



CathexisVision 2016.3 Setup Manual

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Please Note: 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.

Installation Chapter

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1 Getting started with CathexisVision

Installation of any **CathexisVision** software is simple. It requires one installation file for the NVR and one file for the Client. This is because our software works on a licensing format, so you install the whole package, and unlock the features using licenses.

This makes for a very dynamic environment where you can add abilities (such as integrations) by simply updating your license.

The purpose of this chapter is to guide you through the initial steps of the setup process. These are:

-) Installing **CathexisVision NVR**, and possibly the **CathexisVision Client**.
-) Getting **licensed**.
-) Creating your site with the **Enterprise Manager**.

Note: While you need to install the NVR, and Client software on your respective units, an administrator can make all relevant changes via either software. I.e., he/she can make changes to the site from a client, or NVR unit.

2 Minimum Requirements

The **CathexisVision** software architecture is designed to utilise the various hardware system components with maximum efficiency.

a. Supported Systems

Please [download CathexisVision Software](#) to continue with this document, and note that there is a **minimum requirement of 4 Gigabytes of RAM** to run this software.

Supported	Not Supported
<ul style="list-style-type: none">) Windows server 2003 R2 and later.) Windows 7 and later.) Ubuntu (Linux)	<ul style="list-style-type: none">) Windows XP, Vista and earlier.) NetBSD 3 & any earlier NetBSD operating system.

b. Hardware

When choosing hardware for your solutions there are many system issues to be taken into consideration. Some examples are:

-) **Camera resolution**
-) **Camera bitrates** for recording
-) **Camera Frame rates** and resolution for “live” viewing
-) **Video Analytics:** Are you using the I.P camera, or the **Cathexis** software to perform Video analytics?
-) Whether you are viewing cameras “**live**” from the same server on which you are recording
-) Whether you are streaming “**multicast**” video streams from the camera
-) **Storage** methodology (on-board, Network Storage etc.)

Below are some guidelines which will assist you in choosing the hardware for your application. If you would like assistance with your design contact your distributor, a **Cathexis** regional office.

CathexisVision System Requirements Guidelines:

Processor	RAM	Operating system	Recording camera bitrate (Mb/s)	Live View Megapixels/sec
Core i3	4GB	Windows 7-64bit	Less than 100Mb/s	< 100 MP/s
Core i5	8GB	Windows 7-64bit	Less than 150Mb/s	< 300 MP/s
Core i7	8GB	Windows 7-64bit	Less than 600Mb/s	< 600 MP/s

3 Installation

Installation is simple, and intuitive. Double click the installation file (.msi) to run the setup wizard.

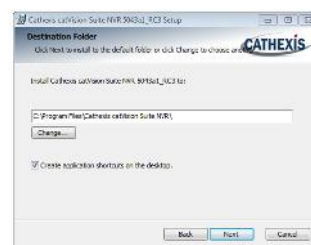


a. Follow the installation wizard



Accept the license agreement

If you are installing on a unit that has no **CathexisVision** software you will be prompted to choose between a NVR and a Failover installation.



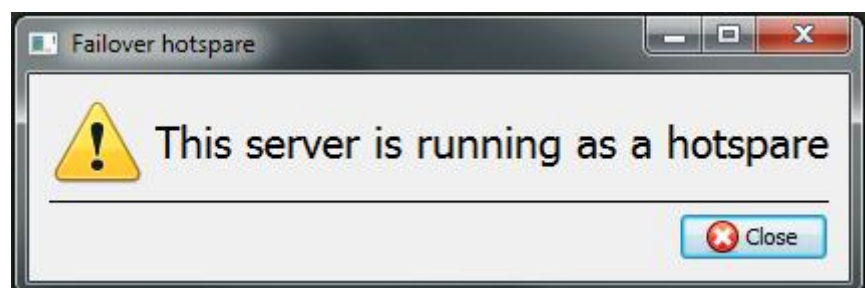
Choose the installation folder (this is best left as it is.)



Click install, and when the installation is complete, click Finish.

) Failover Installation

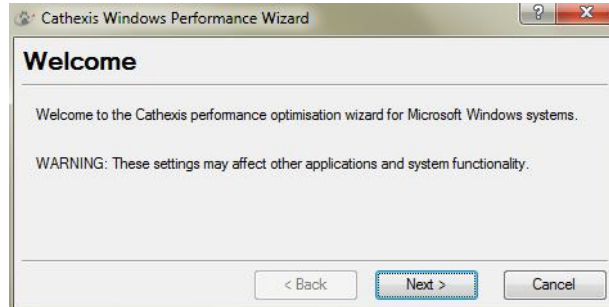
If you choose the Failover installation, attempting to run **CathexisVision** (by double clicking on the **CathexisVision** icon) will bring up the dialogue box to the right:



Note: There is detailed information about Failover in the [Setup](#) section of this manual.

b. Cathexis Windows Performance Wizard

You should leave the **Launch Performance Wizard** box ticked. The Performance Wizard optimizes several Windows system settings for the use of **CathexisVision** software. While it should be run immediately, it may be run any time after installation.



The installer will show the current state of each setting. It presents the following options:

-) DisableDOS 8.3 filenames on NTFS partitions. This is a required setting for using the database engine. **Required**
-) Disable the Last Access timestamp on NTFS partitions. This provides a small performance gain when accessing large volumes of files. **Recommended**
-) Enable the High Performance power management scheme. This adjusts power settings to allow the best performance of the system. **Recommended**
-) Disable the Windows Defender service. This isn't required but provides a small performance gain over a secured system. **Optional**
-) Disable the Windows Search Indexing service. Provides a significant performance gain by preventing background indexing of the file system. **Recommended**
-) Disable the Windows Desktop Manager Service. Will disable the Aero desktop and appearance enhancements to reduce graphics system load. **Optional**

c. Routing/Port Requirements

The following information regards the router ports that need to be opened on the network firewall/router. These ports are important in allowing a number of **Cathexis** services to run correctly.

) *Ports to Open*

Operational Ports	Protocol	Application
80	TCP	Default CatMobile Access
30010-30100	TCP	CathexisVision Software

Maintenance Ports	Protocol	Application
22	TCP	Secure Shell (SSH) - Linux
3389	TCP	Windows Remote Desktop
NA	NA	TeamViewer Access

) *Remote Support*

Please download and install one of the following programmes relevant to your operating system to ensure remote support is available to you.

Linux: Secure Shell (SSH - TCP port 22).

Windows: Teamviewer, or Remote Desktop.

d. Finish Installation

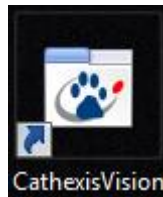
Once you have finished with the Performance Wizard, and clicked finish, you have completed your installation. If you have any client stations, you may wish to install the **CathexisVision Client** software on them.

4 Licensing

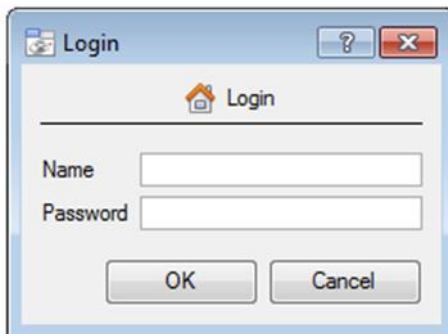
Before proceeding, the licenses for the unit need to be applied to the software. The mode of licensing will depend on whether you have access to the internet, and how you purchased the software. You may be licensing from a remote unit, or from the local unit (the unit you are working on). This section provides a guide for each situation.

a. Licensing from a Local Unit

The following instructions describe the process for licensing the unit that you are *currently physically working on*. To license a **remote unit**, see the next section ([4b Licensing from a Remote Unit](#)).



) *Log in*



Default Login Details

Username: admin

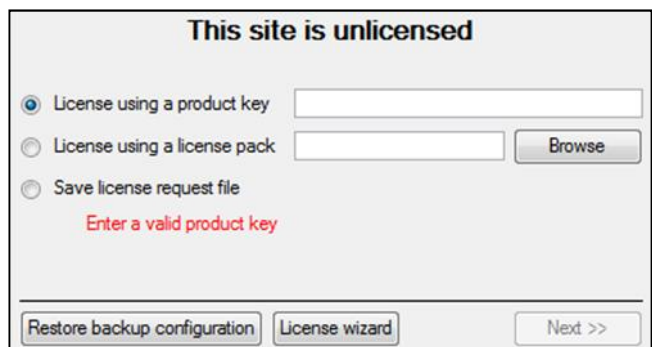
Password: admin

NetBSD servers and all pre-CathexisVision 2014 systems

Username: dvs

Password: dvs

Once you have logged in you should be presented with the following images. The splash on the left will be superimposed over the dialogue on the right.



You may now license your unit via one of the following steps:

) *Trial License*

To activate a trial license, simply copy and paste the product key from your trial license PDF.

) *Internet Connection: Product Key*

If you have access to the internet, and your vendor supplied you with a product key, enter the product key. The system will connect to the online licensing system and complete the process for you.

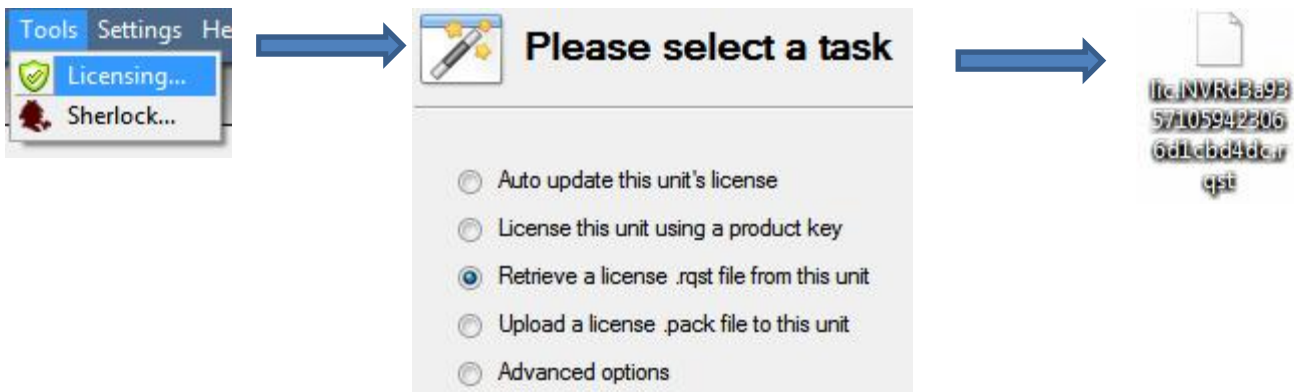
) *No Internet Connection: Pack File*

If you have no internet connection on the unit that you are licensing from, then you will need to upload a **.pack** file. A pack file is a file that contains all the licensing information for a unit. You will need to send a **.rqst** file to support@cat.co.za, who will then return a **.pack** file to you.

To receive your **.pack** file, please follow the instructions below:

1. **Save a licence request file to a USB key/cd**

A **.rqst** file must be retrieved from the unit that you wish to license.



Email this **.rqst** file to support, along with the information relevant to the licenses you wish to add to this unit.

2. **Upload the .pack file to your unit**




Your site should now be licensed. For further assistance you can contact support@cat.co.za.

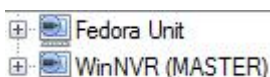
b. Licensing from a Remote Unit

When you are licencing from a remote unit (i.e. you are licensing a unit that is not the one you are working on), the procedure is different. This is because when you click **Tools** → **Licensing** this will license the unit you are currently logged in on. To rectify this, please do the following.

) *Open Configure Servers*

To open **Configure Servers**, of the site that you are logged into, follow this path from the menu bar: **Site** → **Open Tab** → **Setup**.

Once in the setup tab click on the **Configure Servers** icon .



Once **Configure Servers** is open right click on the individual unit that you would like to license and select **Licensing** from the drop-down menu.



Please select a task

- Auto update this unit's license
- License this unit using a product key
- Retrieve a license .rqst file from this unit
- Upload a license .pack file to this unit
- Advanced options

After this the licensing procedure is the same as if you had selected **Tools** → **Licensing** in the GUI of the local machine.

You will get the options that you see here on the left.

You may **Auto-update** if this unit has already been licensed, or use a **Product Key** if one was provided.

If you need to request a license you should follow the procedure detailed above in the [No Internet Connection](#) section.

Note: You will save the **.rqst** files, and upload **.pack** files to storage media attached to the unit you are doing the licensing *from*, not the one that you are licensing.

5 Adding a Site

A *Site* brings multiple NVRs under a single software space, with one unit acting as a **Master**, and the rest considered **Slaves**. Your connection to a site is via a site Master unit; this is the address which you enter in the **Enterprise Manager** of the GUI.

Note:

-) An NVR may not be a member of more than one site.
-) When the **CathexisVisionNVR** software is installed, the unit is automatically added to its own site. Therefore, when you have a site located on a single, local unit, you do not have to add a new site.
-) You add NVR units to a site. You add cameras, and Integrated Devices to the NVRs.

) *What Adding a Site Does*

It is important that you understand that when you are adding a site in the Enterprise Manager (dealt with below), you are not creating, or even editing a site. All you are doing here is **adding a connection to an already existing site**.

This means that the only information that is contained in the **Enterprise Manager** is the name of the site, and the information the software needs to connect to that site.

Note: All edits to the site (addition of units, editing of individual NVRs, etc.) take place in **Site Menu → Open Tab → Setup → Servers**.

) *What is a Master Unit*

The first unit you add to a new site will be considered the site **Master**. The master unit is the resource database for the site. It contains all the information relevant to the resources of that site.

Any server that forms part of the site can become a **Master** by assigning it the same IP address as the **Master**. This is because an exact copy of the site resource information gets stored on each server. This will help with failover **if** the Master unit goes down.

To make another unit the site master you will need to change the IP addresses of the units (i.e. change the new masters IP address to that of the old master unit).

a. Open the Enterprise Manager

CathexisVision site management collects multiple units together as a *Site*.

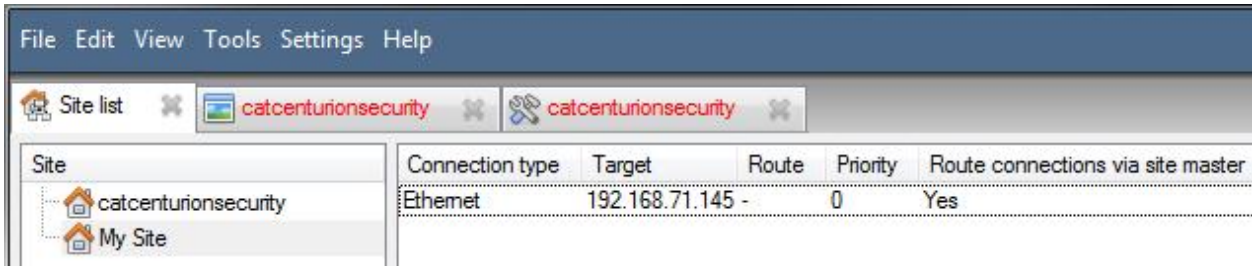
In order to setup your site you need to open **CathexisVision**. Login (with an administrator's password, if you are prompted), and open the **Enterprise Manager**.



Follow the path **File → Enterprise Manager**. This will open a tab entitled **Site List**.

This is the tab where you add, and manage sites.

b. Create and Organise Sites into Folders



The Site list is in the panel on the left, in the above image. When you click on a site you will see the sites connection details displayed in the panel on the right. There are three steps when adding a new connection to a new site:

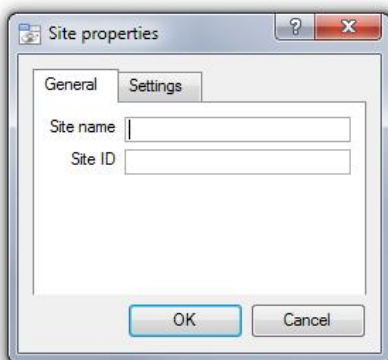
1. Add a Site Name
2. Add a connection to that site
3. Fetch the ID of that site

) *Add a Site Name*

Here you are adding the name of the site to your Site List. There are two ways to add a new site:

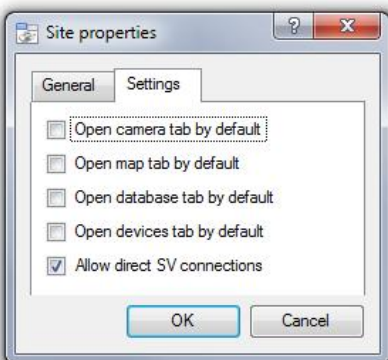
-) Right-click on any whitespace in the **Site** list panel, and click  **New site**. Or,
-) In the Menu Bar, click on **Edit**→**New Site**. 

Both of these options will bring up the *Site Properties* menu.



Under **General**, give the site a descriptive name.

Leave *Site ID* blank for now; this will be Fetched after we have added a site connection.

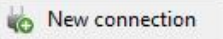


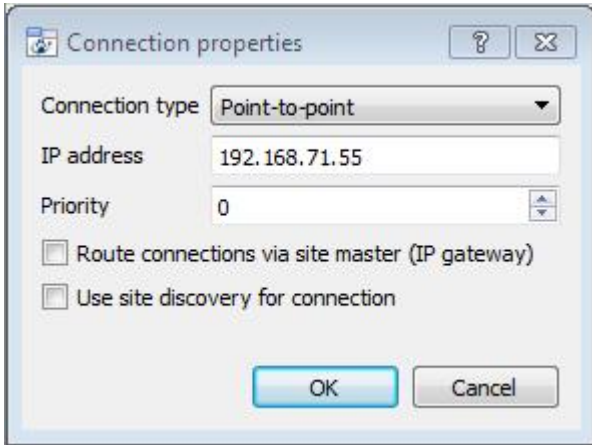
Under **Settings**, you can choose which tabs open when a site is opened (*Cameras, Maps, Database* etc.) and whether or not to enable *Direct SV connections*. Direct SV connections relates to streaming video to Video Wall.



If your site is connected to a Gateway, you will have the **Access** tab. Here you must specify Gateway User Levels.

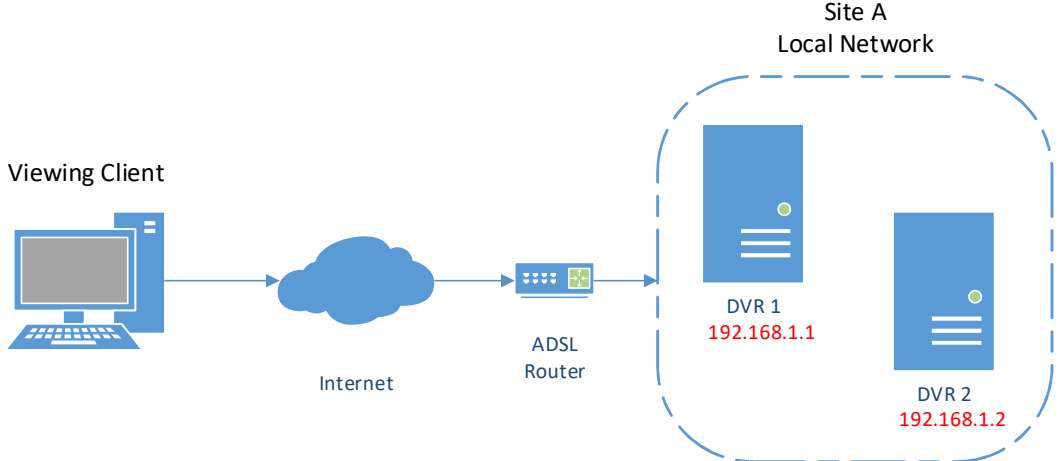
)] Add a Connection to Your Site

Here you are adding the information needed to connect your client to the Master unit of your site. Select your Site, then right-click in the right hand panel, where you will see a column entitled *Connection Type*. Click on . This will bring up the Connection Properties menu:



Note: you are **not** creating or editing a site here. You are adding the connection to the Master unit of an **already existing site**.

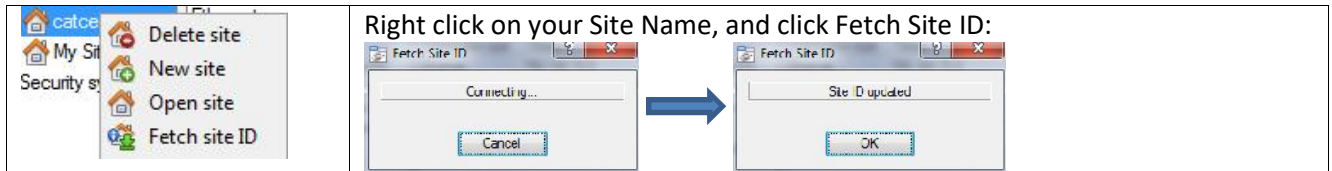
<p>Connection Type</p>	<p>The connections methods that you use to connect your site. There are two connection types. Point to Point, and Multi-step. The will be described below.</p> <p>Point to point refers to a direct network connection where the viewing station has a direct connection to the recording unit/s or site.</p> <p>Note: the switches have been left out of the images for simplicities sake.</p> <div data-bbox="842 1070 1465 1384" data-label="Diagram"> </div> <div data-bbox="422 1433 938 1814" data-label="Image"> </div> <p>Multi-step is when a recording unit is used to forward incoming network traffic to other recording units. The recording units would normally form part of a dedicated surveillance network. The capture station gateway unit normally has two network interface cards, or one network interface card for the local CCTV network and a dialup or WAN connection.</p> <p>In the screen capture above the client is connecting to the 192.168.71.55 unit, via the 192.168.71.0 unit. In other words the target is the unit you wish to reach, and the via unit is your entry-point to the site network.</p>
<p>IP Address</p>	<p>This is simply the IP address of the master unit</p>

<p>Priority</p>	<p>When you have multiple possible methods to access a site you can add these methods as separate individual connections. In the image you will see two connections. A connection with a Local address (192...), and another one with a dyndns address.</p> <p>These both direct the client to the same site. The 192... address is accessible only via the LAN, and the dnydns gives access from outside of the LAN (over the internet, for instance).</p> <table border="1" data-bbox="411 369 1117 443"> <thead> <tr> <th>Connection type</th> <th>Target</th> <th>Route</th> <th>Priority</th> <th>Route connections via site master</th> </tr> </thead> <tbody> <tr> <td>Ethernet</td> <td>192.168.XX.XX</td> <td>-</td> <td>1</td> <td>No</td> </tr> <tr> <td>Ethernet</td> <td>YourSitesName.dyndns.org</td> <td>-</td> <td>0</td> <td>Yes</td> </tr> </tbody> </table> <p>The Priority determines the order that the client will attempt to make a connection via. The higher the number the higher the priority. (The connection with a priority of 1 will be tried before the connection with a 0 priority.) This way you can queue up connection methods without having to select them yourself each time you connect, and be assured that the higher quality connection will always be prioritised.</p>	Connection type	Target	Route	Priority	Route connections via site master	Ethernet	192.168.XX.XX	-	1	No	Ethernet	YourSitesName.dyndns.org	-	0	Yes
Connection type	Target	Route	Priority	Route connections via site master												
Ethernet	192.168.XX.XX	-	1	No												
Ethernet	YourSitesName.dyndns.org	-	0	Yes												
<p>Route Connections via site master (IP Gateway)</p>	<p>Enable this tick box if you need to make a connection to Site A from outside the local Network. The router also needs to be configured to route the inbound client connection to the Site Master DVR unit. This is to ensure that the client software makes a direct site master connection via the Internet or ADSL IP address.</p> 															
<p>Use site discovery for connection</p>	<p>This is a mechanism which enables the client viewer to discover the IP address of the site master. This means that if the IP address of the site master changes the client will be able to rediscover the IP address and not lose its connection.</p> <p>Important Note: If you have a failover system setup (see the Failover section of this manual), this option must be checked, if you wish to be able to access the site via the client in the event that the site master is failed over.</p>															

Connection Type	Gateway	Information required
Ethernet	Point-to-Point	<ul style="list-style-type: none"> - Target unit IP Address - Ethernet specs (Is it Internet, WAN, 10Mb LAN, 100 Mb LAN, or 1 Gb LAN?) - IP gateway connection mechanism (if necessary - refer to IT dept.)

- Target unit IP Address
 - Target via unit IP Address
- Multi-step
- Ethernet specs (Is it Internet, WAN, 10Mb LAN, 100 Mb LAN, or 1 Gb LAN?)
 - IP gateway connection mechanism (if necessary - refer to IT dept.)

) *Fetch Site ID*



This will serve to both test your connection, and retrieve important information about your site from the master unit of that site. Once you have done this you should be able to connect to your site via **File → Site → Your_Site_Name**. Each site should have a unique site ID. The site ID is generated automatically when loading the NVR software.

6 The Site List 'Edit' Menu



While in the **Enterprise Manager tab**, the **'Edit'** menu option will appear in the menu bar, in the form you see to the left.

You can achieve everything we have done so far (Adding a site etc.) via the **Edit menu**, as opposed to using the right click options.

There are a few options that we have not looked at in the initial addition stages, which present changes that you can make to your site at a later stage. We can have a quick look at them now.

) *Make or Clear a Resources site*

You may have a Video Wall attached to this site, and want the Control Room operators to have control over what the Video Wall screens display. On the units that will be controlling the Video Wall, you will need to make the site a resources site.

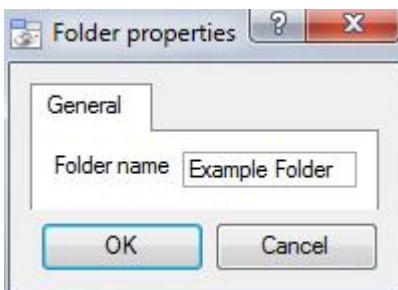
Make resources site
Clear resources site

To give control select the relevant site, and click on **Make Resources Site**; to remove CTRL-click on **Clear Resources Site**.

Note: Control of the Video Wall will be via a Monitors Setup Tab that will appear in the **CathexisVision** GUI when the site is open. For more information about this consult the Monitors section of the Configure Servers document.

) *New Folder*

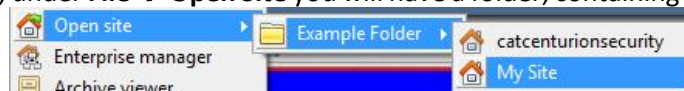
You can organise your sites into folders. This can be done by either right clicking in the site list area, or **Edit → New Folder**. This will bring up the following box.



Enter a relevant name for the folder and click OK.

Once this has been done you can click-and-drag individual sites in/out of the folder.

Now, under **File → Open Site** you will have a folder, containing your sites:



) *Highlight Level*

Highlight Level is relevant to a site that has its **Alarms** sent via an **Alarm Management Gateway**. It will have an access property where only users with certain access rights are allowed to respond to certain sites.

This feature allows users to highlight only those sites that are accessible to certain levels.

Note: This will only highlight the sites in the Site List within the Enterprise Manager.

7 Extra Considerations

a. Anti-Virus

There is no specific **CathexisVision** anti-virus, but if you do install an anti-virus there are some things to take into account.

) Active, and Real-Time Scanning

If your anti-virus has active, or real-time, scanning then you will need to make sure that it excludes file transfer checks on the following folders:

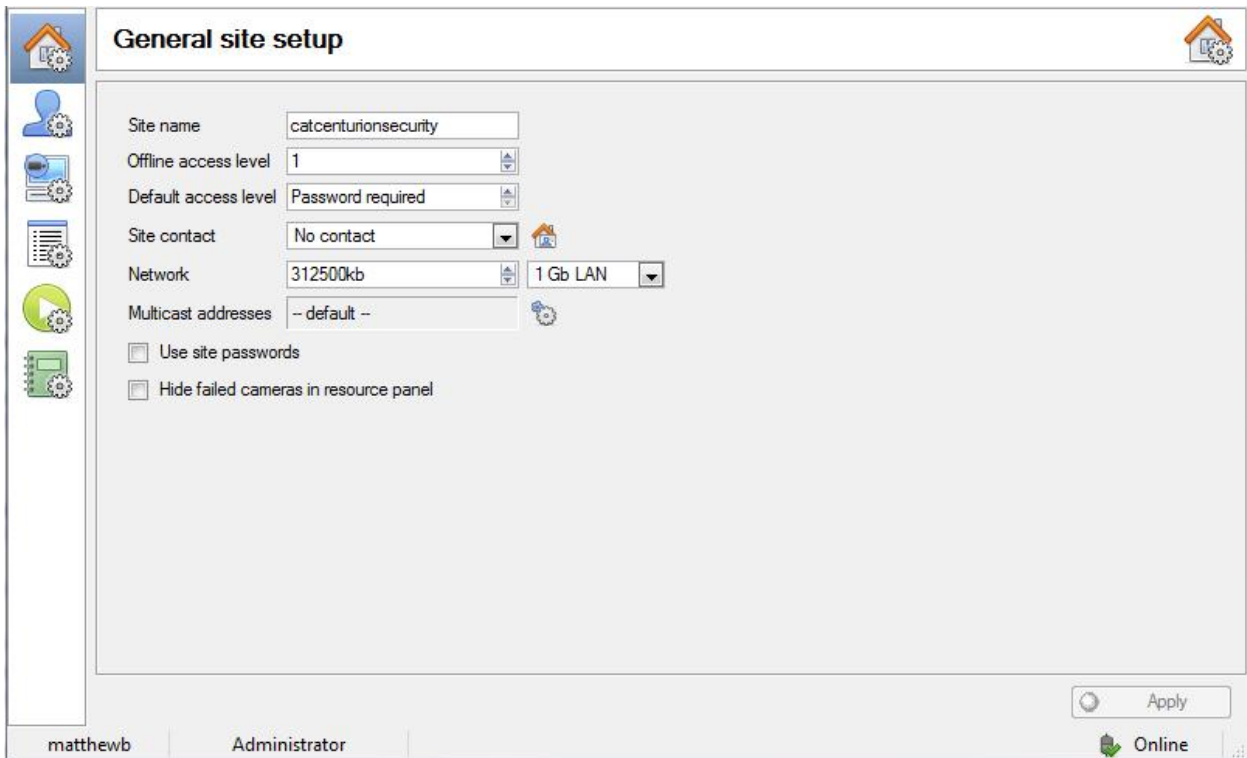
1. C:\Program Files\Cathexis CathexisVision Suite NVR
2. All folders, drives, and volumes where your database/s reside.

Setup Tab: General Site Setup

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1 Introduction

All server setups in the **CathexisVision** software are centralised under the **Setup Tab**. When you have a site open, the **Setup Tab** is accessed via **Site** → **Open Tab** → **Setup**. Within the setup tab you have a list of setup option icons on the left, and the setup panel on the right, of whichever icon you have selected. In the image below, the icon highlighted in blue (**General Setup**) has been selected, and all related settings are visible in the panel on the right.



General Site Setup will contain information that is general to the entire site, such as the *Network Speed*, *Default access level*, and *Site contact*.



Users is where users are created and maintained. This includes *Login Level*, *Remote Access*, etc., and can be done on a server by server basis, or be controlled as a site.

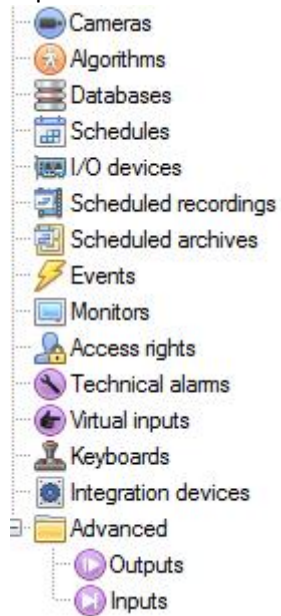


Configure Servers is where you make changes to the individual units that comprise the site. Anything that happens on a unit via **CathexisVision** can be changed here, from any access point on the site.

Note: Since sites are made up of individual units, which have their own resources, this is a very important section and the bulk of Site editions will happen here.



Resources Panel. Here you control which resources are visible to operators, in the resources panel that occupies the right hand side of the **Cameras Tab**. You can organise resources into folders, and repeat resources across folders. The following are all set on a unit by unit basis.



Site Actions are actions that apply to the site as a whole. *Events*, and *Event Actions* relate to resources on individual units. Site Actions are actions that can be applied on any unit on the site.



Reports. **CathexisVision** can draw complex reports on the state of the hardware and software resources of the site. These reports can be based on user created templates, and can be run on a schedule.

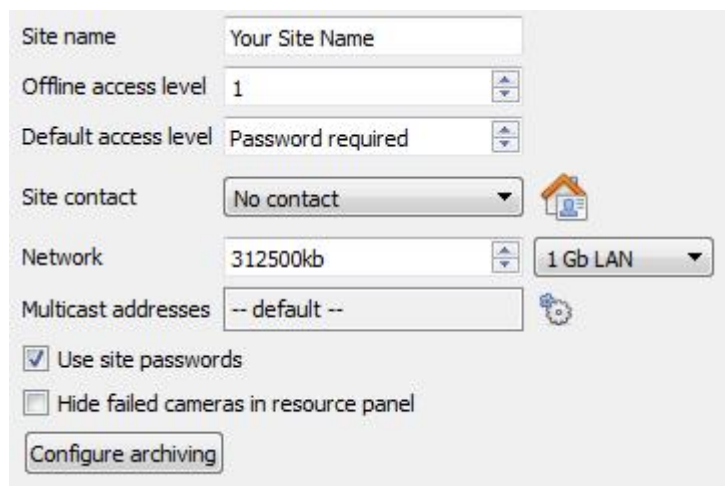


Failover. **CathexisVision** offers the ability to install failover servers, which can be managed from this section.

2 General Site Setup¹

This is information retrieved from the site, and not from the unit that you are on. The site information will be stored on the unit called the site **Master**.

An exact copy of the site resource information gets stored, and updated on each unit that forms part of the Site. This will help with failover if the Master Unit goes down. Any unit that forms part of the Site can become a temporary Master by assigning a "Slave" Unit the same IP address as the failed Master. (Contact support for more details here.)



The screenshot shows a configuration panel for a site. It includes the following fields and controls:

- Site name:** A text input field containing "Your Site Name".
- Offline access level:** A dropdown menu set to "1".
- Default access level:** A dropdown menu set to "Password required".
- Site contact:** A dropdown menu set to "No contact", with a house and person icon to its right.
- Network:** A dropdown menu set to "312500kb", and a "1 Gb LAN" dropdown menu to its right.
- Multicast addresses:** A text input field containing "-- default --", with a gear icon to its right.
- Use site passwords:** A checked checkbox.
- Hide failed cameras in resource panel:** An unchecked checkbox.
- Configure archiving:** A button.

Site name is the name of your Site as a whole, held in the site database.

Note: that this is *not* the same as the site name given in your local systems site list.


Offline Access Level defines what someone, who has connected to the site, can see of the site in its **OFFLINE** state. Although this user cannot interact with the resources themselves, this defines what resources he/she can see in the Resource pane.

Options are "No view", and levels 1 to 30.

Default Access Level applies to what a person can see and do on a site in its **ONLINE** state. If you set it to *password required* then the user will have to enter a username and password, and the access level will be whatever level has been assigned to that user.

Note: If you set the level to anything from 1- 30, when the site is opened it will default to this level without a password required. This also means that the session will not be logged as a specific user. So, if you want to have audit trails for every session, then set this to *password required*.

Site Contact is the default site contact. This is especially important for monitoring, where an external viewer needs to contact a local responsible person.

To set a site contact, click the  icon. Then select an existing contact, or create a new one.

Network settings are those settings specific to your LAN.

¹ This was called Global Resources in previous versions of the software.

Multicast. This will define the multicast settings for the site as a whole (this is discussed in more depth below this table).

Site Passwords, if checked, will propagate all users on the Site Master Unit to all units on the site. This centralises control of users to the master unit. (**This is the recommended setting**)

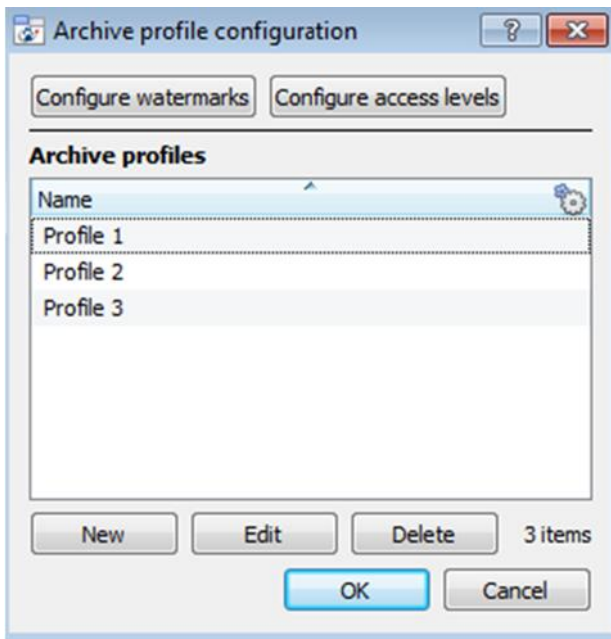
If left unchecked users will be defined on a unit by unit basis.

It is best to **enable this only after** you have set up all relevant users on the Master Unit, and don't have any users that you need stored on other units. This is because **setting site passwords will delete all users on non-Master units** and replace them with the user list on the Site Master computer.

Hide Failed Cameras in Resource Panel will remove cameras that have failed from the Resources list, until they are running again.

Configure Archiving

This section will show you how to create archive profiles, to which you may assign user levels, password protection and watermarks.

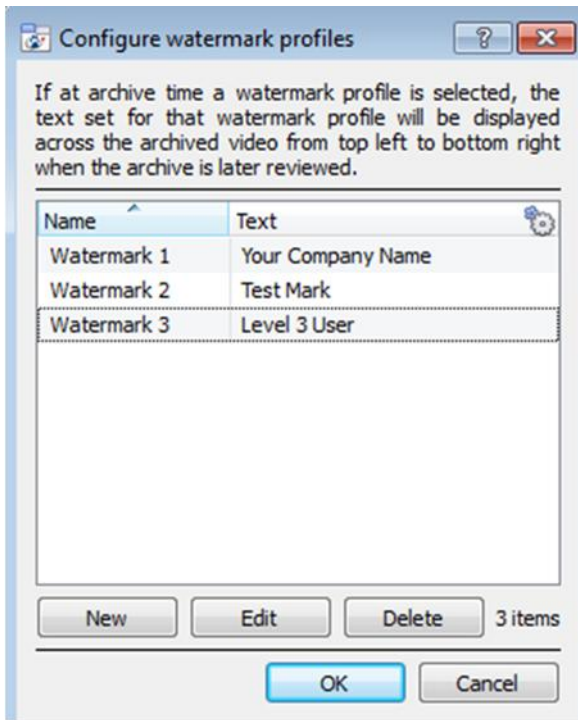


The process for creating archive profiles is:


1. **Configure your watermarks**
2. Click **to create profiles** and assign the desired watermark/s you created to the desired profile/s.
3. **Configure access levels** for each profile, including the ability to archive, password requirement and default watermarks.
4. Click to save.

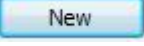
) *Configure watermarks*

Click to bring up the window below.



Once you have created your watermark profiles, they will appear in this list.

Click  to customize which columns you see in this window.

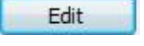
Click  to create a new watermark profile.

Profile name

Display text

Name your profile.

Type your watermark text.

To edit an existing watermark profile, select it from the list and click  to bring up the same window as above.

When you are done creating all your profiles, click **Ok**.

) Create new Archiving Profiles

In the **Archive profile configuration**, click  to create a new profile.

Profile name

Allow archives to be exported

Password options

Custom

Fixed

Random

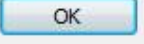
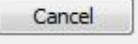
Require password protection

Set the available watermark profiles

Watermark 1

Watermark 2

Watermark 3

Give your archiving profile a **Name**.

Ticking **Allow archives to be exported** will allow archived footage to be exported in different file formats from within the archive viewer.

Set **Password options**: Allow profiles the ability to add password requirements when creating archives. Please see below for an explanation.

Ticking **Require password protection** will force a user to set at least one of the password options you have allocated him/her. If it is unticked, the user will be presented with the additional option of **not adding a password to the archive**.

Set the available watermark profiles:

If you have created watermark profiles already, they will be available here. Highlight the watermark/s that you want to attach to this profile.

If multiple watermarks are selected for a profile, the operator will be able to choose between them when archiving.

Password Options

Site administrators may give operators the ability to add password requirements to archives when creating archives; these password requirements will have to be met by all users wishing to review the archive in the archive viewer.



The screenshot shows a configuration panel titled "Password options". It contains four checkboxes: "Custom", "Fixed", "Random", and "Require password protection". The "Fixed" checkbox is selected, and a text input field is positioned to its right.

Custom: The operator will be able to create a custom password by typing it into the provided space in the

Fixed: The operator must add a preset password to the archive. Create this password now by typing it into the white box next to the **Fixed** option.

Random: A random password will be generated by the system in the archive window. The operator will need to make note of it.

Single/Multiple Password Options:

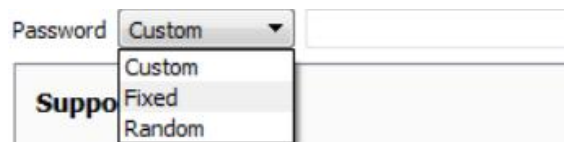
You may assign multiple password options to archive profiles. At the time of archive, the operator will select from a dropdown menu the single/multiple password options that have been constrained in this section. If no password options have been set, the dropdown menu will offer 'None' as a password option.

Ticking **Require password protection** when creating an archive will force a user to set at least one of the password options you have allocated him/her. If it is unticked, the user will be presented with the additional option of **not adding a password to the archive**.

These password options will be displayed to the user in the archive window. Please note that the examples below both have multiple password options set.

Require password protection

Require password protection



The screenshot shows a "Password" dropdown menu with "Custom" selected. The dropdown list is open, showing options: "Custom", "Fixed", and "Random". A text input field is visible to the right of the dropdown.

The operator **must** select a password requirement from the options set by the administrator.

Does not require password protection

Require password protection



The screenshot shows a "Password" dropdown menu with "None" selected. The dropdown list is open, showing options: "None", "Custom", "Fixed", and "Random". A text input field is visible to the right of the dropdown.

The operator has the added option of **not adding a password**.

Configure Access Levels

These settings provide a means of forcing a user level to use a specific archive profile.

Level 1	Profile 1	Level 11	None	Level 21	None
Level 2	Profile 2	Level 12	None	Level 22	None
Level 3	Profile 3	Level 13	None	Level 23	None
Level 4	None	Level 14	None	Level 24	None
Level 5	None	Level 15	None	Level 25	None
Level 6	None	Level 16	None	Level 26	None
Level 7	None	Level 17	None	Level 27	None
Level 8	None	Level 18	None	Level 28	None
Level 9	None	Level 19	None	Level 29	None
Level 10	None	Level 20	None	Level 30	None

OK Cancel

These settings assign user levels to specific archive profiles. This means that whatever settings you applied to archive profiles above, will be applied to the assigned user level when the user archives footage.

Simply select the desired archive profile from the dropdown menu next to each user level.

You may only assign one profile to each level.

a. A Note on Multicast

CathexisVision has the ability to automatically assign multicast addresses to cameras. When you add a camera to a unit you may select to have multicast 'disabled', 'automatic', or 'enabled'.

The multicast settings that are in **General Site Setup** define the parameters of the 'automatic' settings.

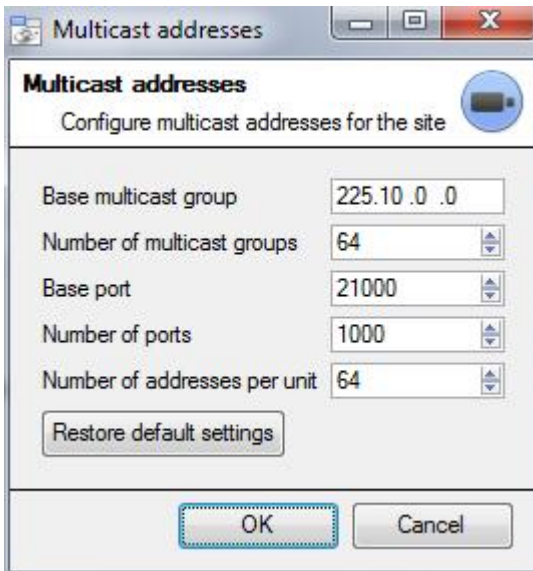
A **Multicast Address** consists of two components:

1. The **multicast group** is the IP address that the camera will send multicast packets to.
2. The **Port Number** is the port number associated with the multicast group.

Users/units inform the network that they want to receive packets from this Address (this is called joining the group). The multicast switch/router will then forward packets sent to this Address to those units who join the group.

Address #	Multicast Group IP	Base Port
1	255.10.0.0	21000
2	255.10.0.0	21002

The address must be unique, not the individual components. For example 2 unique addresses could be represented as



Base Multicast Group:

This is the first IP address in the multicast range.

Number of Multicast Groups:

This is the number of group IP's available.

Base Port:

This is the first port in the range of ports that will be used for Multicast addresses.

Number of Ports:

This is the number of ports that will be used.

Number of Addresses Per Unit:

This is the number of unique Multicast Addresses that each individual unit may use/assign multicast sources.

This is a relevant number because **CathexisVision** currently has a limit of 64 cameras per DVR/NVR unit.

Note:

1. In most cases the default settings will work. The only person who should be changing such settings should be someone with the relevant networking expertise. Nevertheless, **you may want to change these settings if:**
 - a. There are multiple sites on the same network (one would need to make sure that the ranges don't overlap at all, i.e. the same address:port pair may not exist in both the ranges), or
 - b. There are other devices which conflict with either the addresses or ports in the range.
2. Changing these settings will require every unit in the site to be restarted because the device multicast settings are reserved once they have been used.

Setup Tab: Users

1	Users.....	29
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b.	Reserved User Names.....	31

1 Users

CathexisVision allows for extensive password and user management on a unit-by-unit, or site level.

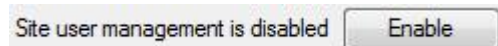
The Users Panel can be accessed by clicking on the  icon in the **Setup Tab**.

Note

1. In order for Users, and their access levels to be effective the relevant **access level settings** need to have been set under **Setup Tab → Configure Servers → Access rights**. (For more information on this, see the Configure Servers document.)
2. You cannot edit a user's name once that user has been created, but you can edit all other fields.

) Site User Management

To enable **Site User Management** click on the *Enable* button:



Site User Management:

1. Propagates all users on the Master unit to every unit on the site.
2. It will delete all users on the other units before doing this, so make sure that you do not have important users created on those individual units before you set this to 'Enabled'.

Note: this is the recommended setting for managing users.

a. Administration by Unit (Site User Management Disabled)

	Access level	Language	Logging level	Remote access
[-] CAT-TECHWINNVR -- 2 users --				
admin	Administrator	English	-	✓
Matthew	Administrator	English	-	✓
[-] Centurion access control (MASTER) -- 4 users --				
chrisw	Administrator	English	Low	✓
control	Administrator	English	High	✓
dvs	Level 1	English	High	✓
matthewb	Administrator	English	High	✓

When site user management is **disabled** you are adding users on a unit-by-unit basis. In this case the list of users is ordered by unit.

On the left you can see two units, with their user lists expanded.

) Add/Edit a user



Name

The name you will give your user.

Access Level

The access level the user will have.

Language

The **CathexisVision** interface supports 9 languages, which will change depending on the language you set for that particular user.



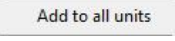
Remote Access

Click the key to set/edit the password for the user.
Will define whether or not the user has permission to access the site from a remote location.

) Add User to All Units

When Site User Management is disabled you will have to add users on a unit by unit basis. You may however add individual users, from a specific unit, to all units on the site.







You will need to create a new user to do so:

Right click on any white space and click on . This user will be created on all units on the site.

Note: The crucial difference between this and Site User Management is that this is a once off communication. The user will appear on all units, but any changes to that user will now have to happen on a unit-by-unit basis. I.e. if you want to change the access level of that user, you will have to either create the user again, or go to each unit and edit the access level.

) User Administration by Site (Site User Management)

With site user management enabled all users are presented in one consolidated list.

User name	Access level	Unit access	Language	Show all resources	Change own password	catViewer access	Last password change time
 admin	Administrator	All units	English				-
 Matthew	Administrator	All units	English				-

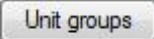
There are number of **advantages to using Site User Management:**

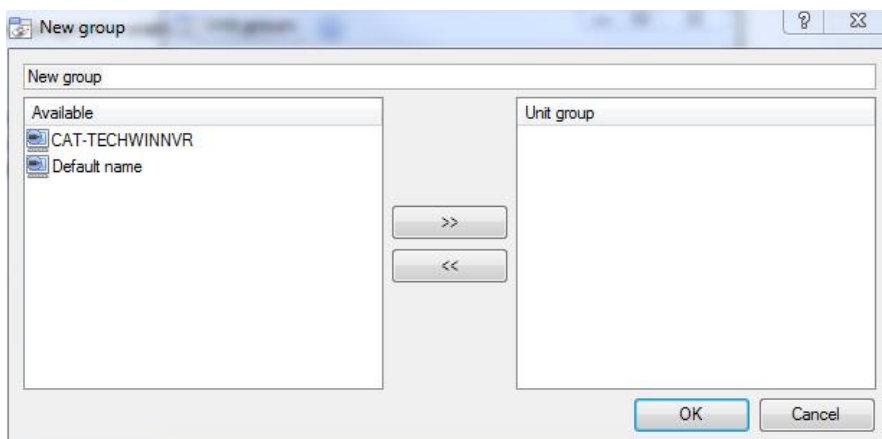
1. Unit Groups: You can grant individual user access to groups of units, no units, or all units.
2. Specify whether the user can change his/her own password.
3. Users are ubiquitous: When you edit a user profile it is changed for all units simultaneously.

) Unit Groups

One of the main benefits of Site User Management is the ability to create **Unit Groups**. A Unit Group is a grouping of units that you may add a user to. This is especially useful if you have multiple users who you only want to have access to the same group of units.


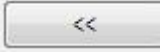
) Add/Edit a Unit Group

Click on  to add/edit a group, and click on the relevant option in the dialogue box that pops up. This will bring up a dialogue box.

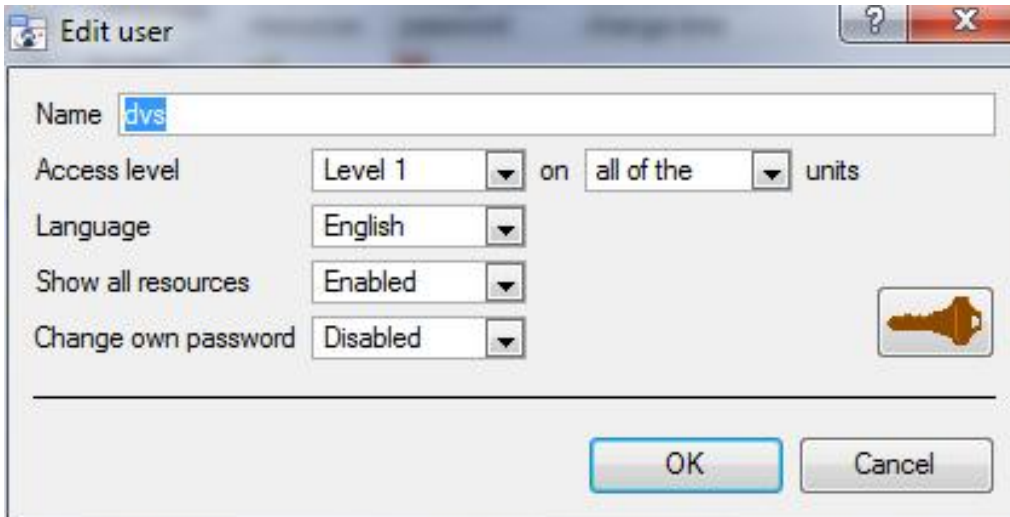


The **Available** column on the left will list all available server units. The **Unit Group** column on the right will list the servers currently in the group.


After giving the group a descriptive name, select the units that you want to add/remove.

Click on  to add a unit to the group; click on  to remove the unit from the group. You may **CTRL-shift-click** the units to select multiple servers at the same time.

) *Add/Edit a User*



- Name** The name you will give your user.

- Access Level** The access level the user will have.
Here you have the added ability to give the user access to ‘no units’, a ‘unit group’, or to ‘all units’.
- Unit Groups** To the right of **Access level** is the dropdown menu that lists all available unit groups. If you have created unit groups you may select them from here. (See the Unit Groups Heading, [above](#).)
- Language** The **CathexisVision** interface supports 9 languages, which will change depending on the language you set for that particular user.
- Show all Resources** Will give a non-administrative user visual access to all resources.
- Change Own Password** This gives the user the rights to change their own password.
(To change the password the user would go via **Site Menu** → **Change Password**.)
-  Click the key to set/edit the password for the user.

) *Right Click Menu*

All the user attributes displayed in the columns of the Site User Management panel may be set by right-clicking on a user and accessing the  **Set**  menu.

b. Reserved User Names

There are a number of reserved user names that may not be edited, or created. These are:


root, toor, daemon, operator, bin, games, postfix, named, ntd, sshd, uucp, nobody, mysql, cyrus, support, www, distcc, postgres.

Setup Tab: Configure Servers

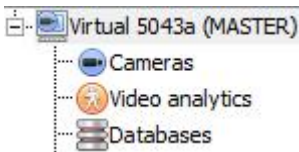
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1 Configure Servers General Information

Configure Servers  is where all server-based settings take place. A **CathexisVision** site is a collection of one or more individual units which are consolidated in the software as an individual site. This means that you can add and remove units from sites, as well as change settings on a unit-by-unit basis.

In the **Configure Servers** panel you will see a list of all servers, and under each server a list of setting options available on that server:




These options include: **Cameras, Video Analytics, Databases, Schedules, Network I/O, Scheduled Recordings, Scheduled Archives, Events, Monitors, Access Rights, Technical Alarms, Virtual Inputs, Keyboards, Integration Devices, and Analogue Matrix.**

a. Open Configure Servers

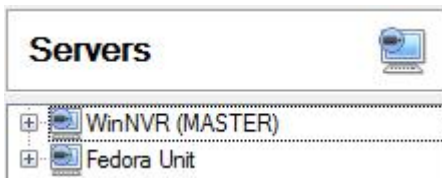
To open the Configure Servers setup, follow the instructions below.



After logging into your site, to open Configure Server simply click on **Site → Open Tab → Setup**. Once in the Setup Tab click on the

Configure Servers icon: 

Note: Right-clicking on the tab of any open site will bring up the same menu as the one accessed via the method above.

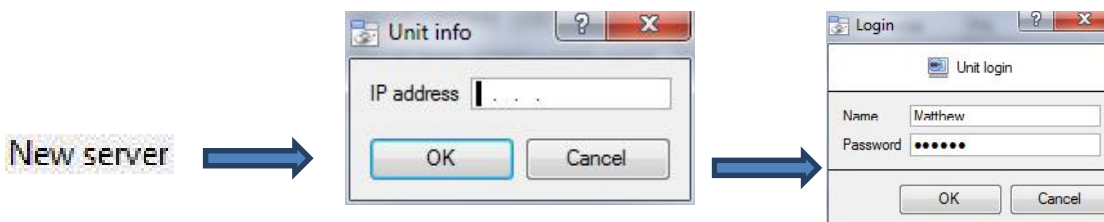


You will see the servers list to the right, and the panel to the right of that will contain the options for the current selection.

b. Add/Detach/Delete/Replace a Unit

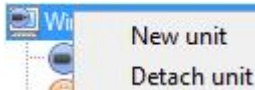
)] Add a Unit

To add a new unit to your site, right-click on any white-space in the servers list panel (you may even click on an existing server), and click on **New server**. Then enter the IP Address of the server. You will be prompted to enter an administrative username, and password.

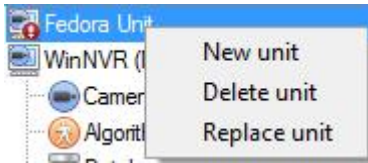


Note: The server must already be running **CathexisVisionNVR**. You may, however, add an unlicensed unit, as you may license all servers from the **Configure Servers** panel.

) *Detach, Delete, Replace a Unit*



To **Detach** a unit, **right-click on the unit** in the Servers list, and **click on Detach Unit**. You will be prompted to enter an administrative username and password.



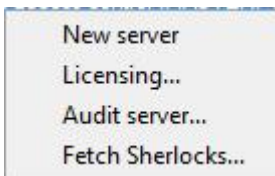
A Detached unit will still appear in the servers list. If you wish to fully delete the unit you must right-click on the detached unit, and select **Delete Unit**.

To **Replace** a detached unit with another unit, right-click on the detached unit and click on Replace Unit. The steps after this are the same as adding a unit.

Note: You may only replace units that have been detached, or that cannot be reached on the network due to a hardware failure.

c. Right-Click on a Unit

Right-clicking on a unit allows you to perform a number of vital actions.



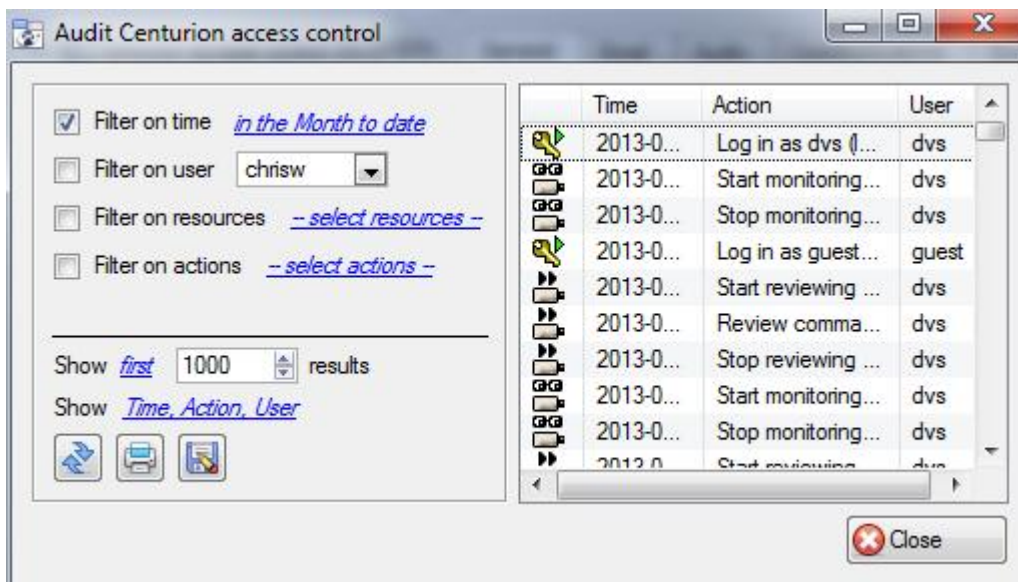
New Server is dealt with in Add a Unit (1.a) [above](#).

Licensing is how you licence an individual recording server, and is dealt with in the [installation section](#) of the manual.

Audit Server allows you to audit the specific unit. Auditing is explained [below](#). It is also dealt within the GUI Document.

Fetch Sherlocks will allow you to fetch the Sherlocks for this device. See [below](#).

) *Audit Server*



Audit trails are the historical “footprints” left by various processes. They are used primarily as diagnostic tools to identify exactly what happened in the system. Each audit trail is in the form of a textual list of historical actions.

Filter on time [in the Month to date](#)
 Filter on user
 Filter on resources [--select resources--](#)
 Filter on actions [--select actions--](#)

Show [first](#) results
 Show [Time, Action, User](#)

There are multiple options for filtering the audits, as there can be an overwhelming amount of information in the audit logs. All the hyperlinks open up a full list of options for you to filter on.

You may filter **Time, Users, Resources, and Actions**.

The **Show first/last** option allows you to limit how many of the results are brought up.

Show time/action/user option allows you to add/remove columns to the audit report, and will list the selected variables.

) *Print, Save, Refresh*



The report is not live, so if you want to update the information, click on Refresh



If you would like to print the Report for reference, click on the printer icon



If you would like a digital copy of the Report, click on the disk icon.

) *Sherlocks*

Sherlock files are a diagnostic tool used by the Support Desk. The normal procedure is to email the Sherlock file to the Support Desk (support@cat.co.za), with a description of the problem, but you may also save it to disk.

To get the Sherlock files, right-click on that unit, then left-click on **Fetch Sherlocks...**; this will generate the Sherlock pack. Then either **Save them to disk** or **Email** the Sherlocks.

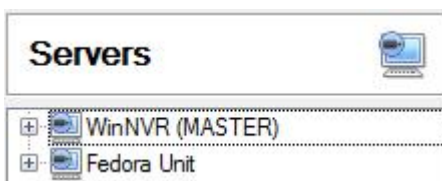
Save to disk...

Note: clicking on *Email to Recipients*, will open up your Operating Systems default email client. *Save to Disk* will allow you to save the Sherlock files to any storage attached to your workstation.

Email...

d. General Tab

When you click on the actual server name (not the used to expand the options), the right hand panel will fill with the General Setup options for that server.



General | Email | Audio | Communications | Base-stations

Server name
 Video format
 Network interface
 Manual dome control override period
 Enable catMobile connections

Server Name

The descriptive name that you give to the individual unit. That identifies the unit in the GUI.

Video Format

Choose between PAL and NTSC.

Network Interface

Note: It is not advisable to mix formats across units on the same site.

Will list the Network Interfaces on this unit, and their current IP Addresses.

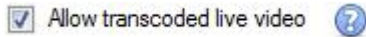
**Manual Dome Control
Override Period**

The period of time the controller must be inactive on a particular PTZ camera before it resumes its automatic responses. (E.g. tours, pre-sets etc.)

**Enable CatMobile
Connections.**

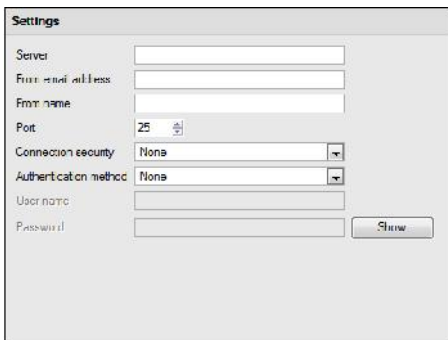
CatMobile connections are connections to the unit via a web browser, or the [iPhone/Android](#) Apps that are available online.

Note: The mobile connections are made on a unit-by-unit basis, with no site knowledge. This means that you will need to enable this on each unit that you wish to be available via our mobile interface.



This is currently only available on Windows units. It uses software encoding to add another, lower quality MPEG, stream to send to the cameras tab. This is useful for remote viewing, but will put extra strain on the processor of the unit.

e. Email Tab



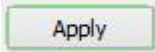
Emailing is now an option for notifying a Site Contact, and as an **Action** associated with an **Event**. For example: a possible Event Action would be to send an email to a specific email address, when there is movement on a camera.

The settings are standard email settings, associated with your email account.

Note: As mentioned above these are all standard email settings. The Port number is your SMTP port. Make sure the NVR unit can reach the mail server by configuring the correct network settings, IP, Default Gateway and dns server.

) Test Your Settings

Opposite **Settings** is the **Test Email** box, from which you can send a test email to another email account, just as you would from a normal email client.

Note: Before attempting to send a test email, remember to click  .



f. Audio Tab

A full list of all available audio devices is available in the respective drop-down menus. The device that you select from the menu will become the device used if this unit is used as a Viewing Station as well as an NVR.

Local system audio

Onboard input
Onboard output

My audio devices

My microphone 
My speaker 

Local System Audio is the name that you give to the on-board audio device located on this server.

My audio devices is a list of the audio devices available on this server. The device that you select here will determine the audio devices which are used as calling/listening devices, if this server is ever used as a Viewing Station.

This will change the name of the device as reflected in the **Resources Panel**

g. Communications Tab

A Heartbeat is a signal sent from the capture unit (recording server) to an Alarm Management Gateway unit, which tells the Gateway that the server is still active. If the message fails to come through, the Gateway will generate an alarm.

This will generate an alarm if the server goes down, or if the communications medium goes down.

Note: This needs to be setup on both the capture station and the Alarm Management Gateway.

) *Enable Heartbeat*

To enable sending the heartbeat on your unit: check the **Send gateway heartbeat** tick box.

) *Select a Base-Station*

The base station referred to here is the Alarm Management Gateway unit that you are going to be sending the heartbeat message to.




) *Select an interval for your Heartbeat*

This will define how often your unit will send a Heartbeat to the Gateway.

h. Gateway Tab

This section deals with the Alarm Gateway, as such **you will only see this option if the selected server is setup as a gateway.**

) *Send heartbeat monitoring alarms*

Send heartbeat monitoring alarms to   

If a heartbeat alarm is triggered, the gateway needs to take an action (send an alarm).

In general you would want this alarm to go to the gateway itself. So simply select the gateway from the dropdown menu. If you want the heartbeat alarms to go to some other unit, then select/add that unit.

Note: If this is not checked, these heartbeat alarms will not be sent anywhere.

) *If an alarm is not handled*

If an alarm in the gateway has not been handled in minutes then

if it is a technical alarm forward it to  

if it is an event alarm forward it to  

Move to History after forwarding

If they have not been handled for a while, you may want to send unhandled alarms to other gateways, or base stations.

Decide on the time frame, as well as where specific types of alarms are sent.

Note: If you send an alarm to another gateway, this alarm will appear in the incoming queue of both gateways. If one is handled, the other will remain in the incoming list. To avoid confusion you may want to check the Move to History after forwarding box, which will move the alarm to the history queue of the forwarding unit.

) *Move to history*

Move gateway alarms to History if they have not been handled in minutes

The number of alarms can build up very fast, especially on large sites. If you are dealing with a site where alarms are only relevant for a short period of time you may have them automatically moved to the history queue.

i. Configuration Backup Tab

This will back up all of this unit's **CathexisVision settings**, except for the database settings. The databases will remain on the drives you have chosen, but will have to be re-imported manually.

Note: You will only be able to **set default path**, and **Enable auto backup** from a Base-Station. To **create a manual backup**, and to **restore an existing backup**, you must be on the NVR unit itself. This is one of the very few things that you cannot do from anywhere else on the site.

) *Configure your Backup*

Configuration backup

Enable auto backup

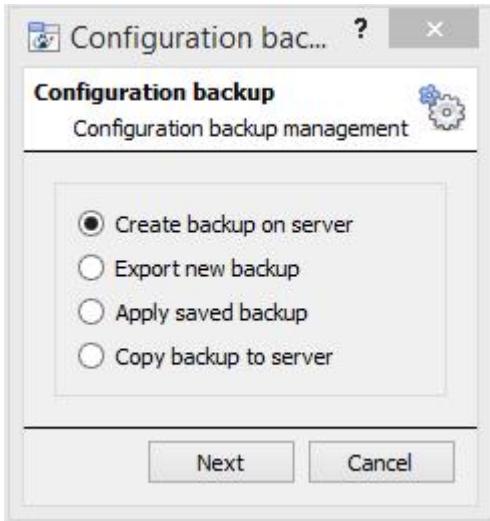
Auto backup path

Note: You may choose to back-up all your units to a central location, such as a network drive.

) *Automatic Backup*

With **Enable auto backup** checked, the unit will update the Configuration Backup **every day at 2 a.m.** local time. You will need to set the location for the automatic backup by entering the path (or browsing to it), and clicking on .

) *Manage configuration backups*



Clicking on **Manage configuration backups...** will open the dialogue to the left.

Create backup on server will create a backup on the server, in the default path that was set above.

Export a new backup will allow you to choose the destination of the new backup.

Apply saved backup (formerly *restore existing backup*) will allow you to apply a saved back.

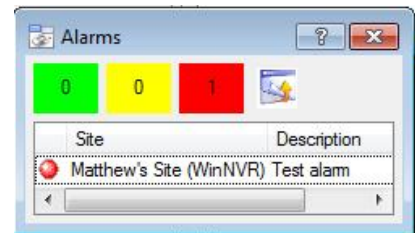
Copy backup to server allows the user to create a restore point backup of the system's current state. So this can be done straight after making new changes to the system.

j. **Base-stations Tab**

The Base-stations that you set here are the stations to which Alarms will be sent, when one is triggered by an Event. These alarms can be sent either to individual viewing stations in a control room, or to an Alarm Management Gateway.

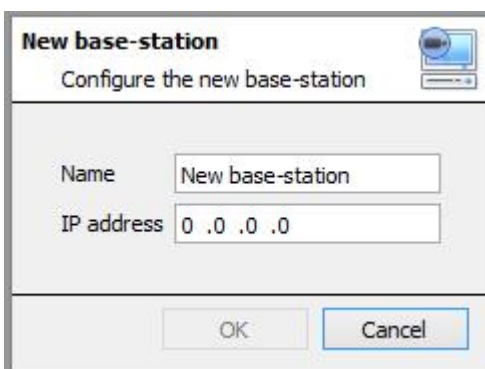
If you are sending an alarm to an Alarm Management Gateway, it will appear in the alarm queue; if you are sending the alarm to an individual Viewing Station it will appear as a pop-up window.

The window to the right is an example of such an alarm, on a Viewing Station



) *Add a New Base Station*

To add a New Base Station, click **New**.



Name: Give the Base-station a descriptive name.

IP address: IP address of the specific Base-station.

) *Send Test Alarm*


You may test your Base Station settings by clicking on . This will send a test alarm to the selected Base-station.



k. User Recordings Tab

The user recordings facility allows a user to manually trigger a recording if he sees something live in the Cameras Tab. This is useful as it may not be something that would have triggered a recording otherwise.

Enable user recordings

Database

Event description 

Call basestation  

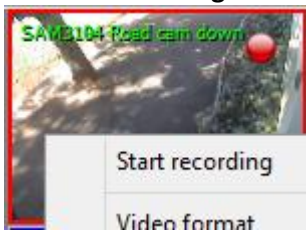
Database will define which database User Recordings are saved to. (Tip: Create a User Recordings database.)

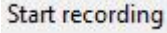

Event Description is the name that will be given to the User Recording entry into the Database.

Call basestation will send an alarm to a Base Station whenever a User Recording is triggered.

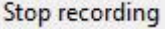
) *Trigger a User Recording*

Start the Recording



Middle-click on a camera in the **Cameras Tab** and  should appear as an option in the dropdown menu. Click this to start the recording. If the recording has started you should get a flashing  in the top right hand corner of the camera panel.

Stop the Recording

To stop the recording middle-click on the camera panel and click on , in the drop-down menu.

Note:

1. you may only trigger one camera at a time.
2. It is advisable to create a separate database just for User Recordings.

2 Cameras



Rear-panel input	Camera	Address	Driver
-	Aaset Vision 360 Soft - Emmua	192.168.3.186	Aasset
-	Axis - Back Parking	192.168.3.113	Axis
-	Axis 214 - Testing	192.168.3.120	Axis
-	Axis 221 Server Room	192.168.3.122	Axis
-	Axis 232D+ Support	192.168.3.114	Axis
-	Axis lower verandha WU	192.168.3.196	Axis
-	Axis M3007 - Patch panel	192.168.5.84	Axis
-	Axis M5013 Demo Room (D Unit)	192.168.5.78	Axis
1	Camera 01	Card 1 camera 1	AVM4004
2	Camera 02	Card 1 camera 2	AVM4004
3	Camera 03	Card 1 camera 3	AVM4004

a. Introduction

There are two ways to add a camera in **CathexisVision**:

1. The camera Addition Wizard, and
2. The [Copy/Paste Function](#).


This section of the manual will detail these two addition methods, followed by an examination of the Camera Editing options, and some extra information on the right-click menu.

b. Camera Addition Wizard

The camera addition Wizard will take you through all the steps needed to **add a camera**, as well as **allowing you to create databases, schedules, and events** along the way.

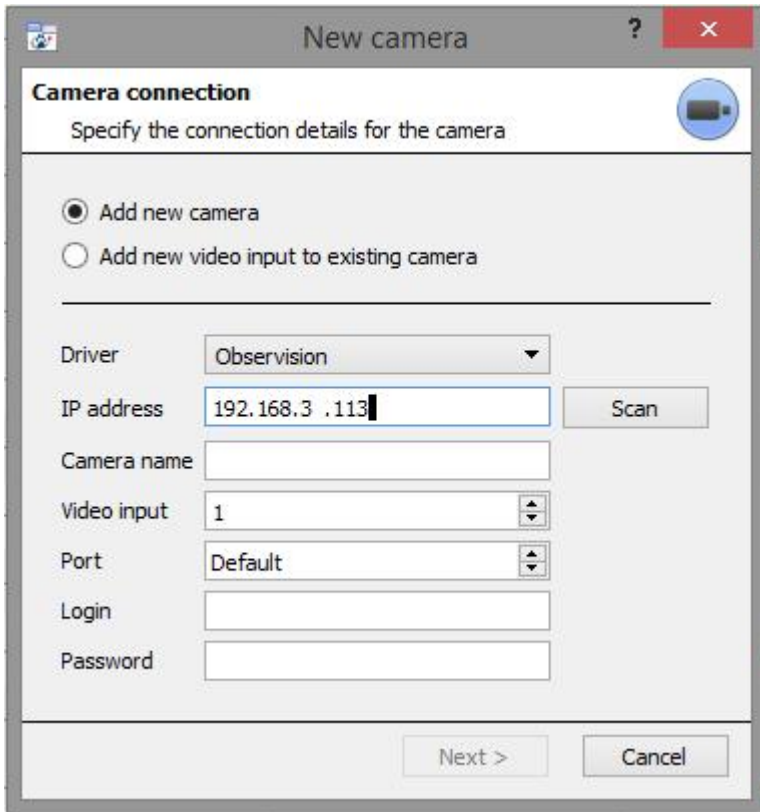
There are two phases in the addition Wizard:

1. The addition of the camera, and
2. Setting up the system to record from that camera (either via a VMD Event, or via a scheduled recording).

To start the camera addition Wizard click on the  button at the bottom of the cameras panel. The following will take you through each step in the Wizard.

) Camera Connection

The first step in the Wizard is the **Camera Connection** step. Here you set up all the connection details of the camera. The user needs to choose between adding a new, separate camera, and adding a camera that is a new video input for an existing camera. The options below will change on a camera-by-camera basis.



Driver: Select the relevant driver for your camera.

IP Address: Set the IP address of the Camera you want to add.

Scan will scan the network for cameras that have been setup to make themselves available. You may then click on a camera and it will automatically have its driver and IP address set. (Under scan you will have the option to list cameras that are already linked to other servers. To do this: check the Show devices used by servers box.)

Camera name is a descriptive name that you give the camera.

Video Input will be used if you are connecting to an encoder that has multiple analogue inputs. **If not, leave it on 1.**

Port will have a default setting, but if you wish to connect through a specific port, set it to the port of your choice.

Login and **password** are the cameras current login details.

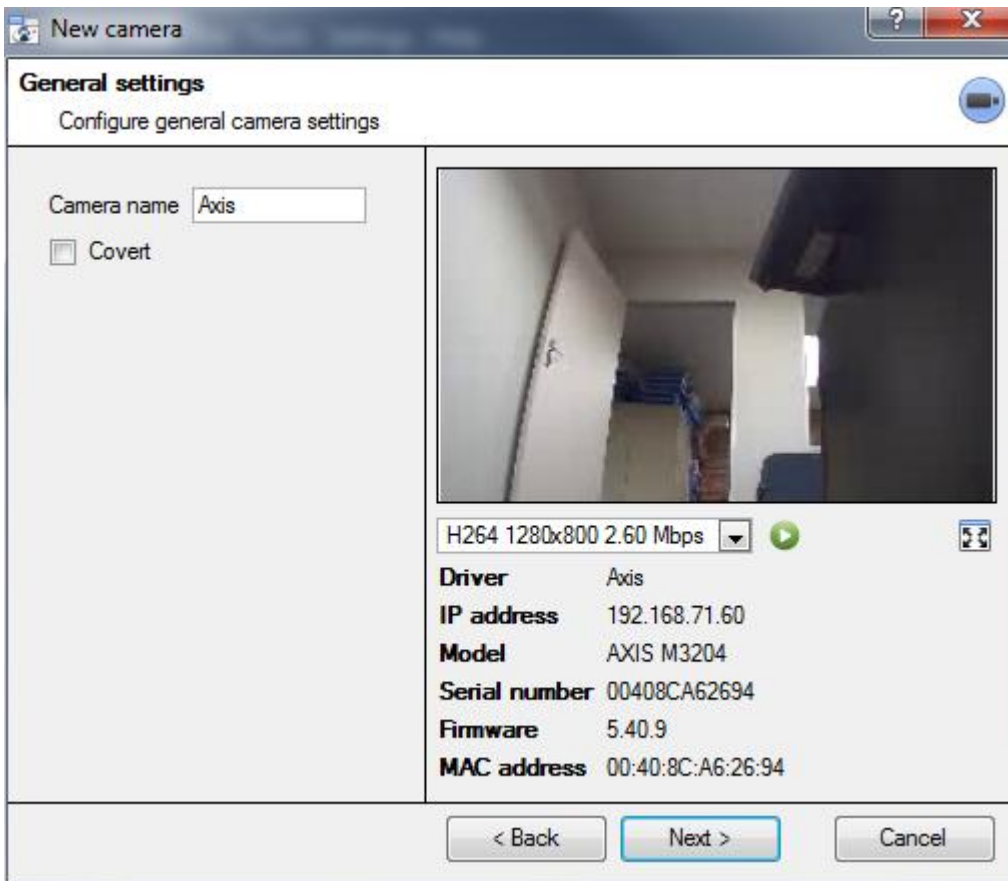
Notes on adding a new video input:

1. When adding a new video input to an existing camera the user will be unable to change the IP address of that camera.
2. This option is not available when connecting a **CathexisVision 2015** site to a 2016 site, as this option is exclusive to 2016 and later versions.

Notes on Scanning:

1. Some Cameras do not support automatic location requests, and will not be found using **Scan**.
2. Universal Plug and Play (**UPnP**) will have to be enabled on the cameras that do support location requests.

General Settings

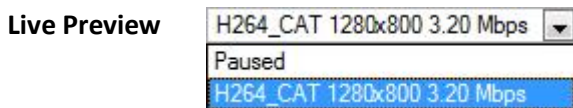


Name Give the camera a descriptive name. So as to make it easily identifiable in a list.

Covert **CathexisVision** gives you the option to create a covert camera. There is a difference between a camera being covert, and a user not having access to it:

Covert	Access Level Defined
Camera will only be present in the Resources List of an Administrator, or an access level that has been granted access to this camera	Camera will still appear in the Resources List of lower log in levels, but they will not be able to view the feed.

Device Information This will be a list of all the relevant information, pertaining to the device itself. You can see it underneath the image preview.



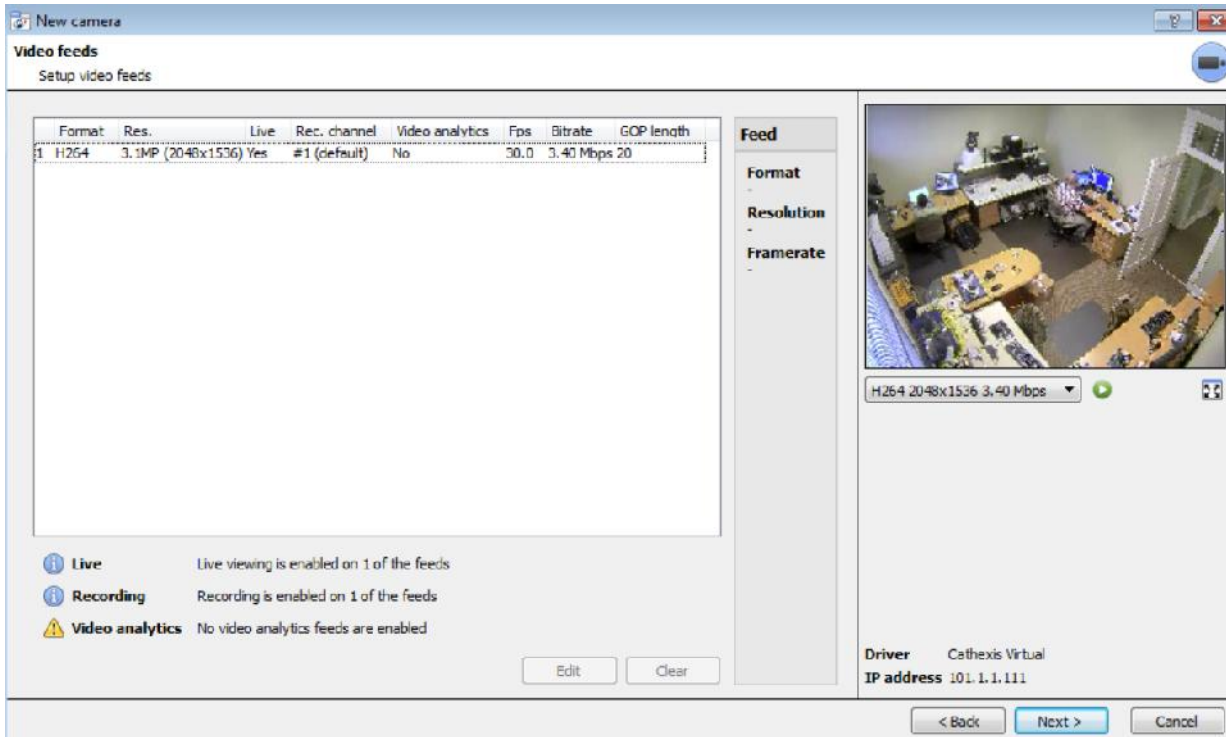
The image you see is a frame grab from the video feed that you have chosen

To play the live preview click on:

To enlarge the image click on:

Note: The image in the preview will not reflect the actual quality of the feed, as it is transcoded when viewed in the camera addition wizard.

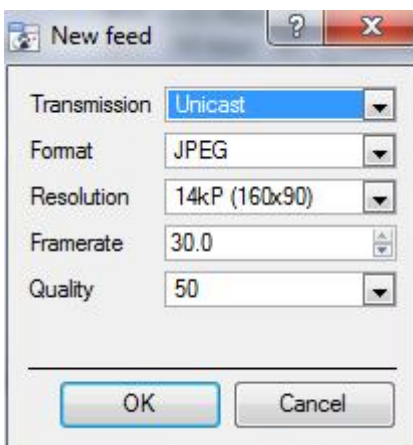
) Video Feeds



) Add/Edit a Video Feed

To add/edit a video feed click on one of the available feeds in the list, and click on the **Edit** button. This will bring up a feed dialogue with the available video feeds, and the options that pertain to them. The two most common IP feeds are JPEG and H.264 (MPEG4).

JPEG



Transmission will show the transmission type.

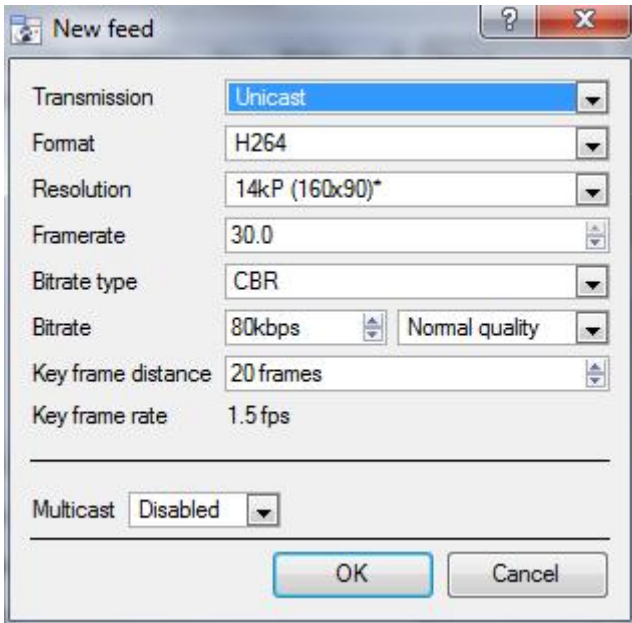
Format is the compression format used by this stream. Click the dropdown menu to choose the one you desire.

Resolution is the amount of pixels in the image.

Framerate is the amount of frames recorded per second.

Quality defines how lossy the compression of the image is. At 100 the image will have the best quality; at 50 it will have the lowest quality.

H.264



Transmission will show the transmission type.

Format is the compression format used by this stream. Click the dropdown menu to choose the one you desire.

Resolution is the amount of pixels in the image.

Framerate is the amount of frames recorded per second

Bitrate Type this is the way that your bitrate is handled. A constant bitrate will be more predictable, but will lose more information the more the image changes. Variable bit-rate is less predictable, but will have better images when the picture has more motion.

Bitrate is the amount of information, in bits, that the feed will send per second. (**Quality** defines how lossy the compression of the image is.)

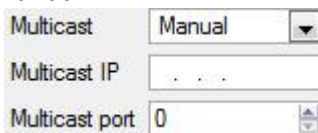
Key Frame Distance (GOP Length) is the number of frames between each I-Frame (Key Frame).

Multicast

You may setup Multicast on your feeds by selecting the relevant option from the feed dialogue. There are three options; **disabled**, **auto**, and **manual**.

Note: Leave disabled if you do not want to use multicast.

Manual

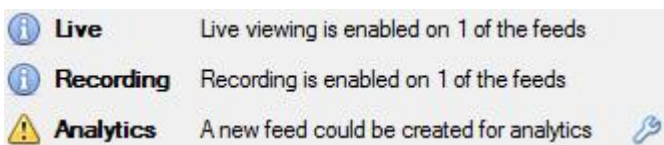


With manual selected you will have to enter in your own Multicast IP, and Multicast Port.

Auto

On auto the Multicast address will be automatically assigned. The core settings for this may be found in the document on the **General Site Setup** section of the **Setup Tab**.



Feed Notifications



This area will show you the status of the feeds you have created. Whether you have enabled **Recording**, **Live Viewing**, or **Analytics**.

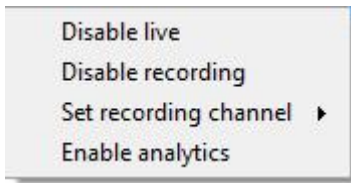
Note: Click on any of the icons to display detailed information about the feed/problem.

Automatic Configuration

If there is an  icon at the end of the feed notification, this means that there is a potential problem with your feed setup. Clicking this  will automatically fix the problem for you.

) Right-Click Menu (Live, Recording, and Recording Channel Settings)




Right-clicking on a feed, after you have set it up, will bring up the menu seen below. These are settings that can only be accomplished after the feed has been setup.



Disable Live	viewing of the feed
Disable Recording	of the feed
Set Recording Channel	Define which channel number will represent this feed
Enable Analytics	Enable Video Analytics.

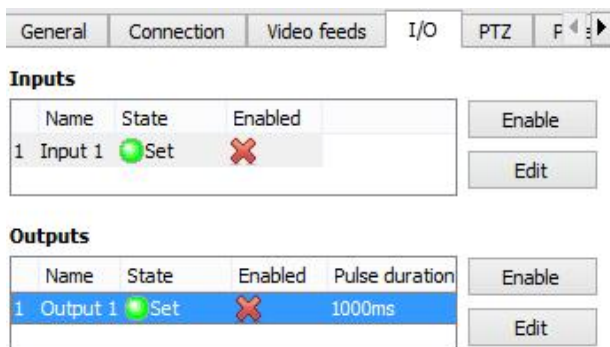
Analytics

In order to enable analytics on a unit you will need to setup a second feed, right-click on that feed, and click **Enable Analytics**. There are a few rules when it comes to enabling analytics:

1. If you do not setup an analytics enabled channel here you will not be prompted to add Video Motion Detection (VMD) later in this wizard, nor will you be able to add VMD, using this feed later.
2. Only feeds that are QVGA resolution, and lower, will give you the option to enable analytics.
3. If you see a  at the end of the  **Analytics** feed notification, you do not have a feed enabled for analytics. Clicking on the  will automatically enable one.

) I/O

The next step in the addition is the I/O setup. The I/O values represented in the GUI will depend on the I/Os provided by the encoder.



I/O

Inputs are used to trigger an event; **Outputs** are used to give a desired output as a result of a triggered event.

Renaming

Name	State	Enabled
1 Button	Clear	X

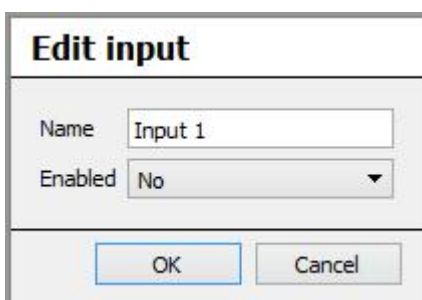
Click on the I/O name to rename it.

Enabling



Click on the red cross or click the enable button. Once enabled it may be used to trigger an event.

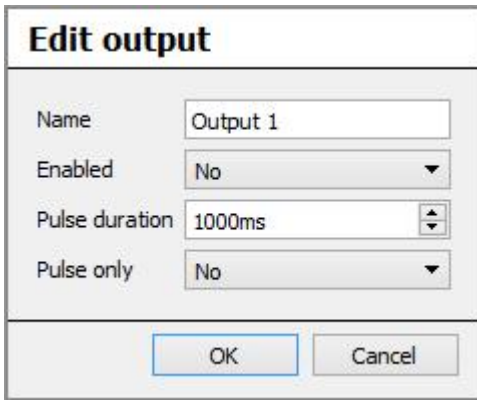
Edit an Input



Give your input a default **name**.

Define whether or not you want this input **enabled**.

Edit an Output



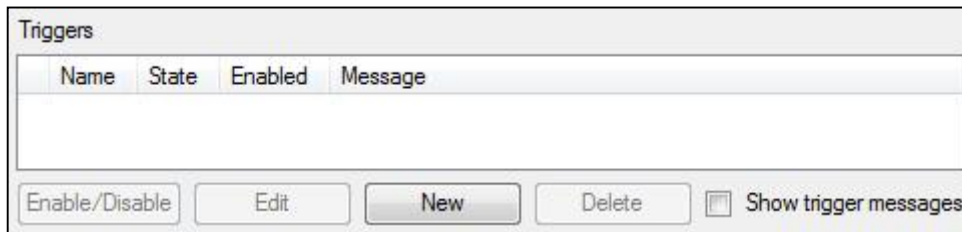
Name: Give your output a descriptive name.

Enabled: Will tell you whether the output is disabled/enabled.

Pulse duration: Will set the amount of time (in milliseconds) that the output will pulse for, if it is set to pulse.

Pulse only: If set to Yes, the output will not allow itself to be permanently Set.

Triggers

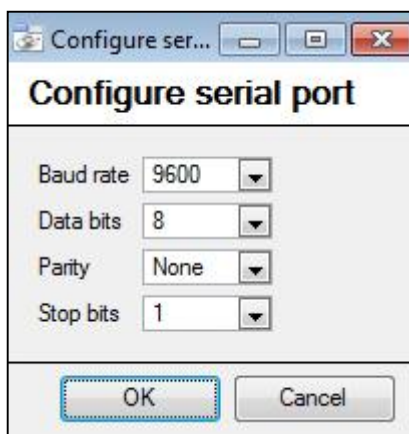



Certain cameras will have their own event triggers, and encoders will often have **I/O** options.

Note:

1. Clicking on any of the column values (**Clear/Set; Enabled/Disabled**) of an I/O will toggle the value. E.g. Clicking on a Clear state will change the state to Set. (These options are also available via the Right-Click menu.)
2. Give your I/Os descriptive names, otherwise they will not be identifiable.

) Serial Ports



Highlight the serial port you wish to configure then click the  button.

This will give you the option to change the **Baud rate, Data bits, Parity** and **Stop bits**, and other camera dependent settings.

Note: This option will only be available if the camera has serial ports.

) PTZ

Check the Enable PTZ box if you are adding a PTZ camera. After this, all the available PTZ options will appear in the Wizard interface:

) General Settings

Enable PTZ

Protocol

Address

Port

Preset 1 name

Zoom speed

Home position

Go home during schedule

The home preset will be recalled when user control is relinquished
or after a system PTZ command is issued

Switch wash/wipe relays

Note: These options can vary on a camera-by-camera basis.

Preset Name

You may give your Presets descriptive names (such as 'front door' etc.)

Zoom Speed

This defines how fast your camera will zoom in when using the PTZ controls.

Note: Test zoom speed by clicking on  on the PTZ control wheel of the the live view panel to the right.

Home

Position

A home position is a pre-set position to which the camera will return to after a set period of inactivity.

Automatic Return to Home

You may set a **schedule** during which the camera will return to its home position. When the schedule (see: [5. Schedules](#)) is inactive the camera will remain in the last position that it was left in. If there is no schedule set, the camera will never return automatically to its home position.

Switch Wash and Wipe Relays

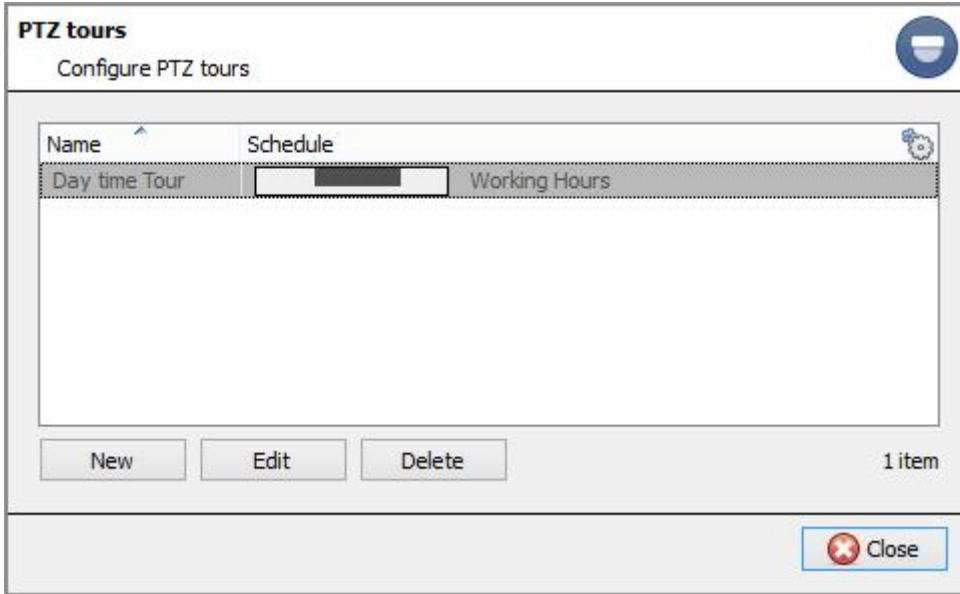
To have it always return home after a period, simply enable the Every Day schedule.

In the case that the Wash and Wipe relays are incorrectly attributed, this will swap them over to the correct order.

Configure PTZ tours

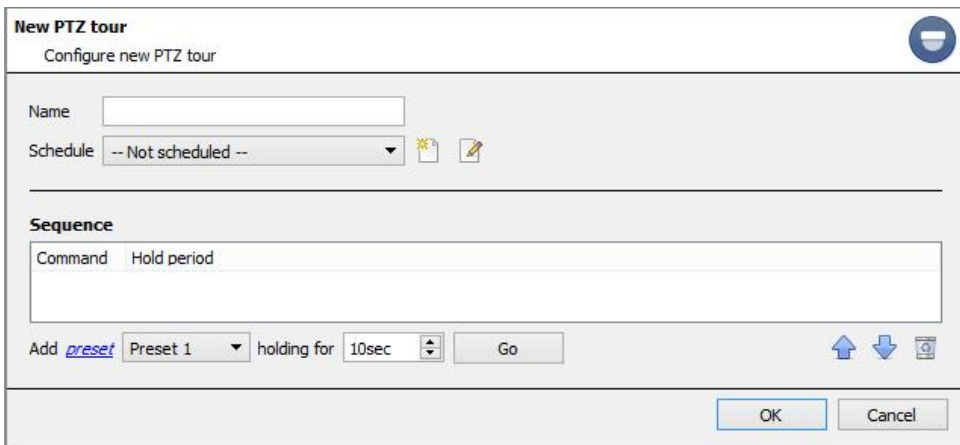
A PTZ tour will run through a sequence of pre-set positions. (See section immediately below.)

) **Configure PTZ Tours**



You may configure multiple tours. To add/edit a tour click on **New/Edit**.

This will open up the PTZ tour configuration dialogue below.



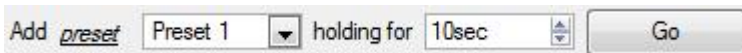
Give the tour a **descriptive name**, and, if you desire, a schedule (see: [5 Schedules](#))

Sequence
This is the sequence that the Presets will run in.

Add Preset, Multiple Presets, or a Pattern, to the Tour

Preset

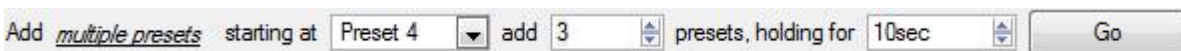
Select the preset, set how long you want the camera to linger at this preset.



Multiple Presets

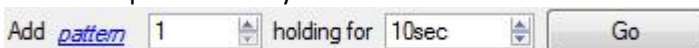
-) Starting at: Select the first preset you want to add.
-) Add: This is the number of Presets, you want to add.

In the example below you will be adding Presets 4 to 6.

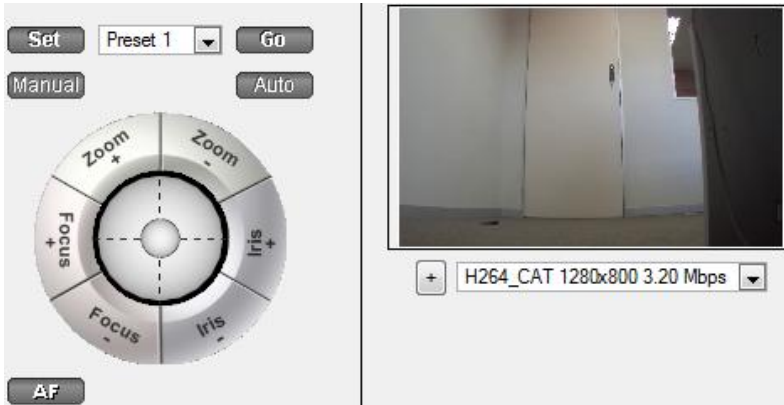


Pattern

Select the pattern that you want to add.



PTZ Procedures



With a Pan-Tilt-Zoom (PTZ) camera an operator can manipulate the camera's direction, Zoom, focal distance (Focus) and amount of light (Iris). He / she can also control pre-configured camera views called "Presets".

A Dome Control Panel becomes available when you select a Live PTZ camera in the **CathexisVision** interface. Click the panel's dropdown menu and select **PTZ** (see below). The software joystick displays:


Note: Don't forget to select/play a live feed.

Using the PTZ Control Panel

To pan left / right from the PTZ panel

 Drag joystick left / right

To move the camera faster from the PTZ panel

 Distance determines speed - drag joystick out, in required direction

To zoom in / out from the PTZ panel

Watch the live camera as you press the Zoom + and Zoom - button

To go to a preset from the PTZ panel

Select the preset from the dropdown, and then click GO

> The camera view will change to the preset.

To relinquish manual control of the dome / PTZ camera from the PTZ panel

Click **Auto**. > If your system runs remote tours automatically, or switches display based on events, these automated responses will take over.


To allow more or less light in the image (lighten and darken the live camera view) from the PTZ panel

Watch the live camera as you press the iris+, or iris - button. You will see the image lighten or darken

To tilt up / down from the PTZ panel

 Drag joystick up / down

To move the camera slower from the PTZ panel

 Distance determines speed - drag joystick closer in, in required direction

To focus further / closer from the PTZ panel

Watch the live camera as you press the Focus + and Focus - button

To gain manual control of the dome / PTZ camera from the PTZ panel

(This applies if you system runs remote tours automatically, or switches display based on events)

Either click **manual**, or simply move the software joystick

Define a Preset (To set a preset from the PTZ panel)


1. Select the preset number, from the dropdown menu.
2. Use the joystick controls to establish the camera View, Zoom, Focus and Light (Iris).
3. Click SET.
4. Go to this preset to check it.

Database

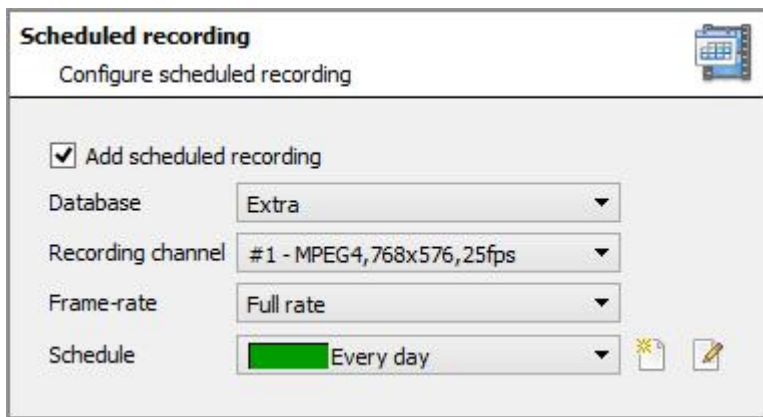
All cameras need to record to a database. If you have not yet created a database you will be taken to the database setup, after you are done with the PTZ setup. If you have already created a database you can either proceed straight to the **Scheduled Recordings/Video Motion Detection setup** and use the current database.

You may create a new database for this camera by checking the **Create a new database** option in the bottom left hand corner of the screen.

Note: this will setup the database on the recording server that you added the camera to, and not the unit on which you are working (if you are using a client, or other remote unit). This means that you will have no file system knowledge of the remote unit, and will need to enter the path manually. (You will know whether you are on a remote unit, because you will not have the option.)

For further information on setting up a database, please consult the [4Databases](#)  section, below.

) *Schedule*





Schedule recording

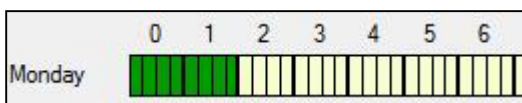
Set your camera to only record at certain times, to increase efficiency and save disk space.

Select the **database, channel and frame-rate** that you want to apply a schedule to.

) *Set Up a Schedule*



Select your schedule from the drop down menu. You can create a new schedule by clicking on the  icon. To change an existing schedule click on the  button.



Select/Deselect time cells

Left click to **select recording time** – the green bars.

Right click to **unselect recording time** – the yellow bars.

Monday will be recording from 00:00 – 02:00 in the morning.

) *Activity Recording (VMD Event).*

Note: This does a number of things. This will add Video Motion Detection, pre-event recordings, and add an Event to the system.

) Recording

The recording option allows you to setup the recording settings.

Database is the database this event will record to. **Schedule** defines when this event will be active.

Recording channel defines which video channel will be recorded.

Frame rate defines the frame-rate that recordings will take place in.

Pre-events define a time that will be buffered, and recorded, from before the initial trigger.

) Activity

The default algorithm here is the Basic Video Motion detection.

The settings for Video Motion Detection are too detailed to go into under this section, for a full description see the Video analytics section of this document.

c. Camera Addition Method 2: Copy/Paste Cameras

The second method of adding a camera is by Copy/Paste. This is accessed by **right-clicking on an existing camera**.

) Copy/Paste a camera

If you are adding more than one camera that operates on the same driver, **CathexisVision** offers a very easy solution. You may copy and paste new cameras, retaining the information of the camera selected for copying.



To Copy/Paste new cameras, first ensure that you are in the cameras panel of the desired unit, right click on the previously added camera and click on **Copy**.

Then right click anywhere in the Cameras Panel and click on **Paste new...**

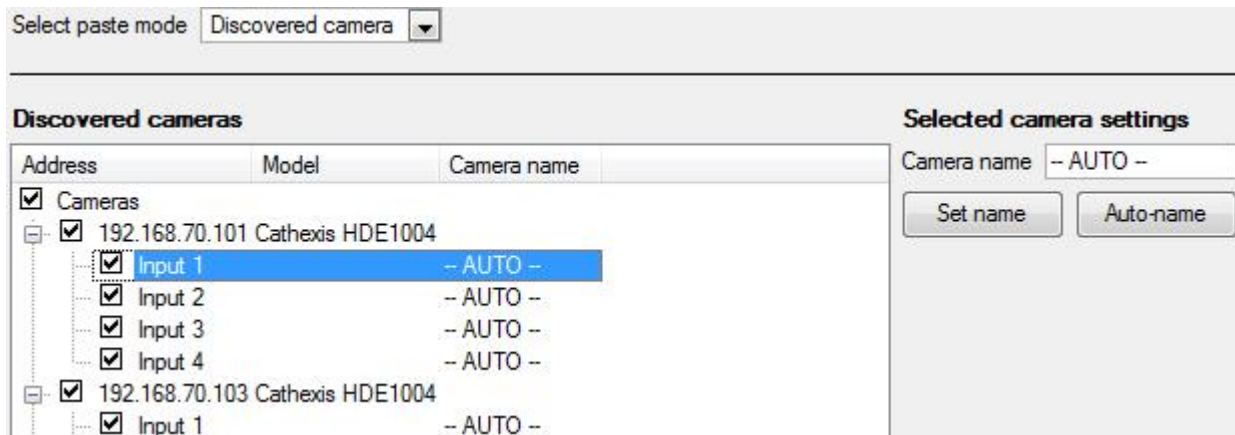
There are two ways to past cameras **Sequential**, and **Discovered**. These will be discussed, below.

) Paste Mode: Sequential

The paste mode sequential window gives you the option to add the new cameras as a direct copy of the camera that you copied.

Start IP Address will determine the IP address of the first new camera that you are adding. The IP addresses will be incremented from here. (So make sure you have not used IP addresses in this range.) **Number of cameras per encoder** must be the full amount of channels available on this encoder **Start Input** is the actual physical channel that you want to add the first camera to.

) *Paste Mode: Discovered*



Note: This will copy the video settings from the copied camera onto the discovered cameras that you select.

) *Copy/Paste Video Settings*

If you have already added a number of cameras with the same drivers and simply wish to transfer the Video Settings of each camera across, then you may right-click and select **Copy**. Then right-click on the camera you wish to add the video settings to and select **Paste video settings**.

Note:

-) This is just the Video Feed settings; it will not add Video Motion Detection analytics.
-) You may only copy onto cameras that have the same driver as the camera that has been copied.

d. Editing of an Already Added Camera (Tabs Based)²



You may edit an already added camera by selecting it and clicking on **Edit**.

) *Repeated vs Additional Options*

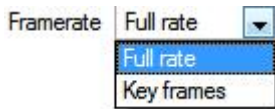
The camera setup options of *General*, *Connection*, *Video Feeds*, *I/O*, and *PTZ* are all dealt with verbatim, in section [b. Camera Addition Wizard](#) (above), they will not be repeated here. Three options are added in the Editing Tabs: **Pre-events**, **Privacy Zones**, and **Access Levels**. These options will be dealt with here.

Note:

In the Wizard you may have gone through the process of setting up a Database, Scheduled Recordings, and Video Motion Algorithm triggered recordings. The Tab Edition only changes camera settings, and therefore does not have these extra options. (*Databases*, *Scheduled Recordings*, *Algorithms* and *Events* all have their own panels under Configure Servers.)

² If you make any changes to the setup of a camera that is currently multicasting, you will need to restart the streams. This simply entails removing and reselecting the cameras in the Cameras tab after you have saved your settings.

) Pre-events tab



Pre-events were setup under the Activity Recording Section of the Wizard. You cannot define the amount of pre-events here, but you may define the frame rate of the pre-events in this tab.

Note: JPEG is recorded in Key Frames, so you will only be given the option of *Frames per Second* when setting the pre-events on a MJPEG stream.

) Access tab

Under the **Access tab** you can setup which user levels have control of the different facets of the camera.



From within the **Cameras** section under *Your_Server_Name*, select your camera, click and select the **Access tab**.

	Live		Review		PTZ		PTZ menu		Set presets		Audio listen		Hide privacy zones		Set all	
	Live	Review	PTZ	Review	PTZ	PTZ menu	Set presets	Audio listen	Hide privacy zones	Set all	Set all	Set all	Set all	Set all	Set all	
Level 1	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 2	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 3	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 4	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 5	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 6	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 7	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 8	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 9	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 10	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Level 11	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 12	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 13	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 14	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Level 15	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Set all	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗

A means that this level has access; a means that this right has been denied to this level. Left-click on the tick/cross to change its designation.

A greyed-out cross () means that this right requires another right to be set in order for it to be enabled. For instance, you cannot give a user rights to **Review**, or use **PTZ** unless you have already enabled **Live Viewing**; disabling **Live Viewing** will automatically disable the rest of the user rights. Thus, the administrator should be careful to enable the **Live Viewing** access right for the user levels which will need to view and manage the video stream.

	Live	Review	PTZ	PTZ menu	Set presets	Audio listen	Hide privacy zones	Set all
Level 1	✗	✗	✗	✗	✗	✗	✗	✗
Level 2	✗	✗	✗	✗	✗	✗	✗	✗
Level 3	✗	✗	✗	✗	✗	✗	✗	✗
Level 4	✓	✓	✓	✓	✗	✓	✗	✗
Level 5	✓	✓	✓	✓	✗	✓	✗	✗
Level 6	✓	✓	✓	✓	✗	✓	✗	✗
Level 7	✓	✓	✓	✓	✗	✓	✗	✗
Level 8	✓	✓	✓	✓	✗	✓	✗	✗
Level 9	✓	✓	✓	✓	✗	✓	✗	✗
Level 10	✓	✓	✓	✓	✗	✓	✗	✗

- Live** This controls which Access Levels can view the camera’s live feed. If this option is disabled, the user will not be able to view the camera at all, and all the following rights will be automatically denied.
- Review** This controls which Access Levels can review recorded footage form this camera.
- PTZ** This controls which Access Levels can control PTZ movement.
- PTZ Menu** This controls which Access Levels have the ability to alter the PTZ menu.
- Set Presets** This controls which Access Levels can change PTZ preset positions.
- Audio Listen** This controls which Access Levels can listen to the audio associated with the camera.
- Hide Privacy Zones** This controls which Access Levels can remove the privacy zones added to the camera.
- Set All** Selecting  will give this level access to all settings; selecting  will give this level access to none.



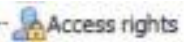
In the above example, user levels 1, 2 and 3 have been denied access to **Live** view of the streams, and are consequently denied the other access rights. However, users 4-10 have been given access to **Live** viewing of the stream, and thus have been granted access to **Review** viewing of the stream, control of the **PTZ** camera movements and **Audio Listen**, but have been denied the ability to **Set Presets** and **Hide privacy zones**.

Audio Listen Access Right

The table below details situations in which the Audio Listen access rights settings configured by the user do and do not apply.

Audio Listen access right settings <u>do apply</u> to:	Audio Listen access right settings <u>do not apply</u> to:
Live viewing.	Independent audio channels.
Reviewing from the camera tab.	Archived video.
Reviewing from the database tab (both video and integration databases).	Connecting to a 2016.2 server using a 2015/2016.1 viewer.
Viewing video when handling an alarm in the Alarm Management Gateway.	Connecting to a 2016.1 server using a 2016.2 viewer.

Note:

- Users can be added and managed in **Setup** tab → **Configure Users** .
- Access Rights** may also be configured by following **Setup** tab → **Configure servers**  → **Access rights** .

) *Privacy Zones tab*




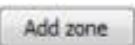


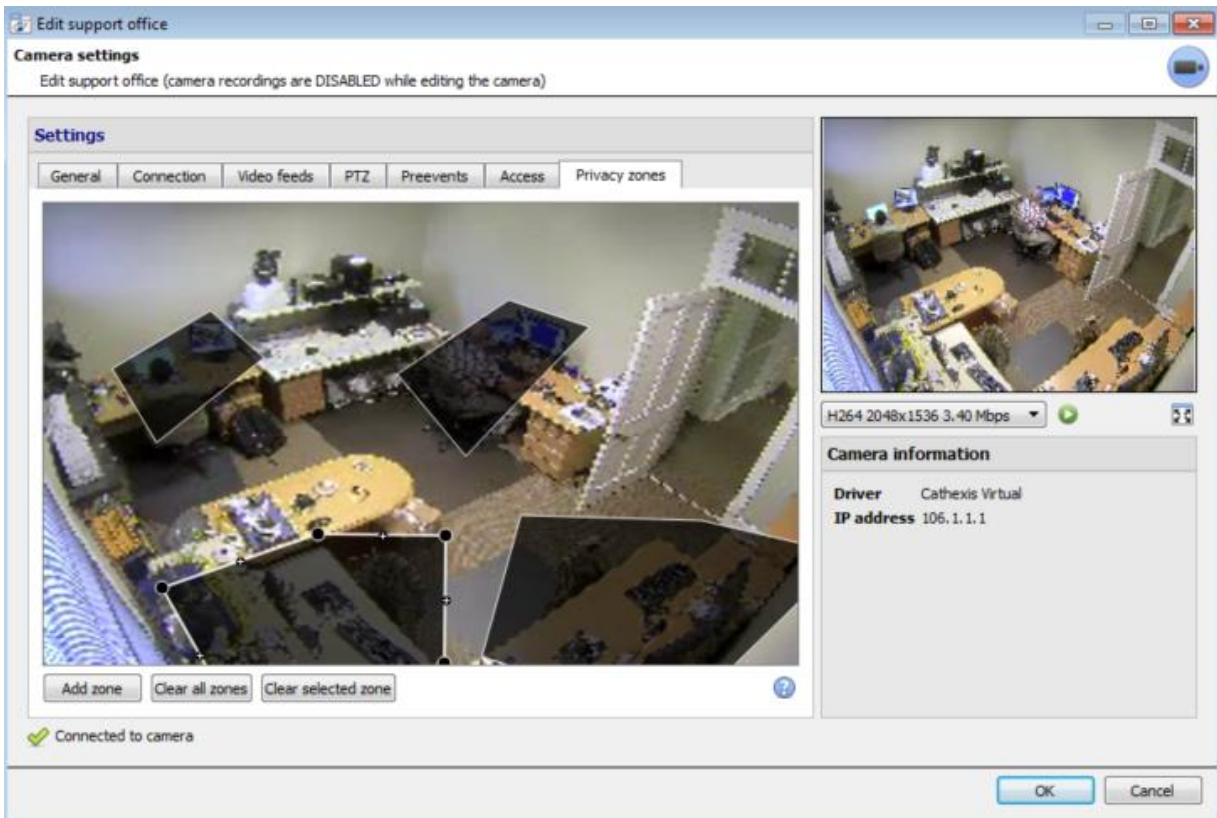
Adding a **Privacy zone** will hide an area(s) of the camera image. The **Privacy zones** can be hidden/shown by an administrator or user levels which have been assigned the access right to do so – this is covered in the previous section and in section [11 Access Rights](#). As such, the **CathexisVision** system will record the footage behind the privacy zone, but only users with access rights will be able to view it.

This is a useful feature, as some areas of the video stream may contain sensitive information which require certain clearance levels to view. For example, a camera operator in a bank might not be privy to footage in which money is being counted, but if there is a dispute surrounding the money then a user with the correct access level will be able to hide the **Privacy zone** and review the dispute.


Adding Privacy Zones

Adding/editing **Privacy zones** is not a part of the camera addition Wizard, and can only be completed by editing a camera after it has been added.

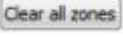

1. **Setup** tab → **Configure Servers**  → expand options under **Your_Site_Name** → 
2. You will be presented with a list of your site cameras, for which you will have to add/edit privacy zones individually. Select the relevant camera and clicking  at the bottom of the screen.
3. Click on the **Privacy zones** tab.
4. Click  and a black box will appear on the image; add as many **Privacy zones** as desired by clicking on the same button.



Reshape a Privacy zone:

- Click and drag the control points  at the corner of the box (select a **Privacy zone** to bring up control points).
- CTRL-click on a line to add a new control point.
- Double-click an existing control point to remove it.

Remove a Privacy zone:

- To remove all, click .
- To remove specific zones, select and click .

Once you are done, click  to save.

Hiding/Showing Privacy Zones in the Camera Tab

Privacy zones will be shown by default, with the option to hide them in the **context menu** of the camera in the **Cameras Tab**. Users with **Access rights** may hide/show **Privacy zones** in both **Live** and **Review** mode, and from within the **Video** and **Integration Database Reviews**.

Middle-click on the camera image to open the **Context Menu**. If the user has the access rights, the option to hide or show privacy zones will be presented.



If hidden, the black shapes will be removed to reveal the underlying images.

NOTE:

1. You **cannot hide/show privacy zones in archived footage**: Privacy zones will be hidden/shown depending on whether the privacy zones are hidden/shown during archiving.
2. Privacy zones will be **hidden/shown in a printed/saved snapshot** depending on whether they are hidden/shown when the snapshot is taken.
3. **Privacy zones are stationary**: Only areas of the camera image can be hidden and objects which move out of the privacy zones will be seen.
4. When **privacy zones** are added to a panamorphic camera the CathexisVision image transformations are disabled.

e. Analogue Cameras

This section will deal with the details that are specific to the Analogue Capture Cards. **Cathexis** provides two analogue-to-digital capture cards that work on its **non-Windows systems**.

Analogue cards offer 6 editable options:

1. General settings
2. Video settings
3. PTZ settings
4. Access settings
5. Pre-events
6. Privacy zones

Aside from the video settings, and the settings under General, all of these settings are identical to the settings you encountered in the IP setups above. This section will deal with those aspects of camera setup not dealt with above.

AVM Capture Card

AVM cards convert the analogue input into H.264 video. They also have the ability to synchronise audio, via on-board audio inputs.

) *General*

General	Video	PTZ	Preevents	Access	Privacy zones
Camera name	Camera 02				
Audio input name	Audio Input 02				
Audio output name	Audio Output 02				
<input type="checkbox"/> Covert					

Camera name is a descriptive name that you give the camera.

Audio Input Name is the audio input that you will associate with this camera.

Audio Output Name is the name of the audio output that you will associate with this camera.

Covert cameras will only be visible to administrators, and those people whose user accounts have a relevant access level.

) Video

General	Video	PTZ	Preevents	Access	Privacy zones
Format	H264_QBOX				
Resolution	CIF (352x288)				
Framerate	25.0				
Bitrate	1200kbps Custom				
Key frame distance	20				
Key frame rate	1.25				
<input type="checkbox"/> Enable audio					

Format is the compression format used by this stream.

Resolution is the quantity of pixels in the image.

Framerate is the amount of frames recorded per second.

Bitrate is the amount of information, in bits, that the feed will send per second. (**Quality** defines how lossy the compression of the image is.)

Key Frame Distance is the number of frames between each I-Frame (Key Frame).

Key frame rate is the rate of key frames, per second.

Enable Audio will enable recording synchronised audio, using the audio channel on the AVM card.

) PTZ

See the [PTZ](#) section in under Wizard Addition, above.

) Access

See the [Access](#) section, under Editing of an Added Camera, above.

) Pre-events

This will determine the frame-rate that pre-events will be recorded at. (These pre-events are added in the events setup.)

) Privacy Zones

See the [Privacy Zone](#) section, above.

VOM 1400/1500/1512 Capture Card

VOM capture cards convert the analogue video input to either MJPEG video, or MPEG-4 video. They have the ability to record synchronised audio, but only when using an MPEG-4 profile.

) General

General	Video	PTZ	Access	Preevents
Camera name	Camera 05			
<input type="checkbox"/> Covert				

Give your camera a descriptive **name**.

Covert cameras will only be visible to administrators, and those people whose user accounts have a relevant access level.

) **Video**



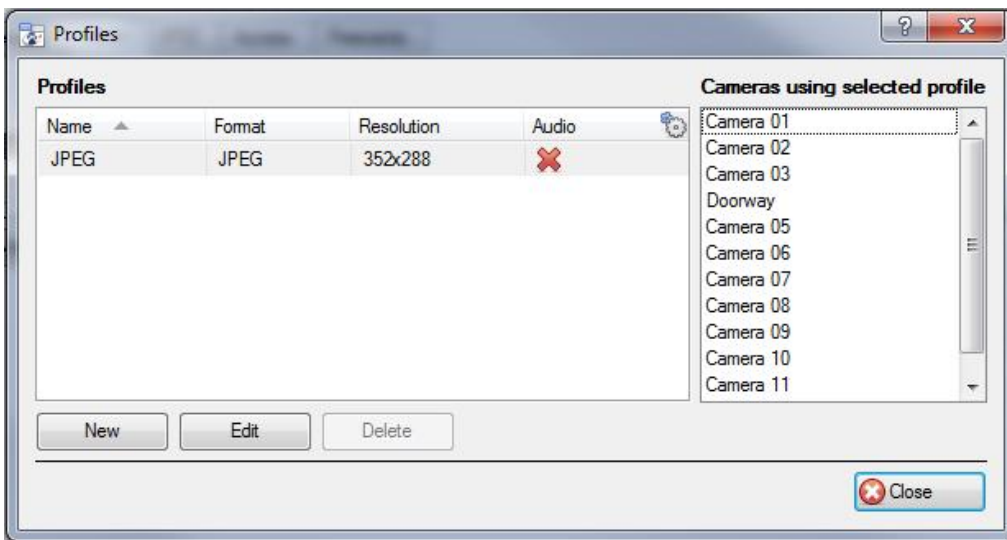
You may have a maximum of 4 streams on any VOM camera.

Stream The stream numbers are for the specific camera you are configuring.

Profile is a drop down menu. You may choose from any of the configured profiles. These are user configured stream profiles. (See Manage Profiles, below.)

Record Stream being checked indicates that the stream is recordable.

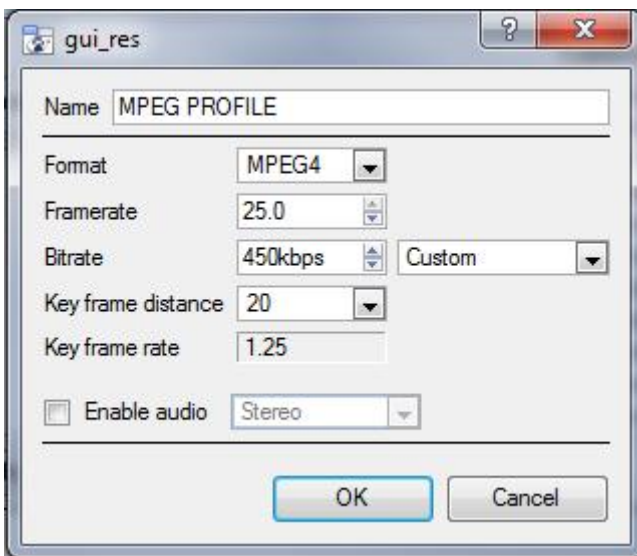
Manage profiles



Clicking the "Manage profiles" button gives the **Profiles** dialogue box, which gives you the information about the currently existing profiles.

The "**Cameras using selected profile**" list will provide you with a list of all cameras currently using the selected profile.

) **MPEG4**



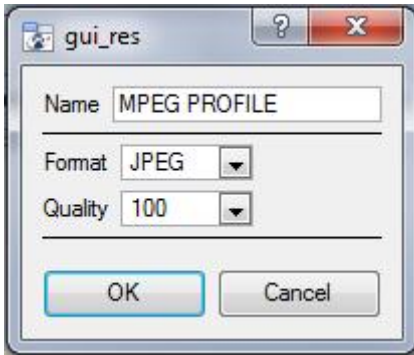
Profiles can be created/edited to use either MPEG4 or JPEG format. The image to the left is the MPEG4 creation dialogue.

Enable Audio allows you to synchronise audio on any camera attached to the VOM card. This audio will be synced with the audio input on the motherboard of the DVR.

Note:

) Only use one physical input on the motherboard at a time. When there are mic, and line, options available: only use the mic input **OR** the line input. The mic and line inputs **cannot** be used simultaneously.

) JPEG

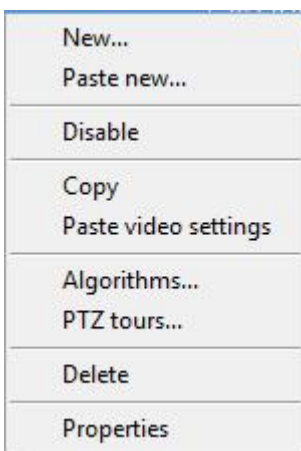


Profiles can be created/edited to use either MPEG4 or JPEG format. The image to the left is the JPEG creation dialogue.

The JPEG setup is very simple, you simply choose the **format** (JPEG), and set the quality that you want.

The **quality** number is a representation of the image quality. (E.g. 100 is the highest, and will give you the best image quality.)


f. Right Click on a Camera



There are a number of unique options under the right click menu in the Cameras Panel.

Algorithms

If you right click on a camera you may also add a Video Motion Detection algorithm to it.

Note: If you have not already added a Video Analytics enabled feed it will add one for you. For more information on **CathexisVision** Algorithms see [3](#) 

PTZ Tours

Right Clicking on a Camera will give you access to the PTZ Tours Manager. For more information on PTZ Tours see [2.f](#). Configure PTZ Tours below.

Disable

Will disable the camera, but not delete it from the system.

Note: **New**, **Paste New**, **Copy**, and **Paste Video Settings** are all dealt with [above](#) under Copy Paste Cameras.

3 Video Analytics

a. Introduction

This guide will walk you through the Video Motion Detection setup process. In order to give you a deeper understanding of the algorithm, and allow you to make informed setup decisions, the individual parameters which are available to the user will be dealt with in detail here.

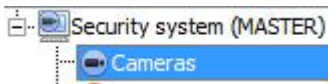
It is important to remember that the setup process will be iterative, and will require ‘tweaking’ in order to get right. This is because VMD algorithms do not work in the same way as the human eye/brain combination. Rather they observe changes in light intensity at the level of the individual pixel and use this to set off triggers. As a result any changes in the image, such as clouds rushing over a field, or a flashing light, can cause a false trigger. These need to be adjusted on a situation by situation basis. In other words, there is no one-size-fits-all solution to video analytics setups.

Important Note: The new **CathexisVision** video analytics algorithms, which were added in **CathexisVision 2015**, (licensed using Analytics I, II and III) are only available on Linux and Windows NVRs and will not be available on NetBSD (The Basic, Smart and Still Object algorithms will be available on NetBSD though).

) *Access Algorithm Settings/Setup*

There are two ways to access the Algorithms, from within **Setup Tab** → **Configure Servers**.

) *Option 1: Via the Cameras Panel*

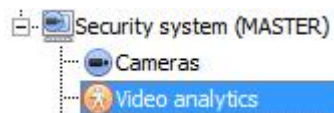


You may access the Algorithms associated with a particular camera by clicking on that camera, and then clicking on the **Video analytics** button on the bottom of the tab. (You may also right-click a camera and select **Video analytics...**).

This will bring up a dialogue box with a list of algorithms associated with this camera. In the box you may select algorithms to edit them, or create new algorithms.

Note: when you access algorithms via this channel you will not be given an opportunity to associate this algorithm with any camera, other than the one you clicked on.

) *Option 2: Via the Video analytics Panel*



This will list all Algorithms that are related to cameras on this Server.

Licenses Tab

Video analytics	Licenses	
Camera	Analytics I	Analytics II
Waiting Room		

All analytics, other than Basic and Smart VMD, require licensing on a per-camera basis. You may designate licenses to specific cameras in the Licenses tab, of the Video Analytics panel.



In the tab there is a list of all cameras on this server, with a column for each Analytics type (from I to III). Spare Analytics licenses will be listed in parentheses next to the column header for that type. E.g. Analytics III has 2 spare licenses here: **Analytics III (2)**. There will also be greyed **CathexisVision** license icons in that column.



Note: Analytics III will contain the analytics for I and II. So, if you have licensed a camera with Analytics III you need not add licenses for I and II, as they will already be included.

) Copy/Paste an Algorithm

You may copy/paste Algorithm settings either from one algorithm to another, or from one algorithm to a new camera. **These settings may be copied across servers and even across sites (as long as both sites are running the same version of CathexisVision).**

) Copy algorithm settings from one algorithm to another

Right-click on an existing algorithm, and then click on Copy. Then right-click on the algorithm you want to overwrite and click Paste.

) Copy Algorithm settings as a new algorithm

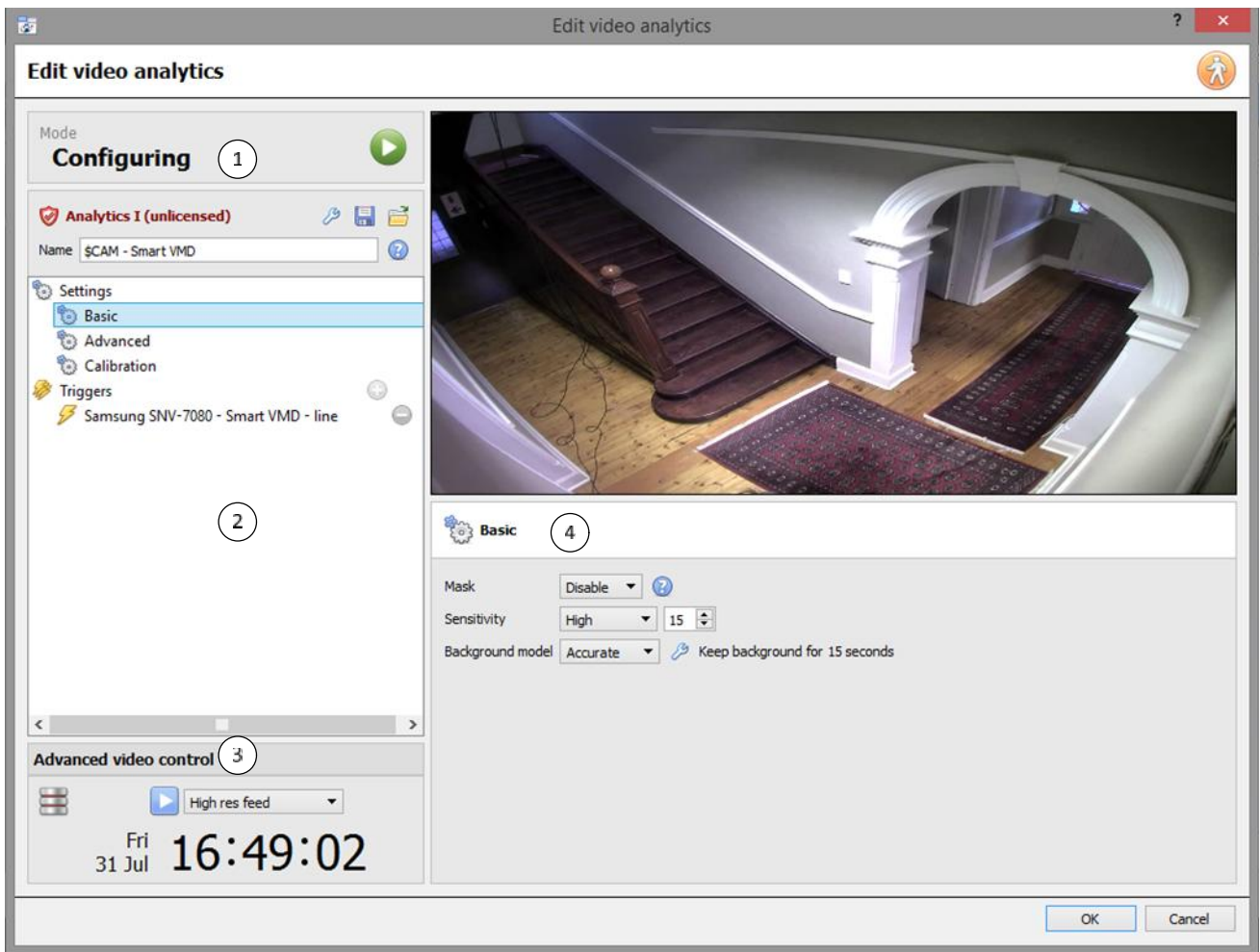
Here you will be copying the algorithm settings onto a camera, so you right-click and Copy the existing algorithm. Then right-click anywhere and select **Paste new...** this will bring up a list of cameras that are attached to this unit (e.g. Analog One).




You may select any number of cameras to paste the algorithm onto, and click OK.

b. Video Analytics Interface


Video analytics can be edited by clicking Setup Tab → Configure servers → Video Analytics Panel → Video analytics tab → select camera/algorithm → Edit. There are two modes/interfaces in the setup of the Analytics; **Configuration**, and **Running**. These will be explained below, before the specifics of each Algorithm are discussed.




Configuration Interface



1	<p>The current mode of the interface is indicated in the header. In the top right of this panel you will see the  icon. Click this to switch to the Running interface.</p>
2	<p>This area will be called the configuration panel. At the top of the panel will be the name of the algorithm and its current licensing state (relative to the camera it has been assigned to).</p> <p>Clicking on the  option will allow you to change the algorithm that you are using. Once the dialogue pops up, you may click on the drop-down menu to access the full list of available algorithms.</p> <p>(Algorithms which do not have the required license will be shown as “unlicensed”.)</p> <div data-bbox="922 1579 1452 1836" data-label="Image"> </div> <p>The  icons allow you to either save/export an analytics setup (as an XML file), or import one that you have already saved.</p> <p>It will also list the name of the algorithm. The “\$CAM” at the beginning of the algorithm name will place the name of the camera it has been assigned to at the beginning of its name. This is useful because you</p>

can export and import algorithm names that immediately assume the name of the camera that it has been imported into.


The  **Settings** area will list the settings that exist for this algorithm. The different algorithm sets will present with different sets of settings options. While Analytics I, II, and III share the same settings options, the rest all have their own set of settings.

 **Triggers** is where you add the actual analytics triggers for the selected algorithm, after choosing which algorithm you will be using. To add a new trigger click on the  icon, to remove a trigger click on the  icon. (Triggers may be used to trigger events. For more information see the Events Setup section.)

3

Advanced video control

The Advanced Video Controls are available in both the Configuring and Running interfaces. By default it will be minimised.


To expand this player hover your mouse over the text of this section. The text will turn blue, and an  icon will appear to the right of the text. Click on this to expand it.

There are two ways of viewing video with this tool. Either live, or recorded video.

Live Video:


The default (in the above image) is live.

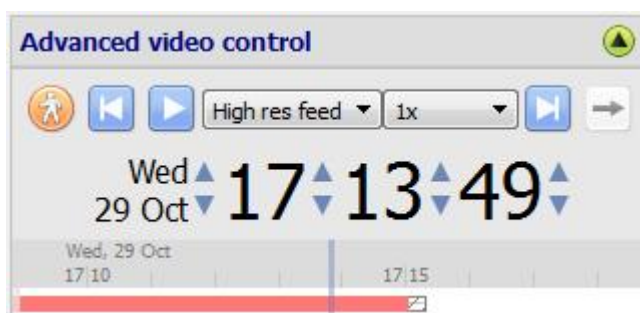



 will start streaming live video from the camera in the Camera panel.

You have the option of viewing the high resolution feed, or the one used for video analytics.


Recorded Video:

Clicking on the  (database) icon will take you to the recorded video for this camera.





 you can use the wheel arrows on the timestamp to change the date of the footage being viewed.

Or left-click and drag on the timeline at the bottom of the player.

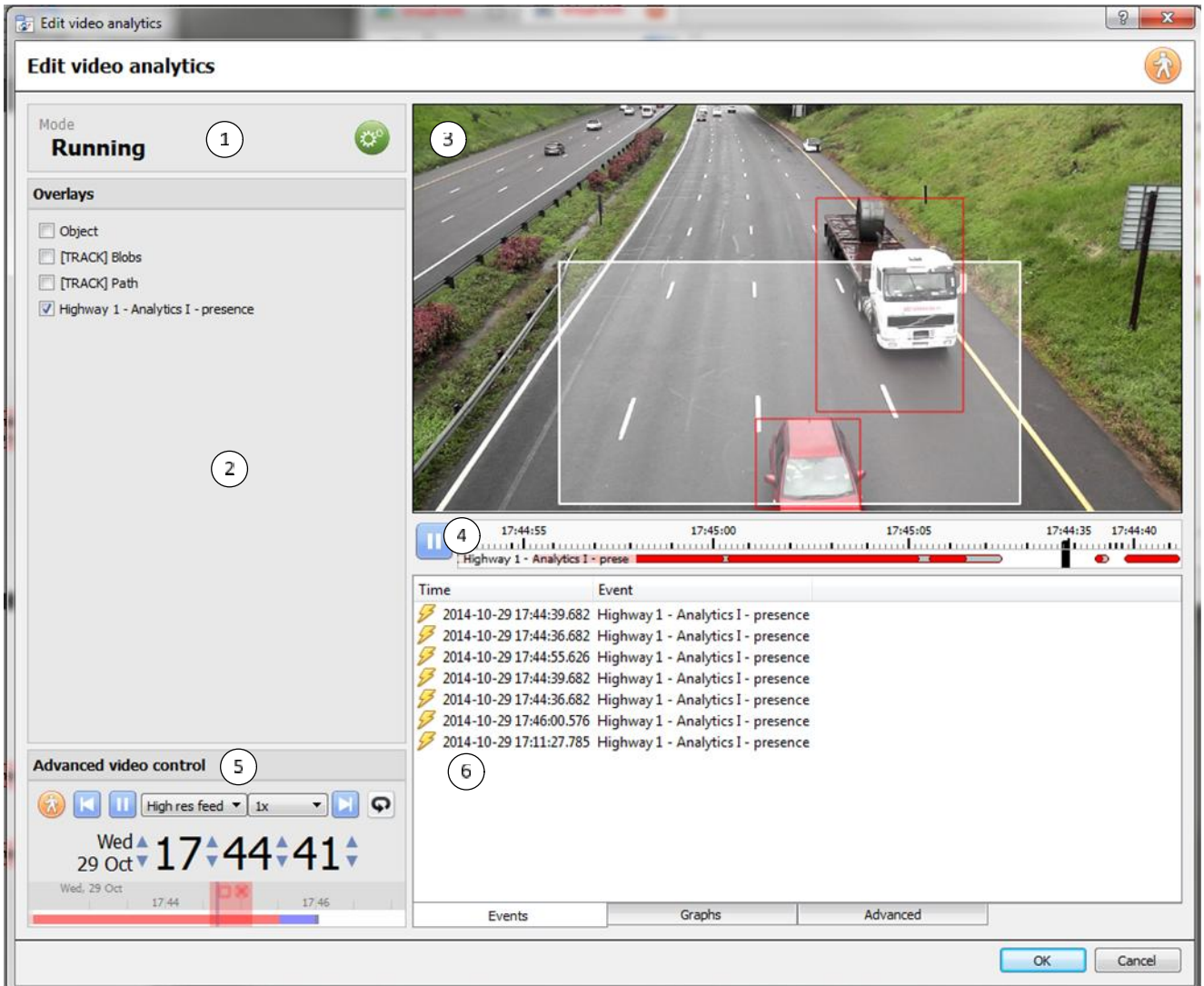
Clicking  will return you to the live player.

Looping video selections is a useful ability of this player, especially when testing algorithm settings; as you can objectively see if a setting changes the efficacy of the algorithm.



This is achieved by holding down shift while left-clicking-dragging out a selection on the timeline. Once you have selected your portion of timeline click on , it will turn into an  icon. It will now loop over the selected section of video, instead of playing continuously.

	Note: This selection will transfer across from the Configuration to Running interfaces, and vice versa.
④	The Context Area will display the contextual information/options for whatever you have selected in the Configuration Panel.

Running Interface

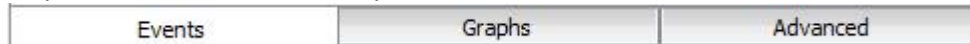


The running interface is used to test the settings you have already defined, in the Configuration interface. It will allow you to see the algorithm, as you have programmed it, in action. Either using live video, or a selection of recorded video.

①	The current mode of the interface is indicated in the header. In the top right of this panel you will see the  icon. Click this to switch back to the configuration interface.
②	In the Overlays panel you will see the overlays that are contextually relevant to the algorithm that you have configured. To select an overlay check the <input checked="" type="checkbox"/> box next to its name.
③	The footage panel will display the footage that you have selected to view, showing the overlays which were selected in the Overlays panel.
④	 <p>The timeline is a display of recent video which has been processed by the algorithm. Red indicates triggers, grey indicates debounced triggers, and white means no trigger.</p> <p>When the video is paused, clicking on the timeline will allow recent frames and overlays to be viewed.</p>
⑤	The Advanced Video controls are identical to those in the Configuration section, which was detailed above.

E

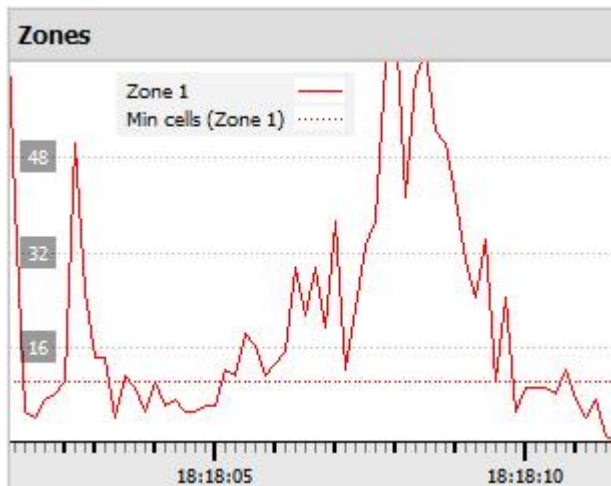
The **Feedback Panel** will show you a live progression of the triggers, as they appear. There are three ways to view the events as they roll in. This is shown in the tabs at the bottom of the events panel:



Events

Shows a list of triggers as they occur. For the purpose of this display an entry is added when a new trigger appears on the recent timeline above. (i.e. goes from white to red.)

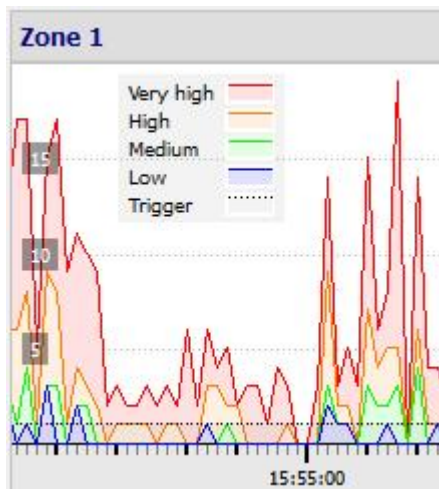
Graphs



The **graphs** option will graph the event activity occurring in the image.

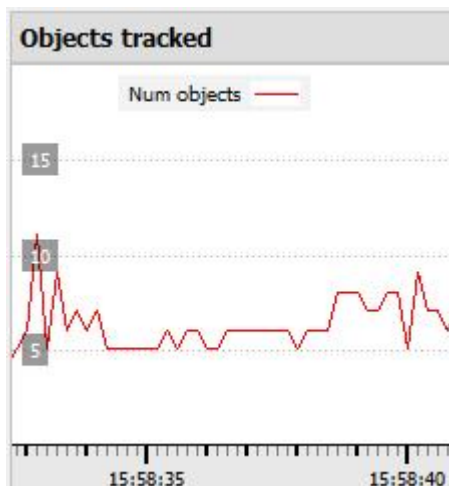
For instance, when using **Basic VMD** you may graph the zones in the algorithm. This is useful because you can see a visual representation of how far the triggers are above/below the Min cells trigger line.

There will be different graphs for the Basic VMD, Smart VMD, Still Object, and Queue Length algorithms.

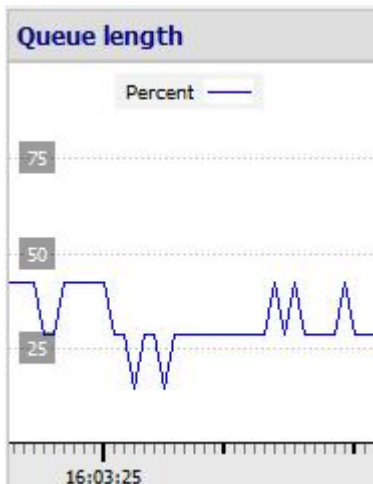


The **Smart VMD** graph will show you the different triggers levels that would occur based on different profiles.

This can be seen against the dotted line of the actual event trigger. You can use this to define how sensitive you want your algorithm to be, based on an objective visualization of how it is reacting to the environment.



The Still Object graph will simply graph the number of objects currently being tracked.

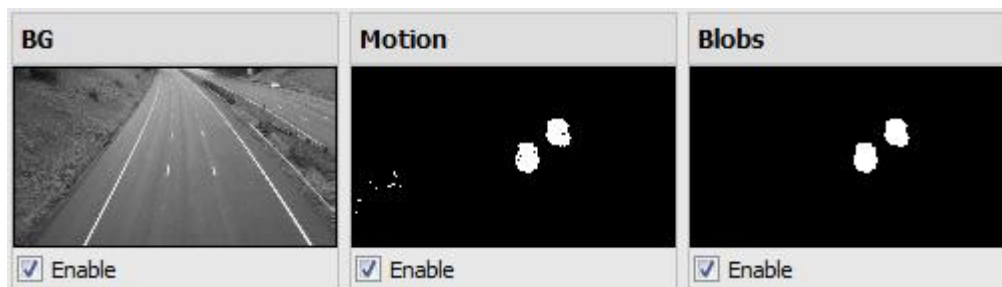


The Queue length graph in the **Basic Queue Length** algorithm is useful as it displays the percentage of the queue's current length over time.

You can use this to help determine at what percentage you would like the trigger to be set off; or how sensitive you need the algorithm to be.

Advanced

Note: The images provided in the advanced tab will differ from algorithm, to algorithm.



The advanced tab will show the user what the algorithm is seeing.

BG	This is the background image that the algorithm is working with. Which it uses to determine the changes that signify movement.
Motion	This will show the user all motion occurring in the video.
Blobs	This will highlight all motion that has been determined significant by the algorithm.

c. Analytics Setups

Now that we have looked at the basic interface, we need to look at the setup options that are available under the different algorithms.

) *Basic VMD*

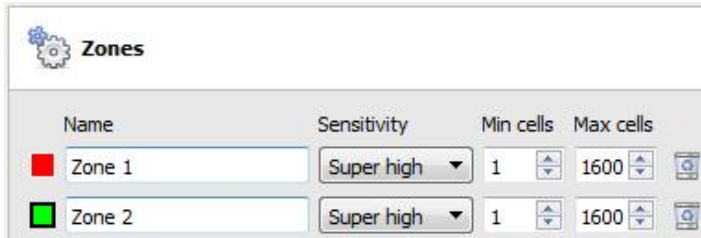
Basic VMD is designed to trigger when there is motion in an area. It works by breaking the image up into small cells (the size of a single cell can be seen by drawing a mask with the brush set to the smallest size). If there is motion in a certain percentage of the cell, it is considered to have triggered. The percentage is controlled by the **sensitivity** - a high sensitivity will require a lower percentage of the cell to trigger, compared with a lower sensitivity.

Motion is determined by comparing the incoming image with a background image which is built up as the algorithm runs. Differences between the background and foreground images constitute motion. There are a

number of options available for modelling how the background image is created: **Historical, Travelling average, Accurate, and Long term** (these will be dealt with in more detail, below).

If any background model changes are made it is recommended that the "Advanced" tab in the Feedback pane be used to understand how the background tracks the foreground.

) Zones



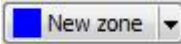
In the configuration panel of the "Edit video analytics" window, Zones can be found under the Settings option. Selecting this provides the information shown in the image to the left, within the Context Area. You may create multiple zones, each with their own sensitivity, and min/max cell settings.

Min cells is the smallest number of VMD cells needed to have changed for the algorithm to trigger.

A good example of why zones are necessary is a border fence. The perspective of the receding fence means that a human 200m away from the camera will take up far less pixel space than a human 10m away. This means that being able to set up different zones with increasing/decreasing sensitivity is very valuable.

In this same example, being able to set up both a minimum cell value, and a maximum cell value, for triggers is also invaluable.

Drawing Zones

To **create a new zone** click on , at the bottom of the **Context Area**. Select the new zone by clicking on the name of the zone.



To draw a new zone into the image, use the **Zone Drawing Tools** at the top of the Camera Panel.



Will paint the entire image with the zone.



Will scrub the zone from the image.

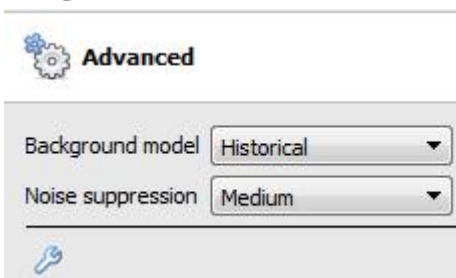


Will drop down a menu giving you a number of zone brush size option.

Paintings are done by holding down left-click while dragging out the desired shape of your zone.

) Advanced

Background Model



In the configuration panel of the "Edit video analytics" window, Advanced can be found under the Settings option. Selecting this provides the information shown in the image to the left, within the Context Area.

Historical. This is the method used in **CathexisVision** 2014 and earlier

Travelling average. This smoothly adjusts the background image towards the foreground

Accurate. This operates much like the traveling average method except that if there is a big change in an area it retains the original background until such time as the foreground stabilises. How it does this can be controlled by clicking the wrench icon below. 'Background memory' sets how long it remembers the background, and 'Background threshold' sets the region within which it smoothly adjusts the background.

Long term. Builds up a background by looking at snapshots of the scene over an extended period. This can only be used if the lighting remains constant (eg. controlled indoor environment). The frequency and number of snapshots used can be changed by clicking on the wrench below.

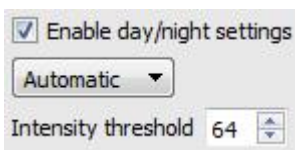
Noise suppression:

Controls how sensitive a pixel is to being triggered. Increasing the noise suppression reduces sensitivity.

) Day/night

In the configuration panel of the “Edit video analytics” window, Day/Night can be found under the Settings option. Lighting conditions will obviously change depending on what time of day it is. These changes can be disruptive to the motion detection algorithms, which is why **CathexisVision** provides alternate settings for day and night. If day/night is enabled, then the settings can be set to different values for day and night.

Automatic



The intensity threshold is a number from 0 to 255, which represents the variable brightness level of what a pixel can achieve. This determines what brightness level the settings switch from day to night mode.

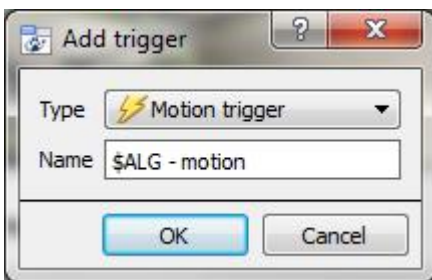
Timed



Timed Day/Night settings will be the easiest to set up.

There are two periods of the year to set.

) Triggers



Triggers can be found in the configuration panel of the “Edit video analytics” window. There is only one trigger option under Basic VMD, and that is “Motion trigger”.

The **Name** here is the name that was given to the algorithm. It is this name which will be databased when this algorithm triggers an event.

Once added, left-click on the trigger to see the Context Area options:



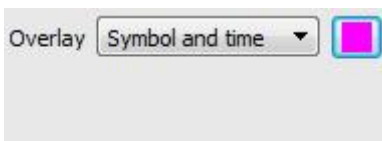
Unless you check the **Use advanced settings** option, there will be nothing here.

Zone Settings



Click on the hyperlinks to see the variable options for each setting here.

Overlay



The overlay will appear on the camera panel in the configuration interface as a small square, in the colour that you selected:



You can reposition it by left-click dragging it.



The overlay will appear, when the algorithm is running. It will show the symbol for the event, and the amount of time, in seconds that the event has been running.

) Smart VMD

Differences between Smart and Standard VMD

Smart VMD is specifically designed to work in more dynamic environments than Standard VMD. It uses a number of methods to learn environmental noise patterns, and filter them, to avoid false alarms. The following guide will explain how Smart VMD does this, and in the process, how to set it up.

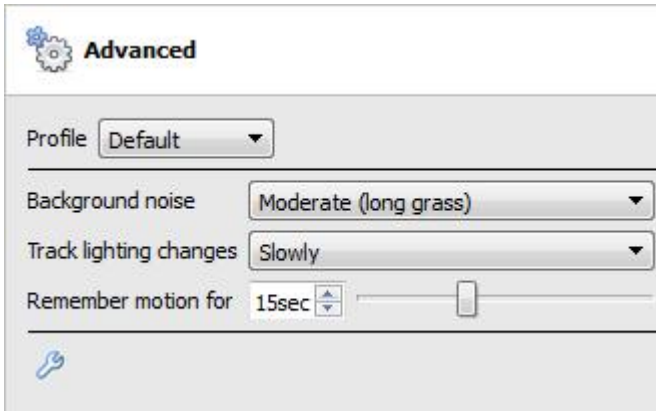
The major differences between **Smart VMD** and **Basic VMD** are:

1. The way in which the background is learned. **Smart VMD** uses its own unique background model.
2. The way the trigger threshold is calculated for a pixel in the image. **Basic VMD** uses a fixed threshold which is modified by the noise suppression. Smart VMD uses a dynamic threshold which learns from repetitive motion in the environment to offer substantially better noise rejection characteristics.

) Zones


The zone settings for Smart VMD are identical to those described above, for Basic VMD.

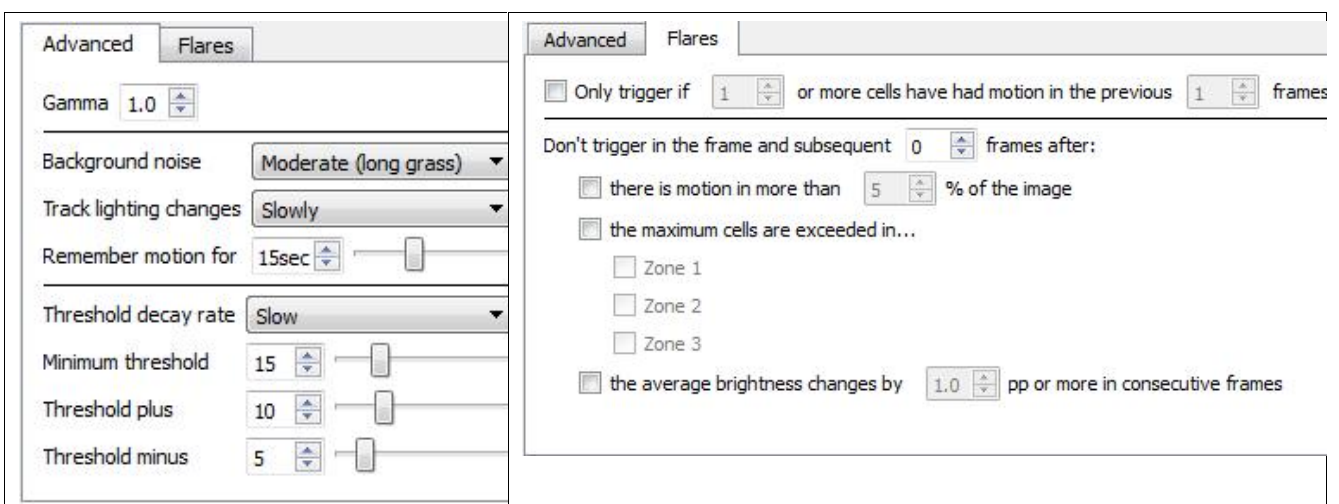
) *Advanced*



Profile	Under profile is a selection of pre-defined settings with descriptive names.
Tracking Light Changes	This configures how the background model responds to incremental changes in the lighting in the scene caused by things like clouds moving overhead. The faster the setting, the less sensitive the algorithm will become.
Background noise	This indicates how much background noise to expect in the scene (noise being defined as fluctuations in intensity caused by things like grass moving or possibly noise from the camera sensor). The less noise there is the more responsive the algorithm can be to changes. Most scenes will do well with this set to low or moderate background noise.
Remember Motion	Once there has been motion in an area it won't retrigger until this period of time has passed. Making this long will reduce the overall sensitivity of the algorithm, but also allows it to more easily mask out things like trees blowing in the wind.

) *Advanced Settings Continued*

Clicking on the  will open the advanced options, of the Advanced Settings.



Gamma	Gamma is a brightening tool that works on a gradient. In other words it brightens the dark parts the most, and the lightest parts the least. This causes an evenly brightened image with no overexposed areas, and no dark patches.
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Threshold Decay Rate	This sets how the speed at which the threshold drops back to ambient levels, or, to the Minimum Threshold setting.
Minimum Threshold	These advanced settings are only for use in conjunction with CathexisVision support. For more information contact support@cat.co.za .
Threshold Plus	
Threshold Minus	
Flares	<p>The first option, Only trigger if x or more... is really a noise filter. It requires a set amount of motion in a set amount of previous frames [minimum] to set off an alarm.</p> <p>Don't trigger... will prevent the flare frame, and frames immediately after from triggering an event.</p> <p>In the Average Brightness setting 'pp' stands for percentage points. This setting measures the average change in brightness between two consecutive frames. The maximum setting is 10 percentage points. At this setting, if there is a total change in brightness of over 10% then the change will be considered a flare.</p> <p>Note: the 10% max may seem small, but it is in fact a large average change for any image. 2 to 3% may be considered a substantial lighting change.</p>

Comparison of default profiles

The table below is a comparison of the default profile settings.

	Standard	Short Grass	Long grass
Flare	20% pp change of 2	5% pp change of 2	5% pp change of 2
Noise Filter (First option in the Flares Tab)	NA	1 or more cells in previous 5 frames	1 or more cells in previous 5 frames
Background noise/Min Threshold	Moderate [long grass]	Low [Short Grass]	Moderate [Long Grass]
Track Light Changes	Slowly [1]	Fast [Clouds] [2]	Fast [Clouds] [3]
Motion Memory [Max Decay Countdown]	40 seconds/ 255 frames	3 seconds	5 seconds

) *Day/Night*

The Day/Night settings for Smart VMD are identical to the Day/Night settings for Basic VMD, above.

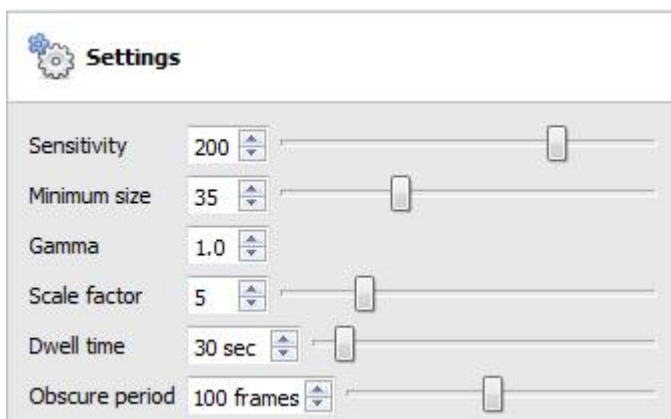
) Still Object

Still Object Detection is used to monitor introduced, or removed, stationary objects. This means that an object that was stationary in the image, such as a painting, will trigger the Still Object Detection (SOD) when removed. An object that is introduced into the camera view will also trigger the Still Object Detection, such as a car that parks in a handicapped parking zone. It can be used in any number of situations. For example: airports to monitor busy areas where people might leave a bomb, handicapped parking, stock areas etc.

As with other algorithms, the Still Object Detection does not detect objects in the same way that a human eye/brain does; instead it measures the change in the light intensity level of an individual pixel over time. In doing this, it identifies 'blobs' of intensity change. If a blob is big enough and still enough, the algorithm will begin a countdown to determine whether it is stationary. Once this countdown stops, the algorithm will trigger. This trigger can be linked to any one of the events mentioned above.

It is important to note that, as with all of the Video Motion algorithms, the setup process will be iterative. You will have to adjust them to suit the environment, and the objects that you are tracking. For this reason the following guide will not give you a list of generic settings. But it will provide the meanings of the different terms, and explain how the algorithm works, so as to allow you to understand it and make intelligent and informed adjustments.

) Settings



<p>Sensitivity</p>	<p>This setting (between 50-250) reflects the actual light intensity changes on the pixel.</p> <p>Each pixel is capable of producing light of 256 different levels of intensity. The sensitivity setting will measure the change from this historical image to the current image. The change in intensity will be reflected as a value between 1 and 256. 50 is considered the smallest significant change in object detection, and 250 is the highest likely change that would occur.</p> <p>Remember this is not the actual intensity of the pixel; it is the amount of change in intensity. So if the pixel was at 50, and then jumped to 110 the change would be 60. If you had your sensitivity set to 50, this change would be considered significant.</p>
<p>Minimum size</p>	<p>This reflects the smallest an object can be, to be considered when triggering an alarm. As you move the slider an image will appear on the screen approximating the area needed to be take up by the object.</p>
<p>Gamma</p>	<p>Gamma changes the brightness and contrast of an image. The important way that gamma changes these settings is that it changes them on a curve. Increasing the gamma will</p>

	<p>brighten darker areas, but have little effect on already bright areas. This will allow you to eliminate shadows. If the objects that you are tracking are generally a similar colour to the background they are set in then you should have a higher gamma setting (>10).</p> <p>Decreasing gamma will darken lighter areas and have little effect on darker regions of the image. If the objects that you are tracking are generally lighter than the background it is often useful to darken the gamma.</p>
Scale Factor	<p>The Scale Factor relates to gamma, and to the sensitivity. It multiplies the difference between foreground and background. Increasing the scale factor will make the algorithm more sensitive to slight changes between foreground and background. If objects are not being tracked, try increasing the scale factor.</p> <p>Decreasing the scale factor will make the algorithm less sensitive to slight changes between foreground and background. If parts of the background are being tracked, try decreasing the scale factor. Default scale factor is 5. The range is 1-20.</p>
Dwell time	<p>Dwell time is the time period that it takes for the algorithm to trigger an alarm, after a still object is either placed in, or removed from, an image.</p> <p>This time is important, as it will rule out objects that are momentarily placed, as well as momentary compression issues, and bugs on the screen etc.</p>
Obscure period	<p>In busier environments, such as train stations, a Still Object will constantly be covered and uncovered by people passing by. This setting allows you to set the time period that an object is 'remembered' after something has obscured it.</p> <p>It is measured in frames, which are the individual images captured by the camera, and can go from 10-500 frames. This goes on the frame rate of your analytics channel, which usually runs at about 6 frames per second.</p> <p>At 6 frames per second 500 frames will take roughly 83 seconds to pass by.</p> <p>Obviously the busier your environment the longer you will want to remember objects. There is a balance however as a busy environment will have many objects constantly being left and then taken away. This means that you must set a good balance between this setting and the object dwell time setting.</p>

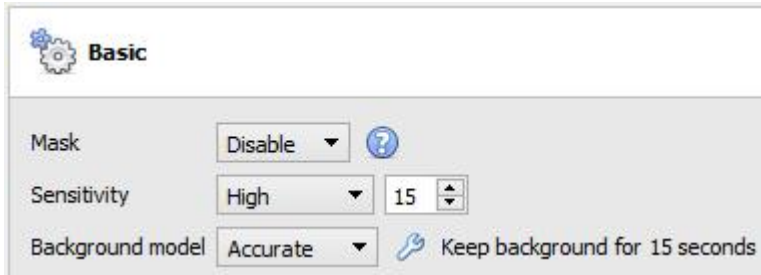
) *Zones*

Painting zones follows the same procedure described in Basic VMD, above.

) *Analytics I, II and III Basic, Advanced, and Calibration Settings*

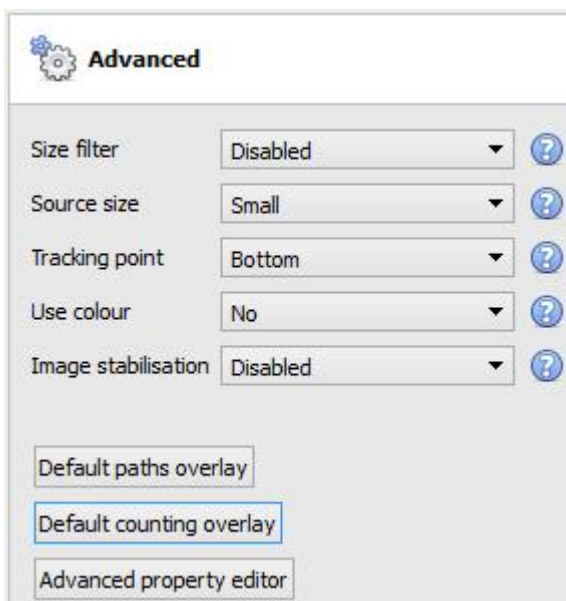
The three Analytics Channels all share the same options for Basic, Advanced and Calibration Settings

) *Basic*

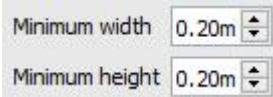


<p>Mask</p>	<p>The mask defines which areas of the camera image have the algorithm applied to them. You may wish to hide certain, busy, areas from the algorithm to prevent false triggers. By default it is disabled, which means that the algorithm will apply to the entire image.</p> <p>Editing the mask:</p> <ul style="list-style-type: none">) Once enabled you can manipulate the mask either by clicking on the control points, and dragging them to move the corners of the mask.) Holding CTRL and clicking a point on one of the lines, will add a new control point.) Double clicking on a control point will remove it.) To move the whole mask, without changing its shape, left-click and hold anywhere on the mask that isn't a control point, and move the mouse. <p>Note: the part of the image covered in the mask will be the part where the algorithm is active.</p>
<p>Sensitivity</p>	<p>This will define the algorithms response to changes in the image.</p>
<p>Background model</p>	<p>For the algorithm to know that something has changed in the image it needs to have a predefined "normal" to work with. This is the background. The background model will define how long this is calculated.</p>

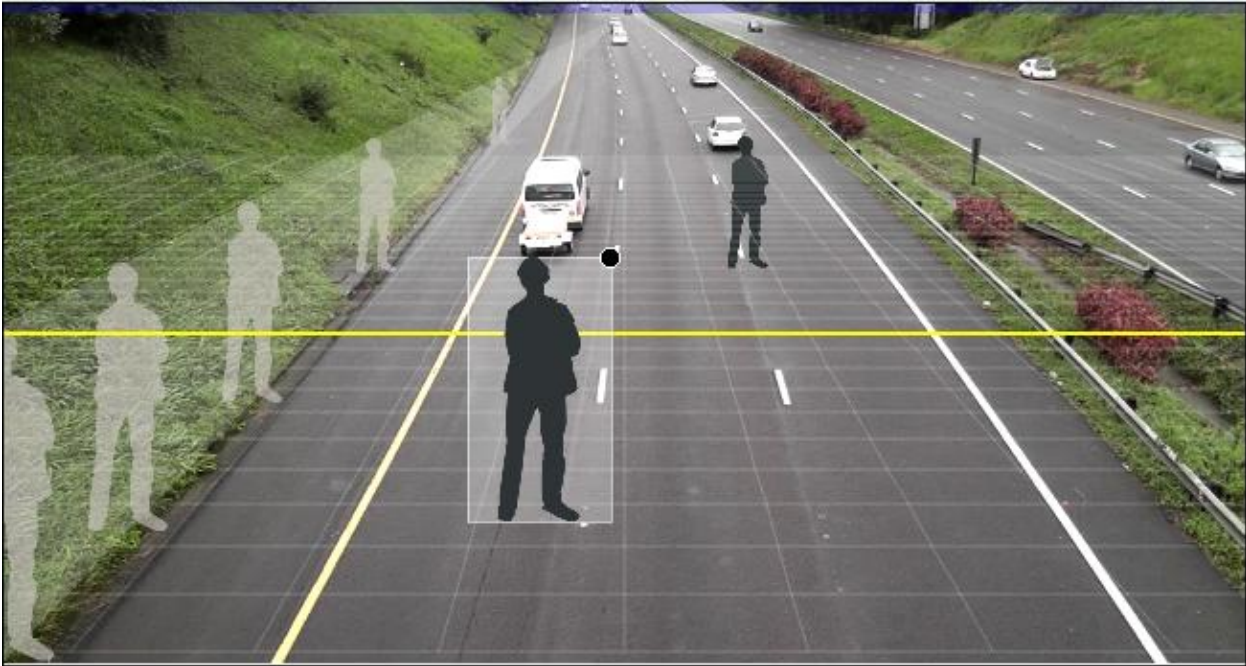
) *Advanced*



<p>Size Filter</p>	<p>Filter out objects smaller than the minimum size.</p>
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	 <p>When enabled the minimum width and height options will be added to the interface.</p> <p>Note: This is only implemented in CathexisVision 2016 and later; when connecting to an older software version this option will be present, but ineffective.</p>
Source size	This determines how the video stream is scaled before processing. Small or Medium are sensible selections. Larger images substantially increase the processing load on the system, usually for marginal benefits.
Tracking point	This sets where on the bounding box objects are tracked. By default they are tracked at the bottom of the bounding box, as this corresponds to the feet of a person or the wheels of a car.
Use colour	This enables the algorithm to use colour for: <ul style="list-style-type: none">) Tracking objects within the image) Suppressing shadows
Image stabilisation	This enables image stabilisation for cases where camera shake is a problem. <p>Important note: This should not be enabled by default, because it places a heavy load on the processor of the computer.</p>
Default paths overlay	Allows the user to choose between a default object path overlay, and a user defined one.
Default counting overlay	Allows the user to choose between a default object path overlay, and a user defined one.
Advanced Property Editor	This section is included in the software for support purposes only, and is very technical. As a rule of thumb, if you do not understand the option presented you should not be editing them.

) Calibration



Calibration

Basic Set defaults

Distance from camera to line is 20.0m

Grid 1x1 metre

The calibration is used to help determine the size of objects in the image. It uses a number of parameters to do so.

Basic Calibration

Basic

Distance from camera to line is 20.0m

Grid 1x1 metre

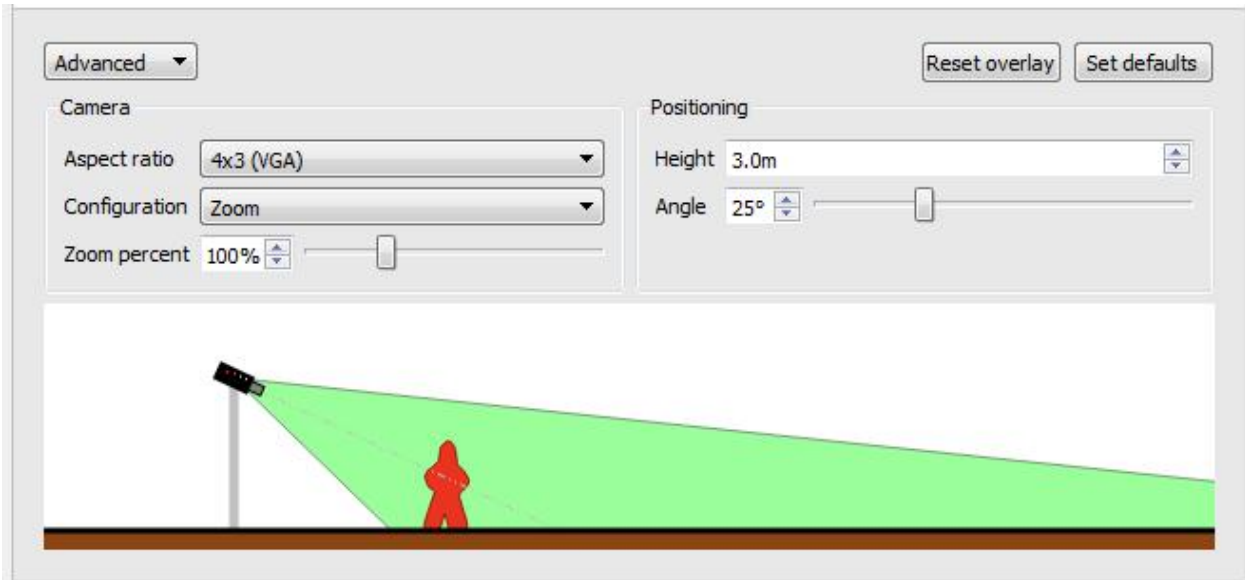
Distance	<p>From camera to line</p> <p>This will ask you to set the actual distance between the position of the camera and the yellow line in the image. The line can be moved, by clicking on it, and dragging it.</p> <p>Between lines</p> <p>This will ask you to estimate the distance between the two lines that appear in the camera image.</p>
Grid	The grid is just a visual overlay to help you place the image of a shaded person on the screen.

Adjusting the depth of field of the image

This is done by dragging the human shapes to 2 different locations (near and far) and resizing them appropriately.

Advanced Calibration

Note: it is suggested that you only use the advanced calibration settings when you have very accurate data about the settings required.



Advanced Calibration adds a number of options.

<p>Aspect ratio</p>	<p>This refers to the shape of the camera image. The below image should give you an idea of the aspect ratio you are looking at. Though you should know from the camera itself what the aspect ratio is:</p> <div style="text-align: center;"> </div>
<p>Configuration</p>	<p>This is where you define the viewing angle. Either by a zoom percentage, a literal viewing angle, or a combination of sensor size and focal length.</p>
<p>Height</p>	<p>The height of the camera off of the ground.</p>
<p>Angle</p>	<p>The angle of the camera to the ground, 0 degrees as the level point.</p>

) *Basic Line Trigger*

This will trigger an event when an object crosses over the line in one, or both directions. After adding the trigger , the Direction option will appear in the Context Area:

Direction click on the drop down menu to change the direction options. The arrows, on the camera image, will change accordingly.

) *Placing the Trigger*

To place the trigger left click on one of the control points at the end of the line. You will be able to lengthen, and pivot, the line against the control point at the other end of the line.

) *Basic Presence Trigger*

This basic algorithm will trigger while an object is within the defined mask. The only changeable setting on this trigger is the mask.

Editing the mask:

-) Once enabled you can manipulate the mask either by clicking on the control points, and dragging them to move the corners of the mask.
-) Holding CTRL and clicking a point on one of the lines, will add a new control point.
-) Double clicking on a control point will remove it.
-) To move the whole mask, without changing its shape, left-click and hold anywhere on the mask that **isn't** a control point, and move the mouse.

Note: the part of the image covered in the mask will be the part where the algorithm is active.

) *Advanced Area Triggers*

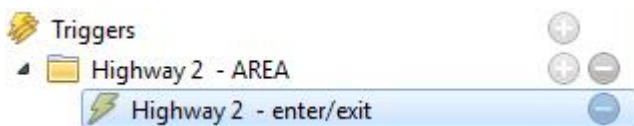
Adding an “Advanced Area Triggers” group allows one to define an area which can be used by one or more triggers. This is useful because the area is only drawn once.

Editing the mask:

-) Once enabled you can manipulate the mask either by clicking on the control points, and dragging them to move the corners of the mask.
-) Holding CTRL and clicking a point on one of the lines, will add a new control point.
-) Double clicking on a control point will remove it.
-) To move the whole mask, without changing its shape, left-click and hold anywhere on the mask that **isn't** a control point, and move the mouse.

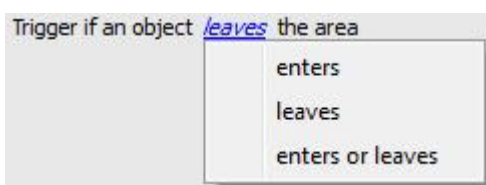
Note: the park of the image covered in the mask will be the part where the algorithm is active.

) *Enter/Exit Trigger*



Note: the mask editing procedure is identical to the one above, in Basic Presence Trigger.

When to Trigger

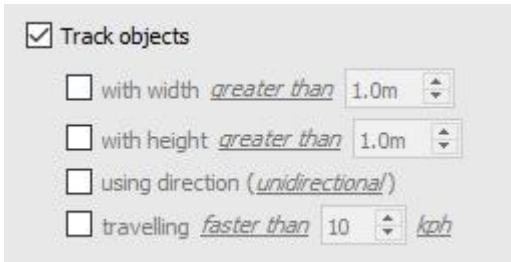


You may choose between triggering the event when an object enters the area, exits the area, or both. The trigger occurs at the point when the object crosses the boundary.

Object Filter

The Advanced Area Trigger allows for object filtering on triggers which are added to the area. This means that the objects which will trigger in the area can be filtered to only trigger on objects of certain heights/widths/directions/speed.

Select the triggers in the settings panel, and then tick Object filter in the Context Area.



Once Object filter is ticked, the Track objects options will appear.

Select the filters to apply to trigger objects, and specify each according to your requirements.

) *Time in Area (loitering) Trigger*

This triggers when an object has remained within the area for a prescribed period of time.

) *Stop in Area Trigger*



Set how long an object must be stationary for, before it triggers. **Tolerance** is how far/much the object is allowed to move, while still considered to be stopped. It is measured in Pixels.

) *Advanced Line Triggers*

Like the Advanced Area Trigger, this is a group under which triggers can be placed, sharing the same line.

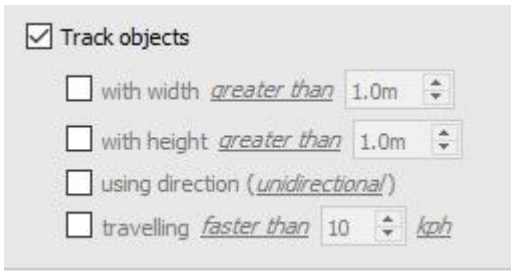
-) To add a control point to the Advanced Line Trigger, hold down CTRL while clicking anywhere on the line.
-) To move a control point hold down left-click on that point, while moving the mouse.

Trigger if line is crossed in *either* direction This image appears in the context area when adding a trigger. You may also define the **direction** which will trigger the line.

Object Filter

The Advanced Line Trigger allows for object filtering on both line counters and triggers which are added to the Line. This means that the objects which will trigger when they cross the line can be filtered to only trigger on objects of certain heights/widths/directions/speed.

Select the line/counter triggers in the settings panel, and then tick Object filter in the Context Area.



Once Object filter is ticked, the Track objects options will appear.

Select the filters to apply to trigger objects, and specify each according to your requirements.

) Speed Triggers



The distance here is the distance between the two lines you will see on the camera image.

Note: How well this works will depend on how accurate the distance between the lines is.

) Basic Queue Length

This algorithm can be set to monitor the length of a queue, and trigger an event when a queue reaches a certain length. This would be useful, for example, in a shopping centre, to alert a manager that they need more cashiers working the tills.

) Settings



The image on the left is shown in the Context Area when selecting the settings.

Sensitivity sets how responsive the algorithm is to movement in the image.

Trigger area is the percentage of pixels that need to trigger (within the 4*4 pixel blocks that the algorithm uses) in order for the algorithm to also trigger.

Memory is how long it remembers the background.

Adding/Editing a Zone

By default there are three zones which comprise the queue area. **To add a zone**, double-click inside the area of one of the zones. This will split it in half. To merge two zones together, double click on the line dividing the two zones.

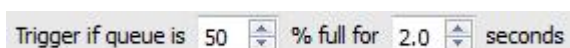


Front and Back Zones

The green zone must always be set at the beginning of the queue, and the red zone must be set at the end of the queue.

Note: you cannot divide the green and red zones.

) Triggers



In the Context Area, after adding a trigger, you are able to set both the percentage and time that the queue needs to be full for, before a trigger is engaged.

4 Databases

Databases are added on a Server-by-Server basis. As such, each server under **Configure Servers** will have a Databases section where you manage that server's databases.

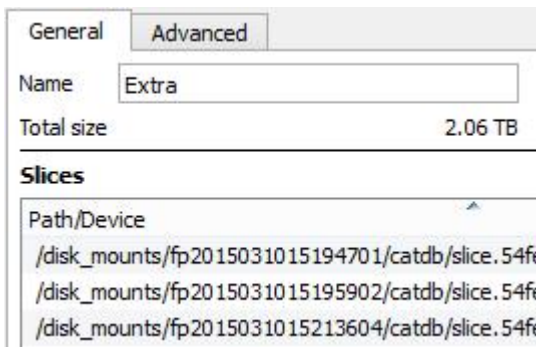
a. Add a Database

To create a new database click on the **New** button in the **Databases** panel.

Note:

1. If you are Adding/Importing a database to an NVR from another unit, or via a Client, you will not have the **Browse** option. You will need to know the file path and enter it in manually.
2. The Basic Database option has been removed from **CathexisVision** 2015, and onwards. As such all databases created with **CathexisVision** onwards will be Advanced Databases.
3. CathexisVision 2017 database slices cannot be used in earlier software versions.
4. **Important:** When using network storage with NFS/CIFS file sharing, the NVR requires **exclusive use of the file share**. This is because, for performance reasons, the database is initialised on network storage with sparse files. This means the disk space which is configured to be used by a database is not pre-allocated. Any other device using space on the file share could result in a failure where the database runs out of disk space.

) General

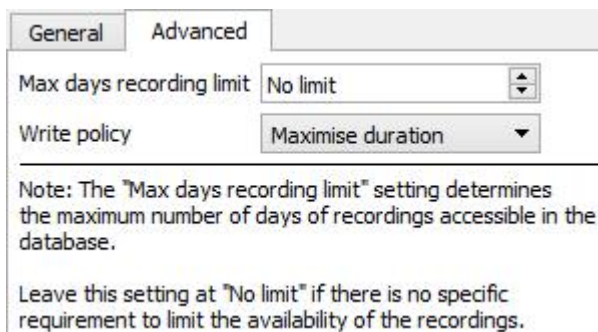


General	
Name	Extra
Total size	2.06 TB
Slices	
Path/Device	
	/disk_mounts/fp2015031015194701/catdb/slice.54fi
	/disk_mounts/fp2015031015195902/catdb/slice.54fi
	/disk_mounts/fp2015031015213604/catdb/slice.54fi

Give your database a descriptive **name**.

An explanation of what slices are, and how to add them follows below.

) Advanced



Advanced	
Max days recording limit	No limit
Write policy	Maximise duration
<small>Note: The "Max days recording limit" setting determines the maximum number of days of recordings accessible in the database.</small>	
<small>Leave this setting at "No limit" if there is no specific requirement to limit the availability of the recordings.</small>	

The **Max days recording** setting will define how many days the database will record for, before overwriting the oldest recordings. With **no limit** set, it will simply wait until the database is full to begin overwriting old data.

Write policy will give you the option of maximising the duration of your recording, or the performance speeds of your database.

With **maximise duration** the database will pick the oldest video present when overwriting old data to add new data.

With **maximise performance** the database will split the cameras across all the disk slices in a manner that ensures the most even load across the disks. To do this, sometimes the database has to delete data that may not be the oldest data for a particular camera.

) Adding a Slice

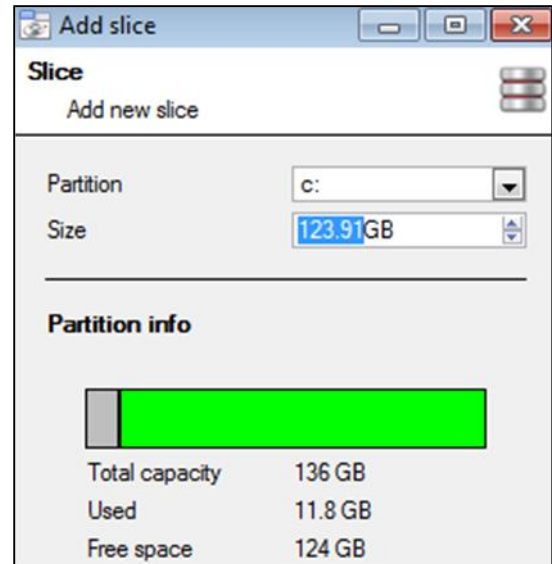
The database is comprised of a number of slices, which are sections of hard drive partitions. To Add a Slice:

Click on → Select the relevant partition → define the size of the slice → click OK.

Your newly added slices will appear in the Slices section of the New Database window:

Slices			
Path/Device ▲	Type	Size	State
c:	file	399 GB	New
e:	file	594 GB	New

Once you have added as many slices as you need, click on OK to create your Advanced Database.



) Important Recommendations

1. Ideally the database should be in its **own partition**, on its **own Hard Drive**.
2. If the database must share a drive with other information, then put it in its **own partition**.
3. It is recommended that you **do not** create a database in the Primary Windows Partition, however, if you have to do so:
 - a. **Do not** create it within the **CathexisVisionNVR** installation folder.
 - b. **Do not** make the database size unlimited. Leave between 50 and 100GB of disk space free when setting the size.

b. Edit an Existing Database

There are two ways to edit an existing database, either:

1. Select the database → Click on the button.
2. Double-click on the Database you wish to edit

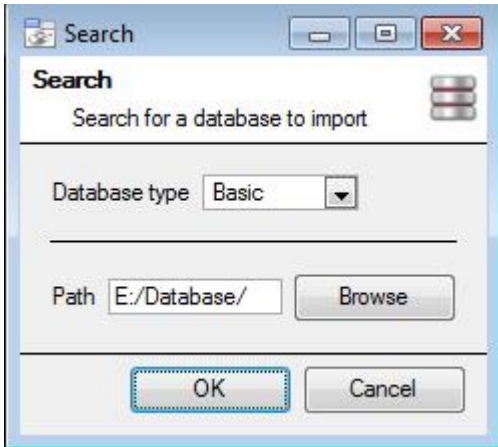


When editing a database, editions to the slices will appear in the State column within the **Slices** textbox.

c. Import a Database

You may import an already existing database. To import a database click on . There are two steps in importing a database:

) *Navigate to the Database Folder*



There may be multiple databases stored in one folder, and a database isn't represented as a single file. For this reason, when importing a database you need only navigate into the folder that contains the database that you wish to import.

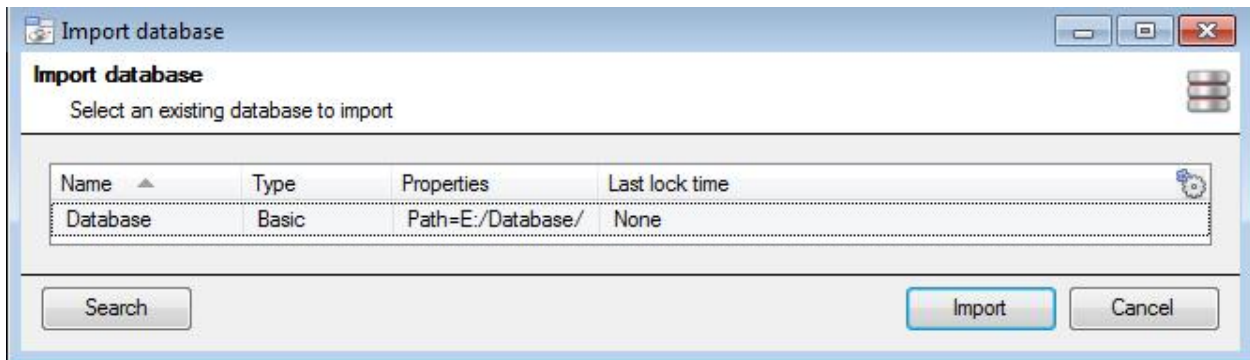
Select the Database Type

You will also need to define whether or not you are importing a Basic, or an Advanced, database.

Note: If you are Importing a database to an NVR from another unit, or a Client, you will not have the **Browse** option. You will need to know the file path and enter it in manually.

) *Select Your Database*

CathexisVision will populate the database list, with all databases found in this folder. Select the database you wish to add from the list of databases.



Note: CathexisVision 2017 database slices cannot be used in earlier software versions.

d. Alerts

The alerts are specific to the currently selected database, and will show the *individual slice status*, if a slice in that database is not in a ready state.


For example if the slice in a database is busy initialising, or if there is an error, you'll see an alert (with the slice ID) if that database is selected:



e. Manage Disks

This is specific to our software running on Linux servers, for information on this consult our Fedora APP note.

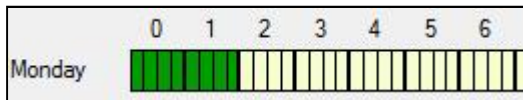
5 Schedules

All your unit's schedules for recording, and events, will be maintained under  Schedules in the configure servers options.

) *Add/Edit a Schedule*

To add/edit a schedule, click on the relevant button and follow the instructions below. Give your schedule a descriptive name, and then define your recording times (as shown below).

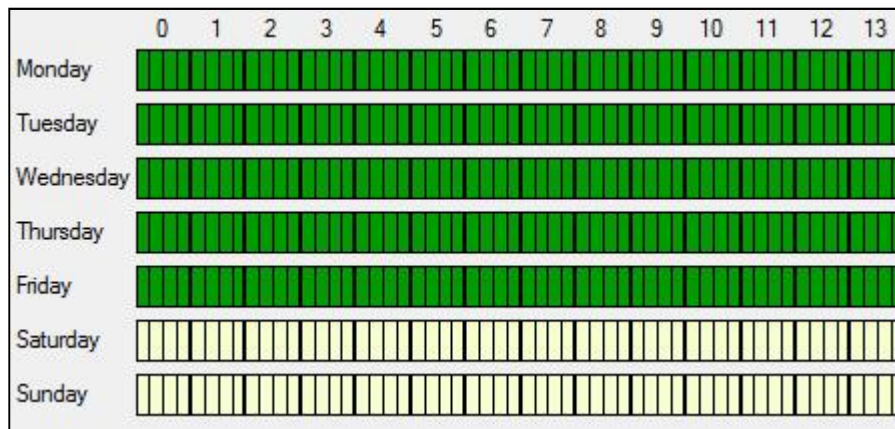
) *Set Recording up, and down-times.*



Left click to select recording time – the green bars.

Right click to unselect recording time – the yellow bars.

To **select multiple cells** hold the left mouse button down and drag it across the desired time-frame.



Recording week days only


To record only week days, you would set your schedule as seen on the left.

Cross-section selecting

To select, or deselect, areas in more than one day at a time: hold the mouse button and drag it across the days.

It is as simple as that. Click OK, and your schedule has been created. This schedule may now be used for recording, and events on this unit.

6 Network I/O

CathexisVision is capable of taking in relay inputs, and sending out relay outputs, via both analogue and digital channels. These relays may then be incorporated into the **CathexisVision** Events, and used as native triggers, and actions in the **CathexisVision** software. Network I/O will be maintained under  I/O devices within the configure servers options.

I/O devices

I/O Board Network I/O

Inputs

Input	Name	Enabled
12	Input 12	<input type="checkbox"/>
13	Input 13	<input checked="" type="checkbox"/>
14	Input 14	<input type="checkbox"/>
15	Input 15	<input type="checkbox"/>
16	Input 16	<input type="checkbox"/>

Outputs

Output	Name	Pulse duration	Pulse only	Enabled
12	Output 12	indefinite	<input type="checkbox"/>	<input type="checkbox"/>
13	Output 13	indefinite	<input type="checkbox"/>	<input type="checkbox"/>
14	Output 14	indefinite	<input type="checkbox"/>	<input type="checkbox"/>
15	Output 15	indefinite	<input type="checkbox"/>	<input type="checkbox"/>
16	Output 16	indefinite	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

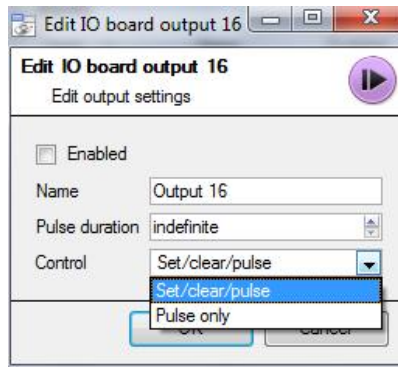
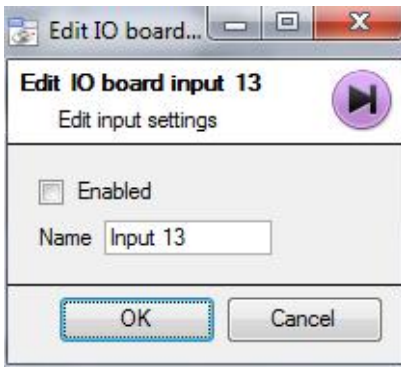
a. Analogue

Relay connection on an analogue unit will be via the IO Board, on the back of the unit. This is connected to a PIA-mod card that comes standard on all of our analogue units.

The IO panel allows for 16 inputs, and 16 outputs

) Edit Input/Output

IOs are edited by selecting an input/output and clicking , or .



Enable
To enable an input check the box titled Enabled

Name
Give your input a descriptive name

) *Output Specific*

Pulse Duration

You may set the duration of the output pulse, in milliseconds

Control


You may also set how the Relay is controlled. You may give Set, Clear, and Pulse control; or set it to Pulse exclusively.

b. Network

Network Based IOs are handled by the EIO-1148, or EIO-3148, Network Base IO Expander.

This device enables comprehensive access, and control of remote in/output relays over an Ethernet network. Through the **CathexisVision** software control, opening and closing of integrated relay contacts can be incorporated into any response of a critical event.

) *Settings Tab*

Clicking on the Network I/O tab, within the I/O devices option, followed by selecting , gives the following options.

Settings	I/O
Type	EIO 1148
Name	Network I/O
IP address	. . .

Name
Give your device a descriptive name.

IP Address
This is the IP address of the IO unit.

Note: if you do not know the IP address of the EIO unit that you are adding you can find the unit using the **Cathexis Encoder Setup** tool, which is installed with your **CathexisVision** software. You can find it in the **CathexisVision** install folder, or under: **Start→Cathexis→CathexisVision Encoder Setup**. On startup this will bring up a full list of available devices.

Settings
I/O

Inputs

	Enabled	Name
1	<input type="checkbox"/>	Input 1
2	<input type="checkbox"/>	Input 2
3	<input type="checkbox"/>	Input 3
4	<input type="checkbox"/>	Input 4
5	<input type="checkbox"/>	Input 5
6	<input type="checkbox"/>	Input 6
7	<input type="checkbox"/>	Input 7
8	<input type="checkbox"/>	Input 8

Outputs

	Enabled	Name	Control	Pulse duration
1	<input type="checkbox"/>	Output 1	Set/clear/pulse ▼	1000ms ▲▼
2	<input type="checkbox"/>	Output 2	Set/clear/pulse ▼	1000ms ▲▼
3	<input type="checkbox"/>	Output 3	Set/clear/pulse ▼	1000ms ▲▼
4	<input type="checkbox"/>	Output 4	Set/clear/pulse ▼	1000ms ▲▼

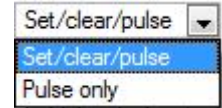
General:

Give your input a descriptive name.

To enable an input check the box in the column titled Enabled.

Output Specific:

Set the way the relay is controlled using the dropdown menu in the Control column:




Pulse Duration:

Set the pulse duration of the relay, in milliseconds.

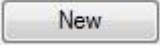
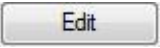
Note: make sure that you give these inputs descriptive names.

7 Scheduled Recordings

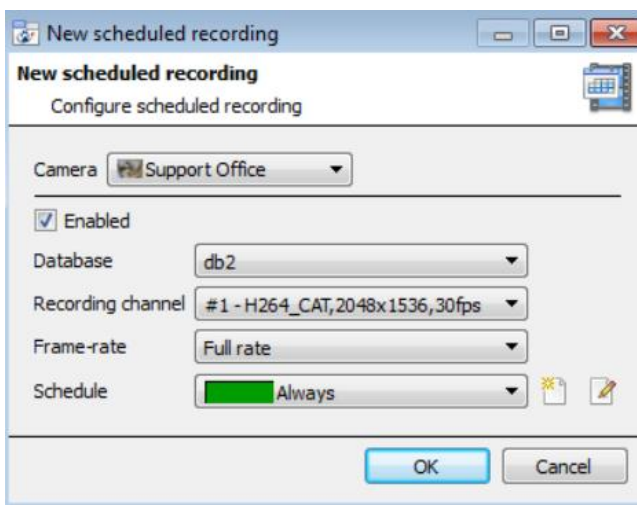
You may set your cameras to record on a fixed schedule. This is done in  Scheduled recordings under **Configure Servers**.

) *Add/Edit a Scheduled Recording*




You may either:

1. Click on  or . Or
2. Right clicking
 - a. white-space and clicking on **New** (for a new Schedule)
 - b. on an existing schedule and selecting **Properties** (to edit this existing schedule)

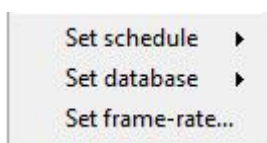
This will bring up the Scheduled recording dialogue:



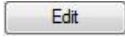
Camera	Select the camera you wish to record.
<input checked="" type="checkbox"/> Enabled	To enable the schedule check the box, to disable the schedule uncheck the box.
Database	The database you wish to record to.
Recording Channel	The video channel you want to record from the camera.
Frame Rate	The frame rate at which you want to record.
Schedule	The particular schedule you wish to assign to this Scheduled Recording.

Note: The schedules that are available are the schedules that are maintained under  Schedules on each server. You may also create/edit these schedules here, using the   options.

) *Right-click Menu*



You may make a quick adjustment to a schedule by right-clicking on it.

To change the recording Channel you must edit the schedule via **Right-Click** → **Properties**; or by selecting the Schedule and clicking .

) *Copy Paste*

You may copy/paste schedule settings either from one schedule to another, or from one schedule to a new camera.

Copy schedule settings from one schedule to another

Right-click on an existing algorithm, and then click on Copy. Then right-click on the algorithm you want to overwrite and click Paste.

Copy schedule settings to a new schedule

Here you will be copying the schedule settings onto a camera, so you right-click and Copy the existing schedule. Then right-click anywhere and select **Paste new...** this will bring up a list of cameras that are attached to this unit (e.g. Analog One).

You may select any number of cameras to paste the schedule onto, and click OK.

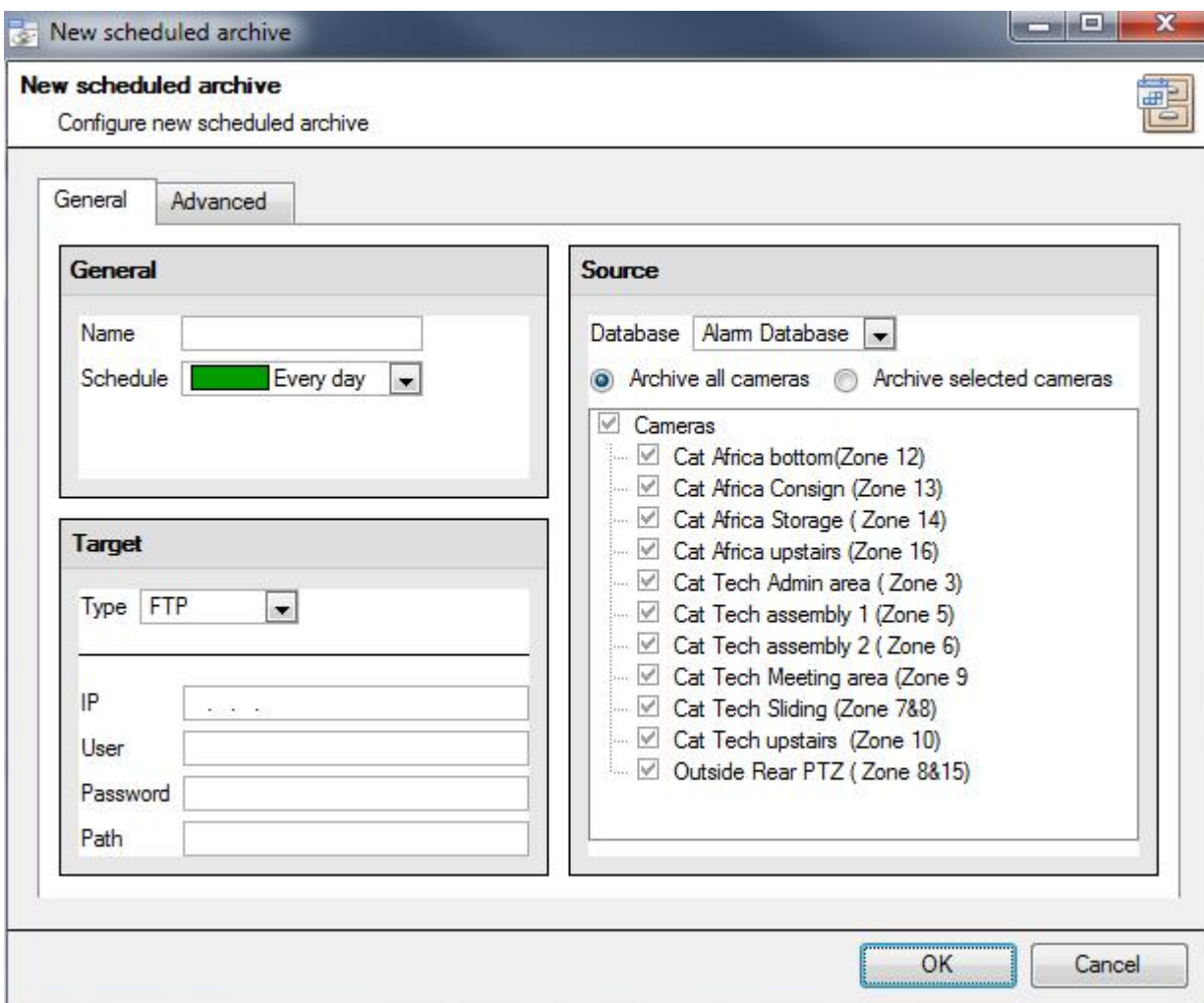
8 Scheduled Archives

Archiving is a facility to enable you to copy select recordings (from specific databases) to an archiving media, such as a Local disk, or an FTP server. Unlike normal recordings, archived recordings retain their authenticity, and can be verified as authentic (unaltered) on replay, making them suitable for use in courts of law.

The Scheduled Archive feature allows you to periodically archive selected cameras, from selected databases, on a schedule.

This is useful for a number of reasons. An important function is to create an archive of important cameras. As databases fill up they start to write over the oldest recordings. If you want to keep some cameras recordings for extended periods of time it is important to archive them.

Note: When you first enable this it will start from the beginning of the database, subsequent archives will pick up from where it left off the previous time.



New scheduled archive
Configure new scheduled archive

General | Advanced

General

Name:

Schedule: Every day

Target

Type:

IP:

User:

Password:

Path:

Source

Database:

Archive all cameras Archive selected cameras

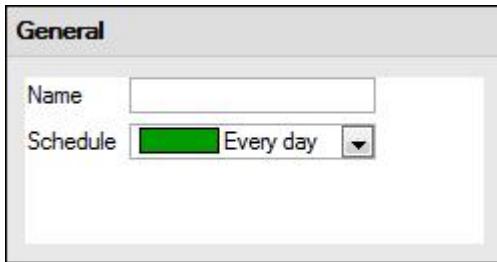
Cameras

- Cat Africa bottom (Zone 12)
- Cat Africa Consign (Zone 13)
- Cat Africa Storage (Zone 14)
- Cat Africa upstairs (Zone 16)
- Cat Tech Admin area (Zone 3)
- Cat Tech assembly 1 (Zone 5)
- Cat Tech assembly 2 (Zone 6)
- Cat Tech Meeting area (Zone 9)
- Cat Tech Sliding (Zone 7&8)
- Cat Tech upstairs (Zone 10)
- Outside Rear PTZ (Zone 8&15)

OK Cancel

a. General

) *General*

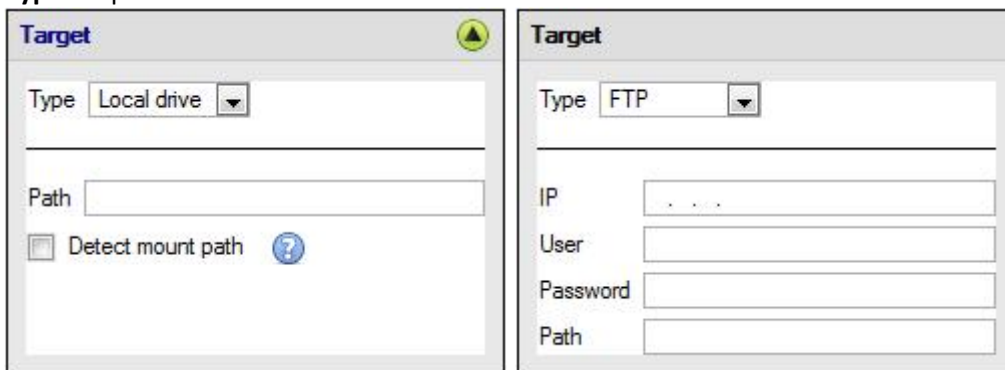


General settings consist of assigning this archive a name, and a schedule.

Note: the schedules available are the same schedules set under **Configure Servers** → **Schedules**.

) *Target*

Under Target you define where the archives are going to be recorded to. Select the relevant option from the **Type** dropdown menu.



Local drive

This will write to a selected path on the local hard drive, of the recording unit.

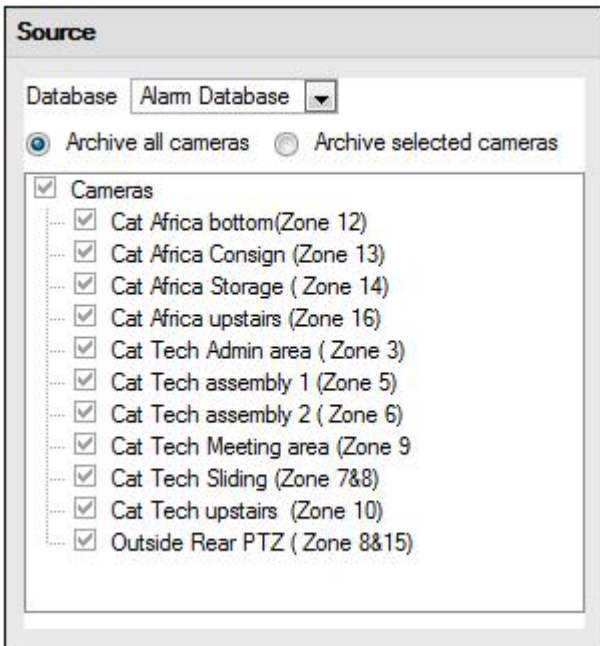
FTP

This option allows for network archiving to any accessible FTP server. This is incredibly useful, as FTP servers may be accessed across LANs, and WANs.

Note: The only target available for a NetBSD-based system is a FTP server (i.e. scheduled archiving to a local disk is not supported on NetBSD).

) *Source*

Source will define which cameras are to be archived, and which database to draw the cameras' recordings from.



b. Advanced

Output file format: Cathexis archive

Max file duration: 10 min

Max file size: 500MB

Path pattern: \$YEAR/\$MONTH_\$DAY/\$HOURL/\$CAMERA

Note: By default these settings are set to maximum.

Database

You may have multiple databases for groups of cameras. Or you may be sending camera recordings from different triggers, to different databases (e.g. VMD input, Access Control, Alarm Panels).

The database drop-down menu will provide a list of all available databases.

Cameras

You may check the Archive all Cameras option, or Archive Selected Cameras.

Output File Format. The only available format is the Cathexis archive format.

Max File Duration Is the maximum time length of an individual archive file.

Max File Size Is the maximum size on an individual archive file.

Path Pattern is the file naming convention used for the Archive files. There are written instructions in this window, in the GUI, detailing how to modify the Path Pattern

9 Events

a. Introduction

One of the most powerful features of the **CathexisVision** suite is the flexibility of our events system. These events can take multiple inputs, and perform multiple actions based on them. A common example of such an event would be triggering the recording of a camera stream, based on input from Video Motion Detection.

The **CathexisVision** suite offers much more in the way of event handling than this simple example though, and this document will introduce you to the available Event options.

b. Events Window

You get to the events window via the Setup Tab. The path to follow is **Site → Setup → Configure Servers → Events**:

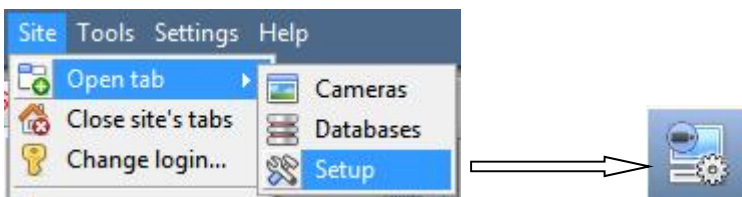
) *Important Note*

It is important to remember that Events depend on triggers that are predefined. This means that before you get to the events window you should already have these inputs and outputs ready. An example [which will be discussed later] is recording based on motion. In order to set up an event based on motion detection, you first need a number of things:

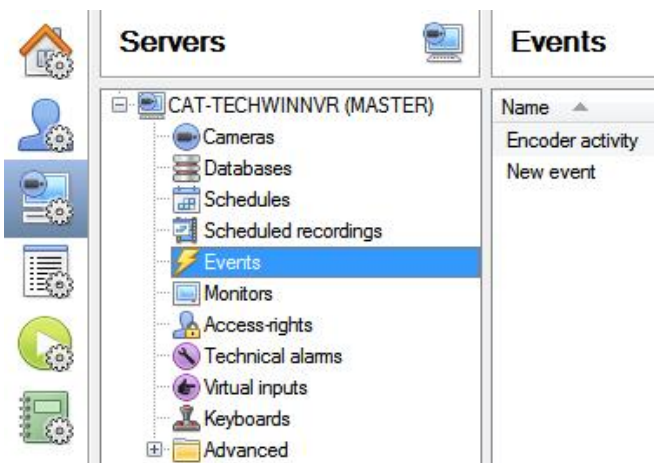
1. A camera that has been successfully added to the system [to provide the images]
2. A Video Motion Detection algorithm needs to have been set up [to *trigger* the event]
3. A database needs to be set up [as a point where the *action* of recording takes place]

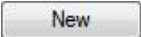
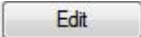

It is easy to forget this, and head straight to the Events window to create an event, before you have all the resources to do so.

) *Site → Open Tab → Setup → Configure Servers*

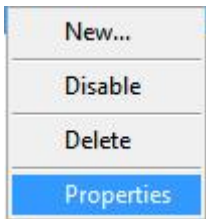


) *Select the Events from the Servers menu.*

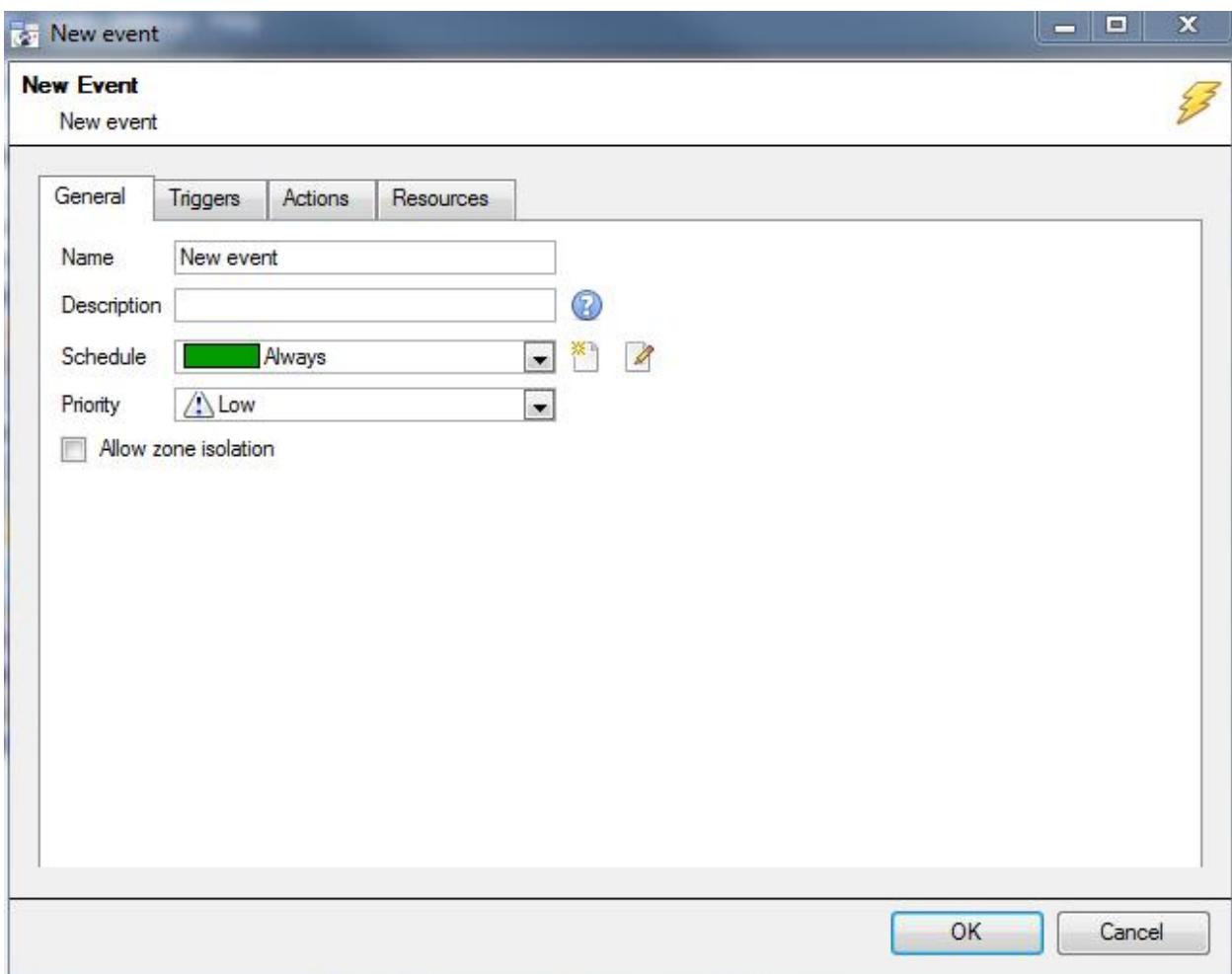


The Events panel will appear on the right. To add, edit, or remove Events in the list use one of the    buttons at the bottom of the panel.

) *The Events Window*



To enter the events window either click on **New** or **Edit**, as described above. Or use the right-click menu in the Events Panel. Clicking on white space will give the option to create a new Event. Right clicking on an existing event will give you a dropdown menu, with the options shown in the image on the left.



The Events Addition Window

c. Adding and Editing Events

) *Introduction*

Events can be very complex things, with multiple triggers and actions; but they all have the same three core aspects.

General Settings	Name, Schedule
-------------------------	----------------

Trigger	Initiates the event
Actions	The action taken by CathexisVision (as a result of the trigger).

Below we will look at the four individual sections that you can edit when creating an event (General Settings, Triggers, Actions, and Resources). These are visible as tabs in the above screen capture of the Events Window.

The following subsections will give you an idea of how to create an event by breaking the Events Window down into its constituent parts, and explaining the settings under each part.

) *General Settings Tab*

The screenshot shows the 'General' tab of the event configuration window. It includes the following elements:

- General** (selected tab), Triggers, Actions, Resources
- Name:** Text input field containing 'New event'.
- Description:** Text input field with a help icon (?) to its right.
- Schedule:** A dropdown menu with a green bar on the left, currently set to 'Always', and icons for help and edit.
- Priority:** A dropdown menu with a warning icon, currently set to 'Low'.
- Allow zone isolation:** An unchecked checkbox.

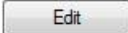
Name	This is a descriptive name that you will give to the event, to make it identifiable later on.
Description	<p>This is the name the event is given when databased, or sent as an alarm. If this field is left empty, the Event Name is used. Clicking on the will give you a list of available description variables.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. The options that you have available here will change, depending on the triggers that you choose in the Triggers Tab, so set this parameter after you set your triggers. 2. The format for adding the variable is: <i>Descriptive_Name: \$Variable_Name</i> 3. You may add multiple variables.
Schedule	This will define the times during which the Event will be active
Priority	This relates the alarm that will be set under Call Base Station (this will be discussed below).
Allow Zone Isolation	<p>Check this if you wish to give the operator the option to disable this event alarm for a short period. This is useful in cases where there are repeat false alarms.</p> <p>This doesn't disable the event. It prevents the alarm from popping up on the operator's workstation, or alarm queue.</p>

) Triggers Tab

	<p>As discussed above, a trigger is what initiates an event. There are three types of triggers:</p> <ol style="list-style-type: none"> 1. Standard triggers 2. Trigger templates 3. Integrated device triggers <p>You choose between these options by clicking on the blue hyperlinked text, in the Use standard triggers to trigger the event area.</p>
--	--

) Standard Triggers

Standard triggers come in the form of **Video Motion Detection** triggers, **Relay I/Os**, **Schedules**, and **Virtual Inputs**.

To add, or edit trigger click on , or .

Trigger While, is the dropdown menu from which you select the relevant triggers

[is high](#)
is high
is low

The hyperlink to the right of the trigger, will give you all the state options of this trigger.

Click on it to access its options.

Hold Time will extend the event for this duration after the trigger has terminated. (See table directly below, for a graphic representation).

Schedule defines when this specific Trigger is active within this specific Event.

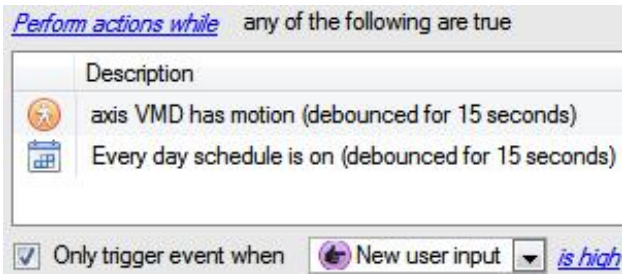
<p>Hold Time</p> <p>VMD level: _____ _____ _____ _____</p> <p>Event: _____ _____ xxxxxx _____</p>	<p>xxxxxx is the hold time.</p> <p>You can see how the little dip (where the trigger is inactive) in the middle is filtered out by the hold time. Creating a continuous event.</p>
--	--

When and While

Standard Triggers can either trigger **when** or **while** a specific variable is true. **When** events are more complex, as you will need to specify when the event will end; **While** events are simpler because they automatically end when the trigger variable ends.

Perform Actions While

[Perform actions while](#) is a simpler trigger setting. Where an action will be performed while certain triggers are active.



The user can set an absolute parameter, so the event will not trigger unless this parameter is true; even if all the other event triggers have been set off.

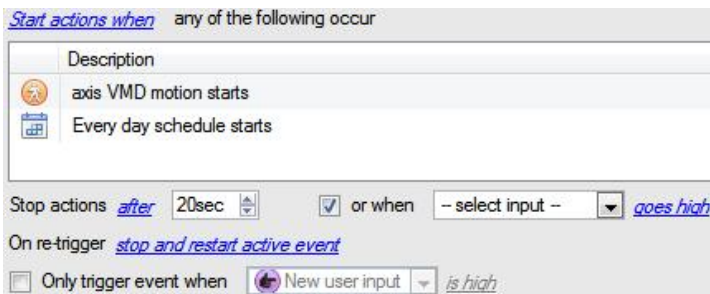


This also comes with multiple input options, which depends only on how many triggers have been setup.

Start Actions When

Under [Start actions when](#) a user can define multiple conditions that must be met for an event to trigger.

This is useful if you don't want an event to end when the initial trigger for that event changes state again.



Stop Actions After

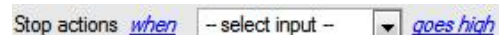


If you have *Stop Actions After* selected you can choose to stop an event after a certain amount of time.

You may also check the *or When* checkbox. This defines a further trigger that may stop the event before the timer has run down.

Stop Actions When

If you do not wish to have a timer, but still want an input that will terminate the event then select *Stop Actions When*



On Retrigger

If one of the event's triggers is set off, while an event is already occurring, you have three options.



	<p>) Only Trigger an Event When This defines an absolute parameter, without this trigger the event will not occur.</p> <p><input checked="" type="checkbox"/> Only trigger event when <input type="button" value="New user input"/> <input type="button" value="is high"/></p>
--	--

) Trigger Template

General Triggers Actions Resources


Use trigger template to trigger the event
 Perform actions while the selected input is high

Available		Selected
<input type="checkbox"/> Cat Africa Consignment Stock		<input type="checkbox"/> Cat Tech Meeting area VMD
<input type="checkbox"/> Cat Africa downstairs VMD		<input type="checkbox"/> Cat Tech Meeting Area VMD
<input type="checkbox"/> Cat Africa Storage Area VMD		<input type="checkbox"/> Cat Tech Sliding Door VMD
<input type="checkbox"/> Cat Africa upstairs VMD		<input type="checkbox"/> Cat Tech upstairs coridor VM
<input type="checkbox"/> Cat Tech ? VMD	➡	<input checked="" type="checkbox"/> Camera alarm
<input type="checkbox"/> Cat Tech assembly 2 VMD	⬅	
<input type="checkbox"/> Cat Tech downstairs 1 VMD		
<input checked="" type="checkbox"/> Core dump		
<input type="checkbox"/> Every day		
<input type="checkbox"/> Schedule 2		

Schedule Every day

Hold time 15sec

Only trigger event when is high

A trigger template allows you to add multiple triggers simultaneously to a single event. You will have all **available** triggers in the left hand column, and all triggers that will be used in the event in the right hand column. To move triggers back and forth select your desired triggers and click on the  icon that represents the direction that you want to send the trigger.

Note: there are two important things to remember when using a trigger template

1. This is useful in relation to the **Record Trigger Cameras** option (dealt with in the Actions section, [Actions](#)).
2. You may set the database entry for this event to either take on the name of the event every time, or the name of the trigger. (This is defined in the [General Settings Tab](#), dealt with above.)

) Integrated Device Triggers

Note: This is general information on setting up an event with an integrated device. Each integration gets its own document, as these options change from integration to integration.

Select a Device



Integrated devices are also viable Event Triggers. This means that any integrated device may be used to trigger a **CathexisVision** Event.

You will need to select a specific integrated device. In the image to the left there is an alarm panel, which can be used to trigger an event.

Select a Device Parameter



Clicking on **Trigger using any device event** will give you a full list of the integrated devices own objects that you may use as trigger bases. Once you have selected one you may add a new trigger, by clicking on **New**.



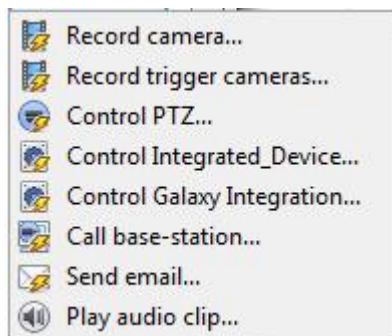
Clicking new will give you all the options that the Object provides as triggers.

For example:

If you select **State equals Alarm**, and you selected **any partition** above:

The event will trigger when any of the Caddx Zones alarm.

Actions Tab



To add an action click on the **New** button, to edit an action click on **Edit**.

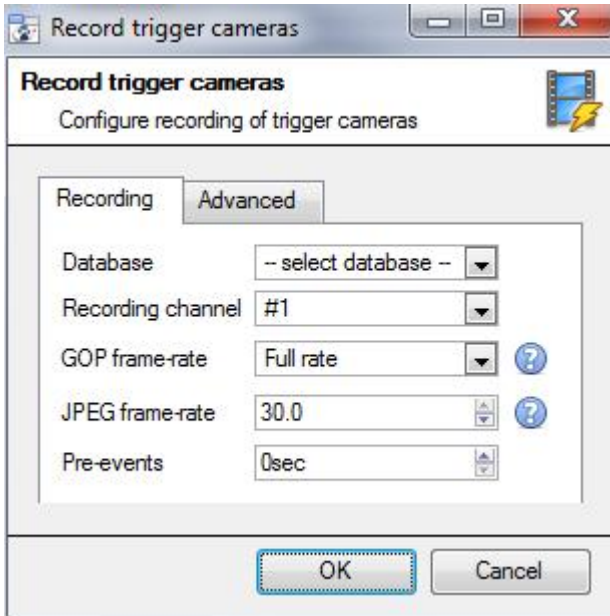
At present the actions you see to the left are the available actions, and they will be dealt with below.

) **Camera Recording**

Camera	Advanced
Camera	Camera 01
Database	Inside_DB
Recording channel	#1 - JPEG,0x0,30fps
Frame-rate	30.0
Record for	the duration of the event
Pre-events	0sec

<p>Database <input type="text" value="database"/></p>	<p>Select a preconfigured database to which you want to record your camera. You can select multiple databases to record the same event to, on multiple servers.</p>
<p>Camera <input type="text" value="axis"/></p>	<p>Select a preconfigured camera to record to the specified database. The drop down menu will contain all cameras on your system.</p>
<p>Channel <input type="text" value="#1 - H264_CAT,1280x800,30fps"/></p>	<p>If you have more than one video feed coming from your camera (perhaps one for recording and one for Video Analytics) then select the relevant feed for your recording.</p>
<p>Frame-rate <input type="text" value="Full rate"/></p>	<p>Select the frame rate that you require your video to be recorded at.</p>
<p>Pre-events <input type="text" value="0sec"/></p>	<p>Setting a pre-events timeframe will set the recording to start a few seconds before the event actually triggered. <u>Note:</u> You need to have setup pre-events in the camera addition process, under the pre-events tab.</p>
<p>Camera <input type="text" value="Advanced"/></p> <p>Schedule <input type="text" value="Every day"/></p>	<p>The <i>Advanced Tab</i> when setting up recording offers the option to schedule when you want this recording setup to be active within this event. This schedule does not impact on anything beyond this specific setting.</p>

) Record Trigger Cameras



If you chose *integrated device* or a *trigger template*, in the Triggers Tab (above) you may select the option to record **trigger cameras**. This means that the action will record any of the cameras associated with triggers in the triggers tab.

Database is the database the cameras will record to. **Recording Channel** is the default channel that will be recorded from the camera. (make sure that all selected trigger cameras have the same channel set for recording.)

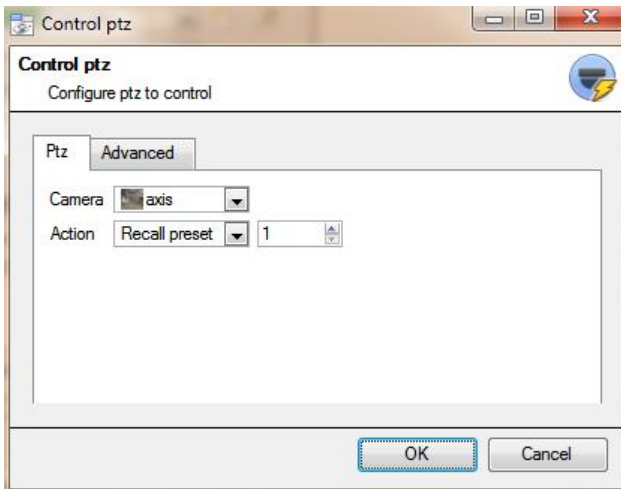
GOP Frame-rate is the frame rate to record GOP based video compression streams, such as MPEG4, or H.264.

JPEG frame-rate is the frame rate to record single frame based compression streams, such as MJPEG.

Pre-events are the amount of seconds of footage that are recorded from before the event was triggered.

Tip: by adding a second *Record Database* action, and assigning a second database, you will effectively clone this event to another database. This is useful, if you want to clone an event to, say, a Network Attached Storage.

) Control PTZ



Camera is the camera whose PTZ the action will control

Action

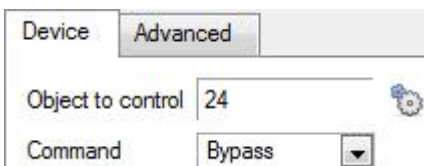
Recall preset will send the PTZ to a preconfigure position

Run pattern will cycle through a number of preconfigured positions, that have been grouped into a *Pattern*

Advanced Tab

The advanced options are identical to those discussed under [Control Output](#), below.

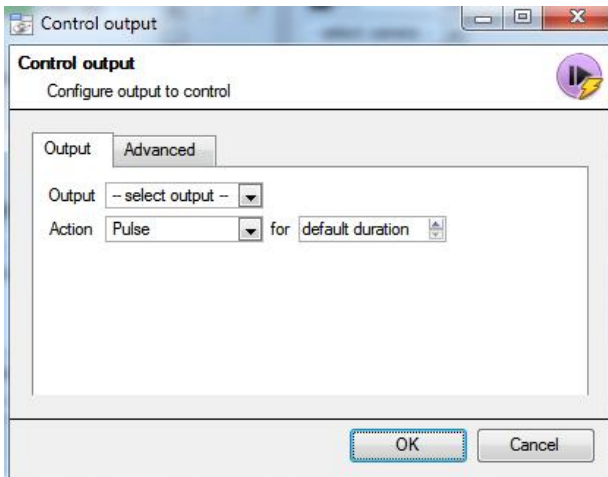
) Control Integrated Device



You may take an action on an integrated device's Objects in the action of an event. The options that you are presented with will differ based on the device that you are controlling. (E.g. set an alarm, or open a door...)

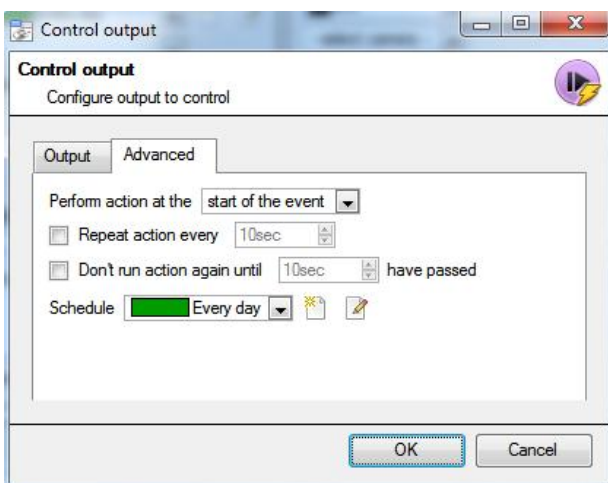
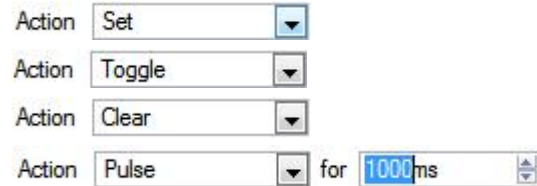
For Advance tab information see the [Control Output](#), below.

) Control Output



Output will provide a list of pre-configured outputs, that you may control as part of this action.

There are 4 **Actions** available:



You have the option to **Perform action at the beginning**, or the end of the event.

Repeat Action Every

Check this box to define how often you want the action to occur during an event

Note: This action, logically, is not available under *Perform action at the end of the event*

Don't run action again... gives you the ability to define how long the software must wait after the action has run, before repeating it.

Schedule creates a schedule under which this output will be controllable by this event.

) Call a Base Station

This will define which Base Station is 'called' when an event triggers. It will send an alarm pop up box like this:



To the base station that you choose.



-) The three colours Green, Yellow, Red indicate the priority of the alarm. They relate to Low, medium, and High respectively. (The priority setting was defined under 9. C. General Settings Tab, earlier.)
-) The number within the coloured block indicates how many unattended alarms of that severity the base station has received.



Call Base Station Tab



Call base-station



Configure base-stations to call

Call base-station Alarm preview Advanced

First try Windy  

then try New basestation  

then try -- select base-station --  

then try -- select base-station --  

Send resource information (cameras and audio)

First Try: Select, from the drop down menu, the primary base station that you want an alarm sent to.

Then Try: If the connection to the first base station fails then the base station that you select here will be the one that the alarm is sent to next.


Send resource information (cameras and audio): If the base station has an alarm management gateway this will send extra information about the cameras and audio that were involved in the event


Alarm Preview Tab


Call base-station Alarm preview Advanced


Enable alarm preview

Cameras

Camera 1 -- select camera -- 


Camera 2 -- select camera -- 


Camera 3 -- select camera -- 

Camera 4 -- select camera -- 

Use trigger cameras

Settings

Number of pre-event images 2 

Number of post-event images 3 

Include trigger info

OK Cancel

This applies to the Alarm Management Gateway. It will send information in the form of snapshots of the selected cameras along with the alarm.

Enable alarm preview enables the alarm preview

Under **Cameras** you choose predefined cameras to send with the alarm preview

Under **Settings** you define the number of pre-, and post-, event images to send along with the alarm

Include trigger info will include trigger information if you are using a third party system as an event trigger


Advanced Tab

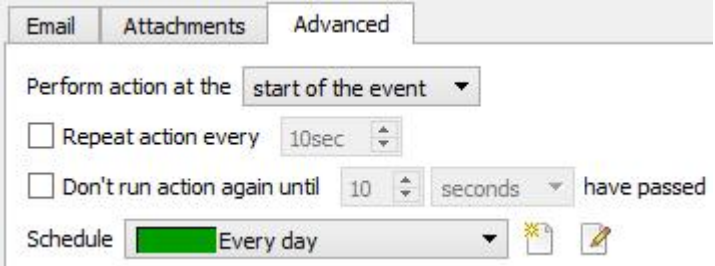
The advanced options are identical to those discussed under [Control Output](#).

Send Email

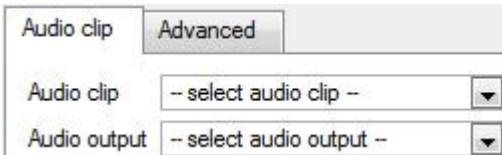
The initial email setup must be done under [1e.Email](#)

However the options of recipient, and the information that will be sent in the email, are set here.

<p>Set the Recipient</p>	<p>Add an email address in the <i>To</i> field.</p> <p>To add another recipient click on the  icon, this will add another <i>To</i> field.</p>
<p>Set the Variable</p>	<p>There is a list of Available Variables in the Send Email window. These define what information is sent in the email. To add variable add the Variable name in the text box to the left of the Available Variables list.</p> <p>The format for adding the variable is: <i>Descriptive_Name: \$Variable_Name</i></p>
<p>Copy/Paste</p>	<p>You may copy/past your variable settings from one Technical Alarm to another. This is very handy if you are doing a batch of Technical alarms, across multiple servers.</p>
	<p>The Attachments tab allows the user to have video from the event attached to the email.</p>

	<p>The Advanced tab allows the user to define when and the email action takes place, once the event has started.</p> <p>A schedule for the event may also be set.</p>
---	---

) *Play Audio Clip*



Audio Clip is the actual audio file that you may play as an action. The sounds are stored in the installation folder under sounds. **Audio Output** is the audio device that will output the sound.

Advanced Tab

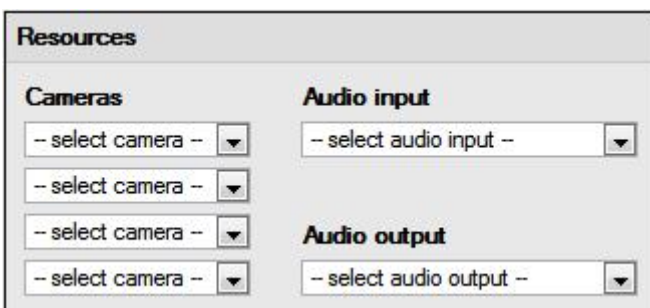
The advanced options are identical to those discussed under [Control Output](#).

) *Resources Tab*

There are two scenarios in which the resources set here will be sent:

1. **Gateway**
When a user responds to an alarm in a gateway the system will show the cameras and start the audio listed in the resources.
2. **Camera Tab**
When a camera tab is unlocked, and the event triggers, the display will switch to show the cameras listed in the resources.

) *Resources Tab*

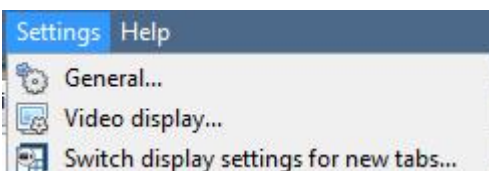


You can send up to 8 cameras, an audio output, and an audio input.

This will be broadcast to all operators viewing this site, details on this are explained below.

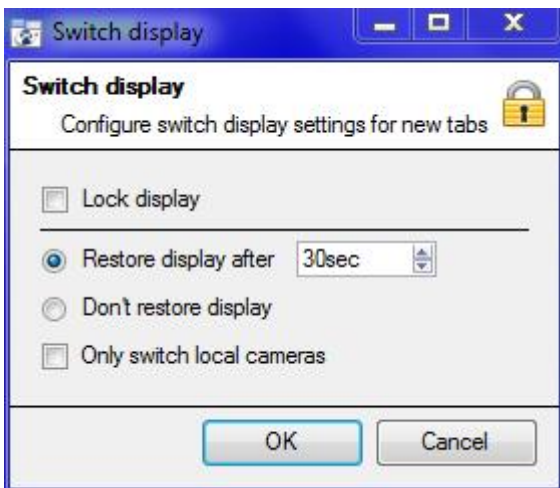
Use trigger resources will automatically send resources that have been associated with the trigger.

) *Default Switch Display Settings*



If you decide to send Resources. Then you will need to define whether or not you want your Operator's cameras tab to change when these resources arrive. These settings are made outside of the Setup Tab, under **Settings Menu** → **Switch display settings for new tabs...**

Note: The settings here will apply to any new Cameras Tabs, opened after you change the settings.



Lock Display

Will prevent the Cameras Tab from displaying any video feeds sent to it by the Event.

Restore display after



Will define how long after switching to the Event Cameras the Cameras Tab will return to the original display settings.

Don't restore display

Will leave the Cameras Tab on the Event Cameras until an operator, or administrator, resets the display.

Only Switch Local Cameras

Will only switch to Event cameras originating from a local site.

Note: you may also lock , or unlock , the currently opened Cameras Tab by clicking on the little lock located at the end of the Timeline on the Review Controls.

10 Monitors

The Monitors option will give you the ability to send video from a server to a Video Wall. This is usually a selection of screens that are dedicated to showing video feeds.


a. General Settings

Licensing

Each monitor running on a Video Wall server needs to be licensed with a VGA license. The license is necessary on the Server sending out video, not on the Client. (This is easy to remember if you think “The license needs to be on the server I am adding the monitor to”.)

Video Wall Software

The **CathexisVision Video Wall** software is installed along with the **CathexisVision Suite**. It is called **cat_vgaserver.exe**, in the installation folder. In the Start Menu, under **Cathexis** you will find it under the name **CathexisVision Video Wall**.

When running the Video Wall software will show in the icon tray as the  icon.

Run on Startup

If this unit is going to be a permanent Video Wall it is advisable to have the software run on startup. To do so, add the exe to the Startup Folder:

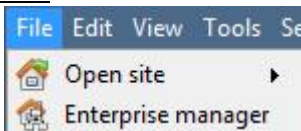
-) C:\Users\User_Name\AppData\Roaming\Microsoft\Windows\StartMenu\Programs\Startup . (Replace Username with the name of the user profile that the software will be running on.)
-) You may also navigate straight to the Startup folder of the currently logged in Windows User by copy-pasting the following into the Windows Explorer Navigation bar:
[%appdata%\Microsoft\Windows\Start Menu\Programs\Startup](#)

) *Resources Site*

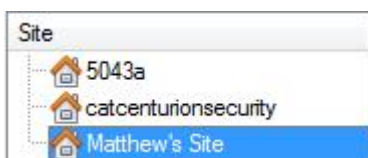
The Monitors Tab will be automatically present in **CathexisVision** on the Server which you have added monitors to. But, if you want the Monitors Tab on a Base Station, you will need to make the relevant site a Resources Site. This must be done in the Enterprise Manager of the Base Station that you are adding the Monitors Tab to.

) *Create a Resources Site*

Note: this needs to be done on the Base Station which you want to have the Monitors Tab on.



Open the Enterprise Manager



Select the site you wish to edit

Here the site that we are editing is called Matthew's Site.



Select Edit from the Menu Bar

With the site still selected click on **Edit → Make Resources Site**,

To remove the Site’s status as a resources site, you may follow the same procedure, but click on **Clear Resource Site**.

b. Adding a Monitor

Monitor type

There are two types of Monitor that you may add to your system. A VGA monitor and an XP switcher monitor.

) **VGA**

This will work via a VGA Server computer, with the **CathexisVision Video Wall** software running on it.

Monitor type

Name

Address

Port number

Monitor number

Max live streams

Address This is the address of the unit you are sending the video too (or the address of the router you are sending the information to, if the Video Wall is on another network).

Port Number. Leave this at default. Unless the video wall is on another network to the recording server, and you need to forward specific ports.

Monitor Number corresponds to the physical monitor on the wall.

Max Live Streams will limit the quantity of live streams this monitor will support. (Set based on the monitor unit’s streaming capacity.)

) **XP**

Monitor type

Monitor name

Output number

XP monitors, attached to the unit via a rear-panel cross-point switcher (This will be added to a Linux based system, most probably Fedora).

Monitor name is a descriptive name that you give the monitor.

Output Number is the number on the XP switch that you attach to the screen.

Note: This is available if the server unit has a VMX cross-point switcher, which is found on Linux based server.

Enable Dynamic Video Stream Selection

The videowall and/or the GUI can be setup to dynamically select live video streams based on the display resolution. With this option enabled, it will pick the stream with the lowest resolution that fits the display so as to decrease the amount of decompression work required by the CPU. See below for steps to enable this in the videowall and in the GUI.

Note: For this to be enabled, a network camera that supports at least two live streams is required. The number of supported streams is usually determined by the camera.

) Edit Configuration Settings file

Navigate to **C:\Program Files\CathexisVision Server\settings** and open the **system.ini** file (configuration settings file). In the system.ini file, enter the details below according to whether you are enabling this feature in the videowall and/or in the GUI.

Enable in Videowall

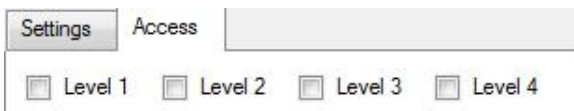
In the system.ini file, enter the following:

```
[videowall]
dynamic_sv_streams    1 # 0=false (default), 1=true
```

Enable in GUI

```
[gui]
dynamic_sv_streams    1 # 0=false (default), 1=true
```

c. Access



Under the Access Tab you define which user Access Levels have rights to make changes to this Monitor, via the Monitors Tab. (Discussed Below.)

11 Access Rights

Setup tab → Configure Servers → expand Your_Server_Name → Access Rights.

Under **Access Rights** you will setup which Site Resources are available to which access levels. Each user was assigned an access level when you added him/her. This user level corresponds to the Levels that you assign to Site Resources here in **Access Rights**.

There are two options when editing **Access Rights**:

1. **Show all levels** will show every Level setting according to each resource.
2. **Show level** shows only the settings for the selected user level according to each resource.

Tabs

Select the resource from the list on the left, and check the level you wish to have access to this resource.

The tabs (**Cameras, Outputs, Monitors, General**) represent classes of resource whose access level you may control. The one you have selected will have all the resources that fall into this class displayed in the left hand panel. In the examples below, the **Cameras** tab is selected and the settings refer to camera resources. However, the process is identical when editing **Outputs, Inputs, Monitors** and **General**.

) *Cameras*

	Live	Review	PTZ	PTZ menu	Set presets	Audio listen	Hide privacy zones	Set all
Level 1	✗	✗	✗	✗	✗	✗	✗	✓ ✗
Level 2	✗	✗	✗	✗	✗	✗	✗	✓ ✗
Level 3	✗	✗	✗	✗	✗	✗	✗	✓ ✗
Level 4	✓	✓	✓	✗	✗	✓	✗	✓ ✗
Level 5	✓	✓	✓	✓	✗	✓	✗	✓ ✗
Level 6	✓	✓	✓	✓	✗	✓	✗	✓ ✗
Level 7	✓	✓	✓	✓	✗	✓	✗	✓ ✗
Level 8	✓	✓	✓	✓	✗	✓	✗	✓ ✗
Level 9	✓	✓	✓	✓	✗	✓	✗	✓ ✗
Level 10	✓	✓	✓	✓	✗	✓	✗	✓ ✗
Level 11	✗	✗	✗	✗	✗	✗	✗	✓ ✗

Selecting **Show all levels** and then selecting a resource (in this example **Camera 1**) will display the settings for all user levels according to the particular resource. I.e., the User level settings may be different for **Camera 2**.

	Live	Review	PTZ	PTZ menu	Set presets	Audio listen	Hide privacy zones	Set all
Camera 1	✗	✗	✗	✗	✗	✗	✗	✓ ✗
Camera 2	✓	✓	✗	✗	✗	✓	✗	✓ ✗

Show level is selected, and thus allows for the selection of a user level from a dropdown menu. Here, **Level 1** is selected, and thus only the **Level 1** settings for each resource are displayed.



(Should there be additional resources, these would also be displayed here.)

General





Control PTZ tours
Export data

Under the General tab, you may assign user level access rights to options.

Access Right Definitions

Live	This controls which Access Levels can view the camera's live feed. If this option is disabled, the user will not be able to view the camera at all, and all the following rights will be automatically denied.
Review	This controls which Access Levels can review recorded footage from this camera.
PTZ	This controls which Access Levels can control PTZ movement.
PTZ Menu	This controls which Access Levels have the ability to alter the PTZ menu.
Set Presets	This controls which Access Levels can change PTZ preset positions.
Audio Listen	This controls which Access Levels can listen to the audio (provided the camera has an on-board mic).
Hide Privacy Zones	This controls which Access Levels can remove the privacy zones added to the camera.
Set All	Selecting  will give this level access to all settings; selecting  will give this level access to none.

NOTE:

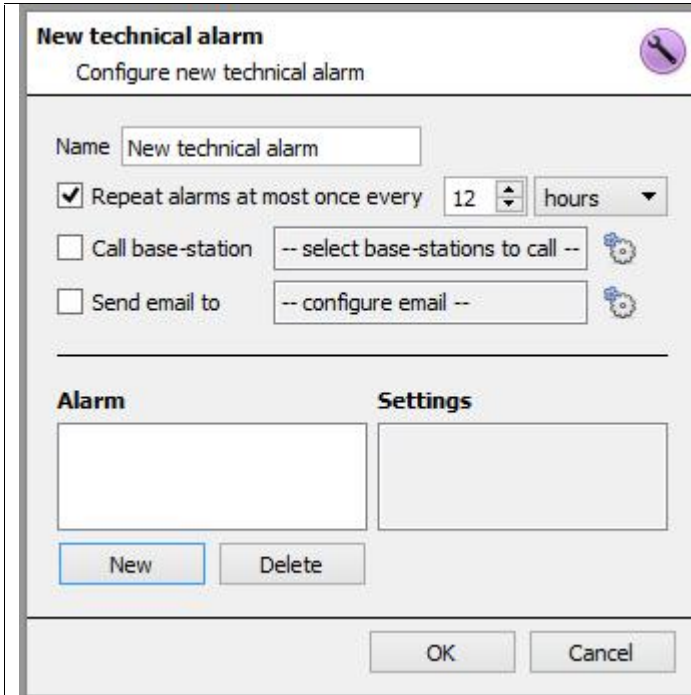
1. A  means that this level has access; a  means that this right has been denied to this level. Left-click on the tick/cross to change its designation.
2. A greyed-out cross () means that this right requires another right to be set in order for it to be enabled. For instance, you cannot give a user rights to **Review**, or use **PTZ** unless you have already enabled **Live Viewing**; disabling **Live Viewing** will automatically disable the rest of the user rights. Thus, the administrator should be careful to enable the **Live Viewing** access right for the user levels which will need to view and manage the video stream.
3. Users can be added and managed in **Setup** tab → **Configure Users** .

Audio Listen Access Right

The table below details situations in which the Audio Listen access rights settings configured by the user do and do not apply.

Audio Listen access right settings <u>do</u> apply to:	Audio Listen access right settings <u>do not</u> apply to:
Live viewing.	Independent audio channels.
Reviewing from the camera tab.	Archived video.
Reviewing from the database tab (both video and integration databases).	Connecting to a 2016.2 server using a 2015/2016.1 viewer.
Viewing video when handling an alarm in the Alarm Management Gateway.	Connecting to a 2016.1 server using a 2016.2 viewer.

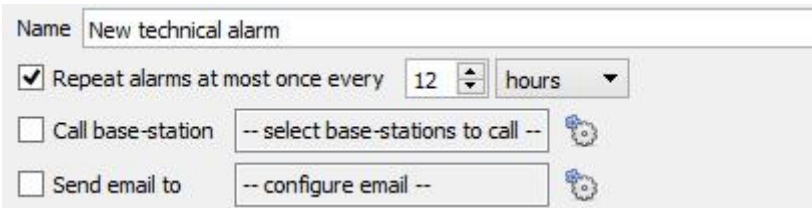
12 Technical Alarms



This is a facility to set up alarm conditions in the event of a technical problem. A single **Technical Alarm** can send on multiple different alarms, in this way you may setup an alarm to send only information regarding hardware, or software, or cameras.

Technical Alarms are set on a server-by-server basis, and as such are located in the configure servers settings under **Site—>Setup—>Configure Servers—>Technical Alarms**.

a. General Settings



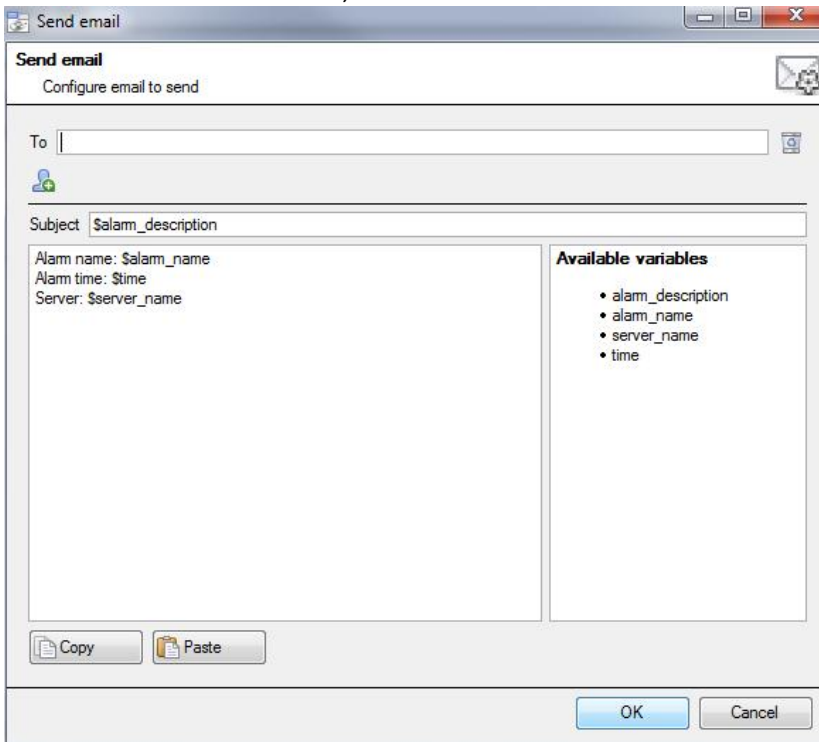
Give your Alarm a descriptive **name**.


You may set a global maximum amount of alarm repeats.

Select whether you want your alarms to be sent via email or go to a Base-Station.

) *Email Configuration*

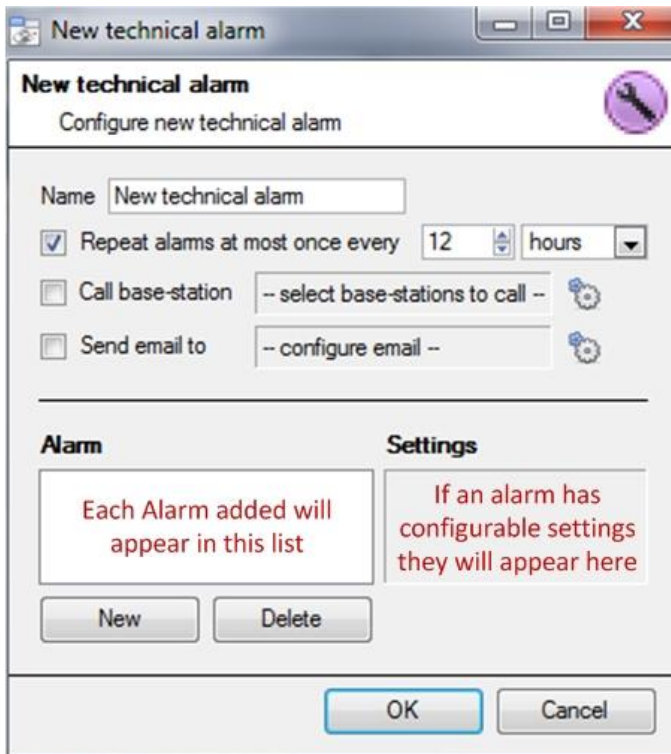
The initial email setup must be done under [1e](#).Email. However the options of recipient, and the information that will be sent in the email, are set here.



Set the Recipient	Add an email address in the To field. To add another recipient click on the  icon, this will add another To field.
Set the Variable	There is a list of Available Variables in the Send Email window. These define what information is sent in the email. To add a variable add the Variable name in the text box to the left of the Available Variables list. The format for adding the variable is: <i>Descriptive_Name: \$Variable_Name</i>
Copy/Paste	You may copy/past your variable settings from one Technical Alarm to another. This is very handy if you are doing a batch of Technical alarms, across multiple servers.

b. Add/Edit a Technical Alarm

To add a technical alarm click on , in the Technical Alarms panel. This will bring up the following dialogue:




Name

Give your Technical alarm a descriptive name.

Repeat alarm at most...


This setting sets a 'global' repeat setting, which will define how often individual alarms may repeat.

Call Base Station

This is if you want your alarms to be send to a Base Station. Click on  to set the Base Station/s.

Base Station setup is dealt with under section [1j Base-stations](#).

Send Email

You also have the option to send an email in the event of an alarm. If you want to setup a new email click on .

Email Setup is dealt with under section [1e Email](#).

) Available Alarms

Clicking **New**, in the New Technical Alarm dialogue, will initiate a drop-down menu with the following possible options:

Test	Triggers an alarm at a set frequency. This is intended to test the system, to see if it will receive alarms.
Camera Faults (Configurable)	Will trigger based on cameras being up for a certain percent of the time, or cameras failing a certain number of times in a given period (configurable) Configure: Here you may set whether alarms trigger from one, or both options listed above. You may also select to have alerts from all cameras, or from selected cameras.
Frame-Grabber	Triggers when a frame-grabber has a problem, such as frame-grabber reboot, card stalled.
Scheduled Archive	Triggers when a scheduled archive encounters a problem, such as the archive destination not being accessible.
Disk	Triggers when disk errors occur.
Environment	Triggers off environment warnings, such as high CPU temperature, fans running at low RPM. (NetBSD only)
Software Failure	Triggers when a software module fails.
Database	Triggers when the database encounters an error, such as failing to write data to the database.
File-System	Triggers when file-systems become full (NetBSD only).
Meta-Database	Triggers when the meta-database (typically used in integrations) encounters a problem, such as running out of disk space.
Base-Station Alarms	Trigger when a base-station is configured to send alarms via a capture station. The base-station can generate alarms such as software failures.
Reboots	Triggers when a unit reboots frequently, or has a watchdog, or hard-reboots (configurable, NetBSD only).

Server Monitoring	This a technical alarm that is generated when a unit on the site goes down.
Recording failure	Triggers when a recording should be taking place, but for some reason isn't. Configure: All that needs to be set here is the cameras that you don't want to trigger this alarm.
Recording Period	Will trigger when a database stops recording before its predefined period is complete. E.g. if you set a database to record for 30 days, but it only records for 25.
Gateway alarm	Only applies to gateway systems, and triggers when the gateway experiences a problem, such as an error connecting to the alarm database.
Integration Database	Triggers when the integration database is down.
Network I/O	Will trigger when an EIO is down.
Failover	The site master can be configured to generate a technical alarm if any of the failover servers are down.

) *Important Note on Operating Systems*

The technical alarms have different levels of integration with the different Operating Systems. The following is a table indicating the Operating Systems, and the technical alarms that are supported.

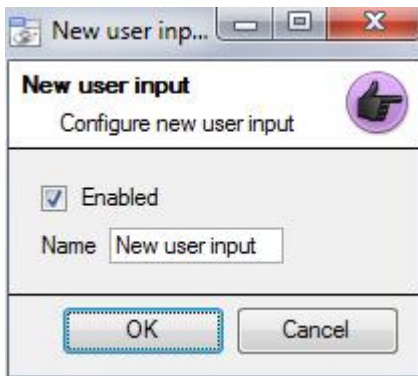
Technical alarm	Windows	Fedora	Ubuntu	NetBSD
Cameras	X	X	X	X
Frame Grabber		X	X	X
Disk	X	X	X	X
Archive	X	X	X	X
Environment				X
File System				X
Reboot	X	X	X	X
Gateway	X	X	X	X
Software Failure	X	X	X	X
Database	X	X	X	X
Meta-db	X	X	X	X
Base-stations Alarms	X	X	X	X
Failover	X	X	X	X

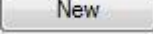
13 Virtual Inputs

Virtual Inputs are user initiated triggers. They may be added to events, and used as manual triggers. This takes the place of a physical button (which is why the icon for Virtual Inputs is a finger).


For instance a virtual input may be created, and added to an event that starts a camera recording. The Virtual Input would then function as a record button for that camera.

a. Add a Virtual Input



To add the Virtual Input click .

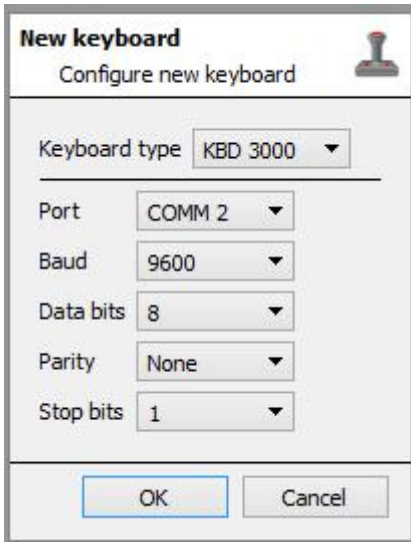
Give the input a descriptive **name**.

This Input works the same way as other triggers in an event, you may look to [9 Events](#)  for more information.

14 Keyboards

When adding a Keyboard to a unit there are two possible situations. You may either be adding it to a **Recording Server**, via the Site Menu → Open Tab → Setup Tab; or to a **Base/Viewing Station**, via the **CathexisVision** Menu Bar.

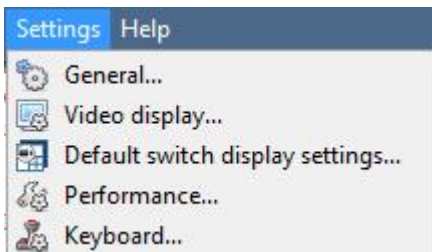
a. Recording Server



Adding a Keyboard to a Recording server is done on the server, and as such you need to access **Site** → **Setup Tab** → **Configure Servers** → **Keyboard**.

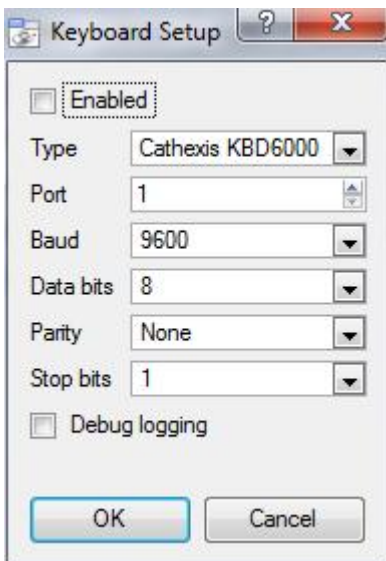
Simply choose the Keyboard type and enter the port number that corresponds to the port that the keyboard is plugged into.

b. Base Station



If you are adding a Keyboard to a base-station, you need to be on that specific base station.

Go to the menu bar and select **Settings** → **Keyboard**.



Enable

Check the box titled Enabled to enable the added keyboard.

KBD3000

The only setting that you need to change for the KDB3000 is the port number. (In fact, other changes will be ignored.)

KBD6000

The correct settings for the KBD6000 are as follows:

Baud	19200
Data Bits	8
Parity	None
Stop Bits	1

Again, these should be the default settings, and probably won't need to be changed.

15 Integration Devices General Settings

a. General Setup

Because there are many different integrated devices, and each device will have different options this General Setup section is designed to introduce you to the Integration Panel, and the features that are common to all integrations.

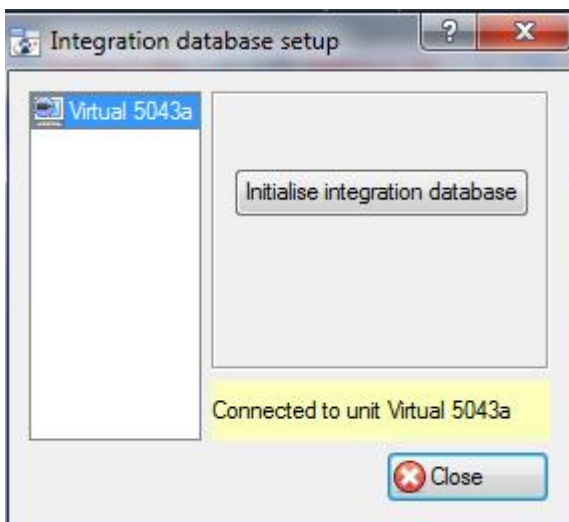
One major benefit of our Integration Devices panel is that it **centralises all integrations to one point**. The addition, edition, and management of all integrations added to a server/site is done from this one point.

) *Integration Database Management*

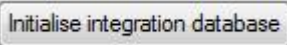
This is actually done outside of the Setup Tab → Configure Servers. This is because integration databases are not specific to servers, but should be considered as Site resources. For this reason, you add/edit integration databases via the Site Menu: Once you have logged into your site you need to navigate to the Integration Database Manager via **Site → Integration Database...**

) *Initialise the Integration Database*

This will add a broad database, within which you will be adding all of your integrated device's databases.

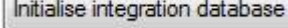


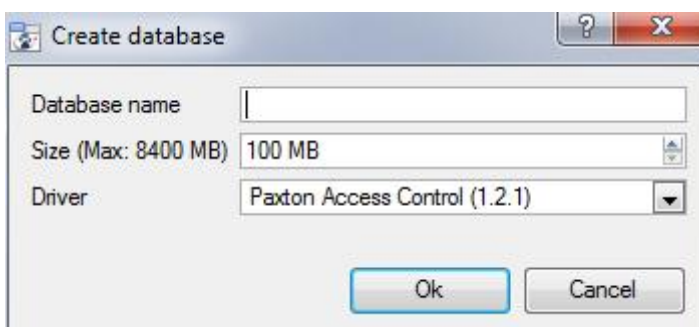
The first time you add an integration database you will have to initialise this feature on the unit.

Select the unit you wish to add the database to, from the list on the left, and click . You will have to choose which partition the database will be formed on, and select how much space it will take up.



) *Add a New Devices Database*

Right click on the white space that was occupied by  before you initialised your database, and click on **New**.



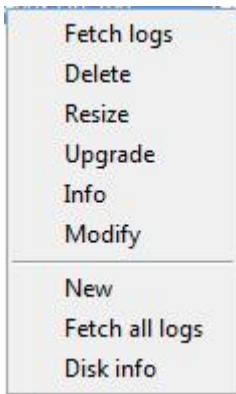
Give your database a descriptive **Database Name**.

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

Then choose the device **Driver** that your device will be using.

) *Integration Database Procedures*

Once you have added at least one database you will see the following procedures if you right click on a database:



Fetch Logs will fetch the logs for the unit you have right-clicked on.

Delete will delete the database you have selected.

Resize allows you to resize this database. You will have Min and Max options, which will either fill the database to the maximum, or the smallest, sizes allowed.

Upgrade upgrades the metadata base.

Info will give you a full list of all available information on the database.

Modify will simply allow you to rename the Database.

New will open the New Database Dialogue.


Fetch All Logs will pull a consolidated log for all integrations databases on this unit.

Disk Info will provide detailed information about the hard drive the database is on, as well as the Databases on it.

) *Open the Integration Setup Panel*

First we need to navigate to the Integration Setup Panel.

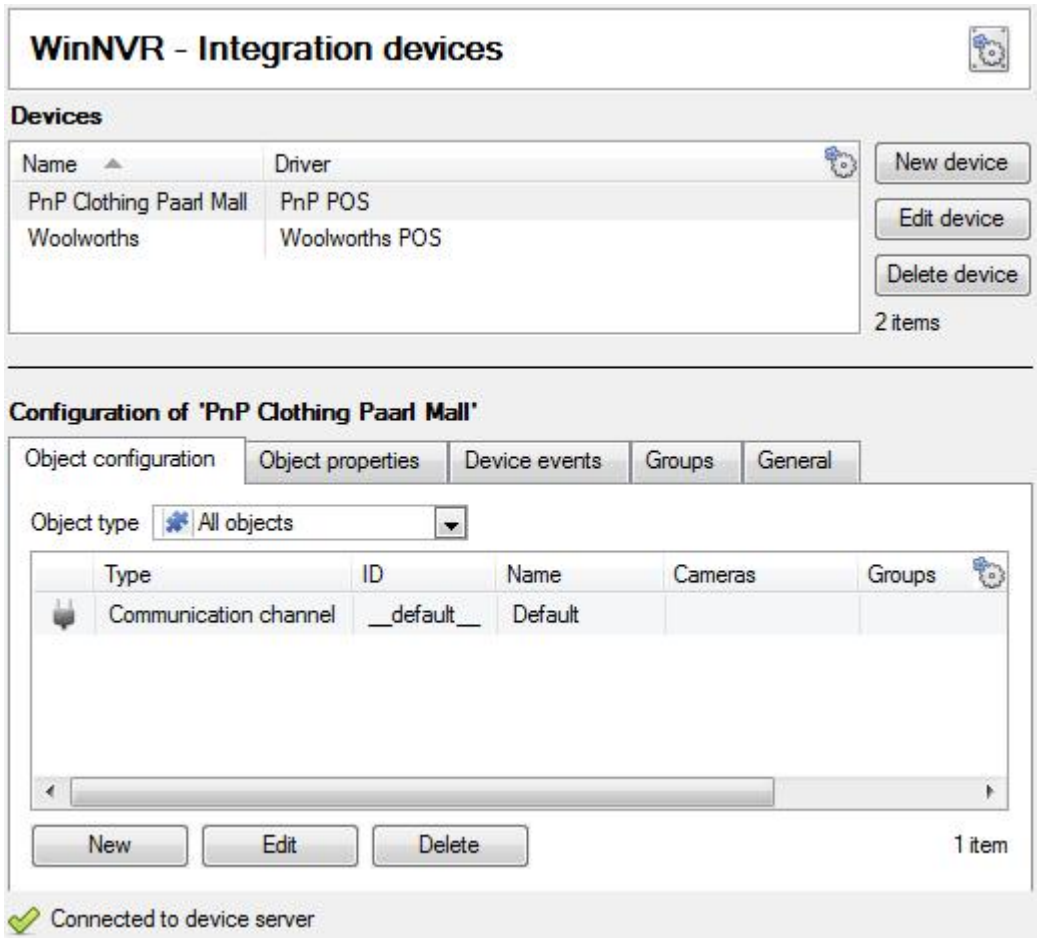
) *Enter Configure Servers*

Once in Configure servers left-click on  Integration devices



This will bring up the Integration Devices Panel on the right. This is the central point at which integrations are managed.

)] *The Integration Devices Panel*

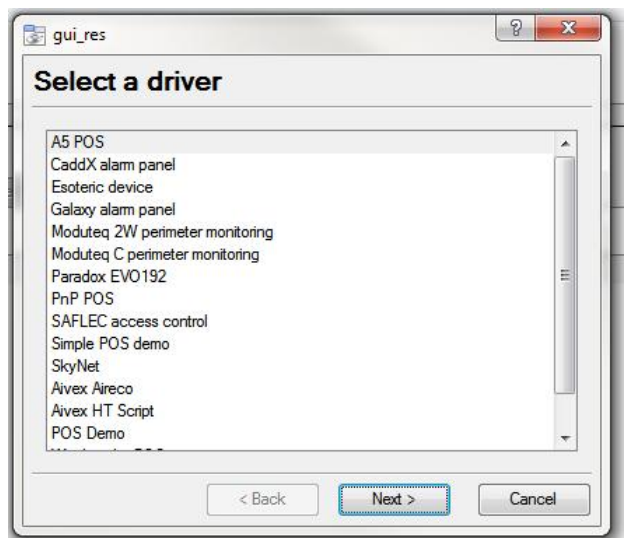


)] *Adding an Integrated Device*

Adding an integrated device is incredibly simple.

)] *Add the device*

Click *New device*, and select the drivers for the device that you wish to add.



) Devices

Devices	
Name ▲	Driver
Galaxy Integration	Galaxy alarm panel
Integrated_Device	Aivex Aireco

Once you have added your device it will show up in the **Devices** panel. Left-click on a specific device to access its Configuration Settings.

) Configuration Tabs

Initially the configuration panel will be titled **Select device**. Once you have added an integration the title will become **Configuration of Device_Name**. This is the area where you will be able to view your device's objects, and change settings.

The Configuration section will be automatically populated with the information received from the device.

Object Configuration Tab

Object configuration			Object properties	Device events	Groups	General
ID ▲	Name	Cameras				
1	Reception Door					
2	Reception					
3	Purchasing & Logistics	Cat Tech Admin area (Zone 3)				

Individual units attached to a specific device are called **objects**. For example, on a Point of Sale integration, individual tills are objects; or, in access control integrations, the individual access nodes are objects.

Objects can have cameras assigned to them, so that camera recordings can be linked to the till via a meta-database.

Object type

Each integration will obviously offer different objects.

Object Properties Tab

Object properties are the specific information about each object. For instance the different names that have been given to an access control node, its armed status etc.

Device Events Tab

This gives a live stream of all device events as they occur. For POS this would be sales, for Access Control this would be access events, and so on.

Groups Tab

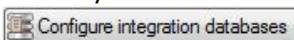
You can create groups of the same type of object. When creating a group you will select what object type you want to include in the group, once the group is created the available objects panel will fill up with all available objects of that type. From this list you will choose which objects you want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

This is incredibly useful in setting up Events as you can use an entire group as an Event Trigger.

General Tab

Offers general information, such as the meta-database that the integration is attached to.

You may also access the [Integration Database Management](#) dialogue from here, by clicking on



b. Important Considerations

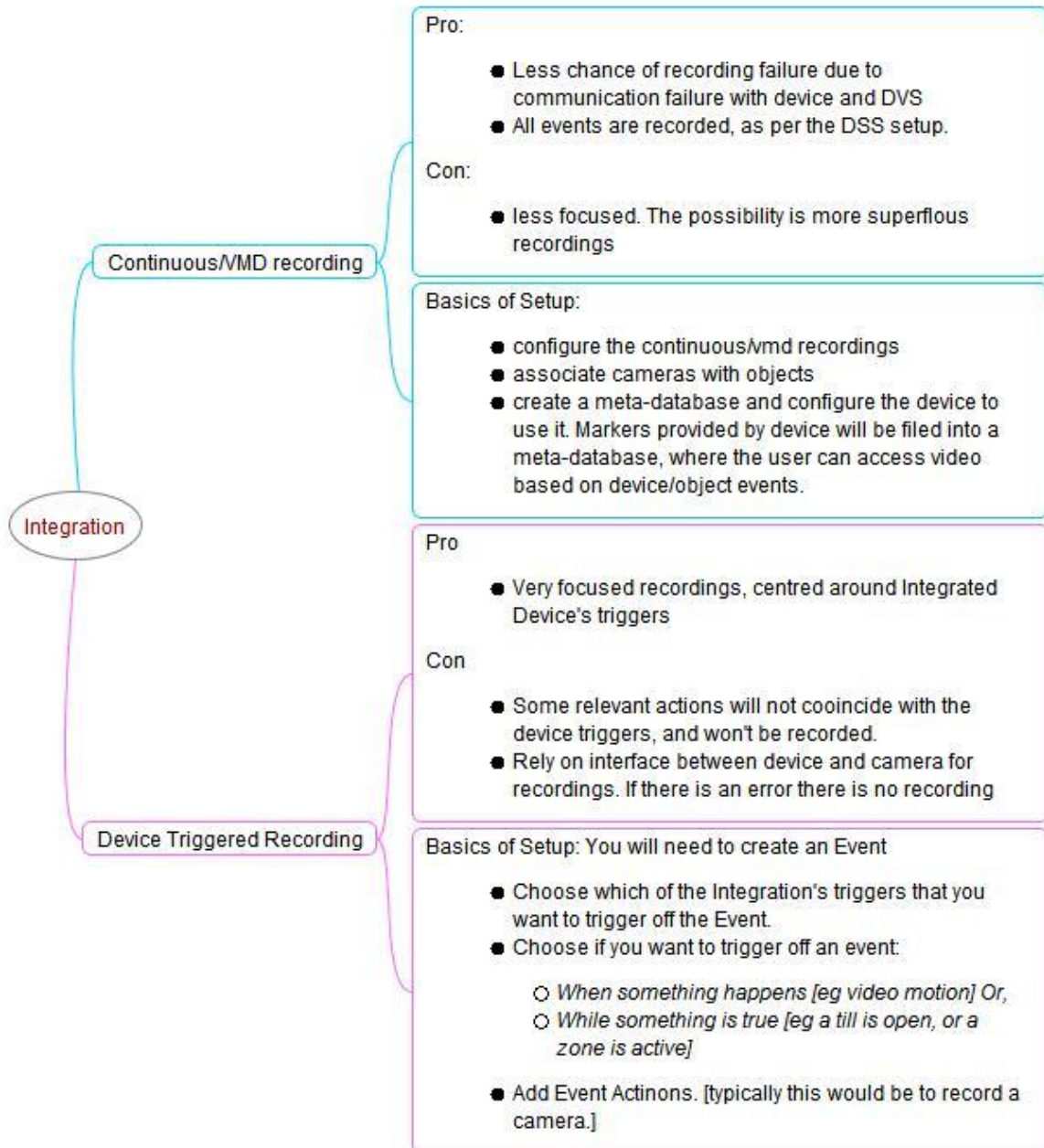
There are some things that you need to take into consideration when adding an integrated device.

Device Triggered Recordings; or Continuous Recording with Device Provided Markers


One of the first things to take into consideration when using an integrated device is how you want it to interact with your Surveillance System.

-) Do you want the device itself to trigger recordings? Or,
-) Do you want continuous recording with the integration creating time markers on this recording?

There are pros and cons to both. These, along with basic setup designs are provided in the mind-map below:



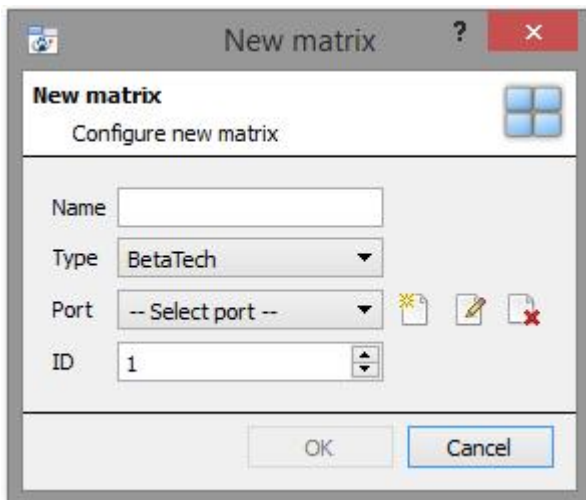
16 Analogue Matrix

CathexisVision has the ability to support an analogue matrix. Click on  Analogue matrix to access the setup. This feature allows for a true hybrid solution between IP and analogue based security installations.

Note: An Analogue matrix would be used on existing analogue based sites. So you would have an old analogue matrix controlling or switching analogue camera video feeds onto analogue monitors. The ability to control older matrices is useful when you need to switch a specific camera to a monitor based on a **CathexisVision** event action.

a. Add/Edit an Analogue Matrix

) *New Matrix Dialogue*

The 'New matrix' dialog box is titled 'New matrix' and contains the subtitle 'Configure new matrix'. It features four input fields: 'Name' (a text box), 'Type' (a dropdown menu with 'BetaTech' selected), 'Port' (a dropdown menu with '-- Select port --' selected), and 'ID' (a spinner box with '1' selected). To the right of the 'Port' dropdown are three icons: a yellow starburst, a pencil, and a red 'X'. At the bottom are 'OK' and 'Cancel' buttons.

After clicking on NEW you will see the dialogue box.

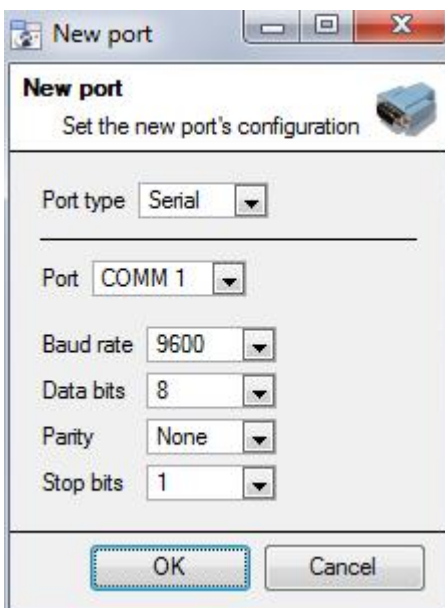
Give your matrix a descriptive **name**.




Select the **type** of matrix that you will be using.

Select/Configure a **port** (dealt with below).

Set the **ID** of the matrix.

) *Port Editing Dialogue*

The 'New port' dialog box is titled 'New port' and contains the subtitle 'Set the new port's configuration'. It features a blue RJ45 port icon. The form includes five dropdown menus: 'Port type' (set to 'Serial'), 'Port' (set to 'COMM 1'), 'Baud rate' (set to '9600'), 'Data bits' (set to '8'), and 'Parity' (set to 'None'). A 'Stop bits' dropdown is set to '1'. At the bottom are 'OK' and 'Cancel' buttons.

If you need to add/edit a port you will see this menu. To add a new port click on the  icon, to edit one click on the  icon, and to delete the currently chosen one click on the  icon.

Select the **port type** that you will be using.

The **port** option relates to the physical port on the unit.

Select the relevant **Baud Rate, Data Bits, Parity, and Stop Bits** for the specific matrix that you will be using.

Setup Tab: Resources

1	Resource Panel Configuration.....	129
a.	Resource Panel Setup.....	129

1 Resource Panel Configuration

The Resources Panel is the panel on the right hand side of the Cameras Panel, in the Cameras Tab. It is a customisable panel of resources, which gives the user quick access to the resources that are open to them. The Resources Panel Setup is the means to configure the resources that users will see in the Resources Panel.

The Resources Panel should present all of a site's resources in a manner that is suitable for operators on your site. For example: List all cameras for the 1st floor of a building under a folder called "1stFloor cameras", or list all doorway cameras under their own folder, or create a folder per operator, and list resources relevant per operator.

TIPS:

- **Ensure that you setup all of the resources** as required by the complete spectrum of users, because for most users this is the only point of access to the resources.
- **Resources can be repeated in different folders**, so, for example, you could have folders defined by user names, and certain resources repeating across all of these user folders.
- **Remove unused resources from the tab** to reduce interface clutter.

Enter Configure Servers, and Expand the Server Whose Resource Panel You are Editing.



a. Resource Panel Setup

The screenshot shows the 'Resource panel' interface. Callout 1 points to the 'Unit resources' tree on the left. Callout 2 points to the 'Resources' list on the right. Callout 3 points to the 'Camera layouts' section at the bottom. Callout 4 points to the filter icon at the bottom left.

1. This list is the list of servers on the site, and the resources each server has.
2. This is the list of resources that will appear in the Resources Panel.
3. Clicking on any of these toolboxes will bring up the named resource. You can see this in the example of Camera Layouts, to the right.
4. This is the filter feature. You may use this to remove some resources from the list, to simplify the screen.

The available filters are represented in the image to the right.

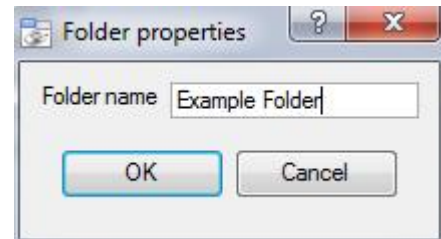
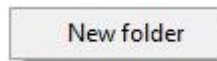
The filter dialog box shows a list of resources with checkboxes. The 'Camera' checkbox is highlighted with a dashed border.

) *Add a Resource to the Resources List*

To add a resource to the list that will appear on the panel simply select one or more resources, by left clicking on them, then click-drag them horizontally into the Resources area.

) *Create a folder*

You may organise your resources further by creating a folder. To do so, right-click on any white-space in the resources area (Where the included resources are), and click on New Folder. Give the folder a name.



To add items to the folder, simply drag-click them into the folder, in the same way that you added resources to the list.

) *Delete/Rename folders and Resources*

To remove items from the Resources Panel list, right-click on the item and click **Delete**.

To Rename a folder, right-click on the folder, and click **Properties**.

Setup Tab: Site Actions

1	Site Actions.....	132
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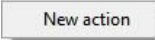
1 Site Actions

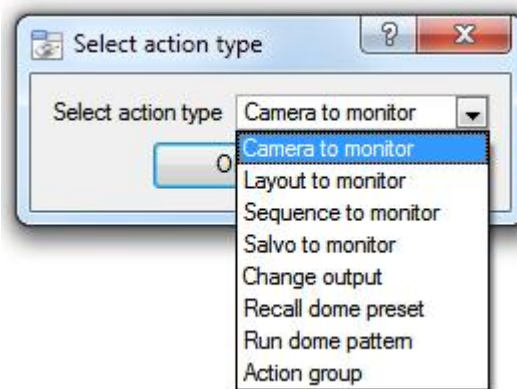
Site actions are setup in the **Site Actions** section in the Setup Window. From Configure Servers, click on the following icon to get there:




The reason for having site actions outside of the Events Setup Window in Configure Servers, is because of the fact that, when you edit Events, you do so on a server by server basis. [A good way to think of Site Actions is as *Universal Actions*.] Therefore reason for creating a site action is to create one action that can be applied to multiple events, across multiple servers.

) *Creating a Site Action*

To add a new action simply right click on any white space in the Actions Panel, and select . The drop down menu will contain a list of all possible site actions. Select the relevant action and set it up. The menu will change depending on the action you wish to create.

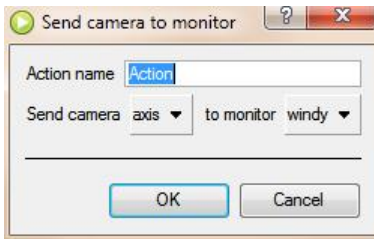


- | | |
|----------------------------|---|
| Camera To Monitor | This will send a preconfigured camera to a CathexisVision Video Wall . |
| Layout to Monitor | This will set the view on a Video Wall to a predefined Layout. |
| Sequence to Monitor | This will run a predefined Sequence of individual cameras in panel. |
| Salvo to Monitor | Will run a predefined Salvo of Layouts on a Video Wall. |
| Change Output | Changes an Output state. |
| Recall Dome Preset | Sends a PTZ camera to a preset position. |
| Run Dome Pattern | Cycles a PTZ through a pattern (a sequence of preset positions). |
| Action Group | An action group is a group of site actions. |

Note: As with the other events all the actions under Site Actions need to have already been created before you can create an action using them. [For instanced the *Camera to Monitor* Site Action uses a monitor that was created under  **Monitors** in Configure Servers.]

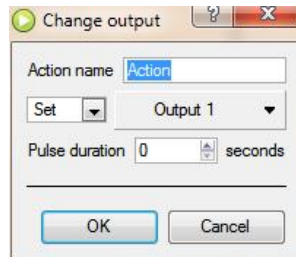
Four Action Types

Monitor related actions



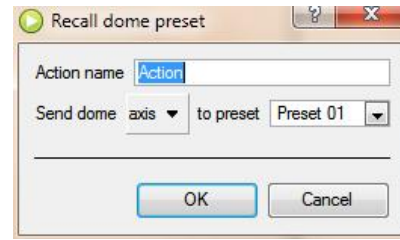
Will send a specific site resource to a predefined Monitor

Output related actions



Will change the state of a predefined Output

Dome related actions



Will affect a PTZ camera. I.e. **Run Dome Pattern**, or **Recall Dome Preset**.

Group actions

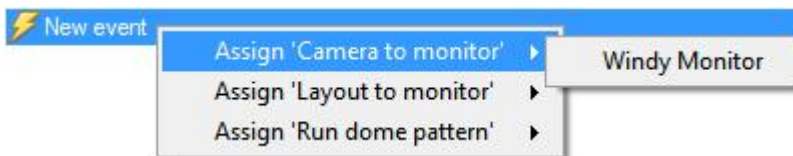


An Action Group is a single Site Action that contains multiple Site Actions.

Use this option when you want to have more than one Site Action on an event

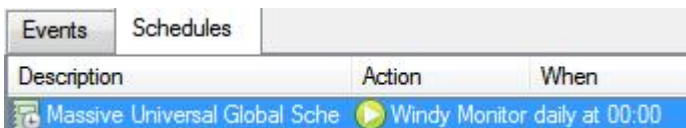
Adding a Site Action to an Event

If you want a site action to trigger when an Event triggers, attaching a Site Action to an existing Event is very simple. Right-click on one of the events. This will give you a list of Action Types that you have added. Under each type is a list of all Actions of that type that you have created.

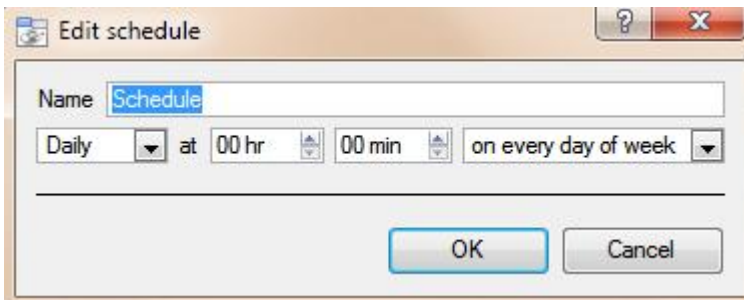


Select the Action that you want to assign to this event, and you are done!

Adding a Schedule to a Site Action



If you don't have any schedules created right-click any white space under the schedules tab, and select **New schedule**. This will bring up the **Edit Schedule** window, as seen below.



To add the schedule you will have to select the exact times when the Site Action will be triggered.

[i.e. It is not an *active during* schedule, it is a *trigger when* schedule.]

Use the drop down menus to further specify times.


Note: The schedules created here only apply to Site Actions, and cannot be applied elsewhere.

Setup Tab: Reports

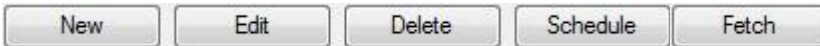
1	Reports.....	136
a.	Controls.....	136

1 Reports

CathexisVision offers extensive reporting on both the Hardware, and Software, that comprise your Site. A very practical feature of Reports is the ability to create **Report Templates**. These are pre-defined sets of reports that will pull the same information each time. One of the real benefits of the Templates is the ability to retrieve the reports on a schedule.

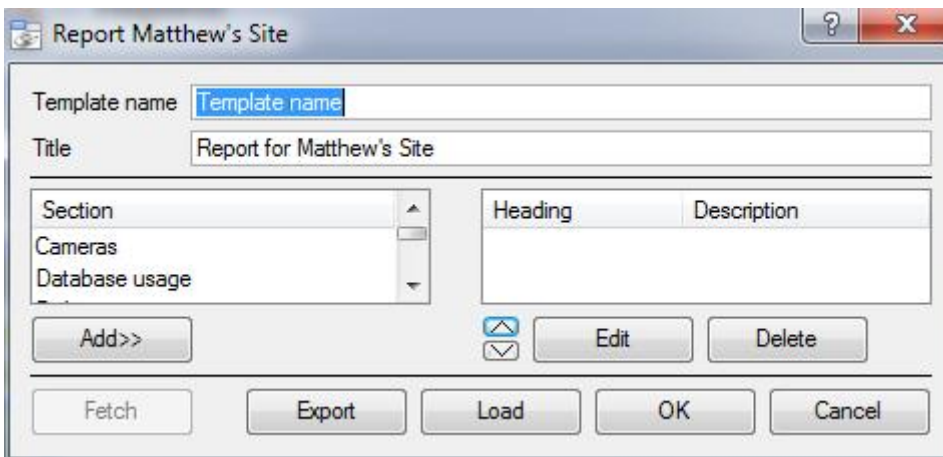
Reports is under **Site Menu**→**Open Tab**→**Setup**→ 

a. Controls



) *Add, Edit or Delete*

To Create a Report, or edit a new one, click on either New or Edit. In the Report Template Editing window below you will see two columns. The column on the left is populated with all the available Report Variables. The column on the right is filled with the variables that you wish the current Report Template to use. Each available **Section** will be explained in detail, below.



Template Name is the name of the Template.

Title will be the title of Report that is produced.

Add will add the selected section to the Report's list of active variables.

Edit will edit a variable selected from the active list.

Export will export the Template as local file on the Master NVR, which can then be imported to another Site using the **Load** button.

Fetch will generate the Report that you have setup, based on the variables that are currently populating your active variables list.

Note:

-) Many of the report variables will require some setup.
-) The reports will appear wherever the variable appears in the list. So add them in the order that you want them to appear in the report.

) Cameras Section

Report Type

Choose one of the descriptive Report Types.

Show failures tells the report to show the number of failures for a camera over the given period (a failure is when the camera goes from working to not working i.e. it fails)

Only display exceptions tells the reports to only show cameras that meet the exception criteria, which the user specifies on that same page. This is useful if you only want to see the problem cameras.

) Database Usage Section

Report Type. Choose from one of the descriptively titled Database Report Types.

Notes. You may add some notes about the report, or why you are fetching it.

CSV. This will generate the information in Comma Separated Values, instead of a table. This is a standard representation of data, and can be moved into a spread-sheet if necessary.

) Disks Section

Report Type.

A Full Report will contain all available information on the Disks, including temperature, and Raw Read Error Rates.

An Exception Report will contain only information on Exceptions that have occurred.

) Environment Section

Environment will fetch information about the environment inside your servers. Such as voltages, CPU temperatures, and fan speeds.

) Events Section

The "Events" reports listed the frequency of events occurring over a period.

Note: from 2016 onwards this option will not work.

) *File Systems Section*

This will bring up a report on the File System setup of the unit. This includes the partitions of the drives, which partition they are, and how full they are.



When adding a File Systems report you will be prompted to choose between a report of all file-system information, and one that just pulls the data on Exceptions.

Note: This feature is only available on NetBSD units.

) *Hardware Section*

This will fetch a full list of the relevant hardware components inside your servers. (Includes pc hardware, and **Cathexis** specific hardware)

) *Licenses Section*

This will fetch a list of all the licenses, and their descriptions, on all of the units attached to your site. (This will exclude the Base Stations.)

) *Network Time Protocol Queries Section*

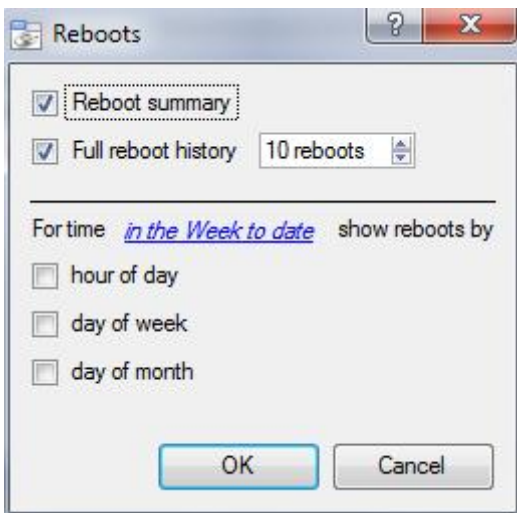
If you have setup NTP, this report will pull all NTP query related information.

) *RAID Section*

If you have setup a RAID storage system this report will fetch the relevant RAID information for you.

Note: This is only for legacy Ereca RAID NetBSD 4.0 DVR units.

) *Reboots Section*



Reboots are an important problem to monitor.

If you want to fetch reboot reports for a period other than [in the Week to date](#), click on the hyperlink.

This will take you to the calendar settings, where you may set the report to pull information from a

-) **From-To** period. (E.g. from X date-and-time, to Y date-and-time)
-) From the **previous** X hours, or
-) Over a **period** of time, starting at a set time, on a set day.

) *Recording Times Section*

The amount of time each camera, on each server, has spent recording.

) *Software Section*

This will list the version of **CathexisVision** running on each server.

) *System Section*

This will list the Time Zone related information. (Time, Time Zone, Daylight Savings.)

) *System Setup Section*

This relates to the cameras/encoders attached to your system, and how they are setup. There are two options a **Camera Recording Setup** report, and an **Encoder Setup** report.

Camera Recording Setup	This will pull all the information related to the actual recording of images. Such as the frame-rate of recording, the pre-event recording time, and the post-event recording time.
Encoder Setup	This will pull all the information related to the setup of the encoders. Such as: the Type of Encoder, the IP address of the encoder, the name of the camera, which input(physical input on the Encoder) it represents, the Firmware etc.

) *Unit Up-Time Section*

Up-Time is the amount of time that your unit stays on between reboots, or failures. It is of similar importance to Reboots.

And an important setting is . You may either show Up-Time, or Down-Time. You may also express the Up/Down-time as a percentage, or in time units.

) *User Defined Section*

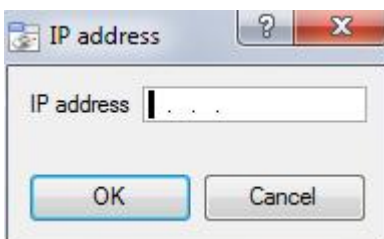
When adding a User Defined variable you will be presented with an empty text editor box.

The text you add here will simply be added as a section in the report. You may use this to add any general notes, or information you need to appear in the report.

) *VMX Counters and VMX Temperatures Section*

Each brings up a different set of information about VMXs attached to your servers.

) *Windows Unit Section*



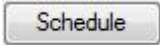
When adding a Windows Unit you will be prompted to enter an IP address.

This report will pull information for Windows Base Stations that use your Site.

This will include hardware, and software information about the Base Station, as well as the **CathexisVision** applications that it has been using.

) Schedule

The screenshot shows a dialog box titled "Site report schedule". It has three radio buttons: "No schedule", "Schedule" (selected), and "E-mail report" (checked). Below the radio buttons is a "Format" dropdown menu set to "HTML". Under the "Schedule" section, there is a dropdown menu set to "Hourly", followed by "at" and a spinner box set to "00 min", and "after the hour". The "Actions" section has a checked "E-mail report" checkbox and four "Recipient" dropdown menus, all set to "No contact". At the bottom are "OK" and "Cancel" buttons.

To add a Schedule to a report: Select a report from the Reports list, and click on the  button.

Format. Emailed reports are sent in HTML format.

Schedule. The actual schedule may be generated of a variety of time frames, from hourly to monthly.

Actions

If you have setup emailing on your site, and setup some Site Contacts, then you may email the reports when they are generated.

) Fetch

This will pull the report for the Template that you have Chosen.



At the bottom of the fetch window you have four options.

1. **Print** the report
2. **Export** the report as an HTML file, for later use.
3. **Email** the report
4. **Archive** the report
 - a. The archived reports are filed under Install_Path\sitedb\reports.
E.g. C:\Program Files (x86)\Cathexis CathexisVision Suite WRV\sitedb\reports

Setup Tab: Failover Setup

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1 Introduction

a. Model

Cathexis uses a *hot-spare* model for failover. In this model failover servers monitor the recording servers. When a recording server is down one of the failover servers assumes the functions of the failed recording server.

In failover mode the failover server operates exactly like the failed recording server, and the site continues to function, as if the recording server had not failed. Video is buffered on the failover server, and re-inserted into the original recording server's database, when it restarts.

It is possible to have multiple failover servers monitoring a site. More failover servers mean less risk of downtime. **Note:** One failover server can only assume the function of a single recording server at a time.



Image Above: A site, in normal configuration, with the Hot-spare Server available to assume the functions of a Recording Server. Note that there are different IP addresses for the Recording and Hot-spare servers.



The failover unit is represented with the unit icon to the left.

It is distinguished from regular units by the lifebuoy/lifesaver image.

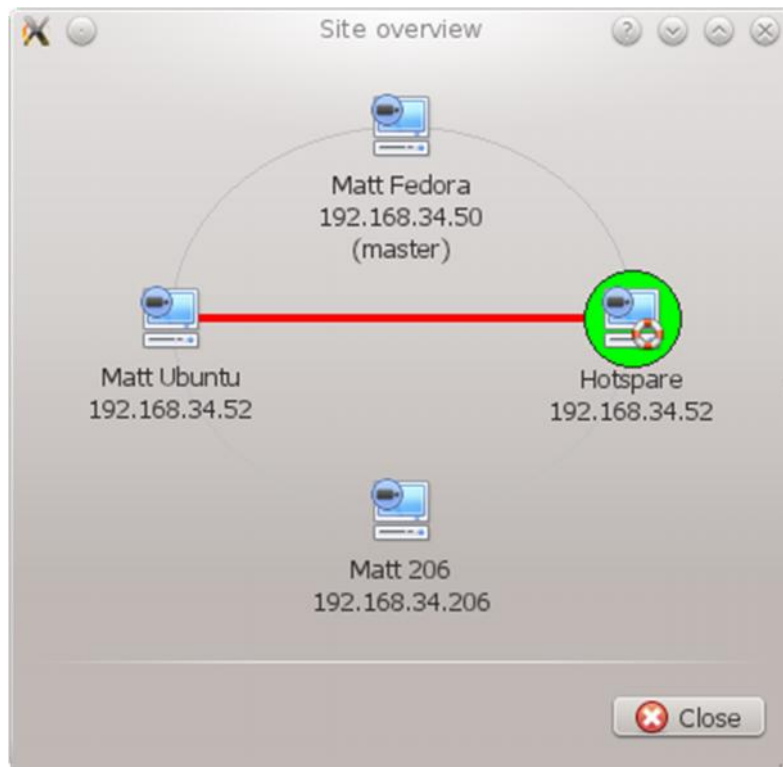


Image Above: A site, in Failover configuration, with the Hot-spare Server having now assumed the functions of the failed Recording Server 192.168.34.52. The Hot-spare Server could assume either of the Recording Servers functions.

b. Licensing

Each failover server requires a *failover server license* (using **CFOR-2000**), and an adequate number of *failover camera licenses* (**CFOR-10xx**). **Note:** The failover servers and camera licenses are all loaded onto the site master server.

1. The number of failover camera licenses, must be equal to, or greater than, the number of cameras on the recording server that is to be failed over. (I.e. if a recording server has more cameras than there are failover camera licenses it will not get failed over.)
2. If there are multiple failover servers, the failover camera licenses will be distributed evenly between them. (E.g. with 3 failover servers, and 90 failover camera licenses, each failover server will get 30 camera licenses.)
3. All Cathexis SAM encoders require failover licenses. Licenses are required per channel.

Note: Before the failover server is licensed the status bar license warning will be red, and if it is expanded the description should be that the failover server is unlicensed. By adding the required number of failover camera licenses the status bar license warning should disappear.

c. Recommendations

When configuring a site with failover, there a few things the designer can do to maximize system up-time:

1. Have a highly reliable site master. This is important for two reasons:
 - i. External viewers connect to the site using the IP address of the site master. If the site master fails, the external connections fail.

- ii. The site master disseminates the information of the site to the slaves on the site. When the site master is down this dissemination does not happen and the site operates sub-optimally.
2. Don't attach any cameras to the site master, and disable failing over of the site master (this is so that if the site master does fail, it does not use one of the failover servers that could be used for a recording server).
3. Configure VGA monitors on the site master.
4. Storage space: you will need enough recording storage on the failover server to serve for the maximum expected downtime, of most active unit you will be failing over. (So if you expect to have a maximum of one day's downtime, you will need enough storage to serve for this period.)

d. Limitations

-) NetBSD servers cannot be failed over.
-) Servers with frame-grabber cards (AVM/VOM) cannot be failed over.
-) The recording server needs to use the 'Advanced' database for reinsertion. This is standard for CathexisVision 2015 onwards.

e. Example

Single site with the following:

- 2x NVR's with 64 cameras on each (one is the site master NVR)
- 1x NVR with 50 cameras
- 1x NVR with Gateway

Single server Failover setup

1x Failover NVR with 64 Failover Camera licenses - assuming you want provision for only a single server failure at any one time.

Multiple server failover setup

To have failover on all 4 site NVR's simultaneously you would require 4 failover servers with 256 Failover Camera Licenses (4 x 64). The camera licenses are shared across all failover servers and since the maximum number on a single server is 64, then all servers must have access to 64 camera licenses.

The Gateway WIN7 machine, if part of the site, will be failed over but the gateway functionality will not be functional due to the IP address change – there is therefore no advantage in having Failover on this unit for its Gateway functionality. If the Gateway PC was excluded from the site then only 3x Failover Servers and 192x Failover Camera Licenses (3 x 64) would be required.

2 Setup

a. Introduction

The failover configuration has two levels:

1. The failover server software needs to be installed on the failover NVR/s.
2. The site needs to be configured to have access to the available failover server/s.

b. Requirements

Ensure that the failover and recording server (NVR) times are synchronized. This is a critical requirement for the database items recorded to the failover server to be correctly re-inserted into the recording server's database.

c. Configuration

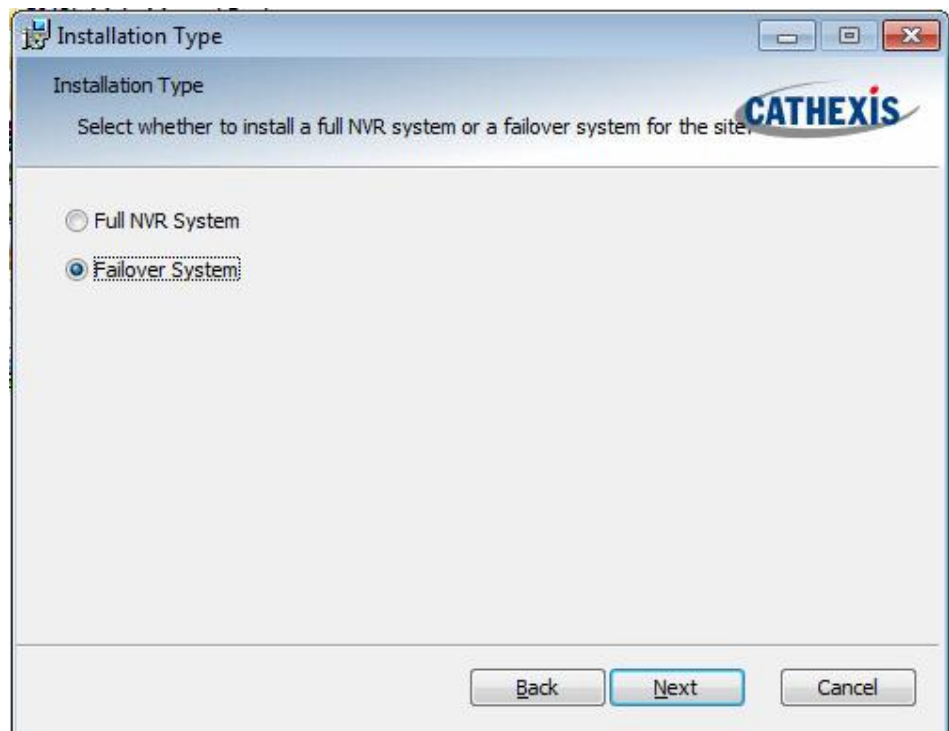
) *Failover NVR Configuration*

A **CathexisVision** failover server is installed with the regular **CathexisVision** installer. After installation, if you try to run the GUI it should popup a message saying "This server is running as a hot spare".

) *Install the CathexisVision Software*

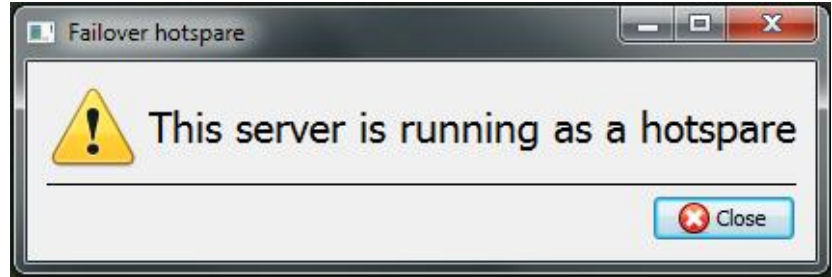
The failover server will need the **CathexisVision** Software installed on it.

During the installation process you will be prompted to choose between a **Full NVR System** and a **Failover System**, for this installation, choose the **Failover System**.



) *Check your installation*

After a successful installation, if you attempt to run **CathexisVision**, by double clicking on the **CathexisVision** icon, you will see the dialogue box to the right:



) *Site Failover Configuration*


Each unit that you want to be failed over will need to be setup to do so. All failover servers are added to the site on the site master. There is not individual master/slave recording server configuration required for failover setup.

) *Open the Failover Panel*

To open the Failover setup, follow the instructions below.



After logging into your site, to open Configure Server simply click on **Site → Open Tab → Setup**. Once in the Setup Tab click on the


Configure Failover Servers icon: 

Note: Right-Clicking on the tab of any open site will bring up the same menu as the one accessed via the method above.

) *Add a Failover Server*

Server



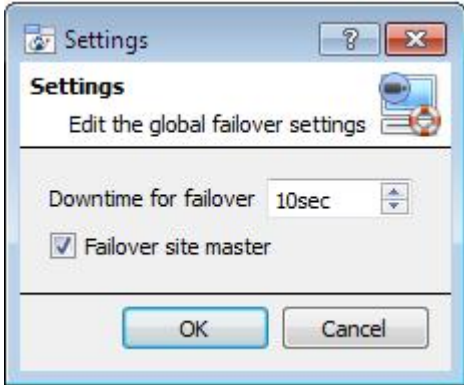
Clicking on  will open the dialogue to add a new failover server.

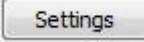
Add a descriptive **name** for the failover unit.

Enter the **IP address** of the failover unit.

Click **Next** to proceed to adding the failover database.

) *Define the Global Failover Settings*

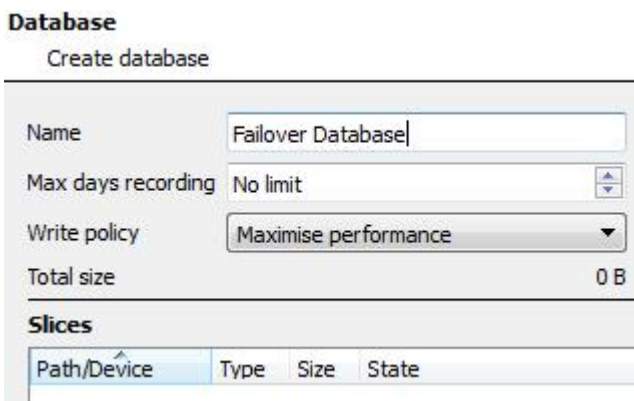


Click on  , inside the Failover panel.

Here you may define the duration of **downtime** that is required for the failover server to take over.

Check **Failover site master** if you wish to failover the site master unit. (Note: you will lose outside connectivity when the site master is in failover.)


Database



This is the database which resides on the failover server itself. The larger the database the more recording it can do, in its capacity as a failed over unit.

Note: This dialogue will only appear when editing a newly created failover server.

) *Check that server is online*

Name	IP address	Status	License
Windows 7 failover	192.168.3.242	Offline	

Once the server has been added you will be able to see its status, and licensing in the Failover panel

) *Failover Insert Database*

When the failed over server comes back online, the recordings that were stored on the Failover NVR will be moved back to it. Many servers will have multiple active databases; as such you will need to select which database these recordings get inserted into.

The reinsertion time for the video is dependent on the current recording server load onto which the databases are being updated due to the lower priority level of this process.

Navigate to the Databases Panel



After logging into your site, to open Configure Server simply click on **Site** → **Open Tab** → **Setup**. Once in the Setup Tab click on the



Configure Servers icon:
Expand your server, and left-click on Databases:



Select the Insert Database

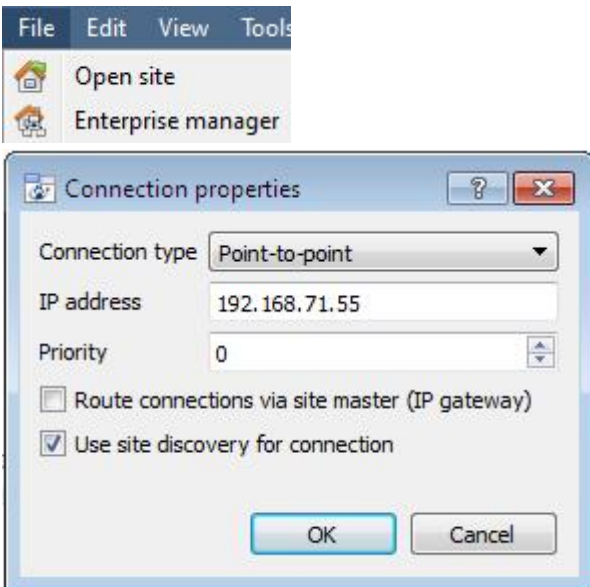


At the bottom of the databases panel you will see the Failover settings section. Click on “Select database” and select the database that you wish to reinsert the failed over recordings into.

Client Viewer Settings

If you have setup your failover so that the site master will also be failed over, you will need to have **Use site discovery for connection** option checked. This is important because, when a unit is failed over, its IP address will change. If you do not have this option enabled, and your site master gets failed over, your client will have the wrong target address for the master unit. If this happens the client will not be able to access the site.

To do this:



1. Open the **Enterprise manager**, via the File menu.
2. Select your site from the Site panel.
3. Right click on the target IP address, and click on **Properties**.
4. In the connection properties dialogue check the option titled **Use site discovery for connection**.

Site Master Settings

You can setup the Site Master to generate a Technical Alarm, if any of the failover servers are down. For more information on this please refer to the **Technical Alarms** section of **Configure Servers**, which is dealt with in **Section 4.12 Technical Alarms**.

3 System Restore after Failover

Note that it is vitally important that system restore points are correctly managed for each and every site recording server for the effective configuration restore of failed recording servers. Offsite backup of restore files is strongly recommended. The **Configuration Backup** settings are found on the **Site→Setup→Configure servers→Server(Master)**. After clicking on the master server, click on the **Configuration Backup tab**? Database settings are not automatically backed up and restored, and will need to be manually reconfigured.

) Restoring a Site Master Recording Server

If a full repair of the Site Master Server was required, then after reloading all the original software, do a system restore from the server itself to the most recent restore point. If the motherboard of the server required replacement then new licenses will need to be issued from support@cat.co.za linked to the new MAC address of the master server. The databases will need to be reconfigured from the Site Setup menu. Once the repaired Site Master Recording Server is running and reconnected **with its original IP address**, the failover server will stop failing over the old site master server and dump the recordings made during the failover process onto the new site master. The failover server will revert back to monitoring all the servers on the site.

Important Notes:

-) Ensure that the new unit's IP address is the same as the previous master unit.
-) Install the correct software version (new installation, without config).
-) Apply a restore point from the old site master.
-) License the new unit, contact support.
-) At this point the site should be back online and the hotspare should no longer be failing over the old master unit.
-) Create new databases.
-) Select a database to insert failover recordings into.
-) Ensure that all events and recordings point to the new database.

) Restoring a Site Slave Recording Server

If a full repair of a Site Slave Server was required then after reloading all the original software do a system restore from the slave server itself to the most recent restore point. The databases will need to be manually reconfigured from the Site Setup menu on the slave server.

On the site master server under SETUP=>SERVERS, right click on the old slave server and select "Replace Server" which will insert the new slave server into the site as the failed server replacement. Once the new slave server is registered and running, the failover server will relinquish control and dump the recordings from the failover operation onto the new slave server. The failover server will revert back to monitoring all the servers on the site.

Important Notes:

-) Ensure that the new slave unit has appropriate IP settings for your network.
-) Ensure the correct software version installed, and no previous configuration.
-) Apply a restore point from the original slave unit onto the replacement unit.
-) The Failover server needs to be taken offline before the slave unit can be replaced
-) Bring the failover back online after the unit has been replaced
-) The Slave unit will need to be re-licensed; clients will have to contact support. **Licensing →Advanced→Repair this units license.**
-) Create new databases.
-) Recordings need to be edited to point to the new DATABASE.

CathexisVision GUI Setup

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1 Introduction

It is important to remember that this GUI document is purely for the setups that take place in the **CathexisVision** GUI. If you cannot find the information you are looking for in this document, you may be looking for information that relates to the operation of the **CathexisVision** GUI, this information is in the **Operators Manual**.

While there is some overlap between setup and operation (e.g. layouts and sequences), this division of documents is a necessary one.

2 Command Line Options

There are a number of options in **CathexisVision** which need to be enabled/started via additional command line options. These can be added to the target paths of the shortcuts used to open the **CathexisVision** GUI.

To edit the shortcut, do the following:



Right click on the **CathexisVision** icon, and click on **Properties** in the context menu. In the Shortcut options tab that is opened, you will see the following entry:

Target: `"\Cathexis catVision Suite NVR\nvr_gui_res.exe"`

You will have to add the extra commands after the “ at the end of the shortcut. Remember to leave a space between commands added to the target.

Note: you can add multiple options to the end of the target by leaving a space between each option.

a. Alarm Gateway

If you would like to review a **CathexisVision** Alarm Management Gateway you will need to add the following:

```
gw xxx.xxx.xxx.xxx
```

The “x’s” here represent the IP address of the gateway unit that you want to connect to. As an example it would look something like this:

Target: `"n Suite NVR\nvr_gui_res.exe" gw 192.168.42.43`

b. Cameras and Monitors

) *Number of Monitors*

The default number of simultaneously reviewable cameras in **CathexisVision** is 8. For the most part this is sufficient, but if you need to increase this limit, you may do so by entering the following into the target:

```
forms x
```

Here “x” represents the number of monitors you would like **CathexisVision** to occupy when it starts up.

) *Max Number of Reviewable Cameras*

The default number of simultaneously reviewable camera in **CathexisVision** is 8. For the most part this is sufficient. But if you need to increase this limit you may do so by entering the following into the target:

```
max_reviews x
```

Here “x” represents the number of cameras you wish to set as the maximum review amount.

Note:

1. This is for reviewing recorded footage, not the viewing of live cameras.
2. The default number is a conservative amount, and is set to prevent **CathexisVision** from consuming too much of the systems RAM to function.

c. Multiple CathexisVision GUIs

You can add the following to the target path if you would like to have multiple **CathexisVision** GUIs open simultaneously:

user1, user2, userX

d. Legacy Archive Viewer

The legacy archive viewer will not be present from 2016 onwards, by default. In order to see it in the GUI the user will have to add the following command line argument:

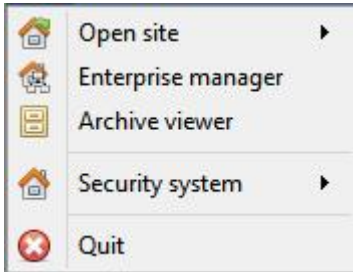
legacy_archive_viewer

3 Menu Bar

File Edit View Site Video wall Tools Settings Help

This will detail the different options available to the user through the menu bar of the **CathexisVision** GUI.

a. File Menu



) *Open Site*

The menu attached to this tag will be a list of the Sites that have been added to this unit.

) *Enterprise Manager*

The enterprise manager is where all your Site management occurs. You may add/edit/remove sites, as well as create site folders.

The assignment of Resource Sites occurs in the Enterprise Manager as well.

) *Archive Viewer*

This will open up the Archive Tab. If you have any archived video it can be viewed here.

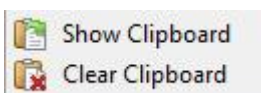
) *Open Site List*

The names under Archive Viewer and above Quit represent the Sites that currently have connection tabs open in the GUI.

b. Edit

The edit menu, in general only displays the Show Clipboard, Clear Clipboard options. When you have the Enterprise Manager open you will see a range of different options.

) *General Edit Menu*



The only information contained on the clipboard in question will be when you capture a screen grab from one of the cameras in the Cameras Tab.

) Enterprise Manager Edit Menu



New/Edit/Delete Site will add a new Site; edit an existing Site, or delete an existing Site.

New Connection will add a unit connection to the selected Site.

Fetch Site ID gives a created site an ID, which is essential for a site to run. Perform this after creating the site, and adding unit connections to it.

Make Resources Site will make a site a Resources Site for this unit. This allows the unit to display a Video Wall, Alarm Management Gateway, and Maps Tab for this site.

New Folder. You may organise Sites in the Site List into folders.

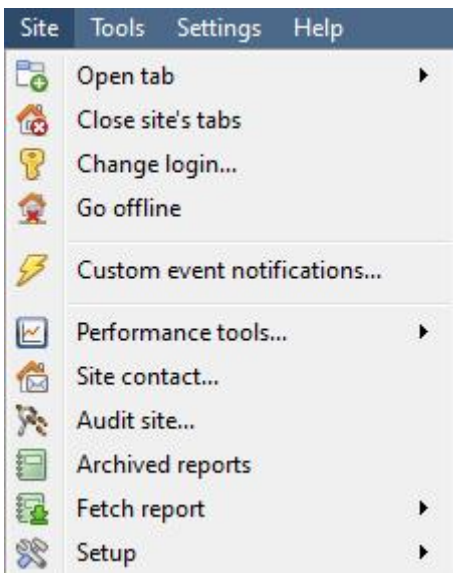
Highlight Level will highlight all Sites where X level is authorised.

c. View Menu

The only option available here is the option to change the GUI view to Full-screen.

d. Site

The site menu will relate to the site whose tab you are currently viewing. To open a new Site you will need to follow **File** → **Open Site** → **Site Name**. You may get this same menu, from a list of all currently open sites under the **File Menu**.



Open Tab will open any available tabs (Cameras, Database, Map).

Close Sites Tabs will close all open tabs for this Site.

Change Login will change the user who is logged in.

Go Offline will terminate the connection to the Site.

Custom Event Notifications [below](#)

Performance tools Please see the Appendix to this document.

Site contact will show you the name and details of the Contact person for the site.

Audit Site [below](#)

Archived Reports will display a list of previously archived reports.


Fetch Report [below](#)

Setup [below](#)

) Custom Event Notifications

Note: This is the main setup section for the Event Notifications feature.

Event Notifications are GUI based notifications, which will appear to an operator when he/she has a Cameras Tab open. There are three types of notification.

Audio Notification	A sound clip that gets played when the event triggers.
Message Notification	A message that gets displayed in the notification area of the resource panel. It's meant as an unobtrusive feed of events (click the  icon at the bottom of the resource panel and the notification area will get shown. This can be resized). If an event has camera resources associated with it, then the notification can be double-clicked and the cameras will be shown in the camera view.
Popup Notification	A popup message box that is shown when the event triggers.

) *Event Notification Setup*

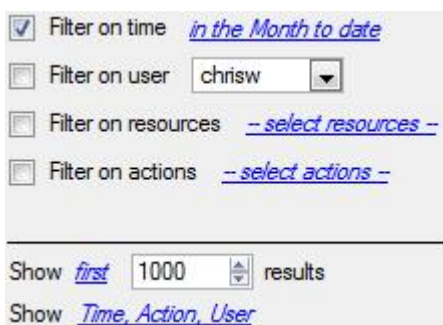
There are 4 levels at which these notifications can be configured (one global, and three tiers of Site based settings).

Global Level (all events for all sites)	The notifications can be configured per event priority. This is done in <i>Settings Menu</i> → <i>Default Event Notifications</i> .
Site Level	The event notifications can be overridden for a particular site. <i>Site menu</i> → <i>Custom Event Notifications</i> → <i>Site Tab</i> . Then click on Use custom settings .
Server Level	The event notifications can be specified for a particular server on the site. <i>Site</i> → <i>Custom Event Notifications</i> → <i>Servers Tab</i> . Then click on Use custom settings .
Event Level	The event notifications can be specified for a particular event. <i>Site Menu</i> → <i>Custom Event Notifications</i> → <i>Events Tab</i> . Then click on Use custom settings .

Note: These settings reside on the viewing station. So each viewing station can be configured as each operator wants it to be. The idea being that operator A may want his system to respond in one way to certain events that is different from operator B on a different viewing system.

) *Audit Site*

Audit trails are the historical “footprints” left by various processes. They are used primarily as diagnostic tools to identify exactly what happened in the system. Each audit trail is in the form of a textual list of historical actions.



There are multiple options for filtering the audits, as there can be an overwhelming amount of information in the audit logs. All the hyperlinks open up a full list of options for you to filter on.

You may filter Time, Users, Resources, and Actions.

The **Show first/last** option allows you to limit how many of the results are brought up.

Show time/action/user option allows you to add/remove columns to the audit report, and will list the selected variables.

) *Print, Save, Refresh*



The report is not live, so if you want to update the information, click on Refresh.

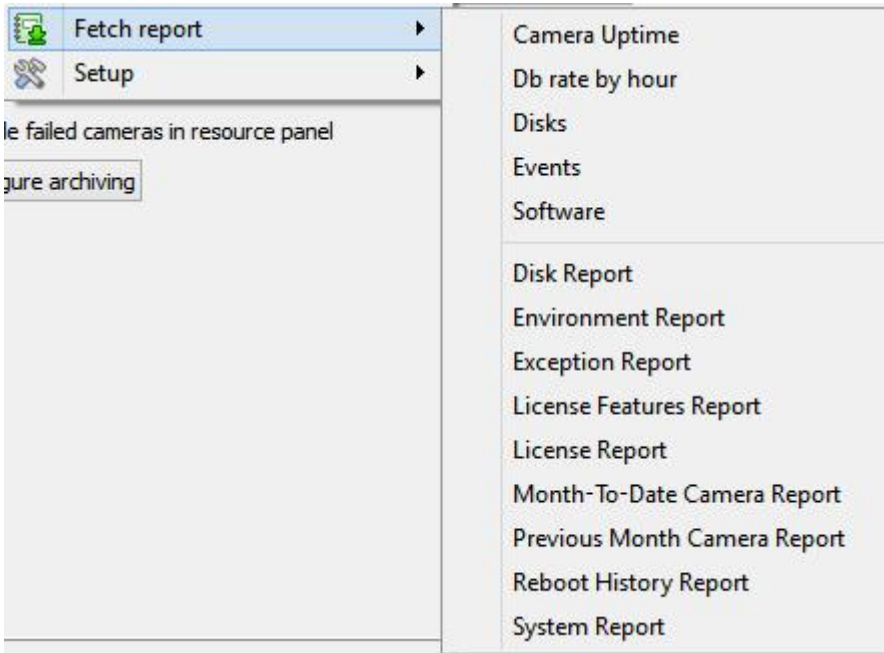


If you would like to print the Report for reference, click on the printer icon.



If you would like to save a digital copy of the Report, click on the disk icon.

) Fetch Report



This menu allows you to pull a full report for the entire Site.

You may select to pull a **Template**, or pull up a quick report based on the list of variables below the border line.

Note: For individual unit reports, and a full description on the nature and details of reports see the **Setup Guide** —> **Configure Servers** —> **Setup Tab: Reports** section of the manual.

) Setup

When selecting **Site**→**Setup**, the menu shown in the image opens up.



Open Setup Tab This will open the main Setup Tab for the Site.

Contacts Here you will be able to add and edit Site Contacts.

Integration Database If you need, or have, a meta database (used for integrations), you may add or edit them here.³

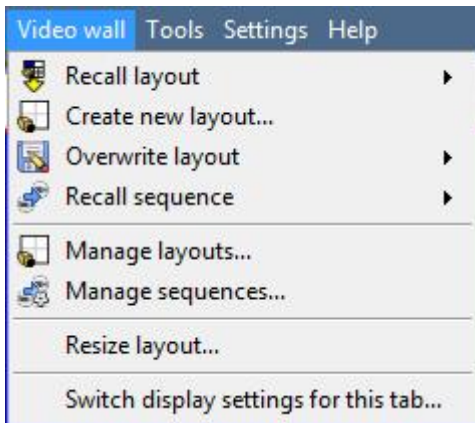
Procedures is a procedure for an operator to follow in a particular event, this may include up to 6 contact people, and written instructions.

Upgrades Will search for upgrades.

Stats this is stats for the local server if it's an NVR, or for the viewing station.

³ The documentation for this is currently in the Integration Section of Configure servers.

e. Video Wall



In pre-**CathexisVision** 2014 software this menu was titled the Layout Menu, and only contained setup information for Layouts.

A **Layout** defines how the cameras appear on the screen, in the Cameras Tab. Including which cameras are shown, and how much space they take up on the screen.

A **Sequence** is a cycle of individual cameras that will run, on a timer, in a single viewing pane, in the Cameras Tab.

The **Switch Display Settings for this tab** will define the behaviour of the currently open Cameras Tab, when video information is sent to the Client Station with an alarm.

Note: this menu option will only be present when you are viewing a Cameras Tab.

) *Layout*

A **Layout** defines how the cameras appear on the screen, in the Cameras Tab. Including which cameras are shown, and how much space they take up on the screen.

) *Create new Layout*

To create a layout, organise your cameras on the screen as you desire (double-left-click to expand; single-right-click to reduce). Then click on **Layouts** → **New**. Give the Layout a name, and click OK. (you can use Layouts created in the Cameras Tab in the Monitors Tab, and Vice Versa.)

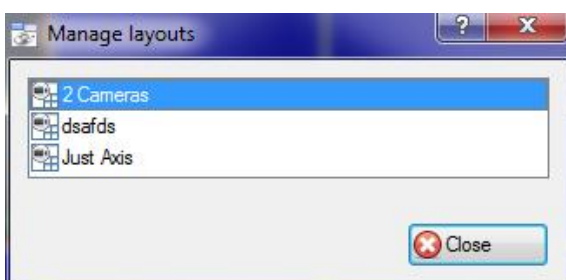
) *Recall a Layout*

To bring up a list of existing Layouts, click on **Recall** and select the layout name that you desire.

) *Overwrite Layout*

Clicking on **Overwrite**, and selecting one of the Layouts in the list, will overwrite that Layout with the current panel organisation.

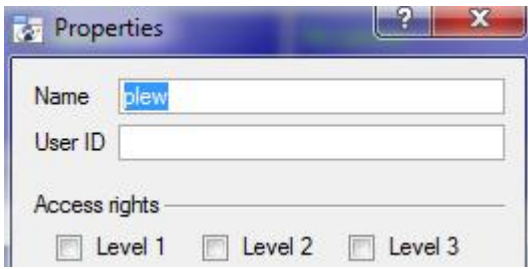
) *Manage Layouts*



Clicking on **Manage** will bring up the list of existing Layouts for you to manage.

From the management list you may either delete the Layout or enter the Layout Properties window.

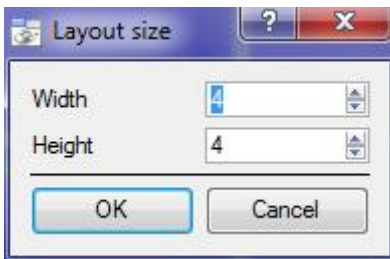
These are both done by right-clicking on the Layout in the list.



In the **Layout Properties** window you may change the Name, and User ID of the Layout, as well as the User Access Level required to view, or edit, the layout.

Note: if you have limited access rights, you won't be able to change these settings.

) *Resize Layout*



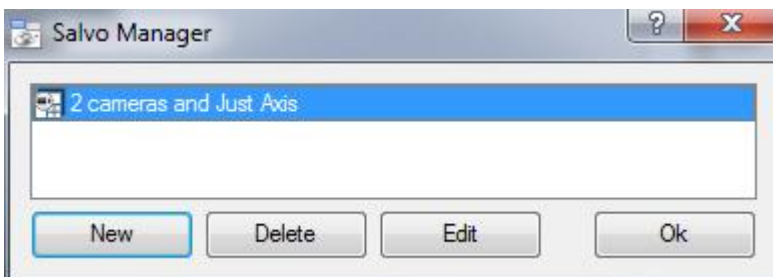
Clicking on **Resize layout...** will give you the ability to change how many cameras are arranged on the screen. You may define how many cameras there are per row, and per column.


The maximum amount of cameras you may have per screen will be an 8*8 matrix. This gives you a Layout with 64 cameras. (This would require an incredibly large screen to be practical though.)

) *Sequence*

A **Sequence** is a cycle of individual cameras that will run, on a timer, in a single viewing pane.

) *Sequence Manager*

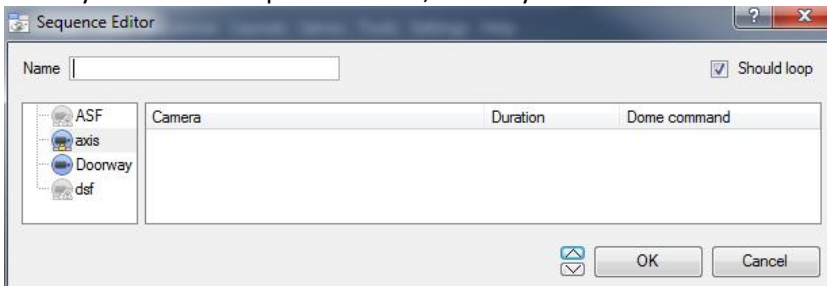


Clicking on the  icon will bring up the Sequence Manager.

To **edit** a Sequence, select the existing Sequence and click Edit. To create a **new** Sequence click on New. This will bring up the **Sequence Editor**.

) *Sequence Editor*

You may access the Sequence Editor, where you can create and edit sequences, via the Sequence Manager.





Name your Sequence appropriately.


The left hand panel will hold a list of available cameras.

The right hand panel will hold a list of cameras that are included in the Sequence.

Sequence Editor Procedures	
Add a camera to a Sequence	You may: -double-click on a camera in the list of available cameras. -Or click-drag one, or multiple cameras, across into the Sequence list.
Remove a camera	Right-click on the camera and select Delete.

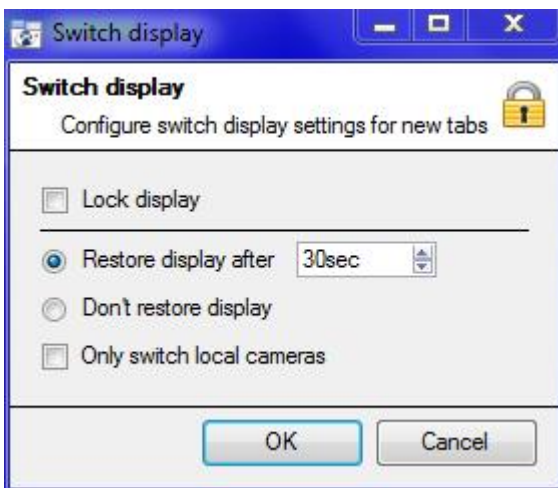
Set the duration of a camera for each loop of the Sequence	-Right-click, and select Set Duration. -Enter the duration in seconds, and click OK.
Looping	If the <input checked="" type="checkbox"/> Should loop option is checked the Sequence will run indefinitely, if it is unchecked the Sequence will run once.
Change the order	Select a camera and use the   arrows to move that camera up or down the order.

) *Recall Sequence*

To recall an existing sequence click on  **Recall sequence** to bring up a list of all existing sequences. Click on the sequence you wish to run.

) *Switch Display Settings For this Tab*

Note: The Switch Display Settings that you set here are for the currently open tab only. To define the default Switch Display Settings for all tabs that are opened, navigate to **Settings Menu** → **Switch Display settings for new tabs...**



Lock Display

Will prevent the Cameras Tab from displaying any video feeds sent to it by the Event.

Restore display after



Will define how long after switching to the Event Cameras the Cameras Tab will return to the original display settings.

Don't restore display

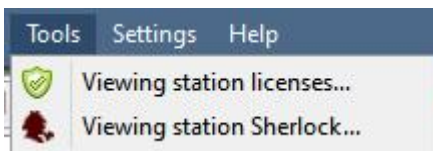
Will leave the Cameras Tab on the Event Cameras until an operator, or administrator, resets the display.

Only Switch Local Cameras

Will only switch to Event cameras originating from a local site.

Note: you may also either lock , or unlock , the currently opened Cameras Tab by clicking on the little lock located at the bottom of the resource panel in the camera tab (Only appears when mouse hovers over it.)

f. Tools

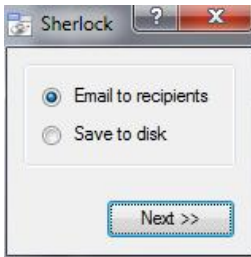


If you are on a client PC it will say **Viewing Station licenses**. If you on the server it will say "**Local server licenses**". You may also retrieve the server licenses from site, or units, by entering the **Setup** → **Configure Servers** → and right clicking on the unit.

) *Licenses*

This will allow you to add a license to the Base Station that you are working on, not to any of the Recording Servers on the Site.

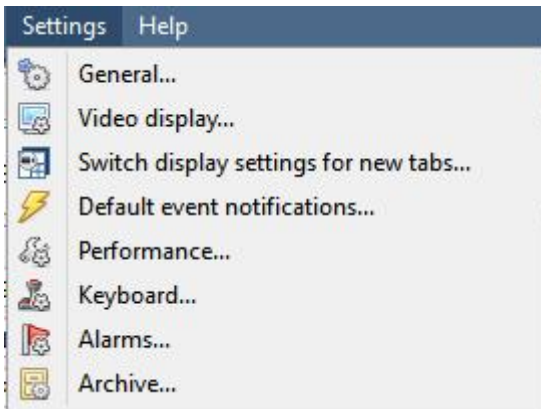
) *Sherlocks*



Sherlock files are a diagnostic tool, used by the Support Desk. The normal procedure is to email the Sherlock file to the Support Desk, with a description of the problem, but you may also save it to disk.

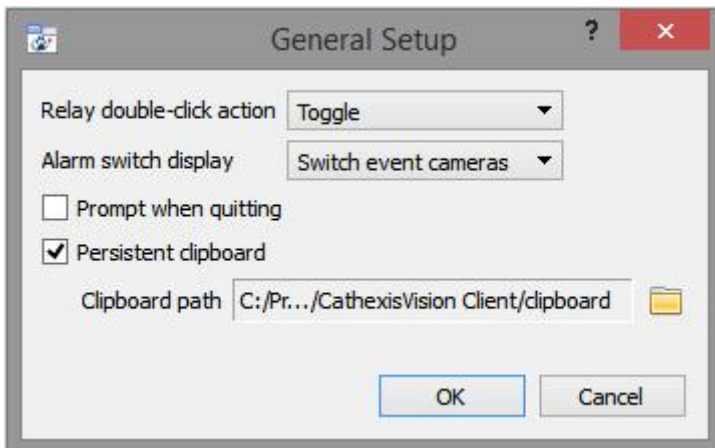
Note: clicking on *Email to Recipients*, will open up your Operating Systems default email client. *Save to Disk* will allow you to save the Sherlock files to any storage attached to your workstation.

g. Settings



This section deals with the General **Settings Menu**.

) *General*



Relay Double Click Action will set whether or not a relay in the Resources Panel, will be changed from its current state, or set to pulse.

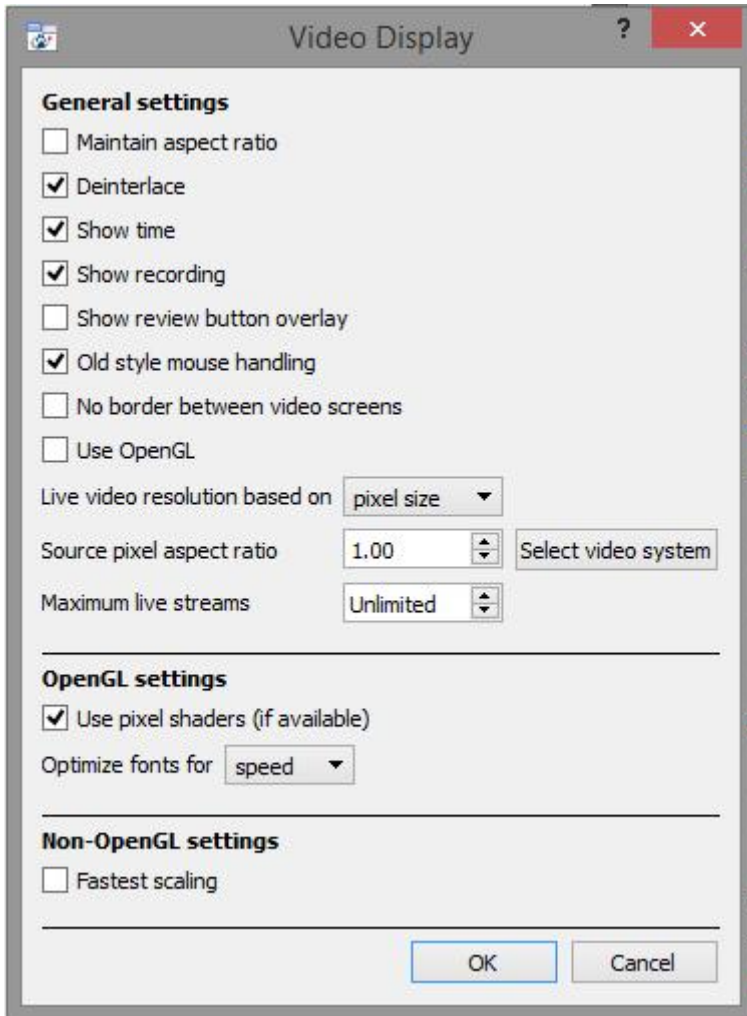
Alarm Switch Display

This defines the GUI behaviour for when a user is handling an Event Alarm. It defines whether or not the display will switch to show the cameras attached to that Alarm.

Prompt When Quitting will prompt you every time you quit **CathexisVision** about whether or not you want the current tabs to be reopened when you next start the program.

Persistent clipboard will persist after closing **CathexisVision**.

) Video Display



OpenGL: A Graphics library...a cross-platform API for writing applications for 2D and 3D graphics. The graphics card utilises the OpenGL, and thus the load will be passed on to the GPU, freeing the load on the CPU.

Pixel shaders: Similar to OpenGL.

Fastest scaling: When the CPU has to be utilised to handle the load, this option helps optimise the instructions for the CPU.

) Switch Display Settings for New Tabs

This will define how your cameras tab responds when there is an event on the site that sends video and information to the Cameras Tab of the viewing client.

Note: The settings here will apply to any new Cameras Tabs, opened after you change the settings.

Maintain aspect ratio: The ratio between the width and the length will be kept constant as the video size changes.

Deinterlacing: A process of converting interlaced video (like analogue) to a non-interlaced form.

Show time: Shows the time on the video.

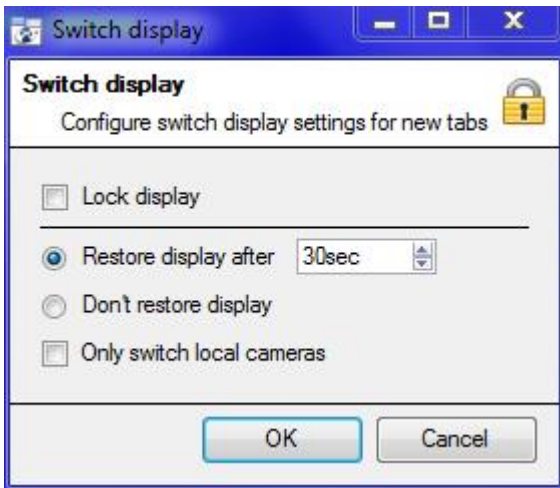
Show recording: indicates when, with a red dot, when the video feed in a panel is currently being recorded.

Show review button overlay: will overlay buttons for review, on mouse-over, on a camera panel when it's video feed is being reviewed.

Live video resolution: Based on either panel size or pixel size.

Source pixel aspect ratio: Will conform the video source's correct aspect ratio, making the object look more real-world. For example, when a video of a perfect circle appears oval on the screen, it is an indication that the aspect ratio might be different from the original source.

Maximum Live Streams. An option to limit the number of live video streams in the **CathexisVision** camera tab. The limit is a global limit and applies across all screens. (On a NVR/DVR this setting is only accessible to an administrator.)



Lock Display

Will prevent the Cameras Tab from displaying any video feeds sent to it by the Event.

Restore display after



Will define how long after switching to the Event Cameras the Cameras Tab will return to the original display settings.

Don't restore display

Will leave the Cameras Tab on the Event Cameras until an operator, or administrator, resets the display.

Only Switch Local Cameras

Will only switch to Event cameras originating from a local site.

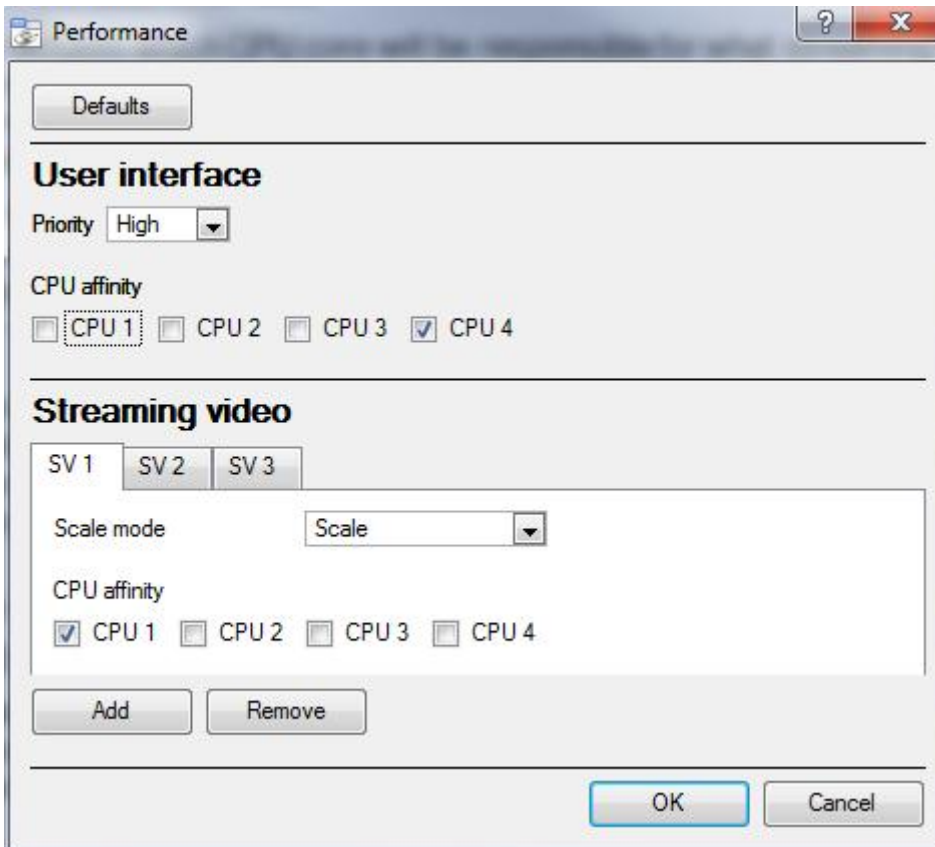
Note: you may also lock , or unlock , the currently opened Cameras Tab by clicking on the little lock located at the end of the Timeline on the Review Controls.

) Default Event Notifications

Here you set what will be the default/global Event Notifications for this Viewing Station.

For more information about Event Notifications, and their Setup, see the section entitled [2.d. Custom Event Notifications](#) (above).

) Performance



Note: the system will calculate defaults that should be optimised already.

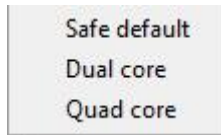
Unless you have an understanding of this technology, and an explicit reason for changing these settings, don't change them.

(1) Defaults:

The system calculates default performance settings based on available CPUs, enabling optimisation of resources even before settings have been manually configured.

Once you explicitly configure the performance settings, the defaults fall away. However, you can recall the defaults by clicking the **Defaults** button > **OK** (you will then lose the customised settings).

Default Options:



When you click on default, you will have the option to choose the default that best suits the system you are on.

Choose safe default if you do not know what system you are on.

(2) User Interface:

What the user sees.

Priority:

The priority setting affects what the user sees as interface. For example, the speed and responsiveness of the interface is influenced by the Priority setting.

CPU affinity with the user interface:

The CPU affinity dictates which CPU core will be responsible for what streaming server. This enables multiple streaming servers without exceeding the processing power of the CPU.

(3) Streaming video:

Here you can add or delete Streaming Video Servers (SVs) to match the available CPUs. A streaming video is responsible for the decompression of the compressed video from camera sources (video is compressed for transporting purposes).

Scale mode:

“Scaling” is the re-sizing of images. For example, the scaling of MPEG images from their default 4CIF down to QCIF display size. Scaling requires processing effort. One of the big advantages of multiple CPU processing is that this effort can be split across the CPUs. Each Streaming Video Server (SV) must be assigned a “Scale Mode” setting, which is the *type* of scaling to be performed by the SV.

Options are:

No scaling (The SV does not scale. Presumably, scaling would be assigned to another SV)

Scaling (The SV scales. If scaling is assigned to every SV, the system will attempt to spread the load)

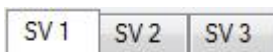
Streaming Video Server (SV):

By default, the system only has one Streaming Video (SV) server. You need to manually create further SVs for further CPUs, so that ultimately there are as many SVs as there are CPUs:

Dual core: SV1, SV2

Quad core: SV1, SV2, SV3, SV4

For example, for a quad processor:



CPU affinity with the streaming video:

Whereas SVs are numbered SV1, SV2, etc, CPUs are numbered CPU0, CPU1, CPU2, etc

The “CPU affinity” maps CPU to SV. For example:

Dual core: SV1 (CPU0), SV2 (CPU1)

Quad core: SV1 (CPU0), SV2 (CPU1), SV3 (CPU2), SV4 (CPU3)

) Keyboard

This option is for if you are adding a keyboard to a Base Station. If you are adding a Keyboard to a Recording Server you will have to do so via **Site—>Open Tab—>Setup—>Configure Servers—>Keyboard**.

Enter in the details relevant to your keyboard.

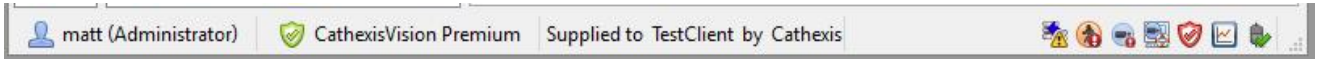
) Alarms

Enter an IP address for a technical alarm server, or gateway, for the viewing software to send alarms to.










) Help

Archive Guide	Will launch a quick guide on archiving.
Local server stats"/"Viewing station stats	Are the statistics for the local server if it's an NVR, or for the Viewing Station. Depending on which unit you are on.
Enable Support User	Note: this will only appear on NVR units. This will enable/disable a special user added for support purposes, when you install CathexisVision NVR
About	Will inform you about the License, the Release version, and the email address for Support.

4 Status Bar



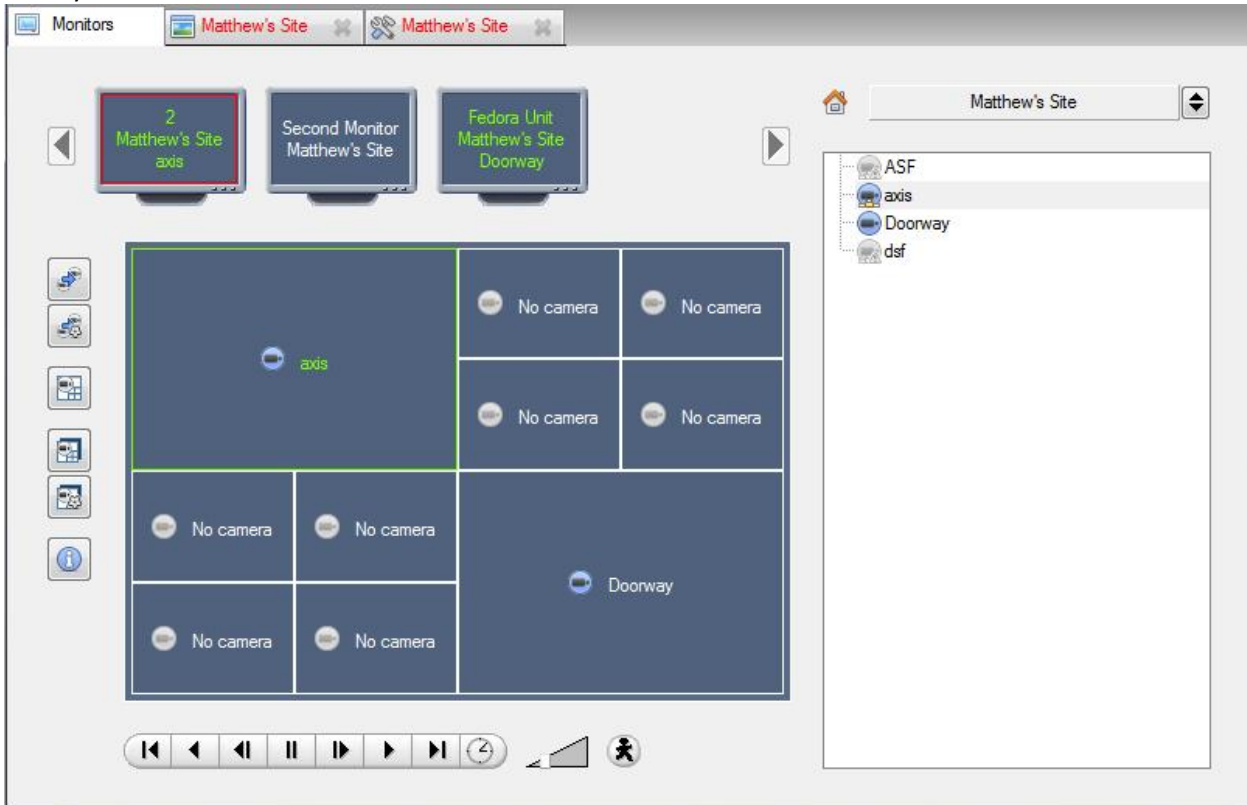
The status bar runs along the bottom of the interface. On the bottom right of the bar are a useful set of notifications. For further details, in the GUI, left-click on a specific icon.

Notification Icon	Notification Description
 dvs (Administrator)	The currently logged in user , and their access level.
 CathexisVision Premium	This represents the Site License .
Supplied to Documentation by Cathexis Internal	The distributor of the license.
	The cameras notification will only appear to alert you when cameras are down. Clicking on it will allow you to see which cameras these are.
	The licensing notification will be permanently present, but will change colour depending on licencing status. Green indicates a healthy licensing status. Orange indicates that there are demo licenses that are due to expire. Red means either missing or expired licenses.
	The performance monitor notification is permanently present, and will allow you to view performance statistics. See the Appendix of this document for a full explanation.
	The connection status icon is permanently present, and indicates the status of the connection to the current site.
	Video Analytics notification. Warns the user when an error has occurred which involves one or more of the video feeds on a site.
	Failover notification will provide information about the status of existing failover servers.
	Failover data merge icon will provide details about current data merge operations.

5 Monitors Tab

The monitors tab is a tab that gives you full control over the Video Wall. Here you can change the layout, and define camera Sequences, and salvos.

You will not see any video playing on the interface. You will see the names of cameras where they are placed on the layout.



Open a Site on a Screen

The list of monitors that you see will be representative of the number of monitors that have been added to servers on the site.



To Open a monitor from a site, select one of the available Monitors. Then click the Sites list:



Then select your site.

The Monitor with a red border will be the Monitor whose camera Layout is displayed below it.

Layout

A layout defines how the cameras appear on the screen. This includes which cameras are present, to how much of the screen an individual camera takes up.

Create a Layout

To create a layout, organise your cameras on the screen as you desire (double-left-click to expand; single-right-click to reduce). Then click on **Layouts** → **New**. Give the Layout a name, and click OK. (you can use Layouts created in the Cameras Tab in the Monitors Tab, and Visa Versa.)

Edit an Existing Layout

Setup the cameras as you desire (double-left-click to expand; single-right-click to reduce). Then click **Layouts—>Save As**. Then select the Layout that you wish to overwrite, and click okay.

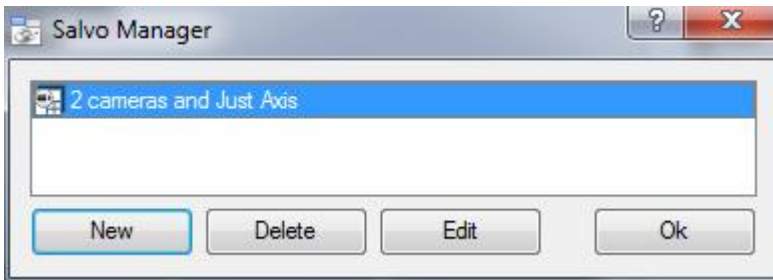
Recall a Layout

To bring up a particular layout on a screen, click on the icon,  and select the layout name that you desire.

) *Sequence*

A Sequence will run a set of cameras, in a single camera panel.

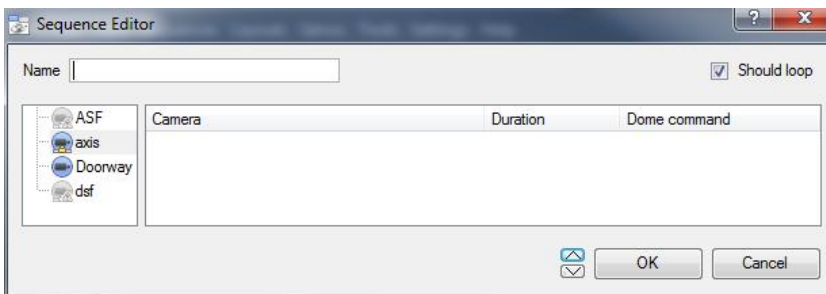
) *Sequence Manager*



Clicking on the  icon will bring up the Sequence Manager.

To **edit** a Sequence, select the existing Sequence and click Edit. To create a **new** Sequence click on New. This will bring up the **Sequence Editor**.




) *Sequence Editor*



Name your Sequence appropriately.

The left hand panel will hold a list of available cameras.

The right hand panel will hold a list of cameras that are included in the Sequence.


Sequence Editor Procedures	
Add a camera to a Sequence	You may: -double-click on a camera in the list of available cameras. -Or click-drag one, or multiple cameras, across into the Sequence list.
Remove a camera	Right-click on the camera and select Delete.
Set the duration of a camera for each loop of the Sequence	-Right-click, and select Set Duration. -Enter the duration in seconds, and click OK.
Looping	If the <input checked="" type="checkbox"/> Should loop option is checked the Sequence will run indefinitely, if it is unchecked the Sequence will run once.
Change the order	Select a camera and use the   arrows to move that camera up or down the order.
Run a Sequence	- Click on a camera panel. - Click on  - Select the relevant Sequence from the drop down menu.

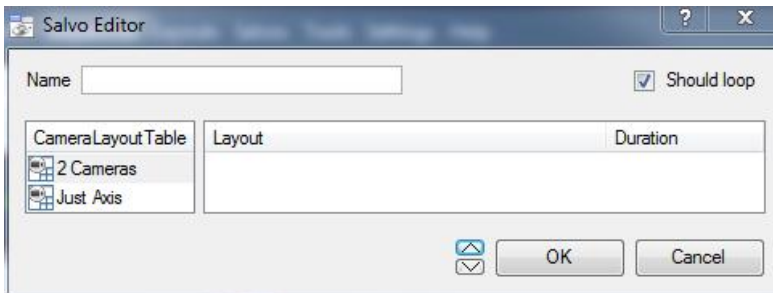
) *Salvo*

A Salvo is a set of Layouts. This means that the Layout of cameras on the monitor will change, running through a set order, using the pre-defined Layouts.

) *Salvo Manager*






Click on the  icon. This will bring up the Salvo Manager. To **edit** a Salvo, select the existing Salvo and click edit. To create a **new** Salvo click on New. This will bring up the Salvo Editor.



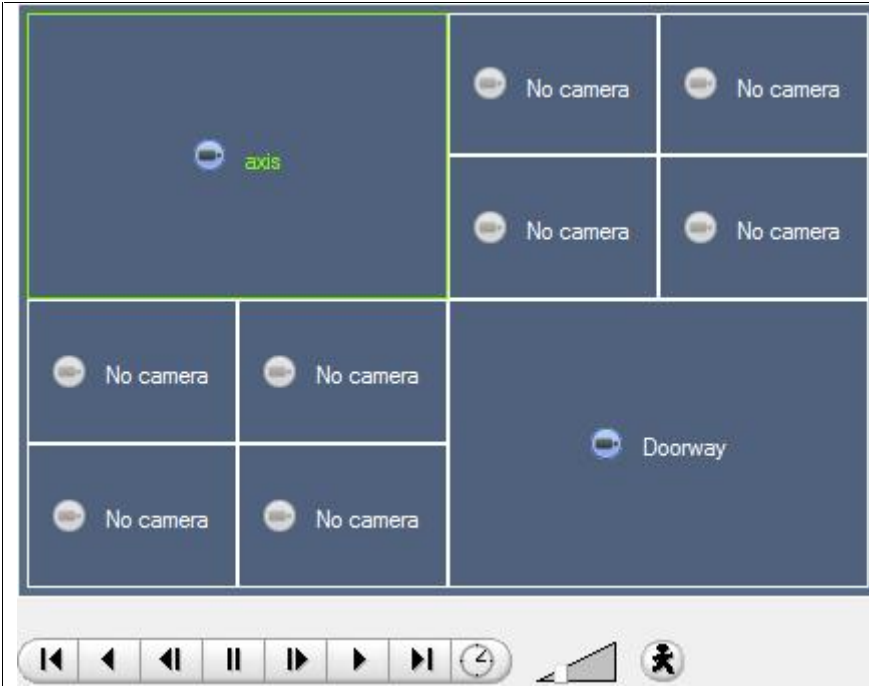
Name your Salvo appropriately.

The left hand panel will hold a list of available Layouts.

The right hand panel will hold a list of Layouts that are included in the Salvo.

Salvo Procedures	
Add a Layout to a Salvo	You may: -double-click on a Layout in the list of available Layouts. -Or click-drag one, or multiple Layouts, across into the Salvo list.
Remove a Layout	Right-click on the Layout and select Delete.
Set the duration of a Layout for each loop of the Salvo	-Right-click, and select Set Duration. -Enter the duration in seconds, and click OK.
Looping	If the <input checked="" type="checkbox"/> Should loop option is checked the Salvo will run indefinitely, if it is unchecked the Salvo will run once.
Change the order	Select a Layout and use the   arrows to move that Layout up or down the order.
Run a Salvo	- Click on a Layout panel. - Click on  - Select the relevant Salvo from the drop down menu.

) *Virtual Cameras interface*



The virtual cameras interface is the interface where you

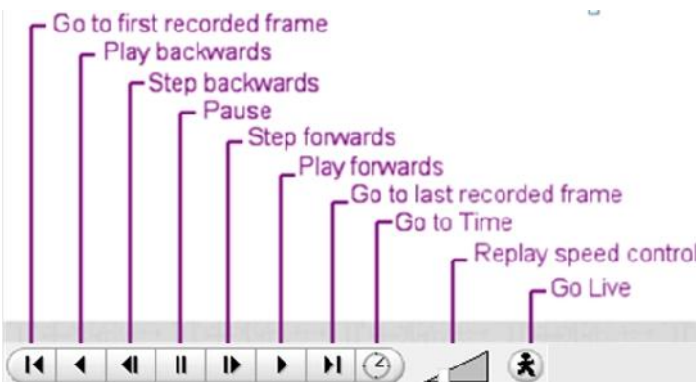
-) See the Layout that the cameras will take on the Monitor that you have selected.
-) See what cameras are in which panels.
-) May control the overlays on each camera
-) And use the Playback controls to review video on the Monitor.

) *Individual Panel Settings*

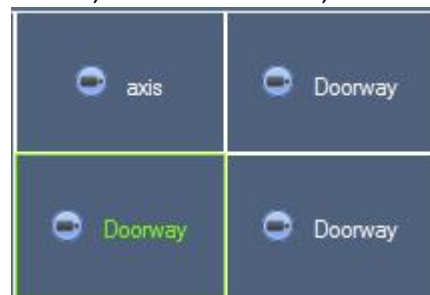
To change the settings of an individual panel middle-click on the panel, this will bring up the following menu:

Set no camera	Set No Camera will make this panel blank
Review camera	This will bring up the recordings of the selected camera. For information on reviewing the camera see the section below, on Review Controls
Next video format	This will cycle through the available video feeds that are available on the selected camera.

) *Review Controls*



Note: When a camera has been selected its border, and camera name, will become Green:



6 Cameras Tab

CathexisVision offers the installer two useful tools for retrieving visual information about cameras, as they are streaming information.

You need to be in the Cameras Tab, viewing video, to carry out these steps.

a. Statistics and Information

) *Resolution and Bitrate*



By pressing CTRL-R you will bring up the Bit Rate, and Resolution information of the feeds. You can see this in the yellow text in the image to the left.

On the top right you will see the **resolution** of the feed currently being viewed

On the bottom left you will see two numbers. The number in brackets is the **bitrate**; to the left of this number is the **Frames Per Second Rate**.

) *General Camera Information*



By pressing CTRL-I you will bring up the general camera information overlay.

Unit is the unit this camera has been added to.

Camera is the cameras name.

Index is a number given by the NVR to identify this camera.

Format this is the format the video is streaming in.

Type this is the type of the device the camera is.

Contact this is the address of the server the camera is attached to.

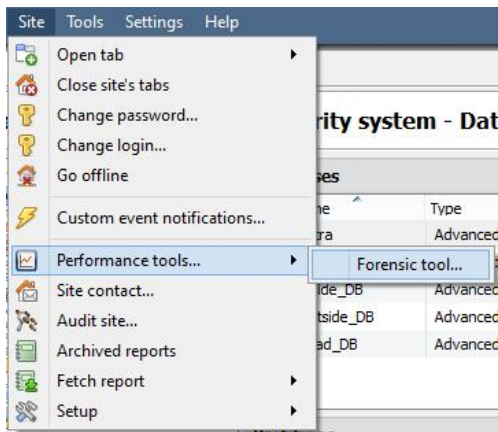
Stream Profile this is the streaming profile of the video feed.

APPENDIX 1 CathexisVision Forensic Tool

a. Introduction

The Forensic tool is used to troubleshoot and obtain historical network, storage, event, camera streaming, people counting, and other valuable data.

Note: The Forensic Tool will only be available in **CathexisVision 2014.2 (Service Pack 2)** and onwards.



Once you have made a connection to the intended camera site or NVR unit, you can open the forensic tool by selecting the “**Site**” menu option, scrolling down to the “**Performance tools**”, and selecting the “**Forensic tool...**” option.

Note: You need to be logged in with administrative rights to gain access the Forensic Tool.

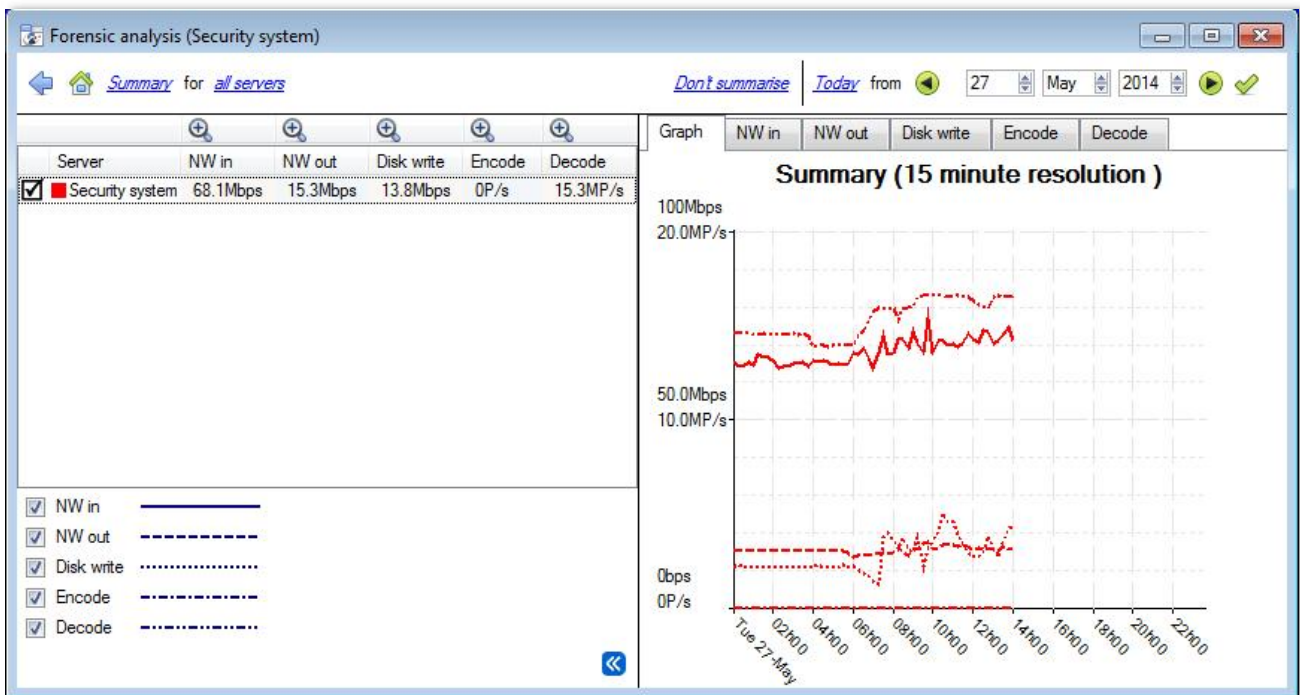


Figure 1 Main Forensic Window

The below sections will server to explain the interface in Figure 1, and further, how to go about using this tool.

b. Data Values Used:

<input type="checkbox"/> NW in	_____
<input type="checkbox"/> NW out	_____
<input type="checkbox"/> Disk write	_____
<input type="checkbox"/> Encode	_____
<input type="checkbox"/> Decode	_____

NW in	Network In (Mbps). This would be the video, streaming in from IP cameras.
NW out	Network out (Mbps). Video going out. Remote viewing Client PCs.
Disk write	Disk writing speed in Mbps. The rate writing captured video stream to local/network storage.
Encode	Encoded pixel rate. VOM1512/MPEG4 compression for recording/streaming. Note: This is NOT the transcoded live streaming.
Decode	Decoded pixel rate. For analytics the compressed video is decoded into raw.

c. Date/Time Selection

You have two ways to select the graphing period:

) Time Bar Selection

[Don't summarise](#) | [6 hours](#) from  08h00  27  May  2014  

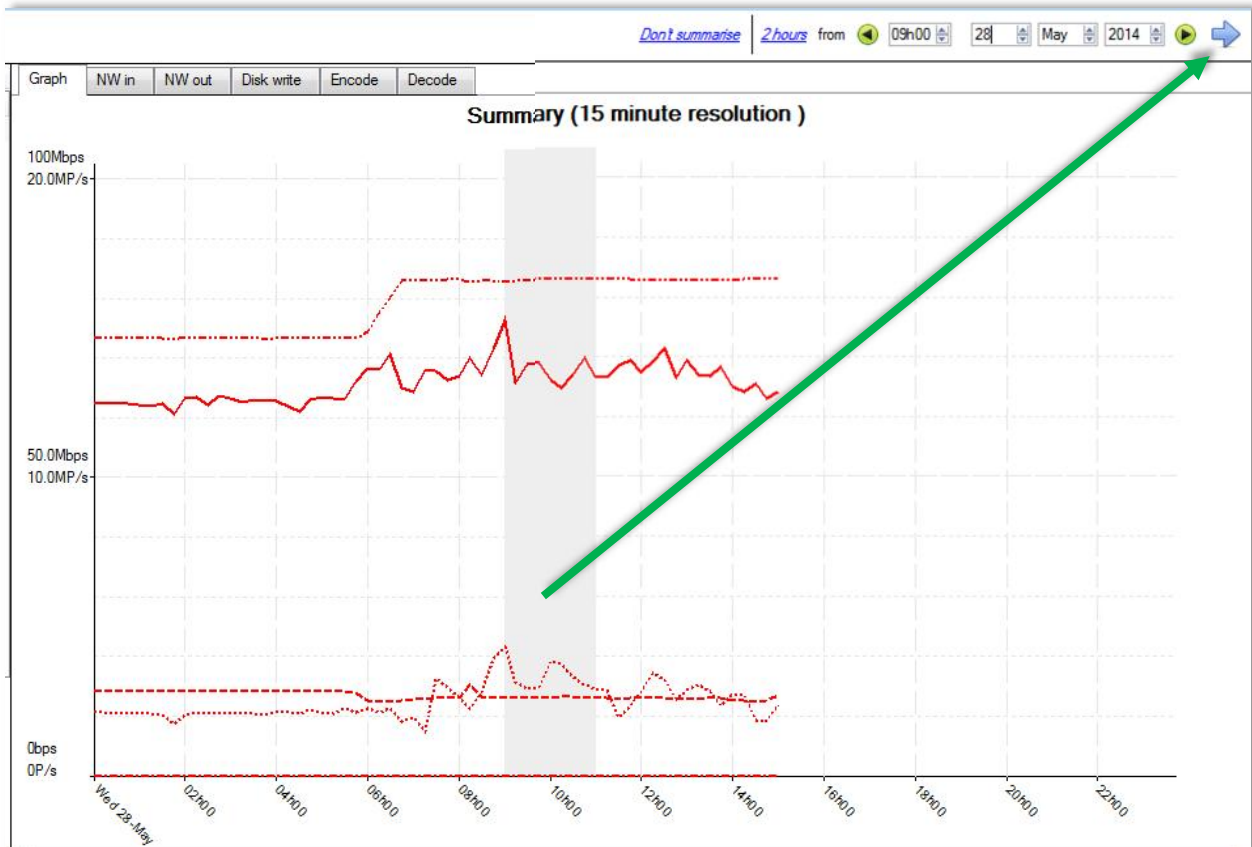
Choose a date, and time, as the starting point for your graph. Then select to fetch data [6 hours](#) from the selected date/time.

) Time Frame Selection

- 2 hours
- 6 hours
- 12 hours
- 24 hours
- 1 day
- 2 days
- 3 days
- 7 days
- 14 days
- 28 days
- Last 2 hours
- Last 6 hours

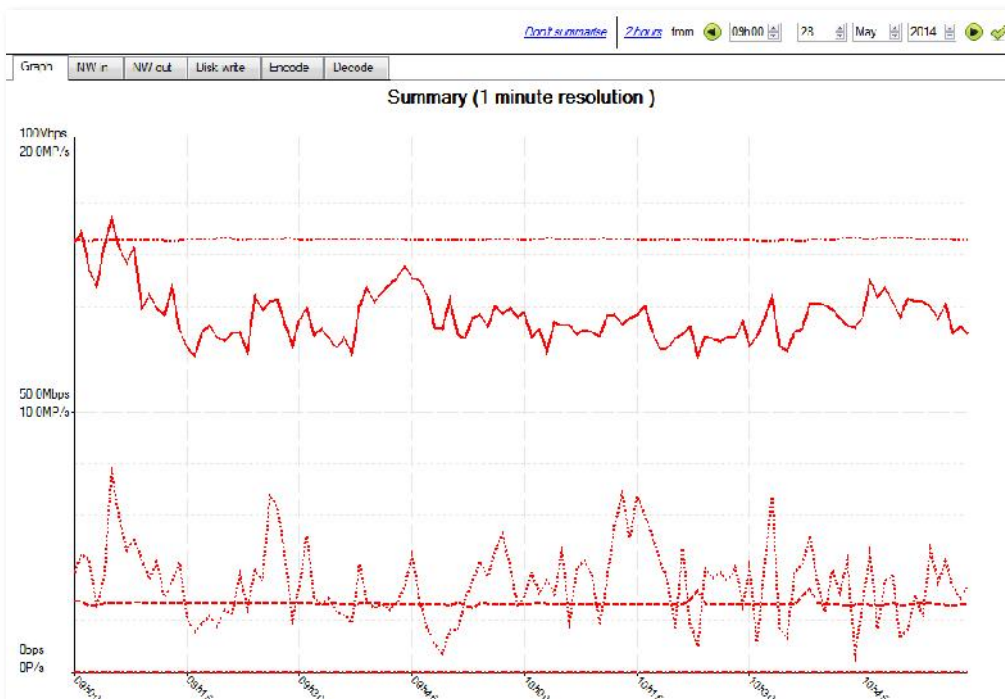
Or select to graph the “Last 6 hours”, “Last 14 days”, etc. This will automatically move the date/time to the required position to reflect the selected period.

d. Graph Window



Zoom in on a Period

Zoom in on a desired period by holding down your left mouse button, at the starting or ending point, and move your mouse right or left. The selected area's colour will become grey. Once you are happy you can zoom in on the selected area by selecting the blue arrow (→). This will give a detailed view of the zoomed-in time period:



) *See the Data Values*

You can get to the actual data values for the various data sets by selecting the “NW in” column as shown in the example below:

The screenshot shows a monitoring interface with a tabbed menu at the top containing 'Graph', 'NW in', 'NW out', 'Disk write', 'Encode', and 'Decode'. The 'NW in' tab is selected. Below the menu is a table with the following data:

Time	Security system
2014-06-03 00:00:00	75.9Mbps
2014-06-03 00:15:00	75.5Mbps
2014-06-03 00:30:00	76.5Mbps
2014-06-03 00:45:00	74.9Mbps
2014-06-03 01:00:00	74.9Mbps
2014-06-03 01:15:00	75.0Mbps
2014-06-03 01:30:00	75.0Mbps
2014-06-03 01:45:00	74.7Mbps
2014-06-03 02:00:00	75.8Mbps
2014-06-03 02:15:00	75.4Mbps
2014-06-03 02:30:00	74.7Mbps
2014-06-03 02:45:00	75.5Mbps
2014-06-03 03:00:00	73.7Mbps
2014-06-03 03:15:00	73.1Mbps
2014-06-03 03:30:00	75.9Mbps
2014-06-03 03:45:00	76.1Mbps
2014-06-03 04:00:00	75.9Mbps
2014-06-03 04:15:00	77.4Mbps
2014-06-03 04:30:00	75.1Mbps
2014-06-03 04:45:00	75.2Mbps
2014-06-03 05:00:00	75.6Mbps
2014-06-03 05:15:00	75.6Mbps
2014-06-03 05:30:00	74.4Mbps
2014-06-03 05:45:00	77.2Mbps
2014-06-03 06:00:00	81.5Mbps
2014-06-03 06:15:00	81.5Mbps
2014-06-03 06:30:00	78.9Mbps
2014-06-03 06:45:00	75.4Mbps
2014-06-03 07:00:00	68.6Mbps
2014-06-03 07:15:00	69.5Mbps
2014-06-03 07:30:00	74.2Mbps

At the bottom left, there is a checkbox labeled 'Data in columns' and a checked checkbox labeled 'Show units'. At the bottom right, there is a yellow 'Export' button.

) *Export as a Comma Separated Values (CVS) file*

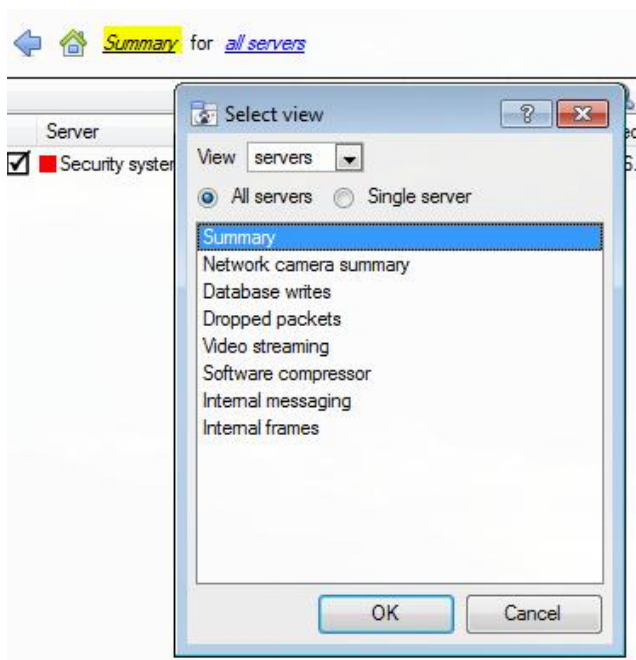
The screenshot shows Microsoft Excel with the 'HOME' tab selected. The data from the previous table is imported into the spreadsheet as follows:

	A	B
1		Security system
2	2014/06/03 00:00	75.9Mbps
3	2014/06/03 00:15	75.5Mbps
4	2014/06/03 00:30	76.5Mbps
5	2014/06/03 00:45	74.9Mbps
6	2014/06/03 01:00	74.9Mbps
7	2014/06/03 01:15	75.0Mbps
8	2014/06/03 01:30	75.0Mbps
9	2014/06/03 01:45	74.7Mbps
10	2014/06/03 02:00	75.8Mbps

You can also export the data to a CVS file. See bottom right “Export” shortcut highlighted in yellow. You can also choose to disable the “Show units” option below if you only need to import the actual data into Excel. See below the exported CVS file opened in Excel.

e. Selected Views

) Summary View, of Servers



The default view when opening the forensic tool is the “All servers” summary view:

You can change this view by selecting the available options for the Servers view below, for example “Summary”, “Network camera summary”, etc.

As already indicated the “Servers” view has a list of data sets, which you choose from. We will discuss the “X axis” or data sets available for the viewing options. You can select to view data for all servers, part of the site, or a single server.

) Network Camera Summary

This provides the **total network throughput**, the **drop ratio**, and a count of **camera stalls** detected for all IP cameras connected to the unit/s.

Variable	Unit	Descriptions
Bitrate	Mbps	Total bitrate of all IP cameras for selected unit/s.
Drop ratio	1:200000	Means 1 dropped packet for every 200000 packets received.
Stalls	Number	A stall is when cameras are not reachable for more than 5 seconds.

) Database Writes

The recording process receives video data from the cameras. The video data gets cached to local memory (Shared memory – SHM), and from there the data gets read and written to storage. Bottlenecks could be caused by slow or faulty storage/equipment.

Variable	Unit	Descriptions
Write bitrate	Mbps	Rate of writing video footage to storage.
Write Drops	1:200000	Disk writing drops. 1 data item dropped for 200000 written to disk.
SHM Drops	1:100000	Items dropped because the shared memory wrapped - the writes couldn't keep up with the data arriving. 1 item dropped for 100000 items written out of memory.

) Dropped Packets

Variable	Unit	Descriptions
Network	Number	Packets dropped on the external network (i.e. from cameras to the Recorder).

Internal	Number	Internal UDP packets dropped between servers (internal software messaging)
.Frames	Number	Video frames dropped internally, when being passed from process to process.

Note: For the “Number” or X axis value, 200k would indicate 200 000 packets.

) *Video Streaming*

Variable	Unit	Descriptions
Sent	Mbps	Video streaming data sent out from the unit (for live viewing).
Received	Mbps	Video streaming data received into the unit (for live viewing).
Decoded	P/s	Pixels per second decoded for live.

Note: MP/s indicates 1000 000 Pixels per second.

) *Software Compressor*

Variable	Unit	Descriptions
Encoded	P/s	Encoded pixel rate. VOM1512/MPEG4 compression for recording/streaming Note: It is NOT the transcoded live streaming.
Decoded	P/s	Decoded pixel rate. For analytics the compressed video is decoded into raw.
Encode efficiency	%	% of frames encoded, ideally 100%. (Less means frames have been dropped)
Decode efficiency	%	% of frames decoded, ideally 100%.

Note: The encoding done by the HTML server is not accounted for at present.

) *Internal Messaging*

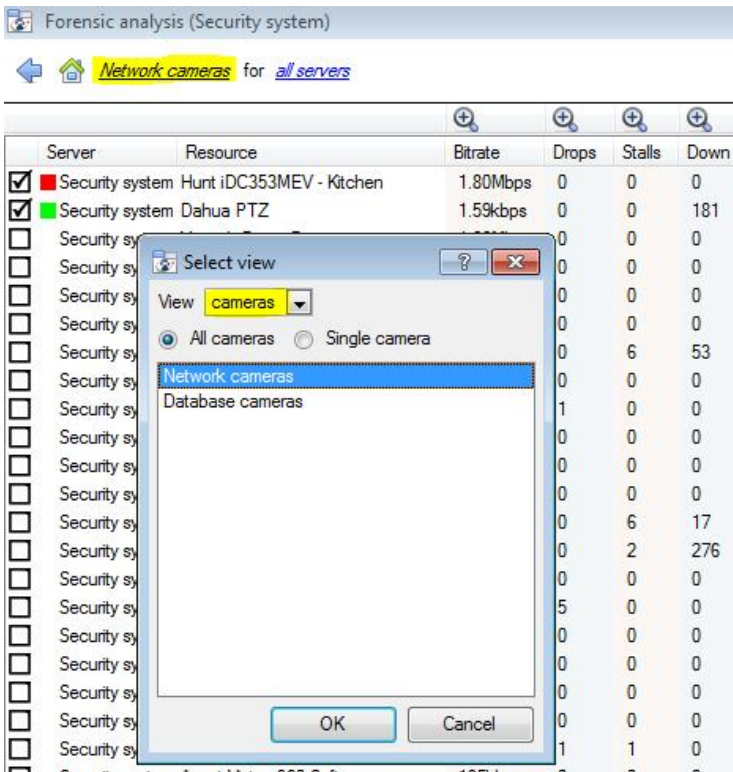
Variable	Unit	Descriptions
Missed	Number	How many UDP packets between processes have been dropped, hopefully 0.
Received	Number	How many UDP packets have been sent between processes
Logs	Number/min	How many logs have been sent to the logger per minute

) *Internal Frames*

Internal frames passed between internal processes.

Variable	Unit	Descriptions
Missed	Number	Video frames dropped.
Received	fps	Received video frames

Network Camera View, of Cameras



Change the Servers view to “Network cameras” by first selecting the “Cameras” View option as shown below. This will give you camera-specific values.

The “cameras” view has a list of data sets which you can choose from. The “X axis”, or data sets available, for the “cameras” view will be discussed. You can select to display “All cameras”, or a “Single camera”.

Network Cameras

Variable	Unit	Descriptions
Bitrate	Mbps	Total bitrate for selected cameras.
Drops	Number	The number of dropped packets, for each camera for selected time period.
Stalls	Number	When cameras are not reachable for more than 5 seconds.
Down	Number	The number of seconds the cameras have been down in a time bucket. So if the bucket is 15 minutes you would expect it to be around 900 if it was down for the whole time.

Database Cameras


Variable	Unit	Descriptions
Bitrate	Mbps	Total bitrate of selected cameras.
Bytes to disk	Bytes	Bytes written do disk.
Down	Number	The number of seconds the selected cameras have been down in a time bucket. So if the bucket is 15 minutes you would expect it to be around 900 if it was down for the whole time.

Events View, of Cameras

Variable	Unit	Descriptions
Event Count	Number	Number of events per camera for the selected period.

f. Quick View



You can quickly access performance information from the **CathexisVision** interface. In the bottom right hand corner you will see the  icon. Left-click on this icon.




Network in
84.1 Mbps


Network out
3.20 Mbps






Database write
21.0 Mbps



Encoding
0 P/s

Decoding
16.5 MP/s

  [Show details](#) 

Clicking on the  icon will cause the image to the left will appear. This shows live information about the system. If you click on [Show details](#) it will become the image below. The show details info can be looked further into by clicking on the information that is hyperlinked. In the below image these are **Network in** and **Network out**. Following these links will take you to further information about what is causing the network traffic.

	<u>Network in</u>	<u>Network out</u>	Database write	Encoding	Decoding
Security system	113Mbps	2.31Mbps	28.6Mbps	0P/s	16.7MP/s
					



  [Show summary](#)

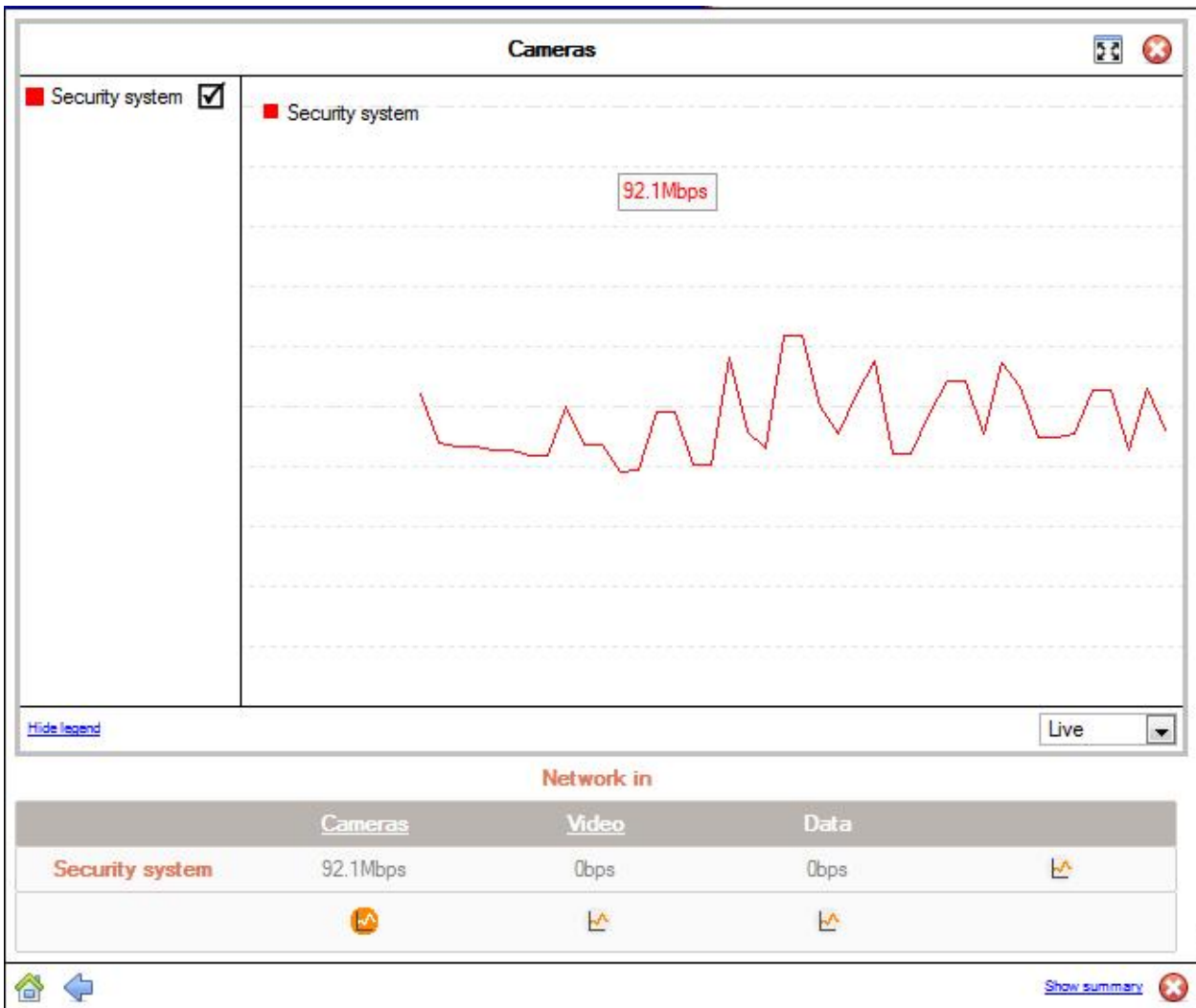
For example clicking on **Network in** reveals the following:

Network in

	<u>Cameras</u>	<u>Video</u>	Data
Security system	97.9Mbps	0bps	0bps 

) *Graphing the Quick View Data.*

You may graph any of the information in this quick view by clicking on the relevant  icon. Once you are viewing the graph the icon will change to .




) **Live or Historic**



Once the graph window has popped up you may select between viewing the live data, or historic data.

This is done by clicking on the drop down menu, found on the bottom right of the graph window.

) **Multiple Graphs**

You may view multiple graphs by disconnecting the current graph. This is done by clicking on the  icon, found at the top right of the graph window.

g. Examples of How to Interpret the Graph and Columned Values

) **Example 1: Investigate Disk Writing Throughput**

You can chose to only display the disk writing graph. Check the “Disk write” checkbox, on the bottom left hand corner, and deselect the rest. This will allow you to plot the disk writing graph, exclusively, on the right hand side. You can also select the period “Today” (highlighted in yellow) for the disk writing throughput.

If you move your mouse to the left plane, away from the graph, the columned values on the left would be the **average disk writing throughput** for the selected period. You can also expand the “Disk write” column, to get the minimum and maximum values for the selected period. They are also highlighted on the graph in Figure 2 (below).

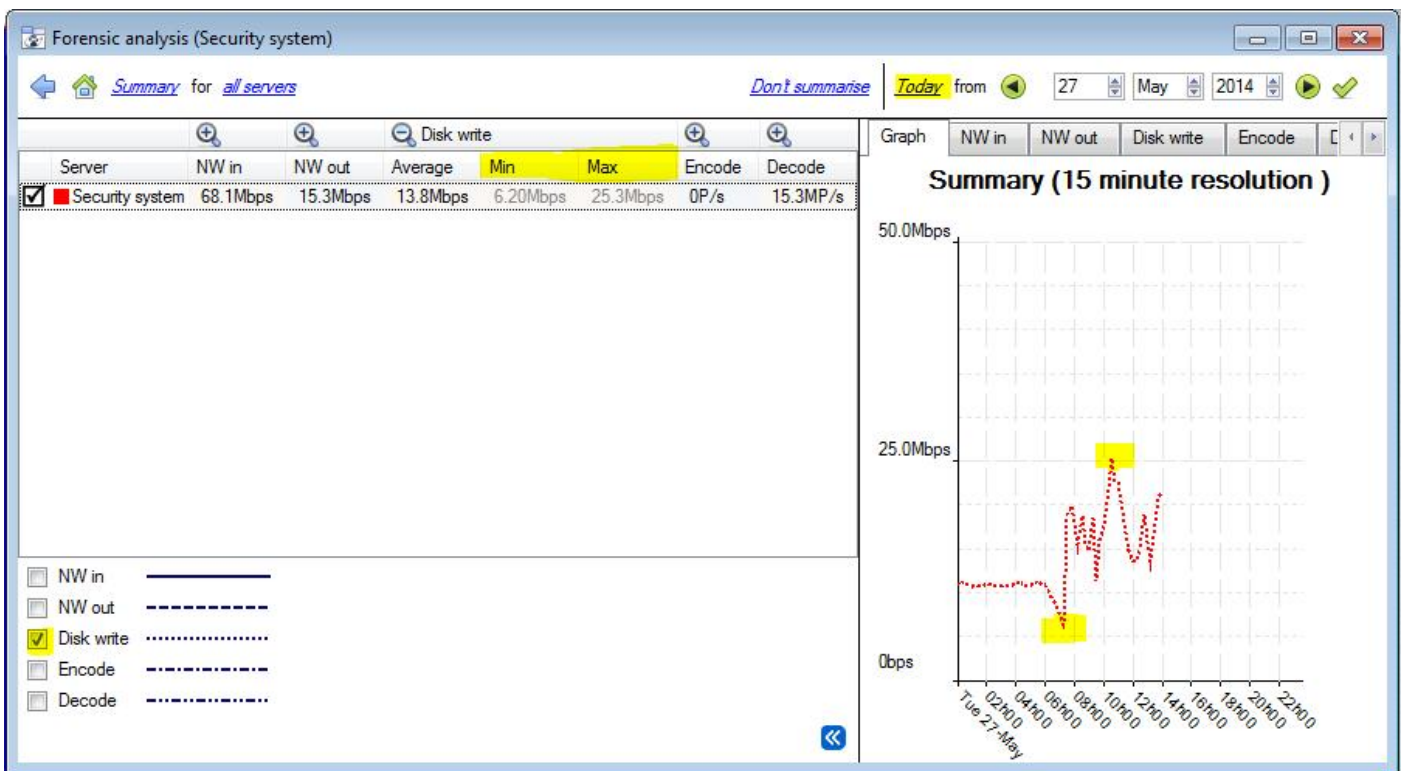


Figure 2

Note: These 2 examples are just the process to filter out required information. Other system data can be retrieved in a similar fashion.

) Example 2: Investigate Network Loss Issues on Selected Cameras

) Scenario

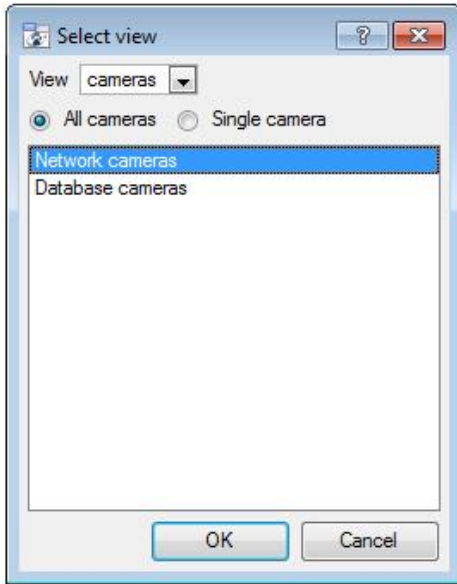
The client has indicated that the live camera views on selected cameras are tearing and there are recording gaps. The camera resources on the right hand side of the **CathexisVision** indicates low, moderate and high packet loss. The forensic tool can help highlight the times when the packets failed, and also the magnitude.

The Forensic tool is **only one** of the possible tools you can use to measure network loss. Other tools could be network switches, with port statistics; or packet analysing software: tcpdump for Linux/NetBSD and Wireshark for Windows - to capture and analyse RTP (RTSP) traffic loss. Also refer to the “**stats**” page for network information. It will give you real time packet loss statistics and more detailed video streaming parameters.

Packet loss, on selected cameras, could point to one segment of the network. For example: a segment over a wireless link. It is advisable to create a detailed network layout diagram, of the site, with all the segments and connected IP devices visible on the map. This will help isolate network issues faster. Packet loss on specific camera models could also present itself, when old camera firmware is used. Make sure you update the camera firmware to eliminate, or rule this out.

) **Method**

- 1.) Change the view to “cameras”, and then select “**Network cameras**” from the list:



- 2.) To inspect packet loss on all the cameras for the last day, change the period selector to display “**Yesterday**”:



- 3.) You can sort the dropped packets on the left hand column view, by clicking on the “**Drops**” column header, as indicated below in yellow:

← 🏠 [Network cameras](#) for [all servers](#)

Server	Resource	Bitrate	Drops	Stalls	Down
<input type="checkbox"/>	Security system Surveon - rear rubbish	10.7Mbps	60	0	0
<input type="checkbox"/>	Security system Samsung SNV-7080	2.01Mbps	15	3	50
<input type="checkbox"/>	Security system Ganz ZN-C2M Dining Area	864kbps	13	0	0
<input type="checkbox"/>	Security system Vista VK2-1080VRD S/w	5.29Mbps	1	0	0
<input type="checkbox"/>	Security system Vista VK2-2MPVRD upstairs	3.40Mbps	1	0	0
<input type="checkbox"/>	Security system Sony SNC-CH120-Sales Marketin	2.77Mbps	1	0	0
<input type="checkbox"/>	Security system Axis M5013 Demo Room (D Unit)	44.1kbps	0	0	0
<input type="checkbox"/>	Security system SAM2101 downstairs balcony	4.62Mbps	0	0	0
<input type="checkbox"/>	Security system SAM3104 Road cam up	328kbps	0	1	2918
<input type="checkbox"/>	Security system Sony DH240 Stairscaze	735kbps	0	0	0
<input type="checkbox"/>	Security system SAM3104 Road cam gate	1.82Mbps	0	2	2694
<input type="checkbox"/>	Security system JVC VN-T216VPRU Cat.Africa	255kbps	0	0	0
<input type="checkbox"/>	Security system Sony DH120 Upstairs B/door	1.01Mbps	0	0	0
<input type="checkbox"/>	Security system Vista 540VRD Cat.Africa	2.13Mbps	0	0	0
<input type="checkbox"/>	Security system Hunt iDC353MEV - Kitchen	1.90Mbps	0	0	0

- 4.) In order to graph the cameras, select them on the top left hand side. Here we will look at the first 3 cameras:

Server	Resource	Bitrate	Drops	Stalls	Down
<input checked="" type="checkbox"/>	Security system Surveon - rear rubbish	10.7Mbps	60	0	0
<input checked="" type="checkbox"/>	Security system Samsung SNV-7080	2.01Mbps	15	3	50
<input checked="" type="checkbox"/>	Security system Ganz ZN-C2M Dining Area	864kbps	13	0	0
<input type="checkbox"/>	Security system Sony SNC-CH120-Sales Marketin	2.77Mbps	1	0	0
<input type="checkbox"/>	Security system Vista VK2-1080VRD S/w	5.29Mbps	1	0	0

- 5.) You only need to view the network “Drops”, on the selected cameras. So, hide the **Bitrate**, **Stalls** and **Down** time:

Bitrate
 Drops
 Stalls
 Down

The figure below shows packet loss on the “Security System Surveon” camera. It indicates 60 packets being dropped at around 10 am:

