Paxton Access Control

Integration App-note

23 December 2021

Contents

1. Introduction

This document will detail the integration of the Paxton Access Control Device, with CathexisVision software.

Functionally, this integration will entail the triggering of standard CathexisVision Events, based on the triggers from the Paxton panel.

Note: For information regarding the regular operation of a Paxton device, please consult the relevant Paxton manufacturer's documentation.

There is a General Integration section in the main *CathexisVision Setup Manual*. It contains information on creating an integration database, as well as a general introduction to the Integration Panel. **Read over this section.**

1.1 Requirements

1.1.1 General Requirements

- CathexisVision 2014.5 and later
- Integration retested and updated on CathexisVision 2019.3
- Win 7¬ 64bit and later, Win Server 2008 R2 and later.
- CathexisVision Paxton Wrapper Control 5.3.2.0 or later.
- Paxton Net2 Access Control Software. Net2 software version 6.01.8319.4827 tested.
- Minimum of 4 GB of RAM required.
- The Net2 software is compatible with Microsoft operating systems only. If the CathexisVision software and Net2 software are required to be installed on the same NVR, this integration will not work on a Linux or Ubuntu system.

Note:

1. For information regarding the regular operation of a Paxton device, please consult the relevant Paxton documentation.
2. The Paxton device cannot be detected if the Controller or Communications channel has lost connection when using the Serial Port.
3. When using an ESP1204 (Cathexis Serial to Ethernet convertor), the Communication channel will only show it is disconnected if the network connection to the ESP1204 is down.

1.1.2 CathexisVision License Requirements

License	Name	Description
CACC-2000	Access control Device license.	This license is the "base" license to integrate with an access control system. It is applied to the server to which the access control device is connected. It will allow for the connection of a single controller.
CACC-1001	Access control single door license.	These licenses apply to the doors, or readers, in an access control system. The **CACC-1001** will license a single door/reader, and may be added on a door-by-door basis.
CACC-1008	Access control 8 door license.	These licenses apply to the doors, or readers, in an access control system. The **CACC-1008** will license 8 doors/readers.
CACC-3000	Access control device bundle license (unlimited doors).	This license includes the **CACC-2000** access control device license, and also provides support for unlimited **CACC-1001** reader licenses.

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

A NOTE ON CAMERA CHANNELS

The CathexisVision software packages have **limits on camera channels**. A multi-sensor camera is physically a single device (camera) but it requires a camera channel for each one of the internal cameras. The same applies to an encoder: a 16-channel encoder will account for 16 camera channels on the CathexisVision software, even though it is a single device. Even when a camera or device only uses a single IP license, the camera channel limit will still apply.

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

1.3.1 Device Objects

Objects are populated automatically as soon as communication between the Paxton Access Control software and CathexisVision is established.

Object Type		Feature
General Object Features		• Populates once communication is established with the Paxton system. • Displays information about the connected Paxton system. • State changes can be used to trigger CathexisVision system events.
Door	**States**	• N/A. No State information for communication channel.
	Object Properties	The following System object properties are indicated in CathexisVision: • ID • Name • Cameras • Object Groups • License
	Command	• New • Disable • Delete • Properties • Configure Columns.
Communication Channel	**General Object Features**	• Relevant Communication objects populate when CathexisVision receives device event messages. • Displays information about the associated Communication Channel. • Supports camera overlays.
	States	N/A. No state information for communication channel objects.
	Object Properties	• ID • Name • Cameras • Object Groups
	Commands	• New • Disable • Delete

	• Properties • Configure Columns

1.3.2 Device Events

The CathexisVision Paxton integration generates reflected in CathexisVision.

Event Element	Features/Abilities
General	• Event messages generated by the device will generate device event messages in CathexisVision. • These device event messages can be used to trigger system events.
Device Event Types	• Access Events
CathexisVision Event Actions	• Events generated by the device are reflected in CathexisVision, and can be used to create CathexisVision system events. • The device and device objects cannot be controlled as part of the system events.

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 the first camera 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.
View Options	• Access Events.
Sort Options	• Access Event Time, Access Event Index, Access Event Type, Access Event Subtype, ACU Address, and User.
Easy Search	• User.
Filter	• Timestamp

	- Event Type - Event Sub Type - ACU Address - Reader - Token - ACU - User
Export	Database entries may be exported in CSV and PDF format.

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

2. Device Addition and Configuration

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

2.1 Paxton Setup for CathexisVision

There are a number of things to set up before the Paxton device can be successfully added to CathexisVision:

1. The Net2 software (version 6.01.8319.4827).

Note: The Net2 software is compatible with Microsoft operating systems only. If the CathexisVision software and Net2 software are required to be installed on the same NVR, this integration will not work on a Linux or Ubuntu system.

2. The Cathexis Paxton Wrapper (5.3.2.0 or later). This can be obtained from the CathexisVision website at: http://integrations.cathexisvideo.com/supported-integrations/access-control/ .

Note: This software (The Cathexis Paxton Wrapper) must be installed on the same computer as the Net2 software.

2.1.1 Net2 Setup
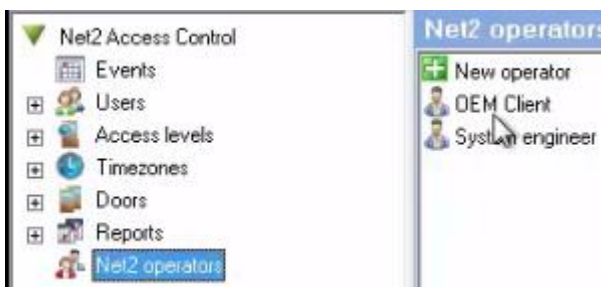
Open the Net2 software and create/edit a user with the following details:

Username: OEM Client
Password: oemclient

Click on "finish" to complete the process.

### 2.1.2 CathexisVision Paxton Wrapper

2.1.2.1 Installation

Install the Paxton Wrapper on the same server as the Net2 software. Installation is simple, as all that needs to be done is to run the file, and leave the defaults as they are. There may be a prompt to allow the installation.
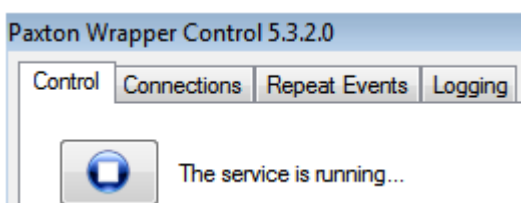
Make sure the service is running by clicking on the Paxton Wrapper icon in the tray.
The tray is in the bottom right-hand corner of the Windows desktop.
Leave the wrapper open for the next step.

2.1.2.2 Setup the Paxton Wrapper
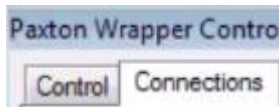
In the wrapper software, go to the Connections tab, add the IP address, and port number, of the CathexisVision NVR, which information will be sent to.

Once this is done, click on **Add**.

Note: The TCP Port being used is important. It is needed when adding the Paxton device to CathexisVision.

2.2 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:
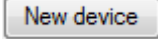
2.2.1 The Integrations Panel
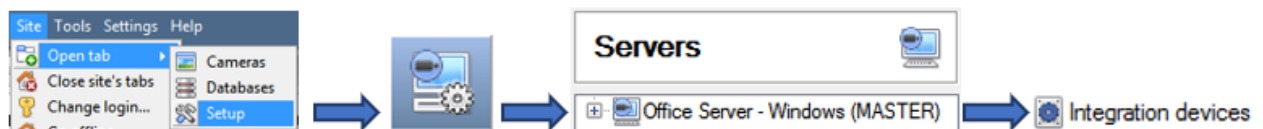
There are two sections in the Integration Panel:

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

2.2.1.1 Device Addition

1. Once in the Integration Panel, in the devices section, click on New device. This will open the addition window.

2. Select **Paxton access control** from the list.
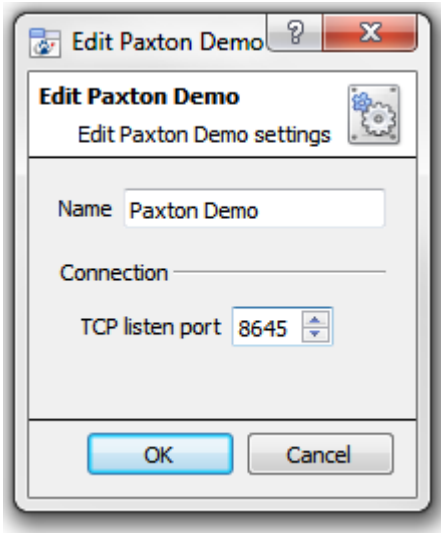
Give the device a descriptive **name**.

Set the **TCP listen port** number.

Note: This number **must** be the same as that entered into the Paxton Wrapper software.
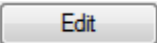
2.3 Configuration Section (Tabs)

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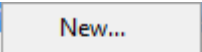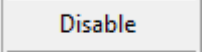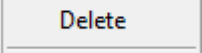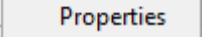
2.3.1 Object Configuration Tab

The object configuration tab is the tab where all the individual objects that comprise the integration may be viewed.

2.3.1.1 Object Configuration Buttons

New	Add a new object by clicking on New.
Edit	Change an existing object.
Delete	Remove an existing object from the CathexisVision configuration.

#### 2.3.1.2 Object Configuration Right-click Options

New will open up the dialogue to add a new object.
Disable/Enable allows manually enabling/disabling individual nodes.
Delete will permanently remove this object from the list.
Properties will open up the object properties. The object may be edited from here. Specifically, assign cameras to this object, as well as define user access levels for it.

Properties: Cameras
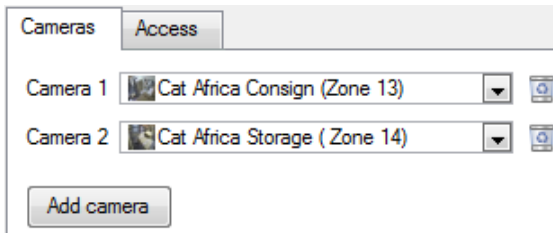
Adding a camera to an object will mean that, whenever there is an event on that object, the recording from that camera will be related to the time and date of the object event, in the Integration database.
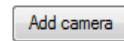
To add a camera, click Add camera, and select the relevant camera from the drop-down menu.

To delete a camera, click the trash icon.

Note: If *continuous recording* **is not** set up on associated cameras, there is the risk of zone (object) 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
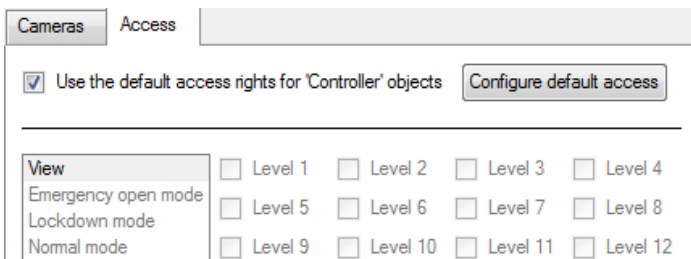
Access allows protecting sensitive objects, by only allowing certain user levels access to them.

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

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.

2.3.2 Configure Overlays

Overlays are supported for **Door** objects only. Overlays may be configured globally for all objects, or individually for selected objects. The path to follow for opening the configuration window for global vs individual overlays is different, however the overlay configuration is the same.

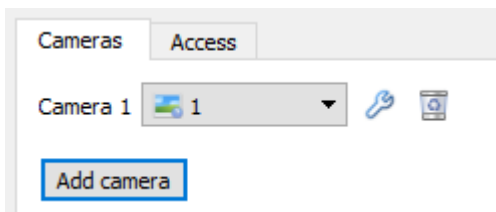### 2.3.2.1 Configure Global Overlays
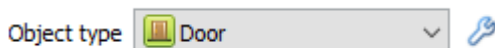
   🔧   Select the Door object from the **Object type** drop-down menu and click the Default Settings icon

2.3.2.2 Configure Individual Overlays
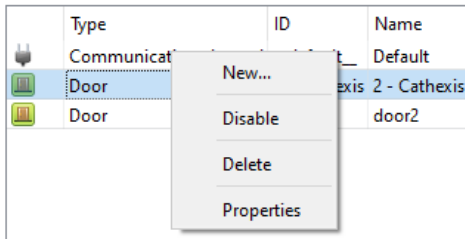
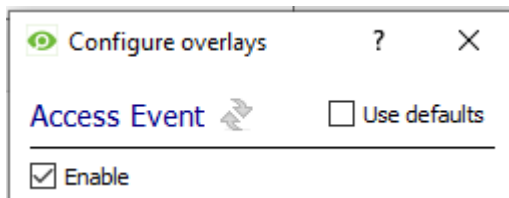Right-click object and select **Properties** to edit the object.

Add a camera to the object.

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

Note: This option only appears for Door objects.

Global/Individual Options

Use Defaults: This option is only available when editing individual overlays. Check this box to use the global configurations. Uncheck to edit overlays for the specific object.

Enable: This option is available in global and individual overlay configuration. In both cases, check the box to enable overlay configuration.

Click ↻ to reset values.

Overlay Configuration for Individual and Global

Select **Text Size** options from the drop-down menu.

Define the **Location** of the overlay panel.

Define the **Background Colour** of the overlay stream: Set the panel appearance to default; remove the border or remove the panel entirely (so that only the overlay text appears). Adjust the opacity as required.

Choose **Text Colour**.

To set a custom panel colour, uncheck **Use Default background colour.**

Click the box to bring up a colour chart.

2.3.3.3 Objects Properties Tab

The Object properties tab allows viewing objects, sorted by type. In the case of the Paxton device, there is the option of viewing by **door.**

2.3.3.4 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.

2.3.3 Groups Tab
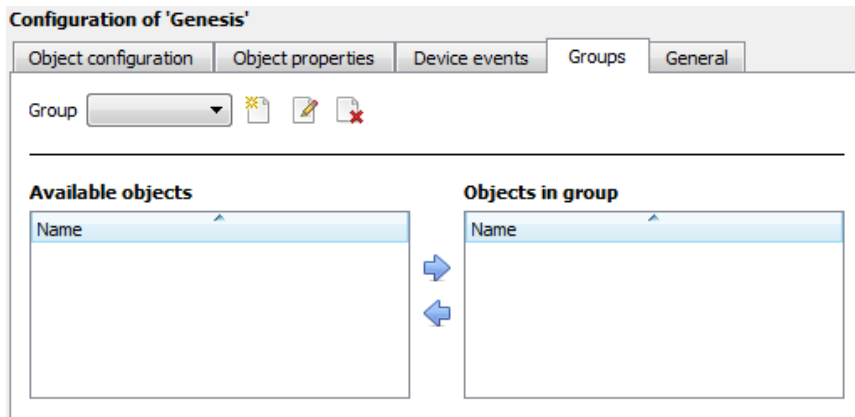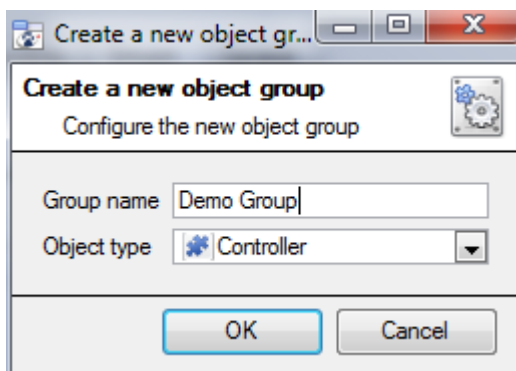

Groups of the same type of object can be created.

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/partitions in that group is triggered

2.3.3.1 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 edited.

When creating a group, select the 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, choose which objects to use in the Group.

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

Click on the drop-down menu to select the **object type** to group.
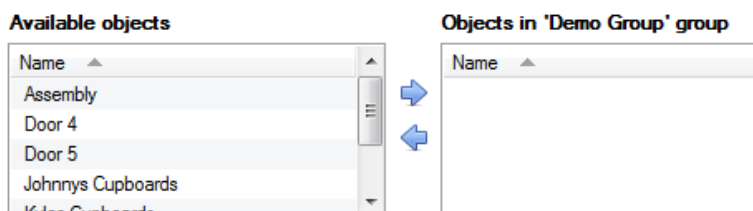
There will then be a list of Available Objects.

To add/remove these objects to the group, select them (multiple may be selected at a time) and click / .

2.3.4 General Tab
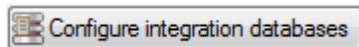
Currently, the general tab deals with the integration database. Here, select a pre-created database, or configure a new database.

2.3.4.1 Select an Integration Database

Integration database | Access

To select a database, click the settings icon, and select the relevant database. Only databases which relate to the device being added should appear.

2.3.4.2 Configure a New Database

Configure integration databases

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

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

3. Camera Tab Overlay Setup

Once all the relevant settings have been configured, the access control overlay can be pulled through over the appropriate camera feed.
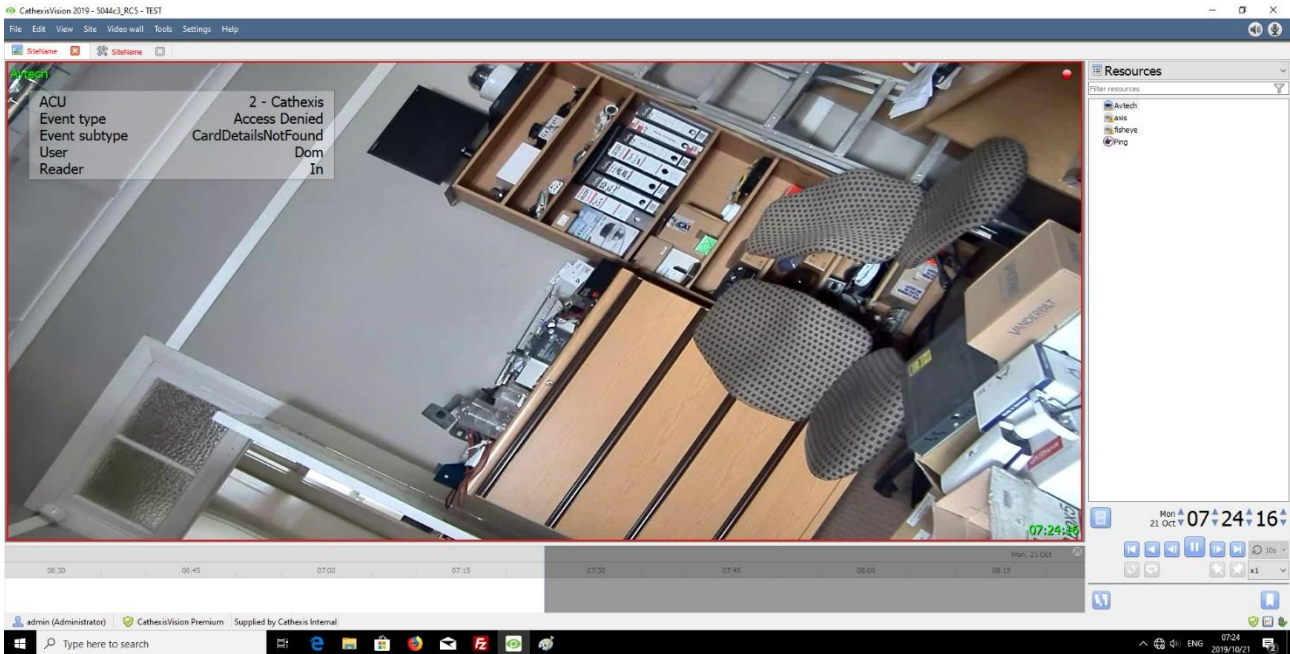
Note: Cameras must have already been added to Door objects, and overlays must have already been configured.

3.1 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 a number of options specific to the settings configured for that video feed.

3.1.1 Select the Overlay

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

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

4. Database

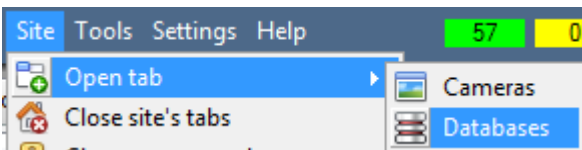The database tab allows navigating to the databased entries, for each individual database. In the database tab, each database is presented as a table. It has built in filters, and the ability to navigate by timestamp. If a database entry has an associated recording, this recording can be launched from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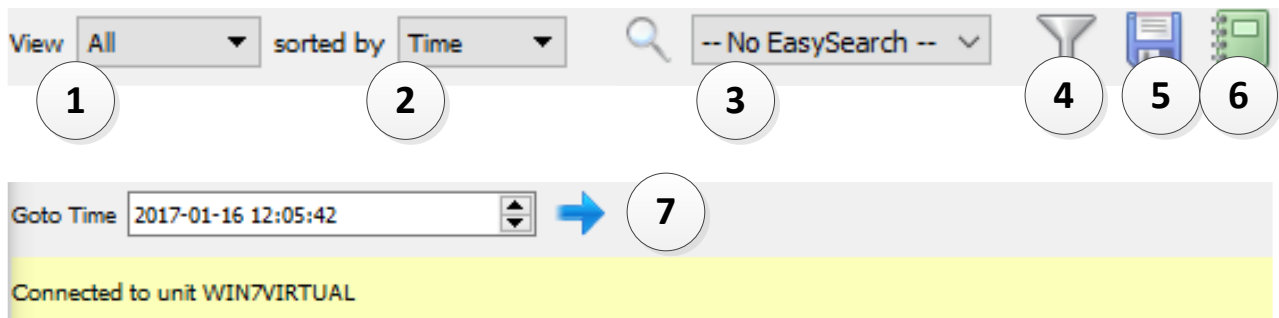
4.1 Navigate to the Database

View information stored in the Integration database, by following the path seen to the left. This will navigate to the Databases Tab.
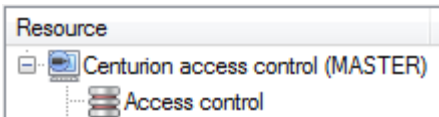
Once in the Databases Tab, select the relevant integration database. The databases are ordered under the NVRs that they are attached to. Below, is an image of a Paxton database:

Timestamp	Event Type	Event SubType	ACU Address	Reader	Token	ACU	User	Links
2019-09-12 14:09:53	Access Permitted	None	5730362	In	21885812	1 - Cathexis	Dom	
2019-09-12 14:25:30	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:25:30	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:26:25	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:36:56	Access Permitted	None	5730362	In	94942439	2 - Cathexis	Anton	
2019-09-12 14:37:10	Access Permitted	None	5730362	In	21885812	2 - Cathexis	Dom	
2019-09-12 14:40:01	Access Permitted	None	5730362	In	94942439	2 - Cathexis	Anton	
2019-09-12 14:40:46	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:46	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:46	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:40:47	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:47	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:40:47	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:48	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:40:48	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:48	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:48	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:40:48	Button Access	WithExitButton	5730362		0	2 - Cathexis		
2019-09-12 14:40:49	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:40:49	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:40:50	Button Access	WithNetworkInstruction	5730362		0	2 - Cathexis		
2019-09-12 14:41:00	DoorClosed	WithTimezone	5730362		0	2 - Cathexis		
2019-09-12 14:41:00	DoorOpened2	WithTimezone	5730362		0	2 - Cathexis		
2019-09-12 14:44:37	AcuNotResponding	None	5730362		0	2 - Cathexis		
2019-09-12 14:56:41	AcuConfiguration	Added	5587916		0	door2		
2019-09-13 09:55:28	ControlUnitReset	PowerOn	5730362		0	2 - Cathexis		
2019-09-13 09:56:44	AcuOnline	None	5730362		0	2 - Cathexis		
2019-09-13 12:27:23	AcuNotResponding	None	5730362		0	2 - Cathexis		
2019-09-19 09:55:24	ControlUnitReset	PowerOn	5730362		0	2 - Cathexis		
2019-09-19 09:57:31	AcuOnline	None	5730362		0	2 - Cathexis		
2019-09-19 14:34:32	AcuNotResponding	None	5730362		0	2 - Cathexis		
2019-09-27 07:34:57	AcuOnline	None	5730362		0	2 - Cathexis		
2019-09-27 09:18:36	Access Permitted	None	5730362	In	94942439	2 - Cathexis	Anton	
2019-09-27 09:18:56	Access Permitted	None	5730362	In	21885812	2 - Cathexis	Dom	
2019-09-27 09:41:18	Access Denied	CardDetailsNotFound	5730362	In	21885812	2 - Cathexis	Dom	

4.2 Database Interface

① **View**	Change the way that the database is presented. Some integration databases have multiple view options. The Paxton database has only one option: **Access Events**.
② **Sorted By**	Sort the Events based on the following parameters: **Access Event Time, Access Event Index, Access Event Type, Access Event Subtype, ACU Address,** and **User**.
③ **Easy Search**	The easy search option allows quickly searching the database within one of the following options: **User.**
④ **Filter**	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: ☑ Enable filters 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.

4.2.1 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. To view a databased event's recording, double click it. A floating replay window will appear, from which video content may be archived and reviewed.

The **single view** icon will present the view to the left.

The **sequential view** icon will break down the image into 4 sequential frame viewers.
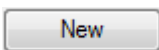
5. Events

A CathexisVision event has a trigger, which causes an action. Set integrated devices to act as triggers, or as actions. This document will detail the Paxton 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* as an event trigger, or action.

5.1 Creating an Event

1. To create an event using the Paxton device, enter the **Events management** area by following the path below:

2. Once in Events management area, click **New**. This will open up the New Event window.

3. Once in this window, select the **Triggers** tab. Then click on the hyperlink titled, **standard triggers**.

4. From the drop-down menu, **left-click** the **Paxton device** with which to trigger the event.

5.1.2 While/When and Any/All

When triggering on a door, there is the option to trigger **while/when** a trigger is active. Also select multiple triggers, and define whether **all/any** of the triggers need to be active to set-off an event.

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

5.2 Triggers

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

5.2.1 Set the Device as the Trigger

When creating a new event, the trigger type will default to: Use *standard triggers* .

To define which device should trigger the event, click on the hyperlink after "use".

To set it as the Paxton device, click on the hyperlink, and select the relevant device name from the dropdown menu.

5.2.2 Trigger Types (Trigger Using)

It is useful to think of this as a **master trigger type**.
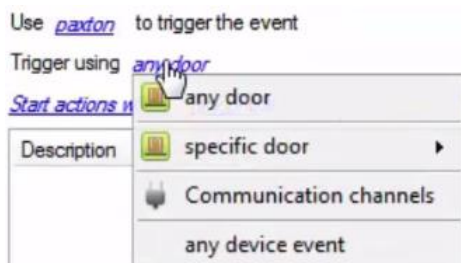
Any door will trigger if anything happens on any of the doors.
Specific door...will trigger on the specific door chosen.

Any device event will trigger, initially, when any event occurs on the device. Within the "any device event" setup, "device event rules" may be set, which will constrain the events that prompt triggers.

Note for group triggers: For this 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.

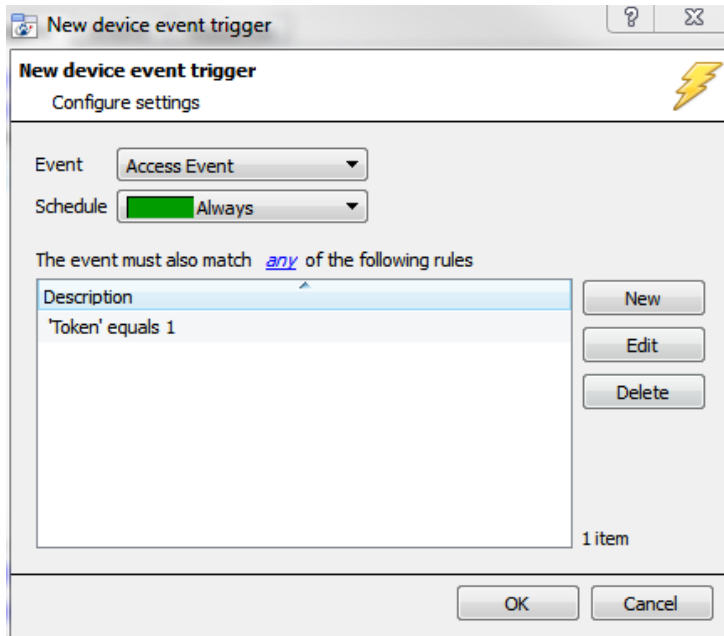Here is an example which will database the text "Door Name" along with the name of the *door object* that triggered the event: Description Door Name: $obj_name

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:

5.2.2.1 Any Device Event

For example, within the *any device event* option, choose the type of device Event that will be the trigger. Choose from the drop-down menu. The Paxton device offers Zone Event, and General Event.

Note: Set multiple constraints, and choose if *any*, or *all* constraints need to be fulfilled to set off a trigger. If a constraint is not defined, every single device event will send off a trigger.

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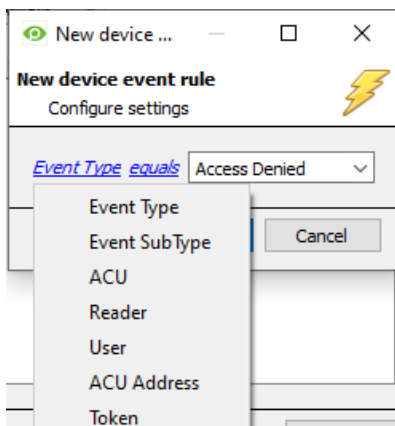

To change the constraint, click on the first hyperlink. This will bring up the full list of available rules.

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

Note: When all available options are known to CathexisVision, a drop-down menu will appear. When these variables are not pre-defined, fill them in. The information pulled through to the events is information sent to CathexisVision from the Paxton device. See the Paxton settings for the strings needed here.

5.2.2.2 Any Door/Group

Triggers that are not of the Any Device Event type, have a slightly different setup window. In these instances, constraints need not be set, since they are being added one at a time. This option is better if a few triggers have been selected to use.
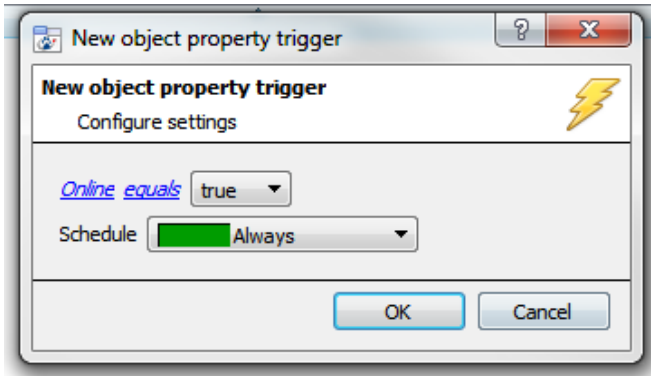
Since only one type of object is being used to trigger the event in this instance, the dialogue will appear as the **New Device Event Rule** window did previously.

Note: This is true for groups too, since a group may only be made up of one object type.
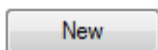
5.3 Actions

Once the triggers that are going to initiate the event are defined, define some Actions. One of the available actions will be to *control* a Paxton device.

5.3.1 Adding an Action

To get started, left-click on the "Actions" tab.

Then click the New button. A menu will drop down containing all the available action types.
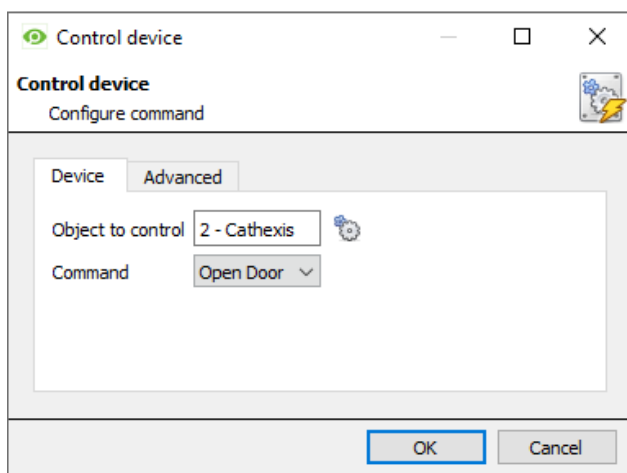
The device action type is represented by this icon.

It will state "Control …" and the name of the Action device e.g. Control Paxton .

5.3.1.1 Control Device

This will bring up the **Control device** dialogue. Under the **Device** tab, the user defines how the device will be controlled; under the **Advanced** tab, the scheduling of the action is defined.
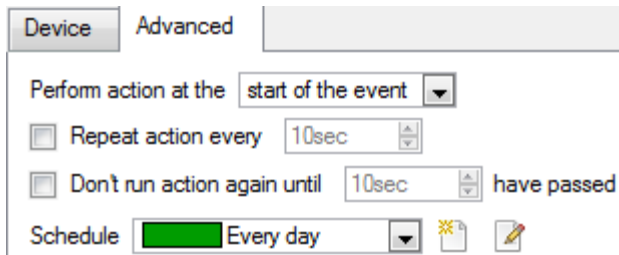
Device

To select an **Object**, click on the settings icon.

This provides a selection of all the Objects available on the Paxton device.

The **command** drop-down will change to represent the commands available to that Object.

Note: Only take a global action here, and global actions may only apply to **controllers**. For example, **communication channels** or **door nodes** may not be controlled as part of an event action. If selecting one of these objects, there will be no options in the *Command* menu.

Advanced

Choose to **perform action 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.

Schedule is a standard Cathexis schedule, which may be applied to the actions.

6. Conclusion

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

For support, email support@cat.co.za.