



Paradox V2 Integration Guide

005-20180604-171 June 4, 2018 R Solomon



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1 Introduction

This document will detail the integration of the Paradox V2 Alarm Panel with the CathexisVision software.¹ Functionally this integration will entail the triggering of standard CathexisVision Events, based on the triggers from the Paradox panel.

Note:

- 1. If you need information regarding the regular operation of a Paradox device, please consult the relevant Paradox 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**.

• Connection

The Paradox device can be connected to the CathexisVision software via the following channels, under the same license and as the same device:

- Serial communication (RS232) through USB.
- TCP Outgoing.

a. Requirements

CathexisVision Requirements

- CathexisVision SP 2018.2 and later.
- Integration only supported for Windows.

• CathexisVision Licenses

License	License Name	Description			
CPDX -2000	Paradox Device License (v2).	This licenses the Paradox V2 device in CathexisVision.			
CPDX-1001	Paradox Alarm Panel License (v2).	This licenses a single Paradox V2 alarm panel in CathexisVision.			

Paradox Requirements

- An IP150 Internet Module (v1.39 or later) is required when using an Ethernet connection.
- A Paradox CV4USB RS-485/RS-232 Converter Kit and an available USB slot is required when using a serial connection.

Supported Panels

This integration is able to connect to the following alarm panels:

SP4000

¹While 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.



- SP5500
- SP6000
- SP7000
- SP65
- MG5000
- MG5050

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. When an integration is added to the CathexisVision system, a device is added.

The messages received from the device are called Device Events.

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 object.

Integration Features

This section indicates the features/abilities of the Paradox V2 device when integrated with CathexisVision.

Note:

- CathexisVision communicates with the Paradox V2 device via either TCP or serial connection.
- This integration only runs on Windows units.

Device Objects

Device objects populate automatically once communication is established. As the panel supports many expansion modules, the objects displayed in CathexisVision will vary depending on the objects that are configured on the panel.

Object Type		Abilities
General		 This integration has Panel, Zone, Area and PGM objects. Objects are automatically created as soon as communication between the CathexisVision unit and device is established. Zone, Area and PGM objects are able to be commanded as an action of a CathexisVision system event. Zone objects support overlays which display zone state, partition state and the zone name. Objects may be linked to cameras to associate device events with video footage.
Panel	Object Properties	 Following object properties are indicated in CathexisVision: Name, Connection status, Description, Product ID,



		 Serial Number, Version, Revision, Area count, Zone count, PGM count, Door count, License.
	Connection Status	 Some examples of Connection Status values: Connected, Connecting Disconnected.
	Object Properties	Following object properties are indicated in CathexisVision: Name, Zone enabled, State, Status, Zone serial number, Zone input number, Zone partition, Zone definition, Zone alarm type.
	Command	Bypass,Unbypass.
Zone	States	 Alarm, Entry Delay, Bypassed, Tampered, Opened, Closed, Unknown.
	Overlays	 The Zone object supports overlays in the camera feed. Overlays display time (before disappearing) is configurable. Overlay location, text size, text colour and background colour are configurable. Overlays display Zone state, partition state and the zone name.
	Object Properties	Following object properties are indicated in CathexisVision: Name, Area enabled, State, Status.
Area	Command	 Arm, Disarm, Instant arm, Stay arm.
	States	Ready,Armed,Alarm,



		 Entry Delay, Exit Delay, Bypasssed, Unknown.
	Object Properties	Following object properties are indicated in CathexisVision:
PGM		 Name, Status, Label, Serial Number, Input number.
	Command	Off,On.
	States	Please consult manufacturer for PGM state information.

• Device Events

The CathexisVision Paradox V2 integration generates the Zone, Partition, PGM and General device events which are triggered on the device and reflected in CathexisVision.

Event Element	Features/Abilities

General		 Events triggered on the device are sent to CathexisVision.
General		 Device event types are Zone, Partition, PGM, General.
	Zone	 Some message types include: Zone in Alarm, Zone Restore Alarm, etc.
	Partition	Some message types include: • Entry/Exit Delay started, • Area Arm/Disarm, • Strobe Alarm • Steady Alarm, • Alarm Stopped, etc.
Device Event Types	General	Some message types include: Squawk on/off, Arming with User, Arming with Trouble, Fail to communicate IP Receiver 1, Bell On/Off, Bell Squawk Arm/Disarm, Cancel Alarm with User Code #, Disarm after Alarm with User Code #, Disarm with User Code #,
CathexisVision System Events		Device events are reflected in CathexisVision and can be used to create CathexisVision system events which may control one of the device objects as an action of the system event. Area, PGM and Zone objects may be controlled as a result of a CathexisVision system event: • Area object → Arm, Disarm, Instant arm, Stay arm. • PGM object → Off, On.



• Zone object → Bypasss, Unbypass.

• 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	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 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: • All, • General, • Partition, • Zone, • PGM.	
Sort Options	The meta-database may be sorted by: • Device event time.	
Easy Search	The meta-database may be searched specifically for: • Event type, • Label, • Description, • User.	
Filter	The meta-database may be filtered according to:	
Export	Database entries may be exported in CSV and PDF 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. The table below highlights some features.

Map Element	Features/Abilities
	Device objects can be embedded in a site map which offers multiple action
General	options when messages are received from the device, the device triggers an
	event, and/or the user manually initiates a map action.



• All device objects may be set to trigger a map action if the user leftclicks on map.

- Some device objects may be set to trigger a map action if a state change 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

Map Action Triggers

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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2 Configure the Device for Communication

The Paradox V2 device needs to be configured for communication with CathexisVision. This setup will differ depending on the panel used (see Paradox V2 requirements for supported panel types). Consult the manufacturer documentation for guidance on the installation of the IP150 (Ethernet) or CV4USb (USB Serial) communications interface module and system configuration.

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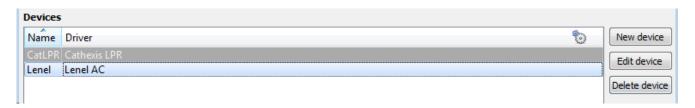
3 Add the Device in CathexisVision

CathexisVision integrations 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:



There are two sections in the Integration Panel:

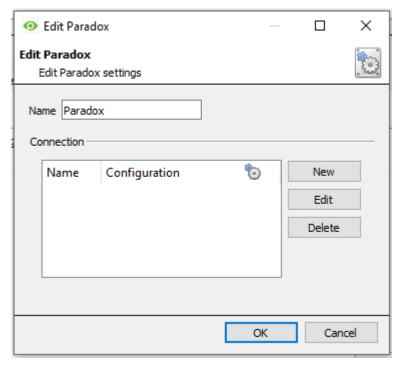
1. The **devices** list will list the integration devices that are attached to the integration database.



2. The **Configuration** section enables the user to edit or review the device selected in the **devices** section. This dealt with in Section 3.

a. New Device

- 1. Once in the Integration Panel, in the devices section, click on New device. This will open the addition window.
- 2. Select Paradox V2 driver from the list.



Give your device a descriptive name.

Use the **New**, **Edit** and **Delete** buttons to configure communication channels with the relevant panels.

See below for the Communication Channel configuration settings.

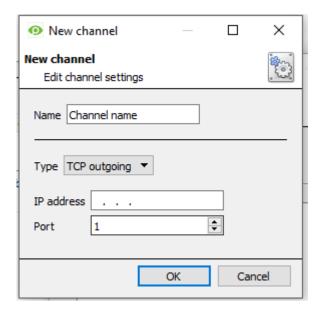


b. Configure Communication Channel

In the New Device window, click **New** to add a new channel or **Edit** to edit an existing one.

Channel connection may be via either TCP or serial. These options are outlined below.

TCP



Give the channel a **Descriptive name**.

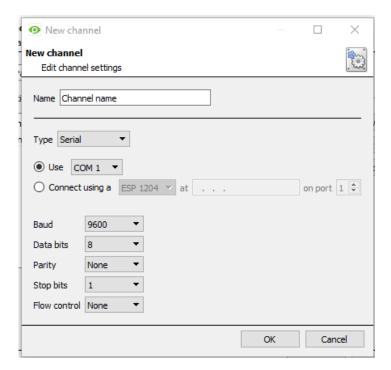
Choose the right Connection Type.

Connection Type:

Enter the IP address and port number of the relevant panel.

Click OK when done.

Serial



Give the channel a **Descriptive name**.

Choose the right **Connection Type**.

Connection Type:

Make sure the **baud** rate, **data bits**, **parity**, and **stop bits** match the relevant settings on your Paradox panel.

Click OK when done.

Note:

1. A panel object will be created automatically for every communication channel configured.



2. In the Object Configuration process (below), each panel object will need to be configured to connect to the device using the panels' user codes and IP Modules passwords.

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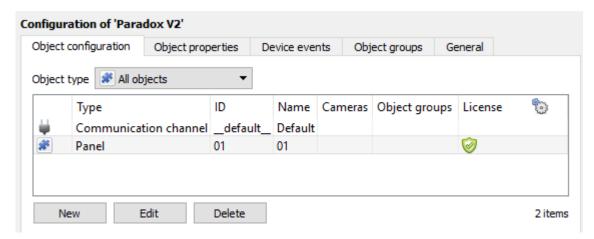
4 Configure the Device in CathexisVision

Now that the device has been added to the CathexisVision system, it needs to be configured. As in the section above, these configurations take place in the Integrations Panel of Configure Servers in the Setup Tab.

Select the relevant device from the devices list

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

a. Object Configuration Tab

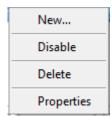


The object configuration tab is the tab where you may view all the individual objects that comprise the integration. The Paradox V2 integration objects are **Area**, **PGM**, **Panel** and **Zone** objects.

Object Configuration Buttons



Object Configuration Right-click Options



New will open up the dialogue to add a new object.

Disable/Enable allows you to manually enable/disable individual nodes.

Delete will permanently remove this object from the list.

Properties will open up the object properties. You may edit the object from here. (Specifically you will be able to assign cameras to this object, as well as define user access levels for it.)

Note for Right-click on Panel object:



One license is required per panel object (which is created with each communication channel added during device setup). For this reason, there is an additional right-click option for Panel objects to prioritise existing licenses for certain panels.

• 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.

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

To delete a camera click on <a> .

<u>Note</u>: If you do not have *continuous recording* setup, on associated cameras, you will run the risk of zones (object) triggering while the cameras are not recording. To only record cameras, when an object triggers, you will need to setup **Events** that trigger a recording, when one of these objects is activated.

• Properties: Access



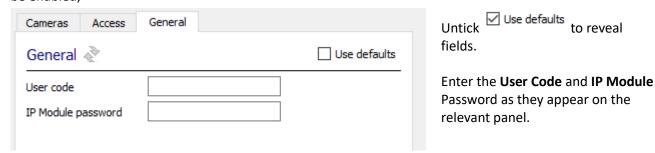
Access allows you to protect sensitive objects, by only allowing certain levels users access to them.

You will see a list of objects, whose access level you may set.

<u>Note</u>: If you have *Use default access rights* checked, you must make sure that those default rights have been correctly defined. Click on **Configure default access** to do this.

Panel Object Properties: General Tab

The Panel object has an additional tab in the Object Properties/edit object wedding. Access to the panel must be enabled,



• Configure Overlays

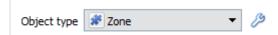
Overlays are supported for Zone objects. Overlays will display Zone State, Partition State and Zone Name.



Overlay display time is configured in the General tab of the Configuration Section, where integration database is setup (General tab dealt with below).

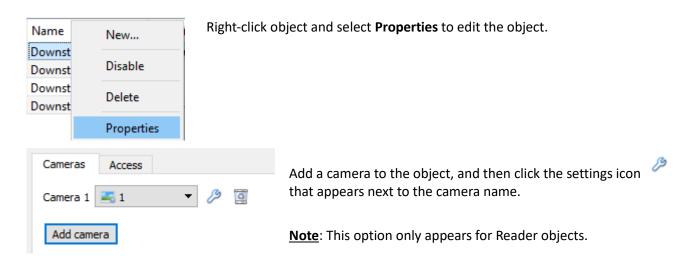
Overlays may be configured globally for all Zone objects, or they may be configured for a single Zone. See below for how to open the overlay configuration window for global or specific overlay configuration. Thereafter, the overlay configuration window looks the same for both options.

1. Configure Global Overlays



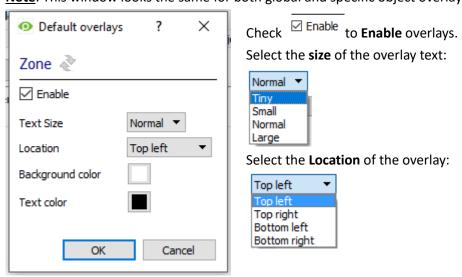
Select the Reader object from the Object type drop-down menu and click the Overlay Settings icon $^{\varnothing}$.

2. Configure Overlays for Single Object



Overlay Configuration Window

Note: This window looks the same for both global and specific object overlay configurations.



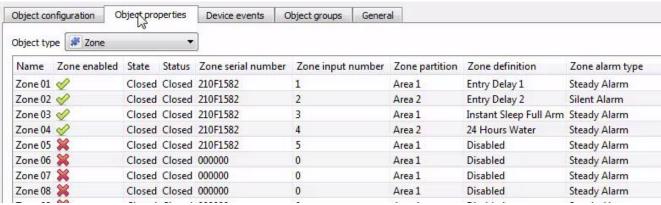
Choose the **Background colour** of the overlay. Clicking open a colour chart.



Choose the **Text Color** of the overlay text. Clicking the open a color chart.



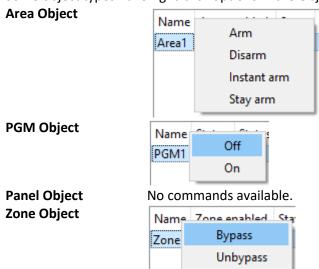
b. Objects Properties Tab



The Object properties tab allows you to view the objects, sorted by type. In the case of the Paradox device you will have the options of viewing by **Area**, **PGM**, **Panel and Zone**.

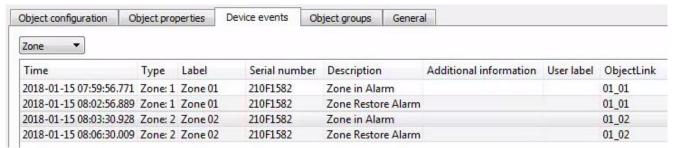
Right-Click Commands

Some object types have right-click options in the Object Properties tab:



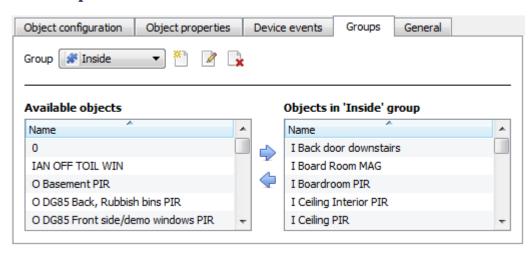


c. Device Events Tab



This will list real time events happening on this device. It is an excellent way for installers to see that the integration is functioning, and to monitor the live events happening on site.

d. Groups Tab

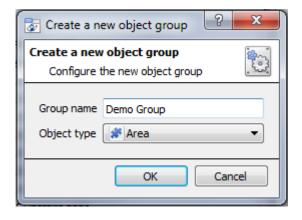


You can create groups of the same type of object.

Tip: 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 zones/areas in that group is triggered.)

• Create a Group

To create/edit a group click on $^{\square}/^{\square}$. (Note: Once a group has been created, you may not edit the object type of the group.)

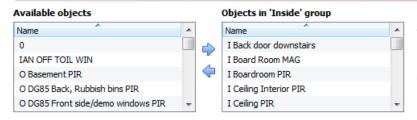


When creating a group you will select what object type to include in the group. Once the group is created the available objects panel will fill up with all available objects of that type. From this list you will choose which objects you want to use in your Group.

Give the group a descriptive Group name.

Click on the drop-down menu to select the **object type** that you would like to group.





You will then see a list of Available Objects. To add/remove these objects to the group select them (you may select multiple at a time), and click on .

e. General tab

The General tab deals with creating the integration database and configuring any general settings applicable to the integration.

Integration Database

Here you will be able to either select an existing database or create a new one.

Select an Existing Integration Database



To select a database, click on and select the relevant database. Only databases which relate to the device you are adding should appear.

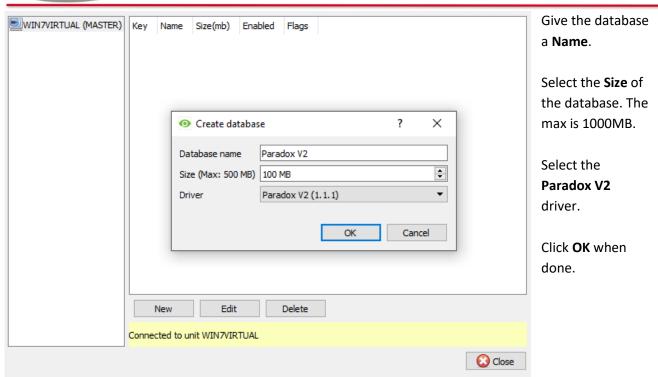
• Configure a New Database



If there is no database created yet, clicking on this button will take open the integration database setup.

Click **New** to create a database.





Select the newly created database by clicking the and selecting it from the drop down menu.

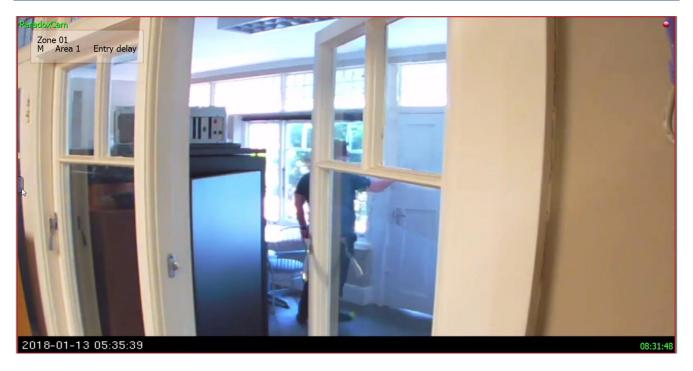
<u>Note</u>: The information on setting up an integration database may be found in the **Integration Devices General Settings** section of the CathexisVision Setup Manual.

General Settings

The General Settings button deals with configuring the overlay display time. Click general settings window and configure display time in seconds.



5 Camera Tab Overlay Setup



Once all the relevant settings have been configured, the Zone object overlays can be pulled through over the relevant camera feed.

Note:

- 1. Cameras must have already been added to the objects and overlays must be configured.
- 2. Overlays are configured in the Integrations Panel of the Configure Servers section of the Setup Tab.
- 3. Overlay display time (in seconds) is also configured in Setup Tab → Configure Servers → Integration Devices → General Tab.

a. Overlay Display Details

Overlays are supported for zone objects and will display Zone state, Partition state and Zone name. The **location**, **text colour and background colour** of the overlay can be configured for all overlays, or individual overlays. The **time for which overlays are displayed** (before disappearing) can be configured/changed by editing the zone object/s.

b. Video Feed Options Panel

To bring up the overlay, click the arrow to the left of the screen, to pop out the Video feed options panel. Once popped out, the Video feed options panel will present a number of options specific to the settings configured for that video feed.

Select the Overlay

Clicking the icon will bring up the overlay options for this video feed.



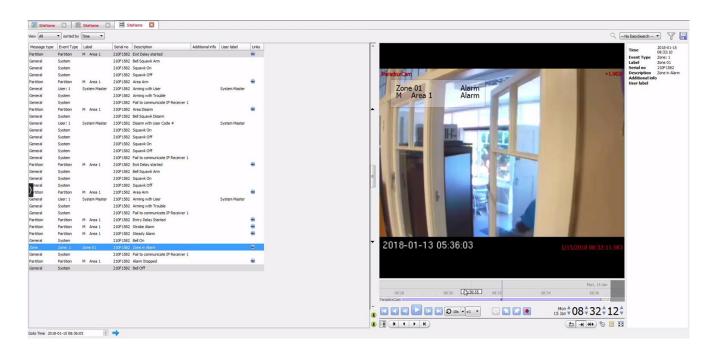


Select the desired overlay and it will appear over the video feed, as above.



6 Database

a. Introduction

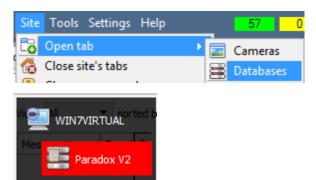


The database tab will allow the user to navigate the records in each individual database. In the database tab, each database is presented as a table. It has built in filters, and the ability to navigate by timestamp. If a database record has an associated recording, the user will also be able to launch this recording, from within the database tab.

This database video player is embedded in the database view. This player uses the same timeline features as the CathexisVision cameras 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



To view the information stored in the Integration database, follow the path to the left.

This will open the Database Tab.

Once in the databases tab, select the relevant integration database. The databases are ordered under the NVRs that they are attached to.

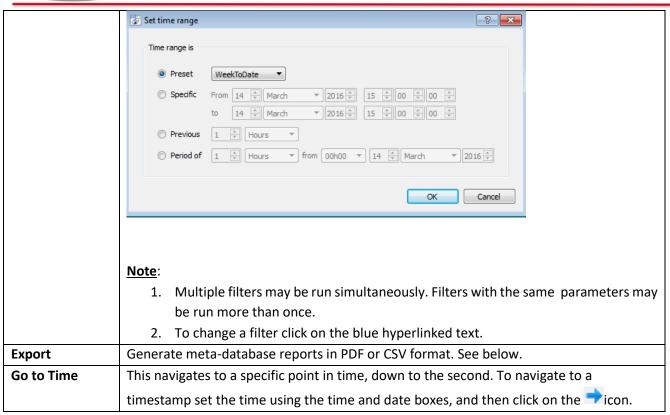
Hover over the on the left-side of the camera image to bring up the database panel on the left.



c. Database Interface

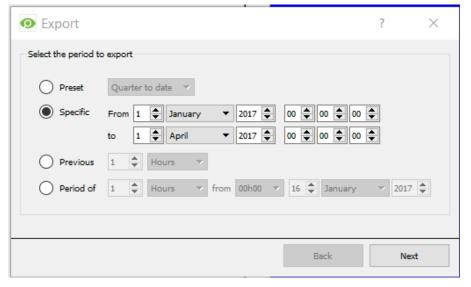
View	The way the database is presented may be changed. Some integration databases have
	multiple view options. The Paradox V2 database allows viewing by:
	View All Mess General Partition Zone PGM
Sorted By	Events may be further sorted based on the following parameters: Time.
Easy Search	The easy search option allows for a quick search of the database within one of the
	following options:
	No EasySearch No EasySearch Event type Label Description User
Filter T	Filter offers a more advanced manner of sorting information in the Integration Database
	table.
	Once the filters dialogue is open, the following options are available:
	1. To enable filters check this box: Fnable filters
	2. To add a new filter click on 6 .
	The filter icon \overline{Y} will change to $\overline{\mathbb{W}}$ when filters are active.
	3. To delete an added filter click on 6 .
	Filter options:
	Transaction
	Event Type
	Label
	Serial no
	Description
	Additional info
	User label
	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:





Generate Meta-Database Reports

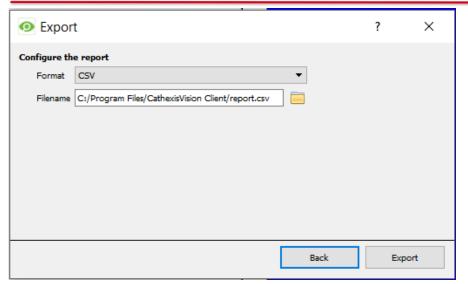
Click the icon to open the Export window.



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.

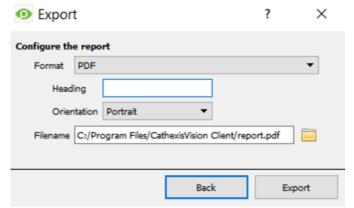
Export CSV



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.

Metadata



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



Viewing an Entry's Associated Recording

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

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7 Events

A CathexisVision event has a trigger, which causes an action. Integrated devices may be set to act at triggers, or as actions. This document will detail the Paradox V2 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 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.

a. Create a New Event

To create an event using the Paradox V2 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 a door, the option is 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 set-off an event.

Use paradox v2 to trigger the event

Trigger using any area

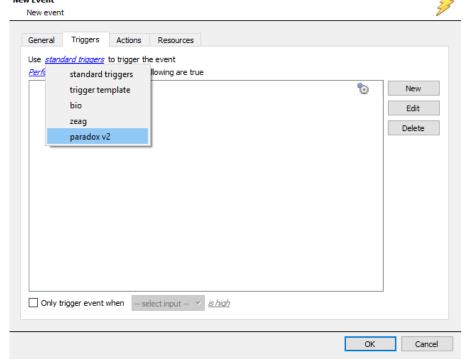
Start actions when any of the following device events occur

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



b. Triggers

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



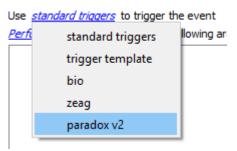
In this window, define the rules and constraints which will trigger an event on the device.

To add/edit/delete a rule use the New, Edit, and Delete buttons on the right-hand side.

Note: The user may set multiple constraints, choosing if any, or all constraints need to be fulfilled to set off a trigger.

• Set the device as the trigger

Choose the Master Trigger type here.

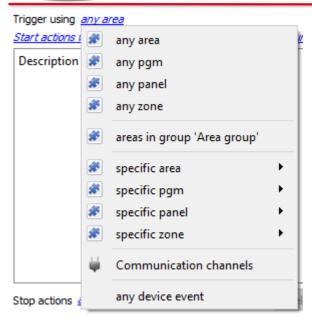


If creating a new event, the trigger type will default to: Use <u>standard triggers</u>. To define which device to trigger the event, click on the hyperlink after "use". To set it as the Paradox V2 device, click on the hyperlink, and select the relevant device name from the dropdown menu.

• Trigger Types

Choose whether certain device objects or any device event will trigger an event.





Any area/pgm/panel/zone will trigger using any of the integration objects.

Objects in group... If a group has been created, an option to trigger using any of the objects in that group is present.

Specific area/pgm/panel/zone will trigger using only a specific object.

Any device event will trigger when any event occurs on the Paradox V2 device.

Note: If object groups have been created, the option to trigger using specific/any group will appear here.

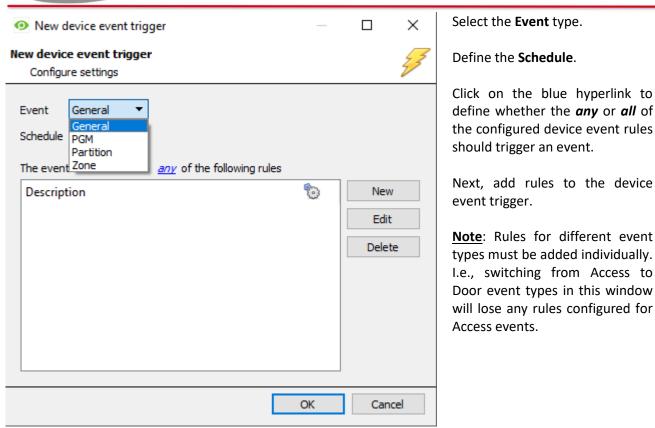
Note for group triggers: To database this event under the name of a specific object, and not the name of the triggering group, modify the Description field in the **General tab** of the Event setup. Click on the to see a list of available descriptions.

In this example, replace 'value' with the name the event should be databased under.

Device Event Triggers

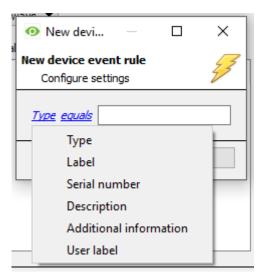
After selecting a master trigger type, add a trigger to the event. Click on New in the Triggers tab. This will bring up the dialogue box below:





Add Rules to Device Event Triggers

If no constraints are set, every device event will trigger this. Once constraints are set, only the constraints chosen will trigger the event. Once the type of device event that will be the trigger is selected, add a new **device event rule.** To do this, click on New Device Event Trigger window.



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) this will display the rules options.

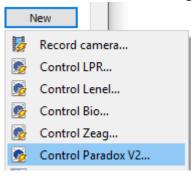
<u>Note</u>: When all available options are known to CathexisVision, they will be visible in a drop-down menu. When these variables are not pre-defined, they will need to be filled in manually. The information pulled through to the events is information sent to CathexisVision from the Paradox V2, see the Paradox settings for the strings needed here.



c. Actions

Once the triggers that are going to initiate the event have been defined, Actions need to be configured 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:



• Control Device

Area, PGM and Zone objects can be controlled.

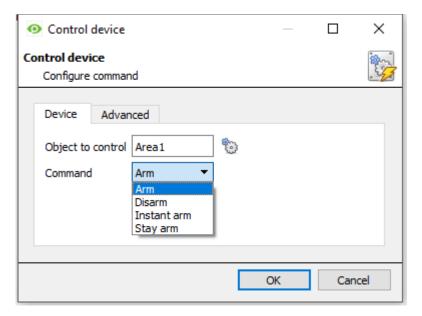


Click to **Select the Object** to control. This will bring up the window below. Select the object and click **OK**.

Control device

Select the object to control





Select the **Command** from the drop-down menu.

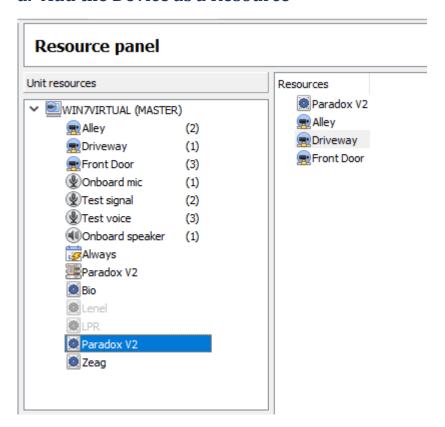


8 Map

It is possible to add the Paradox V2 device to a site map, which will allow for a number of action options when device events occur. These options include the animation of triggered zones and connecting to site cameras when zones are triggered, etc.

<u>Note</u>: There is a comprehensive guide to configuring and operating maps in the CathexisVision Map Editor Setup and Operation Guide – review this document for more information on maps.

a. Add the 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

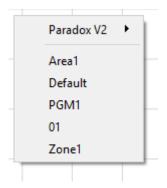
- 1. Navigate to the **Resource Panel** by following **Site** → **Open Tab** → **Setup** → **Resource Panel**.
- 2. Drag the device from the **Unit Resources** list into the **Resources** list, on the right.

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.



Adding Device Objects



Drag the device from the Site Resources list onto the map area.

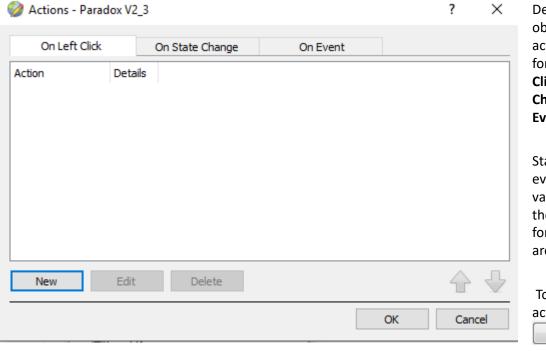
Select one of the associated objects.

Note: To add multiple objects, repeatedly drag-and-drop the Impro AP Pro device onto the map area to bring up this option.

• Adding Device Actions

To add actions to the device objects, either select the object on the map and click Edit Actions... or right-click the map object and select

Map Action Triggers



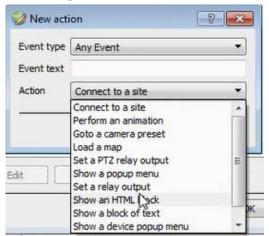
Depending on the object type, actions may be set for Left/Right-Clicks, State Changes and Events.

State change and event triggers will vary depending on the type of object for which actions are being set.

To create a new action, select



Action Options



All map action triggers will have the same action options to select from, except for Event map action triggers.

The Event map action trigger has the added ability to show a device event notification.

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

Once finished, save the map.

NB: The map <u>must not be saved</u> in the Work folder of the installation directory.

c. Map Tab

Upload the saved map 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.



9 Conclusion

Please remember that this document 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