Axis Vaxtor LPR

Integration App-note

Contents

1. Introduction

This document details the integration of the Axis Vaxtor LPR application with CathexisVision LPR interface. The Axis Vaxtor LPR is an app that is installed onto a camera. The information captured by the Vaxtor app is then sent to the CathexisVision system through the CathexisVision LPR interface.

Note:

1. For information regarding the regular operation of the Vaxtor LPR application, please consult the relevant manufacturer's documentation.
2. Cameras are configured in CathexisVision as standard IP cameras and are recognised as an LPR camera.
3. The camera being used for LPR and the site NVR should be properly synced to the same time source with the same time zone.
4. For more information on CathexisVision ANPR/LPR integration, consult the *CathexisVision Number Plate Recognition Integration Guide*.

1.1 CathexisVision Requirements

1.1.1 Software

- CathexisVision 2020.4 and later.

- Windows 10: 64-bit and later; Windows Server 2016 and later.

- Minimum of 4GB of RAM required.

Note: if the user plans on installing this integration on a Linux unit, contact support@cat.co.za.

1.1.2 License Requirements

License Name	License Description
CLPR-2000	Integration Base License
CLPR-1001	Per Detector License

Note: in this integration, individual devices will require a camera IP license and a Detector license for each LPR camera. The site will require a single base license.

A NOTE ON CAMERA CHANNELS

The CathexisVision software packages have **limits on camera channels**. A multi-head 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.

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. There are different types of objects.

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*
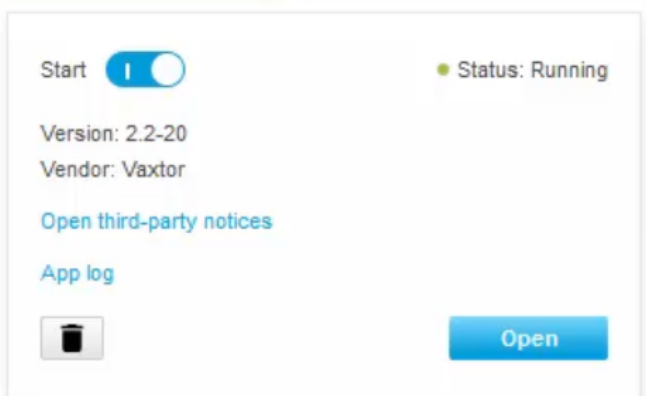
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2. Axis Vaxtor Setup

1. Select the Axis Vaxtor Setup via the web interface using the camera IP address.

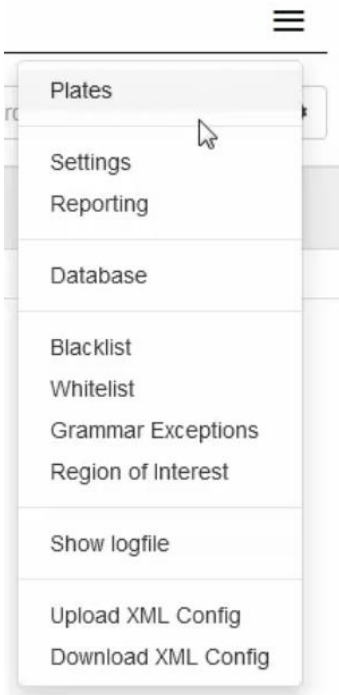2. Navigate to **Apps** and select the **VaxALPR On Camera** Application.
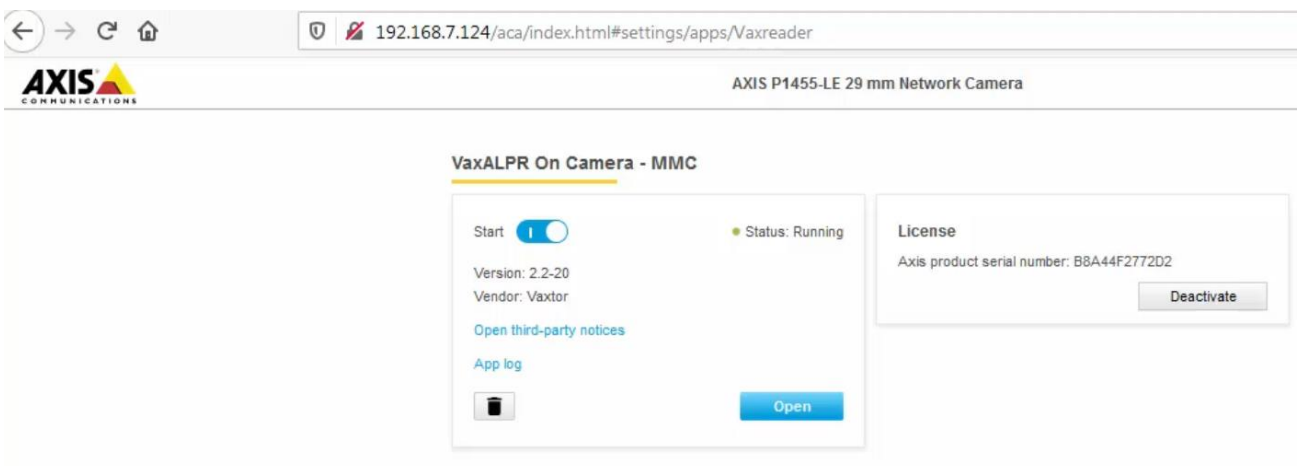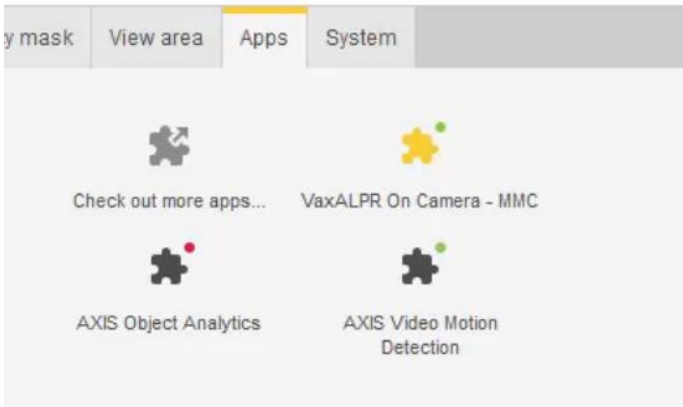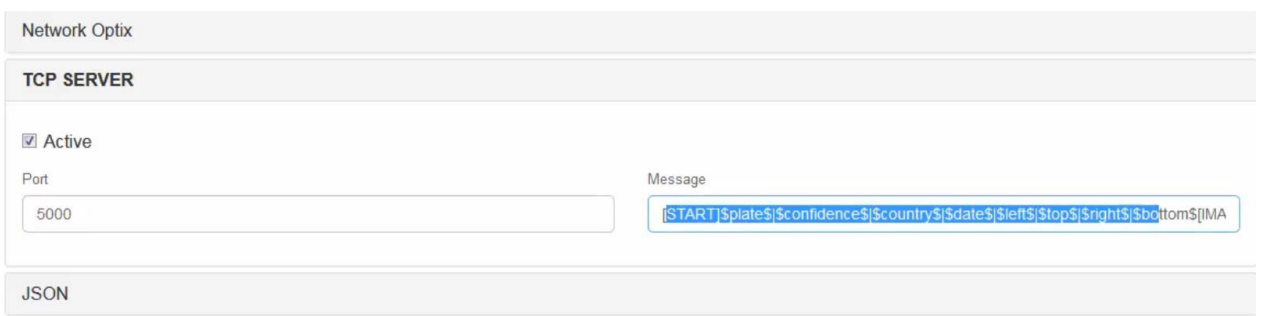

3. Make sure the VaxLPR app is version **2.2-20**.

3. From the drop-down menu, navigate to **Reporting**.

4. Under the Reporting menu Open the **TCP Server** option.

5. Make sure the **port** number is set to 5000.

Port

```
5000
```

6. The text provided below must be copied and pasted into the message section. It is important to copy the text exactly as below in order for Cathexis to receive the data.

Highlight and **copy** the following string:

[START]$plate$|$confidence$|$country$|$date$|$left$|top|$right$|$bottom$[IMAGE]$image$[END]

Paste into the **message** section, which looks like this:

Message

```
[START]$plate$|$confidence$|$country$|$date$|$left$|$top$|$right$|$bottom$[IMA
```
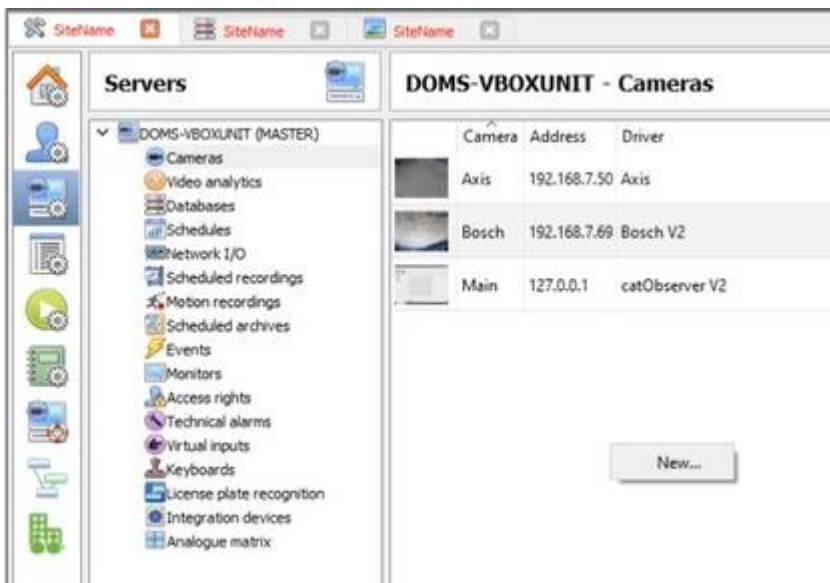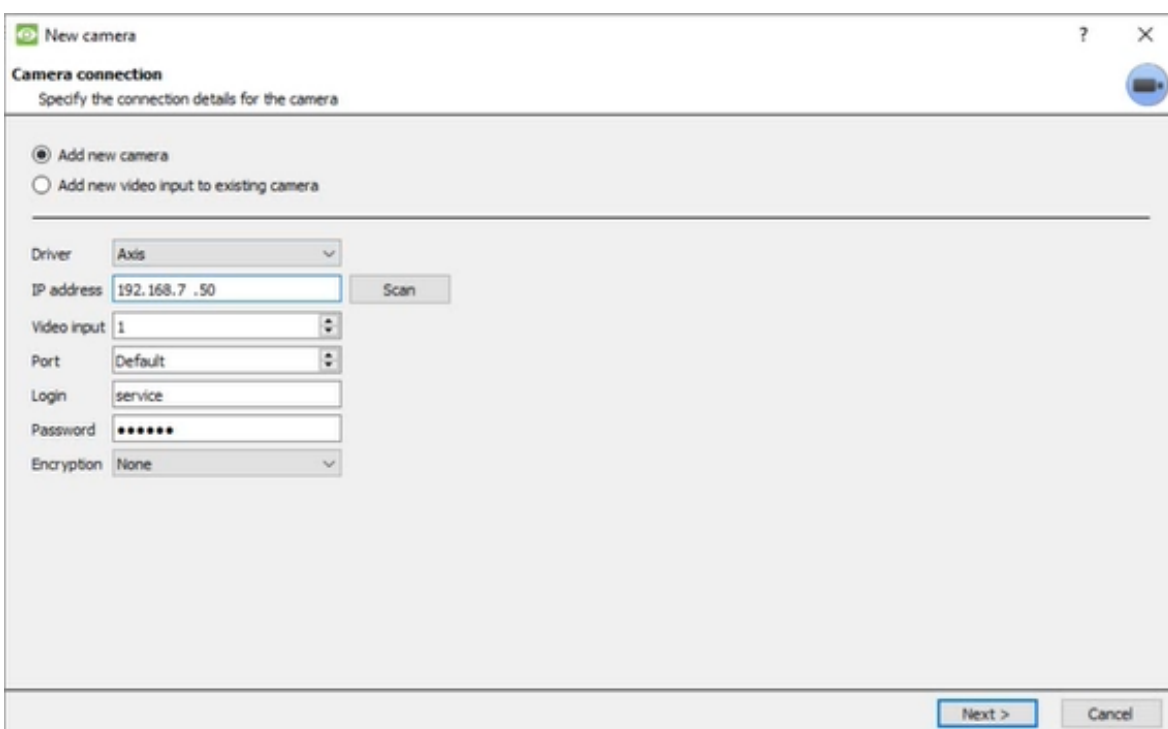
3. Device Addition and Configuration

This section details the procedure for setting up CathexisVision LPR integration and Axis Vaxtor LPR application to communicate with each other effectively.

3.1 Add a Camera

The first step is to add the Axis Camera by selecting **Servers / Cameras / Right-click / New.**

The **Axis camera's driver, and IP address** are listed below:
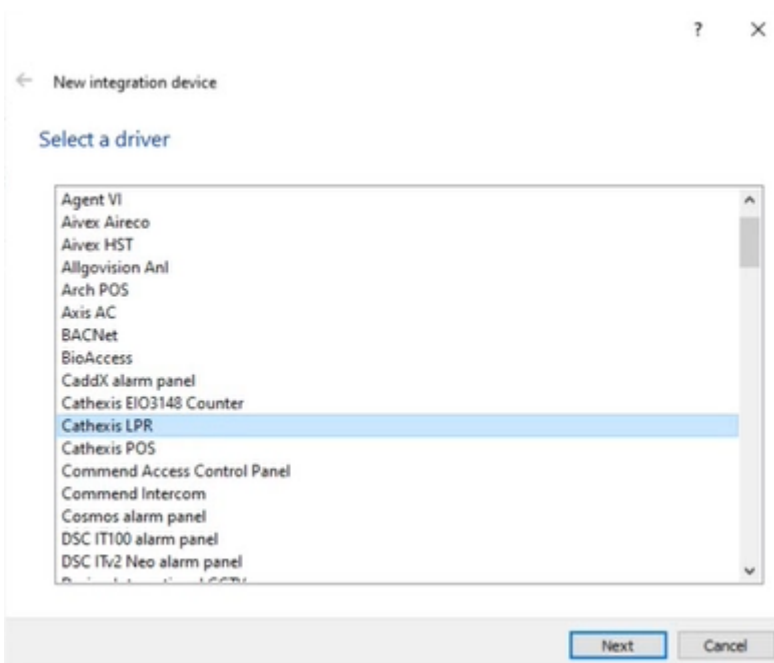
3.2 Devices Section (Add a New Device in CathexisVision)

Integrations are added on a server-by-server basis. They are managed in the Integration Devices panel, under the **Setup Tab** of the servers to which they are added. To get to the Integration Panel, follow this path:
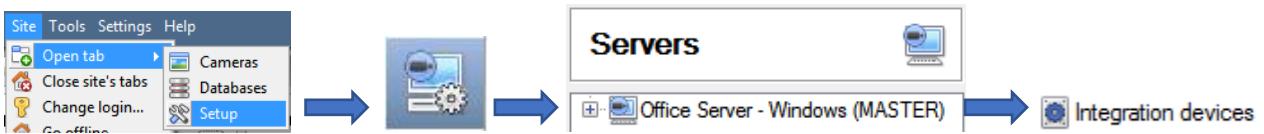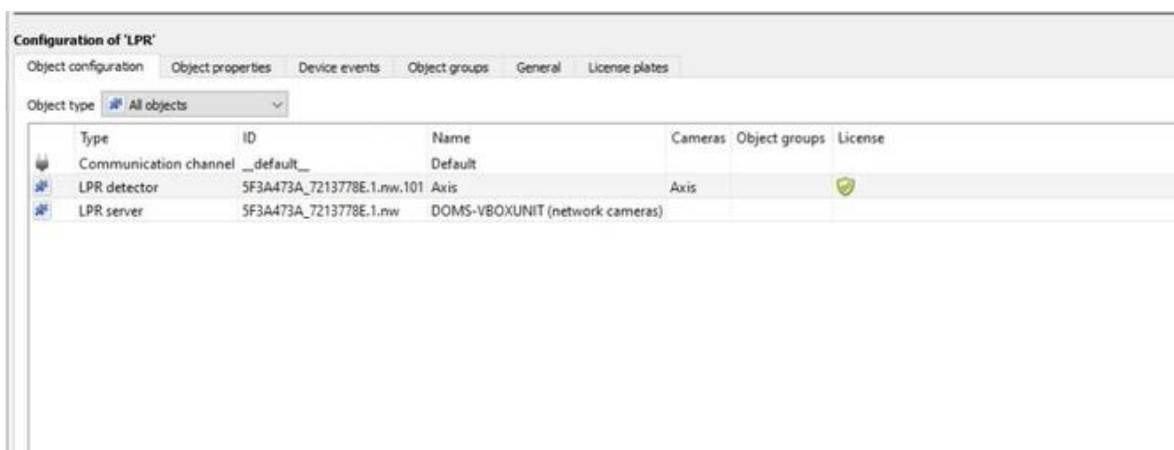

Select the Cathexis LPR Driver.

There are two sections in the Integration Panel.

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

The **Configuration** section enables editing/reviewing, the device selected in the **Devices** section.

3.2.1 Device Addition

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

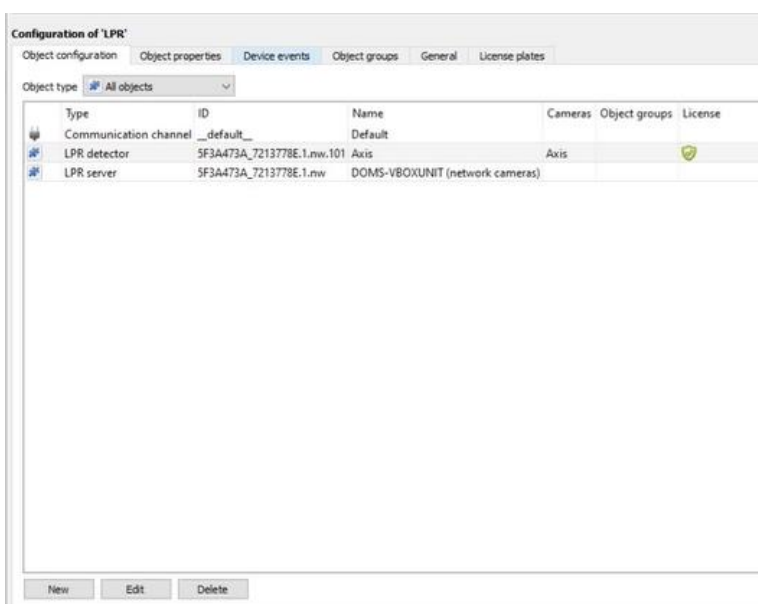2. Select **Cathexis LPR** driver from the list.
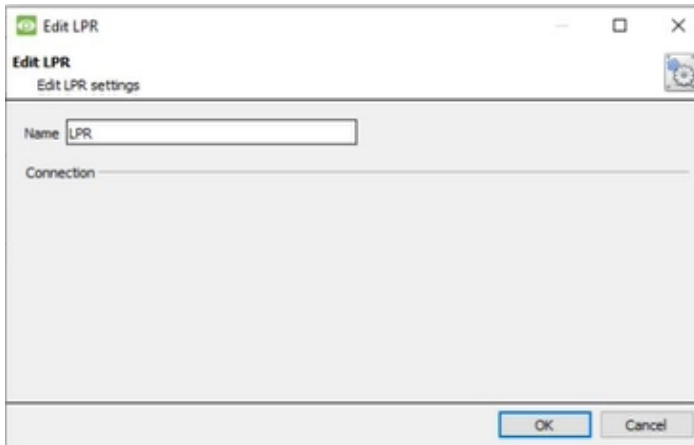
 Give the device a descriptive **name.**
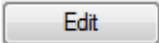
3.3 Configuration Section (Tabs)

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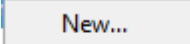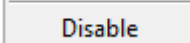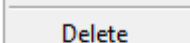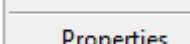
3.3.1 Object Configuration Tab

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

3.3.1.1 Object Configuration Buttons

New	Click on **New** to add a new object.
Edit	Click on **Edit** to open up an existing object for editing.
Delete	Click on **Delete** to delete an existing object from the CathexisVision configuration.

3.3.1.2 Object Configuration Right-click Options

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

Disable/Enable allows manually enabling/disabling individual objects.

Delete will permanently remove this object from the list.

Properties will open up the object properties. Edit the object from here, specifically, assign cameras to this object, as well as define user access levels for it.

3.3.2 Object Properties Tab

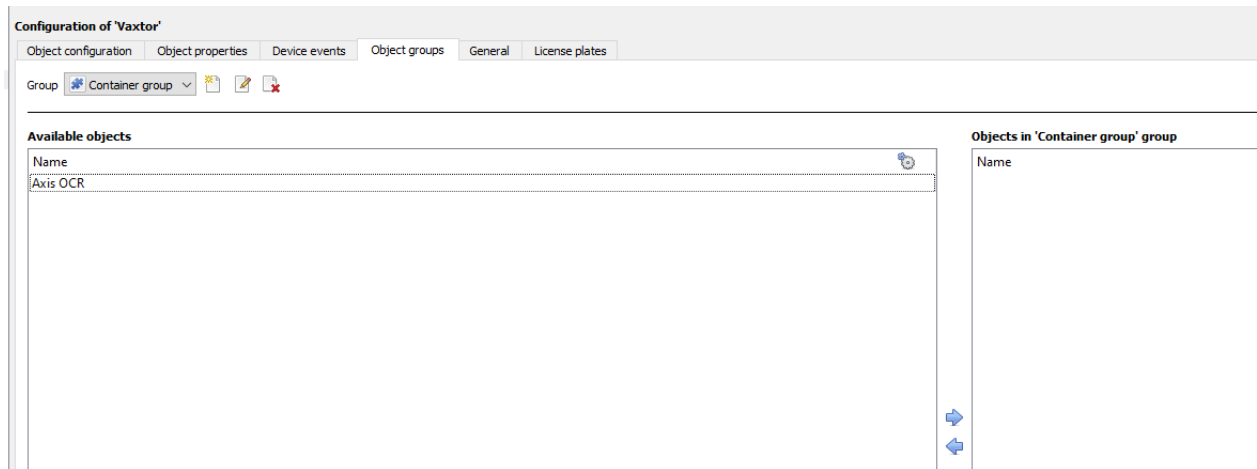The object properties tab is where all object properties may be viewed.
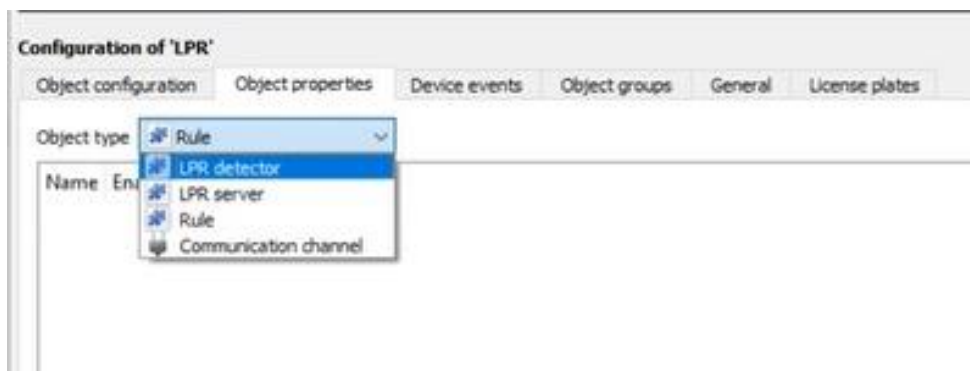
3.3.3 Device Events Tab

This lists all Events sent from the device. It is an excellent way for installers to see that the integration is functioning, and to monitor the Events happening on site.
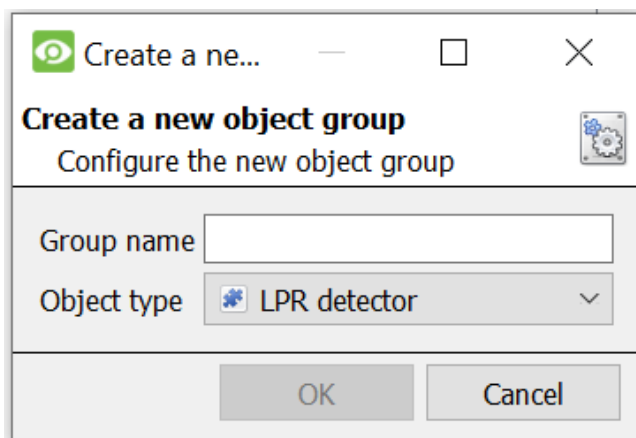
3.3.4 Object Groups Tab

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. (For example, a group will trigger, if any of the devices in that group is triggered.)

3.3.4.1 Create a group

Click to create a group.

Click to edit a group.

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

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

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

A list of Available Objects will appear. Multiple objects may be selected at a time.

To add these objects to the group, select them and click this arrow.

To remove these objects from the group, select them and click this arrow.

3.3.5 General Tab
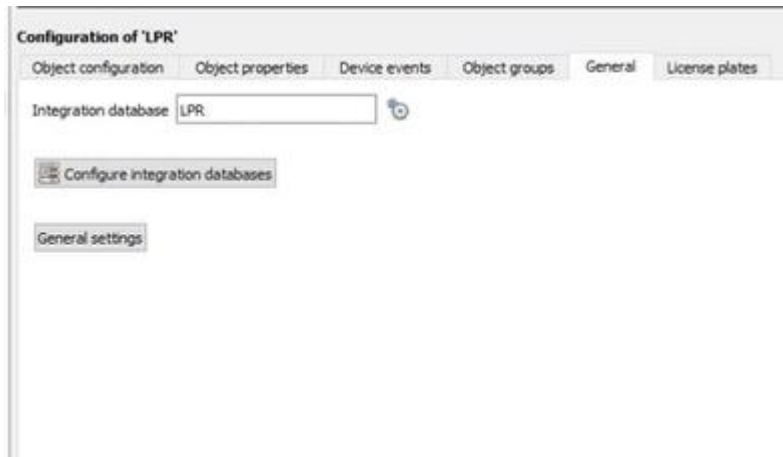

Currently the general tab deals with the **Integration database**. Here, select an existing database, or configure a new database for the integration.

Note: Each integrated device needs to be attached to an Integration database. Without setting up/adding a database here, the integration will not function properly within the CathexisVision system.
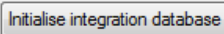
3.3.5.1 Configure a new database
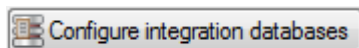
If a database is not yet created, clicking on this button will navigate to the integration database setup.

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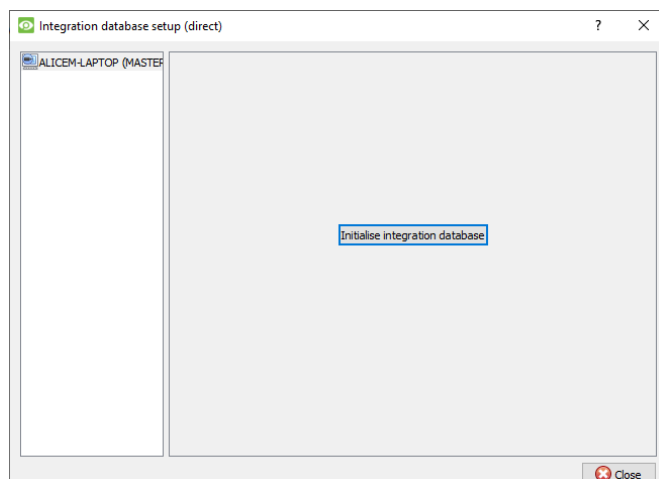
The first time an integration database is added, initialise this feature on the unit. This will add a broad database, within which all of the integrated device's databases will be added.

 Select the unit to which to add the database from the list on the left. Click **Initialise integration database**.

Choose which partition the database will be formed on, and select how much space it will take up.
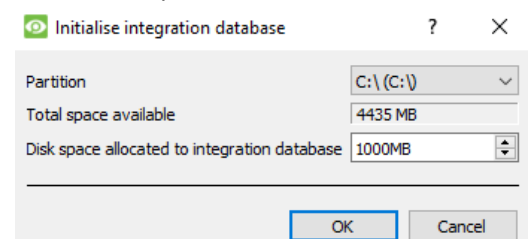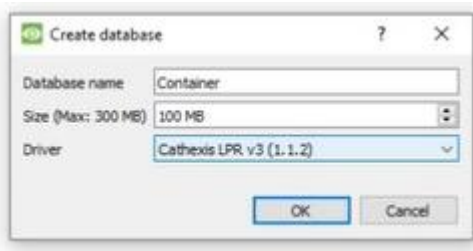
Add a new devices database

After initialisation, add the database for the integration being worked with.

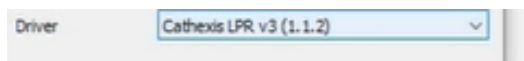Click on the **New** button, at the bottom of the **Create database** window.

Give the Integration database a descriptive **Database Name**. For example, Container.

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

Choose the device **Driver** that the device will be using. Click on **OK** to create the database.

3.3.5.2 Select the integration database

Be sure to select the Cathexis LPR v3 (1.1.2).

Once a database has been created, the user may select it by clicking on the **gear icon**, and selecting it in the dialogue that appears. Only databases which relate to the device being added should appear.

3.3.6 License Plates Tab

In the License Plates tab, **license plates** and license plate groups can be created, and **traffic rules** and **plugins** can be configured.

The three icons on the left-hand panel can be used to navigate to these options.
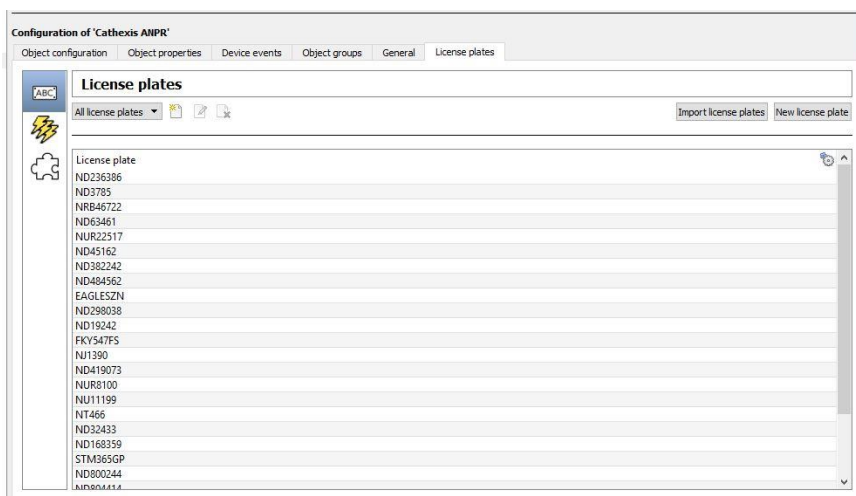
3.3.6.1 License Plates Section

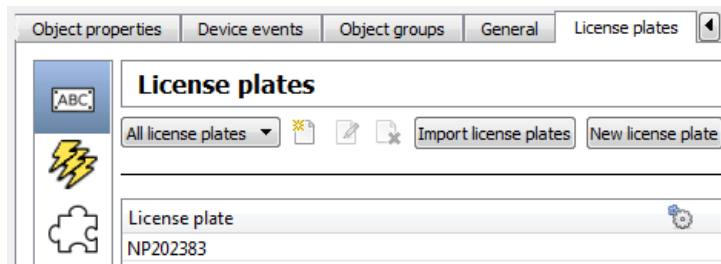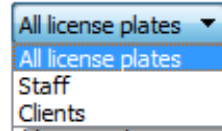Click the drop-down menu to change how the license plates are displayed:

Display all license plates, or certain groups of license plates (if created).

License Plate Groups

Create new license plate group.

Edit name of existing license plate group.

Delete license plate group.

Tip: Groups are useful when setting up traffic rules. See below.

Once a group is selected, license plates may be added to it:
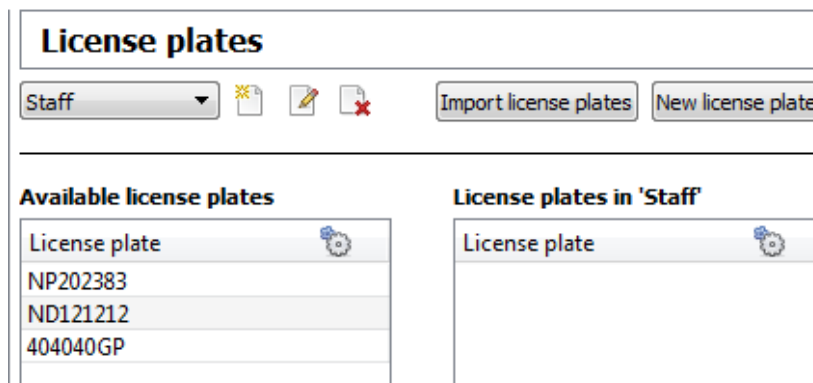
Create/import license plate

Click to import an existing license plate list in CSV format.

Click to create a new license plate. See below.

New License Plate

Fill in the meta-information associated with the license plate.

Add a reference image if necessary. This may be, for example, a picture of the driver or of the car.

3.3.6.2 Traffic Rules Section

Traffic rules can be configured to generate messages when defined traffic patterns are detected. For example, a rule can be configured to generate a message if a license plate is seen multiple times at a given location in a certain period. Currently there are four rules:
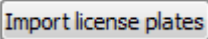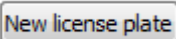
- **Visit location**: triggers if a license plate is seen at the same location multiple times.

- **Visit area**: triggers if a license plate is seen at multiple locations in a given time period.

- **Average speed**: generates an event based on the average speed of a vehicle between two points.

- **Loitering traffic**: triggers is a license plate has been in an area for too long.

New Rule

Click **New** to add a new traffic rule.

Give the traffic rule a descriptive name. Select the kind of rule to apply. See above for rule descriptions.

The settings options will change depending on which rule is selected. See below for appropriate rule.

Visit Location Rule

Rule Tab

Set the **number of visits** that will trigger the rule.

Set the **period of days or hours** in which these visits must occur to trigger the rule.

Locations Tab

Select the locations to be checked.

These locations are the sites at which the ANPR detectors are installed.

License Plates tab

If license plate groups have been created, they can be included in, or excluded from, the rule.

See the License Plates section for details on creating license plate groups.

Visit Area Rule

Rule Tab

Set the **minimum locations** that a license plate must visit in order to trigger the rule. Set the **period of days or hours** in which these visits must occur to trigger the rule.

Locations Tab
Select the locations to be checked.
These locations are the sites at which the ANPR detectors are installed.

License Plates Tab
If license plate groups have been created, they can be included in or excluded from the rule.

See the License Plates section for details on creating license plate groups.

Average Speed Rule

Rule Tab
Set the locations between which the average speed will be detected.
These locations are the sites at which the ANPR detectors are installed.

Note: To edit the speed settings (from mph or kph), it is necessary to edit the regional system settings. See note following*
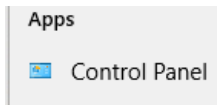

Direction
Select a direction between locations, or both.
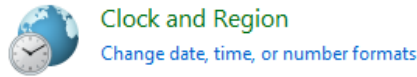
Distance
Select the distance of detection.

***Note**: displaying speed in Miles per hour or Kilometres per hour.

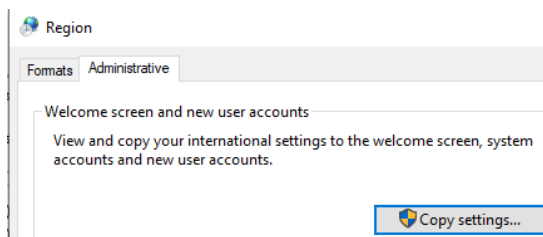1.   Visit Control Panel.

2.   Click on *Change date, time, or number formats* to change the region.

3.   To display the reading in **mph**, change the regional system settings to **English (United States)**. To display the reading in **kph**, change the regional system settings to **English (United Kingdom)**.
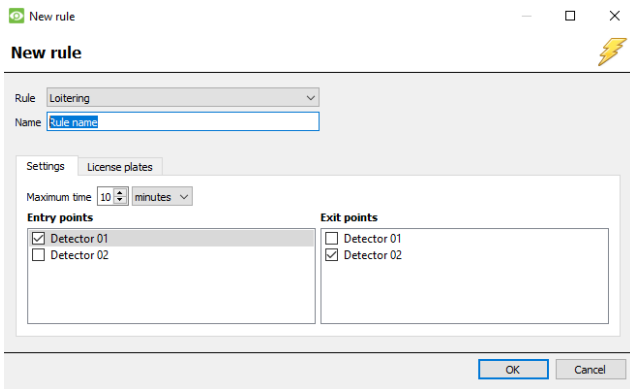

4.   Move to *Administrative* tab and click on *Copy Settings.*

5.   Check *Welcome screen and system accounts* and check *New user accounts*. Click **OK** to save.
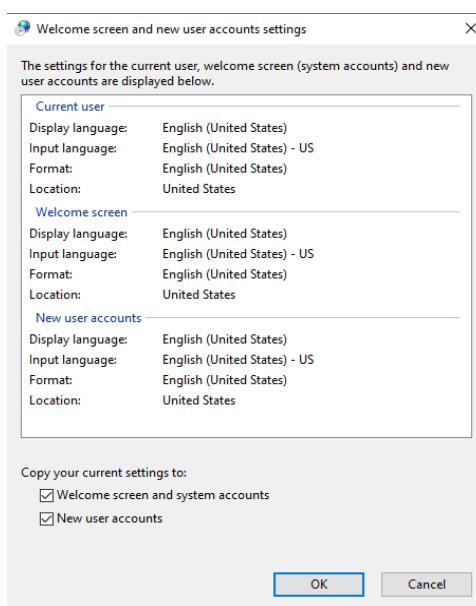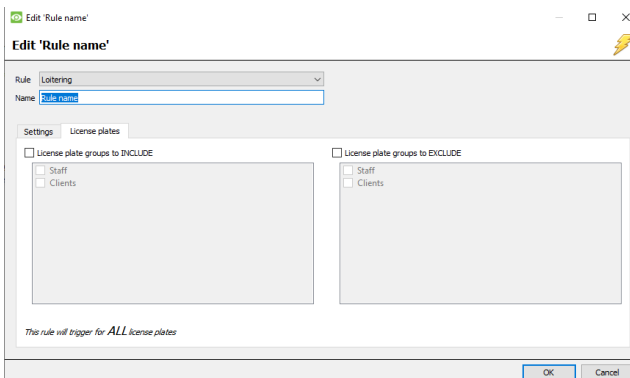
Loitering Traffic Rule

Rule Tab

Select the **entry/exit cameras**. It is possible to select multiple entry/exit cameras.

Adjust the maximum time a license plate is allowed within an area, and at which point an alert will be sent according the system's configuration. The maximum time can be set from 1 minute to 24 hours.
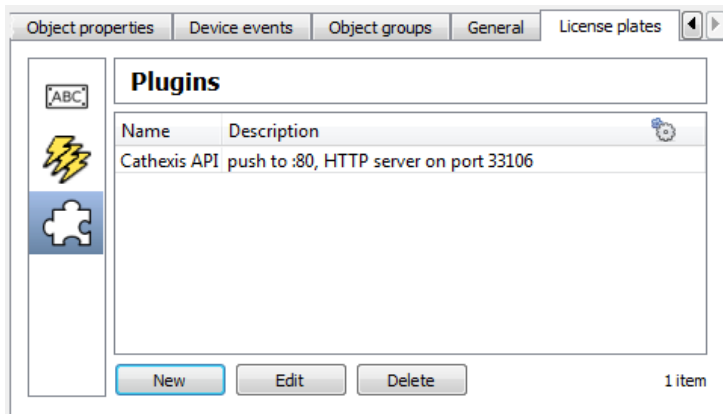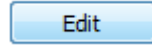

License Plates Tab

If license plate groups have been created, they can be included in or excluded from the rule.

See the License Plates section for details on creating license plate groups.
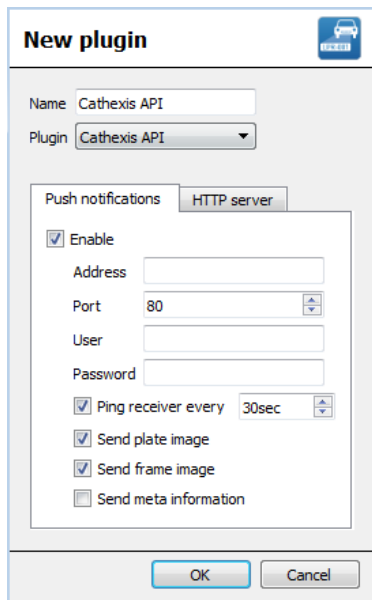
3.3.6.3 Plugins Section

Click **New** to configure new plugin.

Edit to edit plugin.

Delete to delete plugin.

Give the plugin a descriptive name.

Choose the plugin type from the drop-down menu.

| **Push Notifications Tab**	**HTTP Server Tab**
Check ☑ Enable to enable push notifications.	Check to enable, and set port number:
Enter the **IP address**.	☑ Enable
Enter the **Port number**.	Port 33106
Enter the **Username** and **Password**.	
Set a **ping** frequency.	
Select to send plate image.	
Select to send frame image.	
Select to send meta-information (if available).	

4. Database

The database tab allows one to navigate 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, it is possible to launch this recording, from within the database tab.
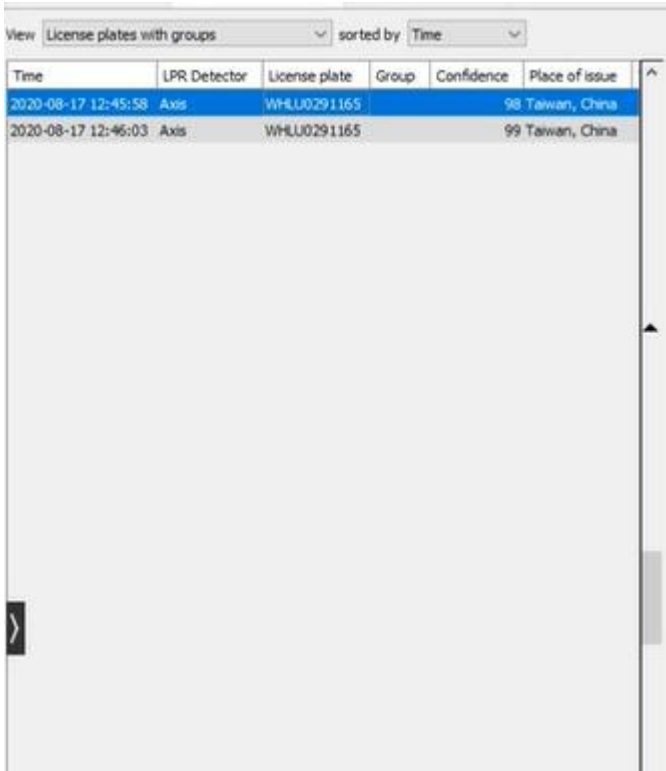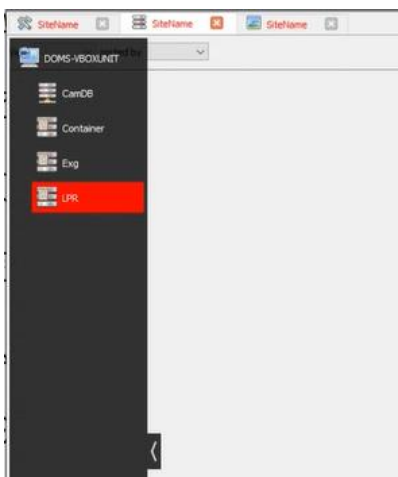

Most integrations will have a different database presentation, and unique filters, due to the different parameters sent by the integrated device to CathexisVision.

4.1 Navigate to the database
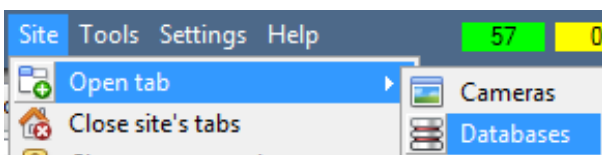
View the information stored in the Integration database, by following the path seen to the left.
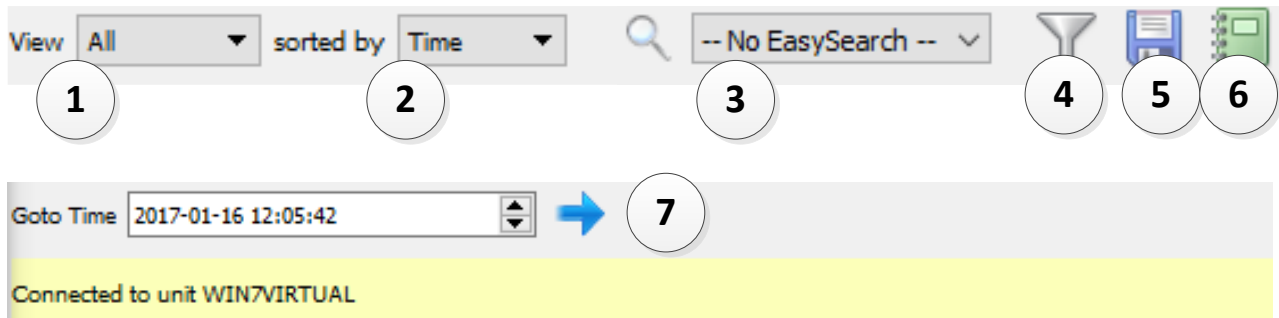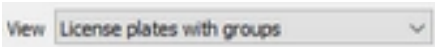
This navigates to the Database Tab.

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

4.1 Database Interface

① **View**	**View** changes the way the database is presented.	
② **Sorted By**	Events may only be sorted by Time .	
③ **Easy Search**	The easy search option quickly searches the database. The options are License plate, License Plate (Partial Match), Group, LPR Detector.	
④ **Filter**	Filter offers a more advanced manner of sorting information in the Integration Database table. Once the filters dialogue is open, these are the options:	
	☑ Enable filters Check this box to enable filters.	
	Click on this icon to **add** a new filter. The filter icon will change when filters are active.	
	Click on this icon to **delete** an added filter.	
	Note:	
	1. Multiple filters may be run simultanously.	
	2. The same perameter may be used more than once.	
	3. To change a filter click on the blue hyperlinked text. (For example, click on *Timestamp* to change the filter from Timestamp, to any of the other available options.)	
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, and then click on the **arrow** icon.	

4.1.1 Viewing an entry's associated recording

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

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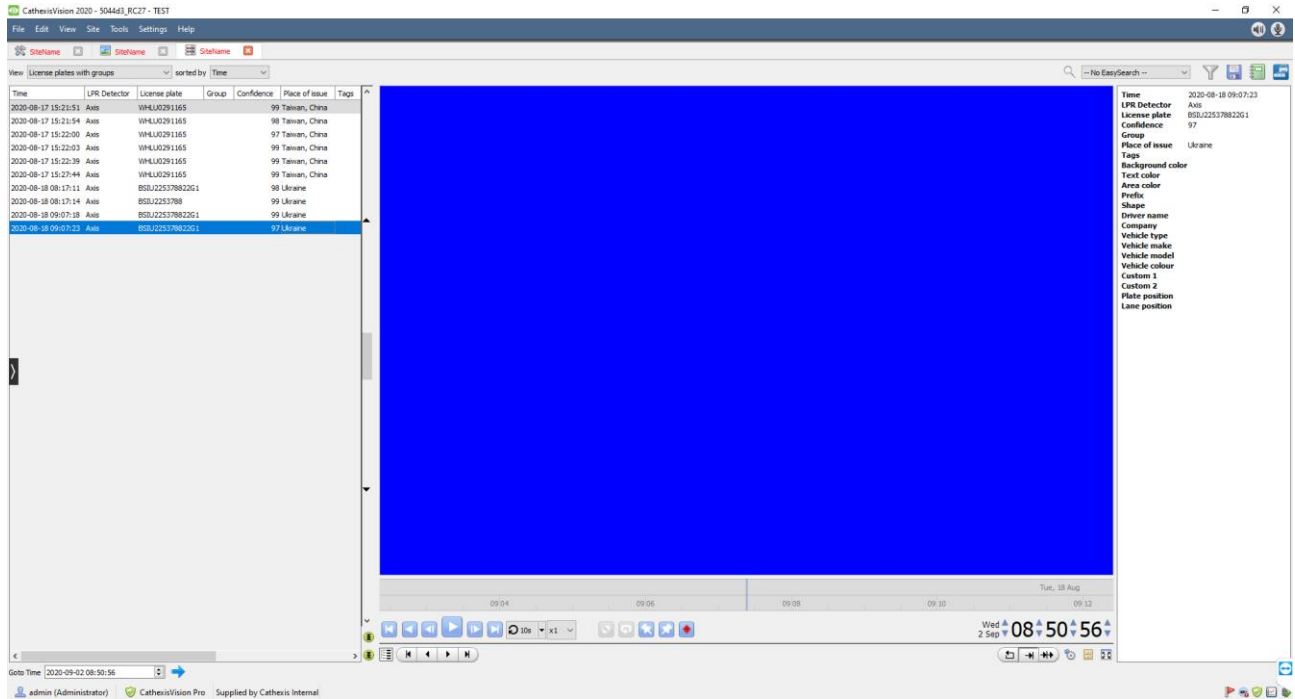
5. Events

A CathexisVision Event has a trigger, which causes an action. Integrated devices may be set to act as triggers, or as actions. This document will detail the Cathexis LPR / Vaxtor Container 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 event triggers, or actions.

5.1 Event window

Events in CathexisVision are set up 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/are defined; in the **Actions Tab** the action/s, which the event takes, is/are defined; in the **Resources Tab** the various site resources, which can be used as part of an event, are defined.
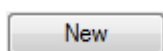

5.2 Creating an event

To create an event using the Cathexis/Vaxtor device, enter the **Events management area**:

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

6. Conclusion

This app-note was designed to deal specifically with this integration.

For further information about the CathexisVision software, consult the **_CathexisVision Setup Manual_** (http://cathexisvideo.com/). For support, email support@cat.co.za.