ProDev Tech POS

Integration App-note

27 January 2022

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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.

1. Introduction

The ProDev driver sends and receives UTF-8 encoded XML messages over UDP and can be used to integrate third-party ProDev systems. A ProDev simulator is included with the ProDev device, to assist third-party ProDev developers with API implementation. This document will detail the configuration of both the Cathexis ProDev device and the ProDev simulator.

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.**

Note:

1. For information regarding the regular operation of a ProDev driver, please consult the relevant ProDev manufacturer's documentation.
2. The connection is via UDP, and the port number needs to be the same on the ProDev system as on CathexisVision.

1.1 Requirements

1.1.1 General Requirements

- Windows 7, 64-bit and later, Windows Server 2008 R2 and later.
- Ubuntu 12 and Ubuntu 16.
- Linux supported.
- CathexisVision 2019.2 and later.

1.1.2 License Requirements

The Cathexis ProDev integration license requirements are as follows:

License	Name	Description
CPDT-2000	ProDevTech POS Device	This license is the "base" license to integrate with the point-of-sale system. It is applied to the server to which the point-of-sale device is connected. This licence will allow for the connection of a single integration device.
CPDT-1001	ProDevTech POS Terminal	These licenses apply to the terminal in a point-of-sale system. The **CPDT-1001** will license a single terminal, and may be added on a terminal-by-terminal basis.
CPDT-3000	ProDevTech POS Bundle	This license includes one **CPDT-2000** point-of-sale device license, and also provides support for unlimited CPDT-1001 terminal 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.

1.3 Integration Components

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.

1.4 Features and Abilities

- The Cathexis ProDev device can be used to integrate third-party ProDev systems that comply with the CathexisVision Point of Sale Integration API Guidelines manual. This separate protocol document can be requested from support@cat.co.za.
- CathexisVision receives event messages from the ProDev device.
- System and Terminal device event messages can be used to trigger a CathexisVision system event.
- Terminal objects support camera overlays.

1.4.1 Device Objects

Objects are populated automatically as soon as communication between the ProDev system and CathexisVision is established.

Object Type		Features/Abilities
General		• This integration has Terminal and Communication channel objects. • Objects may be linked to cameras to associate device events with video footage.
Terminal	**General Object Features**	• Relevant Terminal objects populate when CathexisVision receives device event messages. • Displays information about the associated Terminal. • Terminal events on the device can be used to trigger CathexisVision system events.

		• Supports camera overlays.
	Object Properties	• ID and Name of Terminal. • Cashier. • License (yes/no). • IP Address.
Communication Channel	**General Object Features**	• Represents the UDP channel used by the integration device. • Channel will not go down when communication with ProDev system is lost. ○ If system event triggered on connection state is required, use system object.
	Object Properties	• ID. • Name. • Cameras. • Object Groups. • Enabled/ Not Enabled.

2.3 Device Events

Event Element		Features/Abilities
General		• Events triggered on the device are sent to CathexisVision. • The following device event messages are received from the ProDev device and displayed in the CathexisVision device events tab and integration metadatabase:
Device Event Types	**End Transaction**	• Time. • Terminal ID. • Document.
	Start Transaction	• Time. • Terminal ID. • Cashier. • Document.
	Line Item	• Time. • Terminal ID. • Cashier. • Transaction Type. • Action. • Document. • Description. • Quantity. • Weight. • Price. • Reason.

	• Super. • Red-flag. • Ex-scan. • Ex-wgt. • Ex-qty. • Barcode. • Vendor-name. • Vendor-number.
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.

2.4 Metadatabase

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

Database Element	Features/Abilities
General	• All device events are databased. • Database entries include the footage from cameras linked to device objects. • Multiple cameras may be linked to multiple objects. • Device event metadata is displayed where applicable. • Databased device events may be viewed in the embedded video player, which includes the usual CathexisVision video review tools.
View Options	• Transactions. • Line.
Sort Options	• Time. • Terminal. • Cashier.
Easy Search	• Terminal.
Filter	• Start Time. • End Time. • Cashier. • Document Number. • Terminal.
Export	Database entries may be exported in **CSV** and **PDF** format.

2. Device Addition and Configuration

This section will detail the procedure for adding the Cathexis ProDev device to CathexisVision.

2.1 Cathexis ProDev Specific Setup

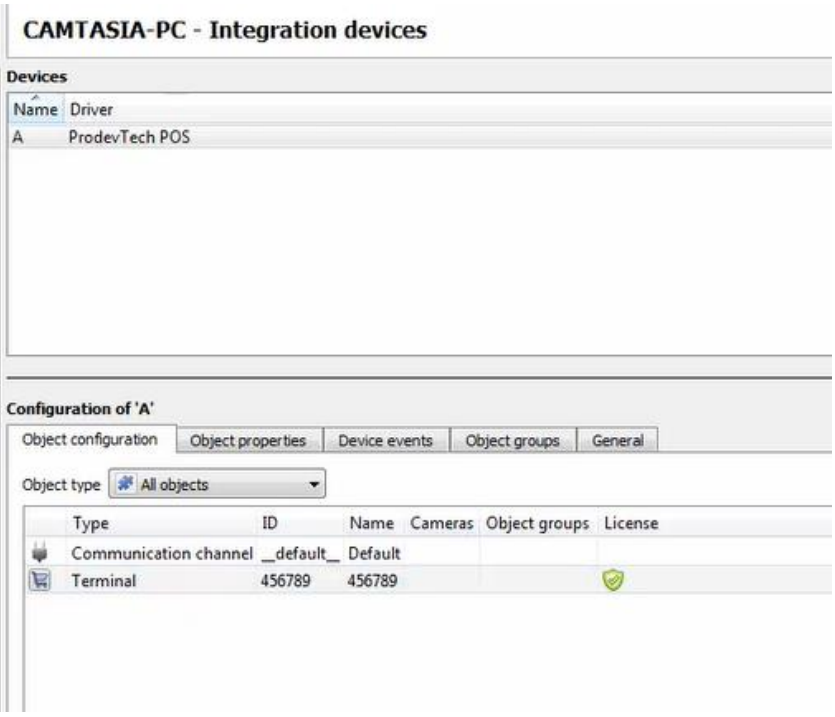
There is no specific setup to be done on the ProDev system side of things, but ensure that the UDP port numbers are the same for the ProDev system as well as CathexisVision.

Note: Ensure that the UDP port is not blocked by the firewall.

2.2 Add the 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 Navigate to the Integrations Panel



There are two sections in the Integration Panel:

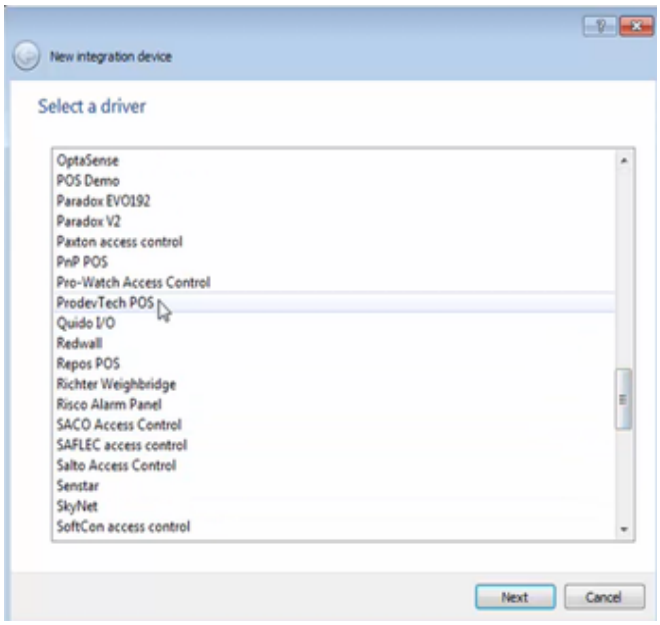
The **Devices** list will specify the integration devices that are attached to the selected server. In this section, new devices are added. This is dealt with below.

The **Configuration** section enables reviewing and editing the device selected in the **Devices** section. The configuration section is dealt with in section 3.

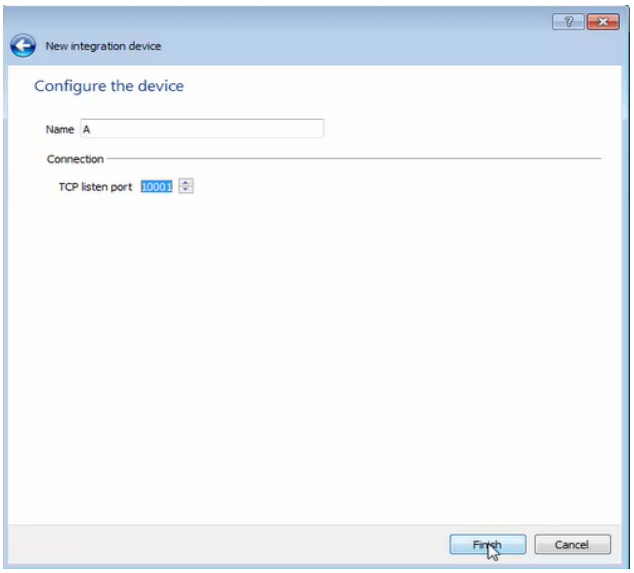
2.2.1.1 Device Addition

1. Once in the Integration Panel, click on the New button, in the Devices section. This will open the addition dialogue.

2. Select **ProDev** driver from the list.



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



4. Enter the UDP listening **port number**. This must match the UDP port number for both CathexisVision and the ProDev system.

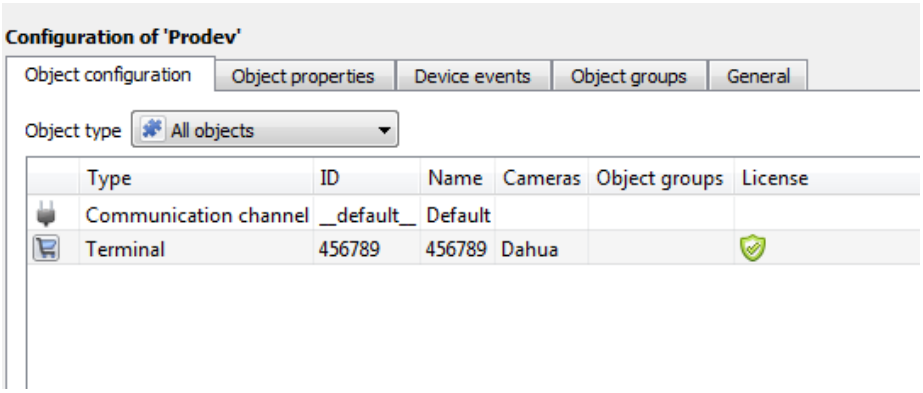
5. Click **OK** when done.

3. Integration 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.**

The System device object (representing the connected ProDev system) will populate once communication is established with the system. The terminal objects will populate once device events are received.

3.1 Object Configuration Tab



The object configuration tab is where all the individual objects that comprise the integration may be viewed. If necessary, objects may be added manually.
ProDev has two object types: **Terminal** and **Communication channel**.

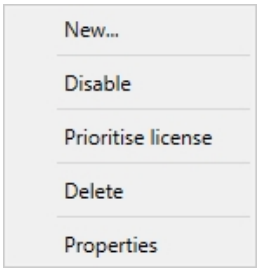
3.1.1 Object Configuration Buttons

Add a new object by clicking on **New**.

Click Edit to change an existing object.

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

3.1.2 Right-click Options



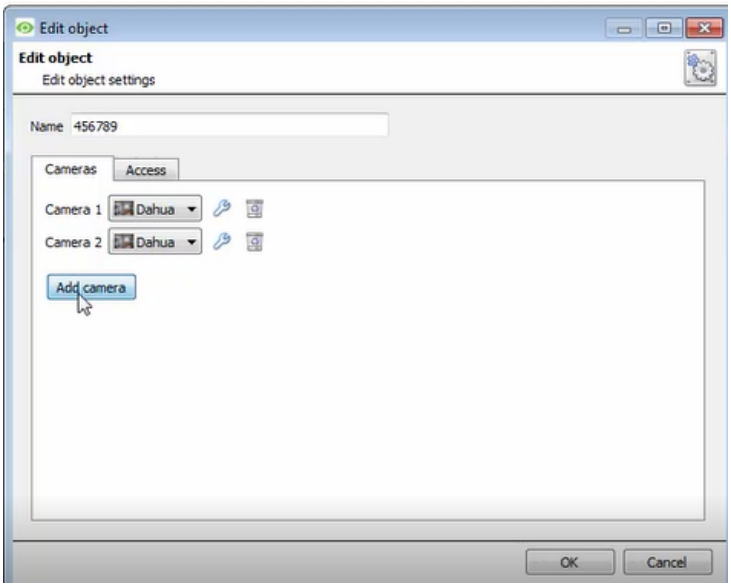
New will open up the dialogue to add a new object.
Disable/Enable allows objects to be manually enabled/disabled.
Prioritise license allows the user to give specific objects priority,
when licenses are applied. (This is useful if there are fewer licenses than objects.)
Delete will permanently remove this object from the list.
Properties will open up the object editing window.

3.1.3 Edit Object

Open object **editing window** by selecting object and clicking **Edit button**, or **right-click Properties**.

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

3.1.2.1 Cameras Tab



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 on **Add Camera**, and select the relevant camera from the drop-down menu.

To Configure overlays for this specific object.

- Click the spanner icon (explained below).
- To delete a camera, click on the trash icon.

Note:

1. Cameras will not be linked in the integration database.
2. Up to four cameras can be added to terminal objects and will be linked in the integration database.
3. If **continuous recording** is not set up on associated cameras, device objects run the risk of triggering while the cameras are not recording. To record cameras only when an object triggers, set up **Events** that trigger a recording when one of these objects is activated.

3.1.2.2 Access Tab

Access allows for the protection of sensitive objects, by only allowing certain user levels access to them.

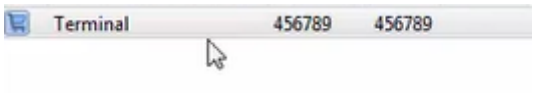
Under **View, access levels can be set.**

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

3.1.4 Configure Overlays

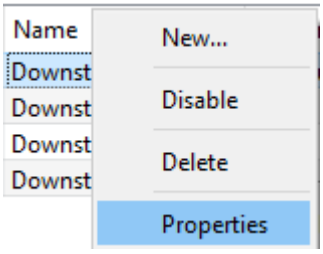
Overlays are supported for **Terminal** objects. Overlays may be configured by default for all objects, or individually for selected objects. The path to follow for opening the configuration window for default vs individual overlays is different, however the overlay configuration is the same.

3.1.4.1 Configure Default Overlays

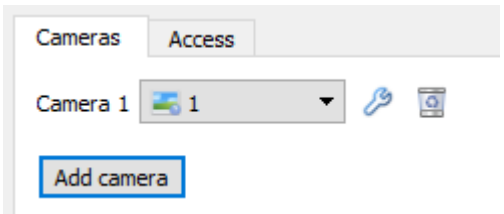


Select the Terminal object from the **Object type** drop-down menu and click the Default Settings icon.

3.1.4.2 Configure Individual Overlays



Right-click object and select **Properties** to edit the object.



Add a camera to the object, and then click the settings icon that appears next to the camera name.

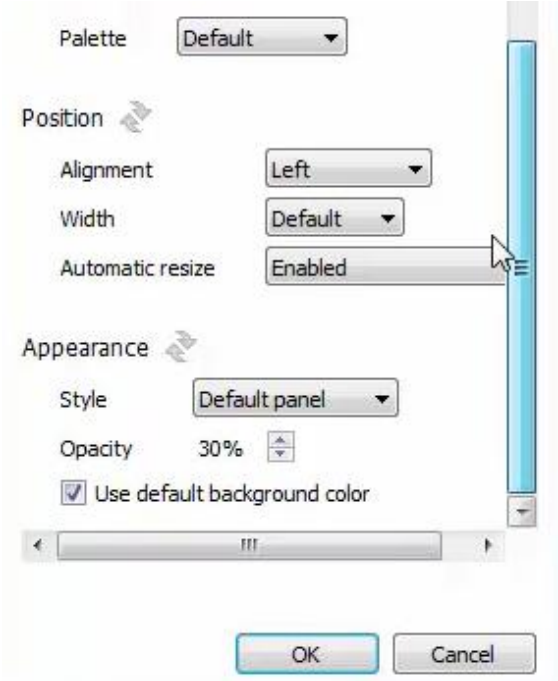
Default/Individual Options

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

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

Click to reset values.

Overlay Configuration for Individual and Default



Select **Palette** options from the drop-down menu.

Define the **Position** of the overlay panel, including its alignment, width, and whether the overlay should automatically resize based on the size of the viewing screen/camera panel.

Define the **Appearance** 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.

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

Click the colour box to bring up a colour chart.

3.2 Object Properties Tab

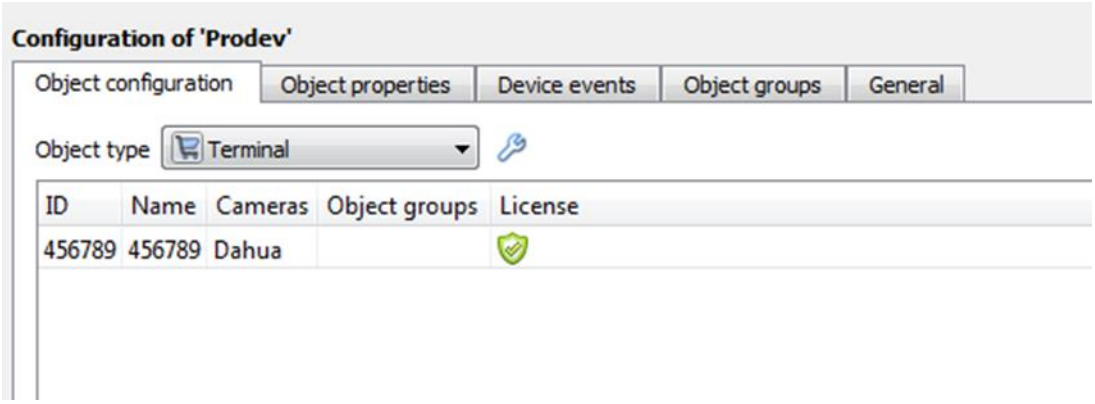
The Object properties tab allows the device object properties to be viewed and sorted by type.

3.2.1 System Objects

The System object populates once communication is established with the ProDev system. The System object displays information about the connected ProDev system. The state of this object (Online/Offline) is determined by a heartbeat from the ProDev system: if a heartbeat is not received at ten-second intervals, the state will change to **Offline**. This object can be used to trigger system events based on its online/offline state.

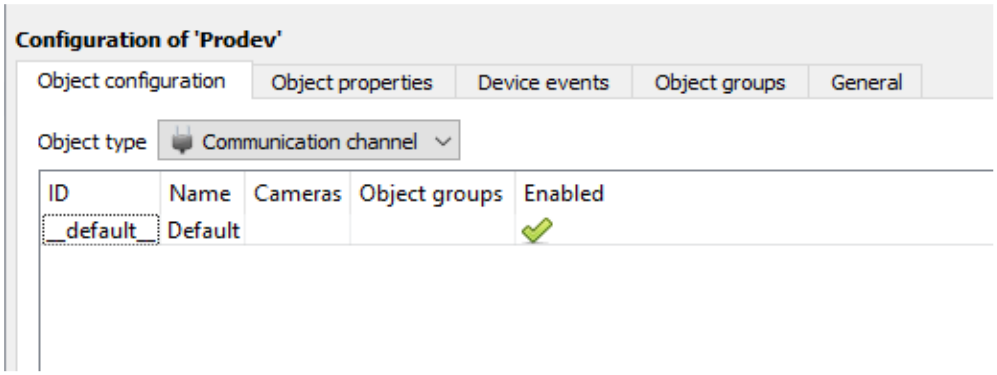
3.2.2 Terminal Objects

Terminal objects will populate once device events are received from the relevant Terminals.



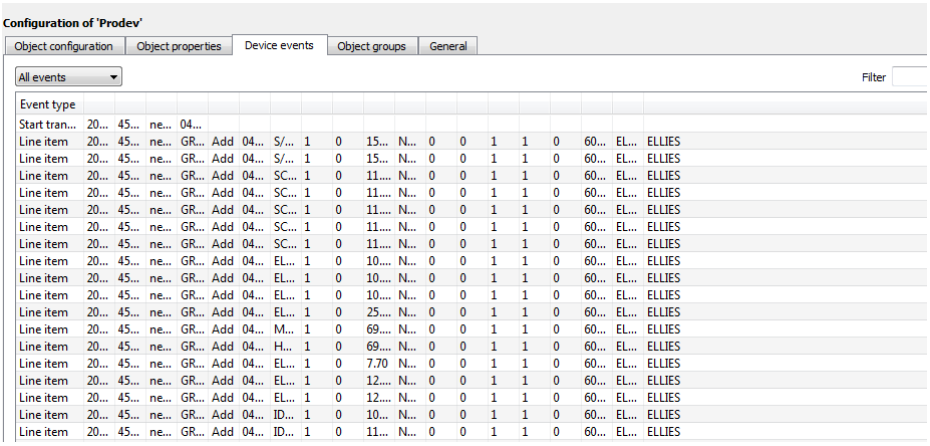
3.2.3 Communication Channel

The communication channel object represents the UDP channel used by the integration device.



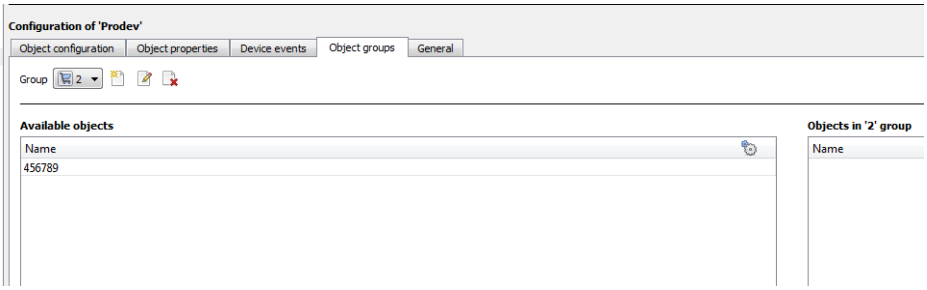
Note: Due to the nature of UDP network communication, this channel will not go down when communication with the ProDev system has been lost. If system events triggered on connection state are required, use the System object.

3.3 Device Events Tab



Realtime device events are displayed here and can be used to check if the integration is working. Once device events are received, the relevant Terminal objects will also populate (Object Configuration and Object Properties tabs).

3.4 Groups Tab



Groups of the same types of object may be created.

This is 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 is triggered).

3.4.1 Create a Group

To create/edit a group click on / .

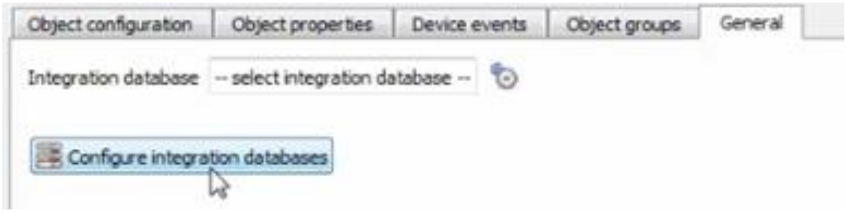
Note: Once a group has been created, the group's object type may not be edited.

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

Click on the drop-down menu to select the **Object type**. Only objects of this type can be added to the group.

A list of Available Objects will then populate. To add/remove these objects to the group select them (multiple may be selected), and click on / .

3.5 General Tab

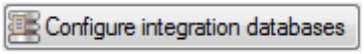


Currently the general tab deals with the **Integration database**.

Select an existing database or create a new one.

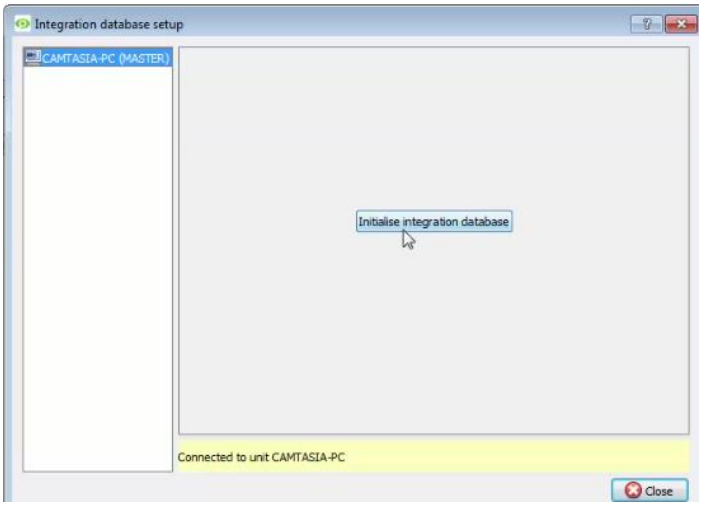
Important Note: Each integrated device needs to be attached to an Integration database. Without setting up/adding a database, the integration will not function properly within the CathexisVision system.

3.5.1 Configure a New Database



If there is no existing database for the current integration, clicking on this button will open the integration database setup.

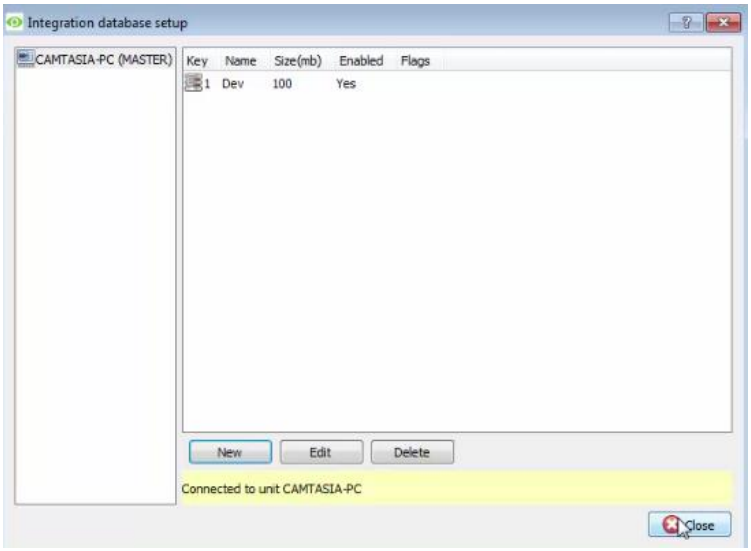
3.5.1.1 Initialise Integration Database



To create databases for specific integrations, the general integration databases must be initialised. If not already done, initialise by clicking the button.

Note: Once the size of the database has been set, the initial size cannot be increased.

3.5.1.2 Configure Integration Database

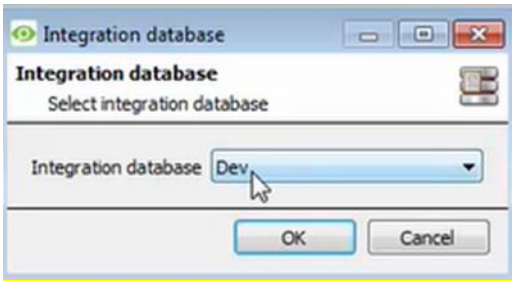


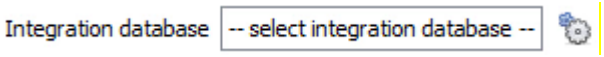
If the general integration database has already been initialised, or after initialising (3.5.1.1), create a new integration database for the current integration.

Select the unit that the database should be added to from the list on the left, and click **New** to create a new integration database.

Give the database a **name.**
Set the database **Size.**
Select the **ProDev** driver from the drop-down menu.

3.5.1.3 Select the Integration Database





Once a database has been created the user may select it by clicking on the settings icon, and selecting it in the dialogue that appears.

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

4. Camera Tab Overlay Setup

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

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

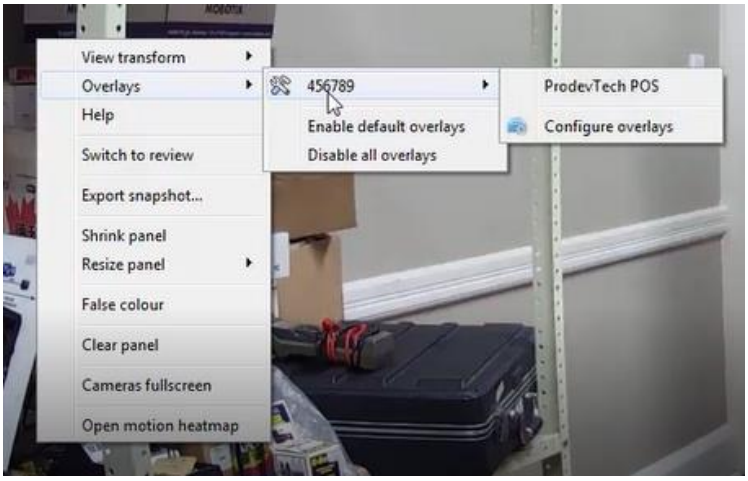
4.1 Video Feed Options Panel

To bring up the overlay, click the arrow to the left of the screen, to pop out the Video feed options panel.

The Video feed options panel will present a number of options specific to the settings configured for that video feed.

Right-clicking will also bring up overlay options.

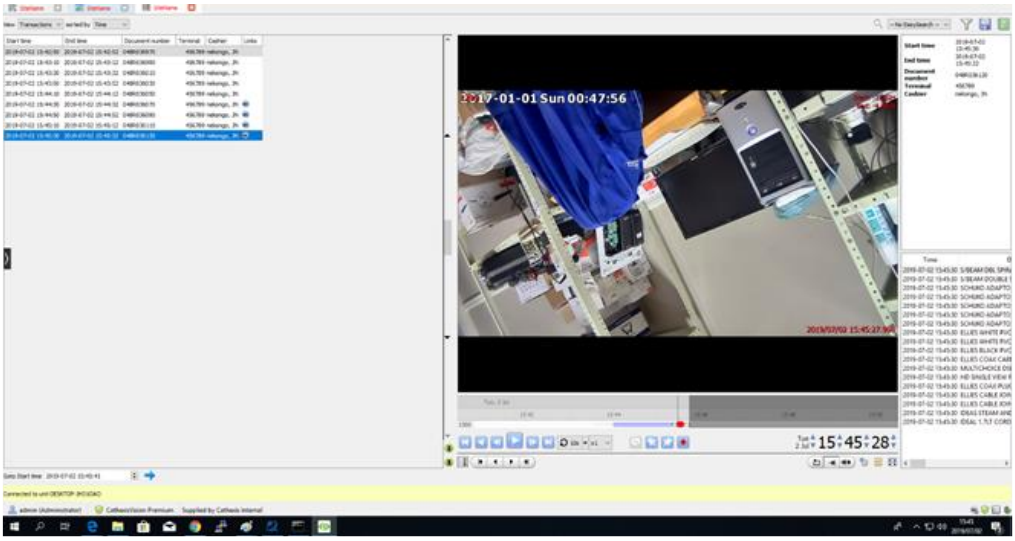
4.1.1 Select the Overlay



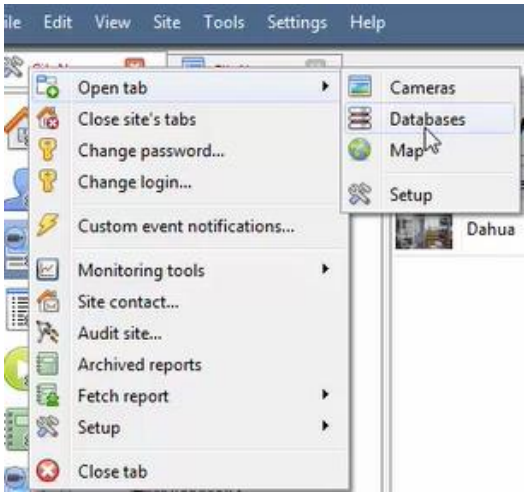
Through the right-click option, one can select the overlay and it will appear over the video feed, as above.

5. Database

The database tab allows database entries to be sorted, filtered, reviewed, and exported. Most integrations will have a different database presentation, and unique filters, due to the different parameters sent to CathexisVision by the integrated device.



5.1 Navigate to the Database

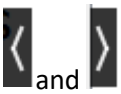


To open database, follow one of two paths:

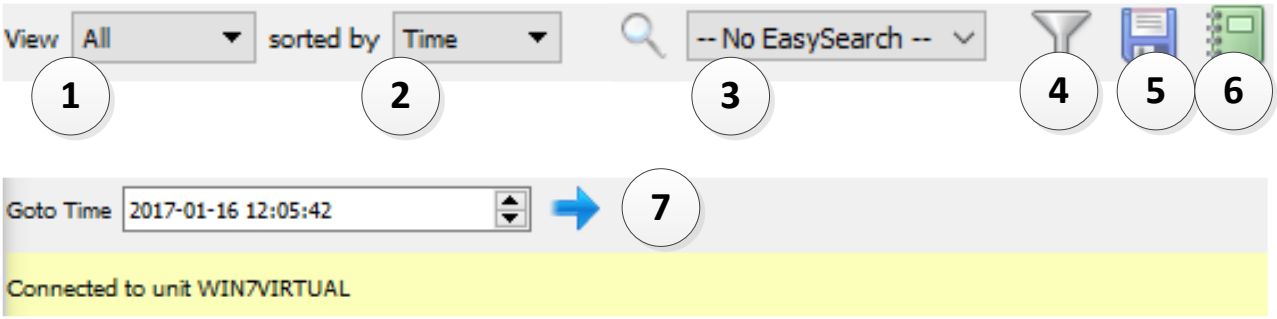
1. **Site Menu / Open Tab / Databases.**
2. **Right-click site tab / Open Tab / Databases.**

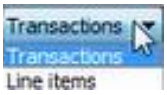
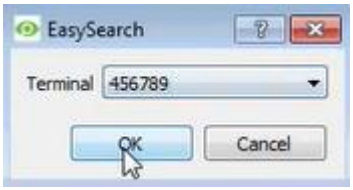
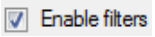
When the database tab opens, select the relevant integration database from the database panel that opens on the left-hand side. The databases are ordered under the NVRs that they are attached to.

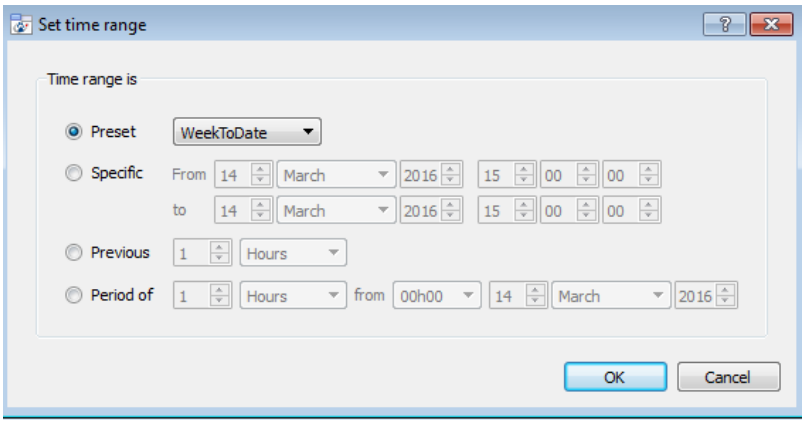
To open and close this list, click on the arrow in the centre of the list:

 and

5.2 Database Interface

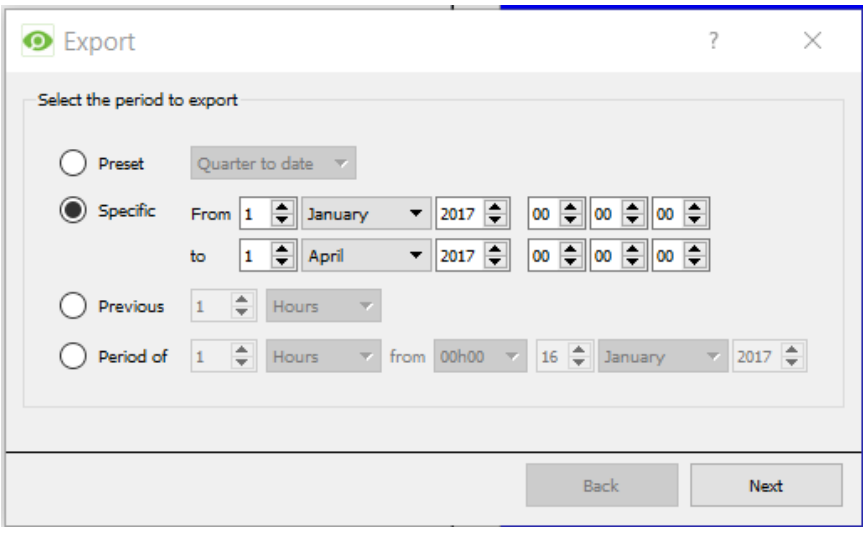


① **View**	Change the way that the database is presented. Some integration databases have multiple view options. Here is the view option for the ProDev integration: 
② **Sorted By**	The Events are sorted based on the following parameter: **Time**.
③ **Easy Search**	The easy search option allows one to quickly search the database using the below options: 
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:  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 on .

	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.

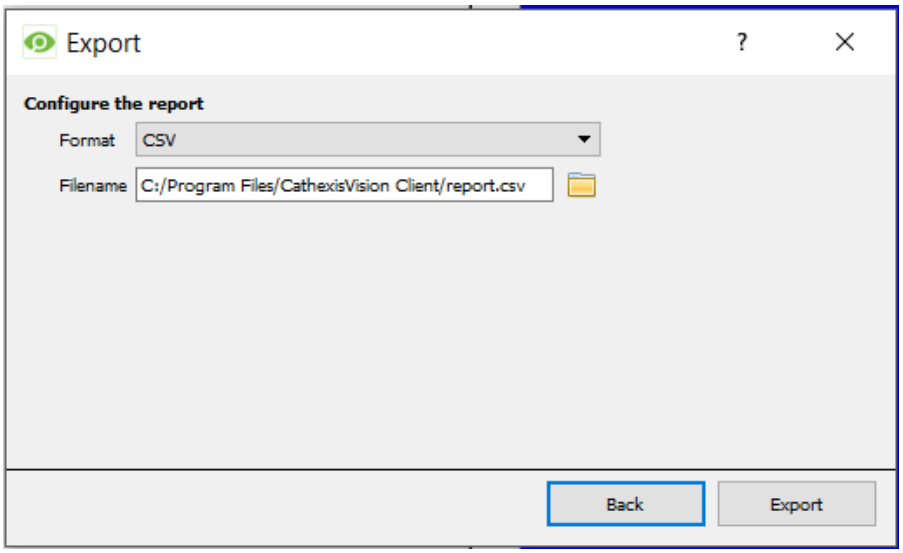
5.2.1 Generate Metadatabase Reports

Click the save icon to open the Export window.



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

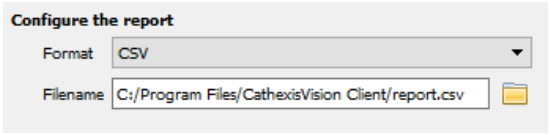
Click **Next**.



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

See below for the two options.

5.2.1.1 Export CSV

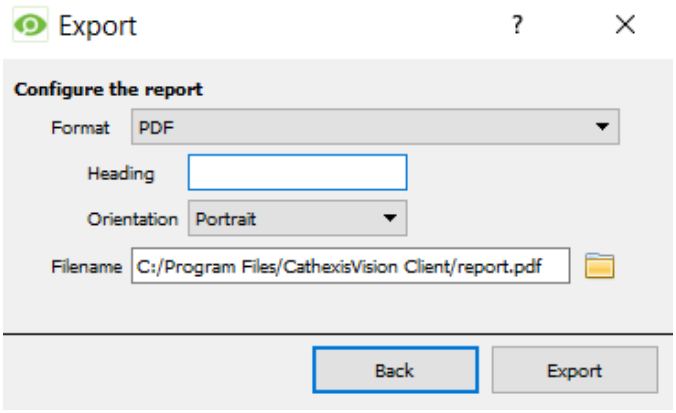


Select CSV **Format**.

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

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

5.2.1.2 Export PDF



Select PDF **Format**.

Give the PDF a **Heading**.

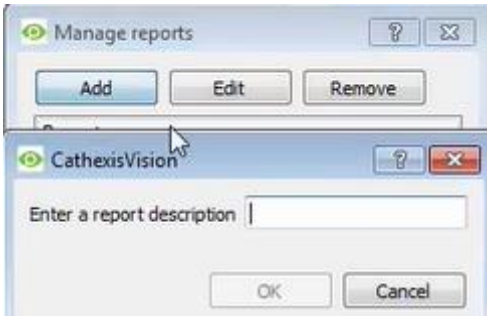
Select either Landscape or Portrait **Orientation** of the PDF.

Edit the **Filename** by either entering it straight into text field (replacing **report.pdf).**

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

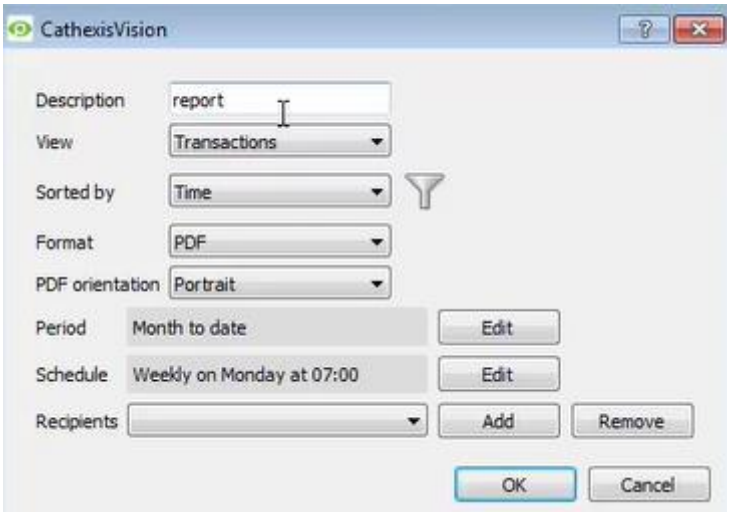
5.2.2 Manage Reports

Metadatabase reports may be auto-generated according to a user-defined schedule.



Click **Add** to add a new report. Once added, reports will populate the list.

Double-click the selected report (or select and click **Edit**) to configure the parameters of the scheduled report. See below.



Give the report a **descriptive name**.

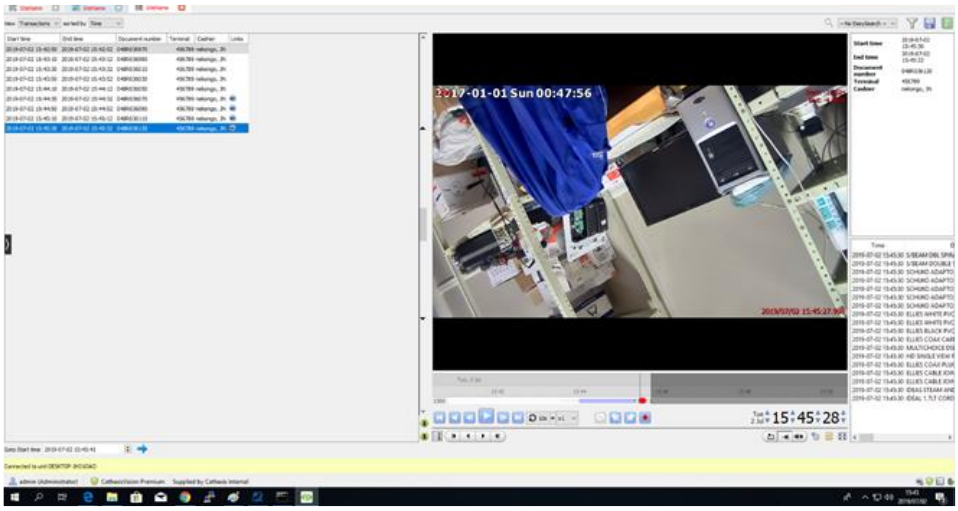
Select the default presentation of the database entries by selecting desired options for **View** and **Sort** Index.

Select the format (**PDF/CSV**) of the report, as well as the **orientation** of the report (if PDF selected).

Select the **Period** to report, and the **Schedule** according to which reports will be auto-generated.

Add report recipients by clicking **Add** and entering the relevant email address. Multiple recipients may be added. To remove a recipient, select the entry from the drop-down menu and click **Remove**.

5.2.3 Viewing an Entry's Associated Recording



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

5.2.4 Metadata

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

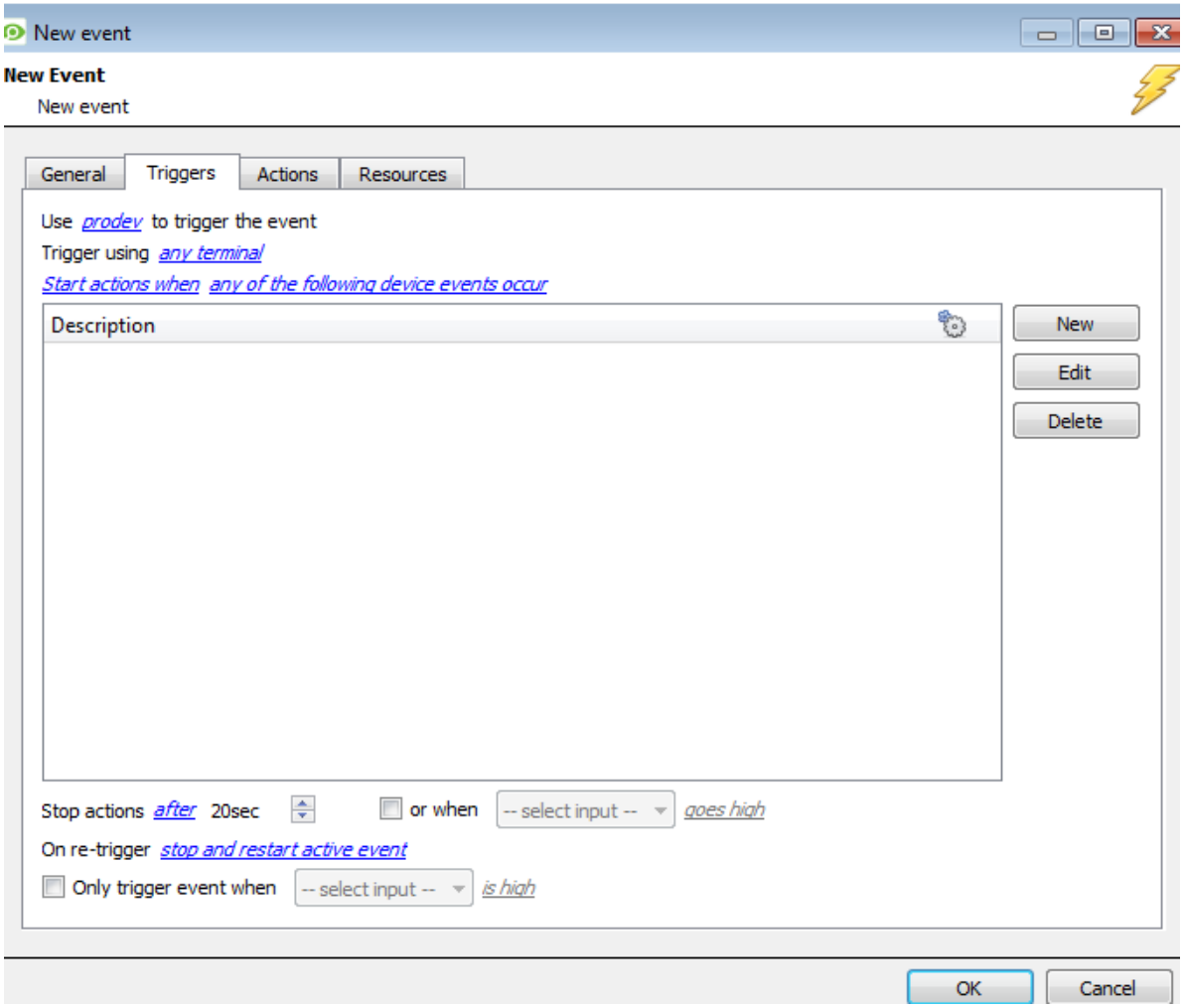
6. Events

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 ProDev 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.

6.1 Event Window

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



6.2 Creating an Event

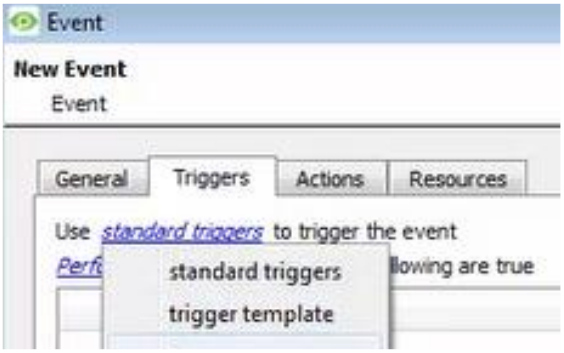
To create an event using the Cathexis ProDev device, open the Events panel in Configure Servers by following this filepath: **Site menu / Open tab / Configure servers / Select server / Events.**

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

6.3 Triggers

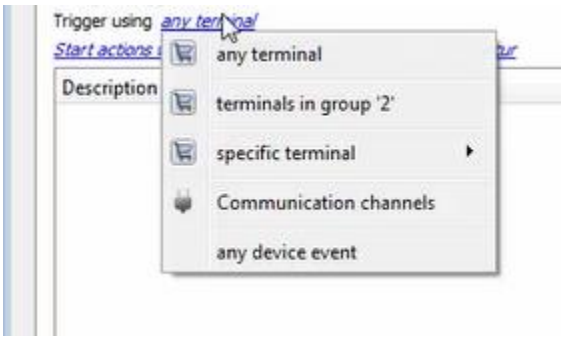
A trigger is the user defined input that tells the event to start. The trigger causes the subsequent action (which the user will also define).

6.3.1 Set the Device as the Trigger



If 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". Select the relevant device name from the drop-down menu.

6.3.2 Trigger Types



Any system will trigger when any of the system objects sends the selected trigger.

Any Terminal will trigger when any of these objects sends the selected trigger.

Terminals in group 'Terminal groups'... If a Group is set up; it will appear in this list.

Specific system/Terminal... will trigger an event from the specific object selected.

Communication channels will trigger only on the Communication channels.

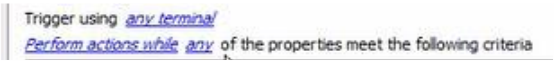
Any device event will trigger on any event that occurs on the device. Within the "any device event" setup, set "device event rules", which will constrain which device events will trigger the event.

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 to see a list of available descriptions.

6.3.3 While/When and Any/All

When triggering on an object, there is 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.

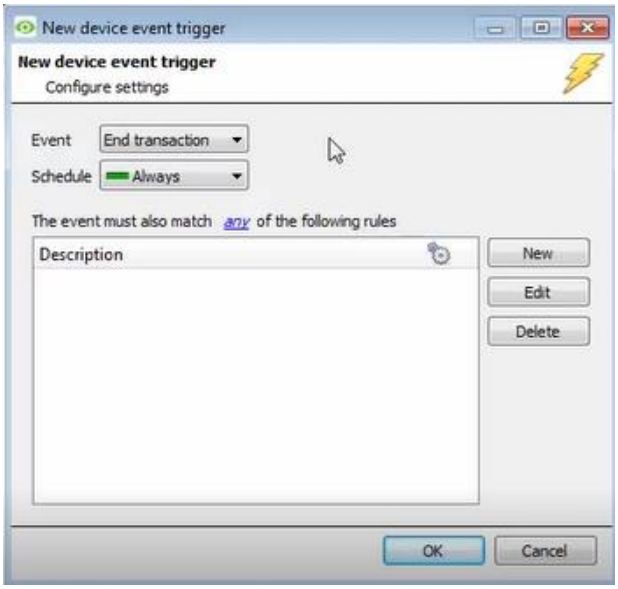


To change these settings, click on the blue hyperlinks.

6.3.4 Define the Trigger

After selecting a master trigger type, it is necessary to add a trigger to the event.

Click on New in the Triggers tab. This will bring up the dialogue box below:

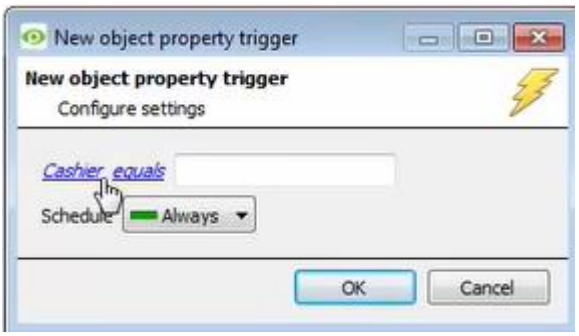


For example, within the any device event option, choose what type of device Event will be the trigger. Choose an event type from the drop-down menu.

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.

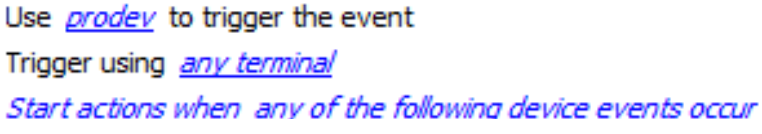


To change the constraint, click on the first hyperlink. This will bring up the full list of available rules.

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

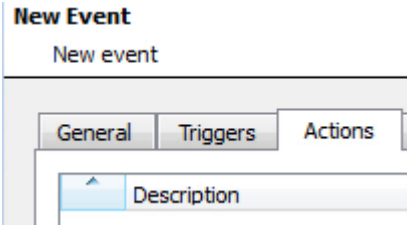
Note: When all available options are known to CathexisVision, there will be a drop-down menu. When these variables are not pre-defined, fill them in. The information pulled through to the events is information sent to CathexisVision from the ProDev device, see the ProDev settings for the strings needed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

6.3.4.1 Event Example



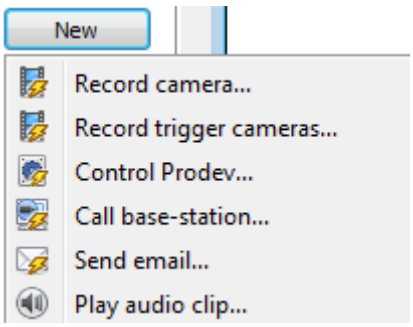
In this example, an event is configured which will trigger when the state of the ProDev system equals 'any terminal' .

6.4 Actions

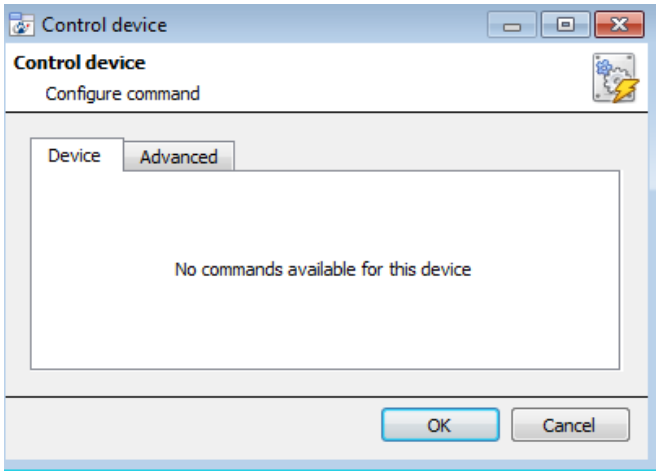


Once the triggers that are going to initiate the event are defined, define some actions.

6.4.1 New Action



To create a new Event Action, click on New.



Note: With many integrations there will be the option to control the integrated device, as one of the actions. This is not the case with the Cathexis ProDev device. Although the option is presented in the menu, it is **not advisable** to control the Cathexis ProDev device as a system action.

7. 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, contact support@cat.co.za.

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*