered by the device object event. **Note**: Event actions include the extra option to **Show a device event notification**.

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

- *Save Map*

Once finished, save the map.

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

d. Map Tab

The saved map needs to be uploaded to CathexisVision. 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.

6 Conclusion

Please remember that this appnote was designed to deal specifically with this integration. For further information about the CathexisVision software please consult the main manual (http://cathexisvideo.com/).

For support please contact support@cat.co.za